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THE CANADA LUMBERMAN

VOLUME XV.
NUMBER 10.

TORONTO, ONT., OCTOBER, 1894

TERMS, \$1.00 PER YEAR
(SINGLE COPIES, 10 CENTS)

BY THE WAY.

It becomes interesting to study tariff matters in their relation to various departments of the lumber business. Shipments of lumber are not confined to white pine, whether in the log or the more finished state. But there are classes of lumber that are effected in different ways, according to locality sometimes, and also as a result of local conditions, existing at particular times and seasons. For example, we find lumbermen in New Brunswick divided as to the expected effect of free lumber. Our New Brunswick letter mentions that one benefit to Canadian trade, will be to make it necessary for American lumbermen, who have hitherto operated in Maine, to transfer their operations to New Brunswick. On the other hand we find the trade done on the St. Croix, which has Calaix Me. on one side and St. Stephen, N. B. on the other, connected by a bridge and an electric street railway, raising the question just how these particular conditions will effect them. Heretofore at New Brunswick, lumber has been taken to St. Stephen on the cars and transferred on rafts to Calaix to be loaded on American schooners. From Jan. 1 to Aug. 31 this year 1586 cars were rafted at St. Stephen and most of it went to Calaix; and this represents only about half what it would handle in the same time in an ordinary year. The belief of some is that much more will now be shipped from the St. Stephen wharves while others hold that Calaix shipments are made to fill orders and the Canadian are generally mixed cargoes, and therefore likely to be distributed as before. Besides entry fees and pilotage dues on foreign vessels at St. Stephen would be an offset in rafting to Calaix.

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Again we come to the box shook industry in Michigan. Shooks for flour and sugar barrels, the Michigan people say, were not placed on the free list although staves and heading were. The Tribune of Bay City, figures out the situation like this: The Ottawa lumber district is about 300 miles nearer New York market than is the Saginaw Valley and in this geographical position Ottawa manufacturers have a freight charge of \$2.50 a thousand on box shooks over local producers. As matters stood over the McKinley tariff the Ottawa manufacturers were confronted with the 35% ad val duty when they brought their products into the market of the metropolis. The lowest valuation at which box shooks could be entered is \$10. a thousand, which brought the duty to \$3.50 a thousand, thus making a net protection of \$1. a thousand to the American manufacturer. In all these matters there is a good deal of speculation, and time alone will show how things will work out.

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On this matter of shooks an American lumberman has put the case in this shape: "The Gorman bill as originally drawn places box shooks on the free list, and even on the final revision an ad val duty of only 20% was secured. The advantage which the Ontario manufacturers enjoy from their closer proximity to the New York market remains, of course, on the same figure \$2.50, while this is not now counterbalanced by the \$2. ad val duty which is all the Canadian must pay. Instead of affording a protection to our Michigan producers the Gorman schedule of the new tariff law really discriminates in favor of the Canadian who goes into the New York market, and this discrimination amounts to 50c. a thousand. While this is a nominal protection of 20% duty, the actual effect of the law is one-sided free trade in which Canada alone is the gainer." The clause in the new tariff under which box shooks are enumerated is as follows: "Casks and barrels, empty; sugar-box shooks and packing-box shooks, of wood, not especially provided for in this act, 20% ad val." The conclusion of the

Michigan dealer is that hundreds of millions of staves and heading for sugar and flour barrels manufactured in northern Michigan have no protection at all.

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Stave manufacturers in Michigan fear that the placing of staves on the free list will place them at a decided disadvantage in competition with Canada. The duty under the McKinley bill was only 50c a thousand, and at that time competition was keenly felt. John C. Liken, one of the most extensive manufacturers of staves in Michigan says, that the only way in which Michigan manufacturers can meet Canadian competition is to reduce wages and the price paid for stave timber. The sugar trust, which handles the greater portion of the Michigan product seems to have had things pretty much its own way, not only as to sugar, but in having staves and heading put on the free list.

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Then if we go to Quebec the spruce industry comes into consideration, and whilst it is believed that trade will be benefited by the change in tariff, yet there is as a stumbling block to complete progress in that branch the heavy duties that continue on pulp in the chemical shape. From Quebec we jump to British Columbia and lumbermen are not yet certain just how free trade may result in providing competition in shingles with the Washington territory district. Taken altogether the question is an interesting one to every thoughtful lumberman.

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Some of the various conditions that will have their influence in shaping trade under the new tariff are suggested in the specially contributed articles in another page from Mr William Little, of Montreal, and Mr. C. H. Clark, formerly of Barrie. It will be interesting to read these along with other views that are given in the LUMBERMAN, as showing the different circumstances that shade the different branches of trade, when under differing conditions.

HARDWOOD AFFAIRS.

JOHN N. SCHATCAERD, of Buffalo, a prominent dealer in hardwoods, has said that he did not expect any change in the condition of the hardwood business under the new tariff. "After the tariff bill had been passed," said he, "we tried to make prices with the Canadian dealers on the basis of the new tariff, but we found a disposition on the part of the Canadian lumbermen to add to their prices the \$2 taken off by the tariff which does not enable us to get lumber any cheaper than before. Whenever we have made prices on lumber in Canada, we have made it the same delivered in Buffalo as the price of lumber brought from Ohio, Pennsylvania or the west and delivered here by the producer. The Canadian, therefore, paid the tariff. Now he seems disposed to take advantage of the reduction of the tariff."

A writer in Hardwood makes the statement that at the present time the state of Minnesota probably possesses a larger amount of soft maple than any other state in the union. The whole wooded section of the northern half of the state has it in more or less extensive bodies often mixed with other hard woods as a scattering tree and sometimes even with white pine. Across the border in Manitoba the same wood is to be found in large quantities. The wood varies somewhat in color and texture, but is generally lighter in color than rock or hard maple, and is much softer and lighter in weight, and decays quickly under exposure. The wood takes a good polish which it retains, and does not grow dark with age. It can be used for many purposes for which hard maple is used, such as flooring, furniture and

cabinet work, and in panels makes a light dainty house finish. For this purpose, however, it answers best in the form of thin veneers. It is excellent for butter tubs, or for any such purpose where an odorless wood is desired. It is a good material for flour and sugar barrels both for staves and heading. It is valuable for many kinds of turnery, such as handles for household utensils and even for some of the utensils themselves. But its main use must be for cheap furniture, for which it is especially adapted.

That little, but ably edited journal Hardwood, from which we have already quoted has been discussing the effect of free lumber on the lumber trade of the United States. Its opinion is that the people will not get any benefit from the change in tariff: "That the wily owner of Canadian stumpage will simply add \$1 duty, which he has been paying since the passing of the McKinley bill to the price of his stumpage." Of hard woods it says: "These will stand less chance of being affected than pine, for the list of Canadian hardwoods is a limited one, red oak and hard maple being the most important. Birch and elm are already imported in considerable quantities, but at present the bulk of the stock on the other side is held by American dealers, who expect to make an extra profit of about the amount of the old duty. There will be some increase in the importation of mahogany, rosewood and other fancy foreign woods."

UTILIZING DISTANT WATER POWERS.

THE utilization of water power, says a writer in the Age of Steel, probably ante-dates written history, the interval between crude and primitive methods and the latest triumph of engineering skill at the Niagara Falls covering the entire period of human progress and civilization. Here and there where the bones of extinct races have mouldered into dust and centuries of time have been silent and blank, traces have been left of man's attempt to utilize the running stream and the falling cataract. Down to our own immediate times and in sundry fashions and places the water wheel and the dam have been familiar objects.

It has, however, been left till the advent of electricity for the real value and scope of this force to be generally recognized. By this means the conveyance of power to great distances has been made possible, its service being no longer limited to immediate localities. It is in this sense that natural forces are multiplied by extending their area of service, and each new science as developed becomes the handmaiden of the rest. In fact, none are complete until all are a unit, and till the last is added the rest are immature. Electricity promises to be one of the most potential of modern forces in making this fusion, and in the wide distribution of energy from waterfalls may practically revolutionize industrial conditions. In this country, where enterprise is alert to any and every advantage, the revival of interest in water power is spontaneous and general. There can be no doubt that this revival of interest will continue and keep pace with our industrial progress wherever water power is economically available.

A SUGGESTION RE. PULLEYS.

THE editor of the Engineering Magazine says that the flesh side of leather is the best to place against the pulley when such leather is used as a belt, notwithstanding this to be contrary to the most usual practice, but this general practice is due to the ideas of belt makers rather than to those of belt users. Traction, he says, is greater than where the surface is elastic and has a clinging tendency than where it is hard and smooth. This is because this kind of surface clutches the pulley more securely by being pressed into all the pores and interstices of the metal or varnish.

FUTURE OF FREE LUMBER.

UNPUBLISHED INFLUENCE ON THE CANADIAN LUMBER TRADE THROUGH CONTRIBUTIONS FROM MR. WM. LITTLE AND MR. C. H. CLARK.

THE contributions which follow on the change in the lumber tariff in the United States were suggested by a letter of enquiry sent out a month ago to various leading lumbermen in the Dominion.

Mr. Wm. Little, of Montreal, is a well-known contributor on lumber matters, and years of study of the lumber question lends interest to anything he may write, even when everyone may not agree completely with his views. Mr. C. H. Clark, though writing from Duluth, Minn., where for a few months past he has been located, is an old Canadian lumberman, having been for many years identified with the firm of Burton Bros., of Barrie. He has travelled largely throughout leading lumber centres in the United States, a circumstance that ought to enable him to view the present question from a somewhat broad and liberal point of view.

VIEWS OF WM. LITTLE.

I beg to say in reply to your questions:

1st. What is likely to be the general effect of the removal of the duty upon the lumber industry of Canada?

If our lumbermen act with any degree of prudence, I see no reason why the general effect should not be beneficial to the Canadian lumber industry. I believe this, notwithstanding I am fully aware of the disastrous effects to the lumber trade occasioned by overproduction following almost immediately after the Reciprocity Treaty went into operation in 1854—which stimulated Canadian production to an extent that Canadian pine lumber, which for years previous thereto sold at about \$11 a thousand feet in the Buffalo market, paying \$1 import duty, could with difficulty be sold at \$7 a thousand feet three years after, in 1857, under free imports. My reasons for not anticipating any such evil effects at this time is on account of the change that has since taken place in the amount of the American production. The comparative smallness of our present manufacture for export to the United States, which is now, even in white pine lumber, barely five per cent. when compared with their larger home production, makes our exports a less important factor than forty years ago, when our competition was almost wholly with the limited product of New York and Pennsylvania—Michigan, Wisconsin and Minnesota, now the great sources of supply, not at that time producing to any great extent for the eastern markets. The greater scarcity of white pine and spruce timber both here and in the United States will also do much to prevent any such overproduction as then took place; so that the effect should be beneficial not only to Canada but to the American lumber trade, by showing American lumbermen that in late years they alone are responsible for any disasters arising from overproduction—which has been the great bane of the lumber trade in both countries.

2nd. To what extent will the removal of the lumber duty tend to stop the exportation of logs from Canada to the United States, and induce the manufacture here?

I regret to have to say that I do not think it will have any appreciable effect in restricting the export of pine saw logs from the Georgian Bay district to Michigan. The exceptional advantages possessed by the larger market at milling points in Michigan, such as Bay City, Saginaw, Alpena, etc., where purchasers can supply themselves from an assorted stock with what they require at any time, and have it sent forward by the cheaper water and especially railway service at all seasons, is of itself a great advantage. Then the comparatively small cost and trifling risk in towing logs to mills already established there of the best description, coupled with the value of the offal from the logs for fuel in the production of salt, equal to almost enough to pay the cost of sawing, will tend to cause the continuance of the export of pine logs from that district till the pine timber there is exhausted. It must also be considered that the lower peninsula of Michigan is now so completely stripped of white pine timber that it must for the future require stock from Canada, even for its own home consumption. Some few American firms having lumber yards in Ohio and New York States may manufacture some lumber in Canada, as they can then stock their

yards direct from their Canadian mills, and also a few mills may be built along the railway lines, but in my opinion there will be no falling off in the export of pine saw logs till occasioned by a scarcity of pine timber. It may, however, stop the export of spruce logs intended for lumber from Quebec and the eastern provinces, but spruce pulp wood, which is a growing industry, will be exported in steadily increasing amounts, till our people insist, as they no doubt soon will, that free pulp wood shall be conditional on free pulp.

3rd. Is free lumber likely to lead to the erection of new mills in Canada?

My opinion is that, in so far as the older provinces and eastern Canada are concerned, except along railway lines, not many new mills will be built. The supply of saw mills in these sections is now fully adequate for the existing stock of timber. On the Pacific coast I would anticipate some increase in mill building, as the character of our eastern pine is deteriorating so rapidly in quality that the cheapest and best material to be had in the Montreal lumber market to-day for flooring, ceiling, and general house trimming is clear fir lumber from British Columbia, while for large and long timbers, it must soon be our chief source of supply.

4th. Is it probable that under the new conditions we should witness an expansion of the planing mill business in Canada? Is our planing mill equipment and capacity sufficient to cause any considerable expansion of business? In what position do we stand as to planing mill equipment and methods to compete with the planing mills of Michigan and the Eastern States?

When answering these questions in a general way, I take occasion to say that putting dressed lumber on the free list is the only thing that should at all reconcile us in permitting the free export of saw logs, otherwise I should not consider we were getting anything like fair compensation under the circumstances; as if Canada is to derive any considerable benefit from her timber it must be in its manufacture at home to the greatest possible extent. Foreigners now own such a large amount of our best timber (thanks to the ignorance and indifference of both the Government and people of Canada on this subject) that they will realize the chief benefits to accrue from the rapid advance that must at once take place in the value of timber property, and unless we desire some further advantages than the trifling amounts to be paid the provinces in the way of stumpage dues, the bulk of the value of our forests will be lost to Canada. While I have no doubt that considerable pine lumber will be dressed in Canada, the bulk of our pine will continue to go out in the shape of free logs to Michigan, and the sawing, planing, and all other advantages accruing therefrom go to the benefit of our American friends. And by far the larger quantity of sawed lumber will still go out in the rough, as many of the best millers prefer having their pine lumber especially dressed on the spot where required, as the injury to pine lumber in frequent handling after being planed would more than counterbalance any saving in the expense by having the lumber planed here before shipment. I should, however, anticipate that a large proportion of the spruce lumber, especially that intended for flooring, would be planed at the mills in Canada, as is now largely done at the mills in northern New York; for spruce being a harder and tougher grained wood is not so easily injured by handling after it is dressed. You are of course aware that there is some doubt as to what construction may be put upon the term "lumber dressed," and the question whether flooring, ceiling, mouldings, etc., will be admitted free will depend on the decision of the U. S. Secretary of the Treasury. That all these were intended to be included under the term "lumber dressed" is evident from the discussion that arose in the Senate, when Senator Allen, of Nebraska, had dressed lumber inserted in the bill—some Republican senators objecting and insisting that under this term even doors, sashes, blinds, etc., would be admitted free. As the clause reads "sawed boards, plank, deals and other lumber, rough or dressed," I think it can be fairly claimed that flooring, ceiling, mouldings, etc., are included under the term "other lumber" as there are all descriptions of lumber in the rough, and will be now entitled to free entry whether rough or dressed.

You will also observe that, in accordance with the petition addressed to the Hon. Mr. Secretary Carlisle by Mr. John Charlton "in behalf of the Michigan lumber interest," the Charlton proviso was substituted in the Senate bill for the Wilson proviso as it passed the House. This change is greatly to be regretted, as it will be sure to cause irritation in this province, and may lead to trouble, as our people cannot reasonably be expected to submit for any length of time to the unfair position of permitting the free export of pulp wood while the U. S. government continues to exact duty on Canadian pulp.

The greatest good I anticipate to arise from the removal of the lumber duties is in the effect it will have in causing the people of both countries to become enlightened as to the scarcity and consequent value of standing timber, as the removal of the lumber duties removes all incentives for misrepresenting the true conditions of the forests, which has hitherto been persistently done by interested parties, lest a correct knowledge of their condition might lead to a demand on the part of the American public for the removal of the lumber duties.

Montreal, Que., 1894.

VIEWS OF MR. C. H. CLARK.

In reply to your questions: (1) What is likely to be the general effect of the removal of the duty from the lumber industry of Canada?

I believe the effect will be to increase the number of saw mills and wood-working industries of Canada, and enhance the value of standing timber of soft and hard woods equal to about half the duty deducted, also increase the price of white pine lumber for shipment, and this will increase the price of white pine lumber to Canadian consumers, which will result in creating a greater demand for hemlock and Norway—which in its order will slightly advance. Basswood, cedar, and all kinds of hardwood will share in the general increase in proportion to the demand.

(2 and 3). To what extent will the removal of the duty tend to stop the exportation of logs from Canada to the United States, and induce the manufacturing of lumber here and erection of saw mills?

In some cases, where Michigan lumber manufacturers have only a limited quantity of standing white pine timber, and others, whose white pine timber is situated a short distance from Michigan, they will probably continue towing their logs. There was an argument in favor of towing logs to Bay City and Saginaw and some other points a few years ago, viz., that a lumber purchaser could go there from most any point in New York State and have 200,000,000 feet to select from and return home in 100 or three days; whereas to see half the same quantity on Georgian Bay would require ten days to two weeks. But lumber business has changed since then, and is going to change more. Now, Saginaw and Bay City do not sell or ship by hundreds of millions as much as they did then, from the fact they have not got the timber to produce it, and they cannot secure and place it at their mills with any degree of safety and economy. They want slabs there to manufacture salt, and they want cull and box lumber to manufacture boxes, but it will not pay to tow 1,000,000 feet of logs to get the slabs, mill culls, and box lumber. Millions of box and cull lumber are now shipped to Bay City from Lake Superior parts, and now that the duty is off, the same grades can be shipped from Georgian Bay mills at \$1.25 per M, which to tow would cost \$2.00, including losses of logs. And after the log has been towed to Michigan and manufactured into lumber, it is not where it is wanted, as much of it is shipped to Detroit, Toledo, Cleveland, Erie, Buffalo, Tonawanda and other places. These same logs could be manufactured into lumber and shipped to the same places and save the \$2.00 paid for towing, as there is no duty now. A few years ago there was only one line of steamers running on Georgian Bay. It then took ten to twelve days to see the lumber, but now there are two lines of ten or twelve first-class steamers calling at different ports, and a buyer can see the lumber he requires in three or four days. Another thing, Canadian lumber will sell without passing it through Michigan and breaking a bottle of wine and "bow" over its christening. Aside from the above, when parties have large quantities of timber tributary to Georgian Bay, they will find it to their interest to have the same manufactured

into lumber there, and this will necessitate the construction of new saw mills and starting into life many mills now idle at Midland and other places. In fact I know of parties now who are figuring on starting up certain mills and building a new one to cut in 1895. In proportion as lumber is sold to go south or to Lake Erie and Lake Ontario ports, or the English market, in that same ratio it will be an advantage to have the logs manufactured into lumber in Canada in preference to towing to Michigan by at least one dollar and fifty cents per M, which on 200,000,000 feet means \$300,000, while an outlay for a two band saw mill and plant would not exceed \$45,000 to \$50,000. As a matter of fact, the whole profit is confined within a two dollar margin, which would be consumed in towing and risk, and lumber can be manufactured fifty to seventy-five cents per M cheaper in Canada than in Michigan or this part of the country.

(4). Is it probable that under the new conditions we shall witness an expansion of the planing mill business in Canada?

The success of a planing mill business in Canada for export depends largely upon the railroad companies; the keystone of the arch is in their hand, which is often held with an iron grasp. They can and often do run the country, but they cannot run a planing or saw mill; neither do they want to. All they ask is to own the other 'fellers' and let them run the planing mill output, the same as they allow manufacturers of lumber, shingles, lath, pulp wood, railroad ties, telegraph poles, cord-wood, the farmer's oats, wheat, and agricultural crop, and miner's product generally, to pay the heavy shot. Now, a planing mill will not survive long under this kind of treatment, hence the necessity of securing rates that will enable them to meet competition. All things being nearly fair or equal, as far as railroad companies are concerned, there is no reason why planing mills should not be started and successfully run at Owen Sound, Collingwood, Midland, Victoria Harbor, Waubesa, Parry Sound (if they can get a railroad), Peterborough, Lindsay, Brockville, Hull, Trenton, Deseronto, and many other places in Ontario and Quebec generally. The nearer the planing mill is to where the lumber is cut the better; dressed and finished lumber from most of the above places can be shipped in cars to the State of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New Jersey, Rhode Island, Pennsylvania, New York, and other places—the field is unlimited. But you will find some other gentlemen there. It is only a question of understanding the business—money, low railroad rates, and pluck—you must have this combination or bust.

(5). Is our planing mill equipment and capacity sufficient to cover any considerable expansion of business?

I do not think the planing mills generally in Canada, from what I have seen, are as fully equipped and of the capacity necessary for an extensive volume of American trade. As they have not had any export trade, it is not reasonable to suppose that they should be fully prepared for it. Still, with the quietness of the times, the planing mills would be able to turn out millions of dressed and finished lumber for export, provided they are advantageously situated.

(6). In what position do we stand as to planing mills' equipment and methods to compete with the planing mills of Michigan and the Eastern States? (and I will add Wisconsin, Minnesota, and Chicago).

From all of the above States and Chicago, planed and finished lumber is sent—north, west, south and east, as far as Boston. I have seen many of the large, as well as smaller planing mills in Michigan, Wisconsin, Minnesota, and other places within the last five months. The capacity of some of the larger mills runs from 100,000 to 200,000 feet per day, or three to six million feet a year, and they do extra smooth, true, good work. Some have store room for dressed and finished lumber 100 feet wide by 600 feet long, with plenty of room for 30 cars to be loaded. At the same time the sheds extend to car track both sides, which protects the lumber from rain and storm. In all the well organized mills the machinery is strong, large and heavy, and in many cases have three to nine dry kilns. This enables them to fill orders with dispatch, which is a great secret of success in planing mill car trade. They employ first-class men and pay

good wages, paying special attention to the grading of the lumber from the time it is sorted in the yard until it enters the car. As a rule it is intended to give to the buyer as good lumber as he ordered, if not a little better. No attempt is made to slide in an inferior piece by any responsible house. In no case do you purchase a "pig in the poke." They take great pride from the manager all along the line, until the lumber is in the car and shipped, in doing their work good, and a little better than any other mill. They do business to keep their customers, and Canada will have to work hard to take them away. I might mention some of the planing mills that do good work: The Penokee Lumber Co., Morse, Wis., one of the finest and most complete in the United States; Montreal Lumber Co., Gile, Wis., near Hurley; Oskosh Log and Lumber Co., Coate, Mich.; Peyters, Kimball & Baker, West Superior, Wis.; Cranbury Lumber Co., Duluth; Scott & Holston, Duluth; N. Nelson, Cloquet, Minn., extra large; J. R. Davison, Phillips, Wis., extra large; Knox Lumber Co., Ely, Minn. From what I have seen of the planing mills in Canada, they are generally constructed too light and cheap, the machinery not large and heavy enough to stop the vibration when running fast, and two or three machines intended to do all kinds of work; shafting and hangers too light, and belting too thin and narrow. The result of this is, you cannot produce first-class work, true, smooth and even finish, presuming knives and other parts are in order. There is no reason why as good planing mills and as many of them as wanted cannot be constructed and operated successfully in Canada as the United States, and as good men to run them; though it would be advisable to engage inspectors of lumber who are accustomed to grading for the market the lumber is intended for.

(7). What importance do you attach to the statement positively made by Michigan and Tonawanda lumber manufacturers, that the effect of the new tariff will be to force American planing mill men and box manufacturers to transfer their business to Canada?

I think there is more truth than poetry in their statement, and they will find it more so than they anticipated. One day they did not want free lumber; the next day they purchased a pine tree; the day after they wanted lumber free. And now they are to have it free in all conceivable shapes and they don't want it. The next day they commenced kicking and will continue this exercise until they have elevated all the Democrats out of Congress and Republicans have come in. There can be no doubt that allowing planed and finished lumber to enter the States free will have an injurious effect on the planing mills in some parts of the States, and cause transfer of mills to Canada or building of new ones there. Many of the planing mills here are situated in connection with saw mills and are likely to remain so and take their chances in competition with Canadian planed lumber. They know the market; the Canadians have it to learn. They believe the Republican party at the next Presidential election will be returned and return the duty on dressed and planed lumber. And with this change likely to take place, many who would have built planing mills will wait—hence not as many mills will be constructed as there would be if the free duty was more permanent or definitely settled.

Duluth, Minn., 1894.

THE FATIGUE OF METALS.

THE metallic parts of machines that are in constant use if they are not fully strong enough for the work required of them, undergo what is known scientifically as fatigue. In metals there is a point in their resistance to pulling, bending or crushing which is known as the elastic limit. Beyond this limit, if continued in use, permanent strain begins. When machines are submitted to this limit of strain if it is not kept up too long, they may be restored to normal condition, just as a muscle is by resting. If the strength and power of a machine is fully equal to the task imposed upon it, it does not undergo this fatigue and the use of it may be kept up continuously until impaired by friction. The resemblance in this particular to the muscles of man and other animals is very striking.

A CHAPTER ON FRICTION.

FRICTION is not a force in mechanics, it is a resistance; a passive resistance to motion, writes F. J. Moster, in the Wood Worker. It is the tendency of force to produce motion, whereas the tendency of friction is to destroy motion. Nor is the increase of friction between two surfaces in contact properly the amount of force necessary to produce motion, but the amount of pressure necessary to balance the friction and bring the body to a state of indifference to both rest and motion. Yet we use friction to transmit force, and it is sometimes convenient to speak of it as the force itself.

All surfaces, however highly polished, contain minute projections, hence when pressed together the asperities of the two surfaces become to some extent interlocked with each other and produce resistance to motion—and this is friction. The whole amount of friction stated in pounds of resistance, is the product of two factors. The first of these factors is called the co-efficient of friction. Co-efficient, as an adjective, means operating together; as a noun it implies co-operation—a factor in multiplication. The co-efficient of friction is a constant number which has been determined by experimenting with substances of different kinds and with surfaces in various conditions. Scientific men have made these experiments and tabulated the results of their experiments, so that now, when the practical mechanic has to solve a problem in friction, he refers to one of these tables for the co-efficient to meet the case. Oak against oak has a co-efficient varying from '975 to '064, according to exposure of grain and quantity and quality of lubrication. Iron against iron has a variation in like manner from '314 to '064. Between these two extremes in the use of iron I find six other co-efficients, so that adding the eight together the average is '148. This is for sliding surfaces; a revolving shaft requires a different co-efficient.

I want to be sure that I make clear the exact use of this co-efficient of friction. I said it was a constant number and so it is for the same conditions. In casting the interest on \$100 at six per cent., we multiply by '06, and that multiplier is the co-efficient in the problem; it is a constant number for that rate of interest. But if we change the rate of interest to five per cent., then we change our multiplier to '05, and that becomes the constant number or co-efficient for all sums of money at that rate of interest. So the co-efficient of friction might be called the rate or amount of friction that prevails with certain surfaces under given conditions of smoothness and lubrication. Then multiplying the total pressure by this rate of friction gives the amount of resistance in pounds—pressure being the same factor in computing the effect of friction.

Mill shafting in these days does not often run on iron surfaces, the boxes being lined with babbitt metal, but I have no table at hand that gives the co-efficient for an iron shaft running on babbitt metal; but on bronze I have. The co-efficient is '251, which will answer our purpose for illustration. Suppose a three inch counter-shaft with two belts each in the same direction, 1,200 pounds each. This will give 2,400 pounds belt tension. Let the weight of the shaft and pulleys be 200 pounds, making 2,600 pounds pressure on the bearings. Inertia and atmospheric influence have nothing to do with the case, I think. Now co-efficient of friction '251, pressure 2,600 pounds, what is the resistance in pounds? 2,600 multiplied by '251 equals 652.6 pounds as the effect of friction. To reduce this to terms of horse power and determine its proportion to the whole of the driving force, we must make further calculation.

Suppose the driven pulley to be two feet in diameter and making 150 revolutions per minute. This will give a belt velocity of 942 feet per minute. Then, 942 multiplied by 1,200 (driving force) equal 1,130,400 dividend by 33,000 equals 34-horse power and an insignificant fraction as the amount of driving force.

The shaft is only three inches diameter and therefore does not move with the velocity of the belt on the pulley. The surface of the shaft moves only 118 feet per minute, hence we have 652.6 pressure multiplied by 118 feet equals 77,006.8, divided by 33,000 equals 2.333-horse power as the effect of friction. This is the theory of friction with all things perfect, but it is quite likely that in practice (fair practice, too) the friction would amount to one-eighth of the driving force.



PUBLISHED ON THE FIRST OF EACH MONTH

—BY—

C. H. MORTIMER

CONFEDERATION LIFE BUILDING, TORONTO

BRANCH OFFICE:

NEW YORK LIFE INSURANCE BUILDING, MONTREAL

TERMS OF SUBSCRIPTION:

One Copy One Year, in advance \$1.00

One Copy Six Months, in advance 50

Foreign Subscriptions, \$1.50 a Year

ADVERTISING RATES FURNISHED ON APPLICATION

THE CANADA LUMBERMAN is published in the interests of the lumber trade and of 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 trade 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.

WHY NOT?

THE question has been asked the LUMBERMAN within the past few days, why do not Canadian lumbermen organize themselves into an association? There is nothing new in the question. We have heard it over and over again, as an oft told tale. But the fact remains the same, our lumbermen do not organize, and whilst almost every business in the country can claim its organization, the lumber business, though one of the most extensive, stands out as a remarkable exception. A great meeting under the management of the United States Lumbermen's Association was held at Denver, Colo., within the past fortnight, while in Kansas, Alabama, Wisconsin and elsewhere United States lumbermen seem, for the past month, to have done little else than meet in their annual conventions.

It is quite possible to overdo this organization business. However, we are not running in that direction in Canada just now. It is not possible for anyone to read the reports of these meetings in the country to the south of us without coming to the conclusion that it has been a good thing for lumbermen, as individuals, and for the lumber trade as a whole, to have met together in this manner.

We are not without questions in the lumber trade in this country that call for the unanimous thought and action of the cleverest heads in the trade. There are problems in connection with the trade that are coming to the front all the time and light could be thrown on these by papers or addresses, that, there can be no doubt, could be prepared with credit and ability by Canadian lumbermen.

Not least of the benefits to come of organization of men engaged in the same line of trade is the knowledge each is able to obtain of the other. It has not been said that there is any large amount of cross-pulling among the lumbermen of any particular section of the country, and yet a remark made by a local lumberman a few days ago is of itself a good reason for the trade coming together. Asked how prices for lumber prevailed in Toronto, this lumberman answered, "Everybody has his own price." Now a healthy trade cannot be done when there is not uniformity in prices for the article

sold, and in a product like lumber, with the market in a healthy condition, and the product itself one that is not on the decline, there can be no reason for prices being at sixes and sevens

There are a score and more reasons to be given favoring a lumberman's organization, but these will suggest themselves readily to each reader. We have simply named a few here and there, as they have occurred to us in writing. There is reason enough for lumbermen organizing. There is no reason why they should not organize. There might be an organization of the trade in Toronto. There ought to be. There might be a provincial organization of lumbermen. There used to be an organization in western Ontario of the hardwood men, and those who were active in the association at the time do not hesitate to tell of its benefits. Money would have been saved within the past year to members of the trade if that organization had continued in existence.

Why not organize? We would be glad to have our readers answer this question one way or the other as the reasons occur to themselves.

LOGGING THE COMING WINTER.

It is somewhat difficult to arrive at a united opinion as to the probable size of the cut in the woods the coming winter. By some it is thought that operations will be on a considerable scale, and the commencement already made by several United States firms owning limits in Canada is referred to as evidence on this point. On the other hand there are many conditions that lead to an opposite conclusion. The destruction by fire of J. R. Booth's large mill, coupled with the intimation that he will not rebuild, must of itself mean a shrinkage of some size in the cut in the Ottawa district. Besides, it is well known that owing to the depression of the past year the piling docks, both in Canada and the United States, are heavily loaded up with lumber. Information from the North Shore territory shows that large quantities of lumber are on hand there. Our Michigan correspondent states that there is fully 600,000,000 feet of lumber on the piling grounds in that state. The natural tendency is to see these stocks materially reduced before supplementing them with fresh stocks. The consensus of opinion would seem, therefore, to indicate that logging will this winter be conducted on a more restricted scale. This view is voiced by Mr. John I. Davidson and other large operators. Mr. John Scully, a large contractor for lumber supplies, confirms these views. What he has to say finds a place on the Eli page.

CANADIAN-AMERICAN OPERATIONS.

LUMBERMEN from the United States cut quite a large figure in lumbering operations in Canada. We are able to form some conception of this when, at the opening of a season like the present, note is made of some of these operations. For example, J. W. Howry & Sons, of Saginaw, are placing a large staff of men in their camps in the Georgian Bay district. They will operate, it is said, eight camps, and will cut 80,000,000 feet of logs the coming winter. This firm will saw a large quantity of logs in Canada, and to their saw mill they will add a planing mill and box factory to work up the coarse lumber. Their mill operations are in the vicinity of Peterborough.

Contracts for lumber, 20,000,000 feet, on the Moon River, have been let by Arthur Hill & Co., of Saginaw, to Canadian jobbers. This firm has also sold an interest in their limits to Chas. Moore, formerly of Bay City, who will move to Canada and superintend operations. It is expected that these logs will be sawed in Canada, instead of being towed to Bay City to be manufactured, as was intended.

The new mill of Cutler & Savage, of Michigan, located near the mouth of the Spanish River, is at present in active operation and they have about 10,000,000ft. now in the booms to work on. Another Bay City operator is Mr. William Peters, who will cut his logs at French River, where he has purchased a mill, instead of towing to Bay City as formerly.

The Saginaw Lumber and Salt Company, of Saginaw, will harvest 30,000,000 feet; Thomas H. Hurst, of Wyandotte, 80,000,000 feet; C. K. Eddy & Son, of Saginaw, 20,000,000 feet; A. T. Bliss, of Saginaw, 15,000,000 feet; Turner & Fisher, of Bay City, 50,000,000, feet

and several other firms from 15,000,000 to 20,000,000 feet, each of which, says the Michigan correspondent of the New York Lumber Trades Journal, will be raised from Canada to the Saginaw River mills next season. The new mill to be erected in the Ottawa district by E. M. Fowler, of Chicago, Arthur Hill, of Saginaw, and E. C. Whitney, of Minneapolis, will have 60,000,000 night and day capacity and will be worked likely to its full capacity.

It is stated that Merrill & Ring, of Saginaw, are negotiating for 100,000,000 feet of Canadian timber held by Michigan parties.

EDITORIAL NOTES.

AN object lesson for the advocates of better protection to Canadian forests is found in the fact that one of the leading saw mills in Essex county, owned by Mr. Haines and operated at Woodslee, will be removed to Blind River in the Algoma regions, for the one reason that there is not sufficient timber in Essex county to keep the saw mills stocked. It may be said, if Essex county has not plenty of timber there are abundant supplies of the product in other parts of the province, as well as elsewhere in the Dominion. It is worth remembering, however, that it is within the lifetime of the present generation, when the same thing was said of the timber of Essex and other counties in Western Ontario, which are to-day, with few exceptions, entirely depleted of their timber. We are not alarmists, and yet it is, we believe, the case, that no one can with any measure of care study the question of protection to our forests without satisfying himself that there is a tremendous amount of prodigality in the handling of forest products, and the time is none too early to consider seriously plans, not alone pointing to the preservation of the standing forests, but of replacing the timbers that have already been destroyed.

Is the consumption of lumber in the future likely to be lessened because other building materials are already taking its place? We have all heard this question raised many times, and the answers have been of a various character. The statement has been given currency to on the authority of a prominent contractor that the Grand Trunk Railway had very much curtailed the quantity of lumber it was in the habit of using. It is well-known what a large customer the railways have been to lumbermen. Metal, it is said, will be the building material of the future, and under the observation of everyone this material is to be seen occupying a large space in the erection of many buildings in the present day. But it has been remarked by an architectural journal that metal has fewer aptitudes for building and artistic effect than is the case with lumber and other materials in use to-day. With the ingenious and inventive spirit of the age it may be that metal can be made more useful in the future, than at present seems to be the case. It need not, however, be feared that lumber can at any time take an inferior position in building operations of almost any kind. There is an adaptation about lumber that must always give it a place of supremacy in a large amount of work.

LUMBER circles were somewhat agitated the early part of the month through a press dispatch, which was very generally published everywhere, stating that a cargo of Canadian lumber assigned to Georgetown D. C., which is a part of Washington, a little further up on the Potomac, had been refused free admission under the new law. The Secretary of the Treasury withheld permission until he could ascertain officially whether the Dominion government still imposed an export duty on lumber. There could, of course, be only one answer to this question, as our tariff regulations on the point are perfectly clear and so soon as these were explained to Secretary Carlisle the cargo was released and an official statement issued that Canadian lumber should be admitted free. Nor is there any ground, as some had supposed, for a revision of the free lumber regulations, through the exercise of a discrimination of stumpage dues by Canada, or its provinces, against United States holders of limits. Perhaps the only exception was that of the Ontario Government in the case of a few limits sold here four years ago, in which the conditions were quite local, and which would have no bearing on matters at present.



BUSILY engaged wading into blue books and other official documents at his room in the Rossin House I met Mr. James Connee, ex-M. P. P. for Algoma, a few weeks ago. This well-known resident of our north country was in the city as a delegate to the International Water Ways Convention, and was getting his ammunition ready for that occasion. Mr. Connee's business activities have brought him into close touch with lumbering affairs in the north, and he cheerfully granted me an interview concerning these matters. "The annual lumber output," said he, "of the Rat Portage and Keewatin district is about 75,000,000 feet, chiefly, of course, of white pine. Rather more than half the logs come from Minnesota." I enquired how this was and Mr. Connee replied that there were several circumstances that gave rise to this condition of lumbering. "For one thing," said he, "considerable lumber limits were held in Minnesota before the days of the settlement of the question of disputed territory in the Rat Portage district and this timber has not yet been all cut out and until it is a certain proportion of our cut will come from Minnesota. Again with the depression that has existed in commercial circles it has been found that logs could be got cheaper from Minnesota than in our own country. These are conveniently run into Rainy Lake. There has always been less or more of this procuring of logs from adjoining territories in the United States, local conditions making it sometimes preferable. When I was in the lumber business in Port Arthur I received a considerable quantity of my logs from Duluth. Then it sometimes depends on who own the mills. If they are owned by parties who have limits in adjoining American territory they naturally bring their supply from those points." Mr. Connee believes that the lumber trade generally in Canada will be strengthened by the passing of the Wilson free lumber bill. As a good Liberal he refers to the wisdom of the Ontario government in refusing to handicap trade with the States in any way as was proposed in certain legislation at the last session of the Ontario Assembly. He thinks there is no doubt but that there will be a noticeable revival in the saw mill business, and to some extent there will also be an extension of the planing mills of Canada.

Mr. H. H. Cook, of the Ontario Lumber Co., has said. The changes in the United States tariff were likely to give an impetus to the lumber trade, the like of which has not been witnessed for many a year, and the Parry Sound and other districts will hum this season. Many United States firms will commence operations on an extensive scale. A year or two ago the Midland and North Shore properties could not be given away. Now the Peters' firm of Michigan have purchased these for \$25,000 and will commence operations forthwith. Mr. Miscampbell will, in the early spring, start up the old British-Canadian mills at Midland, and mills will be started all through the districts, excepting in small limits, where it does not pay to erect mills, owing to the fact that 10 per cent of the lumber is either lost or stolen before it can be marketed.

A few days ago I drew the attention of Mr. William Little, of Montreal, who had been making a short stay in Toronto, to the remark made by Mr. Robt. Cox, the well-known lumber merchant of Liverpool, Eng., and who is at present in Ottawa, that the statistics show that the consumption of lumber in England has not varied 5% in any year during the past 40 years. "That statement," said Mr. Little, "is just somewhat wide of the mark. There is, I am sure, from some considerable knowledge of the English trade, a larger variance than 5% in 40 years, and yet practically the statement is correct. The English people are very conservative. The amount of building and extension of public works varies

very little from year to year." Then, I remarked, we can hardly look to the United Kingdom as a market where we may dispose of any unusual surplus of Canadian lumber. "That is the case," said Mr. Little, "and yet it is to be remembered that this average annual consumption of lumber in the mother land represents a very encouraging trade. Our natural outlet for lumber is the United States and if our people are only wise enough to recognize the position of supremacy as lumber producers that they now hold they will be able to place large quantities of lumber in the States at most satisfactory prices. It is the greatest foolishness imaginable for our people to be in too big a hurry to get rid of the products of the forest. They have a gold mine in these products and prices must continue to advance from year to year. It is quite true there are yet large amounts of timber in the United States, but for certain sections of the States the natural market is Canada, and to Canada these people will come to buy their supplies."

Certain Maine lumbermen take a somewhat gloomy view of the lumber clause in the United States tariff bill, so far at least as their trade is concerned. A week ago among visitors to St. John, N. B., were John Sweeney, W. H. Cahiff, C. H. Dickey and J. A. Lalbert, gentlemen actively engaged in lumbering operations down by the sea. To an interviewer Mr. Sweeney said: "The lumber business in the Aroostock country is at a standstill. We are all of us pretty well discouraged, and if it were not for the fact that we have our horses and our sleds and other possessions necessary to carry on our business, we would not strike a blow this winter. I am sure there will be little or nothing in it, but what are we going to do? We have from 20 to 50 horses and it would be next to impossible to dispose of them for anything like a reasonable price. We are, as you will readily see obliged to go ahead, but the cut this winter will be very light, much lighter than it has been for years." "No," continued Mr. Sweeney, in answer to a question, "I have no idea what the outcome of this change will be. I don't know what we are going to do about it. Things look pretty blue just now." When asked why the recent tariff changes would so seriously inconvenience the Maine lumberman, Mr. Sweeney pointed out that the Maine lumberman had to pay \$2 stumpage, whereas the New Brunswick operator had only \$1.50 to pay, and having no duty to pay it was obvious that the New Brunswick man could put the Maine man out of business.

Johann Reuter, a Spanish lumber merchant of Venezuela, has been in Ottawa during the past week with the purpose of establishing a trade in Canadian pine logs between here and Venezuela. Mr. Reuter says that New York has been his market for logs for many years, but as a result of his trip to Canada, he has discovered that he can do much better by shipping from Montreal or Quebec, and at the same time get a better class of logs. His contract with the New York firm expires in December. After that date he will make Ottawa his purchasing point for Canadian pine. His yearly shipment will be 1,500,000 feet, or three or four vessel loads each year, each vessel carrying between 3,000 and 4,000 feet of logs. Montreal or Quebec will be the shipping points. Before coming to Ottawa, Mr. Reuter visited the Michigan lumber districts, but he thinks the Michigan pine is not half as good in quality as that located down in Ottawa. Mr. Reuter states that Canadian pine is very much in demand in Venezuela, and is now being more used for building purposes than any other timber imported into South America.

"Yes," says J. S. Pinch, of the Collins Inlet Lumber Co., who operate largely in the Georgian Bay district, "the new tariff of the United States will be a great benefit to the timber and other interests of this country. In the first place it has practically stopped the exportation of logs. Firms that formerly engaged in this business are now buying or building mills in our district. Cutler & Savage, of the Saginaw, who have exported from fifteen to sixteen million feet in the round are now building a mill at Kenabuth, near Little Current, where they will do all their cutting hereafter, and Peters another big Michigan lumberman who has sent out 20,000,000

feet of logs has bought the Parry Harbor Company's mills and his cutting will be done here. But this is not all. The freeing of lumber has increased the demand for the products of our mills and in consequence there will be an addition to the output of 30 per cent as compared with last year and you know what that means to everybody engaged in the production of supplies which the lumberman uses."

Hon. E. H. Bronson was asked how he thought the removal of the duty would effect Chaudiere interests. He replied that it certainly would not be a disadvantage. The gain to the trade would not be as much as appeared on the surface by the removal of the duty because as he explained only about one third of the lumber cut at the Chaudiere goes to the United States market. Still the removal of the duty on lumber would be of advantage to the trade.

Mr. John Scully, of John Scully & Co., contractors' agents, who have extensive dealings with the lumber camps, says there will be no increase in the lumber cut this year, "and I incline," says Mr. Scully, "to the belief that it will be smaller than usual. There are heavy stocks in the United States at the present time. The building trades of Chicago, Cleveland, Buffalo, New York and Boston have been very dull, and till the stocks on the other side are disposed of I do not think there will be much of a spurt. Lumbermen are later going into the woods this year than usual. Square timber that has been on the Quebec market for a year is not sold yet. I know that less men than usual are wanted this year, and wages also are lower, fully 10 per cent lower. I sent a lot of men through the other day to La Cloche and Little Current in the Georgian Bay. These men came from the Peterboro' district, and received \$1.50 to \$18 a month. Last year they would have got from \$14 to \$20 a month. There are more men offering than we can supply work to do." Many of the American firms owning limits bring their own skilled men over, and many of the workmen now are from the States, as they can be got there as cheaply as in Canada.

"Somebody in the days that are to come," said Peter Ryan, as I chatted with him the other day about lumber affairs, "will grow rich out of Canadian lumber. But there are a good many fellows who have not the strength to hold on, and they will drop some money in the meantime. The result of my recent timber sale has in no way damped my confidence in the value of lumber as a Canadian asset. At the same time, I do not see as a result of free lumber that we are going to have an immediate boom on an extensive scale. There is a good deal of lumber in the country and United States lumbermen have heavy stocks on hand. I am told also that the banks are not encouraging investments in lumber to the extent that some might suppose. Probably they are just waiting a little to see how trade will shape."

If the statements made by Buffalo, Tonawanda and Albany correspondents of some of our lumber exchanges are something better than mere bluff, then the new tariff bill is going to play havoc with the planing mills of those localities, Canada being the gainer thereby. In the Tonawanda correspondence of the New York Lumber Trades Journal the statement is that "The new tariff bill will, in the opinion of several mill owners, injure Tonawanda. Canadians have heretofore found it to their advantage to bring lumber to this point for dressing. The new bill changes this, and the belief is that it will ruin a few mills engaged in that business." From Albany the report is: "The removal of the duty on Canadian lumber will make it almost impossible for our planing mills to compete with Canadian dressed lumber. Some think that our Canadian cousins will immediately advance their prices \$1 per 1000 feet, but I do not believe they will, as they have large stocks on hand, not only of this year's cut, but large quantities left over from last year's, and are only too glad to sell at old prices less the duty."

Mr. G. B. Cowper, who for thirty years was chief clerk of the woods and forests branch of the Ontario Crown Lands Department, died suddenly in Buffalo a couple of weeks ago. He was 75 years of age.

BRITISH COLUMBIA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

CONSIDERABLE losses are being sustained here by forest fires. Extensive fires have been raging in the Squamish Valley, making a serious clearing of timber. The fires have also spread along the east side of Howe Sound, where a good deal of damage has been done.

Messrs. Cates & McDermoth, the stevedores, have secured the contract to load the British ship, Listimore, which is chartered to take a cargo of lumber at the Hastings mill to Buenos Ayres. Trade with South America seems to be looking up.

The following vessels are to load lumber at British Columbia ports for foreign points: At Hastings mill, American barque Newsboy, 559 tons, for Sydney; Italian barque Cavour, 1389, for Callao; British ship Ballachulish, 1806 tons, for Valparaiso. At Vesuvius Bay, American ship Occidental, 1470 tons, loading mining props for Santa Rosalia.

The Brunette Saw Mill Co. recently shipped to Montreal a double cargo load of Douglas fir timber. Three of the largest pieces were of the following dimensions: 24 x 24 x 60 and 24 x 36 x 60, and the largest piece without a single knot. No larger timber has ever been shipped from British Columbia. The sticks are to be used in dredge building for the Montreal Harbor Commissioners.

NEW WESTMINSTER, B. C., Sept. 18, 1894.

OTTAWA LETTER.

[Regular correspondence CANADA LUMBERMAN.]

AN evidence of fresh activity in the lumber trade is found in the determination of mills to run much later than usual this year. A prominent lumberman of the Chaudiere is authority for the statement that with perhaps hardly an exception all mills will run until winter compels them to close down. Logs are in good supply and shipments have become quite brisk since the settlement of tariff troubles in the United States.

Much interest continues to gather around the saw mill intentions of Mr. J. R. Booth. Nothing new has developed since my last letter to indicate that he will change his mind, so far as re-building the big mill, but it is thought by some that he will erect another mill, and just where this will be located is an item of speculation with many. It is being realized that logs from the upper Ottawa find more difficulty every year in reaching the saw mills in this section, and for this reason it has been thought that Mr. Booth's mill might be situated farther up the river. Pembroke has been hoping to receive the plum, but enquiry at Mr. Booth's office gives the information that nothing definite is yet known where the mill will be situated, whilst it is not a settled fact that Mr. Booth will really erect another mill.

INDIFFERENT LENGTHS.

Large numbers of men are getting into the woods for the winter's work. The village of Gatineau Point is becoming depopulated through the number of its young men who are entering the lumber camps. Already more than 100 have left there for the woods.

The Perley mill, now operated by Mr. J. R. Booth, has never been running so satisfactory as at present.

Those of the Chaudiere and Hull lumber establishments who do not run all night are having electric plants put in shape for operating lights early in the mornings and evenings up to 6 o'clock, as the days are rapidly becoming shorter.

A purchase of 36 horses was recently made for the St. Anthony Lumber Co. on the Perley timber limits Madawaska.

Two detectives are said to have been sent here by the Underwriters' Association of Montreal to investigate the origin of the recent lumber fire here. It is not believed, however, by our people, that any ground exists for supposing it to have been an incendiary.

Some trouble is being experienced by the mills at the Chaudiere on account of the scarcity of water power. Old hands say that they never remember seeing the water of the Ottawa recede so fast as this summer. If the difficulty grows it may mean the closing down of quite a number of manufacturing establishments.

The act passed at last session of the House of Commons, to compel lumbermen to dispose of the sawdust of their mills other than by dumping it into the rivers, will come into effect on May 1st, 1895. A meeting of the Chaudiere lumbermen has been held and the Minister of Marine and Fisheries will be asked to extend the time in order that proper preparations may be made.

A dangerous job now under way is the building of the new rafting pier on the Hull side of the Chaudiere Falls. The force of the current at this point is so strong that a long pier, which was run out above the Buell, Hurdman Co. property, has been carried away piecemeal. As the waters are unusually low at the present time mill owners have thought it opportune to engage now in these repairs.

A private letter received here a few days since says that forest fires are raging in the Madawaska district. It is said that McLachlin Bros. limits are getting a terrible scorching.

It is expected that the last of the drives of the upper Ottawa saw logs will reach Des Joachim's boom almost immediately, when the boom will be closed up for the season.

The Upper Ottawa Improvement Company who handle all the logs after they reach Des Joachim, and by steamers tow them down the Ottawa, never had, on the whole, a more favorable season, as the height of the water in the river was nearly uniform all the summer.

OTTAWA, CAN., Sept. 21, 1894.

NEW BRUNSWICK LETTER.

[Regular correspondence CANADA LUMBERMAN.]

A CARGO of 375,000 feet of scantling recently cleared for Buenos Ayres.

American mill owners will be thought, as an effect of free lumber, be compelled to turn their attention to New Brunswick for logs instead of Maine. It is claimed that the higher stumpage and cost of logs in Maine will not permit them to compete with provincial mills. John Sweeney, C. H. Dickey and other lumbermen, who have been in the city lately say that the cut on the Aroostook next winter will be extremely small.

The feeling here is that lumber interests will be considerably benefited by the passing of the Wilson free lumber bill. This gain will be felt more in a year or two than even now.

The last raft has left the St. John river boom.

The logs rafted by the Fredericton Timber Co. on the St. John river this season are placed at 97,000,000 feet. This company has been improving its equipment, having recently erected a building on the shore and will manufacture pins there this winter. They have also improved the fire protection by putting in a pump with a capacity of 500 gallons a minute. A wharf, 90 feet long, will be erected, dredging going on with this object in view now.

The province, as with other parts of the country, has unfortunately suffered not a little from forest fires.

Alexander Gibson, of whom you published such a life-like pen picture in the last number of the LUMBERMAN, is about to build a new mill at Blackville to cut hemlock boards, in which he says he sees more profit than in spruce. His calculation is that there is 100,000,000 feet of hemlock along the Canada Eastern, a railroad property, of which he is the chief owner. A mill equipped with rotary, planer, and two shingle machines, is being erected at Boiestown by James S. Fairley.

ST. JOHN, N.B., Sept. 20, 1894.

MICHIGAN LETTER.

[Regular correspondence CANADA LUMBERMAN.]

OUR people have just passed through an experience from drought that has not had a parallel in this district for many years. Numbers of our lumbermen have been heavy losers through the destruction of their property by fires. On the line of the Mackinac division of the Michigan Central fires have been especially severe.

Expressions of opinion, as to the effect of free lumber, are as frequent as ever, but lumbermen do not seem to have satisfied themselves what the actual results will show. Time must be allowed to tell this. This much, however, is plain that trade is reviving, as a result, if

nothing else, of the fact that business men have some thing like a certainty to rest on, in the meantime, at any rate. The Saginaw Lumber & Salt Co. say that business is better than the same time last year. Mr. Loveland believes that prices will, at least, hold their own. The large quantities of white pine that have been destroyed by fires will be a factor in keeping prices up.

BITS OF LUMBER.

Whitney & Batchelor will only cut hemlock and hard wood logs this year, their pine being exhausted. H. A. Woodcock is reported to have said that "he will not look for any marked activity in lumber for another year, the such vast timber acres have been burned over it would be necessary for the owners to strain every effort to cut this fall and winter in order to save it and this will glut the market, and with the increased supplies that will come into the markets from Canada will make trade dull and prices low."

It is estimated that nearly 600,000,000 feet of lumber finds a place on the docks here, which means a large amount of capital locked up. This fact is likely to have an influence in curtailing the size of cut this winter.

A raft of nearly 5,000,000 feet has arrived from Georgian Bay for Col. A. T. Fletcher, of Alpena, and at Squaw Bay about 15,000,000 feet of logs, which had been brought over from Canada.

Hitchcock & Bialy are bringing over logs from Canada. J. W. Howry & Sons sent a crew of 100 men to Canada to work on their limits.

Shingle manufacturing on the Saginaw river this season has been very dull.

Lake rafting has about come to a close.

SAGINAW, MICH., Sept. 21, 1894.

AXES.

THOSE who are not familiar with the subject, or who have not given the matter any thought, scarcely realize that the improvement in axes during the last fifty years has been almost as great as in other lumbering implements. The axe is an implement of very ancient origin. Those made by primitive races were heavy and clumsy, and when the European nations began to emerge from the dark ages, axes of ornamental design were often unsuited for the best uses for which they were intended.

Of late years lighter axes have come into use, and the two-bladed, or double bitted axe has preference over the single bit in camps of the most progressive and successful lumbermen.

The best choppers prefer to grind one bit thin and have it with keen edge which will sink deep into the wood, while the other blade or bit is kept more blunt and is used for trimming tops of trees, or where it is necessary to strike into knots which would damage a thin ground edge.

Thus the double-bit axe serves a purpose which cannot be obtained from a single bit axe. Some inexperienced choppers who have never used double bit axes have preconceived notions about them and object to using them on the ground that they are dangerous, and that a chopper is liable to cut his head off in using them.

The least that can be said of such an one is that a man who pretends to be a chopper and handles an axe awkwardly as to cut himself about the head with a double bit axe would knock out his brains—if he had any—with the pole of a single bit ax.

FOOLISH TRADE NAMES.

ONE gets sick and tired of trade names, such as Victor, Ideal, paragon, excelsior, and the like, also wonders how the makers of machines thus named can afford to waste the effect produced by using the maker's name instead of these pseudonyms. The name of a firm or company applied to a machine such as a water wheel, gas engine or a moving machine, is of real trade value and comes constantly into use, but a nickname rarely ever does. Gas engines are thus afflicted, but not steam engines, the latter being accorded too much respectability for a nickname. We have, out of regard for the machines and believing it to be vastly to the advantage of the makers, never printed one of these names which it could reasonably be avoided.—Industry.

THE NEWS.

—Geo. Upham is building a new saw mill at Hartland N. B.

—Samuel Gray, planing mill, Victoria, B. C., mortgage sale advertised.

—W. N. Roberts is building a sash and door factory at Renfrew, Ont.

Hammil & McLeod, sash and door factory, Armstrong, B. C., have dissolved.

—A demand of assignment has been made upon N. H. Thibault & Co., lumber dealers, Montreal.

—A. A. Macbee & Co., who operate a planing mill at St. John, N. B., are reported in difficulties.

—The Dickson Company have upwards of ten million feet of lumber at Harwood, Ont., ready for shipment.

—The planing mill of John Graham & Sons, at Inglewood, Ont., was sold by auction on the 21st September.

—C. A. B. Purdy, lumber dealer, Porter's Lake, near Halifax, N. S., has turned his estate over to the assignee.

—The recent fires along the Madawaska river, near Kingston, are said to have destroyed \$50,000 worth of timber.

—E. C. Gooden & Co., lumber and general merchants, Baie Verte, N. B., are offering to compromise at 30c. on the dollar.

—J. S. Fairley is building a new saw mill near Boistown, N. B. It will be equipped with a rotary, planer, and two shingle machines.

—Hanson Bros., of Durham, N. B., have lately been sawing hemlock boards and have made a shipment to the American market.

—Six and a half million feet of logs in one raft were towed from French River to Collingwood recently, to be cut in the mills there.

—The assets of the Toronto Wood and Lumber Co., who recently assigned, were sold by auction at their mill in Toronto on the 14th ultimo.

—Mitchell's new saw mill at Selkirk Man., has commenced operations. The capacity is 35,000 feet per day, and the logs are towed from Lake Winnipeg.

—The sash and door factory of Boyd & Co., at Athelstan, Que., has been taken over by the Montreal Trust and Loan Co., who held a mortgage on the property.

—Application has been made for a provincial charter for the Assiniboine Lumber Company to carry on business in the city of Brandon, with a capital stock of \$100,000.

—The Muskoka Mill and Lumber Co. has recently purchased a fine timber limit on Vancouver Island, B. C., from the Toronto and British Columbia Lumber Co.

—At a meeting last week of the Retail Lumbermen's Association of Winnipeg, it was decided to reduce the price of shiplap \$2 a thousand and lath 25 cents a thousand.

The large saw mills at Collingwood, Ont., have commenced operations, and there is timber enough in the bay to keep them running until January. More than 200 men are employed.

—The first ship load of British Columbia lumber sent to Egypt left Vancouver a few days ago for Alexandria. The cargo goes on the barque, "Verejean," which is loaded with 1,630,000 ft.

—A large saw mill is being fitted up at Pine Tree Harbor, Ont., by Messrs. Bowman, of Southampton, and Siebert, of Chippewa Hill. There are large quantities of timber in the district.

—Withrow & Hillock, lumber dealers and manufacturers, of Toronto, owing to losses in real estate and general business depression, have been obliged to call a meeting of their creditors. The liabilities are said to be about \$120,000.

—Owing to contemplated improvements to their mills and the unusual lowness of the water, McLachlin Bros., of Arnprior, have closed down. New and improved machinery is to be put in and the river channel to the mills deepened.

—The Fleming Wood and Lumber Mill, at Midland, Ont., destroyed by fire last month, was the only mill of its kind in Canada. It sawed and split cordwood into stove lengths and dry-killed the wood. The head office is in Toronto.

—The plant and property of the Blind River Mill Company in Algoma have been purchased by J. Haynes, of Woodlee; W. R. Todd, of Gesto; R. Wigle, of Essex, and R. Tader, of Windsor. The purchasers have secured timber limits near the mills.

—Mr. W. F. Wilson, who was formerly connected with the lumber trade in Winnipeg, but who recently has been located in British Columbia, is opening an office in Winnipeg. He is now representing the Red Cedar Lumber Co., of Victoria, B. C., with mills at Port Moody. He has a big scheme on hand for handling British Columbia lumber.

—William Irwin, proprietor of some timber limits in Muskoka, has entered an action against James Turner and a number of other Michigan lumbermen to recover the sum of \$22,257, which he claims is due on a promissory note given in payment for 21,000,000 feet of logs sold to them.

—William Laking, a lumberman, of Fesserton, Ont., recently purchased a limit of six and a half square miles in Gibson township from the Muskoka Mill and Lumber Co. It is his intention to take out three and a half million feet of logs in North Orillia, Gibson and Matchedash, for next season's cut.

—The supply of timber in Essex County is not sufficient to keep the saw mills stocked. One of the leading mills, owned by Mr. Haines and operated at Woodlee, will be removed to Blind River in the Algoma lumber regions. The removal will be made in a few weeks.

—L. C. Wideman has erected and put in operation a new planing mill at Guelph, Ont. The building is three stories 46 x 67 feet. The first story contains a planer, rip saw and moulder; the second, a band saw, shaper, rip, cross-cut and scroll saws, sharpeners, and trimming, lathe and boring machines; and the third is used as a store room.

—The Lumberman received a pleasant call during Exhibition week from Messrs. Duff & Stewart, of Bluevale, from whom we learn that the union furniture factory at Wingham, which has been closed down for some time past, has been put in operation by a new company, among the promoters of which are Messrs. Thos. Bell, James Cline, Benj. Wilson and John McLean.

—An action has been entered by F. N. Stafford, of Montreal, against the McCready estate, to gain possession of a timber limit. The late James McCready had granted a timber limit to plaintiff, on condition that he should sell other similar limits. As the conditions of the grant were fulfilled only after Mr. McCready's death, the executors claim that the mandate did not exist at that time, and that Mr. Stafford could not demand his timber limit. Hence the action.

—About two weeks ago a neatly dressed young man presented a cheque at the Merchants' Bank, Toronto, for \$6,000, purporting to be made by Alexander Burnett, the well known lumberman of Renfrew, and endorsed by the Cook & Bros. Lumber Co., of Toronto. The fact that the cheque was made for an unusually large amount aroused the teller's suspicion, and upon examination the signature was found to be a forgery. The young swindler, observing the actions of the bank officials, made his escape.

FIRES AND CASUALTIES.

FIRES.

C. A. Sleeve's saw mill at Coverdale, N. B., has been burned.

—The saw and grist mills at Dartford, Ont., have been burned. Loss, \$5,000.

—The hoop and stave mill of Smith Bros., at Stewart, Ont., was consumed by fire a week ago. Loss, \$9,000; insurance, \$3,000.

—M. McCormick's planing mill at Winnipeg, Man., was completely destroyed by fire a couple of weeks ago. Loss, \$10,000.

—McKechnie's saw mill at Durham, Ont., was burned to the ground the early part of last month. The loss is estimated at from \$15,000 to \$20,000. No insurance.

—Gillies' Bros' lumber yard at Paris, Ont., was damaged by fire recently to the extent of \$5,000. All the lumber, shingles and lath in stock were consumed. No insurance.

—Fire broke out in the planing mill of Robert Patterson, at Hensall, Ont., on the 8th ultimo, consuming the building and a quantity of lumber in the yard. The loss is roughly estimated at \$7,000; no insurance.

—No sooner had our September number gone to press than the news reached us of the destruction by fire at Ottawa of from eight to ten million feet of lumber owned by J. R. Booth, and valued at from \$150,000 to \$200,000. About 60 per cent of the loss is covered by insurance. Only a few weeks previous Mr. Booth lost a mill valued at \$150,000, on which the actual insurance paid was \$140,000.

CASUALTIES.

—John Matteson was drowned at Fort William recently while working on the boom at Graham, Horne & Co.'s mill.

—Egbert Barnes, foreman in W. C. Edward's mill at New Edinburgh, Ont., was struck on the head with a lever a few days ago and seriously injured.

—While working at an edger in Booth's saw mill at Ottawa, a man named Champagne was hit by a flying plank. One arm was broken and lacerated and he was otherwise seriously injured.

—J. A. Gagnon's saw mills at Three Rivers, Que., were wrecked by the explosion of a boiler on the 7th of September.

The fireman, Samuel Beaumer, was instantly killed, while several others were badly scalded and otherwise injured. The mill was a new one and had just been put in operation.

PERSONAL.

Mr. A. Barnett, lumberman, of Renfrew, Ont., recently paid a visit to Manitoba and the Northwest Territories.

We learn of the death the early part of last month of Mr. William McClymont, long a resident of Ottawa and a well-known lumberman.

The marriage is announced on the 30th August of Mr. Geo. Gordon, a prominent lumberman of Pembroke, Ont., to Miss Minnie Parry, of Dunnville. A hearty reception was given to the newly-wedded couple by the townspeople, in recognition of the popularity of the young lady.

TRADE NOTES.

Messrs. McRae Bros. & Co., of Ottawa, have purchased the handsome sawmill carriage recently exhibited at the Toronto exhibition by the Waterous Co., of Brantford. It will be placed in their extensive mills at Calabogie.

The Brunette Saw Mill Co., of New Westminster, B. C., have recently put in operation a new "King" lumber planer, weighing 27,000 pounds, manufactured to their order by Messrs. E. & B. Holmes, of Buffalo. This machine is capable of dressing timber up to 16 x 30 inches on four sides at one operation.

Messrs. White & Co., of St. John, N. B., have ordered from A. R. Williams, of the Soho Machine Works, Toronto, one of his new brake lathes to swing 86". This lathe is to embody all the latest improvements in lathes of this description, and is calculated to do a very wide range of work. It is similar in many points of construction to the one exhibited by Mr. Williams at the World's Fair, Chicago, but of larger dimensions.

PUBLICATIONS.

The Review of Reviews for September gives surveys of recent Congressional and State legislation in special articles; the comparative table of tariff rates, especially, will be found useful for reference purposes, as it shows at a glance all the important changes made by the enactment of the new law.

UTILIZATION OF SAWDUST.

IN large lumber manufacturing districts the utilization of waste products, such as slabs, sawdust, etc., in some way other than burning these as fuel, is, says Mr. Leicester Allen in the Tradesman, worth considering. One of the methods whereby profit has been made from sawdust, is the manufacture from it of oxalic acid, which is a simple process producing a material in wide commercial demand in the arts of dyeing and other chemical arts. As intimated, the process is not only simple, but the outfit for conducting it does not involve a large investment. The principles involved are not complicated and the process can be carried out by cheap labor under the superintendence of a fairly intelligent director.

Oxalic acid is frequently met with in the vegetable kingdom, especially in combination with gases which destroy its poisonous character. Oxalate of lime is found in considerable quantity in the rhubarb plant; oxalate of potash is found in the sorrel, and axalate of soda in salicornia and salsoda. Formerly the acid was obtained from the sorrel, oxalis acetosella, but more recently from sugar, by the action of the nitric acid upon it. The nitric acid and sugar are boiled for some time, then evaporated to dryness, and the oxalic acid formed is purified by recrystallization from water. A much cheaper material than sugar is sawdust. In this case an alkali must be employed instead of an acid, as well as a higher temperature. The operation is conducted in an iron vessel of suitable size and shape; and either caustic soda or potash is employed, the yield being greater with the latter.

Some recent experiments made by William Thorne, in Stuttgart, go to prove that a mixture of forty parts of caustic potash to sixty parts of caustic soda, will produce as large a yield as when potash alone is used, provided the operation be performed in shallow vessels with thin layers of the material, avoiding as far as possible the fusing of the mass. Soft woods, such as pine and fir, produce larger quantities of oxalic acid than hard wood like oak. The proportion of the wood to alkali should not exceed 75 to 100, and the temperature should be about 480 degrees Fahrenheit.

TRADE REVIEW.

Office of CANADA LUMBERMAN, } Sept. 25, 1894. }

THE GENERAL SURVEY.

BEYOND any doubt business in lumber has improved during the month. The shipments out from Ottawa have been on a much larger scale than for some months past.

Canadian lumbermen continue to discuss tariff matters and opinions vary a good deal, as a reference to this and a past issue of the LUMBERMAN will prove.

Elsewhere we discuss the outlook of logging operations the coming winter. There is good reason to suppose that these will be more restricted than had some time ago been expected.

How far the extensive and lamentably serious forest fires that have taken place this summer throughout Wisconsin, Minneapolis and some portions of Michigan will affect the size of the winter's operations, and likewise trade the coming spring, is being widely discussed in lumber circles.

New Brunswick trade is reported to have already felt some benefits from the new tariff relations. It is expected that the position of spruce, as a result of these changes, both in Quebec and New Brunswick, will be a good deal strengthened.

Lumber trade in British Columbia is somewhat quiet. Cedar shingles are lower in price than a year ago, and the market is sufficiently demoralized to make it hard to say what the future may be.

Ontario's local trade has improved some during the month and wholesale men say that they are anticipating at least a fair fall trade.

UNITED STATES.

Whilst the increase in lumber trade in any part of the Union during the month has not been remarkable, the signs are clear that business is actually reviving.

will take under the new tariff, lumbermen are not yet, apparently, ready to say, but it is encouraging to them that trade is in a progressive state.

FOREIGN.

Trade in Great Britain is not in a very satisfactory shape. A complaint has been growing for some time that shipments of lumber have been sent from the United States to the United Kingdom with very little regard as to whether they were really needed or not.

TORONTO, ONT.

TORONTO, September 25, 1894.

Table with columns for CAR OR CARGO LOTS, listing various lumber types and prices.

Table with columns for YARD QUOTATIONS, listing various lumber types and prices.

Table with columns for HARDWOODS—PER M. FEET CAR LOTS, listing various wood types and prices.

OTTAWA, ONT.

OTTAWA, Sept. 25, 1894.

Table listing various lumber products and their prices in Ottawa.

SAGINAW, MICH.

SAGINAW, MICH., Sept. 25.—The anticipated improvement in trade, as foreshadowed in our comments from here a month ago, is being borne out by the business of the month.

FINISHING LUMBER—ROUGH.

Table listing finishing lumber prices in Saginaw.

SIDING.

Table listing siding prices in Saginaw.

TIMBER, JOIST AND SCANTLING.

Table listing timber, joist and scantling prices in Saginaw.

BOX.

Table listing box prices in Saginaw.

SHINGLES, 18-IN.

Table listing shingles prices in Saginaw.

WHITE PINE LATH.

Table listing white pine lath prices in Saginaw.

BOSTON, MASS.

BOSTON, Mass., Sept. 25.—A particularly quiet spot for lumber for many months back has been the Hub, but the past few weeks contain signs of better things for Boston.

EASTERN PINE—CARGO OR CAR LOAD.

Table listing eastern pine prices in Boston.

WESTERN PINE—BY CAR LOAD.

Table listing western pine prices in Boston.

SPRUCE—BY CARGO.

Table listing spruce prices in Boston.

LATH.

Table listing lath prices in Boston.

SHINGLES.

Table listing shingles prices in Boston.

NEW YORK CITY.

NEW YORK, N. Y., Sept. 25.—A spirit of recuperation is manifest in lumber in the metropolis. Not very many large sales are to be noted, but there is more general demand for lumber, a result of an improvement in trade

conditions in all lines of business, and lumber is receiving a portion of the gain. The demand for low grade stuff, particularly box, is quite considerable, and some are saying that white pine stocks will be scarce before the season is over.

WHITE PINE—WESTERN GRADES.

Uppers, 1 in.	\$44 00@45 00	Coffin boards	20 00	22 00
1 1/2, 1 1/2 and 2 in.	46 00	Box, in.	17 00@17 50	
3 and 4 in.	55 00	Thicker	17 50	18 50
Selects, 1 in.	40 00	Ceil'g, base, fig. No. 1	40 00	42 00
1 in., all wide.	41 00	No. 2	35 00	37 00
1 1/2, 1 1/2 and 2 in.	43 00	No. 3	24 00	26 00
3 and 4 in.	52 00	Shelving, No. 1	30 00	32 00
Fine common, 1 in.	36 00	No. 2	25 00	27 00
1 1/2 and 2 in.	38 00	Molding, No. 1	36 00	37 00
3 and 4 in.	46 00	No. 2	34 00	35 00
Cutting up, 1 in. No. 1	28 00	Bevel sid'g, clear	22 50	23 50
No. 2	21 00	No. 1	20 00	20 50
Thick, No. 1	29 00	No. 2	20 00	20 50
No. 2	24 00	No. 3	16 00	17 00
Common, No. 1, 10		Norway, c'l, and No. 1	23 00	25 00
and 12 in.	22 00	No. 2	20 00	22 00
No. 2	20 00	Common	18 00	19 00
No. 3	17 00			

BUFFALO AND TONAWANDA, N.Y.

TONAWANDA, N. Y., Sept. 25.—Where the tendency had been for prices to weaken, the situation during the month shows a change in this respect. Those looking for bargains have been here, but they have not found them as readily as at other times during the past summer. Box men are encouraged by the number of orders they have been able to book. Shingles are somewhat slow.

WHITE PINE.

Upr's, 1, 1 1/2, 1 1/2 and 2	\$46 00	48 00	Shelving, No. 1, 13 in		
2 1/2 and 3 in.	52 00	55 00	and up, 1 in.	31 00@33 00	
4 in.	58 00	60 00	Dressing, 1 1/2 in.	25 00	26 00
Selects, 1 in.	38 00	39 00	1 1/2 x 10 and 12.		26 00
1 1/2 to 2 in.	42 00	42 00	1 1/2 in.	24 00	25 00
2 1/2 and 3 in.	47 00	50 00	2 in.	26 50	28 00
Fine common, 1 in.	35 00	38 00	Mold st'ps, 1 to 2 in.	33 00	35 00
1 1/2 and 1 1/2 in.	37 00	38 00	Barn, No. 1, 10 and 12		
2 in.	39 00	40 00	in.	21 00	23 00
3 in.	45 00	45 00	6 and 8 in.	20 50	22 00
4 in.	45 00	45 00	No. 2, 10 and 12 in.	18 00	19 00
Cutting up, No. 1, 1 in.	27 00	29 00	6 and 8 in.	18 00	19 00
No. 2	33 00	34 00	No. 3, 10 and 12 in.	14 00	16 00
No. 1, 1 in.	17 00	18 00	6 and 8 in.	13 50	15 50
No. 2, 1 1/2 to 2 in.	23 00	24 00	Common, 1 in.	16 00	18 00
No. 3, 1 1/2 to 2 in.	18 00	19 00	1 1/2 and 1 1/2 in.	18 00	20 00
			2 in.	19 00	22 00

ALBANY, N.Y.

ALBANY, N. Y., Sept. 25.—Greater activity has been noticeable in the lumber market since the tariff bill was passed, and dealers, if they do not like some features of this bill, are encouraged by the activity in trade that is showing itself. Planing mill men are somewhat fearful of what the result may be to them, but as has been remarked before from this point, time will alone tell the true inwardness of the matter.

PINE.

2 1/2 in. and up, good	\$56 50	60 00	10-in. common	\$15 16	
Fourths	58	58	12-in. dressing and better	28	34
Pickings	50	50	Common	15	17
1 1/2 to 2 in. good	45	45	1 1/2 in. siding, selected, 13 ft.	40	45
Fourths	52	55	Common	15	17
Selects	47	50	1-in. siding, selected	38	42
Pickings	42	45	Common	15	17
1-in. good	37	40	Norway, clear	22	25
Fourths	52	55	Dressing	16	18
Selects	47	50	Common	11	15
Pickings	42	45	10-in. plank, 13 ft., dressing		
Cutting up	37	40	and better, each	42	55
Bracket plank	30	35	10-in. plank, 13-ft. culls, each	23	25
Shelving boards, 12-in. up	30	32	10-in. boards, 13 ft., dressing		
Dressing boards, narrow	19	21	and better, each	28	32
			10-in. boards, 13-ft. culls	17	21

LATH.

Pine	\$2 40	Spruce	\$2 30	\$2 40
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SHINGLES.

Sawed Pine, ex. XXXX	\$4 40	\$4 50	Bound butts, 6 x 18	\$5 90	\$6 00
Clear butts	3 15	3 25	Hemlock	2 15	2 30
Smooth, 6 x 18	5 50	5 60	Spruce	2 20	2 30

THE TORONTO INDUSTRIAL EXHIBITION.

BELOW will be found particulars of some of the exhibits at the recent Industrial Exhibition in which the readers of THE LUMBERMAN are likely to be most interested:—

Robin & Sadler, of Montreal and Toronto, presented an attractive showing in the east end of the Machinery Hall, of samples of all kinds and sizes of leather belting, laces, belt dressing, &c.

Messrs. Cant Bros., Ltd., of Galt, Ont., presented a new instrument in the form of a hollow chisel—working either horizontally or uprightly, useful alike for the very lightest and the heaviest work.

The Canadian Rubber Co., of Toronto, claim to have gained many pointers by experience, and the goods they now turn out are a great improvement as regards durability and appearance on those of earlier years. They showed their usual lines of belting, hose, seamless tubes, &c., and are bringing out shortly a new stitched belting, particulars of which will be duly placed before our readers.

The Goldie & McCulloch Co., Ltd., of Galt, Ont., exhibited a band rip saw, a Buzey planer, a tenoning machine and several wood split pulleys: also a lime extractor, heater and filter, a number of purchases of the latter having been made at the Exhibition.

The Canadian Mineral Wool Co., Ltd., of Toronto, presented neat compact samples of their asbestos goods, steam packings, cotton waste, gaskets, steam and boiler covering. The Company is now manufacturing its wool in Toronto, thus reducing the cost of its material.

The Dodge Wood Split Pulley Co., of Toronto, placed before prospective purchasers a large variety of their well known split pulleys; also for the transmission of power and for hoisting purposes their tallow laid manilla ropes. They have specially made a new pulley for dynamos and motors. All their pulleys were running at high speed and attracted a good amount of attention.

Barber & Watson, of Meaford, Ont., had on exhibition one of Barber's Canadian Turbines, which is apparently easy to handle, quick to respond, steady and sturdy in motion. The firm also manufacture gearing, hangers, shafting, pulleys, saw mill machinery and machinery and castings of all kinds. They have had an experience in the above lines of trade extending over a period of 26 years.

Messrs. Shurly and Dietrich, of Galt, had the most imposing show in the Main Building, being their exact World's Fair exhibit, for which they received the highest awards. Their racer saws, which are exported to the States, are made of the celebrated Jessops' steel and ground and finished by special process known only to the firm. The circular saws exhibited were from 1 inch to 90 inches in diameter.

The Whitman & Barnes Manufacturing Co., of St. Catharines, Ont., had in the Main Building an exceedingly artistic, compact and well arranged exhibit of machine knives. The firm have factories in the States, with branches in England and France, the St. Catharines works being the Canadian branch. It is stated that in the manufacture of their products they use the largest quantity of sheet steel of any firm in the world.

The Hart Emery Wheel Company, Ltd., of Hamilton, Ont., showed in running order their Rogers Automatic Band Saw Filer for band re-saws from 2 to 6 inches wide. This machine is simple in design and easily operated. The pawl moves to the left at about 45 teeth to the minute. The emery wheel moves in and out of each tooth as it passes, grinding either front, throat or back, or all three, as may be deemed necessary.

William C. Wilson, of Toronto, had an attractive display in the Machinery Hall of all kinds of lubricating oils and grease, engine packing, belting, electric carbons, cotton waste, &c., also samples of ammonia oils—the latter being subjected to a very high cold test and being specially prepared for ice makers and brewers. Mr. Wilson's stand was well arranged and decorated with electric lights, which showed off his exhibit to advantage.

F. E. Dixon & Co., 70 King St. E., Toronto, showed samples of different kinds of belting—round belts, rubber belting, cotton and lace leather, belt studs, twisted raw hide belting, and their Goodyear welting. The firm supplied the 18-inch double belt which was driven by the 40 H. P. engine belonging to the Johnson Electric Co. to run part of their machinery, and during the time of the Exhibition it had been in use had not stretched.

Messrs. Cowan & Co., Galt, Ont., presented a very good exhibit in the Machinery Hall, consisting of a 10 inch endless bed, 4 sided molding machine, with self adjusting pressure bar used on any shape molding. The firm will shortly bring out a new molder, adopting an entirely new principle. The Company also manufacture for Mr. Moffatt, of Woodstock, Ont., a patent feed water heater, being a lime, mud and soil extractor as well as a condenser.

Messrs. Small & Fisher, of Woodstock, N. B., exhibited the "Getchell" shingle machine, the carriage of which passes the saw opposite to the side on which the arbor is attached, so that a larger shingle can be cut with a smaller saw than can be done when the carriage runs on the same side as the arbor. The bolt being set while the carriage is advancing slowly towards the saw, receives no jar, and consequently saws a more even shingle. The machine is exceedingly easy to operate, no extra counter shaft being required to drive the jointer.

The Northey Manufacturing Co., Ltd., of Toronto, exhibited in the Machinery Hall several of their well known pumping engines. The one that attracted most attention from those practically interested, was their Underwriters' Fire Pump, the dimensions of which were 14 x 7 x 12, giving a capacity of 500 gallons of water per minute—equal to 2 1/8 inch smooth nozzle streams—the engine, to produce this result, was driven at the rate of 70 revolutions per minute. The Company also showed

an independent condenser, capable of supplying the wants of any steam engine of 200 H. P.; a brewer's air pump, with automatic regulator, as well as several small duplex feed pumps.

The Wm. Hamilton Manufacturing Co., Ltd., Peterborough, Ont., had on view the "Boss Turbine Water Wheel," which they claim gives the highest percentage of useful effect for every cubic foot of water used. It is made in dry sand, having smooth, even surfaces. The improved water wheel governor made by this Company is claimed to be the most simple, durable and efficient in connecting rapidly any disturbed motion of machinery driven by water power. The Company also manufacture Perkins' celebrated shingle mill, M. Covell's improved saw sharpener, and all kinds of high class saw mill machinery.

J. H. Banes, of Toronto, made quite a success in showing "The Phillip Mitreing Saw and Dado Machine" in the Machinery Hall. During the exhibition there was always a crowd of practical men examining the working of this new machine, which is peculiarly adapted to fine work, especially in the housing of stair strings, dados, shelving, window frames, doors, &c. The circular saw itself can be quickly adjusted to any angle, and can cut perpendicular or any mitre right or left, at any degree, and by its adaptability it produces the finest possible work, doing away entirely with the rough, ragged edges so commonly seen. The saw is usually driven at a speed of 1800 to 2000 revolutions per minute, although when tested at the Exhibition it was running at the rate of 2300 revolutions.

The Waterous Engine Works Co., of Brantford, Ont., exhibited one of their heavy band saw carriages, which is built with the best materials—head blocks of verder steel; segments and pinions of wrought cut steel; track very heavy, weighing 20 lbs. to the foot; set works being of Hector Gawley patent, double acting, and so constructed that not one-hundredth part of an inch is slack in the operation of the lever, thus insuring perfectly accurate cut lumber. The carriage is also provided with offset suitable for band mill work. This carriage is driven by Gunshot feed, which is much admired by practical lumbermen who have seen it in operation. The firm's enterprise has been rewarded by the sale of this particular carriage to Messrs. McRae Bros., of Ottawa, who are placing it in the Calabogie mills on the Kingston and Pembroke railway. The Company have gone extensively into the manufacture of saw mill machinery, and are sole makers of the celebrated "Allis" band mill, and also W. H. Hill's specialties, such as steam niggers, log kickers, &c. They had also at work two No. 3 Champion portable engines, driving a number of agricultural implements.

A. R. Williams, Soho Machine Works, Toronto, had at the Industrial Exhibition, Toronto, this year one of the largest and most varied exhibitions in Machinery Hall, consisting largely of iron working machinery, lathes, planers, drilling machines, etc. His radial drill drilling to the centre of 50", and drilling at any angle without changing the position of the work, attracted special attention. He also showed a large assortment of the celebrated "Reeves" wood-split pulleys, a shaft loaded with these pulleys being constantly in motion. These are claimed to be the strongest wood-split pulleys manufactured, being nailed and glued throughout and the arms being built into the rim giving them great firmness at this joint. The quartered bush in these pulleys gives great adhesion to the shaft, while the arm is so constructed as not to fan the air and to be easily bolted to the shaft. Another attractive feature was a row of the celebrated Pickering Governors, also in operation in front of his exhibit, the name "A. R. Williams" being artistically worked in twist drills of the celebrated Cleveland make. He also displayed two cases of brass goods and machinist tools very neatly and tastefully arranged, while his Sturtevant heating and ventilating apparatus was in full blast, the engine driving the same being attached to the shaft of the fan; the effect of this blast was neatly shown by red, white and blue ribbons attached to the discharge of the fan. This celebrated heating and ventilating apparatus may be seen in operation in the Massey Music Hall, the Massey Mission Hall and in dry kilns in various parts of the city and province. He also had in operation one of his celebrated duplex Worthington pattern steam pumps supplying the water for the cascade at the east end of the building. He also showed one of the Barnes foot power lathes which are so much in demand among the manufacturers and repairers of bicycles; while in the rear on a table was a fine display of lathes and drill chucks of the best American makers. The same exhibitor showed at the east end of Machinery Hall outside of the building a wood-yard apparatus, consisting of a portable engine and boiler, swing cross-cutting wood saw machine, and the Hildrith patent single wood splitter, cutting and splitting the wood used by the various engines on the ground. This exhibit very justly attracted great attention, and the exhibitor deserves credit for his enterprise, and his men credit for the taste displayed in arranging and operating the machinery on exhibition.

TALKS WITH WOOD-WORKERS.

A BRANCH of wood-working that calls for some idea of taste and nicety in the performance of the work is that of veneering. A bad piece of veneering is an eye sore to the most unskilled eye and it is unbearable to the practised eye. A contributor to Carpentry and Building tells us that to treat a door with a thin veneer and do it right is a pretty hard job for one who is not used to the business, and the veneer is apt to let go from the core and blister. The best veneer for doors, etc., is $\frac{1}{4}$ to $\frac{3}{8}$ -inch thick. It is much easier to work than thin veneer, and gives greater satisfaction in all cases. In order to veneer a door the operator needs clamps, cauls, hot irons or water cans for moving over the surface of the veneer to keep the glue from setting too fast, and until the cauls and clamps are in place and screwed up tight; a few veneer tacks and sufficient extra weight handy to put on the cauls where the clamps do not give it an even pressure on the lock rail. Use good glue and cook it well—until the water is boiled out of it. Get out the veneer of the proper size for stiles and rails, making allowance, however, on the stiles, for mitering the veneer on the outer edges of the door. The shop should be at a high temperature when veneering is to be done. Stand or lay the pieces of veneer close to the stove so they will become very warm, while the door is placed on the bench and the tools gathered together. Have the irons hot, or if water cans are used, fill them with water which is boiling hot. We now veneer the door. The latter can be glued up like a "regular" or driven together, trued up and cleaned, but not sand-papered. Drive it apart and veneer each piece separately, after which the door can be glued and wedged before the edges are veneered. The cauls should be made to suit the width of the stiles and of sufficient length to fit the parts where used. They should be true and straight on the surface next the veneer. Everything being ready heat very hot the piece of veneer to be put on; then with a brush quickly spread the glue on the core, after which lay on the veneer, tack it in place, put on the cauls and clamps, set them up hard and make sure that all parts of the veneer are pressed tightly down to the core. Take up the next piece and treat it in a similar manner, and so continue until all the pieces are veneered on one side. When the glue is hard on the first piece reverse it and veneer the other side in the same manner, so continuing until all the work is done. Drive and clamp the door and clean the veneer, using a sharp scraper, but no sandpaper. A No. 0000 glass paper can be used after the scraping is done. Do not rub across the grain. In fitting the doors allowance must be made for twice the thickness of the veneer and the plate for hinges, etc. Strong dark glue is the best. In order to tell good glue take a piece between the fingers and bend it. If it does not crack or fly to pieces, but bends tough, showing no signs of snapping, it is a glue that will hold if properly cooked. A copper steam heater is, in my estimation, the best for glue. A little vinegar added to the glue will prevent its setting too fast, but it dries slowly.

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In the present day of changes in the manufacturing of building materials, as in the world of manufacture generally, the intelligent workman is interested in following up developments along this line. The Northwestern Lumberman, in a recent issue, describes a new building material made of $\frac{1}{4}$ -inch strips of wood, from $\frac{3}{4}$ to $1\frac{1}{4}$ inches wide, placed between two sheets of heavy strawboard and united under heavy pressure with a strong cement. The process of manufacture is peculiar. Into the machine that moulds the board are run two sheets of the strawboard from rolls, one from above and one from below a table onto which are fed from a feeding device the strips of wood. A roller running in a tank of the liquid cement rolls upon the inner surface of the sheets of strawboard, and the three layers of material run together between rolls and into a hydraulic press capable of exerting a pressure of 120 tons to the square inch. Ten feet of the board is stopped automatically for a few seconds in the press, then run out upon a table fitted with cut-off saws, where it is sawed to the desired length. It is then run upon trucks, placed in the dry kiln, and when taken out is trimmed to 18 inches in width. The strength of the board as compared with its weight is marvelous. The ends of an 18-foot board can be brought together

without breaking or warping it. No conditions can warp it. Wall paper is put upon the board, and the finish is as fine as upon any plastered wall. The strong points claimed for the board are: It is not more expensive than first-class plastering. It forms an absolutely airtight wall. It stiffens a building much more than any coat of mortar and lath can. It is quickly put on, and produces no dampness, thus causing no swelling and shrinking of floors and castings. It is light, thus avoiding the dragging down of the house frame, the consequent cracking of walls and the warping of door frames. It forms a solid, cleaner, warmer, drier wall at no more expense than is involved in the old way.

JAS.

AUCTION SALE OF TIMBER LIMITS.

THE auction sale of Canadian timber limits that had been announced for the Board of Trade rooms, Toronto, on August 29th, brought together a considerable number of lumbermen from various parts of Ontario and Quebec, and among these were a fair sprinkling of United States lumbermen. Prominent among those present were: J. Bryson, M. P., Pontiac; C. McLachlin, Amprior; C. Leduc, J. C. Brown, Peter McKee, Wm. Charleson and others from Ottawa; Alex. Barnett, Renfrew; R. O. McConnel, Mattawa; Robt. Klock, Mattawa, Thomas Hale and T. Mackie, Pembroke; William Little, Montreal; Mossom Boyd, Bobcaygeon; J. B. Miller, Parry Sound; R. Thompson, Hamilton; Dr. Spohn, Penetang; T. Conlin, Thorold; W. D. Gladman, Parry Sound; P. C. Whitney, Minneapolis, Minn.; Morris Quinn, Saginaw, Mich.; "Archie" McKinnon, Saginaw, Mich.; J. Vincent, Saginaw, Mich.; E. M. Fowler, Detroit; William Peter, Columbiaville, Mich.; Matt Slush, Mount Clemens, Mich.; besides such well known local lumbermen as John Waldie, Joseph Oliver, Thomas Meaney, the Messrs. Campbell, of the Muskoka Mill and Lumber Co., William Smith, (J. B. Smith & Co.), Geo. Beitraum, John Drynan, James Tennant, W. Cook and Nicholas Garland.

The limits offered for sale had an area of 1864 square miles, of which 817 were in Ontario and 1047 in Quebec, and altogether embraced the following lots: 36 miles in Caldwell Township; 36 miles in Dill; 22 $\frac{1}{4}$ miles in Butt; the Latour limits on the Upper Ottawa, 230 $\frac{1}{4}$ square miles in extent; the Kippewa berth, 64 miles on the Upper Ottawa; berths, 23 and 6, 34 $\frac{1}{4}$ miles in the Township of McClintock; berth 5, in Livingston, 83 $\frac{1}{2}$ miles; berth 71, in Snider, 27 miles; berth 1, in Livingston, 13 $\frac{1}{4}$ miles; berth 2, in Finlayson, 10 $\frac{1}{4}$ miles; berth 3, in McCraney, 11 $\frac{1}{2}$ miles; berths 19, 20, 21, 25, 27, 65, 67 and 68, Rainy River district, 50 miles; berths in South and North Burleigh, 34 miles; berths 2, 3, and 4, Thunder Bay District, 22 miles; berth 8, Thunder Bay district, 37 $\frac{1}{2}$ miles; berth 7, Lake Expansive, Upper Ottawa, 16 $\frac{1}{4}$ miles; berths 51 and 43, Lake Huron district, 72 miles; the Lauzon limits, comprising berths 597, 598, 599, 601, 602, 603 and 604, in the Upper Ottawa district, 145 $\frac{1}{2}$ miles; berths 591, 592, 593, 594 and 600, Upper Ottawa, 126 $\frac{1}{4}$ miles; berths, 394 and 395, 100 miles, on the Black River, Upper Ottawa; berths 512, 513, 514, 515, 516 and 517, Upper Ottawa, 300 miles in all; berth 3, in McMurchy, 5 miles; berth 3, in Perry, 3 $\frac{1}{2}$ miles; berth 1, in Pringle, 23 $\frac{1}{4}$ miles; berth 205 in McMahon, 36 miles; berth 200, in Morin, 36 miles; berth 193, in Houghton, 36 miles; 28 $\frac{1}{2}$ miles in Striker, 36 miles in McGivern, 15 $\frac{1}{2}$ miles in Missisagua reserve, 3 $\frac{1}{4}$ miles in Cobden, 10 $\frac{1}{2}$ miles in Township 155, and the Blind River mill.

The sale was under the management of Mr. Peter Ryan, trade auctioneer, whose success in connection with the last government sale, as also with other lumber sales in the province, gave expectations of a successful sale in the present case. These hopes, however, were early blighted, whatever the cause may have been. The list of properties embraced many desirable limits in the Georgian Bay territories, along the Ottawa, and in certain parts of Quebec. But neither the ability of the auctioneer, nor his good nature, nor enthusiasm, could get business moving with any degree of encouragement. As a matter of fact only one limit was sold, namely, 36 square miles in the township of Caldwell, district of Nipissing, the buyer being Mr. Nicholas Garland, of Toronto, who started the lot at a "sporting bid," to

use the auctioneer's phrase, of \$100 a square mile, and he made the final bid of \$140. With the other lots on the list it was either impossible to get bids approaching nearly to the reserve bid or else there were simply no bids at all. Mr. Ryan at one time of the sale announced that he was "waiting with patience and with that christian fortitude, of which I am so famous for further bids, but the bids did not come. Again he endeavored to start the steam going by remarking: "You don't seem to be aware that the Cleve'nd administration has allowed the tariff bill to be passed without the President's signature. You don't seem to have read the newspapers. Let us have a bid!" Still the bids did not come. Lot 20, which was purchased for \$555 per square mile at the government sale of 1890, did not find a single offer. "So much for the reputation of a decent government," facetiously added Toronto's registrar-auctioneer. No one seemed to take an interest in a virgin limit, heavily timbered with superior white pine in the township of Livingston, "where \$17,500 a square mile was bid for a limit not one whit better," said the auctioneer, "at the Government sale." At the close of a little more than the first hour the sale was brought to an end, no business really being done.

In view of the adoption of free lumber by the United States government the result of the sale was a surprise to many, and yet as one studied the complexion of the audience assembled, and there were at least 150 lumbermen in the rooms, it did not look as though anyone had come with a very serious determination to buy lumber. Mr. Ryan was, of course, disappointed, but viewed the matter philosophically, and to-day has as great confidence in lumber as an asset, as the most sanguine lumberman in the country. The LUMBERMAN'S representative talked with leading lumbermen present at the sale after the business of the afternoon was ended and he certainly did not find anyone in the dumps. Mr. Quinn, of Saginaw, remarked: "There is one thing I have always observed at sales of limits, and I have attended them since 1881. In a sale of private limits like the present prices did not rule nearly as high as when the limits are owned by the government. Your Ontario Crown Land Department get right along higher prices than the limits are worth and I am blessed if I know how it is. If these limits had been government limits there would have been a lot of sales." Mr. E. E. Lauzon, of Ottawa, was of the opinion that people were a little timid because of the unsettled state of affairs. "The banks", said he, "have lots of money but are afraid of it. The sellers are rich and can afford to wait for their price." One lumberman plainly said that the sale was a bluff, the object being to determine values. Mr. Little, of Montreal, did not think the result of the sale could be taken as indicating in any way the real condition of the lumber market. "The truth is," said he, "times have been so depressed for the past year that whilst lumber is a good asset, the banks are yet chary of giving out any large amount of capital until business commences to get around once more to something like normal conditions." Mr. J. Bryson, M. P. argued that owing to the taking off of \$1.00 a thousand from white pine those having limits to sell have made big increases in prices at which they are willing to sell. "A number of Ottawa lumbermen," he said, "attended the sale prepared to buy but owing to the way in which the limits were bid up by the agents of the parties selling, they bought nothing." The consensus of opinion was perhaps summed up in the remark of a shrewd local lumberman, that "everybody had all the lumber on hand just now for which they could readily find a sale, and they were not in a buying humor. No doubt later not a few of the limits that had been offered for sale by auction would find buyers by private sale and at satisfactory prices."

SOUND GOSPEL.

IT is the prompt attention to little things that makes the successful engineer. The careless man is dropped at a convenient moment, and he has hard work to get another "job." The greater dangers are seen by all, and almost anyone can make the proper provisions. The engineer who scents danger, which may result in two or three day's "shut down," or a possible explosion, is the one who gains his employer's confidence and finally lands on top.—Safety-Valve.

VIEWS AND INTERVIEWS.

Camphor Tree. While camphor was formerly produced in Sumatra, Borneo, and other parts of the East Indies, says the Scientific American, all now known to the trade comes from Japan and Formosa. The camphor tree is a large evergreen of symmetrical proportions, somewhat resembling a linden. It bears a white flower, which ripens into a red berry. Some of the trees are fifteen feet in diameter and live to a great age. A group of trees in province of Toosa, about a century old, are estimated to be equivalent to about 40,000 pounds of crude camphor. The camphor is extracted from chips taken from the roots or from the stem near the root, the wood yielding about five per cent of camphor, and the root a larger proportion. The annual export of Japan camphor averages about 5,000,000 pounds. The forests in Japan owned by the people are now almost denuded of timber, but the government still possesses large woods of camphor trees, which, it estimated, will maintain a full average supply of the gum for the next 25 years. Plantations of young trees are also making and are well taken care of, and, although camphor has not hitherto been extracted from trees less than 70 or 80 years old, it is expected that under the present intelligent management equally good results may be realized in 25 or 30 years. The Japanese Department of Forests, which has the control of these woods, is under good management.

Big Wages. One of the difficult things to hammer into the head of the average workman is that labor done in a perfunctory manner never pays anyone—never the workman. Conscience thrown into work will in the end bring its return. Writing on this line a contemporary sensibly says: "It is common for young persons to determine the quality of their work by the prices which they are paid for it. 'I only get,' says such a one, '\$5 a week and I am sure that I am giving \$5 worth of service. If my employer wants more let him pay more; if he wants better let him give better wages.' This is a specious reasoning, but it is false, and it is destructive to the best work, and therefore to the best manhood. No man can afford to do anything less well than his best. He who always strives to do his best work, in the very process of striving, will grow better. Not only will he grow more and more skillful in that particular workmanship, but he will be better equipped for workmanship. This is an absolutely universal road to promotion. The man who is careful to give nothing more than he gets, rarely gets more than he gives. The man who works for his own sake, who puts the best part of himself into every blow that he strikes, who mixes all his work with brains and conscience, who studies to render the largest possible service, regardless of the compensation which it brings, sooner or later will find his way on and up. The world learns his worth."

Running Saws. In a series of ably written papers appearing in the Wood Worker one Junius is discussing what goes to make a successful mill man. In this connection, referring to the matter of running a saw successfully, he says: "It is important for the beginner to learn that a saw can not be run by the guides. A slight inclination one way or the other can be controlled by the guides, but when the saw shows a positive disposition to run 'out' or 'in,' the remedy is not in the guides, but the fitting or shape of the blade must be changed. My rule is to fit the saw square and run in that way. It is bad practice to file a saw 'out' or 'in' to make it run straight, as it leaves the points in bad condition for swaging the next time, and requires more power to run it. If the tension is right, a few blows of the hammer, placed on the opposite side from the way it inclines to run, and at the proper locality, will balance it up and if the fitting is square the saw will straighten up all right. To find the proper point to place the blows, is the filer's work on the anvil by an examination with his short level. If the saw 'snakes,' the only remedy is to get it the right tension, and any attempt to hold it with the guides will only aggravate the trouble by heating the rim. Observe closely, the actions of your saw, remembering that the

same causes produce the same effects, and when your saw acts a certain way you will soon learn to detect the cause—and when you know the cause, it is easy to apply the remedy."

Making an Ice Road.

The operations of the logger and shantyman has always proven a popular theme for magazine writers. In the current number of Cassier's Magazine there is an interesting illustrated article on life in the logging districts, written by one who has evidently a considerable knowledge of the practical side of lumbering. Speaking of the making of an ice road, this writer, Mr. B. W. Davis, says: "The whole outfit necessary for making an ice road consists simply of a water barrel on runners with a stove under it, a four-horse team, and a tool called a marker or rut-cutter. The operation is simple. The first move is to go over the road with a snow plow, making a wide level track, after which the tank on runners is filled with water, the stove under it being kept supplied with dry wood fuel to prevent the water from freezing. The tank has two spouts just over and at the back end of the hind bobs, the entire rig being something like a street sprinkler, except that the water runs out in two solid streams, and the tank is of square section and long to fit a 'bob sled.' The rut-cutter is attached to the back end of the runner, cutting a groove in the snow and dirt of the road; the water falls into the rut thus cut, and Jack Frost does the rest in very short order. The shape of the groove is the reverse of the sled shoes, the runner being convex and the groove concave. By this method it will be readily seen that we have produced a grooved ice railroad in which the logging sleds slip along with very little effort on the part of the horses. As a rule, the logging roads are built beside a brook bottom which flows toward the river, and as a result the loaded sleds are haale d down grade and the empty sleds up grade, making it easy work for the team."

NEW ZEALAND TIMBER.

THE charge has sometimes been made against architects, that whilst they are called upon in their profession to deal largely with the product of the forest, yet few of them have any practical knowledge of timber and timber trees. This is not, however, to be said of all architects. At the meeting of a British Architectural Society recently a paper on the subject of New Zealand timber, and incidentally the timber of other countries, showing a comprehensive knowledge of the subject, was read by Mr. C. E. Oliver, F. S. I. Among other things Mr. Oliver said:—

"The architect of the present day must need add largely to the old list of woods of which he should have an intimate knowledge. The fact that the best class of Baltic woods are becoming increasingly difficult to obtain, and the Canadian pine rising to such a high price, together with the extremely low steamer freights now obtained, is bringing many other kinds of wood within our reach, which, but a few years ago, were scarcely known in England outside of Kew Gardens. The British timber market lays under contribution every country in the world—the value of timber annually imported into this kingdom is about £16,000,000 and in London or Liverpool may be found the best stocks of timber ever gathered in any city. From Europe we import some twelve or thirteen different timbers, from Asia about fifteen kinds, Africa twelve or thirteen kinds, North and South America something like fifty kinds, and from Australia and New Zealand six or seven kinds. While as yet there are no signs of that 'wood famine' predicted by some, I think that we certainly will be driven further afield for our supplies when quality is of more consequence than quantity. The United States have practically ceased the exportation of yellow pine, and now import immense quantities from Canada. Baltic provinces appear to be simply inexhaustible in point of quantity (but how long can they maintain a supply of the better class of deals is doubtful); however, the huge timber industry of Russia, Finland and Sweden will for long ensure us in England of having a supply of cheap timber. It is considered by good authorities in the trade that many years will not elapse before lumber will be dearer in America than it will be in Europe, owing to the large increase in the consumption in the United

States and Canada itself. The forests of New Zealand, although comparatively small when contrasted with the huge belts of timber land in North America, contain such a large variety of valuable timber trees that they must prove of enormous value in the near future. These forests are said to cover an area of over 20,000,000 acres, about half of which are Crown lands, and the greater part of the remainder is in the hands of the European population. New Zealand is so well watered and so well adapted to the growth of timber, that even when forests are cut down they soon reproduce themselves, but this is no excuse for the wanton waste which often takes place after trees have been felled for timber purposes. The forests are known to contain forty distinct varieties of timber trees, more than twenty of them are suitable for architectural work, cabinet making, and many other purposes. Active steps to promote a large export trade are being taken by the Midland Railway Company of New Zealand and the Kauri Pine Company (Limited), who both possess most valuable concessions of excellent timber lands. For some years past kauri has been imported into this country, and ship builders who are ever pioneers in the use of wood have really acknowledged its splendid qualities. Now it appears to me that if kauri (the most costly of the New Zealand timbers) can be imported here at a price enabling us to use it freely, I think the same might be done with many other woods, such as the red pine, black pine, totara, &c. This, no doubt, you will consider a matter for the timber trade to settle, but I think otherwise. Timber merchants naturally only supply what there is a demand for, but if architects had a better knowledge of the timbers of various lands, and inquired for them no doubt we would soon have a large choice. Of course, shippers will not send woods which are unknown to our profession, and which may have to lie in stock for years before going off. The Colonial Exhibition, and now the Imperial Institute, in London, will, I believe, do a great deal to help this forward, and the day may yet come when our middle-class houses will be fitted with natural woods and the paint pot almost banished. This would be another step towards the 'house beautiful.' The indigenous forest of New Zealand is evergreen, and the general character of the woods resembles the growth of Tasmanian and the Australian continent, most of the woods are harder, heavier, and more difficult to work than the European and North American timbers. They vary, however, very much among themselves, and are mostly very durable. The majority of the trees rise to a height of 40ft. or 50ft. before putting out their branches, a detail which ensures the production of a large amount of clean regular grained wood of great size, an article which is becoming more and more difficult to obtain in Europe and America.

RUSTING OF BOILER SHELLS.

IN a paper read in Germany on the rusting of boiler shells, the author concludes that the most serious cause is the introduction of air with the feed water. If the feed water enters the boiler near the low-water level he concludes that it will soon be expelled with the steam, unless it has a chance to accumulate in pockets. Such pockets rust rapidly. The feeding, he advises, should be completed before stopping for the day, so that the water standing in the boiler over night shall be as free from air as practicable. Faulty construction, the author believes, is the frequent cause of internal rusting. For preventing rusting he recommends: First, while the boiler is working—(1) Removing the air from the feed water before it enters the boiler. (2) Removing air from the water while in the boiler, and preventing its accumulation in pockets, etc. (3) Addition of chemicals to the feed water. (4) Protective coatings applied to the inside of the shell. Second, while the boiler is standing idle—(1) Removing all moisture from the boiler, (a) by blowing it off while hot, (b) by producing an air current through it, (c) by placing hygroscopic bodies inside. (2) Direct protection of the shells, (a) by painting with tar, varnish, etc., (b) by covering with protecting the shells from varying temperatures by keeping the draft in the flues constant, and so as to prevent moisture alternately depositing and evaporating on the shell. (4) Protecting the shell by completely filling the boiler with water from which all air has been expelled.

CULLERS' EXAMINATIONS.

FOLLOWING is the list of successful candidates in the log cullers' examinations, held at Callender on August 14, and at Parry Sound on August 21. There were in all 66 applicants, of whom 41 were successful: William Adams, Westmeath; J. Armstrong, McKellar; Robert Brown, Starrat; Hugh Beaton, Waubaushene; Arthur Bailey, Parry Sound; J. H. Burd, Parry Sound; Samuel J. Bailey, Orillia; William L. Clarmont, Gravenhurst; Thomas Cahill, Nosbonsing; Manly Chew, Midland; James E. Cooper, Simcoe; L. P. Didrer, Aylmer, Que.; Patrick J. Devine, Sheenboro', Que.; Joseph H. Errington, Sundridge; Henry J. Edgington, Parry Sound; James Eager, Parry Sound; William H. Featherstonehaugh, Penetanguishene; W. H. Gillespie, Cook's Mills; William Greyfire, Huntsville; David Ganton, Trent Creek; William J. Hogg, North Bay; E. P. House, Fabrice; Walter Hawkins, Pembroke; James Howard, Eganville; William A. Johnson, Castleford; Henry Jerris, Wisawasa; John Kendrick, Burk's Falls; John L. Kennedy, Burk's Falls; George F. Loring, Coldwater; Daniel Matheson, Chelmsford; William Milne, Ethel; William McGaw, Callender; L. McMillan, Callender; John L. McDermott, Orillia; Charles M. McDonald, Pembroke; Benjamin McPhee, Pembroke; John E. Magee, Parry Sound; Charles Ramsey, Sudbury; Arthur Rankin, Cache Bay; Gavin F. Turner, North Bay; Joseph Tilson, Burk's Falls.

A CLOSE CALL.

ANOTHER narrow escape by an engineer: He was inspecting one of a pair of boilers. The water had been blown out of one, and he entered it through a small manhole in the head. After finishing his work he called out to his assistant to turn on the cold water, thinking to make his way out immediately. By mistake the fellow turned on the scalding, streaming steam from the other boiler, the hissing and pouring of which made a doubly dense roar in the resounding cylinders, and coming at the entrance of the manhole effectually barred the exit, and made escape from a terrible death almost impossible. Creeping as close as he dared to the seething steam he shouted to his aid to turn off the water. He could hear the fellow moving around among the pipes, but waited in vain for him to come. The man had not heard him. His voice was stopped by the hissing, boiling, mocking water. It was rising among the pipes, at his feet. A few moments more, he thought, and he would have been cooked alive. There was but one chance left opened—to force himself through the scalding water and out the manhole. Delay any longer would be fatal, and he plunged face and hands through the cooking stream into the air beyond. Just then the steam stopped. It had been turned off at last.

A DIFFERENTIAL SPRING GOVERNOR.

A DIFFERENTIAL spring governor for steam engines is among the recent mechanical inventions of note, the device possessing the advantage of being applicable either to control a valve by which steam is admitted to the engine valve chambers, or to directly actuate the cut-off mechanism of any customary type of valve. In its construction there is a fulcrum lever, one arm of which connects the device with the valve or cut-off stem, and the other with a collar sliding upon the governor spindle. The governor balls, or weights, have short arms connecting with a bar fixed to and rotating with the spindle, and other arms extending outwardly on the opposite side connecting with the bar which is slidable upon the spindle and which actuates the movable collar. The angles formed by the levers—which extend out from the opposite side of the balls or weights—are internal angles, so that, as the balls are thrown outward, these balls are brought more nearly into a straight line with each other. A compression spring acts to return the parts when the centrifugal force is reduced.

A NEW material intended to be used as a substitute for leather in covering belt pulleys is made of wood pulp combined with various ingredients for making it tough and pliable. It may be secured to the face of the pulley in such a way that the rivets will not show through the working face.

THE trolley car was put to a new use in a near-by city one morning recently. A thief was escaping in a hack, and a policeman boarded a trolley car, and the motorman let her out in chase. The horse gave out first, and the thief was captured.

AN English lumber trade journal states that the Kauri pine of New Zealand has rapidly established itself in public favor and its consumption bids fair to improve considerably. It is being substituted in place of Californian red wood for several prominent cabinet, coach-building and shop-fitting purposes, and its many intrinsic qualities may improve upon a greater acquaintance. An excellent cargo of logs, planks and boards of Kauri pine was recently landed at Liverpool.

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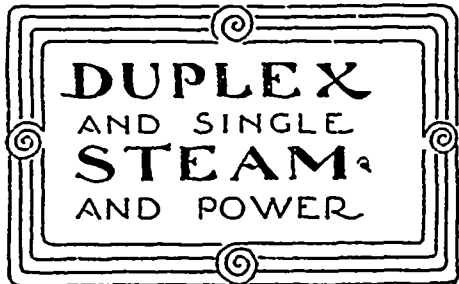
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HYDRAULIC
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MAGNOLIA METAL'S IMPORTANT CONNECTIONS.

THE Magnolia Metal Company have just received on order from Messrs. J. I. Thorneycroft & Co., Admiralty Machinery Contractors, of Chiswick, to be used in the Torpedo Destroyers they are building for the British Navy. The following is a list of vessels in the British Navy, in the bearings of which the Magnolia Metal is used: "Fervent," "Ardent," "Zepher," "Hood," "Hawke," "Crescent," "Boxer," "Bruiser," "Edgar."

The following testimonials given by some of the most eminent Marine Institutions of this country, which are builders of the War Vessels of the United States Government, and for Steamers of Private Corporations, show that the Magnolia Metal is used in the highest class of Marine Work, and is more meritorious and successful than any other Anti-Friction Metal for that kind of work.

THE COLUMBIAN IRON WORKS AND DRY DOCK CO. OF BALTIMORE CITY. Office and Works, Locust Point. Baltimore, Md., June 8th, 1894. GENTLEMEN:—In reply to your enquiry of 6th instant, we take pleasure

in stating that Magnolia Metal was used in the engine bearings of Cruisers Nos. 9 and 10 "Montgomery" and "Detroit," wherever anti-friction metal was required. Very respectfully,
The Columbian Iron Works & Dry Dock Co.
Wm. T. Malster, President.

BATH IRON WORKS, LIMITED., Shipbuilders and Engineers. Bath, Maine, June 4, 1894.

Gentlemen:—In answer to yours of June 1st, we used Magnolia Metal on the U. S. Gunboats No. 5 Machias and No. 6 Castine and Harbor Defense Ram No. 1 Katahdin. This metal was used exclusively in the above vessels. Yours truly,
Bath Iron Works, (Limited.)
E. W. Hyde, Treasurer.

THE MORGAN IRON WORKS. Foot Ninth St., East River, NEW YORK, June 25th, 1894. GENTLEMEN:—In reply to your inquiry, we take pleasure in stating that we have used the Magnolia Metal on different occasions and so far as we know, it has universally given satisfaction. Very truly yours,
Geo. E. Weed, President.

NORTH RIVER IRON WORKS. Hudson St., 12th to 14th Sts., Hoboken, N. J., Aug. 30th 1894

MAGNOLIA ANTI-FRICTION METAL CO., 74 Cortland St., N. Y. City.

Gentlemen:—We have used Magnolia Metal more or less for many years and have always found it good, and can recommend it for general use. Respectfully,
(Signed) E. R. Mead.

Have this day given order for one (1) ton Magnolia Metal. (Signed) W. & A. Fletcher Co. H. W. Fletcher.

All Marine Engineers should use Magnolia Metal in the bearings of their Steamers, as it will last longer and give less heat than any other Metal. Magnolia Metal is in use by Eight Leading Governments, and is declared to be the best Anti-Friction Metal for all Machinery Bearings.

A large lumber and stave mill is being erected at Wheatley, Ont., for the Sutherland-Innes Co., of Chatham. It will be completed in a few weeks.

4

QUARTERLY ANNUAL INSPECTIONS BY AN EXPERT ENGINEER

Our Steam Boiler Policy covers all loss or damage to the Boilers, also to property of every kind on the premises or elsewhere, whether it is the property of the assured or of others for which the assured would be liable in case of explosion.



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J. H. KILLEY, Consulting Engineer. JAMES LAUT, Manager. S. JONES PARKE, Q.C., President.

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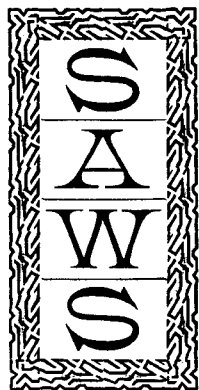
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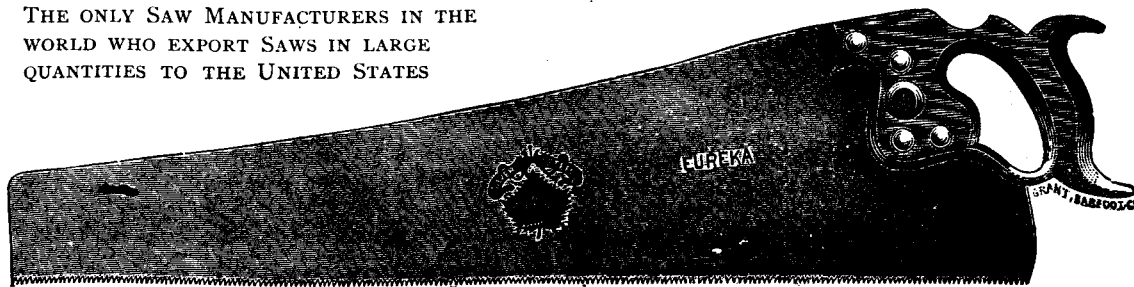
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WANTED

FOR HEMLOCK, DIMENSION LUMBER, hardwood flooring, cedar shingles, etc., write J. E. MURPHY, lumberman, Hepworth Station, Ont.

WANTED

AGENCY of some good firm to sell lumber on 5% commission in the United States, mostly eastern trade; understands all grades and markets.

THOROUGHLY EXPERIENCED AND RELIABLE inspector to purchase for an extensive eastern manufacturing concern, stocks of ash, birch, elm, maple, etc., lumber and also piece-stock.

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NEW AND SECOND-HAND STEEL AND iron rails for tramways and logging lines, from 12 lbs. per yard and upwards; estimates given for complete outfit.

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UNITED STATES AND FOREIGN PATENTS A SPECIALTY.

Engineering Drawings Furnished.

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TIMBER LIMITS AND MILL FOR SALE

MILL consists of 50 h. p. engine and suitable boiler. One small size Waterous Band Mill with all necessary tools, long carriage, heavy three-saw edger, endless chain, bull wheel rig, 60 inch cut off saw for shingle blocks; two "Dunbar" shingle machines, one combined planer and matcher, and small saws, etc., etc., usually found in mills.

Timber limits consist of 68 square miles on the Dartmouth river, extending one and a half miles back from said river, on either side; always plenty of water for driving. An estimate was given after careful survey on these limits that there are between sixty and seventy millions of spruce and pine and from seventy to eighty millions of cedar.

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SECOND-HAND MACHINERY FOR QUICK SALE AT LOW PRICES.

ONE heavy Waterous saw mill, iron saw frame, with a three block carriage, with two intermediate blocks, complete with 57 inch inserted tooth Ho. saw.

THREE complete three block saw mills, with any size saw wanted; two heavy, double planer, matchers and beaders, with eight inch feed rolls; one heavy planer and matcher; one complete heading and stove mill cut-off; one complete set of butter tub machinery (American make); one double Excelsior cutting machine

BOILERS.—One 60 inch by 14 feet; one 50 inch by 12 feet; one 48 inch by 14 feet; one 48 inch by 12 feet; one 44 inch by 14 feet, and a large number of smaller sizes.

ENGINES.—One 15 1/2 x 20; one 12 1/2 x 20, Goldie & McCulloch make; one 12 x 18, Waterous double cut off; one 11 1/2 x 18, Thomas; two 9 x 12, Waterous; one 8 1/2 x 12, Beckett, and a large number of smaller sizes.

WATER WHEELS.—One 42 inch, Lefell; one 40 inch, Lefell; one 35 inch, Lefell; four 30 1/2 inch, Lefell's; one 20 inch, Barber and Harris, in case; one 17 1/2 inch, Lefell; one 17 1/2 inch, Little Giant; five 15 1/2 inch, Lefell's.

WE also carry a Complete Stock of all kinds of WOODWORKING MACHINERY, IRON WORKING MACHINERY, GRIST MILL MACHINERY, Shafting Hangers, Pulleys, Belting, Etc. Write us particulars of what you want. Address THE CANADA MACHINERY AND SUPPLY CO., Brantford, Ont.



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Table with 5 columns: TOWN, Railway, Express, or nearest Shipping Point, NAME, BUSINESS, Power, Style and Daily Capacity. Lists various lumber companies and their locations across Canada.

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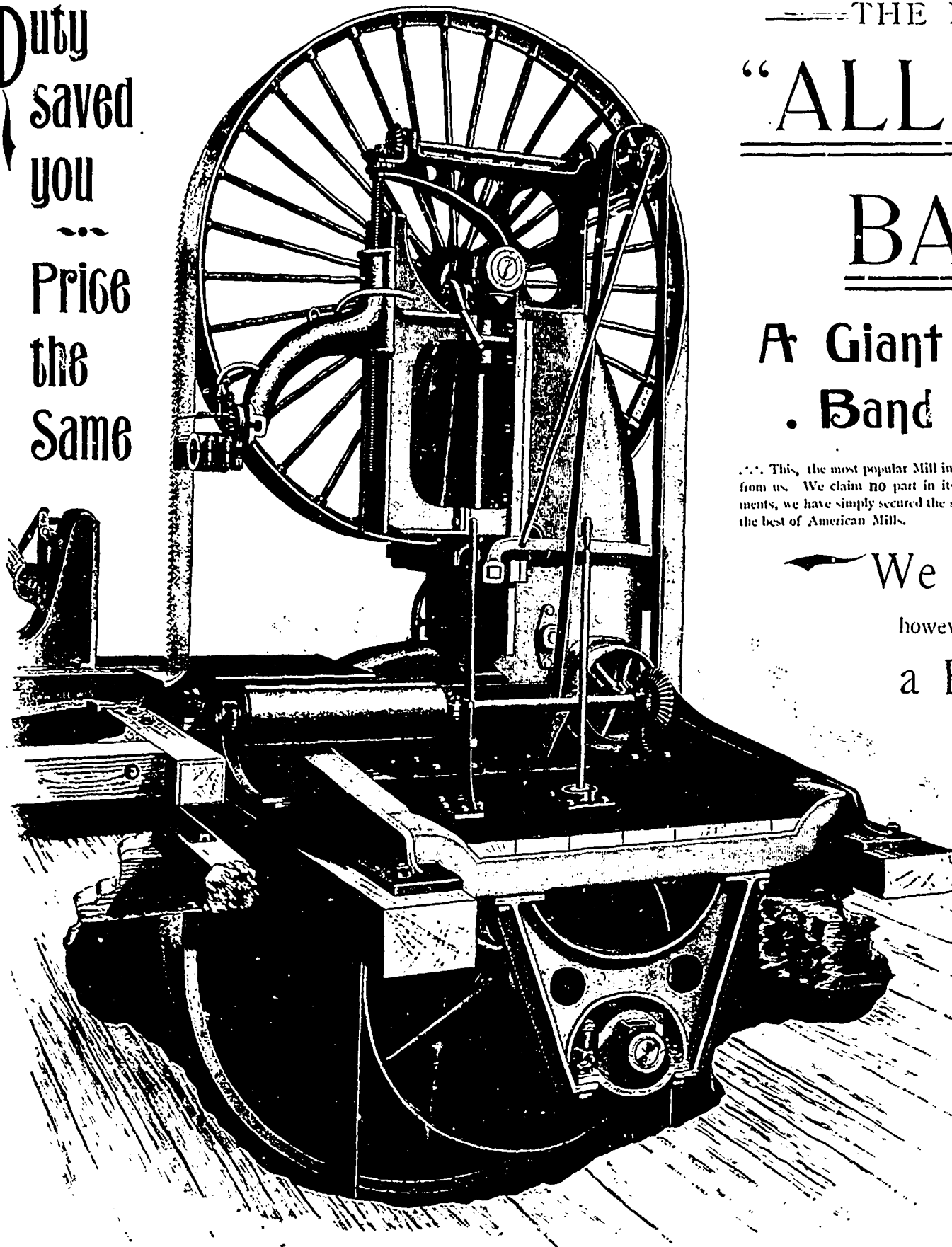
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Being instructions to filers on the care of large band saw blades used in the manufacture of lumber.
 A book filled with valuable information on the care of band saws. Giving the reasons for breaking, analyzing each reason; giving instructions to dispense with the causes as laid down in each reason; and full details on filing and brazing. The proper styles of hammers to use are illustrated and described, and views of blades showing the blows of the different styles of hammers form an important part of the illustrations. Improper and unequal tension are then treated, and the manner of properly setting irregular teeth is described. In connection with the treatise is a history of the invention, manufacture and use of the saw from its origin to the present time. The work in whole makes an accumulation of information such as has never before been published.
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