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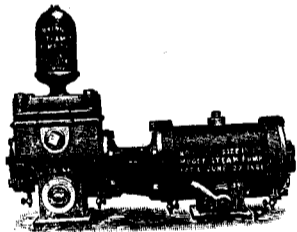
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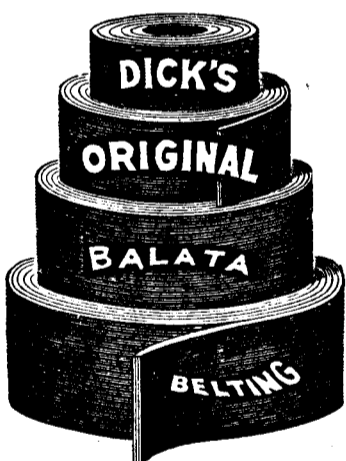


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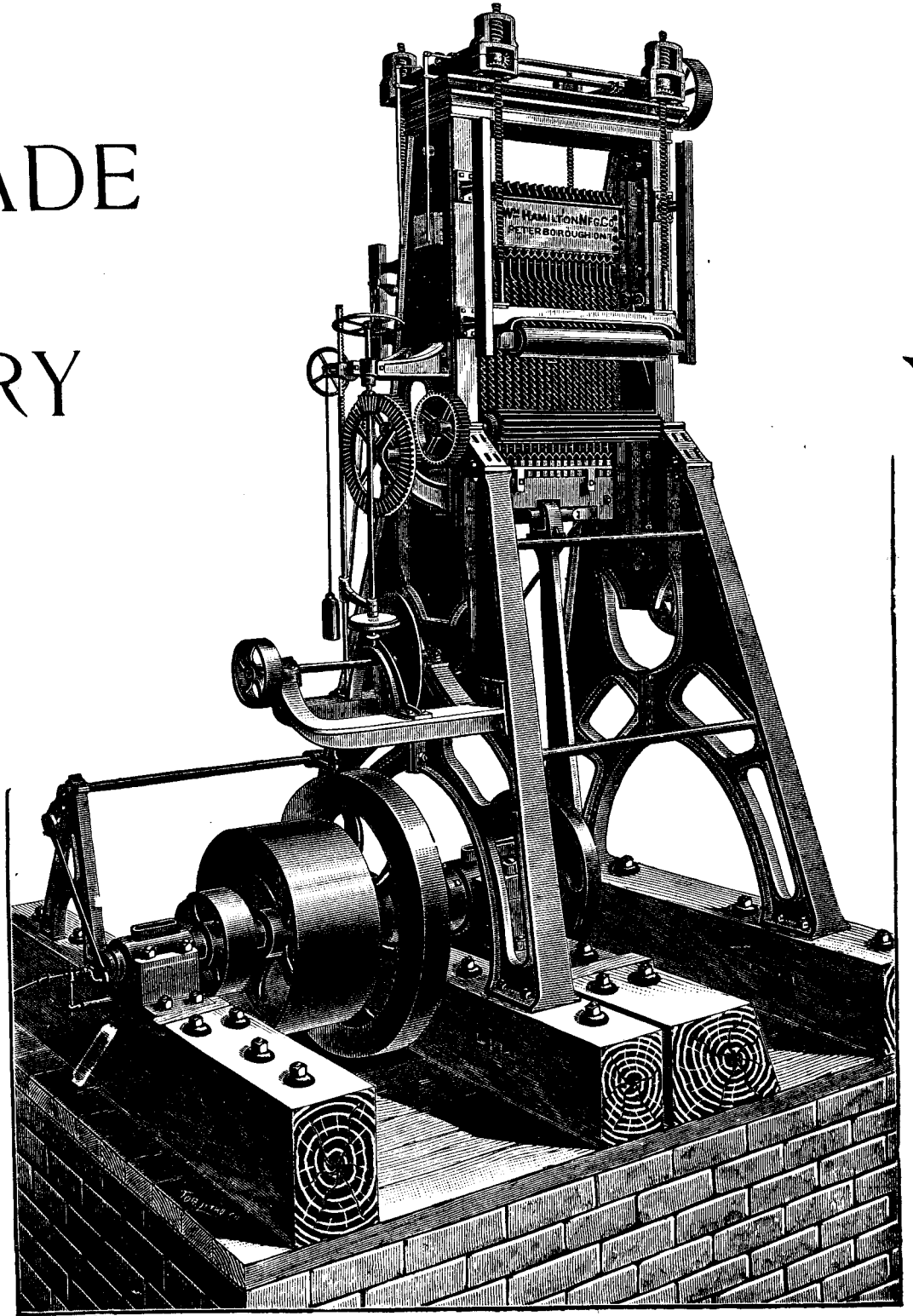
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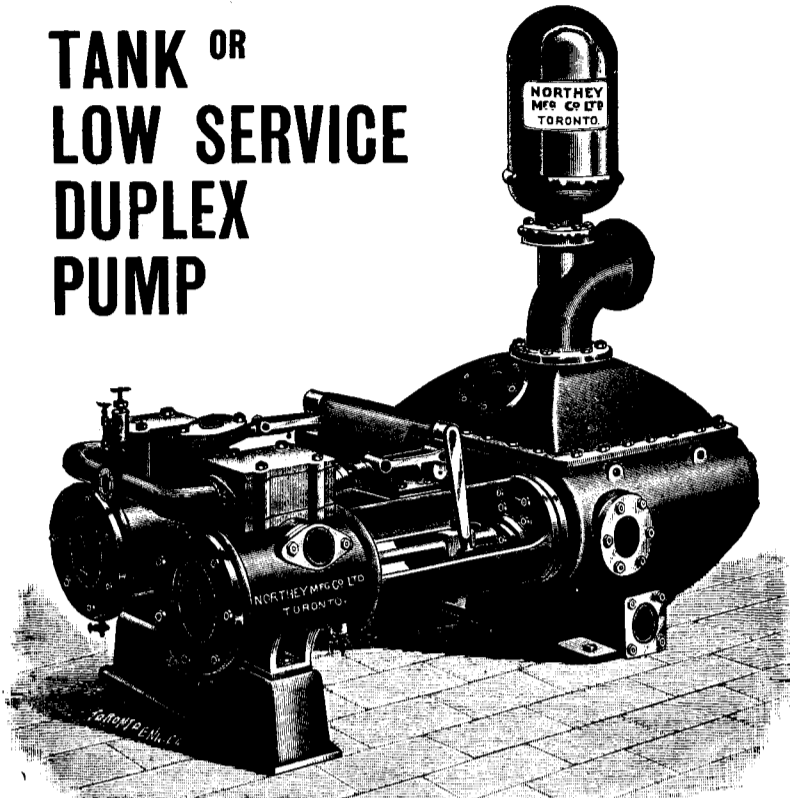
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CANADIAN FORESTRY ASSOCIATION

SUCCESSFUL ORGANIZATION MEETING IN OTTAWA.—OFFICERS ELECTED.— DISCUSSION OF FORESTRY PROBLEM.

CANADA is rich in natural resources, and her wealth of timber area is unquestionably an important asset. Hence it is that those in power have seen fit to take steps to preserve and in places increase this asset, which is destined to become all the more vital and important as the various provinces increase in population. A Canadian Forestry Association has accordingly been formed, the purposes of which fully realize the absolute necessity of protecting standing timber and reforesting sections of the Dominion not enjoying the benefits, even blessings, of well distributed timber growths.

At the inaugural meeting, held in the Railway Committee room of the House of Commons, Ottawa, on Thursday, March 8th, Sir Henry Joly de Lotbiniere, Minister of Inland Revenue, presided. In the assembly were representatives from nearly all the provinces and territories, and the proceedings were conducted and the papers discussed in a manner that bespeak success for the Association. In his introductory remarks the chairman stated that those who were most interested in and intimate with matters affecting timber resources, encouraged by the success attending the efforts of the promoters and members of the American Forestry Association, had decided that the present was an opportune time to establish a Canadian association working along similar lines. The primary object would be to advocate and encourage judicious methods of dealing with our forest wealth. Canadians connected with the American Association knew the great success it had attained in this direction, and even greater success should be attained in Canada, where the forests still remain to a great extent under the control of the Crown. Another object was to awaken public interest to the dangers resulting from undue destruction of timber along the waterways and sources thereof. The chairman also considered that the public domain should be thoroughly explored and the proper resources and the best uses of the different portions properly ascertained. With this object still in view, a portion of the unappropriated land, he considered, should be permanently reserved for the growth of timber. He thought it a mistake to permit settlers to go on land which is utterly unfitted for agriculture and which must be vacated only after the value of the timber thereon is destroyed. In conclusion, Sir Henry drew attention to the necessity of educating Canadians, through schools and otherwise, on the forestry problem, with respect both to the prairie and wooded districts, and to show

them the necessity of encouraging forest tree planting, from a climatic and economic, as well as an artistic standpoint.

It was unanimously decided to organize the Canadian Forestry Association.

A constitution was adopted, which provides that the objects of the association shall be as follows:

(1) To advocate and encourage judicious methods in dealing with our forests and woodlands.

(2) To awaken public interest to the results attending



SIR HENRY JOLY DE LOTBINIERE,
President of the Canadian Forestry Association.

the wholesale destruction of forests as shown by the experience of older countries in the deterioration of climate, diminution of fertility, destruction of rivers and streams, &c.

(3) To consider and recommend the exploration as far as practicable of our public domain and its division into agricultural, timber and mineral lands, with a view of directing immigration and the pursuits of our pioneers into channels best suited to advance their interests and the public welfare. With this accomplished a portion of the unappropriated lands of the country would be permanently reserved for the growth of timber.

(4) To encourage afforestation wherever advisable.

(5) To promote forest tree planting upon farm lands where the production of wood is too low, especially in the treeless areas of our North-Western prairies, upon highways and in the parks of our villages, towns and cities.

(6) To collect and disseminate for the benefit of the public reports and information bearing on the forestry problem in general, and especially with respect both to the wooded and prairie districts of Canada, and to encourage the study of forestry by the rising generation.

The following were elected as officers of the

association: Honorary president, Lord Minto; president, Sir Henry Joly de Lotbiniere; vice-president, Mr. William Little; secretary, Mr. E. Stewart, Inspector of Forestry, Department of the Interior, Ottawa; assistant secretary and treasurer, Mr. R.H. Campbell; directors, Messrs. Hiram Robinson, E. W. Rathbun, C. Jackson Booth, Thos. Southworth, Hon. G. W. Allen, Dr. Saunders and Professor Macoun.

At a subsequent meeting of the Executive Committee the following vice-presidents for the different provinces were appointed: Assiniboia, Hon. W. D. Perley; Alberta, Mr. Wm. Pearce; Ontario, Mr. J. B. McWilliams; British Columbia, Mr. H. Bostock, M. P.; New Brunswick, Hon. D. C. King; Quebec, Hon. S. N. Parent; Manitoba, Mr. Stewart Mulvey, Saskatchewan, Mr. Thomas McKay; Prince Edward Island, Hon. Donald Ferguson; Nova Scotia, Dr. A.H. McKay; Keewatin, Lieutenant-Governor of Manitoba; Athabasca, Mr. Wilson, Yukon, Mr. William Ogilvie.

The membership fee was placed at \$1, life membership being secured by the payment of \$10. The following parties interested and who were present at the meeting forthwith joined the association. Sir Henry Joly de Lotbiniere, Prof. Wm. Saunders, Ottawa; W. D. Perley, Wolseley, N.W.T.; William Little, Westmount; G.W. Allen, Toronto; Jas. Honidag, Quebec; Finlay Young, Killarney, Man.; R.H. Campbell, Ottawa; M.J. Butler, Deseronto; D. James, Thornhill, Ont.; J.B. McWilliams, Peterborough; E. Stewart, Ottawa; Frederick Todd, Montreal; Alex. MacLaurin, Charlemagne, Que.; Robt. Bell, Ottawa; Robt. Hamilton, Grenville, P. Q.; John F. McKay, Montreal; Hon. E. J. Davis, Toronto; F. W. Gibson, Crown Lands Department, Toronto; Aubrey White, Crown Lands Department, Toronto; Thos. Southworth, Crown Lands Department, Toronto; J. M. Macoun, Ottawa; W. T. Macoun, Ottawa; Hiram Robinson, Ottawa; Gerald Spring Rice, Pinse, N. W. T.; B. Spring Rice, Pinse, N. W. T.; R. F. Stupart, Toronto; J. R. Duff, School of Science, Toronto; C. E. C. Usher, Montreal; Sir Wm. Hickson, Montreal.

The annual meeting will hereafter be held in Ottawa on the first Thursday in March, and special meetings shall be held at such times and places as the executive may decide.

AFTERNOON SESSION.

At the afternoon session interesting and instructive papers were read. The first was by Dr. Bell, L.L.D., M.D., F.R.S., of the Geological Survey of Canada, and is printed below:

CANADA'S NORTHERN FORESTS.

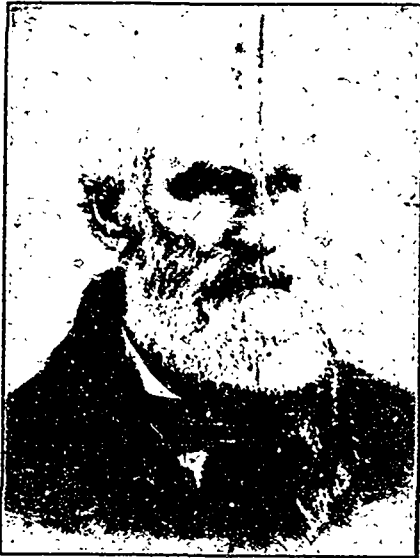
By ROBERT BELL.

The subject of the distribution of the forest trees in Canada has come particularly under my attention, as I have had the opportunity of travelling for forty years in the north country as geologist for the northern region. The forests of North America exhibit a variety and

grandeur greater than those of any other country or continent in the world. The reason is supposed to be connected with the condition of the earth before the glacial period. It is supposed that the polar regions had a climate fitted for most of our northern trees. After the disappearance of the glacier the trees have been working their way northward again. Some of the limits already reached are the extreme possible limits, others are not. The trees whose seeds are scattered by the wind, such as the poplar and coniferous trees, will spread more quickly, while others, such as those that have their seeds in the form of nuts, will travel more slowly, the seeds being few in number and being more slowly distributed. A single poplar might distribute seed over a whole country in a single year.

The vergo of the forest is at present moving southward, both in America and on the continent of Europe, but still a number of trees have not yet had time to reach their northern limit. An example of this is the black walnut, which is abundant in western Ontario, but only occurs in isolated cases at Ottawa and Quebec. This is one of the trees with which our chairman, Sir Henry Joly, has been making experiments in Quebec.

The number of species of trees in North America is larger than in any similar area. There are 340 species between our northern limit and the Gulf of Mexico. The British islands have only fourteen species, and over the whole continent of Europe there are only twenty-five to



MR. WM. LITTLE,
Vice-President Canadian Forestry Association.

thirty species. In Canada there are about 120 species, 95 being east of the Rocky Mountains and 25 west of that line. As the continent diminishes rapidly to the south we must necessarily have a large number of species in the south, so in the north we have large forests with a small number of species and in the south small forests with a large number of species.

The chief factors in causing a flourishing growth of trees are the climate and a sufficiency of moisture. The variations of the climate in North America admit of a great variety of growth from the conifers in the north to the tropical trees of the Gulf of Mexico in the south.

The northern forests of Canada stretch from Labrador to Alaska, some four thousand miles, and have a breadth of fully 600 miles.

Western Canada is not wooded in the plain and prairie country. In the eastern, or prairie country, there are clumps and bluffs of poplar, but on the plains only a few trees in the deep valleys of the rivers. This region is triangular in shape, being about 600 miles in width and 600 miles on each side. It is wooded principally with poplar, birch, etc., and in the north there are considerable areas of coniferous trees.

In the area of our northern forests we have about thirty times the area of England. The area of England is about 59,000 square miles. From Ottawa to James Bay is about 600 miles, and it is about 600 miles farther to the northern limit of forests. In Labrador we have an area 1,000 miles wide by 1000 miles from north to south, equal to the whole of Europe, and covered by timber on the east side of Hudson's Bay to latitude 57 north. On the west side of Hudson's Bay the range is to latitude 59 north, and continuing west in the Mackenzie basin it reaches latitude 68 north, beyond the Arctic circle.

This sketch of our great forest wealth will show the

necessity of some steps being taken to protect and preserve the forests, as well as to ensure the deriving of a proper revenue from them, and shows the necessity for the organization of an association such as the one formed here to-day.

As a result of the climatic conditions the timber lines run in almost parallel lines, although not in all cases. The mean temperature of the year does not cover the extremes of heat and cold, proximity to the sea or the prairie region, former geological conditions, etc., all of which affect the distribution of the trees.

The white cedar is one of the most peculiar in regard to its limits. The reason why it does not extend further west than the eastern part of Manitoba is probably due to the dryness of the climate. There is, however, a patch on the west side of Lake Winnipeg, near Grand Rapids, which was probably started from seed carried by the Indians. They are fond of decorating their canoes with branches of cedar, and the seed may have been carried on branches taken in this way from the eastern side of the lake. Isolated colonies of other species are probably due to the fact that these specimens are in advance of the main body. The white cedar is at its perfection in Gaspe and New Brunswick, occurs but little in Nova Scotia, while there is none in Cape Breton or Newfoundland. There is no trace of it on the outside of the Labrador coast, owing to the biting sea air. In the north the direction of its line of growth is due to the coldness and dryness. There is not much barren land, except in Labrador and west of Hudson's Bay, practically all of the Dominion being well wooded.

In Ontario and Quebec the limits of the trees are a pretty good indication of climate, but in the west other factors, such as soil and moisture, affect the problem, because the same species does not always grow under the same conditions. For example, in the south some species will seek the coolest situations, and in the north the warmest. The white cedar, balsam, pine, tamarack, white spruce and white birch choose the coolest places in the southern parts of Ontario, while farther north they seek the warmest.

The white pine is comparatively southerly in its distribution, being found only in Ontario and Quebec about to the divide between James Bay and the southern slope. North of Lake Superior it has been destroyed by fire and has not had time to reproduce itself. It occurs in Newfoundland, but not in very extensive forests.

A bird's eye view of the country in which the spruce grows would show a patchy appearance, due to the fact that different areas have been burnt over at different times. The spruce forest attains its full growth in 150 years, and there will be patches of this tree of all sizes and ages up to 100 years.

The origin of forest fires in accessible parts is usually due to travellers, explorers, miners or settlers handling fire carelessly. Vast amounts of valuable timber have been destroyed in the past in this way, and a great deal is still destroyed by Indians and others leaving fire. But I think that the greatest cause of forest fires in the north is lightning, though there may be other causes. One of the most curious of which I have heard is told in a tradition of the Indians in regard to a fire in the Lake Temagami district. They ascribe it to a shooting star, quite a possible reason. Other causes may be the spontaneous combustion of pyrites, etc. One of the principal causes in the accessible parts of the country is the facility of getting matches. Eddy's matches are probably responsible for a great number of the fires. If people had to employ flint and steel the fires would probably not be so numerous.

I have calculated that about one-third of the country may be considered as brule, that is, under second growth up to about ten years of age; one-third as intermediate, including trees between ten years of age and upwards, and one-third including trees assuming the character of trees up to those of one hundred years of age. These make up an area thirty times as great as that of England. Any of the one-thirtieth parts will produce wood enough to supply the ordinary demands of the ordinary population of Canada, that is, five million people could get what is required for mining, fuel, etc., by taking the timber from a space the size of England, and would be able to allow the twenty-nine other parts to grow up to be ready later on.

Spruce trees grow much more rapidly for the first thirty years than they do afterwards. Very little is made between thirty and one hundred years.

If any proof is wanting of forest fires having occurred in remote time, it is supplied by the post-tertiary rocks where we find the charred remains of trees. Scarborough heights near Toronto trees have been two or three hundred feet below the surface, and



MR. E. STEWART,
Secretary Canadian Forestry Association

have also been found elsewhere. We have another in the habits of trees, such as the Banksian pine, requires fire to facilitate, if not to continue its reproduction. The cones are exceedingly numerous, curve inward and adhere to the branch closely, grow in bunches of three or four and will remain on a tree till it falls away with old age. Though it may be true that this is not the only way, the seeds are blown from the cones by the aid of fire. The cones open



MR. R. H. CAMPBELL,
Assistant Secretary and Treasurer Canadian Forestry Association

the heat and the wind blows the seeds everywhere. The habit may have been developed like other habits proposed to be accounted for by the Darwinian hypothesis.

Since I have published this statement other observers have noticed that cones were opened without fires, but I think it was due to the sickly condition of trees and especially to the trees being young and immature cones opened by some untoward cause. Cones on large thrifty trees are closed until scorched by fire. Any tree which has its limits north extends to the south except the Banksian pine, which is almost

to the Dominion of Canada. The trees are at their perfection at the centres of their distribution.

DISCUSSION.

request of Dr. Saunders, Dr. Bell indicated map the line of northern distribution of silver-leaf maple (*Acer dasycarpum*), which he found generally a little south of the Canadian Pacific Railway line north of Lake Superior. Dr. Saunders stated that he had found *dasycarpum* as far north as Portage la

Henry Joly: My investigations indicate that the white spruce does not grow as fast as Dr. Bell's experience seems to suggest. I have thousands of white spruce logs in the neighborhood of Quebec and have never found a growth more favorable than one inch in five years, so that thirty years would only give six inches.

Henry Joly exhibited two specimens of white spruce as an illustration of his remarks. He stated that there had been an increase of one inch in diameter in seven years.

Dr. Saunders: In the Maritime Provinces we find that the white spruce will reach from twelve inches of timber one foot from the trunk in ten years. We have many specimens at the Experimental Farm there, of which measurements have been taken from time to time, and the climate there is much more moist than in the West.

The rate of growth of white spruce is an important point, as it is required for pulp, and it is important to know in what time we can produce a pulpwood crop in Quebec.

William Little: The question in connection with white spruce is an important one, as it is important for pulpwood. It must be borne in mind, however, that the timber grown in the West is the important matter, not a single tree in the garden. We have spruce trees of considerable growth in our garden, but they are all killed. It would be impossible to get a thirty-fourteen foot log out of them.

W. D. Perley: I can remember a field in Brunswick which was a pasture when I was living there, but it is now all grown over with spruce bush.

William Hingston: The fact should not be forgotten that the spruce has no definite rate of growth, that the growth depends upon local conditions. I have been planting for years in certain areas, sometimes five hundred spruce, and in certain areas can tell what trees will grow fast and what trees will grow slowly. Trees that are well protected will grow the most. Some trees grow as much in three years as others in twelve years. I would like to ask Dr. Bell whether he thinks that low elevation has much to do with the growth of trees. Is it a question of high or low elevation than latitude? If a high level plain occurs is there an abrupt change? Also whether there is a change in the umbrageous character of the forest with elevation?

Dr. Bell: I consider that elevation has a great deal to do with the growth of trees. When there is a change in the elevation occurs there is a sudden cutting off of trees. As we go up the line of perpetual snow moves lower and lower passing from Lake Superior to Hudson Bay we lose sight of certain trees in crossing the mountains of land, and after descending on the other side the same trees appear again.

Dr. Saunders: Does increase in elevation help the growth of certain trees.

Dr. Bell: Some grow better on high land, for instance the hard maple.

Dr. Saunders: The reason I asked that question is because I have found on the Riding Mountain, at an elevation of 1,800 to 1,900 feet, *Populus tremuloides* growing to a great height, while on the lower ground it was not nearly the same size.

Mr. W. T. Macoun: Has the white pine been found growing upon swamp land?

Dr. Bell: It grows on swamp land in some places in Western Ontario.

Dr. Saunders: How far north does one go before the tamarack changes its character as to choice of ground? I have seen tamarack in wet ground as far north as the Swan river.

Dr. Bell: The change takes place about the height of land. The absence of trees in Manitoba must be due to some inherent difference in climate. The trees do not stop abruptly on reaching Manitoba, but begin to curve southward east of that line.

Dr. Saunders: Why is it that on the southern banks of the rivers in the west the trees are of considerable size, while on the northern bank they are smaller? Is not this due to fire?

Dr. Bell: I have noticed the east and west banks show the same difference, the east slopes having a better growth than the west. I think it is due to the fact that in the spring, being exposed to the sun on the south-facing bank, the sap is forced up early and the first severe frost bursts the bark and destroys the tree.

Dr. Saunders: We have had apple trees killed at the Experimental Farm before they were large enough to run sap.

Mr. Stewart: I was at the meeting of the Manitoba Horticultural Society lately, and Mr. Stephenson there showed specimens of wealthy and hibernal apples grown at his place in Manitoba. The apples were well-formed and matured.

Dr. Saunders: I know Mr. Stephenson's place well and the trees are growing at an elevation of less than 700 feet. There is heavy wood to the north and west, while the orchard is so surrounded by evergreens that it is difficult to find it.

HISTORY OF ECONOMIC FORESTRY IN ONTARIO.

Mr. Thomas Southworth, Chief of Forestry for the Province of Ontario, read a paper on the "History of Economic Forestry in Ontario," in which he outlined the steps which had been taken by the early government of Canada for the reservation of timber, and also the policy now being followed in regard to the setting aside of timber reserves such as that at Lake Temagami, the forests on which would be dealt with in as scientific a manner as possible. At one time, Mr. Southworth stated, the forest was considered by the settlers to be an enemy to be removed. As a result, in some of the older counties of Ontario, the present wooded area was less than 5 per cent. of the whole. The land burned over is still unsettled and unsuited for tillage, and should be placed in forest reserves. Fire ranging, Mr. Southworth said, served both to protect and establish the timber areas. He considered it was fortunate that the crown kept control of the timber instead of disposing of it to lumbermen, as had been done in the United States.

During the French occupation the home government made no provision to protect any but the oak timber, but happily this condition of affairs had been improved on. Amongst the measures adopted for the protection and reproduction of the forests were the remission of taxes on forest lands and the establishment of Government nurseries similar to those supported in New Zealand. The high lands, he maintained, should be kept well timbered, as the rivers have their sources there. The fact was mentioned that farmers are now planting trees as wind-breaks to ensure better crops. Mr. Southworth referred to the fact that the fire rangers had saved many million feet of timber, and Mr. J. R. Booth remarked that there was not one fire now where ten occurred years ago. This happy improvement was due to the efforts of the lumbermen themselves as well as the rangers.

Prof. John Macoun, F.L.S., F.R.S.C., Assistant Director and Botanist of the Geological Survey of Canada, then read the following paper:

THE DEFORESTATION AND REFORESTATION OF THE WESTERN PRAIRIES.

By Prof. JOHN MACOUN.

I wish to make some statements with which some of you gentlemen may not agree, but I know of what I am speaking and am prepared to support my views, and I hope those who may be of a contrary opinion will put forward their view of any questions that may be discussed.

There is a diversity of causes for prairie fires. The time was when a large part of Manitoba was covered with forest, and also immense tracts of Eastern Assiniboia. In fact, south of Indian Head less than forty years ago there was a considerable growth. In places where now there are no trees and where settlers say that trees will not grow, forty years ago they were covered with forests.

I want to corroborate a statement of Dr. Bell's. I saw two prairie fires in 1894 at Crane Lake caused by lightning. If prairie fires are caused by lightning, Dr. Bell is probably right in saying that forest fires to the north of the prairies are so caused. I have seen three or four thunderstorms succeed one another on the prairie, without any rain. I was on the prairie before the settlers. I had the privilege of exploring in the year 1879 for 2,500 measured miles on the prairie traveling in carts, and in 1880 between eighteen and nineteen hundred miles. At that time the prairie was covered with grass in places, and in other places there were many tracts of burnt forest, especially on the edge of what is the prairie now. Beyond Last Mountain, before you reach Long Lake, we came to the edge of the prairie and we got no more wood for two weeks. But I want to call your attention to one thing we noticed. South of where Humboldt is now, we saw a small white wash with a pond in front. And what did this mean? When the prairie fire went round the pond it would leave a small triangular piece unburned.

Twenty years ago I went to Captain Devile and said, "The Touchwood Hills have no existence. What did I mean? They were wooded, while the rest of the country was bare, so that they had an appearance of height which really did not exist. And why was this so? Because in front of the hills a continuous series of ponds of water was found. When the fires came to the ponds they ceased to exist. The whole country was wooded and we called it 'hills.'

At Moose Mountain I found a whole series of ponds on the north side of the mountain that it was impossible to fire. The mountain was a tract of land covered by wood. In late years these ponds have dried up and the fires have gone in.

In the country south of Battleford on the fire came from the south or south-west. I found that, as the fire came up on the ridges, the south or west slope was burnt off, but the north face was heavily wooded. If cold was the cause why should this be the case? The real explanation is that the fires burnt to where it was moist and then stopped. Next year it pushed farther and farther on until from latitude 51 to latitude 54 the land is burnt out. It is burnt in the same way north of the Saskatchewan, and so with the woods in the Peace River Valley, which I examined in 1872 and 1875.

But there are tracts that never produced wood. Wherever alkali is found in the soil the trees do not grow. This alkali is not potash, derived from the ashes of fires, but is derived from gypsiferous rock.

The saline lands are not suited for timber. When I was travelling in autumn the Half-Breeds would go to a pond and try the water by tasting it. But I would send them directly to one which I knew contained fresh water. How did I know? I found that in the spring of the year, when the ponds were filled, nearly all, except the salt lakes, were fresh. The pond has an impervious bottom and in the fall of the year it begins to be salt. In the latter part of August and September the sedges, which remain fresh in the fresh water ponds, lose vigor and change color where the water is saline. Men who have thought much will make trivial things mean much for them.

How do we get humidity? What is the benefit of a forest? What is the difference between a country covered with grass and a country covered with forest?

A tree turns out thousands of leaves and has great roots far down in the ground, and the sun is pumping water out of the tree all day long. It is pumping water out of the depths of the soil, and that water for hundreds of square miles is passing into the atmosphere. The cutting off of the forests means that the rainfall will be carried off the soil too quickly. The atmospheric currents are not interfered with, but are only prevented from taking the humidity out of the air. Thus you have the climate suited to the growing of cereals. The humidity in the air compensates for the want of it in the climate.

In the sub-arctic forest the trees are spruce, white and black; one pine, the Banksian; one balsam, *Abies balsamea*; two poplars, *trunculoides* and the balsam poplar; and tamarack. The north country produces these and no others. Of the elm tree, which does not grow on the prairie, there is a magnificent specimen occurring fourteen miles north of Regina in the valley of Qu'Appelle. The elm is a river bottom tree. The oak extends from the Maritime Provinces up on the prairie to Fort Ellice. The red ash occurs to half way across Assiniboia in the Dirt Hills, four hundred miles west of Winnipeg.

In 1879 the country up to Moosejaw had a sufficient rainfall for the growth of cereals. In all that country there should be no difficulty in re-covering the whole with forest, with poplar and white spruce. I eliminate the cold and the chinooks altogether.

Let us consider, now, the main prairie, including the country four hundred miles from Moosejaw to Calgary. Mr. Pearce has solved the problem of tree growing at Calgary and will tell you what he has done. I saw Mr. Pearce's place before he planted trees and can tell how successful he has been.

My report of 1880 showed that this district was not a desert. Where there is a sward there is no desert. How are the trees to be got on? Precisely in the way that they were taken off. I say that cold has nothing to do with the want of success in growing trees, it is the want of water and water only. Two years ago, when I was in the west, a gentleman now deceased, but then Mayor of Calgary, said to me, "The chinooks prevent the growth of trees." I called his attention to a large tree in the valley of Bow River. I asked why one was killed while another was left. The reason was that one had water and the other had not. When the trees are planted on the prairie and given plenty of water, as has been demonstrated by the success of the efforts of the Canadian Pacific Railway Company at Moosomin and Medicine Hat, they will grow and thrive. If it can be done in one place it can be done in another.

When at Indian Head in 1891 I saw a dam built over a creek, and, when asked to speak at a gathering in the evening, I told the people that I would like to see them raise a statue to the man who built that dam. There is a dam also at the Experimental Farm and the trees growing there are proof of the success of a water supply.

In the prairie region west of Moosejaw there should be dams put across the creeks and some spruce and some poplar put in the beds and valleys, and you can then extend indefinitely. These are the conditions that exist wherever there are trees. The trees grow in all the hollows. There must be a snow-catcher and the trees will grow. The trees must be grown from seed. You take up a tree and cut the tap root and set it down in another place and the drought gets below to the root. The almost inevitable result is that the tree withers and dies.

In 1880 we reached Stinking Lake, and north towards

the Saskatchewan in some sand hills we discovered twenty-three big poplar trees, none less than one foot in diameter, and not a shrub around them. The conclusion I reached in regard to them was that the sand hills received the water from the air and the trees stayed where the water was, and the fire could not get at them. That satisfied me that neither chinooks or cold had to do with the matter.

An important point where a dam might be built is at Cypress Lake, in order to make use of the water out of the Cypress Hills.

A paper on "Tree Planting in the West" was read by Mr. William Pearce, Superintendent of Mines for the Department of the Interior at Calgary. He stated that no great skill or effort is required to reforest the great treeless plains of the west. It could not be done economically, however, he claimed, if water had to be artificially supplied. Irrigation is a necessity for forestation, he said.

Mr. Archibald Mitchell, formerly forester for Lord Dunraven and the Earl of Roseberry in England, submitted the following contribution relating to forestry in the North-West:

FORESTRY IN THE NORTH-WEST.

By ARCHIBALD MITCHELL.

I do not think it will be at all necessary for me at this time to touch upon the principles upon which the future forest system of Canada ought to be based. In the face of such a committee, formed for such a purpose, I feel that anything I could say in that connection would be unnecessary and altogether uncalled for.

Upon the existing forests of Canada then, I will say little beyond expressing the hope that a thoroughly sound system of forest economy will very shortly be established. It seems to me that the people of Canada are suffering from a lack of information on this subject. If it only could be placed before them, laying due emphasis upon the necessity for such a system, together with the general principles upon which it will be based, I believe we should very soon have it in full working order. Canadians are a business people, and a system founded upon a solid business basis could not but appeal to them and win their approbation.

This Association, I have no doubt, will speedily accomplish the object for which it has been constituted, and Canada will in a very little while be in possession of a forest system which will be a splendid monument to posterity of Canadian intelligence and business enterprise.

With regard to the needs of the West, however, perhaps I may be allowed to say a few words, more particularly with regard to the grazing regions of Southern Alberta and Assiniboia. These regions, it is superfluous to mention, form a magnificent stock-feeding area, and the prairies in summer are covered with thousands of cattle and horses. I say summer advisedly, because in winter or at least whenever rough or cold weather is experienced the stock seek the shelter of the river-bottoms. They get among the willows there and congregate in great numbers. Food, naturally, soon gets very scarce, and the animals become quite poor in condition, and in prolonged cold weather many of the weakly ones die. There is abundance of food out on the prairie, but the rigor of the climate prevents its being used. When a chinook wind occurs and the snow is swept off the grass, the cattle will very often refuse to leave the brush because of the cold north wind, or, when they do leave it, they do not get far into the good grass before another storm compels them once more to return to shelter.

Now, if there were groups of trees, say about 30 to 40 acres in extent, planted all over the prairie a few miles apart, all this would be avoided. The cattle would have shelter close beside their feeding grounds, they would never lose in condition, and much pecuniary loss to their owners would be avoided.

Every rancher in this country well knows how much such plantations would add to the value of his stock, but the scheme is one which is too large for private enterprise to undertake. Very few ranchers, indeed, have succeeded in raising even a shelter belt around their houses. As a rule they do not know how to set about raising a plantation, and they have little time to experiment. Their business is stock raising, and they attend to that. It is a scheme for the government to undertake, and as

a branch of creative forestry, is well worthy the attention of this Association. Perhaps the already organized chinery of the experimental farms would be better equipped with it, and at any rate their experience of the greatest value in furnishing data upon select plants, etc.

And now a few words with regard to the practical part of the question. The trees planted would be pines (chiefly black Austrian), spruces and the woods suitable for the North-west. They would be planted in groups of each sort, say an acre of less than 100 yards diameter to each group, or the whole of a plantation could consist of one kind. The plants would be from two to three feet certainly not more than three feet. Conifers would be planted when they were three years old, two years seed-bed and one year transplanted. Hardwoods would be planted as seedlings, but would be better as seedling and one year transplanted. The smaller plants the greater the proportion of roots and the less they are handled. There is less risk of their being injured in the lifting. They are less easily blown over the ground, as their tops are close to the ground besides are much more flexible, and there is at least on the flat, a stratum of air about one foot from the ground which is calmer in a storm than the surface. The seedling plants would be raised in a situation convenient for such a purpose and central to at least 12 of the proposed plantations.

All areas to be planted would be ploughed and with oats or other grain. These crops would ameliorate and loosen the surface soil for the late seasons, and besides provide somewhat to help the expenses. After the lifting of the crop and the fall the plantation grounds would require to be ploughed about 18 inches deep and left rough over winter. This would loosen the soil for the next year to help to catch and retain moisture for the growing season. This is a most important consideration in South-West for the frequent chinooks melt the snow, which runs off the surface and by and by finds its way to rivers and lakes because the frozen ground will not it to penetrate into the soil. The rough, broken ground left by the plough would help to collect this water and hold it till spring, when it could soak into the ground.

In the meantime the plants for each area would have been transplanted into lines in the areas where they were to ultimately occupy. Another crop would be taken off the trenched land and the stubble slipped in on the stubble in the spring following. The plants being already on the ground much damage from drought during the planting would be avoided. The ground being comparatively level and held by the plants there would be less risk of the plants being buried by a condition of affairs which must be reckoned on in this country. There would be little danger of the plants being damaged by the plants, as in summer they would be covered with them and in winter when the grass was covered with snow, the trees, at first at any rate, would be covered with snow also. By and by, when they got above the snow they would be of size enough to recover any little damage that might be incurred.

Once established, growth would be most rapid. In 15 years the plantations would be as many as the drifting snow would be caught by the trees and remain there to gradually melt with the heat of the sun. The ground being then soft a plentiful supply of water would sink into the soil for the use of the trees. The falling needles, too, and forest mosses would serve to and retain large quantities of water. The surplus would run off to the outside of the wood and help to grow grass on the prairie all round the plantation. It would just be on a great scale what is to be seen at Coulee and scrubby patch in the country, the same as the ground was soft enough to grow grass. This, indeed, seems to be the trouble with the semi-arid regions of S. Alberta and Assiniboia. The moisture falls in the form of snow and the chinooks melt it while the ground is frozen. It cannot enter the soil and so finds its way at last into the rivers or low pools on the surface to be dried up by the days of real warm weather.

And another effect the afforestation would also bring about. Forests, as is well known, collect moisture from the air, and many additional springs probably be formed around the woods, a matter of considerable importance when perhaps for miles around there is no available water for the cattle except, may be, a small impregnated lake.

And yet another benign influence might be the retention and subsequent gradual evaporation of quantities of water in the district would cause an increase of moisture in the atmosphere and possibly increased rainfall as a result of that; and what a mate the value of such a blessing to the sun-baked prairie of the west. Even this alone would warrant the adoption of this or some such measure as I have here suggested. The experiment, if conducted on a sufficiently extensive scale, would be a magnificent one, and its results would be well worthy of the intelligence and enterprise of the people of Canada.

It is not, of course, intended that this paper indicate in any arbitrary fashion the course to be followed in this matter. It is simply intended to draw attention to what is felt to be a real need in the country, and to set out briefly the general lines in which it may be met. Such a scheme will be of infinite benefit, and in the interest of the department of Canada the partial afforestation of this section of the North-West in something of the manner indicated will deserve a most worthy place.

A MAMMOTH LEATHER BELT.

The illustration on this page represents the largest leather belt ever made in Canada. It was manufactured by Messrs. Sadler & Haworth, of Montreal and Toronto, for the Ogilvie Milling Company, of Winnipeg, Man. Its dimensions are: Width, 72 inches; length, 115 inches; thickness, 3 ply; while its total weight is 2,270 lbs. The same firm recently furnished two 48 inch 3 ply belts for the Standard Electric Company of Montreal, a 38 inch belt for the London Electric Light Company, and several wide 3 ply belts for saw mills.

THE CIRCULAR SAW.

By E. H. NEWTON.

As requested, I will contribute a few lines to your valuable paper, and trust that some of your many readers may be benefitted thereby. I will confine my thoughts for the present to the circular saw, and I am sure there can be no subject on which enlightenment is more needed

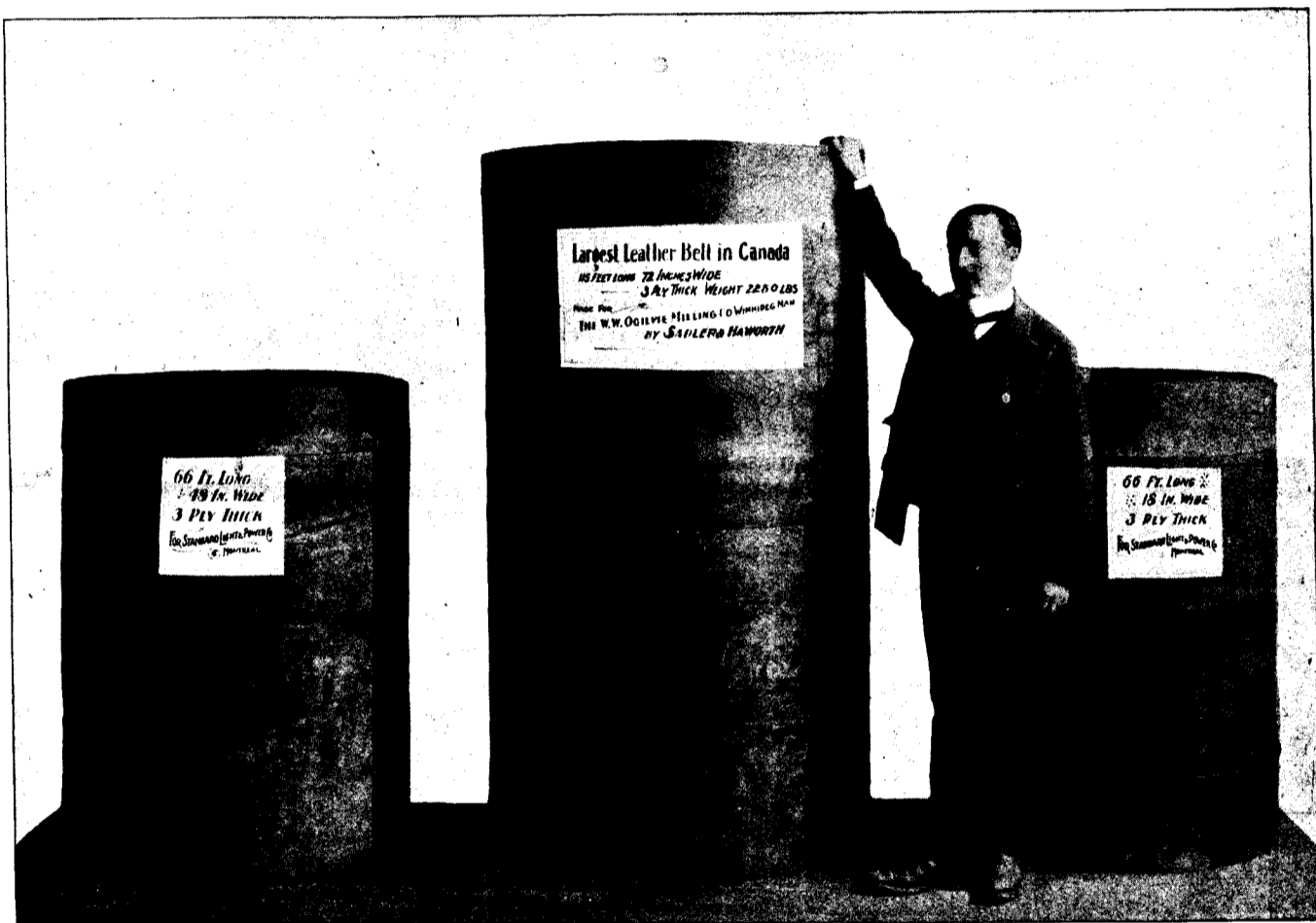
an up-to-date shingle maker. The latter said he considered his experience was worth more money than the mill owner offered him, but the mill owner politely informed him that experience or knowledge was of no account in his mill, as his men must do as he told them. It is needless for me to say that the mill owner was not a practical man himself. Again, I have asked sawyers and filers why they did not try to acquire more knowledge and be more up-to-date, and they say it don't pay, as mill men are content with things as they are and refuse to employ a man who asks pay for his knowledge. Well, we find that these men, who do not wish to become informed because their employers would discharge them if they did, are not often found in the best mills, and not always in the smaller mills, yet here is where we find them too often; and to come back closer to my subject, I find that these are the mills where nearly all the bad saws are to be found.

The writer has been called upon many times where saws had refused to work and has sometimes found five or six condemned saws hanging up in the mill. I have actually found sawyers running their favorite saws when they would split the board off before they got within six inches of the end, and the saw would spring away from

wrong, and even the twentieth time I do not believe, if all the facts were known, that any blame could be attached to the manufacturers. I have had years of experience with these so called "balky saws," and have never found but one instance where I could really blame the manufacturers, and that was in the tempering.

Then, in the matter of hammering saws; the day is now at hand when any sawyer and filer, if he would excel in his profession, must acquire a knowledge of saw hammering, and this is work that should not be taken out of the mill. The old practice of sending saws to the shops or, as is often done, to their respective makers to be hammered is a practice to be discouraged. We want educated men right in the mills to do this work, and men thus qualified need not be compelled to work on the rear, but can find plenty of work at good wages with men who lead in the business. The writer knows of seven vacancies at the present time for competent men. One very wealthy old gentleman whose acquaintance I am very happy to have made, asked me if I knew of any one I could recommend to him to superintend a small mill, a good practical man. I was unable to even suggest one.

It seems to me that if mill men would demand and be



THE LARGEST LEATHER BELT EVER MADE IN CANADA.—FROM THE FACTORY OF SADLER & HAWORTH.

at the present day. Of course, in these lines you will understand that I am speaking more particularly to those engaged in the trade who seem to be content with bringing up the rear. Their motto is "others may lead, but I will follow."

In this age of keen competition, no man need expect to succeed without economy. By economy I do not mean that labor need be cut down or precedence given, to inexperience. My idea of true economy, in view of our limited forest reserves, is to employ the best labor, manufacture the best lumber and command the best prices. It is a deplorable fact that in many of our fourth rate mills, where inexperience is the prime factor, the annoying delays, with their incidental expenses, the refuse burner or dump, and the cull lumber pile where all poorly manufactured lumber is consigned, carries away the entire profit and too often more than the profit. Yet these mill men are satisfied to stay in the old rut and see others in the same trade pass them by and leave them to wrestle with their difficulties. The majority of these men are responsible for their own trouble. They place no value on experience or knowledge, and therefore discourage any man with higher aspirations than their own. The writer once heard a mill owner trying to engage

the log an inch at the top. I have found these saws lined three inches into the carriage sixteen feet from saw. I have found these saws with a $2\frac{1}{2}$ inch hole on a 2 inch arbor, without any bushing or ring in them, and consequently from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch out of round. I have found men sawing frozen timber with these saws and breaking the teeth out because the saw was not round, and the long teeth were doing all the work. I have found sawyers who paid no attention to lining up the carriage and track. I have seen sawyers running saws with $\frac{1}{4}$ of an inch end play in their arbor. I have seen men try to lead their saw first in, then out, then in again with the file, and file away all their swaged point in three filings. I have seen an inserted toothed saw condemned and taken off, could not be run; I examined the saw and found it hot in the centre and frost in the rest of the blade, examined arbor and found the box next the saw had not been oiled and was burning hot. I ordered it to be cooled off and oiled and the frost taken out of it, then put back on. This was done, and the saw worked as well as it had ever done. I have occasionally found all these troubles in one mill, and I almost invariably find the saw manufacturer blamed for it, and right here I must say that nineteen times out of twenty this is

willing to pay for a better class of labor, men would begin to educate themselves in this as well as in any other calling, and it would not be long before we would find a more efficient class of men. The employer, instead of losing money, would just begin to make it, because what he now loses through waste and bad manufacturing, loss of time and various losses through neglect and incompetence, would more than pay the difference in wages, to say nothing about him holding a reputation in the market, which is always worth considerable.

I am sure circular saw manufacturers would welcome this change, for then they would receive less of the ignorant man's blame.

It is reported that the saw mill plant of Eddy Bros. & Company, at Saginaw, Mich., will be removed to the Georgian Bay district after the close of the forthcoming sawing season.

In the Review of Reviews for April the new phases of the situation in South Africa are editorially discussed, while the department of "Leading Articles of the Month" summarize various points of view relative to the war and its probable outcome.



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THE CANADA LUMBERMAN is published in the interests of the lumber trade and allied industries throughout the Dominion, being the only representative in Canada of this foremost branch of the commerce of this country. It aims at giving full and timely information on all subjects touching these interests, discussing these topics editorially and inviting free discussion by others.

Special pains are taken to secure the latest and most trustworthy market quotations from various points throughout the world, so as to afford to the trader in Canada information on which it can rely in its operations.

Special correspondents in localities of importance present an accurate report not only of prices and the condition of the market, but also of other matters specially interesting to our readers. But correspondence is not only welcome, but is invited from all who have any information to communicate or subjects to discuss relating to the trade or in any way affecting it. Even when we may not be able to agree with the writers we will give them a fair opportunity for free discussion as the best means of eliciting the truth. Any items of interest are particularly requested, for even if not of great importance individually they contribute to a fund of information from which general results are obtained.

Advertisers will receive careful attention and liberal treatment. We need not point out that for many the CANADA LUMBERMAN, with its special class of readers, is not only an exceptionally good medium for securing publicity, but is indispensable for those who would bring themselves before the notice of that class. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which will be inserted in a conspicuous position at the uniform price of 15 cents per line for each insertion. Announcements of this character will be subject to a discount of 25 per cent. if ordered for four successive issues or longer.

Subscribers will find the small amount they pay for the CANADA LUMBERMAN quite insignificant as compared with its value to them. There is not an individual in the trade, or specially interested in it, who should not be on our list, thus obtaining the present benefit and aiding and encouraging us to render it even more complete.

REMOVAL NOTICE.

On May 1st next the Montreal office of The CANADA LUMBERMAN will be removed from the New York Life Building to the Imperial Building, corner St. James Street and Place d'Armes Hill.

AN ONTARIO FOREST RESERVE.

THE Ontario Government has set apart a forest reserve of two million acres, or three thousand square miles, in the territory surrounding lakes Temagaming and Lady Evelyn, north of Lake Nipissing. The district chosen comprises one of the finest lots of timber in the province, consisting of a virgin forest of white and red pine, which will be permanently withdrawn from agricultural settlement. Additional fire rangers will be appointed to secure protection from fire, which might otherwise be a source of considerable danger, as it is expected that the reserve will become a sportsmen's paradise. When the timber is of sufficient size, licenses for cutting will be granted, but only under conditions which will provide for the natural reproduction of the pine.

It has also come to our knowledge that a reserve of forty-five thousand acres has been set apart by the Government in the township of Sibley, about forty miles east of Port Arthur, on Lake Superior. This land was burnt over about thirty years ago and is now producing a good crop of pine and spruce.

The broad policy of preserving and perpetuating our forest wealth which has been adopted by the Ontario Government will be a great blessing to future generations. This principle of conserva-

tion has been adopted sufficiently early to at least ensure a moderate timber supply for all time to come, and with continued careful husbanding there need be little fear of the entire destruction of our pine timber. May the same policy be adopted in respect to our hardwood supply.

THE SQUARE TIMBER TRADE.

It is not a cause of regret that the square timber trade of Canada is gradually passing into history. While in 1864 the exports of square timber were twenty million cubic feet, last year four million feet represented the total quantity exported. This is as it should be. The aim of every Canadian should be to build up the manufacturing industries of this country, and it is only by manufacturing the raw material as far as is expedient that this can be done.

Looking at the question from all sides, we cannot conceive of any loss, either financial or industrial, that has resulted from the lessened exports of square timber. The logs which heretofore would have been made into square timber are now furnishing the raw material for our saw mills, and through them all other woodworking industries. It may be that the farmer, from whom many of our hardwood mills obtain their supply of logs, will view with some alarm these changed conditions, but a little consideration will show that his fears are based upon erroneous ideas. Indeed, the farmer is almost certain to realize more for his logs by selling them to be manufactured into lumber than he would if sold for timber, to say nothing of the benefits that accrue to the country at large by the building up of manufacturing industries.

In the past the farmer has been misled to some extent by the seemingly fancy prices offered by square timber jobbers. Not being familiar with timber measurements, the farmer is prone to accept, without investigation, the prices which would seem to offer him the greatest returns. In many instances these prices have been an hallucination. The square timber jobber selects only the largest and best logs; these are hewn down until square, with a consequent loss of timber, for which the farmer is not paid. The mill owner, on the other hand, takes but one slab off the log and pays for the remainder. The next board on each side of the log will, of course, be a rough edge board, and a portion of each log, probably equal to two boards, will be converted into sawdust by the action of the saw, but there will still remain a gain of about two boards over the quantity which the square timber jobber will take. Another advantage in selling to the mill owner is that he will purchase logs even as small as six inches in diameter. The square timber operator rarely accepts a log less than 14 inches in diameter. The mill owner is then asked to come to the relief of the farmer and purchase the small logs, notwithstanding that, as is generally admitted, the wide lumber is to a large extent the manufacturer's chief source of profit. Is this fair?

Let us take for example a log 30 feet in length and 20 inches in diameter. Such a log would make 38 cubic feet of square timber, equal to 456 superficial feet board measure. This same log, according to Doyle's rule, would give 480 superficial feet, showing a gain in favor of the latter of 24 feet board measure. Experience has shown that the board measurement of large

logs is about thirteen times greater than the actual cubical contents of the square timber; hence, to give the farmer an equal revenue, the square timber operator should pay thirteen times as much for one thousand cubic feet of timber as the mill owner pays for one thousand superficial feet board measure. At the present time elm logs are being purchased by mill owners at eleven dollars per thousand feet B. M., the corresponding quotation for one thousand cubic feet thus being one hundred and forty-three dollars. This price, in our opinion, is rarely paid by square timber operators.

Further, consideration is due the lumber manufacturers of this country, on the ground that they are large employers of labor, with capital invested, and striving to promote the interests of the community in which they live. If not accorded due consideration, the natural result will be the purchase of timber limits outright, which action will in many instances carry with it the removal of saw milling establishments to other localities.

The foregoing remarks are intended to show that, viewing the question from a national standpoint, the decadence of the square timber trade is after all but a boon to the country. It means better returns to the owners of timber, an increase in our manufacturing industries, and employment for the working man.

THE TRANSPORTATION QUESTION.

THE lumbermen of Western Canada are watching with much interest the steps that are being taken to improve the facilities for shipping their products to the eastern seaboard. It is indeed gratifying that a fourteen foot waterway has now practically been completed on the St. Lawrence to Montreal and Quebec. Vessels carrying one million feet of lumber, and over, may now load at upper lake ports and go direct via the St. Lawrence to Montreal and Quebec. It is probable that in the near future much commerce which now goes via New York to Europe will hereafter go by way of Montreal.

Another essential requirement in the interests of Canadian shipping is that the present insurance discrimination against the St. Lawrence route should be removed. The rates charged by the underwriters are most unfair, the discrimination virtually giving a monopoly of the shipping trade to the ports of the Eastern States. We note with pleasure the efforts that are being made by Hon. R.R. Dobell to have such steps taken by the Dominion Government as will restore the character that the Dominion of Canada possessed years ago in reference to the care exercised in loading ships. He hopes to have a bill introduced in Parliament dealing chiefly with deck loads from the St. Lawrence and Lower Provinces, and providing that all deck loads be surveyed. The impression seems to prevail that the discriminatory action taken by the Lloyds in respect to insurance is due in a great measure to losses on deck loads. On the other hand, a statement has been published showing that the deck load losses on vessels from St. John have been almost nil for two or three years past. The information is also given that Messrs. Thompson & Company, steamship owners, report that out of 6,500 standards shipped on deck in two years, the only loss encountered was 48 standards.

The opinion of the shipping interests seem to be in favor of allowing deck loads in the winter

the height of six feet, instead of three feet as at present. It is claimed that this would add to the safety of the steamers and benefit the shipping trade generally, and that if compulsory surveying of deck loads should be adopted, the advantages would more than compensate for the cost of surveying.

It is hoped that the Dominion Government will pass such legislation as will aid as far as possible the shipping trade of Canada, otherwise the large amounts that are being expended in improving our canals will be of little avail.

ORGANIZATION IN FAVOR.

In some respects the publishers of the CANADA LUMBERMAN feel encouraged at the reception which has been given the movement to bring about the formation of an association to protect the interests of the hardwood lumbermen of Ontario. Within the past month thirty-six manufacturers or dealers have returned the blank forms printed in our March issue and signified their sympathy with the movement, and with one or two exceptions expressed their willingness to attend a meeting for organization purposes. This number is quite as great as could reasonably be expected. The correspondence received bearing upon the subject indicates that the feeling in favor of an association is quite general, and that the benefits to be derived therefrom are recognized by the trade. Likewise it demonstrates that, while admitting the advantages of an association, some of the most active and energetic members of the trade hesitate to take the initiatory steps lest they should not receive that support necessary to effect successful organization. Assured of due support from the trade generally, we believe that such action would be taken as would result in the formation of a strong and useful association.

The opinions of hardwood manufacturers and dealers which we publish on this page will, it is hoped, tend to remove any lack of confidence that may exist as to the final outcome of an associated movement, and at the same time furnish suggestions as to the direction in which an organization should labor. Perhaps the first thought which will occur to the reader is the strongly expressed desire for uniform inspection rules. This is a necessity which is admitted by both dealers and manufacturers. The dealer no doubt suffers equally with the manufacturer, and particularly in times of brisk demand and shortage of stock. The movement for a standard system of inspection is steadily growing, and must eventually be adopted in Canada as well as elsewhere.

To obtain the best results for an association, it should be strictly provincial in character and know no local boundaries or dividing lines. The hardwood interests of Eastern Ontario and the Ottawa Valley should be proportionately as well represented as those of Western Ontario, where, of course, the manufacture of hardwood lumber is more extensive.

We have in our possession a copy of the constitution and by-laws of the North-Western Ontario Lumbermen's and Sawmillers' Association, an organization composed of persons engaged in the manufacture of hardwood lumber, chair stock, etc., which existed in the year 1889. This association is not now in existence, but the fact

that it did exist is in itself evidence that there is ample work to be done by an association framed on lines similar but more comprehensive in character.

It is our earnest hope that an organization meeting shall be convened without delay.

UNITED STATES IMPORTS OF LUMBER.

OFFICIAL figures issued by the Treasury Department show that the United States imported in 1899 boards, planks, etc., to the value of \$7,005,101. The importations from Canada were 673,622,000 feet, valued at \$6,990,175, against 348,876,000 feet, valued at \$3,464,718, in 1898, and 674,851,000 feet, valued at \$6,759,376, in 1897. It will thus be seen that the importations of lumber by the United States last year were almost as great in feet and considerably greater in value than in 1897, during more than half of which year lumber was on the free list and there were heavy importations in anticipation of the imposition of the duty. The shingles imported by the United States last year were 545,484,000, valued at \$999,862, against a valuation of \$830,298 in 1898 and \$414,222 in 1897.

OPINIONS REGARDING A HARDWOOD ASSOCIATION.

T. A. PICKARD, Owen Sound: I have always felt that the interest of the major part of the Ontario Lumbermen's Association and those of the hardwood manufacturers were not in common in so far as association work is concerned.

MOHR & RYAN, Killaloe Station: We think anything that brings together people whose interests are identical must be of benefit to the parties interested. Such an association would enable us to fix a selling price and also guard against overproduction. We would suggest that if a meeting is called in Toronto, an effort be made to obtain cheaper railway fares for those wishing to attend, as travelling expenses would be quite an item for persons living in the eastern part of the province.

S. H. JACOBS, Huntsville: In unity there is strength is my consideration.

J. P. NEWMAN, Warton: I am in favor of an association of this kind and would join it.

J. T. SCHELL, Alexandria: I would join the association. Would suggest for new grading rules the following: Ten inches and up long, five inches and over wide, clear, for first quality; clear one side, sound other side, for second quality; common, third quality; culls, fourth quality. Do away with firsts and seconds.

R. F. HOUSTON, Tweed: We are in favor of an association.

O. FISHER & SON, Paisley: Very important to adopt standard rules for measuring lumber and logs.

J. W. COLLINS, Toronto: Would suggest that the association take steps to force the railways in Canada to lower their freight rates. There are a number of rules that the railways have, including the weighing of cars, which are detrimental to shippers of lumber.

JAS. MCKENZIE, Morrisburg: Get full information in regard to sizes, ruling prices, best manner of manufacturing, etc., for the British trade, for presentation at the meeting.

CARL ZEIDLER, Toronto: It will be a good thing all round, as the buyer and the millman will get justice if a mode of inspection is agreed upon, and all will be treated alike.

J. D. SHIER, Bracebridge: Suggest that the association meet in Orillia, as most of the manufacturers of hardwood lumber lie north, and Orillia would be very central.

J. M. BIRD, Bracebridge: Meeting should be called before 15th of April, as mills will be starting about that time, which is the busiest time of the year.

E. SYKES, Lady Bank: It will be better both for middlemen and manufacturers to have standard inspection rules to go by, and there should also be adopted rules for scaling hardwood logs.

JOHN NICHOL, Queensboro: The adoption of uniform rules of inspection and the securing of better freight rates are the two essential things we should strive for. I believe that to form an association is the best way to bring about these ends.

R. McLEOD, manager London Lumber Co., London: I am in favor of a uniform inspection for hardwood lumber, same inspection to govern when selling.

J. K. GOETZ, Dashwood: I am of the opinion that uniform rules of inspection should be adopted for hardwood lumber as well as for anything else, and the sooner the better.

THE KNIGHT BROS. Co., Burks Falls: Uniform specifications for grading are much needed.

CHAS. E. PAGET, Trout Creek: I would very much like to see an association of this kind formed, and that too before long, so that we may give it a good trial this season.

WALTER FRENCH, Waterford: I am of the opinion that a majority of the manufacturers are not largely enough engaged in that line to warrant them in incurring the necessary expense and loss of time to make the association a success.

R. B. WILKES, Brantford: A good idea; would be worth many times the fee in the mutual benefit and information which would ensue.

STEELE & GIBSON, Humberstone: We are of the opinion that the forming of an association of hardwood manufacturers would be a great benefit, as well as the establishing of rules of inspection similar to the American Hardwood Association.

W. C. QUICKFALL, Glen Allen: I am also engaged in the cooperage business, and would suggest that cooperage manufacturers be included.

GEORGE F. WEBSTER, Creemore: This movement has not started in time to obtain results for this season's trade.

WILLIAM BURKE, Trout Creek: Would very much like to see uniform system of grading adopted by all the mill men.

J. H. LAVALLEE, manager Orillia Export Lumber Co.: Meeting should be called early, before the spring work comes on.

R. G. CANNING, Lucille: I think an association would be very beneficial to the trade.

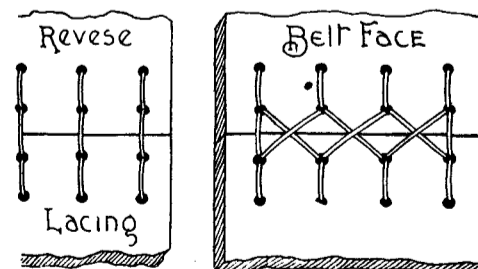
W. H. JOHNSTON, Pefferlaw: It would be well to hold a meeting for organization as soon as possible, in order to have the association of service for this season's cut. I think it is now time when manufacturers of hardwoods formed an association of some kind, at the meetings of which questions of common interest, such as inspection rules and railway rates, would be discussed.

In addition to the above the following persons have intimated their willingness to assist in the formation of an association; J. E. Murphy, Hepworth Station; W. W. Keighley, Patent Clothboard Co., Parry Sound; O. G. Anderson, Anderson Furniture Co., Woodstock; McKee Machinery & Lumber Co., Ottawa; W. P. Widdifield, Siloam; S. I. Wilson Lumber Co., Toronto; Keenan Bros., Owen Sound; Geo. Thomson, Goderich.

SUGGESTION FOR BELT LACING.

Editor CANADA LUMBERMAN:

DEAR SIR,—In your monthly for March I notice an idea in belt lacing. I tried it a few years ago, but found that when a belt required to be shortened it caused a lot of lost time getting the wire unlaced or cut, so I "bumped" up against the double lath tie and found it much better, laced as follows:—



The lacing can be made any length in a few minutes, and with one cut of a sharp knife it is easily removed. For heavy belts I use double and sometimes treble tie. By placing the ends together, sharpening them with a knife, and sewing them with one strand of the lath tie, makes the end very stiff. I can vouch for its cheapness and lasting power.

Yours truly,
"EXCELSIOR."

CULTIVATION OF FORESTRY.

THE annual report of the Clerk of Forestry of Ontario for 1899 diffuses much information bearing upon the important subject of tree culture. The preliminary remarks relate to the application of forestry methods by farmers. This is followed by an outline of the circumstances which led to the adoption by the Ontario Government of the Forestry Reserves Act. The immediate aim of the Commissioner of Crown Lands in proposing this Act was the reclamation of waste areas of Crown lands that had been burnt over after lumbering and were unsuited for settlement. The Crown lands agent at Plevna, in the township of Clarendon, having reported the presence of a large tract of burned over, unsettled land on which a fine crop of young trees was growing, Mr. Thomas Southworth, the Clerk of Forestry, was instructed to make a special report upon the territory.

Mr. Southworth visited the townships of Abinger, Miller, Barrie and Clarendon. The early operations in these townships were confined to taking out only the choicest and largest pine for square timber. This left a large quantity of debris in the woods, which almost invariably caused a forest fire. Now, years after the fires, the forest of dead pine stands so thick as to convey the idea of a great hop yard, and this effect is enhanced by the young green forest which conceals the bottom of the dead pines. The lumber industry in the district is now a thing of the past, but throughout the whole four townships where it is not ploughed, Mr. Southworth found a very vigorous growth of young timber. In the younger stages of this forest, poplar and birch, white and yellow, predominates; but where it is of larger growth, say twenty years, the white pine disputes with these trees for first place and in many instances is the most numerous. As pines and spruces grow only from seed deciduous trees get a start of the conifers. This fact, together with the more



YOUNG FOREST IN WHICH PINE HAS KILLED OUT THE HARDWOODS, AND IN WHICH NATURAL PRUNING, CAUSED BY SHADE, IS TAKING PLACE.

general distribution of the seed of poplars and birches, causes the young forest for the first few years to be largely composed of deciduous trees. The latter, however, are eventually killed out to a large extent by the more hardy pines, which grow more vigorously after this is accomplished. This will be seen by reference to the accompanying illustrations of a young forest in which pine has killed out the hardwoods.

Mr. Southworth found that the stand of young pine was heavy, 600 trees to the acre being not unusual, and 400 pines to the acre being a fair average. On two sample acres in the townships of

Clarendon and Abinger careful calculation showed the stand of young timber to be as follows:

Lot No. 1.		Lot No. 2	
White Pine.....	432	White Pine.....	440
Poplar.....	408	Poplar.....	832
Birch.....	208	Birch.....	216
White Cedar.....	160	Hard Maple.....	40
Spruce.....	32	Willow.....	40
Tamarac.....	16	Spruce.....	24
Red Pine.....	8	Tamarac.....	16
		Balsam fir.....	24
Total.....	1,264	Total.....	1,632

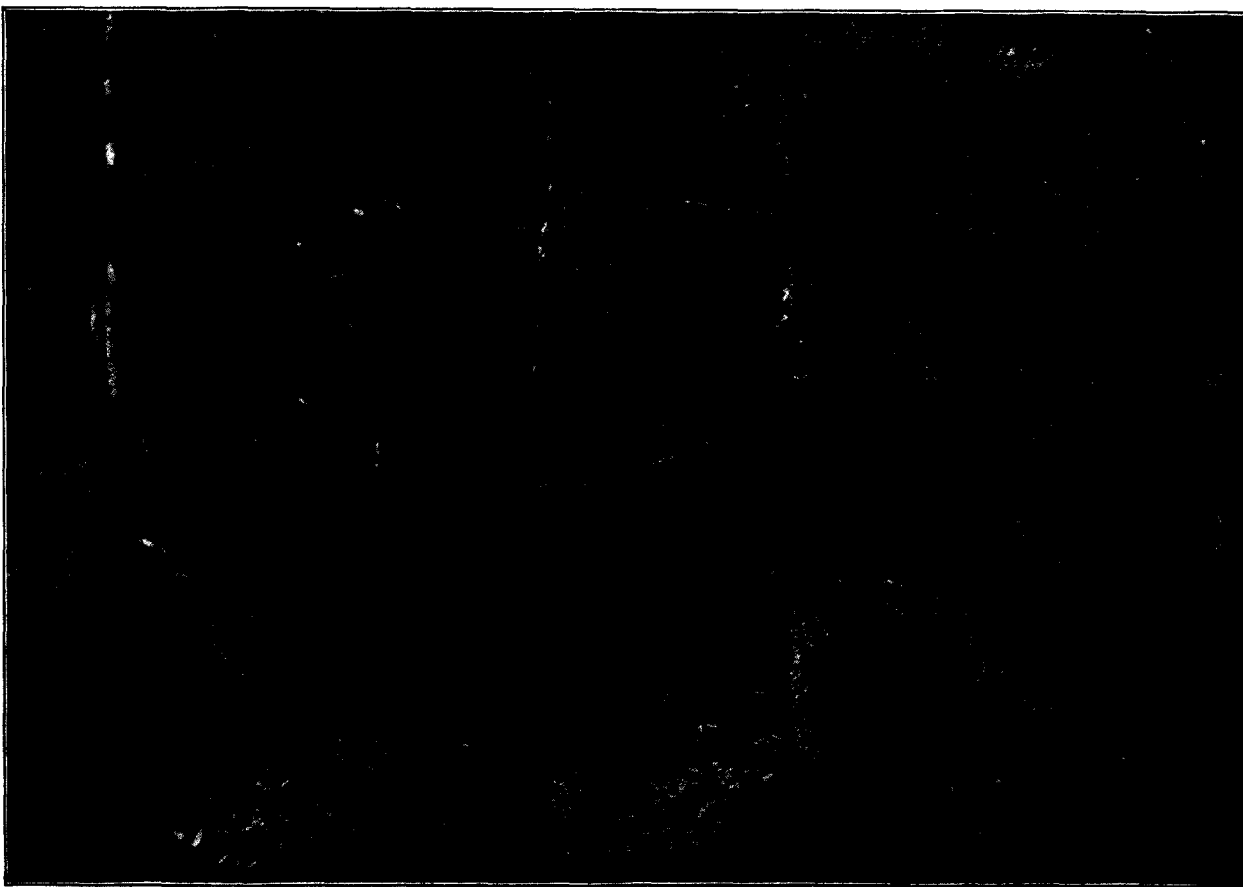
The pines throughout the district, he states, are making rapid growth. Four young trees gave the following measurements:

No.	Height.	Diameter.	Annual Rings.
1	22 feet	4½ inches	13
2	30 "	6½ "	16
3	22 "	3¾ "	10
4	25 "	5 "	14

These trees were only average ones for their particular locality, but are above the average in rapidity of growth for the whole area. They are increasing in diameter at the rate of an inch in 2.68 years, whereas the estimate of the Forestry Commission for the whole province was an inch in five years.

Mr. Southworth states that fifty years from now, under present conditions, it is fair to assume that only 200 of the 400 to 600 pines per acre now standing will still be growing, and it is not guess work to estimate that if fires can be kept out for fifty years longer much of this land will carry a crop of pine that will yield 50,000 feet board measure to the acre. This is not an extravagant estimate when it is considered that it is peculiarly a pine district, also that two years ago there was cut on the Rathbun Company's limit in this same section of the province 100,000 feet of pine to the acre, over a tract of land 10 acres in extent through which a tornado had swept.

The value of this land for timber purposes is next considered. The value of the standing timber fifty years from



YOUNG FOREST OF RED AND WHITE GROWN UP PINES AFTER FIRE HAD DESTROYED THE ORIGINAL GROWTH.

now, it is estimated, will not be less than \$5 per thousand feet board measure, and at 50,000 feet to the acre this would represent \$250 as the value of the standing timber per acre at that time. The sum required to produce this amount in fifty years, compounded at 3 per cent., is \$57.03, which represents the present value of the otherwise worthless land. Applying this to a territory of, say 80,000 acres, it would show, provided it was all equally well timbered, a cash value fifty years from now of 20,000,000. The territory is not all equally well wooded, but the greater part of it is fully up to the above standard, and it would be reasonable to assume the cash value of such a tract at at least \$10,000,000 fifty years from now. It is pointed out that the government of Saxony realizes a net income from the state forests of \$4.30 an acre yearly, and this with a very elaborate and costly forest administration. The cost of the management of such a tract to the government of Ontario would be comparatively small.

The territory set apart in accordance with the recommendation of Mr. Southworth includes the following: 24,500 acres in Abinger township; 27,500 acres in Miller township; 16,000 acres in Barrie township; and 11,000 acres in Clarendon township; making a block of 80,000 acres in all.

The forestry report under review contains a most complete history of the crown timber regulations from the date of the French regime to the present time. The preparation of this must have entailed a vast amount of labor and research, and it should prove valuable as a work of reference. In next issue we may refer at greater length to this portion of the report.

NOTES FROM THE EASTERN PROVINCES.

(Correspondence of the CANADA LUMBERMAN.)

Price Bros. & Company, of Quebec, are the largest lumber operators in the province of Quebec, having saw mills in all the principal lumbering districts. At Ar... they have a water power gang and circular saw mill, with a capacity of seven million feet in the season, and in connection have a number of shingle machines for sawing cedar shingles. The spruce from this mill is principally shipped from Dalhousie, N.B., and the higher grades of shingles go to the American markets via Intercolonial Railway and connections. They do not expect to have a full stock of spruce for this mill this season. At St. Octave they have a very fine steam power saw mill, circular, gang and resawing machines. Their estimated cut for this mill this season is one hundred and fifty thousand logs. The sawn lumber is loaded direct into vessels laying off in the St. Lawrence about half a mile, lighters being used for the purpose. At Matane, about forty miles further down the St. Lawrence, they have another large saw mill with about the same capacity as the St. Octave mill. The firm are building a large saw mill at Rimouski.

King Bros. have a very fine steam power saw and shingle mill at Cedar Hall, Que., circular saw, with other necessary machinery and four Dunbar shingle machines. Their intention is to get about one hundred and fifty thousand logs for this season's cut.

Wm. Wallace is putting a circular saw mill in his shingle mill at Cedar Hall, and expects to saw about one million feet of deals.

A. Lauzier and Coutere Bros. each have circular saw mills, with shingle machines attached, at Cedar Hall.

Herman Cayouette & Co. have a shingle mill at Anqui. John Fenderson & Co., Sayabec, Que., have a large saw and shingle mill and expect to saw about five million feet of spruce deals, etc. They will run ten shingle machines in connection. The firm also have two winter shingle mills which have been running all winter. N. Boulay and N. Cayouette & Company each have small mills in this vicinity. F. R. Morneault & Company, Sayabec, have a saw and shingle mill which they run in the summer and a shingle mill which they run in the winter.

The Rimouski Lumber Company, of Rimouski, Que., have a water power saw and shingle mill, circular saw and seven shingle machines. They expect to stock from

forty to fifty thousand spruce logs, besides enough cedar to keep their shingle machines fully employed during the season.

Compagnie Bic, Bic, Que., Joseph Lavoie, manager, have a circular and gang saw mill and will get about fifty thousand logs for their season's cut. Thomas Label, St. Luce, has a shingle mill sawing winter and summer. George St. Pierre & Co., River Du Loup, has four mills, the one at St. Honore being a circular saw with some shingle machines; the others being shingle mills only. Jas. Hayes & Co. run a shingle mill at Notre Dame Du Lac, and are extending their operations.

Donald Fraser & Sons have the largest mill in northern New Brunswick, at Cabano, erected during the past year. They expect to saw their cut of logs from the Touladi river, which amounts to about twenty-two million feet of spruce and pine and six million feet of cedar. The mill is equipped with all the latest appliances for handling lumber economically, and is conveniently situated alongside the Temiscouata Lake. The sawn lumber and shingles can be loaded on the cars of the Temiscouata Railway without touching ground, if needed. During the building of the mill the railroad company laid their tracks through the mill and ran the cars, loaded with the heavy machinery, so that the heavy engine, boilers, gangs, etc., could be placed on their foundations at the least possible cost of time and labor. It is impossible for a person with his eyesight—even if his digestion is not up to the standard—to pass through this section of country without being wonderfully impressed with the beautiful natural scenery, especially during the months from May to September. The lake is about twenty miles long, with an average width of about two and a half miles. Cabano, or, as the railway station there is called, Fort Ingalls, is about midway the length of the lake. From there north the lake is nearly due north and south, and from Cabano down is about south-east, thus making rather an abrupt bend, giving one the idea of a large river. The land rises very abruptly, in some places to mountains. Several streams enter the lake, down which large quantities of logs have been driven for many years past. At St. Rose, the lower end of the lake, the Madawaska river connects with the St. John River at Edmundston, about twenty-five miles distant. A fish, called the Touladi, is caught in the lake. They weigh from ten to twenty pounds and are prized very much for the sport they give and also for their fine flavor.

The Temiscouata Railway, running from River du Loup to Connors, on the St. John river, is opening up this section of country, and is well patronized by summer tourists who want to get away for a few weeks in the hot season and have a change of scenery and some sport—fishing, etc. Moose and deer are plentiful, and after the 15th of September there is a great rush of the knowing ones to this section.

James Murchie & Sons carry on an extensive lumber and shingle business at Edmundston. They will saw about four million feet of spruce and run seven shingle machines during the summer. They also have a shingle mill at Cabano. Felix Hebert, Edmundston, runs the Hotel Hebert, popularly known as the "Sportsman's Paradise." The genial Felix will explain to the amateur sportsman just where he can get a bear, a moose, or a deer, if he carries a gun; or, if a rod, where the best fishing can be had, and besides will tell him some good stories of his own prowess.

At Clair Station the Kennedy Island Lumber Co. operate a large shingle and saw mill, their principal business being shingles. They will saw about a million feet of spruce and run five shingle machines this season. Mr. Thos. Crockett is the manager, and he is also manager of the Temiscouata Railway, his headquarters being at River Du Loup. Mr. Crockett does an immense business in cedar railway sleepers, supplying the Grand Trunk Railway, Portland-Montreal Division, besides exporting largely to the United States. J. J. Wheelock bought the mill property of the late Robert Connors at Connors' Station, and operates five machines there and also does an extensive business across the river in the State of Maine. The late Robert Connors built a very fine hotel at Connors' Station, furnished to suit the most fastidious, and being at the time, and is yet, much in advance of what one expects to find so far away from what is generally termed civilization. All the big game hunters generally make this hotel their headquarters for a few weeks during the open season, enjoying as much their comfortable sur-

roundings, possibly, as their quest for game. Mr. J. W. McBrearty, the proprietor, is a thorough sportsman as well as a perfect host, and the assurance is hereby given that only death or poverty will keep one from repeating the trip. There are also several smaller mills along the line of the Temiscouata Railway, the cut of which is shipped to the United States market by this road via River Du Loup & I. C. R. and connecting roads. James Burgess & Sons, Grand Falls, have a saw and shingle mill on Little river, a few rods from the Grand Falls, on the St. John river. They will saw about a million feet of spruce and run two shingle machines.

The Stevens Lumber Co. have a larger saw and shingle mill at Salmon river, ten miles below Grand Falls. They saw about two million feet of spruce, and run eight shingle machines. They also have a large mill on the Aroostook river, in the state of Maine.

F. H. Hale, M. P., is building a large mill at Plaster Rock, on the Tobique river. He will put in twelve shingle machines at first and other machinery will be added.

C. R. Lockhart & Son, Bristol, have a water power saw mill. They will saw about three quarters of a million feet of spruce, hemlock and hardwood. A. H. Sawyer, Hartland, will saw about four million feet of spruce, principally for the American market. Robt. McElroy, Gratton, will saw during the winter and spring about a half million feet, mostly custom lumber. R. A. Estey, Fredericton, will saw about four million feet of spruce and run four shingle machines this year. Hale & Murchie, Fredericton, will saw from seven to eight million feet at the Victoria mills this season. George W. Upham, Fredericton, expects to saw three million feet. C. F. McKendrick is fitting up the old Robinson mill, five miles below Fredericton, on the opposite side of the river, and will saw from three to four million feet. John A. Morrison, Fredericton, has the largest shingle mill in the Maritime provinces, if not in Canada. He operates sixteen machines exclusively, sawing high grade cedar shingles. Hilyard Bros., of St. John, built a steam saw mill at Rusagornis and intend doing a large business. Donald Fraser & Sons have a large steam-power saw and shingle mill at Fredericton—gang, circular and shingle machines. They also have box-making machinery and do a large business in this line. They will saw about eight million feet of spruce, besides a large quantity of shingles, clapboards and lath. The Alexander Gibson Manufacturing Co. will manufacture about their usual quantity of lumber and shingles this season. They also have a large mill at Blackville, on the Miramichi river.

W. J. P.

CANADA'S COMMERCIAL AGENTS.

FOLLOWING is the official list of Canada's Commercial Agents in Great Britain, British possessions and foreign countries:

J. S. Larke, Sydney, N.S.W., agent for Australasia.

G. Eustace Burke, Kingston, Jamaica, agent for Jamaica.

Robert Bryson, St. John, Antigua, agent for Antigua, Montserrat and Dominica.

S. L. Horsford, St. Kitts, agent for St. Kitts, Nevis and Virgin Islands.

Edgar Tripp, Port of Spain, Trinidad, agent for Trinidad and Tobago.

C. E. Sontum, Christiania, Norway, agent for Sweden and Denmark.

D. M. Rennie, Buenos Ayres, Argentine Republic agent for Argentine Republic and Uruguay.

In addition to their other duties, the undermentioned will answer inquiries relative to trade matters, and their services are available in furthering the interests of Canadian traders:

J. G. Colmer, 17 Victoria street, London, S.W., England.

Thomas Moffat, 16 Church street, Cape Town, South Africa.

G. H. Mitchell, 15 Water street, Liverpool, England.

H. M. Murray, 40 St. Enoch Square, Glasgow, Scotland.

Harrison Watson, Curator, Imperial Institute, London, England.

Firstbrook Bros., box manufacturers of Toronto, are looking for a new factory site. They may locate at Penetanguishene, where they have been offered a free site and exemption from taxation.

THE LATE CAPTAIN WOOD.

Captain James Wood, who died at Peterborough, Ont., last month, was born near Montreal in the year 1836, and as a youth learned the trade of a machinist, in which employment he was engaged for a few years in the early part of his life. About the year 1857 he joined his cousins, James and Robert Allen, forwarders of the city of Montreal, in the forwarding business, having the superintendence of their steamers and forwarding work. In the year 1867 he severed his connection with this business and entered into co-partnership with John A. Cameron, John C. Edwards and Wm. C. Edwards, then of Thurso, under the name of James Wood & Co., and built steamers and barges, and for many years carried on a forwarding business on the Ottawa river.

In the year 1868 the business of W. C. Edwards & Co., lumber manufacturers, was established at Rockland, Ont., the partners being Wm. C. Edwards and James Wood. In the year 1871 this firm bought out the business of Cameron & Edwards at Thurso, and John A. Cameron, of Thurso, and John C. Edwards, of the same place, became partners in the W. C. Edwards & Co. business. The lumbering operations of this business have always been managed solely by Wm. C. Edwards, but during the period of the operations of James Wood & Co., forwarders, the subject of this sketch was the sole manager of the forwarding business. Eight or ten years ago James Wood & Co. sold out their entire interest in the forwarding business, at which time James Wood became the manager of the saw mills of the firm of W. C. Edwards &



THE LATE CAPTAIN WOOD.

Co. at Ottawa. Some two or three years ago he retired from the management of these mills and resided privately at Peterborough, Ont.

While Captain Wood never had much to do directly in the management of the lumbering operations, he, at the same time, was very much associated with these operations, as the forwarding business is closely connected with that of lumbering. As a consequence, he had a very large and extended acquaintance with the lumbering trade, with which trade he was most favorably known. For while a very quiet and unobtrusive man, he was at the same time a man of sterling worth, and his word was as good as his bond. Well known, however, as he was to the lumber trade, he was still better known to the forwarding and steamboat interests. During the long period in which he was engaged in business on the Ottawa river it is safe to say that he never had an enemy, but had a very large circle of friends who esteemed and respected him most highly.

For a few years previous to his death Captain Wood was not in the robust health that he had generally enjoyed, but this was supposed by himself as well as by his friends simply to be the result of a busy life, which was more or less telling upon him as he advanced in years. His death, however, which came about rather suddenly at Peterborough, culminating in paralysis, proved, as represented by the doctor who attended him, that he had been a sufferer for more or less time from Bright's disease. He leaves behind him his wife and two sons, who with a large circle of friends will long regret the loss of so estimable and worthy a man.

THE NEWS.

—A planing mill and sash and door factory are being started at Stratford, Ont., by Rutson Bros.

—It is reported that B. Ladouceur has sold his lumber yard at Otterburne, Man., to D. Prefontaine.

—The Parry Sound Lumber Company have increased the capacity of their shingle mill at Parry Sound.

—The Hamilton saw mill, on the Strait shore in New Brunswick, has been sold to C. H. Miller, of St. John.

—Milne & Piott, of Burks Falls, Ont., intend erecting a mill and factory for the manufacture of fruit baskets, etc.

—Tretheway Bros. have completed their new saw mill at Harrison River, B.C. It will have a daily capacity of 40,000 feet.

—Spencers, Turner & Logan, Truro, N.S., are building an addition to their woodworking factory and will put in new machinery.

—The Keewatin Lumber Company are thoroughly overhauling their mills and expect to cut 20,000,000 feet of lumber this season.

—Barrat & Duncan, sash and door manufacturers, Arnprior, Ont., have dissolved partnership, Mr. Duncan retiring from business.

—At Little Current, Ont., there will be in operation this season three large saw mills, two lath mills, two shingle mills and a sash and door factory.

—The Hall Lumber Company, of Detroit, have purchased property at Sarnia, Ont., and intend establishing a wood-working plant and lumber yard there.

—It is the intention of Davidson & Thackray, of Ottawa, to erect a large saw mill this year near Fort Coulonge, where they have large timber limits.

—The Rat Portage Lumber Company are putting in a new 100 h.p. boiler at their No. 1 mill. They expect to increase the capacity of the mill by 15 per cent.

—A large pine log was taken to J. R. Booth's mill in Ottawa last month. It was from the Madawaska district, and was 60 feet long and 57 inches in diameter.

—The Haliburton Lumber Co., recently formed, are understood to have purchased the McNab mill near Ingoldsby, Ont., and limits in Dudley township.

—The Canada Wood Specialty Company, of Orillia, Ont., are fitting up their factory and expect to commence manufacturing in about one month. They will install a steam plant.

—The saw mill of the Minor Lumber Company at Alpena, Mich., has been purchased by Edmund Hall, of Detroit, and is now being removed to a site in the Georgian Bay district.

—The Carling Lumber Co., of Parry Sound, Ont., is thoroughly overhauling the old Huff mill and are putting in a new band saw. They expect to cut 8,000,000 feet of lumber this summer.

—J. G. Picher, architectural sculptor, of St. Henri, Que., has just finished a beautiful chair for the Speaker of the House of Commons. It is of solid oak, and in bold relief stands the Coat of Arms.

—The Rathbun Company are installing a new engine in their mill at Lindsay, Ont. They have also made other improvements and expect to make a record cut this year. Mr. G. H. M. Baker is local manager.

—Publicity has been given to the statement that R. G. Reid has made arrangements with Lewis Miller, of Creiff, Scotland, to transfer the latter's lumbering establishment from Sweden to Newfoundland.

—It is understood that the Robertson Log Raft Company, of San Francisco, will move to British Columbia in case Congress forbids log rafting on the Pacific coast. It is believed they will attempt to take rafts to China and Japan.

—The Yale Columbia Lumber Co. have commenced the re-building of the Blue saw mill at Rossland, B.C., which was destroyed by fire recently. The engines and boilers were not damaged, but the balance of the machinery was a total loss.

—The Longford Lumber Company are about to commence the manufacture of wood alcohol at Longford Mills, Ont. This product is used largely in France and Germany in the making of perfumes. It is said that in the state of Pennsylvania there are seventy such plants, while in Canada there are but two.

—The Thunder Bay, Nipegon and St. Joe Railway, when built to Fort Severn, will open up thirty-two million acres of land, on which there is said to be twenty-four varieties of wood. Two million acres are covered with ash, elm, birch, tamarack, pine and spruce.

—Edward Gold, of Vancouver, B. C., has been granted a patent in Canada for a wood preserving compound, consisting of crude petroleum, lime, asphaltum, cement, brimstone, crude creosote and asbestos mixed together and heated in a vessel and applied to the wrapper which is wound on the timber and then treated to a covering of sand.

—The Fort Daniel Lumber Co. have completed their new mill at Fort Daniel, East Quebec, and expect a busy season in the manufacture of lumber and shingles. They are now running three small machines day and night and will shortly put in service another machine and a rotary mill. They have a one-hundred horse power engine and boiler, and ship their stock by water to Boston, Prince Edward Island and Cape Breton.

—It is the intention of R. G. Reid & Sons, of Montreal, to build extensive pulp and paper mills near the outlet of Grand Lake, in Newfoundland. The plans are being prepared by A. C. Rice, hydraulic engineer of Worcester, Mass. There will be a 100-ton bleached sulphite mill, a ground wood pulp mill with 28 grinders, and a large paper mill. The buildings will be built of concrete and steel, and will include a boiler house 52 x 160 feet.

—At the annual meeting of the Massachusetts Wholesale Lumber Association held at Boston on February 27th, the following officers were elected: President, William Bacon; vice-president, H. M. Bickford; secretary and treasurer, F. A. Kimball. Executive committee: A. Hall, G. H. Davenport, H. B. Shepard, W. R. Chester, E. B. Abbott, H. B. Clark, T. Badger, C. C. Batchelder, H. D. Wiggin, W. E. Litchfield, and Alfred Kimball.

—The Eastern Door, Sash and Blind Manufacturers' Association, at their annual meeting held at Syracuse, N. Y., passed a resolution that the tariff of \$2 per thousand on lumber was inimical to the interests of manufacturers and consumers of lumber in general, and that a committee be appointed to memorialize congress to repeal the said tariff act provided that the Canadian government will remove the embargo on logs.

—The item in last issue regarding the purchase by Mr. Burke of the saw mill of the Trout Creek Lumber Co., was somewhat misleading. We are informed that the Trout Creek Lumber Co., composed of Messrs. Burke, Buckel and Baechler, was dissolved by mutual consent on the 10th of January last, the two latter parties retiring therefrom. Mr. Burke's son has been admitted as a partner, and the business is now carried on under the firm name of Burke, Son & Co. They manufacture lumber, sash, doors and mouldings.

—Hon. Mr. Davis, Commissioner of Ontario Crown Lands, has introduced a bill to amend the act to preserve forests from destruction by fire. Hitherto the practice in regard to the appointment of fire rangers has been for the lumbermen to nominate men for the office, the cost of the wages being divided equally between the lumbermen and the government. The present measure gives the force of law to the practice already in vogue. It further provides that where Crown lands are not under license the Commissioner of Crown Lands may appoint such fire rangers as he thinks fit; and where Crown lands are under timber license the commissioner may appoint the necessary fire rangers, the expenses to be borne equally by the license holder and the government.

The American Machinery and Trading Co. have established a main office in the Bowling Green Building, New York City, with branch offices in the largest cities in the United States, also in all foreign countries, with a large corps of travelling salesmen and correspondents, buyers of machinery, hardware, etc., throughout the world. They solicit exclusive agencies and special prices from manufacturers of all kinds of machinery in this country, with a view to handling the same to the best advantage on account of the unequal facilities that they have for placing orders. Mill owners, contractors and purchasing agents of power and electric light plants, and anyone requiring machinery of any character whatever, are respectfully solicited to correspond with this company, on account of the trade arrangements, by which they are in a position to quote the lowest market prices on the highest grade of machinery manufactured.

THE SAW MILL MAN'S DREAM.

A saw mill man had a dream one night,
 Several years ago,
 When every saw mill man in the land
 Was weighted down with woe.
 And it was a very pleasant dream
 Of things as they ought to be
 And the saw mill man came in one day
 And told the dream to me.

He dreamt that night of his debts, he said,
 As he'd often dreamed before,
 Only that night they'd all been paid
 And bothered him no more.
 And he could buy logs so very cheap
 It made him smile to see—
 "The very best logs that I ever saw
 Or ever will saw," said he.

They'd let him make the grade, they said ;
 They'd pay for the lumber green,
 But he dreamt he treated them coldly ;
 He dreamt that they acted mean.
 When he thought of the years that had
 Gone before,
 When he nearly starved to death,
 He raised his prices every day,
 While the buyers held their breath.

Then he dreamt that in a sneering way
 He took their proffered gold
 And gave them a little mill run stock,
 None of it ten days old.
 But all of it went for ones and twos,
 All went shipping dry—
 And he dreamt that when he was hungry
 A nigger brought him pie.

He sent his boys to the colleges ;
 His girls to a boarding school,
 He bought a grand piano
 And a grand piano stool ;
 He dreamed he lived on the best there was
 And smoked them three-for-a-half.
 It tickled him so, that you must know
 He woke up with a laugh.

But as he told that splendid dream
 He wept in sheer despair.
 I did what I could to cheer him up
 And lighten his load of care—
 I let him smoke my pipe that day,
 'Twas all that I could do.
 "I'll give you an ad. some day," said he,
 "If ever that dream comes true."

This winter that man came in again
 Dressed in the height of style.
 A diamond glittered in his shirt ;
 He wore a brand new tile.
 But he shook my hand in the same old way
 And said : "Stroke, howdy do !
 I just dropped in to give you that ad.
 Because that dream's come true."
 —The Chicago Hardwood Record.

BUSINESS CHANGE.

On account of the liquidation of the Canadian Locomotive & Engine Company, of Kingston, Mr. F. J. Drake has severed his connection with the company and returned to Belleville, where he has made arrangements to continue the manufacture of a full line of stationary and portable saw mills, shingle mills, lath mills, etc. Persons in want of saw mill machinery should correspond with Mr. Drake. His patterns are of modern design, and his machinery enjoys a high reputation among mill men generally. His announcement will be found on another page.

HOW TO USE EMERY WHEELS.

An emery wheel manufacturing company gives this advice to users of such wheels : Too great a variety of work should not be expected from one grade of wheel. If the amount of grinding will warrant it, several grades can be profitably employed, each carefully selected for its particular purpose. Wheels should be kept perfectly true and in balance. In order that they may not become in the least out of true an emery wheel dresser should be used to dress up the wheels a little each day, or as often as they require it.

In mounting emery wheels never crowd them upon the arbor. Use flanges at least one-third the diameter of the wheel. Flanges should always be concaved and fitted with rubber washers between flange and wheel. Have wheels slip easily on the arbor and screw flanges only tight enough to prevent wheels from slipping. Stands on which wheels are mounted should be heavy and strong, and solidly bolted to a firm foundation. Keep machine well oiled so that arbor will not become heated, otherwise there is danger of wheels breaking from expansion of arbor.

Users of wheels are particularly cautioned not to run wheels on shaky machines or on machines in which the arbors have become loose in the boxes from wear. See that rests are properly adjusted in relation to the wheel, otherwise accidents may occur owing to work being drawn

between the wheel and the rest. Never run wheels at a higher speed than the maker recommends. Don't try to grind malleable iron with a wheel that was made for brass, as no one wheel can be made which will be just right for all kinds of metals.

To obtain the best results, emery and corundum wheels should be run at a surface speed of 5,500 feet per minute. Wheels if run too fast will heat the work and glaze, and if run too slowly will wear away rapidly and do but little work. The same speed should be maintained as the wheel wears down, and the speed of the spindle should be increased correspondingly as the diameter of the wheel is decreased. Where there is a sufficient amount of grinding to warrant the use of more than one machine, this can be accomplished by transferring from the first or larger grinder to smaller ones as the wheels wear down, otherwise by means of cone pulleys.

CORDAGE

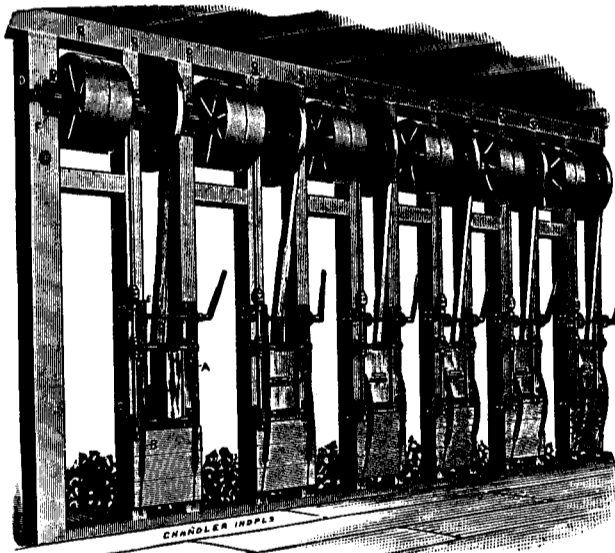
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WOOD PULP ~ DEPARTMENT

INCREASED PULP WOOD DUES.

An order-in-council has been passed by the Lieutenant-Governor of Ontario increasing the dues on pulp wood from 20 cents to 40 cents per cord. The new law will take effect on May 1st next and will make the dues the same as is charged in Quebec and New Brunswick. It is expected that pulp wood will be an increasing source of revenue to the Ontario government, as last year 29,848 cords were cut on Crown lands, as against 16,448, in 1898.

SEARCHING FOR NEW FIBRE.

The United States paper makers apparently view with some alarm the prospect of their supply of spruce for pulp making becoming exhausted. No greater evidence of this can be found than the efforts that are being put forth to find a substitute for spruce. The Times-Democrat, of New Orleans, in order to encourage the discovery of a new fibre for use in the making of paper, offers to subscribe \$500 to a fund for this purpose. Naturally many suggestions have already been received, by which cottonwood has been brought forward prominently. Captain McIntyre, of Portland, Oregon, who is engaged in transporting cottonwood from Lower Columbia points to a paper mill in Oregon City, states that by the time the wood reaches the paper mill it costs about the same as firewood, \$3.50 a cord. He has no fear of the supply of cottonwood giving out soon, as it grows very quickly. Under favorable conditions it becomes a sturdy tree 20 inches at the butt within 25 years.

The requirements of the new fibre are that it be cheap, abundant in supply, located so that it can be gotten to the manufacturing point without excessive freight charges, and that it must be capable of being used in the pulp and paper mills as advantageously as wood.

A new design of wood pulp grinder is now being manufactured by McQuat & McRae, of Lachute, Que.

BLEACHING WOOD PULP.

A CORRESPONDENT asks the following question: "What is the best practice in American mills for bleaching wood pulp from the bale? Is it put into the bleaching engine in sheets, or previously steamed, broken up in a rotary boiler, or passed through a willow or devil, or handled in any other way which will enable the greatest output of bleached stuff in the least time?"

Mr. J. F. Hobart answers the question in the Paper Trades Journal as follows: "There is no universal practice, as I have found it, in American mills as to bleaching wood pulp, but the beating engine seems to be used for that purpose more than anything else, although stuff-chests are used for bleaching to a considerable extent. When pulp makers sell bleached pulp they do not, of course, bleach from the bale, but take it as it comes from the wet machine, or even from the digester blow-off, or from the grinder screen. But in mills where wood pulp, both mechanical and chemical, is taken from the bale there is great diversity of practice. I believe that in the majority of American mills the pulp is furnished dry into the beating engine, the sheets being opened out and sometimes torn into pieces of one to three square feet in area. The roll is, of course, raised during the furnishing operation, and the pulp is allowed to run in the engine until it has become reduced to small bits of fibre. Then the bleach is introduced. Steam is sometimes introduced, and the contents of the engine heated up to 120 or 140 degrees Fahr. to facilitate operations both of disintegrating the bunches of fibre and of bleaching. Some mills use stuff-chests, either vertical or horizontal, and the wood pulp, after having been torn in pieces in a beating engine, is let down into the stuff-chests for bleaching. Some mills, instead of using the conventional stuff-chest with agitator, make use of conical vertical chests in which circulation is maintained by means of a powerful fan (centrifugal) pump into which the small conical neck of

the chest is connected. In only one mill which I have visited did I find a machine for tearing up sheets of wood pulp ready for the bleaching operation. This machine was an ordinary picker, such as is used in textile mills for preparing some kinds of fibre, notably flax, cotton, etc. This machine had a large flat travelling slat table upon which the pulp sheets were spread. A power feed and a pressure roller secured a uniform feed and insured the sheets being torn into small and equal pieces. I am not aware that any mills use rotary boilers for breaking up wood pulp preparatory to bleaching, still such may be the case in some mills which I have never had opportunity to visit. But never having seen or even heard of this being done, I believe it is seldom if ever practised in American mills."

THE WOOD PULP MARKET.

Our contemporary, Paper and Pulp, says of the wood pulp market of Great Britain:

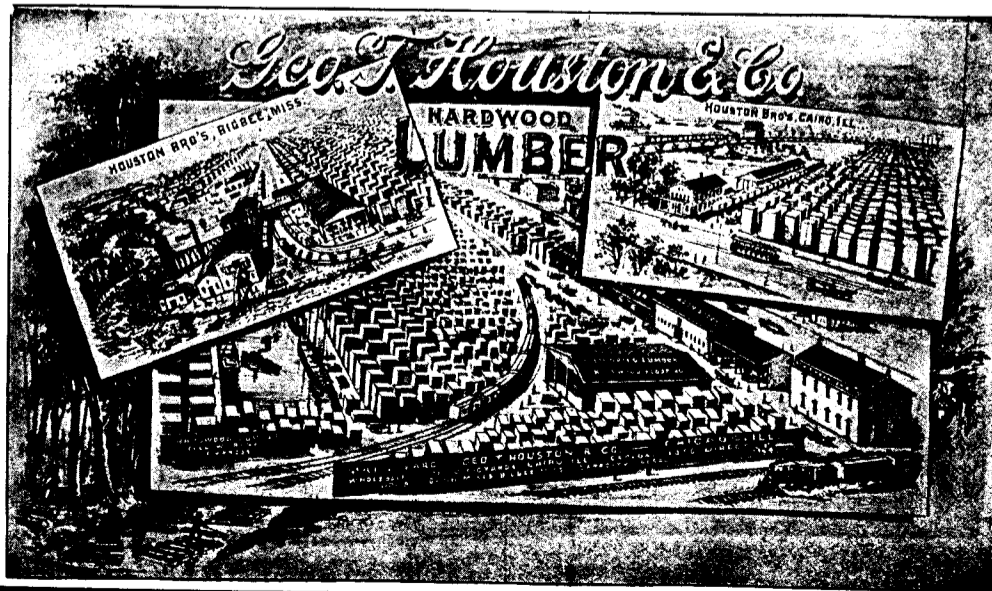
The scarcity of mechanical pulp for early delivery is now becoming more apparent, and will be very keenly felt during the next two months. Reports from Norway state that the scarcity of water is now daily becoming more decided. It is difficult to see how prices can fall later on, as some buyers in this market anticipate, as it will take a long time to fill up the gap made by the shortage, coupled with the extra demand. An impression seems to prevail in this country that there will be a serious fall in prices after the spring, but present indications do not warrant this assumption. For prompt delivery moist pine has been sold at 75s c.i.f., while £7 5s c.i.f. is asked for dry pine. Sales have also been made for delivery from July onwards at 60s c.i.f. for moist. Although the majority of makers are now asking 65s for moist and £7 for dry, 70s has been offered for deliveries of moist from March to the end of the year, but refused, as the pulp could not be obtained.

Sulphite for prompt delivery is exceedingly scarce, and the market is absorbing everything that comes on to it, prices being at present very high. As far as we can ascertain the supply has in no way been curtailed; on the contrary, it has considerably increased from Scandinavia, though, of course, shipments from America have fallen off. There is every indication that prices will advance still further, as the quantity of sulphite still available for this country is now known to be limited.

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The few mills which have sulphite to offer are now asking from £9 10s to £10 f.o.b.

There is practically no soda pulp to be had, and only nominal prices can therefore be given; £10 c.i.f. is the average price quoted, although we have heard that one mill, which has a small lot of first class quality to offer, is asking £11 c.i.f.

PULP NOTES.

There is understood to be a good prospect of the erection of a pulp mill at Broadlands, Que.

Olin Scott, of Bennington, Vermont, will have the expert superintendence of the new pulp mill to be built at Weymouth, N.S., by the Sissiboo Falls Pulp and Paper Co.

An enquiry has been made by J. Herrebonat, a Belgian financier, as to the price of wood pulp on board ship, ready for export, at either Gaspé or Paspebiac, Que. The enquiry came on behalf of a Brussels paper

mill, and was received by Mr. J. Lebouthilier, of the Canada Fire Insurance Company, of Montreal.

The North River Lumber & Pulp Co. is seeking a Dominion charter, the chief place of business to be Valmorin, Terrebonne county, Que. Charles R. Burleigh, of Whitehall, N.Y., and Hugh Mackay, of Montreal, are interested.

The Cushing Sulphite Fibre Co., of St. John, N.B., have elected officers as follows: Edward Partington, president; Joseph Allison, vice-president; George S. Cushing, managing director; and James S. Gregory, secretary-treasurer.

The Lancaster Pulp Co. is seeking incorporation. H. R. McLellan, of St. John is the promoter, and it is proposed to build a pulp mill at Musquash, a few miles down the shore from St. John. There is a good water power and an abundance of spruce timber.

The Chicoutimi Pulp Co., of Chicoutimi, Que., purpose greatly enlarging their plant, for which purpose bonds are now offered for sale. It is said that the output of the

company for this year is sold, and that two offers have been received for the output of 1901.

In all probability E. B. Eddy & Co., of Hull, will this season increase the power and capacity of their large chemical pulp mills. Plans are now being discussed for the introduction of new machinery, including larger digestors, for which new buildings will have to be erected.

The British American Pulp and Paper Co. have in contemplation an extensive project, namely, the building of pulp and paper mills in the Lake St. John district, also an electric railway from Ha Ha Bay, on the Saguenay river, to Great Falls on the Grande Perribonca river, thence to Lower Falls, and eventually to Montreal.

In reply to a question asked in the Ontario Legislature the Commissioner of Crown Lands stated that 31,116 cords of pulp wood were taken from Crown lands in 1894-5, 35,937 cords in 1895-6, 46,387 cords in 1896-7, 16,447 cords in 1897-8, and 29,839 cords in 1898-99. For the same periods the dues were respectively \$6,423.96, \$6,898.06, \$8,238.12, \$3,538.90, and \$4,828.46.

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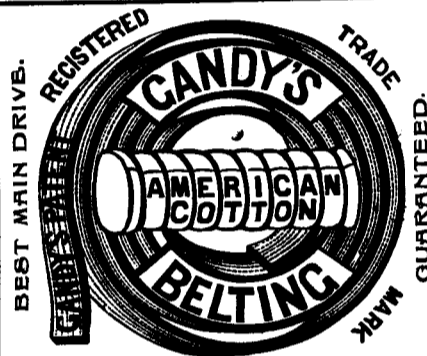
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PULP NEWS.

—The Sissiboo Falls Pulp & Paper Co., of Weymouth Bridge, N.S., are reported to have sold their output for the months of April, May and June at a price which will net them \$17.50 at the mills.

—The Royal Paper Mills Co., of East Angus, Que., are reported to have purchased from the British American Land Co. an extensive tract of timber land in the township of Lingwick, Que., said to contain about 20,000 acres. The consideration is given as \$65,000.

—The importation of wood pulp into France last year was about the same in quantity as the year before, viz., 132,502 tons; but whereas in 1898 the division was mechanical 92,579 tons, and chemical 40,479 tons, in 1899 it was mechanical 86,078 tons, and chemical 46,424 tons. The tendency at present, therefore, seems to be to use the cheaper sorts in preference to the other. The quantity exported was only 464 tons.

—The National Paper Mills Co., incorporated under the laws of Quebec, is being organized. The prospectus states that the company propose to take over the plant of the National Paper Co., situated at Indian Lorette,

eight miles from Quebec city. It is proposed to erect a wood pulp plant of 25 tons capacity daily and a paper mill of 20 tons capacity. James Reid, of Quebec, and Geo. S. Wilson, of Montreal, are interested.

—The project to erect extensive pulp mills at Chelsea, near Ottawa, has suffered a set-back. The Quebec government's claim to the valuable water power has been confirmed by the Attorney General, and now the firm of Gilmour & Hughson is securing legal assistance to establish its title to the aforesaid water power. The firm had almost closed the bargain by which the English capitalists were to secure the limits and water power. There was also a project on foot to erect a large saw mill.

PERSONAL.

Mr. J. B. Klock, M. P., presented a flag to the Strathcona Horse on behalf of the citizens of Sudbury, Ont.

Mr. C. Allen, of Kingston, has succeeded Mr. S. J. Reid as manager of the Peterborough agency of the Rathbun Company.

Mr. E. T. Carrington, of the Spanish River Lumber Co.,

Spanish River, Ont., is at present on a trip to Cuba and Porto Rico. He expects to return about the end of May.

Mr. John Charlton, M.P., who has represented the constituency of North Norfolk in the Dominion House for twenty-eight years, has again been unanimously nominated by the Liberals of that riding.

Mr. John Harcourt, of the firm of Ker & Harcourt, spool and bobbin manufacturers, Parry Sound, Ont., recently sailed from New York on the steamer Oceanic for England. Mr. Harcourt is in search of business and expects to return with large orders.

Mr. Thomas Moffat, of the firm of Moffat, Hutchins & Co., Cape Town, South Africa, and Dominion commercial agent for Cape Colony, is at present visiting friends in Ontario. Manufacturers and exporters of lumber may obtain from Mr. Moffat information regarding the prospects of doing business in South Africa.

Mr. J. T. Schell, of Alexandria, Ont., has accepted the nomination as candidate for the House of Commons tendered to him by the Liberal Association of Glengarry. Mr. Schell is a member of the lumber firm of Macpherson & Schell and is well known throughout the county. We understand that thus far his candidature has met with gratifying assurances of success.

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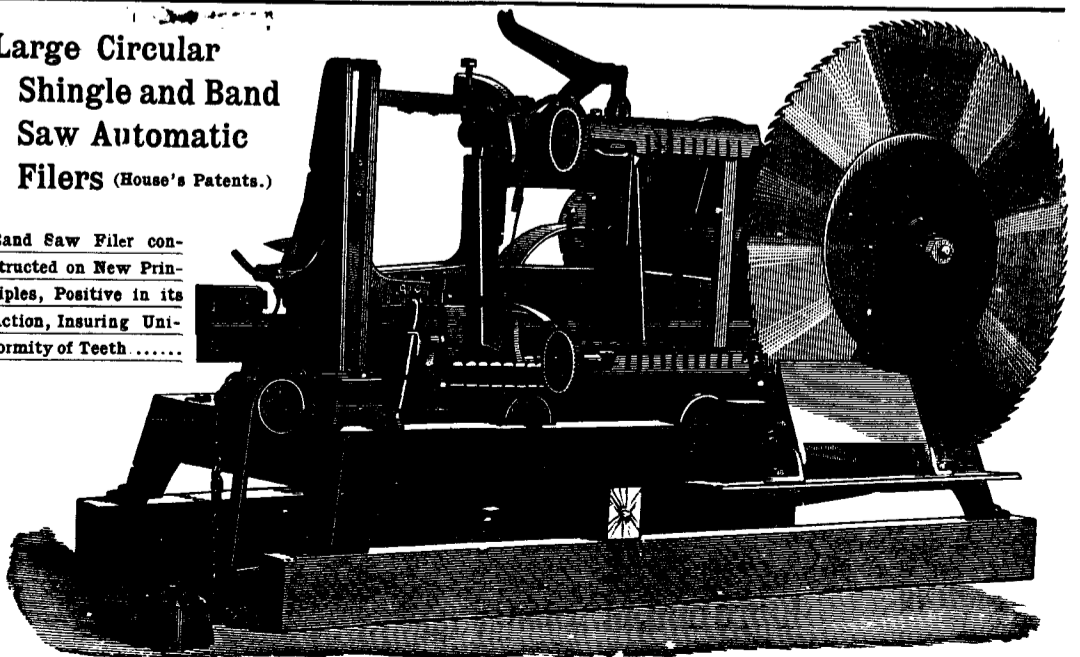
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Band Saw Filer constructed on New Principles, Positive in its Action, Insuring Uniformity of Teeth



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BELTS MADE
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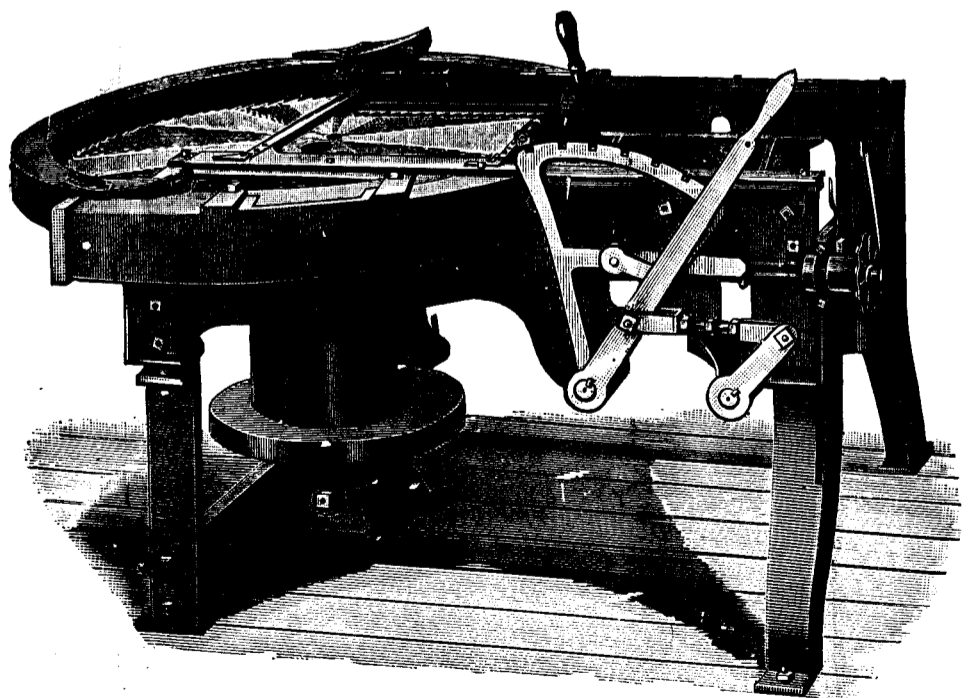
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DAUNTLESS SHINGLE AND HEADING MACHINE.
Takes Saws up to 42" diameter. Capacity 25,000 to 50,000 per day.

My Patterns are New and of Modern Design.

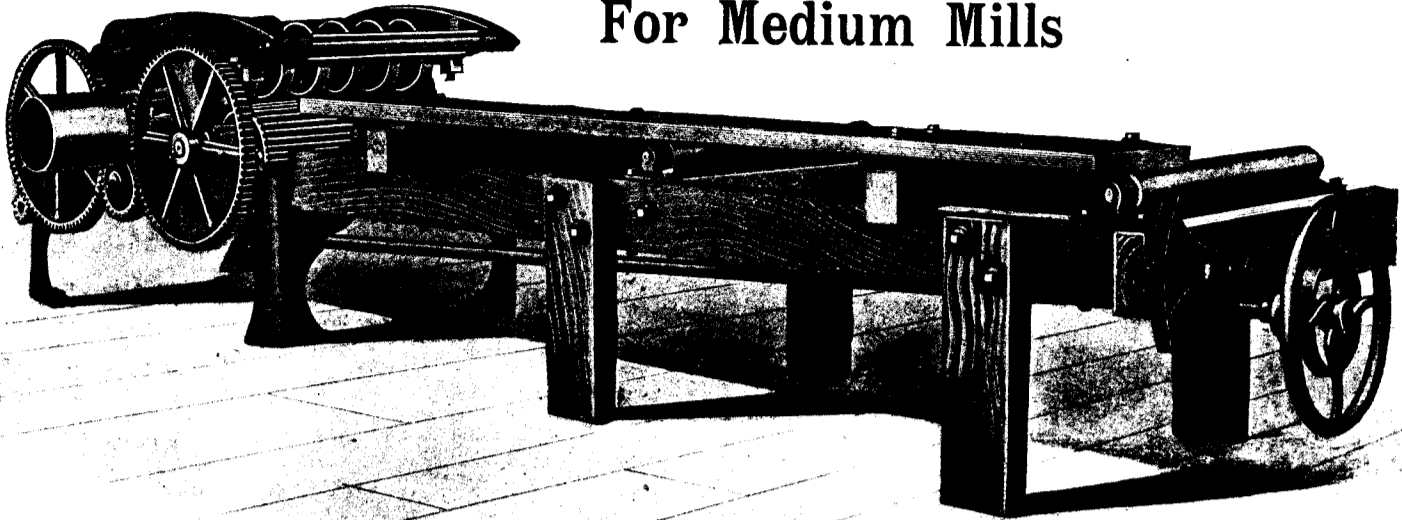
I can give you a Complete Outfit and guarantee results.

No trouble to quote prices.

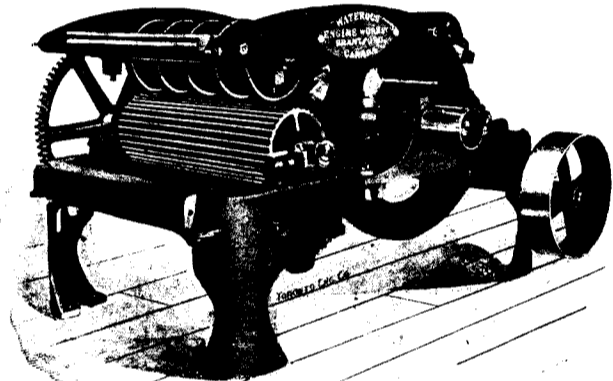
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A SMALL DOUBLE EDGER

For Medium Mills



MADE RIGHT OR LEFT HAND—CUT SHOWS
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Shows Removable Bridge to Permit Saws to be Withdrawn from
Mandrel Feed Pulley Readily Removed.

The New Light Champion Edger has 2 7/16 Steel Mandrel supported on two long bearings.

No. 1 Light Champion HAS TWO SAWS, one moveable; range between SAWS from 1 3/4 to 24 inches.
No. 2 Champion HAS THREE SAWS, two moveable; range between stationary and first moveable Saw, 1 3/4 to 20 inches, and between moveable Saws, 4 inches.

All our Edgers are provided with front tables, when so ordered, with 4 1/2" iron rolls and guide, moveable with lever up to 4 inches outside of stationary saw.

The Heavy Champion Edger has 2 7/8 Steel Mandrel with three long bearings.

No. 3 Heavy Champion HAS THREE SAWS, two moveable; range between stationary and moveable saws, 1 3/4 to 24 3/4, and third saw 4" from second.

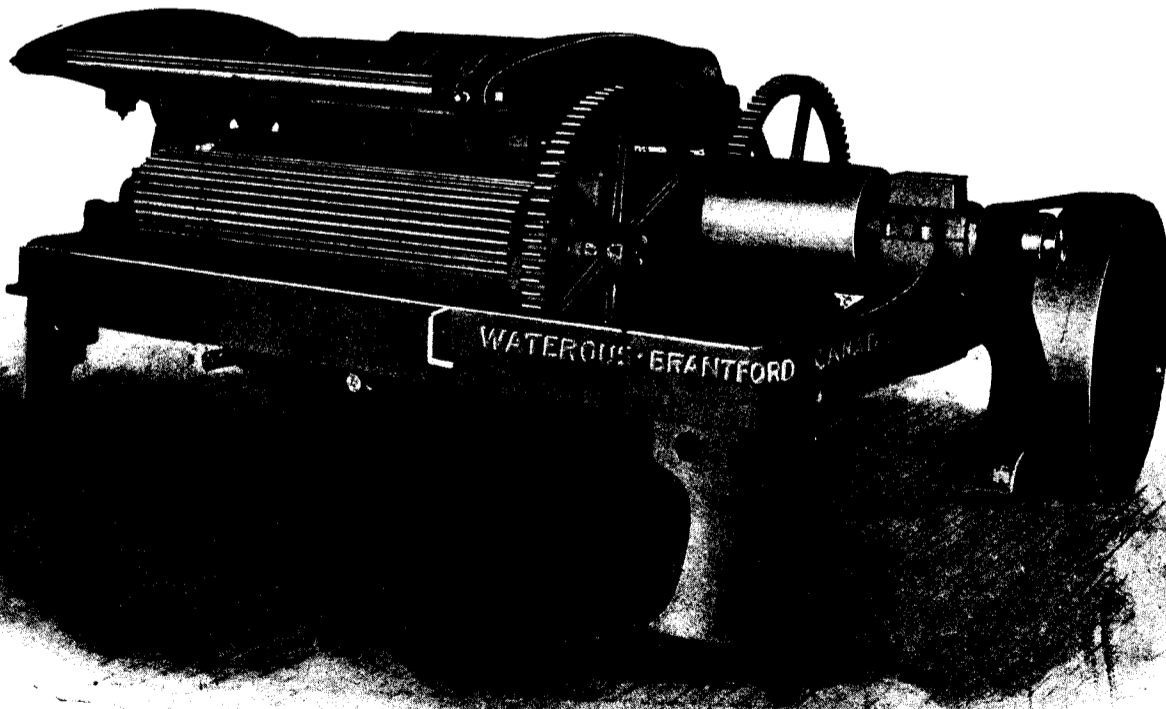
No. 4 Champion range is 1 3/4" to 28 3/4", and third saw 4" from second.

No. 5 Champion range is 1 3/4" to 36 3/4", and third saw 4" from second.

A fourth saw can be added, reducing extreme opening 4 inches.

We arrange Saws to be moved by levers when desired instead of hand-wheel and rack and pinion.

EDGERS BUILT RIGHT OR LEFT HAND



THIS CUT
SHOWS A
RIGHT-HAND
EDGER

The Heavy Champion Edger—No. 3, 4 and 5. The frame in these sizes has two central legs omitted from cut.

This Improved Double Edger is made in three grades—Light, Heavy and Extra Heavy. PRESS and FEED ROLLS are of large diameter. Feed rolls fluted, bearings adjustable, front press rolls made in sections, both front and back hung in stiff open frames LIFTING WITH FEED, NOT AGAINST IT—a new and important feature—ADJUSTABLE BOTH WAYS FOR ALIGNMENT WITH MANDREL. Rolls sufficiently large to be used for return of stock over Edger, and still view of saws is not obstructed. All have bridgetree quickly removable to take off saws—Saws are moved by guides, and guides are removable to take off saws.

Trimmers, Slab Slashers, Lath Mills, Bolters, Bunchers and Trimmers, Shingle Machines, Drag Saws, Endless Chain Bull Wheels, Conveyors, Transfers, Refuse Carriers, all up to date in design. We carry tons of Link Belting in stock. Get our Quotations.

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Supplies for Lumber Camps.

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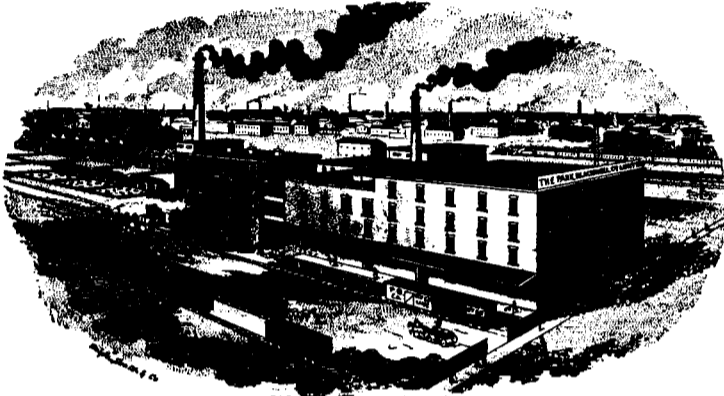
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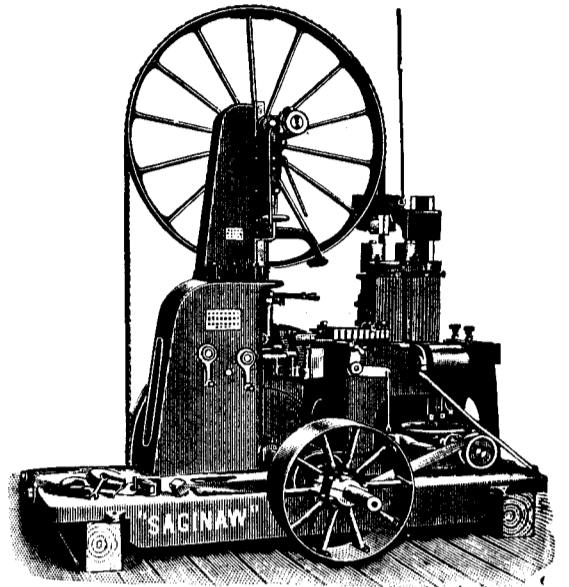
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**MERSON
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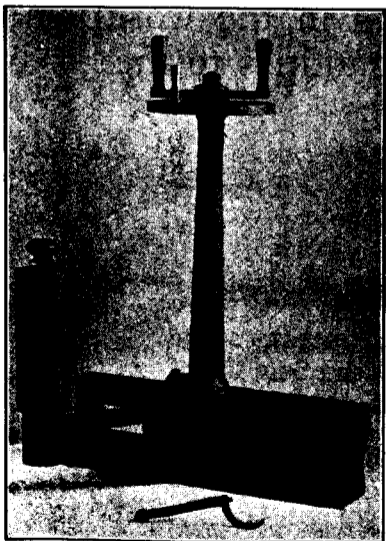
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THE

"IMPROVED LANE" PORTABLE SAW MILL

Embodies all of the Advance Features of the heavier sizes. It is Light, Rigid and Durable. The carriage excels for handling long timber—can't cut anything but parallel with it, unless you want to.



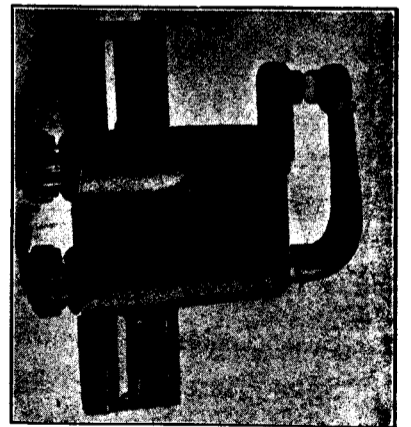
IMPROVED FAIRBANKS ROLLER GAUGE.

NOTICE this "Fairbanks" Roller Gauge, which is supplied with all Lane Mills. Can be used on any Mill. The same applies to the "Gurnsey" Saw Guide here illustrated.

We don't like to miss a chance of telling water power owners about

**"Leffel," Vulcan"
and "Perfection"**

TURBINES



GURNSEY SAW GUIDE.

They've never gone back on us, and are guaranteed equally faithful to all purchasers. The same catalogue that describes these Turbines, and gives their tabled powers under various heads, contains interesting matter on *Saw Mills, Lath and Shingle Mills, Pulleys, Gears, Hangers, Etc.*

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SUCCESSOR TO
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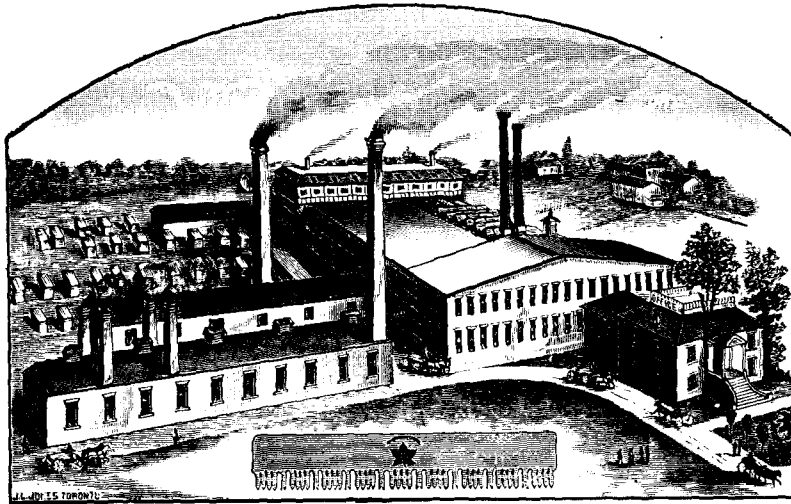
THE
 MAPLE LEAF
 SAW WORKS



Shurly &
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Manufacturers of

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GROUND THIN ON BACK
 Save Labor Save Gumming
 Save Time Save Files

This Saw Stands Without a Rival

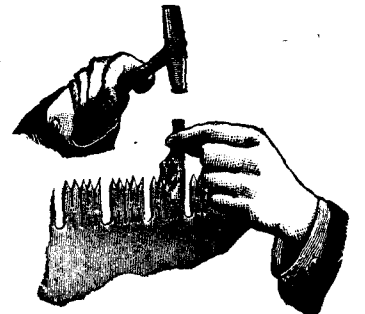
AND IS THE
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Its Superiority consists in its Excellent Temper. It is made of "Razor Steel," which is the finest ever used in the manufacture of Saws. We have the sole control of this steel. It is tempered by our secret process, which process gives a keener cutting edge and a toughness to the steel which no other process can approach.

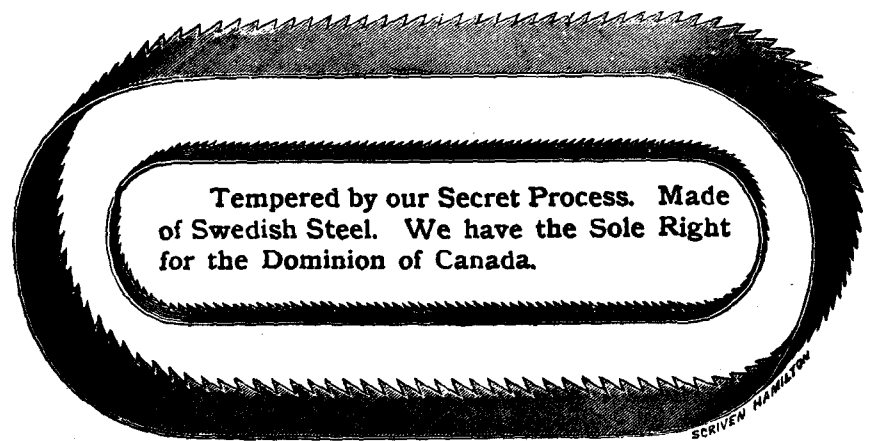
Maple Leaf Saw Set

MANUFACTURED BY
 SHURLY & DIETRICH, Galt, Ont.

Directions.—Place the set on the point of tooth, as shown in the accompanying cut, and strike a very light blow with a tack hammer. If you require more set, file the tooth with more level. If you follow directions you cannot make a mistake. Be sure and not strike too hard a blow, and it will set the hardest saw. On receipt of 40 cents we will send one by mail.



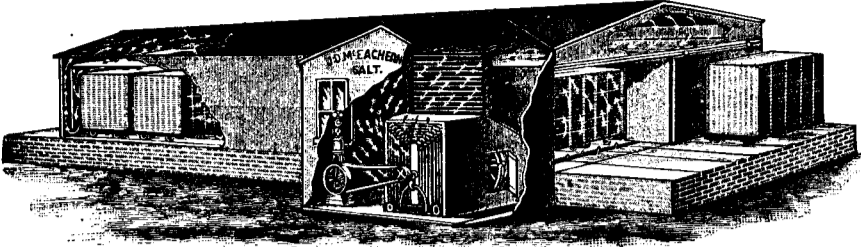
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Tempered by our Secret Process. Made of Swedish Steel. We have the Sole Right for the Dominion of Canada.

We Manufacture
HIGH GRADE BAND SAWS
 of All Widths and Lengths.

These Saws are made of Refined Swedish Steel imported direct, and tempered by our Secret Process; for Fine Finish and Temper are not excelled.



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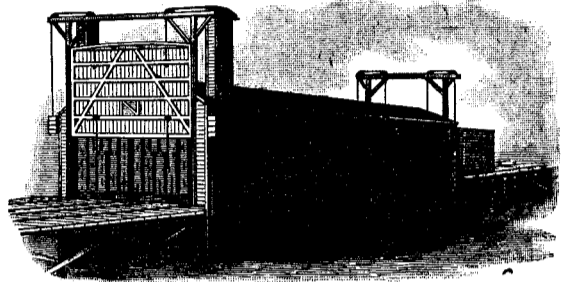
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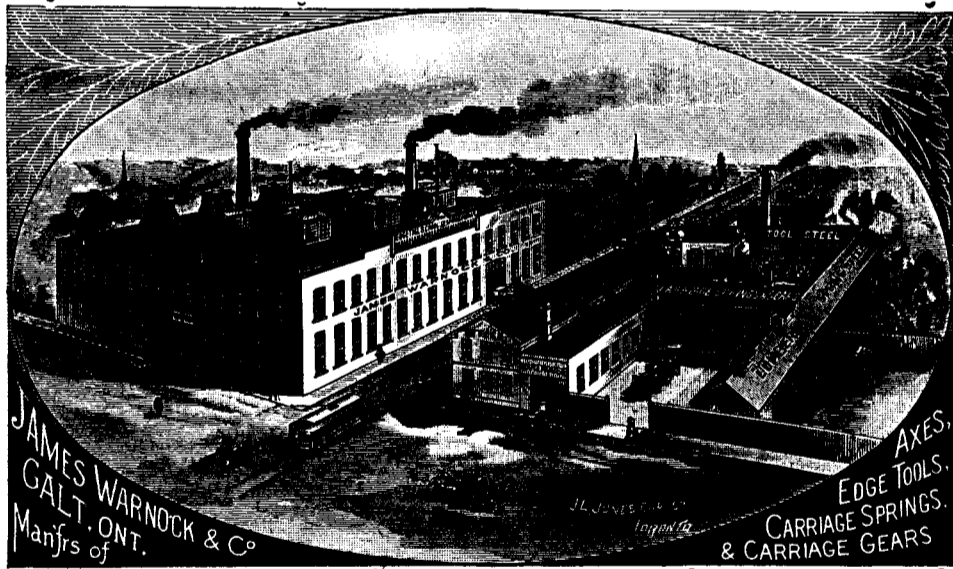
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Distant water powers utilized and Mills lighted and operated safely.
CORRESPONDENCE SOLICITED.

The Standard Dry Kiln is the Kiln that will meet your requirements; no matter what they may be. It will dry anything from green Cypress Shingles to the finest Cabinet Hardwoods. This is possible because The Standard is a Moist Heat Drier in which the degree of temperature and humidity may be varied to meet the needs of any kind of stock.



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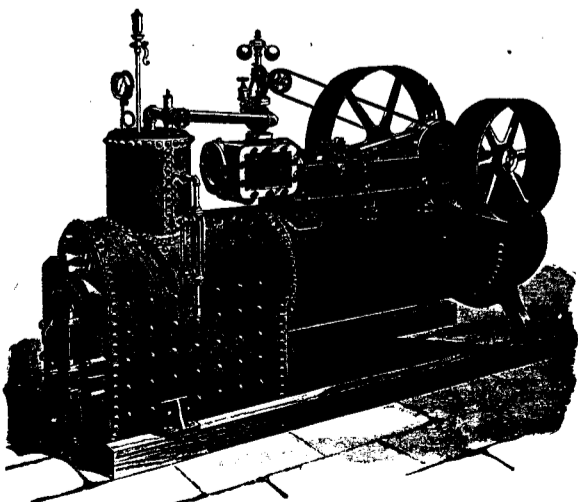


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Are unequalled by anything on the Market.

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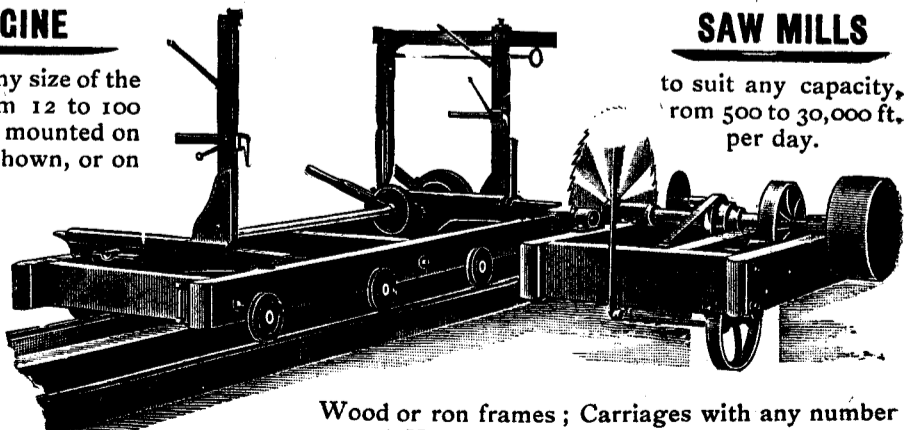


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We can furnish you any size of the above style Engine from 12 to 100 H.P., either on Skids or mounted on wheels with Engine as shown, or on separate Frame.

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Also Engines, Boilers, Double Edgers, Trimmers, Top Saw Rigs, Log Jacks, Niggers, Shafting, Pulleys, Gears, Saws, etc. We can save you money. Let us quote you prices. Catalogues free.



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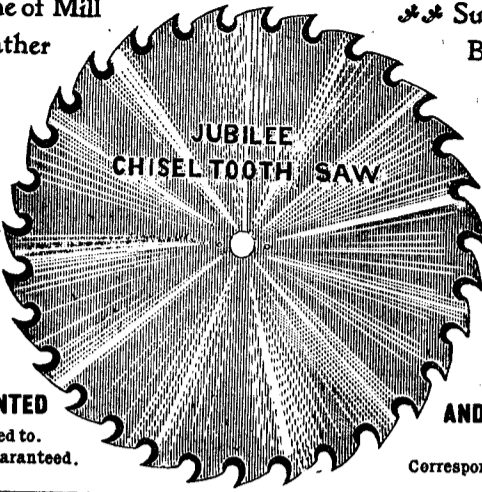
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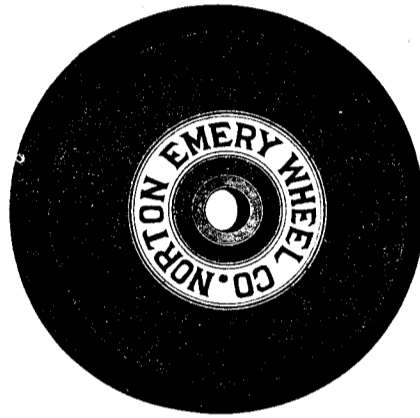
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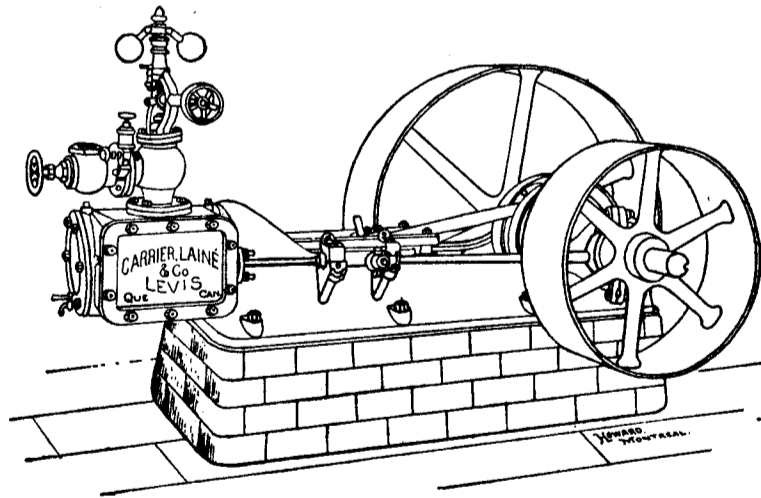
7
3
10

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But if that “3” represents Middlemen’s commission on the Machinery you buy, you had better make a change and deal at headquarters.



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