

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Additional comments:/
Commentaires supplémentaires:

Title on header taken from page [5] .

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

Title on header taken from:/
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

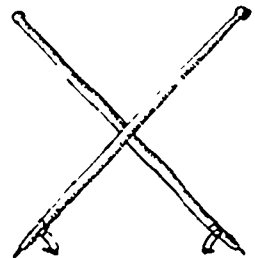
10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
										<input checked="" type="checkbox"/>	



Nov. 1896.

SPECIAL NUMBER

CANADA

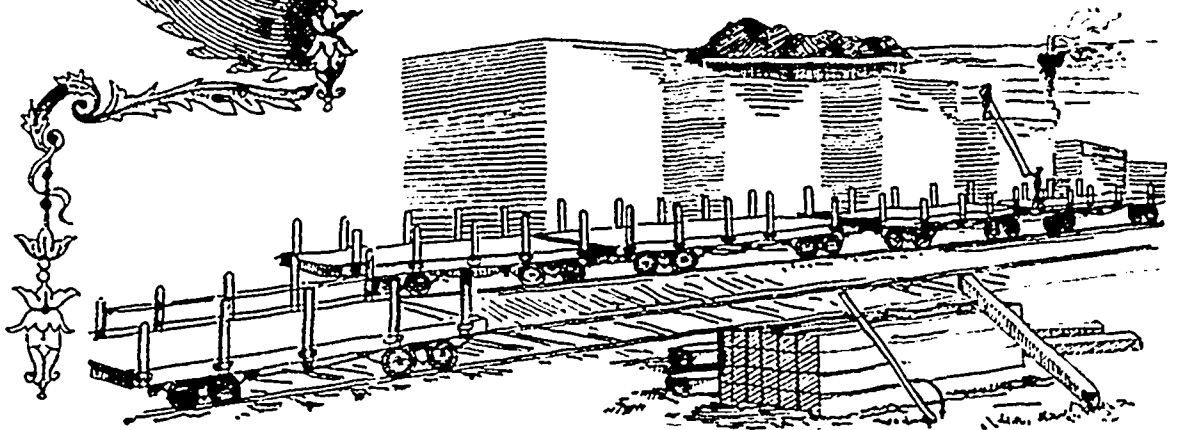


LUMBERMAN.

TORONTO
Canada



C. H. MORTIMER
Publisher.

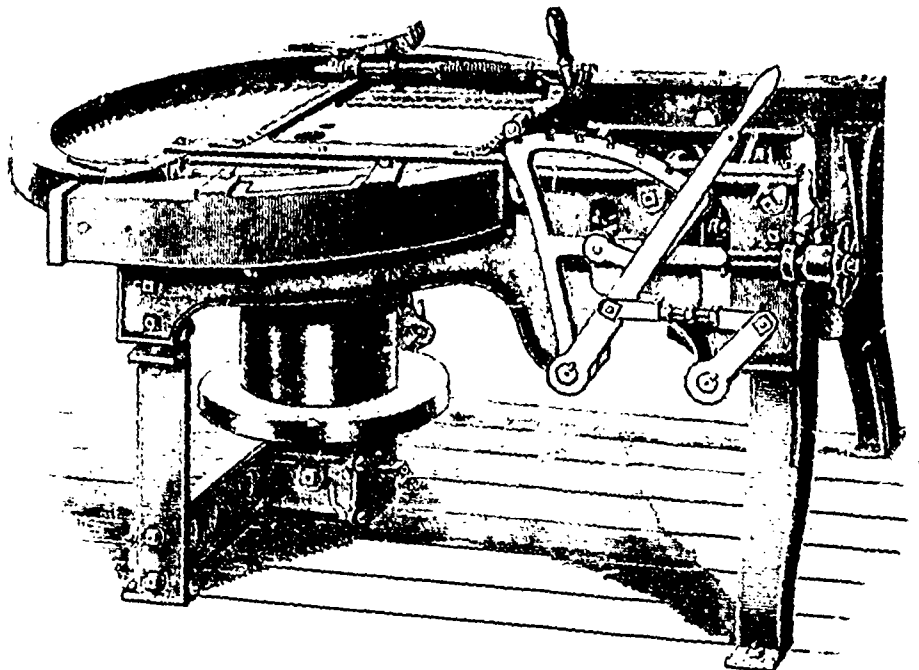


CANADIAN LOCOMOTIVE & ENGINE CO., Ltd. KINGSTON, ONTARIO

We manufacture

F. J. Drake's Shingle and Saw Mill Specialties

and also a full line of SAW MILL MACHINERY, including Heavy Stationary Saw Mills, Portable Saw Mills, Endless Chain Log Jacks, Gang Edgers, Slab Saw Rigs, Lath Machinery, and the Best Band Saw Mill on the Market, Boilers, Engines, &c. &c.



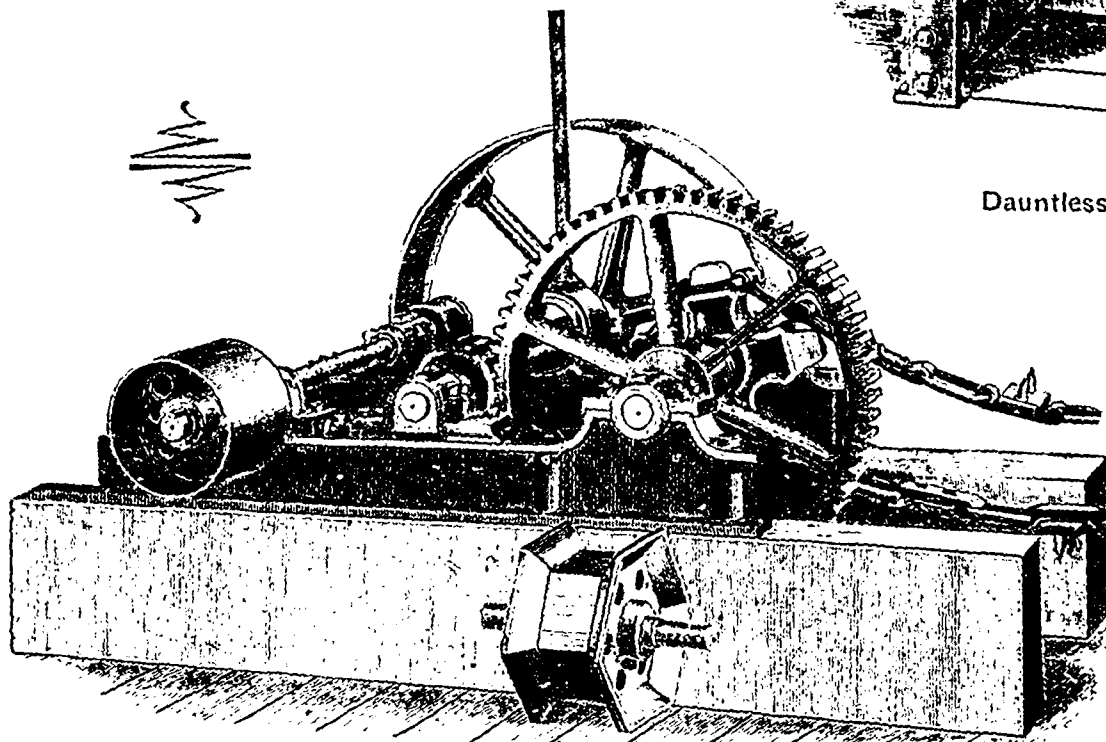
Dauntless Shingle and Heading Machine.



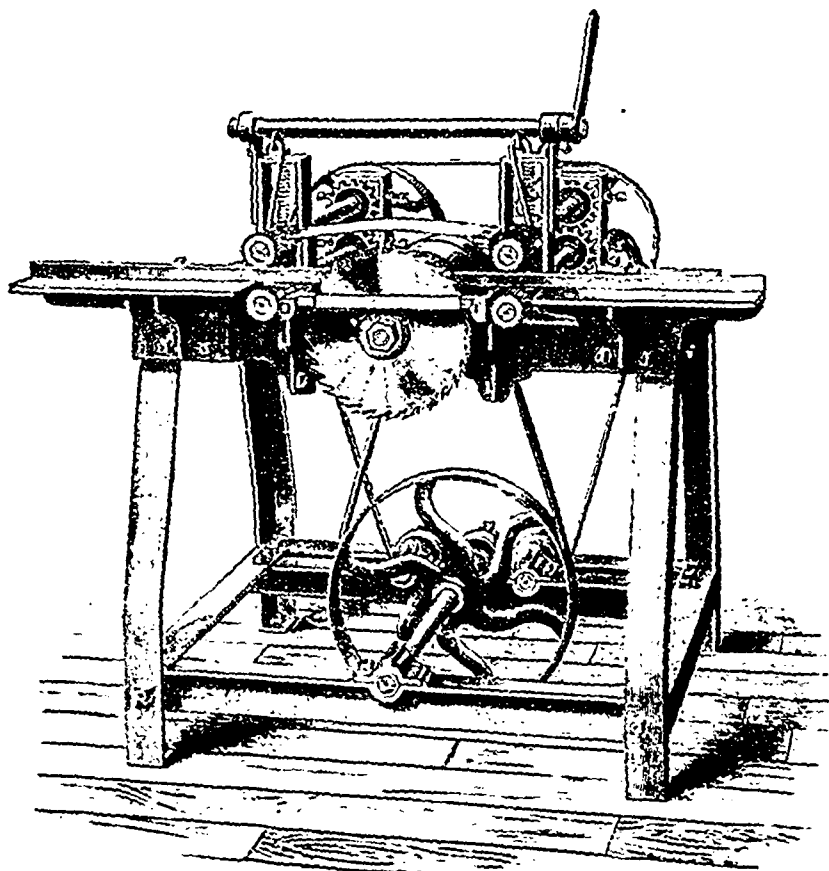
We can furnish Complete Outfits, with Plans and Drawings, and can send competent men to superintend erection of mill, and guarantee results.

Prices to suit the times.

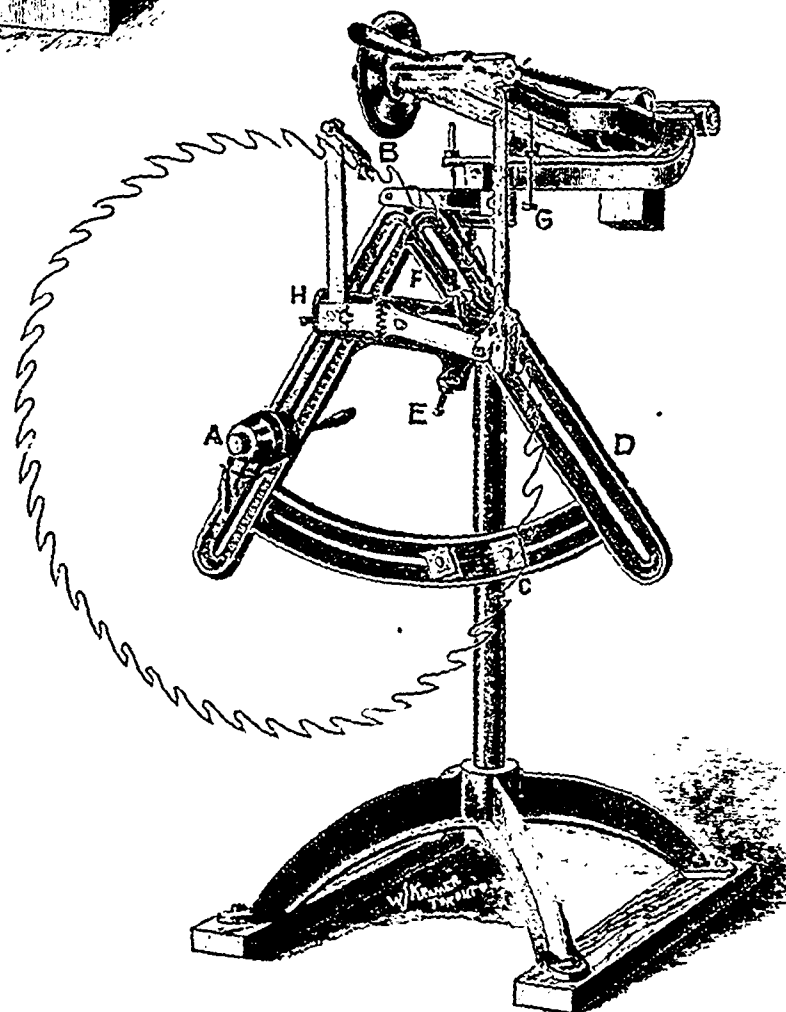
Correspondence Solicited.



Improved Iron Frame Log Jack.



Improved Gang Lath Machine.



XXX Saw Gummer and Sharpener.

CANADA LUMBERMAN

WOODWORKERS' MANUFACTURERS' AND MILLERS' GAZETTE

VOLUME XVII. }
NUMBER 11.

TORONTO, ONT., NOVEMBER, 1896

TERMS, \$1.00 PER YEAR
Single Copies, 10 Cents.



MAGNOLIA METAL

In Use by Eight Leading Governments.

BEST ANTI-FRICTION METAL

For All Machinery Bearings

MAGNOLIA METAL CO.

OWNERS AND SOLE MANUFACTURERS

74 Cortland Street, NEW YORK

Chicago Office:

TRADERS BUILDING.

Montreal Office:

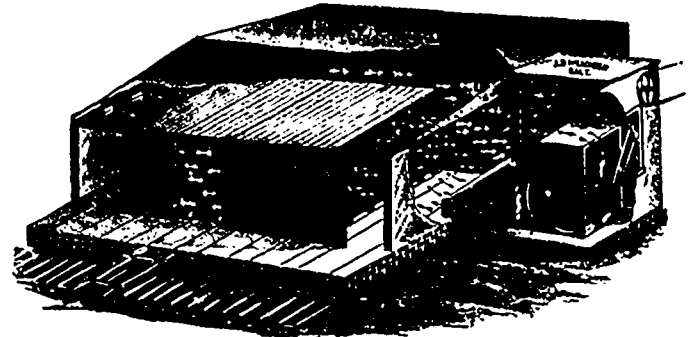
Messrs. Caverhill, Learmont & Co., Agents.

London Office: No. 49 QUEEN VICTORIA STREET, LONDON, E. C.

DRY KILNS AND HEATERS

HOT BLAST SYSTEM for large buildings.

VENTILATING
FANS,
SHAVING
FAN
BLOWERS,
ETC.



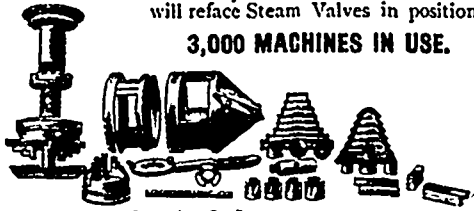
For Catalogue of the above articles write the

McEachren Heating & Ventilating Co. - Galt, Ont.

"MORSE" VALVE MACHINE

"The Morse" is the only machine in the market that will reface Steam Valves in position.

3,000 MACHINES IN USE.



Valve Reseating Outfit.

DARLING BROTHERS

SOLE MANUFACTURERS
"Reliance Works," - MONTREAL.



Why it is the
World Renowned



Automatic
INJECTOR

FIRST—STEADY IMPROVEMENT. Each year since 1887, when the "Penberthy" was first placed on the market, has seen some positive advance in its working qualities until now it stands unrivalled with an . . .

Efficiency of 99½ per cent. Shown by Actual Test.

YOU SHOULD HAVE ONE

PENBERTHY INJECTOR CO.

Branch Factory:
WINDSOR, ONT.

226 Abbott St., DETROIT, MICH.

John Bertram & Sons

CANADA TOOL WORKS

DUNDAS - ONTARIO.

Any one desiring a good Second-Hand Tool, should write us for prices. Have several we will dispose of at a bargain.

CORRESPONDENCE SOLICITED.

C. C. CLEVELAND

G. F. CLEVELAND

J. L. Goodhue & Co.

MANUFACTURERS OF

LEATHER BELTING
AND LACE LEATHER

Danville, Que.



All Grades of CROSS-CUT SAWS

at Lowest Prices

.... SOLE MANUFACTURERS OF

The "Burns" Patent Handle



PATENTED JUNE 26th, 1893

Positively the Strongest Handle Made.

Ask your Hardware Merchant for our Goods.

Special Quotations on Large Quantities.

No. 1 IRON FRAME OSCILLATING GANG SAW SASHES OF ALL WIDTHS

We manufacture a
Complete Line of



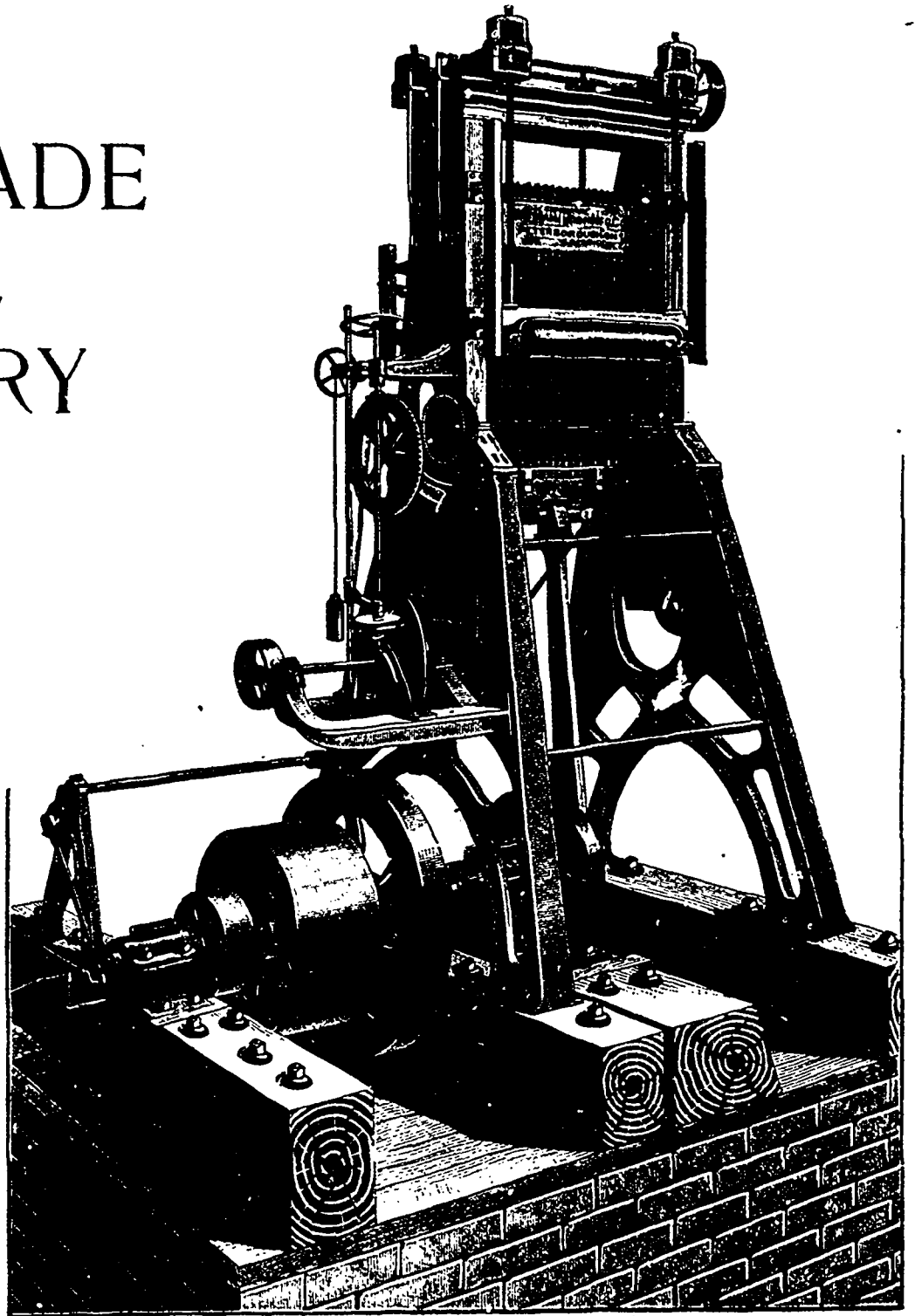
HIGH GRADE SAW-MILL MACHINERY

Prescott Band Mills
Perkins Shingle Mill Machinery
Covel's Tools for the care of
Saws
Engines, Boilers, Etc.

CATALOGUES ON APPLICATION

We are prepared to furnish plans,
specifications, and build mills
complete of any capacity, or to
remodel old mills.

Write for prices, informing us what
your requirements are.



The Wm. Hamilton Mfg. Co., Ltd.

Branch Office: VANCOUVER, B. C.

PETERBOROUGH, ONT.

THE CANADA LUMBERMAN

VOLUME XVII.
NUMBER 11.

TORONTO, ONT., NOVEMBER, 1896

TERMS, \$1.00 PER YEAR
Single Copies, 10 CENTS.



MR. THOS. MEANEY,
(Thos. Meaney & Co., Wholesale Dealers, Toronto.)



MR. A. F. BURY AUSTIN,
(Wholesale Timber and Lumber, Montreal.)



MR. JAMES TENNANT,
(James Tennant & Co., Wholesale Dealers, Toronto.)



HON. R. R. DOBELL,
(Dobell, Beckett & Co., Exporters, Quebec.)



MR. GEO. CORMACK,
(Wholesale Dealer, Whitby, Ont.)



MR. S. C. KANADY,
(S. C. Kanady & Co., Wholesale Dealers, Toronto.)

CANADIAN WHOLESALE DEALERS AND EXPORTERS

CANADIAN LUMBERMEN.

BY MET. L. SALBY.

The Veteran American Lumber Journalist Indulges in a few Personal Reminiscences and Pays a Tribute to Canadian Character.

As a sort of prelude let me say that I like the Canadian lumbermen with whom I have come in contact, and am glad of this opportunity to shake hands with all of them at once through these columns. I like them because they are stout, vigorous, frank, and know their business. Mr. Eddy, who has figured so long and prominently in Canadian lumber affairs, was born in a New England state, and is consequently not a very stocky man, and like the majority of us yankees, may have the dyspepsia tucked onto him, but with this exception your lumbermen who have come directly under my observation look as though they might live long enough to see Canada annexed to the United States.

Mr. Little, whom I am glad to count among my friends, is not built like a Sampson, but he is wiry enough to make up for any deficiency in other directions. Permit me also to add that I am an admirer of Mr. Little, for he is doing a good work. Any man who battles for the trees is battling for humanity. Mr. Little and I have had some rather sharp tilts, but it was not because we were personal enemies. He was very radical one way in his estimate of the amount of standing timber, and I was very radical the other, hence we disagreed. Mr. Little, however, has seen the error of his way—so have I, and we have struck hands and are now working for a common cause. This is the gospel we dispense: No matter how much timber there is in Canada, or this side of the line, every stick of it should be most wisely conserved, for all too soon the demands of civilization will call for it. And when it is gone, what then? I will stop right here, for I don't like to think about it.

I started out to say a few words about the healthfulness of your lumbermen. They look as robust as some of the trees upon the sunny side of Georgian Bay. Let me instance Mr. Cook. He used to come in to see me, and his face would fairly beam with health and its resultants. It is a fad, these days, to use the word limitations—everybody with any "form" to his writings must somewhere in course of his article say limitations—so I will say that a man of that kind, a man who has had a good bring up and whose stomach and liver attend strictly to business, really has no limitation. When a man gets up in the morning with no bad taste in his mouth he can endure and accomplish to his own surprise, and to the downfall of his puny competitors. A sick man in business or professional life is like a sick hound in a pack—the healthy dogs are going to pick up the rabbits.

I have noticed that many of your lumbermen have come down from the Scotch and English, and, as a rule, they have not had far to come. To be a bit personal, I descended on one side from the French, and it is not improbable that my grandfather and the grandfather of some great, rich Canadian lumberman may have crossed swords on the field of Waterloo. Think of it! As it has been said, the world isn't so very big after all. But the great flat-iron of time smooths out many a wrinkle, and though our ancestors may have fought—though your grandfather gave it to my grandfather until he

threw up the sponge—we, thank God, are friends. And in returning these thanks I want to divest the idea of any individual significance, and apply it to the great nations which we respectively represent. Time acts as a filter, and as we glide through it we become better, and purer, and less wild bull like.

There is a good deal of the rough-and-ready about the American lumbermen. They inherit it directly from Andrew Jackson. They do not mean anything bad, for their hearts are good and warm, but too many of them will spit on the floor, and keep their hats on when, according to Hoyle, they should remove them. I love my countrymen, but if a greater proportion of them had more of that true gentleness of manner so marked in the better class of foreigners, it wouldn't hurt them. I am beginning to believe that the manners of a good many of us are a little too abrupt. We have been taught to believe there is virility in this abruptness. We are inclined to look upon polished manners as removed from that common sense which should guide us in our every day life. This is false philosophy, however. Common sense and polished manners should go hand in hand for the very good reason that only those who possess common sense can appreciate such manners. Come to turn this subject over in detail in my mind I do not remember having met a Canadian lumberman, an English or German lumberman, whose manners would do violence to the most approved drawing-room etiquette. Is it to their credit? It certainly is if it is to the credit of men to round out as many sides of their nature as possible; and I believe that in time we will find out that is what we are here for.

The Canadian lumbermen are hospitable, too. When in Detroit the last time I ran over to Windsor on the ferry boat to see if I could find a few trinkets cheap which could be smuggled back, and seeing a lumber sign, stepped in. I had not been in the office a half hour when the proprietor asked me if I would accompany him up to Walker's. We boarded one of those funny little street cars, in which the seats face outward, and dashed away behind the frisking mule for Walker's. You lumbermen know the line of industry in which Walker is engaged. Of course you do. He makes Walker's club, you know. I will not say here what kind of a club it is. It may be a base ball "club." If I should say exactly the kind of club it is, my wife, who may have this article sent to her by somebody who wants to make trouble in the family, would be likely to remark that she pitied the men whose appetites were so all-absorbing that there was not enough in the Windsor saloons to satisfy them, and had to go clear up to Walker's. Ignorance is bliss, and if my lumbermen readers understand my meaning, I ask that it go no farther. First and last, as many Canadian lumbermen as I have fingers and toes have invited me over to see them, and to fish and hunt in the good Queen's domain, and while the spirit is as strong as a hundred-ton locomotive, and the flesh, I think, would stand it without fading, that pesky panic of '93 is still roosting on the necks of a good many of us, you see. Economy is the order of the day, hence while we drink water and wish it were wine, and eat oat-meal broth instead of terrapin soup, the bear and fish will have a chance to grow.

To be a trifle more serious, if possible: The timber supply is a vital question with Canadian lumbermen, as without logs there can be no lumber. On this subject of supply there is diversity of opinion among you. I once heard the question discussed by Mr. Aubrey White and Mr. Little, and they agreed like fire and water. You have a great deal of timber though; there is no question about that; and here's a thought that in connection with this subject comes to me incidentally, as it were, but it is thrown out privately and must never get back over the line. I am ignorant how much of a police force is kept way up in northern Canada, where nobody lives, to watch the timber, but there are American lumbermen who, if they could have a chance at that timber, and it was guarded by a smaller force than the entire British army, wouldn't leave a fish-pole standing. Over here we have some of the best men you ever saw who used to haul government timber to the streams all day and sleep all night with a conscience so clear that they would snore loud enough to shake the squirrels out of the trees. But I may as well drop this subject, for I do not suppose there is an operator in Canada who will understand what I am talking about. There is no sense in talking Greek to plain, every-day-business lumbermen.

This privilege of sitting down and having a quiet little visit with the lumbermen of the Dominion is enjoyable. I already feel much better acquainted with them. Somehow our relations are all the time being more closely knit together. For the first time we will this year eat turkey and say thanks on the same day. True as you live the St. Lawrence shouldn't roll between two nations. And if we should join hands you would have more political fun in a week than you do now in a life time. We are in the midst of the throes of that political fun over here right now, as you know. Orators are saving their country every afternoon and evening, and we common herd are trotting around behind brass bands and neglecting our corn husking. Cull lawyers, who wouldn't be given a job by a chicken thief, have mastered and are teaching the science of finance, and honest men are being instructed by dishonest politicians to vote so and so when on election day they shall enter the little Australian booth and stand in the presence of their conscience and their God. They do not inform us when we are out of the presence of our conscience and our God, but any such little slip in logic as that disconcerts them not in the least. The phrase is kept in stock and is freely used alike by cross-road haranguers, congressmen and a whole batch of ex-governors.

Another taking feature of the political rally is the horse-back procession, a considerable portion of which is not infrequently composed of women. Out on the prairies the young woman, this year, rides man fashion, a dainty foot dangling on either side of the horse, and the men with silvered locks who come from their city homes to post us on the 16 to 1 question, sit on the hotel balconies and smile on and applaud them as on their prancing steeds they go tittering by. And they wring from the young men who come in from their farms, wearing their sheep-skin overcoats, a wistful sigh. (There is so much poetry in the subject that unconsciously it trickles out of a fellow.)

This campaign is going to relegate the side-

saddle in the west to the scrap heap. Thus, the new woman who is mercilessly pursuing us is our peer in a field where we thought we had it all our own way. What may we look for next? we have the right to ask.

But by looking at the clock I see that I must cut this little talk right off at a time when I had just begun to get into the bowels of my subject. Hence, au revoir, as my progenitors were wont to exclaim, which means, I am told. Good luck to you till we meet the next time.

THE HARDWOOD SAW MILL.

By J. T. SCHELI.

THE idea commonly entertained is that the saw mill owner invests his money, credit and time for the purpose of making a living, paying for the property, and with the hope that he may have something over for the days when he will not be able to jack a log or pile slabs. If any statement of mine, whether of experience or merely an opinion, may be of use to any of your readers in achieving the desire for profitable results in their business, it is the only excuse the author puts forth for writing in this connection.

A visit of inspection to fifty hardwood saw mills, as we find them in this country, taking an average lot, would probably make the inspector sure of one thing, that the mill owner was evidently "living," and earning it by hard enough work, but the hope for anything further would in many cases be a vain one.

A man going into the hardwood saw-milling without experience is at a disadvantage "from the stump to the factory," and if he makes a success of the venture he will some day be able to tell of the high price he paid for his whistle. But the conditions prevailing this year may convince many who have paid for their experience in better days, that there are some things lacking which only hard times and low prices would force them to seriously consider.

We have had occasion to look over many hardwood plants and stocks of lumber, and in many cases the query has been: "Where do you find sale for the low grades and rough stock?" and the answers have been various. In such cases, if the inquirer will go to the other end of the mill and inspect the logs, he will be liable to ask the proprietor if he buys logs like many he will see in the yard. Here is the place to take the first step towards making a profit, instead of simply working for the living he gets. Good logs will make good lumber with a profit. Poor logs will reduce his average stock to a common lot with little or no profit, and cull logs mean loss every time, even if the logs cost nothing. This is the place to start right.

We go into the mill and find an engine 10x12 pulling at a 60-inch saw and making poor lumber at a high cost, an old rickety edger and no trimmers, and we need not go to the piles to see the lumber.

If the logs are good the lumber will be no better than it should be. With a 5 ft. x 14 ft. good boiler, engine say 14-inch bore by 18-inch stroke, one circular, double edger, trimmer, slab re-saw and slab butting-saw can be run in good shape, do good work and enough more to easily pay the difference between it and a rig too light to do its work, and the lumber will be enough better in sawing, edging and appearance to be worth one dollar per 1,000 feet more than a large percentage of the hardwood lumber offered for sale.

Logs that will produce good lumber, a well equipped mill run by a man with experience and good judgment, should be a source of profit to the operator when he sells his lumber. In addition to his ordinary lumber there is, in many cases, where the slabs are not very valuable for wood, another profit too often let go to waste.

Ash slabs cut three and four feet long and re-sawed into 3 and 4 inches wide make a wainscoting difficult to equal from the lumber pile, as each piece is from the brightest of the timber and with the handsomest grain possible to get from the log. The same remarks apply to oak. Basswood furnishes drawer stock, and furniture cuttings and soft elm the same.

Maple is sometimes more difficult to place to advantage, though turning sticks for furniture makers is one outlet, and school desk makers can buy no such clean, bright,

even colored stock in wide and long lumber as can be got from slabs—all bright, white and clear. I have realized from the slab pile, with the work of one man and a boy, and a forty dollar saw rig, enough to pay two-thirds the wages and expenses of running a mill cutting twelve thousand feet a day.

The ideas I would wish to convey to readers of this article I may condense into a few words: Buy good logs or none; do not accept cull logs as a gift; saw them in a good mill, have a good sawyer and engineer as captain and mate of your crew; work up cull pieces and slabs into money-producing shapes; never try to run culls into good lumber, hoping the good will sell the culls, for it will be the culls that will spoil the good; have proper machinery and keep it in order; keep the mill clean, trim all lumber—and if any money can be made by any one you will be that one.

Our markets is another matter of importance to the trade, and I think the most important to the manufacturer of lumber. Canada produces many times the quantity of lumber that she consumes, both in hard and soft woods, and consequently we are cutting export stock. We should realize this fact, though it is a matter that has not received that consideration from our hardwood mill men that it deserves. Many in the trade sell their export stock in the United States markets, feeling that it is the only export market we have, or could have. In this there is a great error. While the Eastern and New England States buy a large proportion of our shipping stock, these same states export to European markets probably more maple, beech, birch, ash, elm and oak, than they buy from Canada, while Canadian exports to Europe of sawn woods of these varieties is a very small item compared with the quantities shipped to the States.

Here is a condition that we should change materially. How can it be done? you may ask. There is one way by which to do it, that is: to deal with Europeans direct. Our lengths and sizes are frequently not suited to the needs of the English, and especially the French buyers, and here is a difficulty. The writer in looking into this trade came upon an amusing case lately. For some years we had been supplying a Boston buyer with special lengths and sizes in hardwoods. This year we were asking for a trial order for maple stock from a British buyer, and were informed by the Britisher that, having once heard of a place called Canada and "The Maple Leaf," he inferred good maple might be obtained from Canada. He put his idea into effect by ordering a sample shipment from a Quebec shipper who handles pine timber and deals in a large way, and maple in a limited way indeed. The Quebec sample arrived, but was found: "To have an unevenness in formation not observed in maple before used by us, and supplied during the four past years by Messrs. G— of Boston, United States. We found the Canadian maple too soft and uneven for our requirements, and not at all so suitable as that we obtained as above noted from Boston." Some Canuck evidently got an order for maple, and not being an experienced man with maple, was found with logs on hand in September probably, or later. He got the order for that Britisher and it was "soft and uneven," but I should judge not so uneven as the mill man, guilty of having maple logs uncut in the fall of the year. That Britisher swears by Boston maple yet, though it grows in Glengarry, and is cut in March and shipped in September, and he is pleased to pay \$44.00 per 1000 feet for it at Liverpool.

In a former letter to THE LUMBERMAN I dealt with this matter, and claimed then that our common country should assist the hardwood trade to develop a larger market. I then referred the matter to the Ontario government, perhaps wrongly, but I have lately noticed that the lumber business is not of much account with politicians. If we sent a deputation of hardwood lumbermen down to Ottawa, and explained to the government that unless we were recognized as our importance seemed to us to warrant, every mother's son in the country, interested in owning, sawing or selling hardwoods, would ever after "vote agin the govermint," we would surprise ourselves to find we were "somebody." We would not ask for a few millions to be granted to us for smelting our logs into furniture or flooring, nor that our saw mill machinery should come in free of duty to help us pay dividends of 40 per cent. per month on our capital, nor sixty cents a thousand feet bonus for our old age, nor twenty dollars a thousand for fourteen dollar butter-nut lumber, nor that a travelling saw mill be "skidded" around the townships of the country, with a commissioner to tell us how to

build logging camps and tote roads, nor would we even ask Sir Richard Cartwright to see to it right quickly that he establish the latest and best dry kilns in every part of the country, and the railroads to furnish us with ventilating hot chambered cars to get our stock to Montreal in good shape, and no rain to wet a sliver of it, even when it gets to the Liverpool docks. No, we would not even ask for an Institute lecturer to come around and tell us the best time of the moon to cut hemlock, hickory or swamp elm, or whether it is best to wear moccasins or go barefoot.

Our lack of advantages—constant contact with the butt end of hard times and store pay—has cultivated to perfection the desire in the heart of the hardwood mill man to pay his taxes for the good of humanity and the Australian commissioner, and to say nothing, but saw wood." But if, as I started out to say, we sent some of our foremen down to tell Sir Richard we wanted him to send a "hand" over to "Yurip" to get his sizes and shapes and kinds and qualities and lengths before we started to cut and skid, we might expect to take out a better raft, have a better drive, hold a better average, and with less measured off, than to be going it "random" as we are now.

We do not doubt but that we are justly entitled to all we may claim, and if we decidedly decide that Jay Lark is "no good" to the camp, and get a good "hand" in his place, it won't cost the "company" any more, and will, maybe, get orders to keep the mill running steady all season. But, seriously, I feel satisfied, if a proper party was maintained on the continent for even a portion of one year, it would be a paying benefit to the country at large.

Above I mentioned beech as a marketable timber, and I would mention here a use for it locally and ask some of our mill men to try it, and that is flooring. For mills, factories and even houses, I like it better than hard maple or birch, especially the red of the timber.

Would THE LUMBERMAN ask a Toronto architect to try a beech floor? I can assure him it would be no experiment. This wood has been considered fit for only cordwood, and not the best wood either.

THE LATE ARTHUR M. DODGE.

ON the 16th of October last Mr. Arthur Murray Dodge, of New York, died at his country residence at Westogue, Connecticut, at the age of 43 years. In July last he came to Canada feeling unwell, and after a few days was compelled to return home, where he remained until the time of his death.

Mr. Dodge was prominently connected with the lumber industry of Canada, where he had large financial interests, and was president of the Georgian Bay Lumber Company, of Toronto. He was the youngest son of the late Hon. William E. Dodge, of New York, who during his lifetime was head of the firm of Phelps, Dodge & Co., and was widely known for his philanthropy, as well as his business enterprise. With his father he became interested in the Georgian Bay Lumber Company, the Maganeta-wan Lumber Company and the Collingwood Lumber Company, all of which were amalgamated in the Georgian Bay Consolidated Lumber Company, which, owing to the death of his father, and the distribution of his father's estate, is now being wound up. Deceased was also the chief stockholder in the extensive business of the Dodge & Bliss Box Company, and other enterprises in New York and Jersey City, as well as A. M. Dodge & Co., of Tonawanda, and Tnokee & Co., of Wisconsin.

His brother at one time was a member of the Dominion parliament for North York, being made a British subject by special Act of Parliament.

A striking feature in his life was his characteristic enterprise, to which is largely due the commercial success which he attained. He was also widely known for his generosity. With his family and friends he has for many years spent the summer months on the Georgian Bay, where a few years ago he built a handsome residence on Dodge Island, opposite Midland. He was married to Miss Jewel, daughter of the late Hon. Marshall Jewel, who had been governor of the State of Connecticut and post-master general of the United States. Five sons survive him.

When in need of any kind of machinery or supplies, consult the advertisement pages of this paper, and write advertisers for what you require, not forgetting to mention that you saw their advertisement in THE LUMBERMAN.

ONTARIO

THE GREAT WHITE PINE CENTRE OF THE DOMINION. - AREA OF PINE LANDS UNDER LICENSE. REPRESENTATIVE GEORGIAN BAY MILLS. EXTENSIVE OPERATIONS OF THE RATHBUN COMPANY. A REVIEW OF THE LUMBER INDUSTRY OF THE OTTAWA VALLEY. THE SQUARE TIMBER BUSINESS.

ONTARIO, although possessing a greater variety of trees than any other province of the Dominion, is renowned for its extensive pine forests, which have been the chief source of lumbering operations for many years. Dense pineries are located in the Ottawa valley and the Georgian Bay district, and while the quantity has been reduced by forest fires and the lumberman's axe, much timber of excellent quality still remains. This wood is unrivalled for house finishing and manysimilar purposes.

The hardwoods of Ontario are also of considerable variety and abundance, being distributed more widely throughout the whole province. Those of the greatest commercial importance are: oak, elm, maple, ash, birch, beech, hickory, basswood, cherry, etc. The forests of Ontario are controlled by the provincial government, and provide the principal source of revenue. It naturally follows that the policy of the government has given special attention to obtaining as complete data as possible touching on the pine forests of the province, while on the other hand little information is obtainable regarding the extent and location of hardwoods.

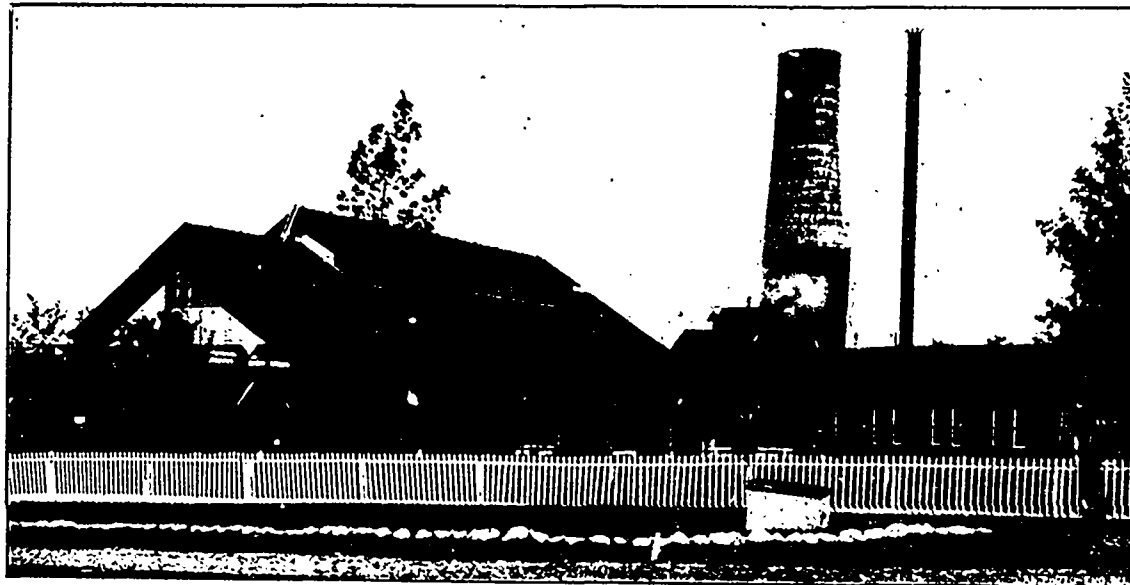
In northern Ontario, and extending into the unexplored regions, some fine varieties of spruce abound. In the past this wood has not been of much value commercially. Its increasing use for the manufacture of pulp, largely for export, now gives promise of creating a demand, and within the past few years several pulp mills have been established.

The timber regulations issued by the Crown state that all timber berths shall be subject to an annual ground rent of \$3 per square mile, together with the following Crown dues, viz.:

Black Walnut and Oak, per cubic foot	\$ 0.03
Elm, Ash, Tamarac and Maple, per cubic foot	0.02
Birch, Basswood, Cedar, Buttonwood and Cottonwood, and all Boom Timber, per cubic foot	0.01 1/4
Red and White Pine Timber, per cubic foot	0.02
All other woods	0.01
Basswood, Buttonwood and Cottonwood Saw Logs, per standard of 200 feet board measure	0.15
Red and White Pine Saw Logs and Boom Timber, per standard of 200 feet board measure	0.20
Walnut, Oak and Maple Saw Logs, per standard of 200 feet board measure	0.25

Hemlock, Spruce and other Woods, per standard of 200 feet board measure	\$ 0.10
All unmeasured cull Saw Logs to be taken at the average of the lot, and to be charged for at the same rate.	
Staves, Pipe, per mille	7.00
do. West Indian, per mille	2.25
Cordwood (hard) per cord	0.20
do. (soft) do.	0.12 1/2
Hemlock, Tan Bark, per cord	0.30
Railway Timber, Knees, etc., to be charged 15 per cent. ad valorem.	

The dues on pine timber cut under authority of license, so far as relates to berths or limits



SAW MILL OF THE GEORGIAN BAY LUMBER CO., WAUBAUSHENE.

in the Districts of Nipissing and Algoma, sold at the sale of October, 1892, are:—

Square Timber—\$25 per 1,000 feet cubic.
Saw Logs—\$1.25 per 1,000 feet board measure.

According to a return presented to the Legislature in 1893, there were about 21,000 square miles of pine lands under license, and 24,410 square miles of pine lands still unsold. In addition, there is an area of 89,000 square miles of territory upon which there is more or less pine, but which has not been taken in account by the Crown.

The receipts from woods and forests during 1895 were \$853,179.86, which included \$76,579.73 from bonuses and \$61,493.49 from ground rents, the balance, \$715,106.64, being the revenue from timber dues. The timber cut was as follows: Pine saw logs, 800,565,355 ft. B. M.; other saw logs, 12,917,017 ft. B. M.; boom and dimension timber, 34,024,047 ft. B. M.; square white pine, 873,304 cu. ft.; cedar, 336,995 lineal ft., besides minor products to the value of \$1,096,934.42.

At the Government sale of timber limits in 1892, over 600 square miles were disposed of, the prices realized being largely in excess of any

previous values. The highest price paid was \$3,657.18 per mile.

The Georgian Bay district has for many years furnished a large portion of the supply of logs required by Michigan mills, several American manufacturers owning extensive Canadian limits. The repeal of the export duty on logs, exacted by the Canadian government a few years ago, greatly stimulated the rafting of logs across the lake to Michigan points. During the season now closing, however, it is believed statistics will show a considerable decrease, the depression in the lumber business consequent upon a Presidential election in the United States causing lumbermen to curtail operations.

Located throughout the province are a number of extensive and well equipped saw mills, descriptions of some of which appear below:

GEORGIAN BAY LUMBER COMPANY.

One of the oldest established lumber concerns of the Georgian Bay district is the Georgian Bay Lumber Company, Ltd., the history of which dates back to the year 1869, when Mr. A. G. P.

Dodge purchased the mill property and limits of Messrs. William Hall, of Waubaushene, A. R. Christie, of Port Severn, and William Laramie, of Sturgeon Bay. Subsequently other lands and limits in the neighborhood were purchased, all of which were incorporated in a company called the Georgian Bay Lumber Company. The name was afterwards changed to the Georgian Bay Consolidated Lumber Company, when the mill property in Collingwood owned by Hotchkiss, Peckham & Co., and the properties at Byng Inlet owned by Mr. Dodge and White & Co.,

were purchased and incorporated therein. Mr. Anson Dodge subsequently retired, his father, the Hon. W. E. Dodge, of New York, with his son, the late Arthur M. Dodge, becoming the purchasers. The property at Byng Inlet, including the very extensive Maganetawan limits, were disposed of to Merrill, Ring & Co., of Saginaw, and the Collingwood mills were sold to Toner & Gregory, of that town.

In 1893 the present company, called the Georgian Bay Lumber Co., Ltd., was formed, at which time the Waubaushene and Port Severn properties, with the extensive limits connected therewith and other valuable limits on the Wahnapitau, were purchased from the Consolidated Company, which, owing to the death of the Hon. W. E. Dodge, went into voluntary liquidation. The present company, until the death of Mr. A. M. Dodge a fortnight ago, was composed of Messrs. Arthur M. Dodge and D. Stewart Dodge, of New York, Alderman James Scott, of Toronto, W. J. Sheppard and H. L. Lovering, of Coldwater, and some others who have been long connected with the business, the officers being: A. M. Dodge, president; James Scott, vice-president; C. P. Stocking, secretary-treasurer; W. J. Sheppard, general manager.

About the middle of August last the Port Severn mill was struck by lightning and burned, together with the company's store and storehouse, all of which were a total loss. This mill was the third which had been erected at that

place, and had a capacity of fifteen to twenty million feet per year. It was a water power mill, equipped with two gangs, a circular and a pair of twin circulars, with the usual trimmers, edgers, etc., necessary to make a complete mill. In connection therewith were also a lath mill and a shook mill, the latter being for the purpose of manufacturing slabs into material from which box shooks were made. The extensive piling grounds on each side of the river afforded accommodation for about ten million feet of lumber. Shipments were made by water, and

the year 1884, the property was handed over to his son, Mr. J. B. Miller, who is now president of the company. The other officers are Mr. John McClelland, vice-president, and Mr. W. B. Tindall, secretary treasurer.

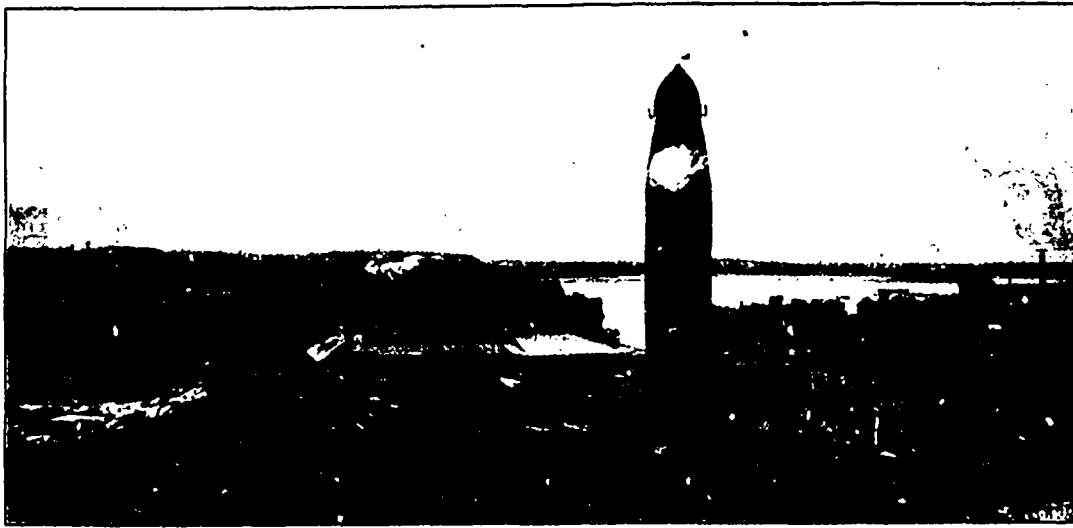
The mill property is situated in the town of Parry Sound, on the Georgian Bay, their limits, comprising 300 square miles, being situated contiguous to the mill and being watered by the Seguin river. The farthest limit is said to be only twenty miles from the town, which necessarily permits of bringing the logs to the mill at

The company have also a controlling interest in the steel steamer "Seguin," which has a carrying capacity of one million feet, and was built at Parry Sound by the Polson Iron Works Company.

Mr. Miller, the president, was born at Farmersville, now Athens, Ont., on the 26th of July, 1862. He began his commercial career with his father, and upon his death 12 years ago assumed the management of the company's business.

MICKLE, DYMENT AND SON.

The organization of the present firm of Mickle, Dymont & Son was effected in the year 1886, being composed of Messrs. Charles Mickle, N. Dymont and S. Dymont. They purchased extensive timber limits, and at the time of the failure of Christie, Kerr & Co. were compelled to take over the limits held by that company and situated on the South Muskoka and Black rivers. To-day they are possessors of upwards of three hundred square miles of limits, located in the townships of Oakley, Ridout, Livingston, Peck, Sherbourne and Hudson. They acquired the mill properties, Nos. 1 and 2, formerly owned by Charles Mickle and situated at Gravenhurst, on Muskoka Bay, and also purchased No. 3 mill at the same place from Thomas Tait. Afterwards the mill property at Barrie owned by Mickle & Dymont, and the Bradford mill of Christie, Kerr & Co. passed into their possession. A mill was then erected by the company at Severn Bridge, on the Severn river, while they also purchased a mill at that place from P. Christie. In 1887 No. 1 mill at Gravenhurst was destroyed by fire and was never rebuilt, while a little later the Barrie mill was also burned. The mill at Bradford has since been torn down and the machinery removed to the new mill at Severn Bridge, and No. 3 mill has been changed to a shingle mill. The company are, therefore, in possession of two saw and two shingle mills, one of each being located at Severn Bridge and one at Gravenhurst. The view of the Gravenhurst mill shown was taken in 1887. The saw mill at Gravenhurst has a capacity, per day of ten hours, of 80,000 feet of lumber, 20,000 shingles and 25,000 lath. It is steam power, being driven by a 125 h. p. engine and three tubular boilers.



PARRY SOUND LUMBER CO.'S MILL AT PARRY SOUND.

also by scow to Waubaushene, whence the lumber was carried by rail.

The Waubaushene mill is located on the south-east corner of the Georgian Bay, about ten miles from Midland. This mill was erected in the year 1881, and is one of the most complete establishments for the manufacture of lumber west of the Ottawa river. The machinery is of the latest, most improved and substantial character, and was furnished almost entirely by the William Hamilton Manufacturing Co., of Peterboro. The equipment consists of one circular, one slabbing gang, two stock gangs and a pair of twin circulars, together with two edgers, two trimmers, lath mill, shook mill and necessary accompanying machinery. Unique labor-saving appliances are provided for handling and disposing of the lumber and refuse. The capacity of the mill in eleven hours is 300,000 feet, the lath mill producing 30,000 lath in the same time. The annual output averages from twenty-eight to thirty million feet, the mill operating in the day time only, and not running even until the end of the season.

One of the finest piling grounds in Canada is connected with this mill, seven sidings running into the yard from the Grand Trunk Railway, which permits of the lumber and lath being handed from the pile to the car. The tramways are equipped with T rails of a substantial kind, and cover several miles in extent. The yard is located a sufficient distance from the mill to minimize the danger of fire spreading from one to the other. From their extensive docks large vessels can load and unload. An electric plant furnishes light for the mill, thereby doing away with night owls, which are so dangerous from an insurance point of view. From this plant the principal buildings in the village are also lighted.

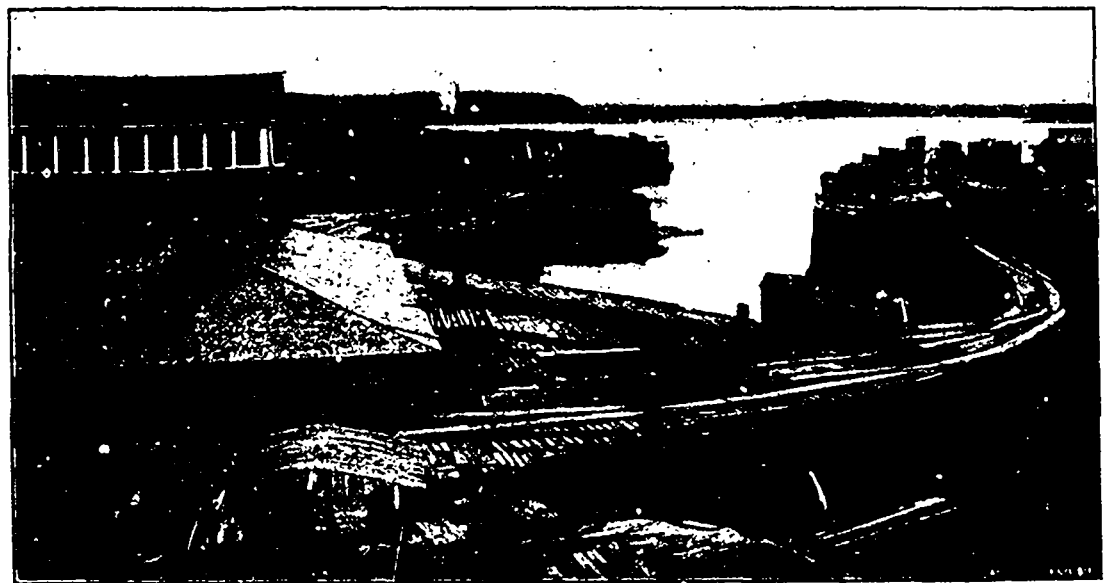
The company also own two stores in the village, from which the inhabitants are supplied with all necessaries.

PARRY SOUND LUMBER COMPANY.

In the year 1872 the Parry Sound Lumber Company, Ltd., was incorporated, the principal shareholders being Mr. A. G. P. Dodge, of New York, and the late J. C. Miller. The latter afterwards became the sole owner, and upon his death, which occurred in Southern California in

a very small cost. The company possess probably the largest block of standing timber on the shore, some of which is virgin forest.

The saw mill is water power, driven by four water wheels, the power being obtained from the Seguin river. It is equipped with two flat gangs, two slabbing gangs and one large circular, with all necessary appurtenances. This mill was the first in the district to use thin gang saws, the gauge being between 14 and 15. The docks



VIEW OF PARRY SOUND LUMBER CO.'S MILL, SHOWING TRAMWAYS.

have a piling capacity for ten million feet, at which the largest boats on the lakes can load.

The shingle mill contains two "Boss" machines, having a capacity of 75,000 per day. Large shingle sheds are provided, with a capacity of four to five million shingles, which enables the output of the mill to be kept under cover, thereby keeping it in good condition.

The annual production of the company is from ten to twelve million feet of pine lumber, ten million shingles and six million laths, and in the neighborhood of one hundred hands are employed.

The equipment of the mill consists of one circular and one band saw, with edgers and trimmers complete, lath mill and Drake shingle machine. In addition to the mill there is a filing room, 25x50 feet, and machine shop, also planing mill with output of 15,000 feet per day. The lumber is taken from the mill on high cars, being ten feet from rail to platform.

The shingle mill has a capacity of 160,000 per day, and contains four shingle machines, driven by a 65 h. p. engine and two boilers. The logs for these mills are brought down the Muskoka river from their limits, and towed from the mouth

of the river, across Muskoka lake, to the mill, a distance of eleven miles, a tug being kept specially for this purpose. The logging grounds in connection with the mills afford accommodation for twelve million feet of lumber.

A gang saw instead of a band is the only difference in the equipment of the mills at Severn Bridge from those at Gravenhurst. An electric light plant in connection with the mills furnishes light. The logs for this mill come down from their limits tributary to the Black river.

In the location of their limits and mills the company are particularly fortunate, as should it be found expedient at any time to close down

there to the extent of \$250,000, with its principal place of business at Oswego, N. Y., and securing to it all the privileges of an American company. The capital stock of the company is held entirely by the sons and daughters of the late Hugo B. Rathbun.

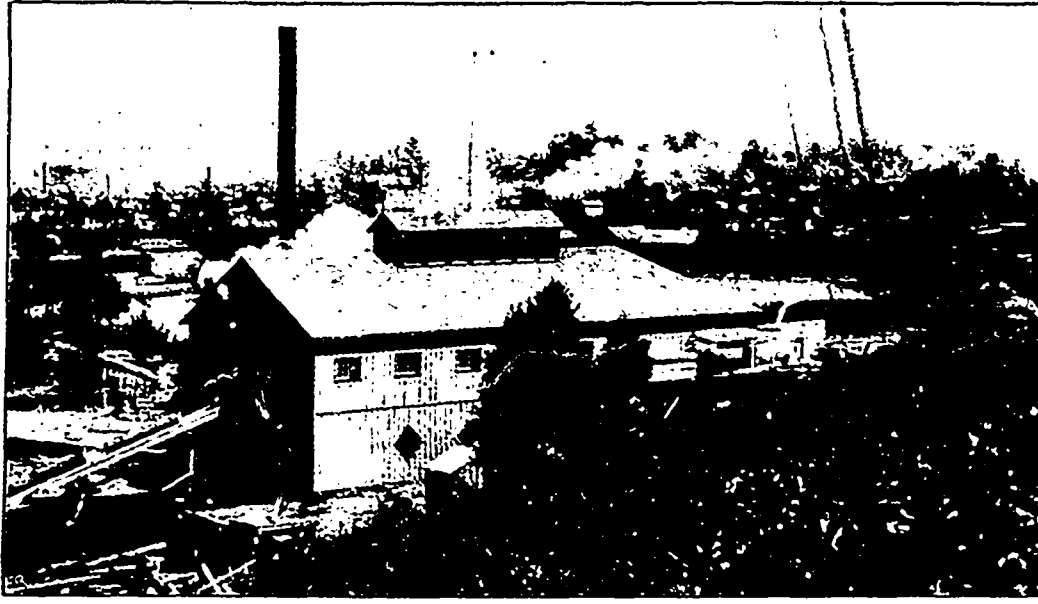
The company owns and operates about 550,000 acres of timber lands under government license, 60,000 acres of deeded timber lands, and 7,750 acres of timber rights only. It holds large blocks of virgin forests, mainly pine, which for convenience and cost would have paid far better than much that has been operated; but this timber has been kept intact as a factor of value for future returns.

Campbellford, Lindsay, Ottawa, Brockville and Peterboro, Ontario. For 30 years the best efforts of the management have been directed to working out the details of the original conception; first, to secure a sufficiency of timber accessible to Deseronto to warrant the establishment of substantial industries of a permanent character; second, to so manipulate the coarse and refuse products of the forests as to enlarge and perpetuate the yield therefrom, and to profitably utilize the waste of the mill, which otherwise would be a great loss of material and would cost a large sum of money to get out of the way; third, to provide the best means of transporting the raw material from the forests to the mills, and provide the best and most economical methods for marketing the output of the mills and factories.

THE STONE SAW MILL, DESERONTO.

The first saw mill owned by the company's predecessors was located on this site in 1849, was a small wooden structure, which steadily grew to a mill of 15,000,000 feet capacity, and was destroyed by fire. The present building is stone, with iron roof, 90 x 115 feet, a brick iron-roofed fireproof engine and boiler house, 50 x 80 feet, and a wooden addition, 60 x 30 feet. A Stearns band and double edger, two Wickes gangs, a slabbing gang and a twin circular, manufactured by the Wm. Hamilton Manufacturing Company, with an unusually large complement of small machinery, make up the equipment. All the parts are apparently well balanced, and everything goes with the precision of a clock movement. The entire product is moved with the minimum of manual labor. The twin circular is a unique machine, with shot gun feed, and a single "dog" at the end of the log.

The motive power is a twin engine, each cylinder 26 x 30 inches, backed by seven steel boilers, all located in fireproof compartments. The lumber drops to slides from the trimmer, where it is sorted to standard gauge cars for distribution. It is the most perfect system possible, all departments being connected by standard gauge tracks, each practically a terminal of the Bay of Quinte Railway. The switching engines are kept constantly employed at this mill. The docks in connection with the mill have sufficient frontage to enable the lumber to be piled as it comes from the mill, so that it can largely be shipped directly into vessels without haulage. There are ten miles of railway tracks in the yard



MICKLE, DYMENT & SON'S MILL AT GRAVENHURST.

the mills at either place, the logs from any section may be conveniently taken to the other mill. At the various mills of the company upwards of one hundred men are employed during the sawing season, while the average number sent to the woods each winter is 250.

The firm of Mickle, Dymont & Son are among the most enterprising lumbermen of Ontario. Mr. Charles Mickle looks after the manufacturing portion of the business and resides in Gravenhurst, while the Messrs. Dymont are located at Barrie and devote their attention to the commercial end.

JAMES PLAYFAIR & COMPANY.

A view of the mill, docks, etc., of the above firm is to be seen on this page. They are located at Midland, on the south-eastern shore of the Georgian Bay. The business was started in 1884, the principal lumber manufactured being white pine. The mill is now cutting on a ten years' contract for Arthur Hill & Company, of Saginaw, Mich. The capacity is about 150,000 feet per day of 10½ hours, the average output per year being in the neighborhood of twenty-five millions. A specialty is made of bill timber. There is also in connection therewith a lath and shingle mill. The machinery consists of a band saw, circular saw, and a No. 1 Wickes gang, fitted up with the latest improved accompaniments, such as steam stock lifters, niggers, log docks, etc. Power is furnished by four engines, so that if any part of the machinery stops it does not affect the whole mill.

THE RATHBUN COMPANY.

This is one of the most extensive concerns in Canada, and was incorporated by special act of parliament in 1883. Its paid up capital stock is \$1,500,000, with power to increase to \$2,500,000. It is a broad gauge charter, granting all the powers of general merchants and dealers, general manufacturers, common carriers, warehousemen, and ship and vessel builders and owners. In 1884, by special act, the company was authorized under the laws of the state of New York to hold property

The temptation of good returns has not influenced the company to sacrifice future profits. Timber lands are logged with an eye to safety against fire and a continued supply of fair average quality. On the lands are found large quantities of cedar, hemlock, tamarack, basswood, ash, maple, birch, etc., for which there is found excellent and increasing markets. This timber is largely tributary to the rivers flowing into the Bay of Quinte, namely, the Napanee, the Moira, the Salmon and the Trent. The completion of the Kingston, Napanee and Western Railway, owned by the



JAS. PLAYFAIR & CO.'S MILL AT MIDLAND.

same company, to a connection with the Canadian Pacific and Kingston and Pembroke roads, has opened a cheap and expeditious rail route to Deseronto for the forest products of these and other sections tributary to the streams intersecting those railways, as well as the railways stated. The timber licenses were purchased from the crown, and the tenure is considered perpetual, but subject to a charge of \$3 per square mile a year for ground rent, besides dues upon the timber taken out.

The company owns lumber yards, docks, offices and sheds at Oswego, N. Y., and at Napanee, Kingston, Gananoque, Picton, Belleville,

and on the docks in connection with the Deseronto business.

SASH, DOOR AND BLIND FACTORY, AND GENERAL WOOD-WORKING DEPARTMENT, DESERONTO.

This factory was started in a small way in 1874, has had five stages of development, and is now a substantial two-storey brick building 60 x 319 feet, with an L 40 x 100 feet. The building is divided into four compartments with heavy brick walls for fire protection, is covered with asbestos roofing, has automatic fire sprinklers on both flats, is heated throughout with steam, and is equipped with the most improved wood-working machinery. The lumber is delivered to the

department from the yard or kilns on standard gauge railway tracks. It is the largest factory of the kind in the Dominion.

This industry utilizes door panels and cuttings from slabs and edgings of the lumber mills, as well as using a class of stock containing defects which injure its value for export, yet from which a choice quality is cut. All sound cuttings down to nine inches long from the mills are saved and utilized. This department supplies the company's agencies with all descriptions of finished building materials. The average number of hands employed the year round is 160. In connection with this factory are works for the manufacture of match splints from the waste ends of the mills and factories.

A rear view of the stone saw mill, blacksmith and machine shops, and sash, door and blind factory and general wood-working department is shown on this page. This view gives a clear idea of the size of the wood-working department.

The export business is done through the company's own representatives in Britain, with headquarters in London and Glasgow, who also manage the company's warehouse and dock at 28 City Road Basin, London, England, exporting match splints, electric casings, doors, sashes, mouldings and lumber. Doors, etc., are also exported to Australia and South Africa.

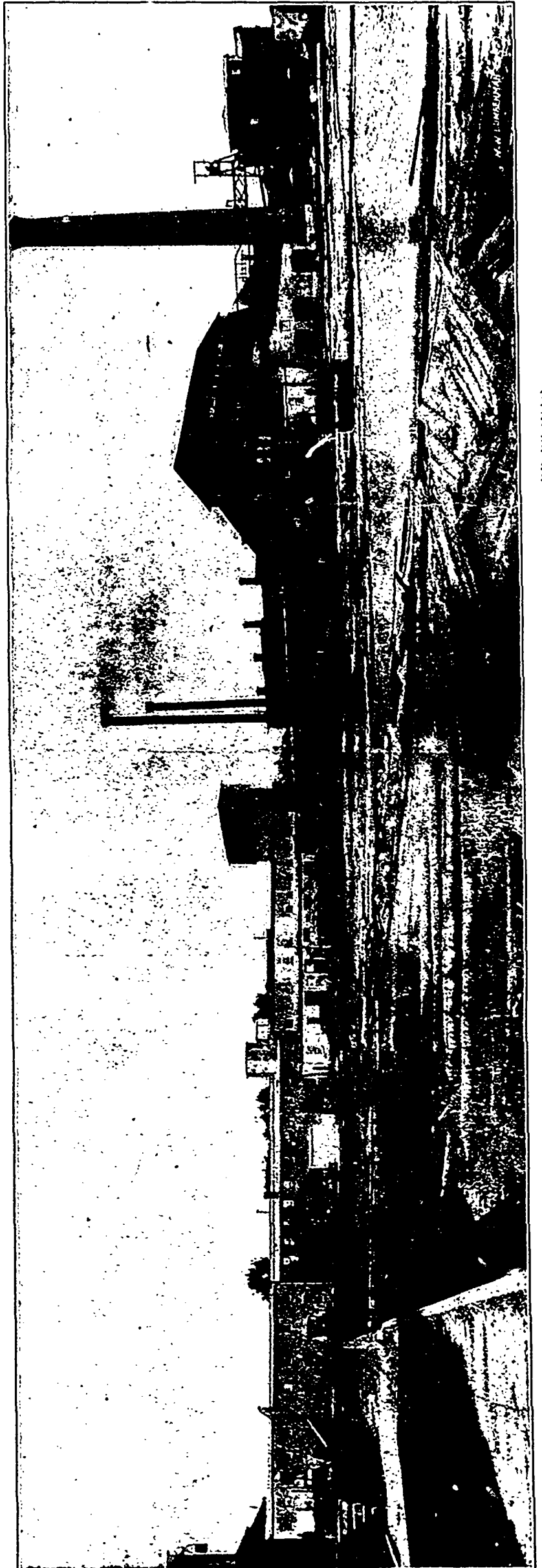


THE CEDAR MILL. DESERONTO.

This mill was started in a small way in 1872 to meet a demand from the United States for cedar timber cut to suitable shapes for railroad sleepers, fence posts, shingles, etc., and for pine, hemlock, etc., cut long lengths for structural purposes, and to saw plank and other stuff for the company's ship work. It is a two and three story structure of wood, the outside walls being lined with brick, with stone partition walls. The size is 60 x 180 feet, with an addition of 30 x 85, fitted with automatic sprinklers and steam force pumps. The boiler and engine room is fire-proof. This mill is fully equipped with the best class of machinery for the economical manufacture of this class of material and is operated the year round. Its power equipment is a single engine with condenser, and backed by five boilers of 375 horse power.

In place of the usual refuse burner, the company erected furnaces over which were placed four steam boilers capable of providing 100-horse power each, utilizing the steam thus produced at the flour mill, and supplying the chemical works and town water works pumps at a fair paying rate. Wet bark, rotten stuff, some sawdust and all "the holes" make a hard looking lot of fuel, but all goes. In connection with this steam plant, on a

CEDAR MILL. RATHBUN CO., DESERONTO.



VIEW OF S PONE MILL AND GENERAL WOOD-WORKING DEPARTMENT RATHBUN CO. DESERONTO.

wharf, is an open iron roofed building, 75 x 396 feet, 27 feet high at the eaves, into which an elevated railway track runs the entire length. This serves to hold much of the refuse not required during the sawing season, and which is delivered on cars holding about two cords each and moved by steam motors. This refuse is used for fuel during the winter months to run the dry kilns and other departments, all of which pay or account therefor at a proper price.

THE OSWEGO YARD.

The property at Oswego, N. Y., consists of water frontages, docks and storage facilities, to which additions have been made as the growth of trade demanded. The growing business indicates the advantages of the location. Starting in 1880 with a trade amounting to \$159,242.85, it has done a business in fifteen years amounting to some \$6,000,000. In addition to the above an average of from 15,000,000 to 20,000,000 feet of lumber have annually been transhipped to Albany, N. Y. Since 1882 it has been under the management of Charles H. Bond, who has grown up in the lumber business.

THE CAMPBELLFORD SAW MILL

was located on the Trent river in 1886 for the purpose of manufacturing railway ties and the sawing of such logs other than pine as were found to be inclined to become water-logged when they reached that point, and thus save them from probable loss on the way down the river. It is newly equipped with machinery, and has ample facilities in the way of land. It is connected by railway direct to the mill, and is the headquarters for a part of the Trent river logging operations, under the management of Thomas Callaghan.

The company also have mills located at Lindsay for similar purposes, and are using the same class of material as that at Campbellford. At Gravenhurst they have also a mill with a capacity of about 7,000,000 feet per year.

THE TORONTO AGENCY

was established in 1881 for the purpose of purchasing lumber and forest products on the lines of railway tributary thereto, and on the north shore of the Georgian Bay and Lake Huron, to supply the requirements of the Oswego yard and the factory at Deseronto, which could be thus better met than by the company's mills alone. This point is also a center for the purchase of red oak, basswood, ash and red birch, which are found north and west from Toronto, the handling of which has become an important factor of the Oswego yard. A large city trade is also done from the office on Front street.

Mr. E. W. Rathbun was made general manager in 1862, when about 20 years of age, and has been its manager ever since.

Mr. Frederic S. Rathbun, secretary and treasurer, and acting manager in the absence of the manager, began in 1872.

Mr. E. Walter Rathbun is superintendent of the general outside work.

GILMOUR & COMPANY.

The above company have for many years conducted an extensive establishment at Trenton, manufacturing lumber, dimension timber, lath,

shingles, etc. They also have a complete wood-working establishment, from which is turned out a variety of work, such as sashes, doors, pickets, interior finishing woods, etc. The saw mill cuts annually about 40,000,000 feet of pine, and is furnished with three band saws and three large gangs, besides a complement of circular and other saws for cutting pickets, staves, barrel headings, and other articles. The mill is driven by steam engines, which furnish upwards of 1,500 horse power. The planing mill is located two miles from the saw mill. The company have recently erected a fine saw mill at Canoe Lake, in Algonquin Park, adjacent to their limits. A description of this mill was promised for this number, but had not been received at time of going to press. The Gilmour Company manufacture largely for the South American market, but lately have also been giving some attention to cutting deals for the British trade.

THE OTTAWA VALLEY.

EXTENSIVE OPERATIONS OF CANADIAN LUMBERMEN.

In writing of the lumber industry of the Ottawa valley we must necessarily include a portion of the province of Quebec, the territory em-

80,000 square miles. Various estimates have been made of the quantity of timber existing thereon, but the figures presented by the different experts are somewhat at variance.

According to the "Forest Wealth of Canada," prepared by Mr. Johnson, Dominion Statistician, the total product of the Upper Ottawa, which extends from the eastern watershed of the Ottawa river up to the head of Lake Temiscamingue, from 1826 to 1881, was as follows:

PROVINCES.	PIECES.		
	Square Pine.	Other Woods.	Pine Saw-logs.
Ontario	7,173,187	494,824	22,005,108
Quebec	3,955,176	20,138	19,507,159
Total	11,128,363	514,962	41,512,267

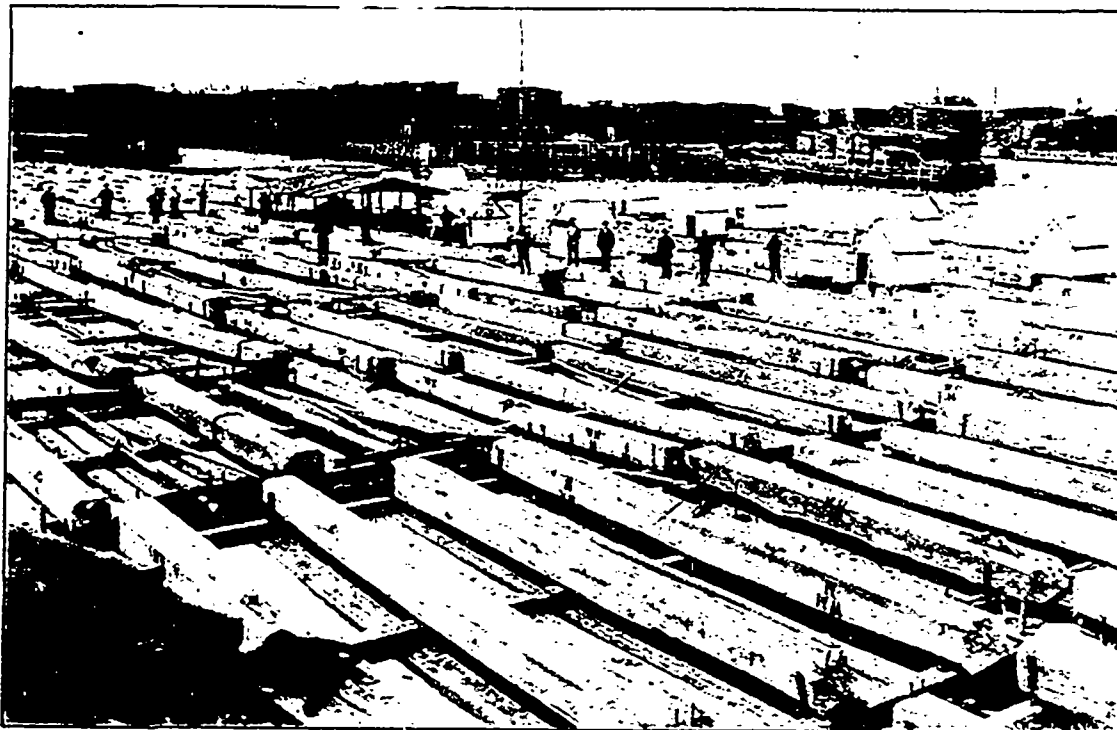
During fifty-six years an average of 199,600 pieces of square pine timber and of 741,300 pine saw-logs was taken out. For eleven years, from 1882 to 1892, the annual output of square white pine averaged 64,414 pieces, and pine saw logs 3,807,800 pieces.

In the Lower Ottawa agency, from 1856 to 1881 crown dues were paid on 106,398 pieces of square white pine, 943 pieces of square red pine, 38,459 pieces of other woods, principally birch, 5,735,931 pieces pine saw logs, and 383,354 pieces spruce logs. Of square white pine, 95,155 pieces were cut in the first fifteen years and 11,243 pieces in the following ten years. In 1881 the cut of pine was 405,709 logs, and in 1891 451,538 logs.

In 1806 the first raft of square timber left the mouth of the Gatineau. From that time the business gradually increased, and during the years from 1850 to 1878 large quantities were rafted down the St. Lawrence to Quebec for shipment to Great Britain. But, as the above figures show, there has been a steady

decrease in the quantity of square timber manufactured since that date, while sawn or manufactured lumber has greatly increased, and the annual output for the past few years has been in the neighborhood of six hundred million feet. There is yet to be found in the Ottawa valley considerable quantities of pine suitable for square timber. Of the forests of the valley, perhaps one-third have been denuded of their merchantable timber. This has been the result not only of the inroads of the lumberman, but also of forest fires.

Among the first large operators in the square timber business were the Gilmours, the late John Egan, the Macdonalds, Alex. Fraser, Wm. Mackey, the McLaughlins, Gillies & McLaren, the Caldwells, Thistle, Carswell & Co., Hurdman Bros., A. & P. White, Klock Bros., the Poupores, Barnett & Mackie, and Alex. Barnett. Some of these have withdrawn entirely from the lumber business, while others are devoting their attention to sawn lumber. Still connected with the business are Messrs. Wm. Mackey, Alex. Fraser, Thos. Mackie, Alex. Barnett and Klock Bros. During the past summer only four rafts were taken down the river, while some years ago as many as two hundred found their way to Quebec for shipment. A view of a raft taken out by Mr. Mackey appears on this page, which



WM. MACKEY'S RAFT OF SQUARE TIMBER, OTTAWA, 1896.

braced being that adjacent to the Ottawa river and its tributaries on both sides, the Ottawa river being the dividing line between the two provinces for a considerable distance. The length of the Ottawa river from its outlet into the St. Lawrence, as far as explored, is in the neighborhood of 750 miles, although lumbering operations have as yet only extended a distance of about 375 miles above the city of Ottawa. On the north side of the river the principal tributaries which have afforded assistance to the lumberman in floating his logs to a point of manufacture are the Rouge, Nation, Lariviere, Gatineau, Coulonge, Black, Schyan, Du Moine, Bear, Magnacippi, Beauchene and Kippewa. To the south of the Ottawa, in the province of Ontario, are the Madawaska, Petite Nation, Rideau, Mississippi, Bonnechere, Indian, Petawawa, Mattawa, and Amable du Fond rivers.

The Ottawa valley, as is well known to lumbermen, possesses the greatest pine producing forests of Canada, the timber being both of the largest and best on the continent. It also produces large quantities of tamarack, ash, elm, white oak, birch, maple, etc., while recent discoveries have verified the belief that immense spruce forests exist in territories as yet unexplored. The area of the valley is perhaps about

also shows the Chaudiere docks. It is said to be one of the best ever taken out, both as regards quality and manufacture.

At no other point in the Dominion is the manufacture of lumber carried on so extensively as in the Ottawa valley. Within the past few years the quantity disposed of in the British market has greatly increased, and many manufacturers dispose of their entire season's cut to one shipper. Amongst the largest operators are Messrs. J. R. Booth, Bronson & Weston, W. C. Edwards & Co., Gilmour & Hughson, the Hull Lumber Company, Pembroke Lumber Company, Hawkesbury Lumber Company, Wm. Mason & Sons,

all his business life in connection with the Hawkesbury mills. A view of the mills is also shown.

These mills were the first large saw mills established on the Ottawa river, and their output has been principally deals for the English market, where their brand "H" is well known to the trade on that side. They also manufacture all grades of white and red pine, their output being from fifty to sixty million feet per season. Their supply of pine is taken from their limits on the Dumoine, Black and Sweyo rivers, in the province of Quebec, and on the river Petawawa, in the province of Ontario.

Early in May last two of the mills were de-

stroyed by fire. Some conception of their extent may be obtained from the illustrations appearing on this page.

The saw mill was built some years ago by Mr. Isaac Tyndal, but has since been improved to meet the demands of the trade. Three Stephenson duplex turbine wheels, two 38 inches and one 43 inches, operate the machinery in the lumber mill, generating about 700 h. p. The equipment consists of one Allis and two Prescott band saws and a Wicks gang, with necessary trimmers, edgers, etc.

The dimension mill is operated by two 30-inch Stephenson turbine wheels, and contains two sets of lath and shingle machines. Conveyors



MR. HIRAM ROBINSON,
President Hawkesbury Lumber Company.

McLachlin Bros., St. Anthony Lumber Co. and Gillies Bros. Other prominent manufacturers are the Canada Lumber Company, Messrs. Ross Bros., Estate Jas. McLaren, Ottawa Lumber Company, A. Hagar & Co., Klock Bros., J. R. & J. Gillies, A. Lindsay, R. W. Conroy, A. & P. White, John Mackay, Martin Russell, Carswell & Francis and the Shepherd & Morse Lumber Company. Descriptions and illustrations pertaining to the operations of several of these manufacturers appear below:

THE HAWKESBURY LUMBER COMPANY.

The Hawkesbury mills are situated on the Ottawa river, in the county of Prescott, Ontario, on the first break on the Ottawa, half way between Ottawa city and Montreal. The mills were first founded on the Ottawa by Thomas Mears in the year 1804, and subsequently became the property



HAWKESBURY LUMBER COMPANY'S MILLS, HAWKESBURY, ONT.

stroyed by fire. One of these was a spare mill and used only in the early spring. Of the remaining mills, three in number, one is furnished with a Wicks oscillating gate, a pair of twin circulars, and a large circular, having two double edgers, etc.; another is a band mill with double edger and butters, with paling, lath and shingle machines, and band re-saw, the third mill having two dealing gangs, with their accompanying slabbing gangs, two double edgers and one circular splitter.

In an additional building is contained a slab splitter and butter, also a deal edger and butter. It is probable that the company will add another mill at an early date.

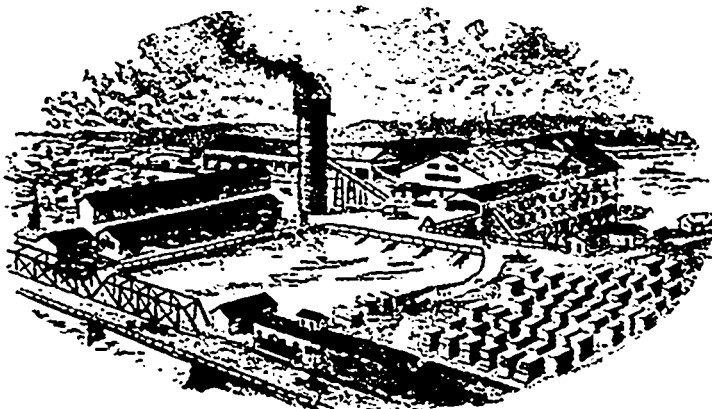
There are in connection with the mills 17 miles of double piling tram car tracks and a piling capacity for 80 million feet of lumber. The town of Hawkesbury and the Hawkesbury mills have both rail and navigation facilities.

carry all the refuse to the burner, which is 20 ft. diameter and 90 feet high. The floor of the mill is kept on a level with the sorting table, to which the lumber is raised by air compression. The carriages, niggers and rollers are also operated by compressed air.

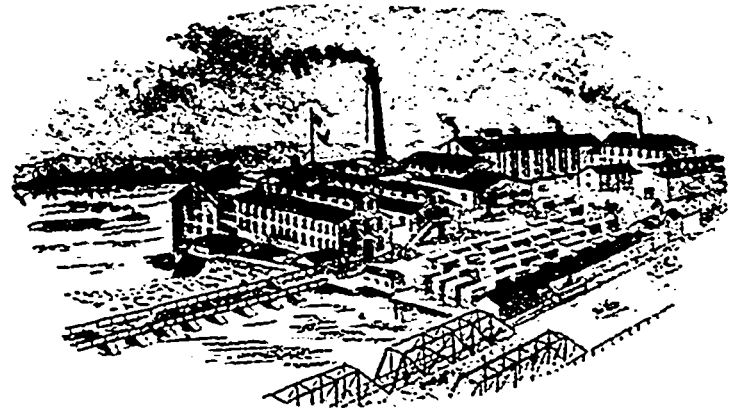
Above the dimension mill is the dynamo and store room. The dynamo, a 20 arc machine converted into a series incandescent system, furnishes light for the complete premises, and is operated by a separate 20 inch water wheel.

The scows on the river are loaded by means of slutes, which are raised or lowered by chains to suit the height of the boats. Switches extend from the C. P. R. track into the yards, so that every facility is afforded for quick shipment.

The piling ground covers an area of fourteen acres, and there is usually carried in stock about five million feet of lumber. A specialty is made



SAW MILLS.



FACTORY AND PLANING MILLS.

W. C. EDWARDS & COMPANY'S MILLS AT NEW EDINBURGH.

of William and George Hamilton in the year 1808, and were enlarged and improved from time to time. They are supplied with power from the Ottawa river. A very substantial stone dam, about 1,200 feet in length crosses from the Ontario side of the Ottawa to a large island, giving the necessary head. The property remained in the hands of the Hamilton family until the death of the Hon. John Hamilton in 1888, when it became the property of the Hawkesbury Lumber Co., Ltd., the company being composed of Hiram Robinson, President; H. K. Egan, Managing Director, and R. L. Blackburn, Secretary. Mr. Robinson, whose portrait we present, has spent

W. C. EDWARDS & COMPANY.

The composition of the above firm is as follows: W. C. Edwards, M. P., President, J. C. Edwards, John A. Cameron, James Wood and John A. Wood, jr. They are among the largest operators of the valley, having large mills at New Edinburgh and Rockland. The limits from which their supply of timber is obtained are situated on the North Nation, Gatineau, Kippewa, Dumoine, Coulogne and Black rivers. The New Edinburgh mills are situated at the junction of the Rideau and Ottawa rivers, and comprise a large water power saw mill and a planing mill, which are under the able manage-

ment of dimension timber, which is shipped to the American markets.

At Rockland, which is about twenty-two miles down the Ottawa river from New Edinburgh, the company have one large mill and a smaller one, steam power. This portion of the business is under the general supervision of Mr. W. C. Edwards. In the large mill are two Wicks gangs, pair twin circulars and two band saws, also three small band saws for splitting and two circulars. Power is furnished by twelve boilers and a pair of engines, with cylinder of 24 inches diameter and 3 feet stroke, furnishing about 500 h. p. The small mill contains a circular and a gang saw,

with trimmers, tie and shingle machinery, etc. Five boilers and a pair of engines, 22" diameter and 3 feet stroke, supply about 300 h. p. The burner for sawdust is 30 feet diameter and 145 feet high. The product of these mills is largely deals for the English market, which are shipped mostly by rail to Montreal. At the different mills of the company about 800 hands are employed during the sawing season.

The planing mill at the New Edinburgh mills is one of the most complete establishments of its kind in Canada, and consists of seven buildings devoted to planing, sawing, drying and storing. At the entrance are the offices of the manager of this department, Mr. Armstrong. The large stone building in the front contains the draughtsmen's offices, back of which is the large work room and cutting-up department. The sash and blind department and box factory are fully equipped with improved machinery. The dry kiln is 48 x 48 feet, and is situated above the boiler room. On the first storey is the door department, and the finishing and paint room, with glass room above. A store room, 40 x 100, is situated above the box factory. The third storey is used for storage purposes. The building is heated by the Sturtevant hot air system. In the engine room are two boilers of 85 h. p. each, which are used for heating and drying, and drive a small engine at night. A Stephenson duplex water wheel of 100 h. p., supplied by a 30 feet head from the Chaudiere Falls, operates the machinery.

Another building is a frame structure, 84 x 36 ft. The ground floor is used for storing kiln-dried lumber, and the top floor for the sashes and doors.

The planing mill proper is 130 x 35 ft., the ground floor containing the planing and moulding machines and re-saws, and the top floor being devoted to mouldings. Beneath the building is a Stephenson duplex water-wheel of 200 h. p. and 43 feet head.

In a two-storey building, 24 x 96 ft., is stored the fancy hardwoods and other kiln-dried lumber, while in another building, 132 x 48 feet, the dressed lumber is taken care of. A shed of two stories, 156 x 48 feet, has recently been completed, which will be used for rough lumber, and will have a capacity of one million feet. The heavy hardwood shed is 134 x 20 feet, and is situated alongside the new offices.

PEMBROKE LUMBER COMPANY.

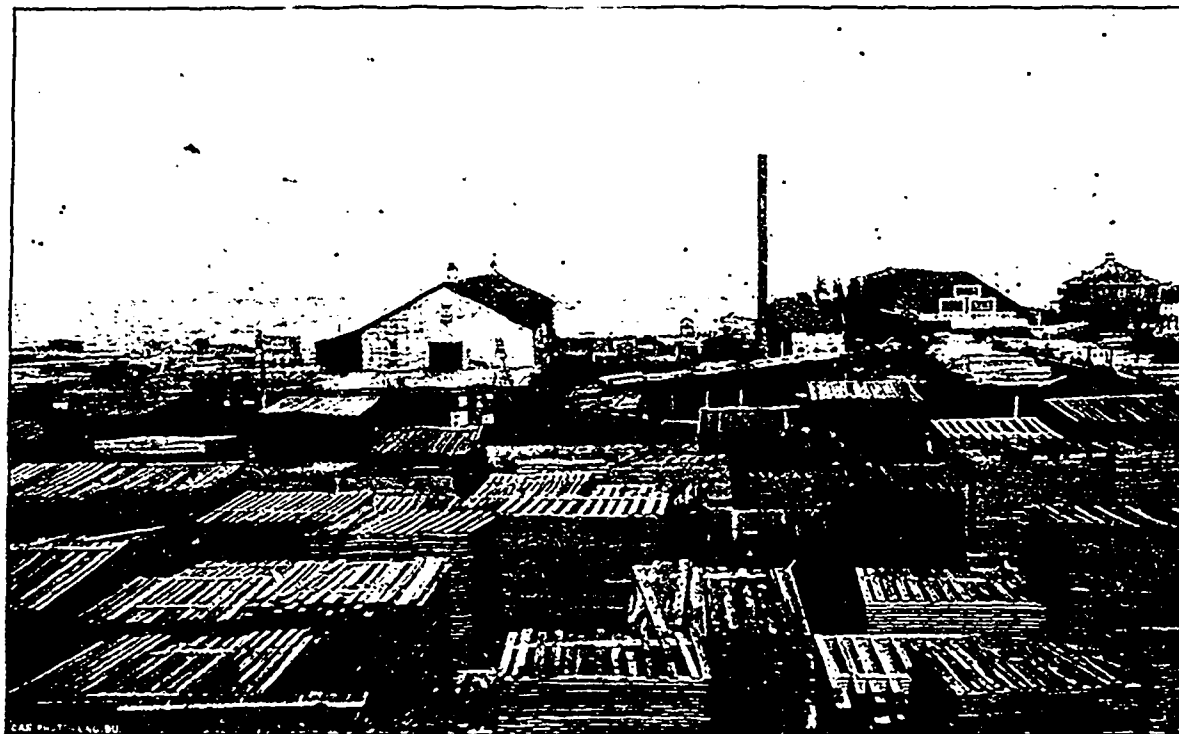
Amongst the best known lumber manufacturers of the Ottawa valley is the Pembroke Lumber Company, whose mills are at Pembroke, Ont. The composition of the firm is as follows: Hon. Peter White, late speaker of the House of Commons, Andrew White, C. Chapman, Mrs. A. Dunlop, Judge Thos. Deacon and John Bromley, the latter being the general manager.

The timber and lumber mill was built 25 years ago in the Ottawa river on piers, the space between the shore and the mill being long since filled up. The first owner was John Rowan, who sold it to W. R. Thistle, who in turn sold it to the present owners. Since coming into possession of the present owners, substantial improvements have been made and its capacity doubled. The dimensions of the mill are 250 x 40 ft., 2 stories, with lath mill annex 20 x 50 ft. and boiler and engine rooms 20 x 60 ft. and 30 x 60 ft.

In the mill are two circular saws, one made by Shurly & Deitrich, and the other by the James Robertson Co. The carriages were built by the Waterous Company, and are capable of taking on a log 30 inches in diameter and 65 feet in length. They are propelled by steam feed. The edgers and sash table machinery are also of the Waterous make. The slabs and boards from the dimension timber are cut into proper lengths and butted by four butting saws, two to each live roller table.

In the boiler room, of brick, are three "Waterous" boilers of 100 h. p., supplying steam to a Waterous engine of 125 h. p., and also to a smaller engine used to operate the planing mill. The platform in front of the saw mill will hold 300,000 feet of lumber, and all of the dimension timber is loaded on cars direct from the saw.

The planing mill is separated from the saw mill. It was erected in 1892, is frame, 230 x 60 ft. and two stories high. The machinery is two double surface planers built by Cowan & Co., of Galt. The lumber is fed to the planers by rollers and is then loaded on cars, which are drawn upstairs on an incline by a friction pulley and rope, where it is unloaded. On a level with the first floor is a platform 50 x 80 ft., which is on



PEMBROKE LUMBER CO.'S SAW MILL, PEMBROKE.

a level with the G. T. R. flat cars which pass alongside. The lumber is loaded from trucks onto the cars ready for shipment.

The yards are very extensive, affording piling ground for a large quantity of lumber. Upwards of 120 men are employed around the mill. On an average of 100,000 logs are always floating in Lake Allumette, an expansion of the Ottawa river.

On Lake street are the commodious business offices of the company, with stores in rear. Mr. Bromley is assisted in the management of the affairs of the company by his son, and the large connection which has been established requires their close attention. The accompanying cut will enable the reader to judge of the extent of the mills and the variety of lumber manufactured, which is shipped to various parts of the world.

MR. J. R. BOOTH.

To Mr. J. R. Booth, of Ottawa, belongs the distinction of being the largest saw mill operator in the world, while the area of timber lands in his possession is also said to be greater than that owned by any other one person in Canada. Until two years ago Mr. Booth operated two mills on the Chaudiere river at Ottawa, but during the summer of 1894 the larger of these two was destroyed by fire. This mill contained fourteen band saws, four gangs and four twin circulars,

and was said to be capable of cutting one million feet per day. The average cut for six months was over 100,000,000 feet, while about one thousand employees were required for its operation. This will give our readers some idea of its magnitude. The other mill operated by Mr. Booth was the old Perley & Pattee mill, which was purchased some years ago and remodelled. It is now one of the most complete establishments of its kind in Canada, and by running day and night during the sawing season makes an annual output of 100,000,000 feet. The equipment of the saw mill proper comprises four band mills, two Wicks gangs, and a pair of twin circulars. In the timber mill is one band saw, while the slab mill contains three re-saws. Three lath tables and two picket tables are located in the lath mill.

Ample power for the operation of the mill is furnished by the Chaudiere falls, and the water-wheels have a capacity of 4,000 horse power. A complete electric plant supplies light to the mills and yard, the latter covering an area of 160 acres. Some idea of the benefit derived from such an establishment may be estimated from the fact that Mr. Booth has now in his employ upwards of 1,800 hands. His limits at the head

waters of the Ottawa comprise 5,000 acres of timber lands.

Forty-four years ago Mr. Booth was a millwright working in Ottawa. He first commenced business by leasing a saw mill with one saw, and by industry and progressiveness has succeeded to such an extent that he is said to be the largest owner of property in Ottawa, with the exception of the government. Not alone in the lumber business has his business ability and enterprise been shown. The Ottawa, Arnprior and Parry Sound Railway, which extends from Ottawa to Parry Sound, a distance of upwards of 260 miles, and passes through a portion of the province which had hith-

erto been practically devoid of railway facilities, was constructed largely through the instrumentality of Mr. Booth. This road promises to be of great benefit to lumbermen, and to aid materially in the development of the surrounding country.

THE HULL LUMBER COMPANY.

The lumber business carried on for some years by the firm of Buell, Hurdman & Co. has been taken over during the past summer by the Hull Lumber Company, which is composed of A. A. Buell, of Burlington, Vt., W. G. White, of Albany, N. Y., F. W. Avery and C. E. Read, of Ottawa, and J. M. McDougall, of Hull. The capital stock of the company is placed at \$600,000. Their limits are situated on the Petawawa, Magnacippi, Mattawa and Kippewa rivers. They manufacture largely deals for the English market, together with considerable lumber, siding, etc., for the United States trade, their annual output being about 50,000,000 feet.

The company operate two mills on the Ottawa river at Hull, just across from the city of Ottawa. One is 85 x 135 feet in size, water power, driven by two "New American" water wheels. The machinery comprises three band saws, a Wicks gang, two double edgers, two pair double butters, with live rollers, log turners, transfers and other necessary equipment to accompany same.

In the re-sawing mill is a double edger, re-sawing band mill, butting saws, small splitting saw, etc.

The system of transfer rolls for transferring lumber from the gangs to the butters effects the saving of several men, and the mill is considered one of the most modern in the Ottawa district. Its capacity is 265,000 feet per day. A large power pump has lately been put in, to gether with 1,400 feet of 2½ inch standard hose for fire protection.

The other mill is 95x120 feet in size, with wing 50x40 feet. Power is furnished by three Rose and two Lamb water wheels, with four central discharge wheels for running edgers and butting saws. Three gang saws, one Yankee gang, two edgers and two butting saws, with tables, comprise the principal machinery. The capacity is 200,000 feet in ten hours.

The mills are lighted by 40 arc lights, furnished by three Weston dynamos, one of 20 and two of 10 lights. The sawdust is destroyed by burners.

BRONSONS & WESTON LUMBER COMPANY.

By an act of the parliament of Canada was incorporated the Bronsons & Weston Lumber Company, Limited, of which the Hon. E. H. Bronson is president and general manager, and Mr. L. Crannell secretary-treasurer. They operate two saw mills and a shingle mill, all water power, with a capacity of 300,000 ft. in ten hours, and own large limits located some distance up the Ottawa. The larger mill contains one band saw and six sets of gang saws, while in the smaller mill are three gang saws, in addition to the ordinary trimmers, butters, edgers, etc. The average output is about 75,000,000 feet per year, principally for the United States market. In this respect they differ from many of the other mills, which manufacture deals for the British market. This firm employs over four hundred men at the mills, exclusive of those engaged for the woods each winter. Their mill and yards are lighted by twenty-five arc lights.

GILMOUR & HUGHSON.

Of the firm of Gilmour & Hughson, Mr. John Gilmour is president and Mr. W. Hughson vice-president. The firm own large limits on the Gatineau river and three large saw mills, the largest being situated at Hull, on the Ottawa river, and the two smaller ones at Chelsea, about eight miles up the river. The mill at Hull has a capacity of 250,000 feet per day, and is 180x80 feet, with additional sorting tables on each side. Steam power is used, there being two Goldie & McCulloch engines of 500 h. p. each, and ten boilers with a total capacity of 1,500 h. p. The mill comprises two band saws, with steam feed, a gang saw, pair of twins for slabbing small logs, steam crane for lifting logs for gang, steam rollers, steam flippers, two slash tables, five saws in each, for butting slabs, two sets of trimmers, and two double edgers. Down stairs are located the lath, picket and shingle mills of large capacity. Throughout the mill are live rollers for conveying the stock.

The chimney is of brick, 13 feet base and 8 feet top, with flue 5 feet square inside. Its height is 160 feet, with smoke-stack 103 feet high and 54 inches diameter.

As the lumber comes from the mill it is placed on rollers and then loaded on cars in a unique manner by means of a swing table. Forty cars are required for hauling lumber from the mill to the yards, which comprise about sixty acres.

From their limits the logs are brought down the Gatineau river to the mill and drawn up on a logway by an endless chain. As the logs enter the mill they are counted by an automatic device, the invention of Mr. John Craigie, mechanical superintendent. Sawdust is used for fuel, being conveyed to the boilers by carriers. The mill is lighted by an electric light plant, the dynamo having a capacity of 150 lights of 16 c. p. each, driven by a 30 h. p. engine.

At Chelsea the two mills have a combined capacity of about one-third greater than the mill at Hull. They are driven by water power. The firm have a large lumber yard at Ironsides, the lumber from the Chelsea mills being conveyed to the yard by means of a water flume or spout 3½ miles long, 2 feet wide and 20 inches deep. They manufacture largely for the American market, their deals going to Great Britain, being shipped in barges to Montreal and loaded on steamships. The ends of deals are sold for making matches.

R. H. KLOCK & COMPANY.

Messrs. James B. and Robert A. Klock comprise the firm of R. H. Klock & Co., whose head offices are at Klock's Mills, Ont. Besides manufacturing sawn lumber they have for many years been engaged in the square timber business, and purpose taking out a small raft during the approaching winter. Their mills are located at the following points: One steam saw mill, with lath and shingle mills and planer, at Bonfield, Ont.; one steam

quired for floating them to the mills. The business to-day is carried on by Messrs. H. F. McLachlin and Claude McLachlin, surviving sons of the late Daniel McLachlin.

THE GILLIES BROS. COMPANY.

The firm of Gillies Bros., consisting of James William, John and David Gillies, sons of the late John Gillies, of Carleton Place, Ont. (himself a prominent lumberman on the Mississippi a generation ago), commenced business at Braeside in the year 1873, buying the mills at that place, and the limits on the Coulonge river belonging to the Rev. Henry Osborne. They have since been actively engaged in the manufacture of sawn lumber and square timber.

The saw mill is situated at Braeside, on the shore of Chats lake, an expansion of the Ottawa, and three miles from Annprior. At time of purchase it had a capacity of eighty to one hundred thousand ft. per day of 11 hours, but has since been enlarged and remodelled until now the capacity is 200,000 ft. in the same time. The machinery consists of twin circulars, a 50-in. double cut gang and two band saws, with necessary steam feeds and canters, edgers, trimmers, re-saws, lath and picket machinery, etc. These are driven by a cross compound condensing engine, with cylinder of 26 and 40 in. diameter and 40 in. stroke, with a battery of eleven boilers. There is also a 25 horse power engine driving resawing machinery, and an independent engine and dynamo for electric lighting. The piling ground has a capacity of 35,000,000 to 40,000,000 ft., the lumber being piled directly from car tracks, of which there are some five miles owned by the company, and connected to main line of the C. P. R. The Ottawa, Annprior and Parry Sound Ry. also runs within two miles of the yard, with which connection will probably be made.

During the early years of the firm, square timber for the British market was extensively manufactured in addition to sawn lumber, but of late years nothing has been done in this way. During the coming winter, however, they expect to take out considerable waney square pine of large size and fine quality.

The mill has sawn almost exclusively for United States markets, but during the season just closing they have sawn largely for British markets. The seasons cut will be about 30,000,000 ft.

The firm employ some 250 men at the mills, and 500 to 600 in the woods, and have over 1,200 miles of timber limits under license, all of which is on waters tributary to the mill. In 1894 the firm was changed to a joint stock company, known as the Gillies Bros. Co., Ltd., with the four members of the original firm and four sons as the shareholders and directors, thus making three consecutive generations who have been engaged in the business.

WM. MASON AND SONS.

The present members of the above firm are Messrs. George Mason and Wm. Thos. Mason. The business was originally started by Messrs. Robert and George Mason in 1861, who ran a small dimension mill at the Chaudiere. About the year 1868 they sold the business to their father, Mr. Wm. Mason, who purchased the present site, on which he erected a small mill and conducted the business, with Mr. Robert Mason, his eldest son, as manager, until 1886, when his three sons, Robert, George and Philip N., were taken into partnership.

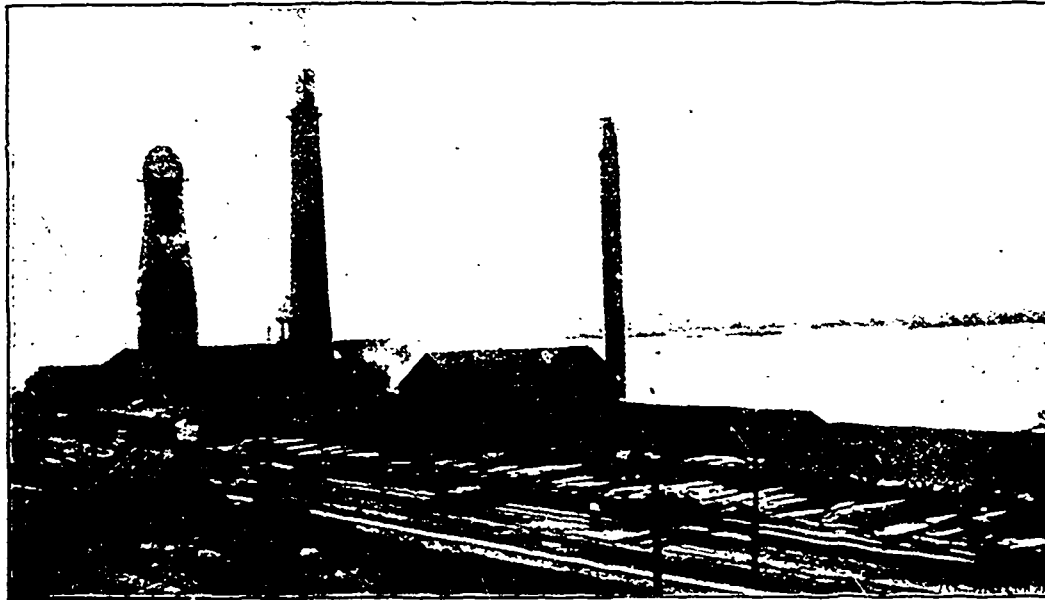
Mr. Wm. Mason died in April, 1888, and the business was carried on by the sons until November, 1889, when Robert and Philip sold their interest to George and Wm. T. Mason, who have since carried on the business. Under the present management the business has, notwithstanding the extreme dullness which has affected the lumber trade in general, been more than doubled since 1889. They manufacture dimension timber, lumber, lath and shingles.

The mill now has a capacity of from 75,000 to 100,000 feet B. M. per day, together with a daily output of 30 to 35 thousand of lath and 25 to 30 thousand of shingles.

Last year the output of the mill was about 12,000,000 ft. of lumber and timber, 6,250,000 lath and 5,500,000 pine and cedar shingles. The present season's cut will be about the same. The firm employ about 125 men and from 30 to 40 horses at the mill, and during the winter from 200 to 250 men and sixty teams of horses are employed in logging operations.

They obtain their supply of timber from their own limits, which are situated on the Madawaska and Mattawa rivers in Ontario, and the Coulonge and Dumoulin rivers in Quebec, and are in extent about 450 square miles.

The mill, of which the owners are justly proud, is one of the best equipped and most convenient in the province. The driving plant consists of four 100 horse power boilers and a 300 horse power Wheelock engine, which are contained in separate stone buildings with fire-proof doors and roof. The mill proper is a two and a half storey frame building, 73 feet wide by 140 feet long, with annex



THE GILLIES BROS. SAW MILL, BRAESIDE.

mill, with lath and shingle mills attached, and one water power mill with planer, at Klock's Mills, Ont.; one steam mill with lath and shingle mills attached at Moore Lake, Ont.; one large band and circular mill, with lath and shingle mills, at Aylmer, Que.

MCLACHLIN BROS.

The mills of the above firm are situated at Annprior, at the confluence of the Madawaska and Ottawa rivers. Here a little more than forty years ago the late Daniel McLachlin purchased the water power and 400 acres of land in the township of McNab, within the limits of which the municipality now stands. Among the first buildings to be erected by Mr. McLachlin was a water power saw mill. This was in the year 1862. A little later another mill was built, and both these mills have been running every season since without intermission. A third mill, operated by steam, was built in 1871 on the shore of Chats lake, but was destroyed by fire four years later. It has since been replaced by another, built by the present firm, while in the year 1892 a fourth mill was constructed.

The two last-named mills are equipped with every possible appliance which science has invented for the manufacture of lumber, and the quality of the manufactured product speaks well for the enterprise of the proprietors.

During the sawing season 700 men are employed, and from 900 to 1,000 are engaged in logging operations in the woods. The annual output has reached as high as 80,000,000 feet, although last season only 55,000,000 feet were manufactured. The piling ground is said to be among the largest in the world, there being ten miles of track.

The firm of McLachlin Bros. are owners of very extensive limits on the Madawaska, Bonnechere, Petawawa, Amable du Fond and Coulonge rivers, and a few years ago purchased 500 miles of virgin timber land on the Upper Ottawa. Their logs are taken a distance of about four hundred miles, and two seasons are sometimes re-

30 x 40 ft. on west side. On the ground floor in the mill are two pair of twin oscillating steam engines, which are used to drive the feed works for carriages, also two steam engines for operating the kickers which throw the logs out of the jack ladder, and another steam engine connected with a butting-off saw used for cutting the slab and other wood into shingle and lath bolts. In addition there are the shingle mill, shingle edgers, carriers and all the shafting and pulleys for driving the machinery in upper part of mill, as well as single edger, double edger, large band re-saw machine and small band-saw, all of which are in the annex, and which are used for trimming purposes.

On the first floor of the mill there are two new Allis band mills, manufactured by the Waterous Engine Works Company, of Brantford, which were put in two years ago. These mills have given entire satisfaction to the proprietors. They are driven with the rope drive instead of with belts. The log carriages were manufactured by the Wm. Hamilton Manfg. Co., of Peterboro', and are of the most improved patterns. Passing the band-saws we come to a butting-off saw, which is rather a novelty of its kind, being worked up and down by one of the steam engines referred to above. It is the only one of its kind in the district. On this saw all the slabs are cut into shingle or lath bolts or fire wood.

The timber and lumber after passing the band saw is conveyed on live rollers to the timber butting-off saws, where the timber is butted to required lengths and the long timber in lengths to suit the edger. The timber after being butted on both ends, passes on live rolls to the outside of the mill, where it is rolled down on skids to be drawn out and distributed to its proper piles, while the lumber is passed through the double edger to the butting table, where it is cut to proper lengths, and finally reaches the culling table, from which it is distributed to its proper grade.

On the second floor is to be found the filing room, also fitted with machinery furnished by the Waterous Company. Here are situated the racks for holding the spare saws, fifteen in number.

Connected with the boiler room, but in a separate fire-proof building, are situated two powerful steam pumps, which, with a third one situated in the engine room, constitute a very efficient protection against fire, being capable of throwing six heavy streams of water.

The piling grounds extend over twenty-four acres, and are well laid out and convenient. The office is a large two storey frame building, finished inside in white pine, and is situated near the mill. Mr. W. T. Mason, one of the firm, has his residence within a few yards of the office, in the centre of the yard.

In addition to the yard at the mill the firm have lately opened a yard on the Richmond road, where they carry a full stock of rough and dressed lumber, sash, doors, mouldings, etc.

MR. WM. MACKEY.

We take pleasure in presenting to our readers the portrait of Mr. William Mackey, who enjoys the distinction of being the oldest square timber dealer in Ottawa. Mr. Mackey was born in the county of Down, Ireland, and came to Canada with his father, brother and sister in



MR. WM. MACKEY, OTTAWA.

1835, settling in Perth. In 1837 he moved to Ottawa, or By-town, as it was then called. He commenced shantying in 1841, and in 1843-4 went into business on his own account, taking out his first raft of square timber on Mackey's creek, Madawaska river. At that time lumbering was far different from what it is at present; there were no improvements on the Madawaska, and it was quite difficult to get timber to market. All supplies were taken up the rivers in canoes, towed up the rapids, and carried over the difficult places or portages on men's backs with tump lines. Driving the timber down the chutes of the Madawaska river in the spring of the year was then pretty dangerous, and often resulted in loss of life—this river being one of the roughest on the Ottawa. Mr. Mackey has been principally identified with the square timber business, this being his fifty-third year in succession of making timber for the Quebec market, where his mark "W. M." and the quality and manufacture of his timber is well known, as well as in the English market.

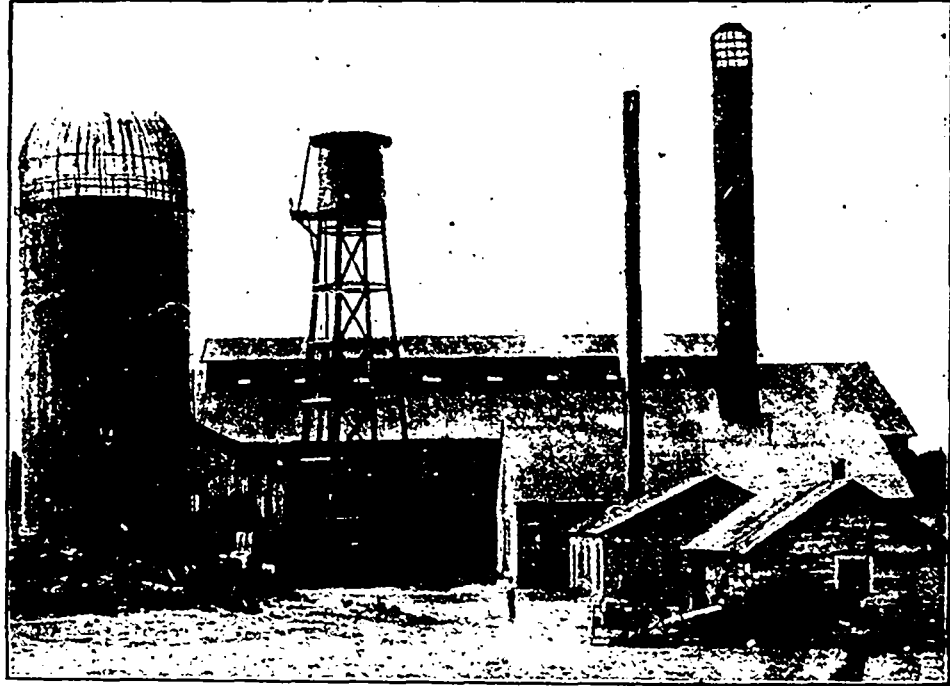
GILMOUR & COMPANY'S MILL AT CANOE LAKE.

Just as we are going to press the following description comes to hand of the new mill recently completed at Canoe Lake by Messrs. Gilmour & Company, of Trenton, and which is referred to on another page:

The new mill is located in the heart of the limits purchased by the company in the townships of Peck, Hunter, and McLaughlin, Nipissing district. Operations were started on the first of March, 1896, and on the sixth day of June following the first lumber was sawn, although the regular night and day sawing did not start until June 29th. The mill is solid and substantial, and cannot be surpassed in points of excellence and lumber saving facilities.

Situate at Canoe Lake, on the line of the Ottawa, Arnprior & Parry Sound railway, it is in the heart of the great lumber district of the north country, and is in direct communication with Ottawa, the lumber metropolis of Canada. In less than one year a space of about 300

208 ft., with shingle mill 48 x 52 ft., and lumber shed 32 x 276 ft. The saw floor of mill is without posts, the roof being supported by a truss. The engine and boiler house is 81 x 82 ft., built of brick, stone and iron, covered by an iron roof. It contains eight boilers, 60 in. x 20 ft., each boiler having eighteen 6-inch flues. The engine is an Allis Corliss of 900 horse power. The power house is of brick, stone and iron, 24 x 56 feet, and contains one 125 horse power boiler and a 75 horse power engine, with arc and incandescent dynamos to light the mill and lumber yard. In the mill there are 300 electric lamps of 16 candle power each. The power house also contains one Worthington Underwriter pump, capable of throwing 1,000 gallons of water per minute, with four hose attachments. The fire protection is the Grinnell sprinkler system, there being over 900 sprinkler heads in the mill, supplied by a tank holding 24,000 gallons of water elevated 95 feet above the ground. The said tank is



ST. ANTHONY LUMBER CO.'S MILL, WHITNEY.

acres has been cleared up, and a substantial mill erected, with offices, storehouses, boarding and tenement houses in close proximity.

The piling grounds are excellent, being well drained, with good, solid bottom. A switch from the O. A. & P. S. railway runs directly to the mill.

The mill is erected on the shores of Canoe Lake, where an abundance of water is always procurable for fire and other purposes. Eight saw log shanties are now in active operation, as well as two board timber gangs, within a short distance of the mills. The logs after a short drive are boomed in the lake opposite the mill, and elevated to the sawing floor by improved methods, everything, in fact, being conducted on the most approved systems.

The dimensions of the mill and other buildings are as follows: Mill, 240 ft. x 56 ft., with following machinery, two band mills, one set twin circular saws, one 52-in. gang, one band re-saw, one circular splitter, two large edgers, two trimmers, two machines for making mouldings, with all necessary slash and butting saws; lath mill, 50 x 32 ft., with picket and heading machinery; sorting shed, 240 x 24 ft.; boiler house, 84 x 38 ft., with eight 46 in. x 14 ft. tubular boilers, and three 60 in. x 12 ft. tubular boilers; engine house, 51 x 28 ft., with one 750 h. p. engine, and one boiler feeder; fire engine house, 24 x 28 ft., with one Amoskeg fire engine and two hose reels, including hose, pumping house, 22 x 24 ft., with one Worthington duplex fire pump, capacity 1,500 gallons per minute, one 30 arc light dynamo, and one 40 h. p. engine; machine shop, 50 x 24 ft., containing two lathes, one bolt cutter and one drilling machine; blacksmith shop, 24 x 24 ft., containing two forges, with engine and blower; carpenter shop, 55 x 24 ft., with one Daniel planer and circular saw table; water tank, for fire purposes, with a capacity of 30,000 gallons.

ST. ANTHONY LUMBER COMPANY.

Located at Whitney, at the foot of Long Lake, 144 miles west of the city of Ottawa, is situated one of the most complete saw mills in Canada. The proprietors are the St. Anthony Lumber Company, which is composed of Messrs. E. M. Fowler, of Chicago; Arthur Hill, of Saginaw; and E. C. Whitney, manager, located at Ottawa.

The company purchased limits from Messrs. Perley & Pattee, of Ottawa, in 1892, and have since secured other limits, until to-day they possess nearly 400 square miles from which to draw their supply of logs. These limits are on the head-waters of the Madawaska and its tributaries, and are said to be among the best in Ontario. They contain a vast amount of virgin white pine. Their property at Whitney consists of some 1,800 acres.

The mill was erected in the spring of 1895, and on July 25th sawing was commenced. The main building is 88 x

also supplied by the Underwriter pump mentioned above.

In the lumber yard there are ten miles of small railway tracks to carry the lumber from mill to yard, which requires 250 lumber cars. There is also five miles of standard gauge tracks laid with 56-lb steel rails to accommodate cars to load lumber for shipment over the Ottawa, Arnprior & Parry Sound railway. The mill contains three Allis band saws and one Wickes gang, two six and one four saw edgers, and two eleven saw trimmers. The mill is supplied with all the latest and best labor-saving machinery, such as steam niggers, steam feed, steam flippers and kickers, required to handle logs and lumber.

The output of the mill is white pine lumber, lath and shingles. The capacity is 200,000 feet per day of ten hours. Over 300 men are employed at the mill, and about 500 in the woods in winter.

UPPER OTTAWA IMPROVEMENT COMPANY.

The present system of bringing the logs down the Ottawa river is said to be giving entire satisfaction to lumbermen. As soon as the logs reach the river they are handled by the Upper Ottawa Improvement Company, under the direction of the secretary-treasurer, Mr. G. B. Greene. This company holds a charter from the Dominion government and has a capitalization of \$150,000. Once the logs are delivered in the river within the company's jurisdiction, the owners are relieved of all responsibility until they reach the mill. This is the only company of the kind in Ontario which takes full charge in this manner. The cost of bringing the logs from the head of Lake Temiscamungue, a distance of over 300 miles, is about \$1.30 per thousand feet, B. M.

Some years ago several of the lumber firms owned improvements along the river and did their own driving and assorting. This system did not prove altogether satisfactory and arrangements were made that the present company should be incorporated to take over the improvements and undertake the work. The length over which the operations extend is in the neighborhood of 325 miles and from 400 to 600 men are employed. Six steel and five wooden steamers are used. All the towing, driving and assorting of the logs and timber is done at actual cost, the tolls charged by the company for the use of their river improvements, averaging about fifteen cents per 1,000 ft. B. M., being sufficient to pay for all repairs and provide an annual dividend to the stockholders.

At the beginning of the season rates for towing, driving and assorting are fixed which are known to be sufficient to cover expenses, and if at the end of the year any surplus exists, the directors authorize a reduction of the rates to the actual cost, thus securing to the lumbermen the advantage of any favourable conditions which should reduce the cost of the work.

PORTABLE SAW AND SHINGLE MILL.

The accompanying photo, No. 1, represents James Dunbar's portable saw and shingle mill on the shore of Stoney Lake, near the village of Sandridge, Ont., on 1st April, 1896. The logs surrounding the mill amount to 1,000,000 feet, and Mr. Dunbar had just started cutting on these.

View No. 2 shows the mill on the 1st of July following. The entire 1,000,000 feet of logs had been cut up and piled in the shape of lumber on three long sidings to the right of the mill, not all shown in the photo. The logs in the foreground are a portion of a raft that was towed across the lake, and are not the same as were taken in the first view.

The above work was done by a Waterous portable saw mill, consisting of a 35 h. p. return tubular fire-box boiler



JAMES DUNBAR'S SAW AND SHINGLE MILL.—VIEW NO. 1.

on wheels, and a 30 h. p. engine, connected to a set of saw irons, bull wheel, single edger, slab saw and shingle machine.

The building, it will be seen, is only a temporary structure, as the mill is very readily moved as occasion demands.

This is a medium sized portable mill built by the above firm, who build smaller ones down to 12 h. p., and larger ones up to 100 h. p., as will be shown by the fact that on the 13th of March last they received a cable from England closing for one of their largest portable saw mills for South Australia, including a 70 h. p. engine with locomotive boiler, heaviest saw frame with top saw attachment, taking a 72" lower saw and 40" upper saw, and girder steel carriage to carry logs 6 ft. diam., 25 ft. long, of the heaviest hardwood, the carriage being actuated by steam feed. On the same day, we are informed, they sold one of their smallest portable outfits for mule back transportation to the mining districts of British Columbia.

OTTAWA LETTER.

[Regular Correspondence of the CANADA LUMBERMAN.]

By the courtesy of the United States Consulate-General a comparative statement of the value of forest products shipped from Ottawa to the United States for the quarter ending September 30th, for the years 1894, 1895 and 1896, is given below. These figures do not include any shipments less than \$100 in value, the aggregate of which, consisting of hop poles, telegraph poles, tan bark, pulp wood, railroad ties, etc., is considerable.

SHIPMENTS FOR QUARTER ENDING SEPTEMBER 30TH.

PRODUCT.	1894	1895	1896
Sawn lumber.....	\$610,511.36	\$651,057.22	\$572,105.36
Lath and shingles.....	16,648.02	24,908.55	34,377.86
Pickets and piling.....	3,107.84	3,406.77	4,660.66
Sulphite pulp.....	29,511.17	14,428.94	8,039.53
Pulp wood.....	4,167.20	1,491.00	297.00
Railway ties.....	.....	3,307.30	222.70
Slats.....	.....	3,807.27	.....
Logs and timber.....	.....	1,587.26	5,245.81
Match blocks.....	.....	.....	731.25
Total.....	\$702,625.29	\$714,075.35	\$526,349.68

A slight reduction in the value of sawn lumber exported to that country is shown by the above statement, and an increase in lath and shingles and logs and timber.

The report of Mr. McGrady, Crown Timber Agent for the Ottawa district of Quebec, shows a small increase in the quantity of logs and square timber taken from his territory during the season of 1895-96 as compared with the

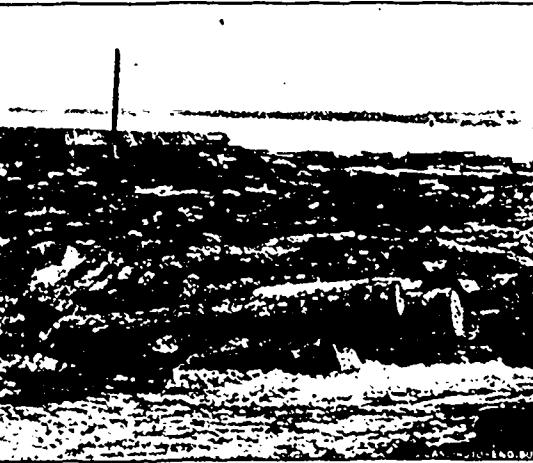
previous year. There were fewer logs, but a greater quantity of square timber. The number of logs was 2,800,000, averaging a little over 100 feet each, which represents a total of 300,000,000 feet.

A fortnight ago Mr. J. R. Booth entertained about one hundred senators and members of the House of Commons to a dinner and trip out to the end of the Ottawa, Arnprior and Parry Sound Railway. The party went to Potter Lake in Algonquin Park, eighty miles from Parry Sound. On the return home speeches were made by Mr. John Charlton, M. P., Sir Henry Joly and others.

INDIFFERENT LENGTHS.

Mr. John Gilmour, lumberman, has purchased the residence owned by Judge Ouimet, ex-minister of public works, for \$12,000.

Mr. J. H. Thompson recently returned from Bay City,



JAMES DUNBAR'S SAW AND SHINGLE MILL.—VIEW NO. 2.

Michigan, where he has been during the past summer, looking after the lumber interests of Mr. J. R. Booth.

It is probable that the saw mills will be kept running until late in the season.

OTTAWA, Ont., Oct. 26th, 1896.

NEW BRUNSWICK LETTER.

[Regular Correspondence of the CANADA LUMBERMAN.]

The announcement that the Dominion government had decided to grant subsidies for direct steamship service from St. John to London, Glasgow, Belfast and Dublin was learned with much satisfaction. It is intimated that the Beaver line will make more than fortnightly trips to Liverpool, and the Furness line steamers will sail fort-



JAMES DUNBAR'S SAW AND SHINGLE MILL.—VIEW NO. 2.

nightly for London, and will carry five thousand tons freight. The Donaldson line will run to Glasgow and the Head line to Dublin and Belfast. Thus lumbermen will be enabled to place regular lots of goods upon the English market during the winter.

Recent floods in the vicinity of Sussex have caused much damage to mills. The boom in the river near Hampton Village gave way and the drives of C. I. Keith and Andrew McAfee have gone adrift. The saw mill of James A. Moore, at Waterford, was swept away and completely destroyed. Mr. Moore also lost a large quantity of sawn lumber and logs, his loss being estimated at \$5,000. It is rumored that he will not rebuild.

The recent rains have sufficiently raised the water in the streams for water power mills that have been idle since early last spring to resume operations. I. & C. Prescott's mill at Albert is running full time, as is also the mill of A. & G. Bray at Curryville. Each of these mills have a large quantity of logs in the stream for sawing.

Lumbering operations in Albert county this season will be conducted on a larger scale than last year. John F. Milton has bought up a large amount of timber in the vicinity of the shiretown, and will operate very extensively there this winter. It is said there will be at least four mills at work at the Cape the coming season.

BITS OF LUMBER.

George Vaughan, of Sussex, has purchased the old Stewart mill at Black Brook, Miramichi, and will operate it next season. He has contracted with Mr. Welch to get out 9,000,000 logs this winter.

The G. & G. Flewelling Co., of Hampton, have their saw mill illuminated with a 175 light dynamo. The plant was supplied and installed by James Hunter, electrician, of St. John.

ST. JOHN, October 24, 1896.

BRITISH COLUMBIA LETTER.

[Regular Correspondence of the CANADA LUMBERMAN.]

The Central Lumber Company is now receiving more than its share of attention, in view of the steps taken by one of its members and the near approach of the time when re-organization for a period of five years was to be effected. The object of the combine, as has been before pointed out, was to handle the foreign trade, the business to be given to each mill to be regulated by the capacity of the mills, a proposition being made on the basis of the maximum output. Mr. James E. Bell, of the Everett mill, became dissatisfied with the amount of business allotted to him, and withdrew from the organization. He shipped two cargoes of lumber to San Francisco, consigned to the Everett National Bank, both of which were attached by the combine and held. The bank commenced action in the courts, and it is said the case has never yet been settled. At the annual meeting of the association held at San Francisco, a fair representation from both British Columbia and Washington was present. An effort was made to effect a settlement, and a committee was appointed to suggest a plan of re-organization that would harmonize all interests concerned and promote the welfare of the combine. The lumbermen who do business on a commission basis also offer strong opposition to the organization, and developments of a startling nature may be looked for in the near future.



JAMES DUNBAR'S SAW AND SHINGLE MILL.—VIEW NO. 2.

For a month past forest fires have been raging along the Skeena and Naas rivers, and several mining settlements are said to have been wiped out. The loss to standing timber is already considerable, while fears are expressed that several prospectors have perished.

Blue & Fisher, saw mill, have amalgamated with A. R. Tillman, of Greenwood, under the name of the Boundary Creek Milling & Lumber Co.

Gennelle & Co., of Revelstoke, are about to build a large mill at Arrowhead, which will have a capacity of from 75,000 to 100,000 feet per day. They will also add a sash and door factory next summer.

NEW WESTMINSTER, B. C., October 20, 1896.

QUEBEC

AREA OF FOREST LANDS YET UNLICENSED. LOCATION OF THE VARIOUS CLASSES OF TIMBER. STATISTICS OF THE PORT OF QUEBEC. THE ST. MAURICE RIVER A GREAT LUMBERING CENTRE. REPRESENTATIVE MILLS.

WHILE the white pine forests of Quebec possess the greatest wealth in proportion to their extent, the spruce forests are rapidly becoming more valuable from a commercial point of view. The pine forests of this province have been denuded of their timber to a greater extent than is the case in Ontario, but nevertheless there still exist considerable quantities both of the red and white variety, principally located in the Ottawa valley. The valley of the St. Maurice river once contained valuable pine forests, but spruce now furnishes the principal source of wealth. The spruce forests, which are being more and more exploited every year, extend much further eastward than the pine, and beyond the St. Maurice valley and south of the St. Lawrence are found the largest trees.

A report issued by the Quebec Crown Lands Department in 1893 gives an estimate of the quantity of timber lands yet unlicensed. According to this report, the total area of Government lands still vacant and not yet under license to cut timber, as well as can be ascertained (the northern boundary line being assumed to be for the present at the height of land, a line which is extremely irregular and geodetically determined at a few points only) is certainly not less than 75,000,000 acres, or 117,187 square miles, of which say 45,000,000 acres may be deducted, being

Excellent spruce, and in quantity, is to be found in the St. Maurice, Saguenay, Lake St. John, Rimouski, Bonaventure and Grandville agencies, as well as tamarac and cedar, the latter being notably good and abundant in the three last named localities.

Tamarac is spread evenly all through the divisions just mentioned. White birch is met with everywhere, but is particularly plentiful in the St. Maurice valley and the Saguenay and Rimouski districts. Cypress, scrub pine (Banksian pine), predominates in the Saguenay region. According to the surveyors' reports, this timber (which is well adapted for railway ties) covers the extensive tracts of land watered by the Peribonka, Bersimis, Aux Outardes, Manicougan rivers and tributaries.

Moreover, all through the immense tracts of country just described, an unlimited supply of poplar, spruce and other soft woods can be found, especially suited for the manufacture of pulp. In fact, on this pulp-wood trade, which is yearly taking greater proportions, most probably depends the best future prospects of a great portion of these back regions.

The right to cut timber in the province of Quebec is disposed of at auction by the Government, the licenses being subjected to a yearly ground rent of \$3 per square mile, together with the Crown dues. The receipts derived from timber dues, bonuses, ground rents, etc., for the year ending June 30th, 1895, were \$772,355.56.

In the province of Quebec are situated two of the most important shipping ports of the Dominion, viz., Montreal and Quebec. In earlier years, so far as the shipment of forest products was concerned, Quebec was the most important port, but with the construction of railways and the gradual cutting away of the forests came a revelation in this connection, until to-day the greater portion of deals and lumber is loaded upon the steamers at Montreal for shipment across the Atlantic. Quebec has, however, maintained her position as the shipping port for square timber. Below will be found some interesting statistics bearing on the timber trade of this port:

EXPORTS FROM PORT OF QUEBEC.

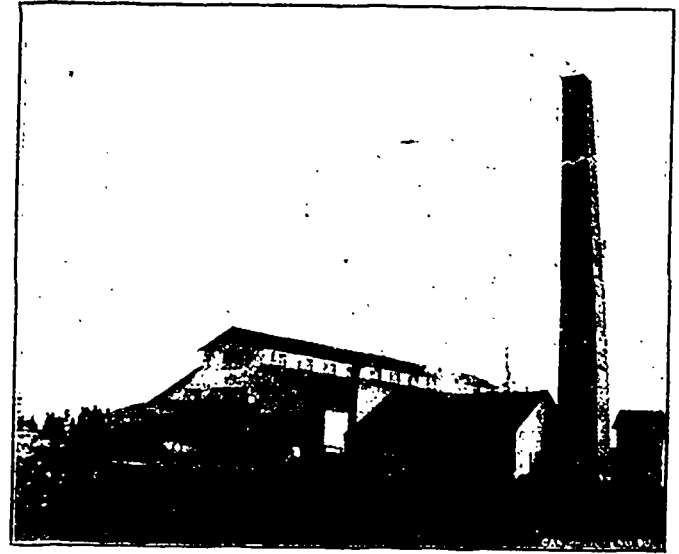
	WHITE PINE. Cub. Ft.	RED PINE. Cub. Ft.	OAK. Cub. Ft.	ELM. Cub. Ft.	ASH. Cub. Ft.
1890	5,498,380	355,520	1,119,160	530,260	15,280
1891	4,715,120	249,350	897,280	675,800	130,320
1892	5,300,440	379,680	1,127,580	637,800	177,880
1893	4,092,280	312,670	1,013,160	421,840	168,840
1894	3,468,600	146,120	937,840	528,880	134,920

	BIRCH. Cub. Ft.	PINE DEALS. Quebec Stds.	SPRUCE DEALS. Quebec Stds.
1890	493,740	1,075,992	3,975,576
1891	148,320	704,472	2,280,409
1892	345,840	361,045	3,629,783
1893	121,480	728,300	3,540,000
1894	189,920	479,700	3,462,800

STOCKS WINTERING AT PORT OF QUEBEC.

	WHITE PINE. Cub. Ft.	OAK. Cub. Ft.	RED PINE. Cub. Ft.	ELM. Cub. Ft.	ASH. Cub. Ft.
1890	8,327,842	753,566	612,918	459,501	99,383
1891	4,992,578	520,040	348,145	102,608	21,357
1892	4,452,660	291,541	359,455	181,811	49,000
1893	3,762,217	376,141	339,789	391,452	56,761
1894	3,207,564	699,205	282,084	244,145	99,659

	BIRCH. Cub. Ft.	PINE DEALS. Quebec Stds.	SPRUCE DEALS. Quebec Stds.
1890	13,752	246,015	774,020
1891	13,177	274,782	1,119,950
1892	45,593	142,633	579,588
1893	29,245	145,916	844,718
1894	13,242	63,624	579,774



THE WARREN CURTIS SAW MILL, THREE RIVERS.

TONNAGE ENTERED AND CLEARED AT PORT OF QUEBEC.

	OCEAN STEAMERS.	NO. OF STEAMERS.	SAILING VESSELS.	NO. OF VESSELS.
1890	642,874 tons.	341	320,093 tons.	381
1891	623,858 "	313	233,327 "	252
1892	753,379 "	379	307,301 "	346
1893	835,876 "	415	190,418 "	211
1894	779,944 "	368	163,297 "	191

	FIRST ARRIVALS FROM SEA.	LATEST SAILINGS.	LENGTH OF SEASON OF NAVIG'N.
1890	April 29	November 25	211 days.
1891	" 27	" 20	217 "
1892	" 27	" 24	215 "
1893	May 6	" 22	217 "
1894	April 26	December 5	226 "

A correspondent at Quebec, under date of 15th October, sends us the following letter relating particularly to the various coves at that port:

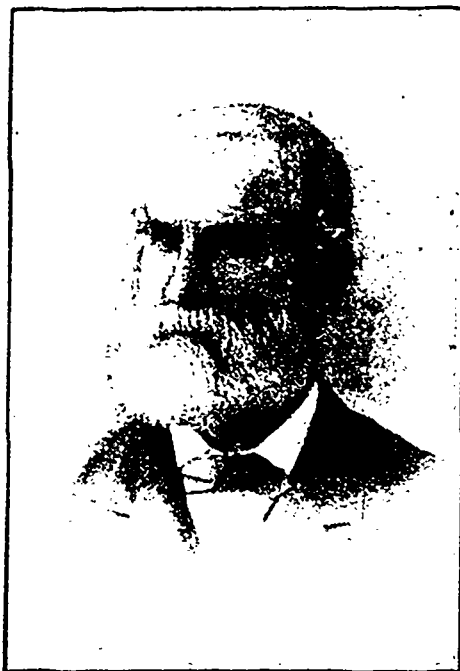
Any lumberman coming to Quebec now, during the season of navigation, will express surprise at the unusually small quantity of timber (particularly pine) in the different coves. Starting at Cap Rouge, I am sure many of your readers will remember the number of rafts which formerly moored here every summer, in the booms of the Cap Rouge Pier & Wharf Co., while this season, at the present moment, there is not a raft intact, and in fact very few sticks of timber in the whole cove. Of course, almost all the wood which came into Cap Rouge cove in former years was from the Ottawa district, and as the production last winter in that locality was exceedingly limited, this to some extent accounts for the scarcity of stock in the cove.

The next cove on the way down to the city is Victoria cove, and here there is not even a boom to be seen, the wharves all going to ruin.

Next come Bridgewater and Safety coves, owned and operated by the Messrs. Sharples, where a brisk business was done this season.

Rings' End cove, a commission boom, owned and operated by Messrs. A. H. Falardeau & Co., comes next, and contains at present a very small stock of oak, etc.

New London cove is next in order, and here the large



HON. J. K. WARD,
Proprietor Mono Saw Mills, Montreal.

destitute of timber, leaving 30,000,000 acres still untouched and to be disposed of for the requirements of the future. Of the above superficies three to four million acres may be safely computed as pine growing. The remainder is chiefly covered with spruce, cedar, tamarac, white birch, cypress, maple and birch. The above named species in the order where they each predominate may be distributed as follows:

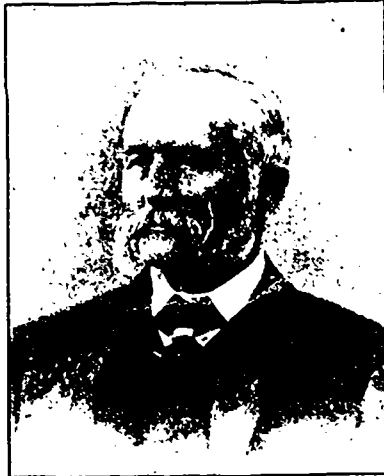
Pine in the Lower Ottawa and St. Maurice agencies, but principally in the Upper Ottawa valley.

shipping operations of Messrs. McArthur Bros., Ltd., of Toronto, are conducted. A very considerable quantity of timber and deals are shipped out of here annually to the English markets, and consequently over a hundred men are kept almost constantly employed during the shipping season.

Another commission cove is operated by Mr. James Timmoney, under the business title of M. Stevenson & Co. This firm handle a considerable quantity, chiefly for Messrs. W. & J. Sharples and Messrs. Dobell, Beckett & Co.

Messrs. Dobell, Beckett & Co.'s large cove property, known as LeMesurier's cove, is next in order, at which the largest export business of the port is conducted. At present there is a very large stock of pine and oak in this boom, while the shipments during the present season by this firm have been exceptionally large.

Messrs. W. & J. Sharples' Silery cove adjoins the former, where a very large business is also done. They



MR. ROBERT REFORD,
President Charlemagne & Lac Ouareau Lumber Co.

have deep water piers opposite their booms and bring their ships up there to load.

Bowens' cove, operated by Messrs. Dobell, Beckett & Co., is the cove below that of Messrs. Sharples, and opposite their booms there are also deep water piers, where their vessels take in cargo. At the blocks of the two last-named firms there are at times six or seven large ocean steamers and as many more sailing vessels taking on board wood goods at one time.

Following down from here come the following cove properties: Point-au-Pizeau, St. Michael's, Woodfield Harbour, Spencer, Wolfe's, Ottawa, and Hall's Booms, the whole covering a distance of about two miles, none of which are now being worked, even the booms not having been put out for two or three years. All these beach lots, which a few years ago were covered with timber, are now lying waste. One of the coves was bought for \$1,000 a few years ago, and now the owner cannot get it off his hands at any price. For another of these vacant coves \$60,000 was asked some ten or fifteen years ago, but to-day the houses on the property are being sold as fire-wood, some of them scarcely realizing the paltry sum of \$10.

The foregoing covers all the cove property on the north side of the St. Lawrence.

On the south shore New Liverpool cove is the furthest west, and is the property of Mr. E. Harper Wade. These booms have not been worked for some few years, but there are several good deep water piers, where Messrs. McArthur's vessels take on cargo.

Hamilton's cove has not been in operation for a number of years.

A very large quantity of deals piled on several wharves come next, and these are from the mill of Mr. Henry Atkinson, at Etchemin.

The Edson Fitch Co.'s splint factory is close by, at which a very large trade is done. The A. Gravel Lumber Co., whose large attractive mill is admired by all, are also doing a brisk business. This latter firm also ship largely to the American markets.

Messrs. King Bros. and Price Bros. have wharves on this side of the river, but these firms' operations are carried on, to a very large extent, at St. Thomas and in the Saguenay district, respectively. Their shipments are chiefly spruce deals. The head offices of both firms are in Quebec.

Indian cove east is now operated by the Indian Cove Co., composed of the Messrs. Kennedy and others, and a large business has been done this year. A large number of steamers take timber and deals here for different shippers. The Head Line boats, running between London and Belfast to Quebec, Three Rivers and Montreal, take portions of their cargo at this point on every trip.

Shipments of all descriptions of wood goods from Quebec this season were very large, the demand in the European markets being brisk, and the prices fairly good. Freight, however, since early in September, have taken an upward tendency, and 60s. per St. Petersburg standard is now being paid to Liverpool, and 50s. to 55s. to Glasgow

and London. The exceptionally large quantity of grain, apples, cheese, etc., now offering is the cause of this, and as this class of cargo seems to pay the steamers better than deals or timber, they, of course, only take wood goods when there is no general cargo offering. Shipments of timber and deals, therefore, for the balance of the present season will be very limited.

MONO SAW MILLS.

The connection of the city of Montreal with the lumber business is chiefly as a shipping port for the products of the Ottawa valley. There is, however, at least one saw mill of considerable importance, known as the Mono Saw Mills, and owned by the Hon. J. K. Ward. It is located on the Lachine canal, about two miles from the centre of the city. Mr. Ward's limits are situated along the river Rouge, a tributary of the Ottawa. The logs are rafted at the mouth of the Rouge in cribs, and come down the Ottawa river to Lachine, being towed down the canal by steamers.

The mill building is 78 x 50 ft., with wings, the engine and boiler house being a two-storey structure 50 x 30 ft., with brick chimney 120 feet high. The yard covers an area of ten acres. The principal lumber manufactured is pine and spruce.

The mill is equipped with three circular saws of most modern design, steam feed, and all necessary saws for butting, edging and lath and shingle making.

Power is furnished by a high pressure engine of 150 h.p., 20 inch bore, 20 inch cylinder and 3 ft. stroke. The three tubular boilers are fed automatically by iron hoppers above, sawdust being used for fuel.

The product is disposed of in the United States, British and local markets. In addition to the lumber manufactured at the mill, Mr. Ward purchases a considerable quantity in the Ottawa district, his annual transactions averaging from fifteen to twenty million feet.

The Hon. J. K. Ward, whose portrait may be seen on the previous page, was born in the Isle of Man in 1819. He served as a carpenter for some years, and in 1842 emigrated to the United States, and shortly afterwards entered into business at Troy, N. Y., purchasing a planing mill, which he successfully conducted until 1853, when he removed to Canada. After prospecting for a time, he purchased a mill property on the Maskinonge river, in the province of Quebec, where he spent ten years. In 1863 he moved to Three Rivers and took over the property of Norcross, Philips & Co., which he afterwards sold to an American firm, and commenced business at his present stand. Mr. Ward has always taken a deep interest in the question of forestry.

THE ST. MAURICE RIVER.

The St. Maurice is a noble river, in every respect a worthy tributary to the grand St. Lawrence. In this practical age, however, its beautiful scenery and the allurements it possesses for sportsmen are overshadowed by the fact that it is pre-eminently a great lumber highway. It drains an area of 16,000 square miles, which is almost wholly a forest region. The number of logs cut last year on the St. Maurice and its tributaries was 1,500,000. The Government owns slides, retaining booms and piers along the river to the value of \$400,000,



CHARLEMAGNE & LAC OUAREAU LUMBER CO.'S MILL.

each company paying their proportion of slide and boom dues.

The first large plant on its course is that of the Laurentide Pulp Co., at Grand Mere, where the pulp output is 65 tons per day. Their yearly cut of logs is some 280,000, principally spruce. Apart from that amount the total cut along the river is driven to the mouth of the river, where it is disposed of by the trio of large saw mills at Three Rivers.

The Warren Curtis mill, of which Mr. F. F. Farmer is agent, is a modern mill, designed and built by Mr. S. W. Butterfield, who is the mechanical superintendent. A view of same appears on the opposite page. The mill has two band saws and a gang saw, and has a capacity of 100,000 ft. per day of ten hours. The cut is about 200,000 logs per season, two-thirds being pine and the balance spruce. The lumber is principally sawn into deals for the English market, the sidings going to the

United States market. Some 40,000 spruce logs are sawed into two feet lengths with an improved machine, by which one man is able without assistance to haul up from the river and cut 1,000 logs per day. A chain carrier takes the blocks from saw to barkers, thus lessening the labor in handling. The barking machines have an attachment, patented by Mr. Butterfield, which facilitates the work about thirty to fifty per cent. The blocks are taken to cars by chain carriers and shipped direct to Palmer Falls, N. Y., where they are converted into paper by the Hudson River Pulp & Paper Co., of which Mr. Warren Curtis is manager. The boilers, engines and band-mills were manufactured by the Waterous Engine Works Co., of Brantford.

The St. Maurice mill, owned by the Glens Falls, N. Y., Pulp & Paper Co., is under the management of Mr. Robert Grant. It has a capacity of 100,000 ft. per day, and is equipped with Waterous band mill, two gangs and a circular. The greater part of their logs are cut into



MR. ALEX. MCLAURIN,
Manager Charlemagne & Lac Ouareau Lumber Co.

two feet lengths and shipped in the rough by barges to Glens Falls and Fort Edward, where they are manufactured into paper. They cut about 700,000 logs per season, largely spruce.

Situated on an island at the mouth of the river is the saw mill owned by Mr. Alex. Baptist, the "lumber king" of the St. Maurice. His father was the pioneer lumberman of the region, and Mr. Baptist owns a greater number of miles of limits than any other person on the river. His usual cut is somewhere about 300,000 logs a season, of pine and spruce. The mill is provided with two slabbing gates and two gangs, running day and night through the season, the capacity per twenty-four hours being 100,000 ft. The output is principally deals for the English market.

The lumbermen of the St. Maurice expect to do about the same amount of business this coming winter as was done last year.

CHARLEMAGNE & LAC OUAREAU LUMBER CO., LTD.

The limits of this company are situated in the counties of Joliette, Montcalm and Berthier, in the province of Quebec, and comprise about 600 square miles of timber, composed largely of spruce, pine, birch, hemlock and ash. The number of men employed during the past season was 250, while the output is about 30 million feet, the bulk of which is shipped to Great Britain and the United States.

The principal mill is located at Charlemagne, some 12 miles below Montreal, at the junction of the L. Assomption, Ottawa and St. Lawrence rivers, and is shown by the accompanying illustration. It is operated by steam power, being equipped with 2 Prescott band mills, a gang and twin circular saws, cutting about 2,000 logs per day of 11 hours, or nearly 3,000 logs per day with band saws running at night. It is lighted by electricity, and a day and night gang have been working steadily for the past two or three months. This mill is considered one of the most modern and complete of its kind in the country.

They have also a fine water power lumber mill at Montcalm, where they engage in the manufacture of clapboards for the American markets, also at Montcalm a stone flour mill and a mill for cutting farmers' logs and lumber for local wants.

The company own the powerful tug "Charlemagne" and a number of barges, and owing to the close proximity of their Charlemagne mill to Montreal, lumber can be brought up to the city in a few hours.

The company are going largely into the manufacture of dressed spruce lumber, feeling sure that the demand for same will keep on increasing yearly.

The president of the company is Mr. Robert Reford, of Montreal, senior member of the firm of Robert Reford & Co., large shipping agents and owners. Mr. Reford is also president of the Mount Royal Milling & Manufacturing Co., of Montreal and Victoria, B. C., and a director of the Bank of Toronto.

The manager is Mr. Alexander McLaurin, formerly of

East Templeton, who is well known to the lumber trade throughout the country. Portraits of both these gentlemen are presented on the previous page.

THE CHAUDIERE MILLS.

Of the gigantic saw mills which once existed in the vicinity of Quebec city, few now remain, the denudation of the forest having necessitated their removal to the more densely timbered districts. One of the old establishments which is still to be seen is the Chaudiere Mills, which were built in 1845 by the late H. D. Breakey, on the banks of the Chaudiere river. The present proprietor is Mr. John Breakey, who has become renowned as a manufacturer of spruce lumber for export. Mr. Breakey's limits are located about ninety miles from the mills, and while spruce timber predominates, there are also to be found a fair quantity of pine and cedar.

Although the mill is of ancient design, its equipment enables the proprietor to manufacture a good quality of lumber at a minimum of cost. The village in which it is located is called St. Augustin. At this point the river is divided by an island of trees. On the east side a channel one thousand feet long retains the water and drives it into a narrower channel, where are the sluices or flood-gate of the mill. Power for the mill is furnished by four horizontal turbines, two of 100 h. p. each, and two of 50 h. p. each, and two Rose wheels of 75 h. p. each. The logs are first delivered to a pair of twin circulars, after which the lumber is cut to the necessary length by another circular. The capacity of the mill is about 200,000 feet per day of twenty-four hours, the average yearly output being thirty-three million feet. This is manufactured almost exclusively for export, and consists of deals, boards, planks, laths, telegraph and telephone poles, etc. During the sawing season over two hundred men are employed at the mill, while the logging operations give employment in the winter to 600 men.

A railway six miles in length is owned by Mr. Breakey, which intersects the Grand Trunk and Intercolonial railways, and extends to the dam of the Chaudiere. There the lumber is conveyed, by three slides of 350 ft. fall, onto two wharves level with the water, from whence it is loaded on the steamers for shipment.

The mill and premises are lighted by an electric plant, comprising 225 Edison lamps of 16 candle power each, at 110 volts, and 4,000 feet of wire. Mr. George Breakey, a brother of the proprietor, is the owner of the store in connection with the mill, and Mr. D. Breakey is accountant.

J. BURSTALL & COMPANY, QUEBEC.

The Burstall firm is one of the oldest engaged in the export of wood goods from Canada, having been established in the City of Quebec by the late Henry Burstall in the year 1832, 64 years ago. He came from Hull, England, and was shortly afterwards joined by his brother Edward. The business was carried on for many years under the firm name of H. & E. Burstall. Upon the retirement of Mr. Henry Burstall in 1856 it was changed to E. Burstall & Co. In 1857 Mr. John Burstall, a nephew of the brothers, was admitted a partner, and when a few years afterwards Mr. Edward Burstall retired, it was again changed to J. Burstall & Co., and has so remained ever since.

About the year 1863 Mr. H. Stanley Smith, of Liverpool, joined the firm and remained a partner for some ten or twelve years, when he retired. Mr. W. H. Robinson then became a member as representing Messrs. Harrison, Robinson & Co., of Liverpool. Mr. Robinson died in 1876, and the following year Mr. F. Billingsley, for many years in the employ, was admitted into partnership, along with Mr. H. T. Walcot, who remained in the firm for ten years. Mr. John Burstall, who had been head of the firm, for some 35 years, died in England on the 26th Feb'y. last.

The business is now conducted by Messrs. F. Billingsley, who has been connected with it for over forty years, and John F. Burstall, a son of the late Mr. John Burstall.

The firm has a branch office at Montreal, and another in London, England. For more than half a century they have done a large annual export trade, and before the advent of steam carrying trade, for a long series of years exported annually to Great Britain from 100 to 200 cargoes of timber and deals. Since the introduction of steam a large portion of the business is done at Montreal.

SUCCESSFUL TIMBER CULLERS.

The following is a list of successful candidates at the examination of timber cullers held at Quebec on the 15th of September last:

F. N. Ritchie, Moose Parke; S. C. Knowles, Forestdale; Geo. R. Johnson, St. John, N. B.; Malcolm McCallum, Charlemagne; E. A. Belisle, Garthley; Alfred Pepin, Lake Megantic; Patrick J. McNeuley, Montreal; Joseph Lachapelle, Les Dalles; Philip Giroux, Three Rivers; John A. Richardson, L'Orignal, Ont.; Thodeule Rene, Drummondville; Joseph Palmer, East Angus; G. Honore Fournier, St. Jean Port Joli; Joseph Hamel, Lake Megantic; Fred'k. Hy. Stevens, Charlemagne; Donat Brassard, Chicoutimi; L. N. Towers, R'vier du Loup; Jas. T. Eardley, Sellery; Edward Laplante, Three Rivers; Joseph Roy, Lake Megantic; Edward Gobeil, St. Alexis, Chicoutimi; Edward E. Moore, Lake Megantic; John D. Roche, North Wakefield; Casimir Samson, Lauzon; Leon Terrein, Amqui; Lewis Hall, Beconcourt; Munroe McLaren, St. Etienne du Saguenay.

If you have been intending to subscribe for THE LUMBERMAN, but have been putting it off, put your intention into practice to-day.

THE NEWS.

—The Price mills at Chicoutimi, Que., have closed down for the season.

—Rainville & Son are building a steam saw mill at Sherbrooke, Que.

—J. Matchett, Orrville, Ont., has completed improvements to his saw mill.

—Ross Bros. are building an extension to their mill at Buckingham, Que.

—A new planing mill will be erected at Georgetown, Ont., by J. C. Drinkwater.

—Alvin Mitson will put a new engine and boiler in his saw mill at Cherry River, Que.

—The Hawkesbury Lumber Co. are rebuilding their picket mill at Hawkesbury, Ont.

—Mr. Louis Bouchard, Bay St. Paul, Que., has commenced the construction of a steam saw mill in that locality.

—C. T. Wolfe, of Point Wolfe, N. B., has recently placed a new water wheel in his saw mill and made other improvements.

—The Katrine Lumber Co. has issued writs against several insurance companies to recover \$39,000 insurance on their mill recently burned.

—Prof. Macoun, of the Geological Survey, Ottawa, recently delivered a lecture in the Y. M. C. A. hall, Ottawa, on "The Forests of Canada, their Extent and Importance."

—The partnership existing between Hanbury & McNea, lumber and planing mill, Brandon, Man., has been dissolved. The business will be continued by Mr. Hanbury.

—Thos. Robinson, of Newbury, Ont., is offering for sale his saw mill and property in connection therewith. The mill is a 60-inch circular saw, with edging and butting saws, stove machinery, etc.

—The incorporation of the Cascapedia Pulp & Lumber Co., with a capital of \$300,000, is announced. The promoters are J. M. Fortier, James Stubbs and Thomas Harkness, of Montreal, and Alphonse Charlebois and C. H. J. Maguire, of Quebec.

—The erection of two large pulp mills in the Lake St. John district is said to be contemplated by the Glen Falls Paper Co., of Glen Falls, N. Y. Mr. W. E. Speer, president of the company, recently examined probable sites at River a Pierre and Miquick.

—The pulp factory in process of erection at Windsor Mills, Que., comprises two large buildings, each 172 x 32 feet, situated near the dam constructed last year. They will have a capacity of sixteen tons of pulp a day, with 8,000 horse-power as a motor, and when finished will give employment to between 150 and 200 men.

—The authorities at Sault Ste. Marie, Ont., complain that the lumbermen in that district contract typhoid fever in their camps, come into the border towns and spread the contagion. The Provincial Board of Health will urge that steps be taken by the Government to erect hospitals for the benefit of the men working in the woods.

—Merritt & Hamill, who have operated a saw mill at Blenheim, Ont., for some years, have removed to the United States. Their new location is near Albany, in the state of Georgia, 160 miles south-east of Atlanta, where they have purchased timber limits. The difficulty in obtaining a supply of timber near Blenheim prompted them to take this action.

—A change is being made in the lumber firm of Hughes & Co., of this city and Souris, says the Brandon Times. J. H. Hughes takes into partnership Wm. Long, of Lincoln, Minnesota, and the new firm will be known as Hughes & Long. Mr. Long is an old lumberman of Minnesota, and brings into the new firm 2½ million feet of lumber, which is being shipped to Brandon as fast as the cars can be unloaded. Mr. Long is also a manufacturer and his plant, tugs, etc., are to be taken to the Rainy river, where they will be combined with the Hughes mill.

—In the October issue of THE LUMBERMAN it was stated that Mr. Hamilton had taken over the plant of the Imperial Lumber Company at Warren, Ont. From this the inference might be drawn that the above company were withdrawing from the lumber business, which is not correct. On the other hand, they are just completing their new mill and extending their logging railway, and propose adding a planing and matching department. The mill when completed will have an annual capacity of ten million feet, will cost \$40,000, and will be supplied with the latest and most improved machinery from the Wm. Hamilton Mfg. Co., of Peterboro'. A contract has been

given to Mr. Alex. Hamilton to take out the logs and manufacture the lumber. Mr. Hamilton was for sixteen years manager of the mill business of Irwin & Boyd, at Peterboro, and later manager for Davidson & Hay at Cache Bay.

CASUALTIES.

—Charles Campbell fell on a split pulley in Murdock's saw mill at South Indian, Ont., and was killed.

—An employee of Grandbois' saw mills at Portneuf, Que., met his death by falling across the saw.

—Mr. Gastonguay, a mill owner of Bay St. Paul, Que., was killed by the bursting of a fly wheel.

—Patrick Moran lost two fingers while feeding the planer in Sewall & Johnston's mill in North Bay.

—A man named Cantin was accidentally killed in Walsh's saw mill at Hallow, Que., by a plank striking him on the head.

David Dunham, an employee of Miller & Woodman's mill, at St. John, N. B., fell in the timber pond and broke four of his ribs.

While working in the furniture factory of Watson & Malcolm, at Kincardine, Ont., Harry Anning fell against the knife of the planer, which severed his left arm below the shoulder.

—Peter Grant, of Moose Creek, narrowly escaped death in McRae & Co.'s saw mills at Greenfield. His foot caught in a chain and he was thrown against the saw, by which his hip and leg were terribly lacerated.

—Joseph Girouard, employed in Booth's mill at Ottawa, was caught by a rolling log and pitched several feet. He fell through an opening in the floor into the mill-race, and was swept over the falls and drowned.

PERSONAL.

The death occurred recently at Petitcodiac, N. B., of Mr. Hiram Humphrey, of the firm of Humphrey & Trates, mill owners.

Mr. R. Thackray, of Ottawa, and Mr. Mitchell, of Mitchell Bros., Berkeley, Ont., returned on the 26th ultimo from England by the steamship Sardiman.

Hon. R. R. Dobell, of Quebec, with his wife and daughter, will leave shortly for Europe. They will spend a couple of months in the south of France, returning home in the spring.

Mr. Edward Haynes, Director of Wm. Rider & Sons, publishers of the Timber Trades Journal, London, Eng., is at present on a visit to Canada securing particulars of the timber trade of this country.

Mr. Alexander Mitchell, a leading timber merchant of Glasgow, Scotland, died in that city on the 24th ult. He had been engaged in business since 1845, and was well known and highly respected in Canada, the United States and Burmah.

Mr. W. R. McRossie, who has conducted a wholesale and retail lumber business at Kingston, Ont., for many years, is dead. Deceased was 57 years of age, and was a prominent citizen, representing Sydenham Ward as alderman for seven years.

The news comes to hand of the death of Mr. Bartholemew J. Driscoll, of St. John, N. B., at the age of 56 years. Deceased was a member of the firm of Driscoll Bros., ship-owners and lumber merchants, and was confidential clerk for Mr. W. Malcolm Mackay.

Mr. J. H. Walker, local manager at Toronto for the Canadian Rubber Company, of Montreal, was recently granted extended leave of absence to enable him to regain health. It is gratifying to his friends to see him, with renewed vitality, again at the post of duty.

Mr. Thomas Southworth, Clerk of Forestry of Ontario, and Mr. A. Blue, of the Bureau of Mines, recently returned from a somewhat extended tour through the north eastern part of Ontario. Mr. Southworth is contemplating a scheme for the prevention of forest fires.

Dr. Robert Bell, of the Geological Survey, Ottawa, returned a fortnight ago from a summer's exploration of the country in the vicinity of James Bay. Going by C. P. R. to Mattawa he went from this point northward a distance of about five hundred miles in a canoe. He explored Bell river, which has a course of nearly three hundred miles and is as large as the Ottawa river. The country along its banks is well wooded. Although pine is very scarce there is an abundance of other marketable woods.

Don't put off till to-morrow what had better be done to-day. Write us immediately to enroll you on the list of LUMBERMAN subscribers. \$1.00 pays the cost.

THE MARIA PULP AND LUMBER COMPANY.

THE above company have just put in operation their saw mill at Maria, Que., and the fact of it being supplied with all the latest modern appliances for the sawing and handling of lumber from the log to the pile, warrants a somewhat detailed description. There being no photographer in the vicinity, your readers will have to rely on their imagination to fix in their minds the ideas that your correspondent can only imperfectly convey on paper. The mill is situated near the mouth of the Grand Caspédia river, in Bonaventure county. This is one of the principal rivers on what is called the Gaspé coast, and empties into Bay de Chaleur. Until within a couple of years this river has not figured to any extent in connection with the manufacture of lumber, but has been noted for the sport it was capable of giving to the devotee of the rod and fly. The inhabitants here have a lively and pleasing recollection of the visits to this river of the representatives in Canada of Her Majesty, in quest of the king of fish—the salmon—and relate with pleasure the many incidents that would naturally be fixed in their minds in connection with such eminent personages. It is to be hoped that the log driving on the river, and the other devices of this utilitarian age, will not be the means of turning the salmon away and forcing them to seek other and quieter quarters. As the mill is built on the shore of the bay, without natural protection for the logs, the company were forced to build an artificial pond, enclosing some three acres, with a sea wall having an opening to admit rafts of logs at high water, the sill of which is some three or four feet above the bed of the pond, thus keeping the logs afloat at all times.

The mill proper is about 40 x 80 ft., with an L projecting from the off shore end about 22 x 60 ft. The boiler house and engine room is separated from the main building by a passage-way some ten feet wide, and has a corrugated iron roof and concrete floor. Great care has been taken in its construction and arrangement to make it absolutely fireproof. To guard against any contingency the company have sunk a well some 275 feet deep alongside the boiler house, from which water flows into a large tank sunk in the ground to feed the boilers and have ready in an emergency to draw from, with a suitable steam force and pressure pump. Besides this, the company have erected, at a great expense, a tower 85 ft. high some distance from the mill, on which is placed a tank that will hold some 45 to 50 tons of water; this is supplied with water by a steam pump and will only be used when steam is off, or when occasion demands. Plenty of suitable hose leading to all parts of the mill and yards seems to make the fire risk practically nil.

The equipment of the mill is of the most complete character. An endless chain, with projecting points some four feet apart running at the bottom of a V sluice, catches the log when the pond man gets it in the proper position and delivers it in the mill; the haul-up man controls a lever that starts and stops the chain—but in practice with expert men it seldom stops; when the log is advanced in line with the circular saw carriage the haul-up man steps on a pedal projecting a couple of inches through the floor, when instantly two iron arms shoot out of "somewhere" and the log is thrown off the chain onto the inclined roll-way, on which it rolls until brought up against two peculiar blocks of cast iron some two or three feet from the carriage. The sawyer then makes motions to the men riding the carriage, at the same time touching a lever, when, lo and behold, the cast iron block drops away from the front of the log and another comes up like a shot in the rear, throwing the log clear of everything onto the carriage; the men on the carriage each press down a lever operating bent or hooked steel teeth or dogs. These teeth are alternately bent up and down and the compound motion of the lever presses the teeth into the log, holding it firmly in place. The "setter" then operates another lever, forcing the log out to place so the slab will give proper face to the log, or "stock," as it is called. After the two slabs are taken off, the sawyer then touches another lever, when instantly the carriage moves the log towards the large circular saw, when, before one could say "Jack Robinson," the slab is dropped and the carriage returns to its first position. Instantly the carriage stops; what seems to be a post with iron teeth rises through the floor engaging the side of the log, the effect of which is to turn the log over so that the flat side is toward the head blocks of the carriage. The men operate the levers again, the log is moved out to give the thickness of stock log will make, carriage goes forward

again, and slab drops off and shoots away towards the further end of the mill. By this time the carriage has passed the saw, the levers are raised and the stock falls onto live rolls and begins to move rapidly in the direction the slabs have gone. The "take off" man now watches the stock with his hand on a lever; the right moment having arrived, he presses it and the stock is transferred sideways onto inclined rollways, which carry it to the rolls in front of a larger stock gang, in which are from 30 to 40 saws. This gang being very large, taking from four to eight logs, we wait until some more stock comes along.

The various processes the log was going through on its way from the pond to where we left it so engages one's attention that he only knows that the work is being done, and while waiting for a gang full of logs we begin an investigation as to the causes of what we do not understand, and seeing that the levers operated on have connections underneath, we go below. The first thing that attracts our attention is an upright steam cylinder, bolted to a heavy post, the piston of which flies up; then we see a rod connecting with an arm on a large shaft just under the mill floor. There are two more arms on the shaft at about right angles to the first one, to which are connected the two iron arms shot out of "somewhere" which threw the log off the chain. Now we begin to see that it was not altogether "sleight of hand," as we had some suspicion at first—and so we go on a few steps to another steam cylinder, which we find was the cause of the log being so violently thrown on the carriage—a very simple and inoffensive looking thing in itself. The principle is a modification of the previous description. They are called "kickers."

The next thing to investigate is the post that rose through the floor; it is called the canter. We found that the lower end of the post had an L piece of iron attached, connecting with the piston of a long steam cylinder, which, when the valve was moved, admitted steam to the lower side of the piston and raised all up, the whole dropping at once, as soon as the steam was released below the log bed. The carriage is driven by the "shot gun" steam feed. A cylinder about 30 feet long by 9 inches bore lies on the floor of the mill, the piston of which is attached to the carriage, the sawyer's lever operating the valve, thus moving the carriage forward or backward according as the lever is pushed one way or the other. This system of steam feed is said to be the best yet devised, allowing the log to be taken forward at any speed desired by the sawyer, and the return is so quick that the men riding the carriage require considerable experience to preserve their centre of gravity. The proper number of stocks having been prepared we now watch their progress through the gang, or "gate," as the mill men term it.

The stocks being small, eight are put through at once, four in width and two in depth. The head gang man touches a lever and the stock moves forward until the ends are on a corrugated feed roll. When he touches another lever two large pressure rolls are lowered until they press hard enough to move the whole stock forward, and the saws moving up and down very rapidly cut their way. As soon as the end of the stock shows through the back of the gate, other rolls are brought down in like manner to the front rolls. These rolls are so arranged that two different thicknesses of stock can be put through at the same time, and the pressure on each being the same, the feed of the stock to the saw can be regulated to suit the conditions. Upon the stock emerging from the gate it rests on rolls that carry it forward clear of the following stock, and two men place the sawn lumber on live rolls, which carry it forward and automatically dump it on the trimming table or equalizer; that portion of the lumber requiring to be edged is thrown on a platform alongside the parallel edger, is there edged and carried forward to the trimming table on live rolls and dumped in the same manner as the previous description. When the lumber is dumped it falls on transverse chains and is carried sideways to the saws, a man examines the end next him, and places it where it requires cutting off. When past the first saw a man at the other end pushes or pulls the lumber to certain stops on the table that give the length the piece will make. The lumber is being moved forward all the time, so that the men have to act quickly. On the lumber passing the second saw it is ready for the sorter. On a platform level with the mill floor there are a system of rolls, on which the lumber is placed, each length and size separate. When the pile on any set of rolls has the required quantity the men who run the cars from the mill to the piling ground run the car alongside of

the platform, but with the side of the car facing the end of the lumber; they then swing the frame with rolls built on the top of the car, in line with the lumber, and push the whole on the car—move the car along until they have a full load, then run out on elevated track to the piles, when the slab from the circular saw or any piece from the gate, from $\frac{3}{8}$ to $\frac{3}{4}$ thick, are taken on the run of live rolls to the re-saw, where they are carried by transverse chains to the sawyer's hands, and after going through, the board is dropped on transverse chains and taken to the edger, and put through the process related before.

Slabs, edgings and refuse are thrown from the different machines on the slab slasher table, and are placed conveniently at the rear of the edger, just a little above the floor, with the saws near the side of the mill. Transverse chains carry all to be sawn to and under the arbor, the saws being four feet apart. This material is dropped in a line with trap doors, and then carted away for fuel, wharf filling, etc. Sawdust carriers are placed through the mill, so that all the sawdust goes to the boiler furnaces and enables the under part of the mill to be kept clean at little expense.

The whole system of sawing and handling the lumber from the water to the pile is very complete. The idea was to make the mill so handy that lumber could be sawn at the least possible expense, and judging by appearances this result has been obtained.

Mr. J. N. Kendall, of Ottawa, was the superintendent, and it goes without saying, with those who know the thorough character of the work he passes, that it is first-class in every respect. The Wm. Hamilton Mfg. Co., of Peterboro, Ont., supplied the power and machinery throughout, which is a sufficient guarantee that it is good.

Mr. J. C. Langlier is the business manager at Maria, while Mr. C. H. J. Maguire is the secretary-treasurer, with head office in Quebec. The enterprising owners are residents of Montreal.

W. J. P.

THE CANADIAN PULP INDUSTRY.

To the Editor of the CANADA LUMBERMAN:

DEAR SIR: I am glad to see that a start is being made by some of our Canadian capitalists towards the construction of sulphite pulp mills in Canada. This is destined to be the greatest industry that Canada has ever known.

Not more than seven years ago it was the universal opinion that to get a sulphite mill equipped, we had to go to Europe, then more recently to the United States. This increased the cost of sulphite mills in Canada 30 per cent., besides the enormous prices charged. This has all now been exploded by the construction of the new sulphite mill here last summer by Engineer Thomas R. Allison, of Chatham, N. B., who designed the mill and personally superintended the construction, and fitted it throughout with Canadian machinery, which started off without a hitch, making the finest fibre ever produced on this continent. The cost of the mill was fully 50 per cent. less than most mills, and 80 per cent. less than some. And yet with these mills which cost so much more, the same quality of fibre has never been made. This was accomplished only after years of the hardest practical work, and has, no doubt, demonstrated the possibility of great things for Canada. It shows that those who intend going into the pulp industry can now obtain all the necessary machinery in Canada at the lowest possible price, and that a 30-ton sulphite mill can be built at a cost not exceeding \$140,000; whereas most of them have, in different places, cost all the way from \$250,000 to \$800,000.

In New Brunswick we have the finest black spruce in the world, which is the best wood for sulphite pulp manufacture, and can be had for \$2.75 per cord of 138 feet, whereas most American mills have to pay \$7.00 to \$8.00 per cord for their wood. The Americans are shipping thousands of cords of pulp wood out of Canada every year, and getting the cream of our timber lands, and our late government have shut their eyes to the matter in the past. It is to be hoped that the new government will attend to the matter at once, and put an export duty on pulp wood going into the United States of, say, \$2.00 per cord. If the Americans want to put a higher duty on pulp going into the United States from Canada let them do so. It will not affect Canada in the least, as a good market can be found in England for all the pulp we can manufacture. Some Canadian capitalists should form a strong company and secure the services of Engineer Allison, and build one of the largest pulp mills in the world. Such a mill could be built, costing not more than \$600,000. New Brunswick can furnish a variety of sites suitable for such a mill, and in proximity to practically inexhaustible forests of the best spruce, with ample railway and water facilities for shipping the manufactured product.

Yours respectfully,

A. N. MCKAY.

Chatham, N. B., Oct. 19th, 1896.



MONTHLY AND WEEKLY EDITIONS

C. H. MORTIMER
PUBLISHER

CONFEDERATION LIFE BUILDING, TORONTO

BRANCH OFFICE:
NEW YORK LIFE INSURANCE BUILDING, MONTREAL

The LUMBERMAN Weekly Edition is published every Wednesday and the Monthly Edition on the 1st day of every month.

TERMS OF SUBSCRIPTION:

One Copy, Weekly and Monthly, One Year, in advance..... \$1.00
One Copy, Weekly and Monthly, Six Months, in advance..... 50
Foreign Subscriptions, \$2.00 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 trader in Canada information on which it can rely in its operations.

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

Advertisers will receive careful attention and liberal treatment. We need not point out that for many the CANADA LUMBERMAN, with its special class of readers, is not only an exceptionally good medium for securing publicity, but is indispensable for those who would bring themselves before the notice of that class. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which will be inserted in a conspicuous position at the uniform price of 5 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.

TO VISITING LUMBERMEN.

Lumbermen visiting Toronto are invited to use the office of the CANADA LUMBERMAN as their own. We shall take pleasure in supplying them with every convenience for receiving and answering their correspondence, and hold ourselves at their service in any other way they may desire.

TO OUR READERS.

FOR nearly eighteen years THE CANADA LUMBERMAN has been engaged in printing the current history of the lumber and kindred industries of Canada. In the present number it has been attempted to present, as it were, a pen picture of these industries as they exist in the various provinces of the Dominion. By means of statistics, and descriptions and illustrations of leading mills, we have sought to convey to the minds of our readers at home and abroad a truthful idea of the location, extent and character of Canada's timber resources, which are second only to the agricultural interest of the country, and which entitle the Dominion to a place in the front rank of the timber producing and exporting countries of the world.

Every year witnesses an increase in the volume of our foreign trade, especially with Great Britain, and as the supplies from other countries become exhausted, foreign importers are looking with increased attention to Canada. In view of these conditions, it is hoped that the information presented in this number of THE LUMBERMAN may prove to be a useful factor in the development

of our lumber industry, and as such be welcomed and appreciated. Users of machinery and appliances of all kinds employed in saw and planing mills will find the advertisement pages not the least interesting feature of this number. Most if not all the requirements in this line can be obtained in first-class quality from our home manufacturers, and to them the money of Canadian purchasers should go.

Copies of this number will be placed in the hands of many persons in Canada, as well as in the United States, Great Britain, Germany, France, and other foreign countries, who have not been accustomed to receive the journal regularly. Such persons are requested to carefully examine and preserve for future reference the present number. If desiring to know what conditions prevail in the trade in Canada, they should see to it that authority is given us to send THE LUMBERMAN regularly to their address in the future.

THE LUMBER TRADE OF SOUTH AMERICA.

CANADIAN manufacturers of lumber who contemplate making an effort to do an export business with South America would do well to acquaint themselves with particulars concerning that market which have lately been made public by Mr. Edgar Schramm, United States Consul at Montevideo. This gentleman reports that through the efforts of a comparatively small number of importers, whose object is to control the sale of lumber to the wholesale dealers, a lot of customs and practices have been established, involving numberless vexations, which renders it almost a matter of impossibility for a foreign manufacturer or dealer to sell direct to the South American dealer. For the benefit of our readers we will briefly outline the methods on which the trade is conducted in this market, and the disadvantages with which the foreigner has to contend will be at once apparent.

First of all, lumber must be sold and delivered on six months credit from the time it has been officially accepted by the dealer. All lumber on arrival in South America must undergo inspection at a cost of 50 cents per thousand feet at the hands of a public inspector, half of whose fees must be paid by the shipper. Mr. Schramm asserts that according to the standard of inspection employed at South American ports, the lumber is supposed to be absolutely faultless, and that experience has shown that 4 per cent. is the lowest reduction which is likely to be placed upon it, no matter how high may be its quality. On the other hand, should the reduction amount to upwards of 10 per cent., the purchaser has the right to reject the whole cargo.

Freight charges, which have to be paid by the seller, average about \$12 per thousand, to which must be added customs duties ranging from \$8.25 per M. on pitch or yellow pine to \$15 per M. on white pine, plus custom house charges of about \$2.25 per M.

The purchaser pays for his lumber with a six months' note, which to turn into cash involves considerable discount.

The foregoing will show the great difficulties, as well as the probability of loss, which confront the foreign manufacturer and dealer who seeks an outlet for his products in this market. Notwithstanding these obstacles, however, several Canadian firms have done a considerable business

in South America in recent years. In all probability, their shipments have passed through the hands of the native importer, who, so long as he gets a good slice of the profit, can be relied upon to steer clear of many of the hindrances which block the way of the uninitiated foreigner.

COMPETITION FROM SOUTHERN WOODS.

A VISIT to the wood-working factories of Ontario proves that considerable quantities of woods from the Southern States are being utilized in the construction of our buildings, to the exclusion of native timber. It seems almost incredible that it should be possible to place Tennessee whitewood on the market in Toronto at a lower cost than a suitable quality of Ontario white pine, yet such is the case. The increased stumpage which has recently been paid for pine by Ontario lumbermen has afforded the Southern manufacturers just the opportunity they were looking for to place their woods upon our market. The price paid at the Government sale in 1892, over \$3,600 per mile, renders it almost impossible for the licensee to dispose of his product at a figure which will permit of successful competition with Southern woods, notwithstanding the distance at which the latter are removed from this market. Lumbermen, we believe, realize that the prices paid of late for timber limits leave too small a margin of profit in manufacturing. The low through rates of transportation given by the American railways have also aided the Southern producer in getting a foothold in the Ontario market. Instances have been brought to our attention where persons have specified that whitewood or other Southern woods be used in the finishing of their buildings, thereby shutting out native timber. In such cases the cost is usually a secondary consideration, the idea simply being a fanciful one.

WHEAT AND LUMBER.

THE recent substantial rise in the price of wheat should bring a feeling of hopefulness to lumbermen. In an agricultural country like Canada, nothing will give so quick and substantial an impetus to business of all kinds, as a brisk demand at good prices for the products of the soil.

It is unfortunate that the recent rise in wheat came at a time when Canada was somewhat short of supply—the Manitoba crop, for example, being only about 14,000,000 bushels, in comparison with 25,000,000 in former years. As the result of the extremely low prices which have prevailed for some time past, however, it may be taken for granted that there is a considerable accumulation of wheat in the hands of the farmers throughout the country which should now be turned into money. It is estimated that even on the short crop of the present year the farmers of Manitoba will realize an extra profit of two and a half million dollars. As the result of the more plentiful distribution of money, there will be developed increased business confidence, which in turn will lead to improvements being undertaken for which considerable quantities of lumber will be required.

The same causes will operate to increase the demand for our lumber in the United States, presuming of course, that with the probable advent of Mr. McKinley to power at Washington may come a re-imposition of the duty on Canadian lumber.

EDITORIAL NOTES.

An unusually large amount of lumber and mill property has been destroyed by fire in Canada the present year. Among the principal sufferers from this cause may be mentioned the Katrine Lumber Co., of Katrine, Ont., the Georgian Bay Lumber Co., Waubaushene, Ont., the Imperial Lumber Co., Warren, Ont., Ross Bros., Buckingham, Que., and Messrs. Howry & Sons, Fenelon Falls, Ont. The latter company were visited twice during the season and lost heavily on both occasions.

The efforts of Canadian furniture manufacturers to place their goods upon the English market are meeting with success. A representative of an Ontario firm, while in Belfast, is said to have received orders in one week amounting to \$5,000. The method adopted by manufacturers of sending abroad agents who have a thorough knowledge of the trade is worthy of commendation. There is to be found in the province of Ontario large quantities of black birch admirably adapted to the manufacture of furniture, and with an abundant supply of the raw material, the possibility of further development is evident.

The input of logs in Ontario during the approaching season promises to be unusually small, with the exception, perhaps, of the Ottawa valley. The present stock of lumber is likely to go a long way towards supplying the demand next season, unless unusual activity should characterize the market. Many logs taken out last winter have been held over for next season's sawing, which, with the limited quantity taken out this winter, will provide an ample supply for an average season. These remarks refer especially to pine, reports to hand indicating that hardwood manufacturers will operate upon much the same scale as last winter.

In our British Columbia letter reference is made to the dissatisfaction which exists with the working of the Central Lumber Company, but which is, we are pleased to observe, confined to a few members. No definite arrangements for a continuation of the association after the present year have been consummated, but daily sessions are now being held at the head office in San Francisco with a view to completing organization for a period of five years. Since the combine was formed the foreign cargo trade has greatly improved, and prospects are considered promising for a still greater trade in 1897. It is hoped that this fact will not prompt shippers to take the view that it is unnecessary to maintain the organization beyond the close of the present year. On the other hand, a strong argument is thus advanced in favor of continuing its operations.

The attention of Canadian pulp manufacturers is now directed to the action of the United States custom authorities with respect to the valuation of Canadian pulp, which is subject to a duty of ten per cent. upon entering the United States. The basis of such valuation is usually the market price in the exporting country, but as there is little or no home demand for Canadian pulp, difficulty is experienced in arriving at a satisfactory valuation. About six months ago a United States Customs officer visited Canada for the

purpose of arriving at a uniform valuation, and after a thorough investigation fixed the sum at \$12 per ton. Previous to that time Canadian pulp was entered at the different ports at prices ranging from \$6 to \$18. It is now claimed that since the valuation of \$12 was struck, prices of Canadian pulp have lowered. In the case of the Sault Ste. Marie mill, the product has been laid down in Quebec at \$12, which goes to show that its value at the point of manufacture does not exceed about \$10. This valuation, it is believed, would be satisfactory to the Canadian manufacturers, and will in all probability be adopted. Should this prove to be the case, the export of pulp from Canada to the United States will receive a stimulus. At first glance the difference in duty between a valuation of \$10 and \$12 a ton does not seem to be sufficient to seriously affect the trade, yet a comparison of figures removes this supposition. The Sault Ste. Marie company alone, when their new mill is in operation, would be affected to the extent of \$40 a day, or \$12,000 a year.

UNLOADING LUMBER.

At the lumber yard of Richardson, Dana & Co., in Portland, an ingenious contrivance for unloading lumber from vessels is being used with the greatest success. This is an electric hoist attached to the lumber derrick, which performs its work with neatness and despatch. By the old way, a crew of four men was necessary to operate the derrick, two men for each end of the handles, and even then it was slow and laborious work. This electric hoist revolves with the derrick, and is arranged so that the stick or the broom of the derrick can be hoisted at will. One man can easily operate this electric hoist alone, and it is not necessary to be a skilled man either, as the attachment is a very simple one. The electricity is used only to raise the stick, as it is lowered by its own weight controlled by a brake, also operated by the same man. With the hoist a 3000-pound stick can be raised at the rate of 45 feet a minute, and lighter sticks in proportion. By the old way four men had hard work to hoist a 3000-pound stick three feet a minute. At the old rate it took about five minutes to hoist and place a heavy stick, and the two teams employed in pulling the lumber from the vessel would soon fill the roadway with lumber and cause loss of time and inconvenience. The electric hoist takes care of the lumber faster than the teams can pull it out. This new hoist is the only one in operation in the state, and, in fact, it is said to be the only direct attached hoist ever manufactured, and promises to revolutionize the handling of lumber by derricks.

THE ROAD TO THE BUSINESS OFFICE.

The British-American Business and Shorthand College of Toronto is probably the best known institution of its kind in Canada. It is owned by a number of the leading business men of that city, among whom are Stapleton Caldecott and Frederick Wyld, wholesale drygoods merchants; S. F. McKinnon, wholesale milliner; E. R. C. Clarkson, chartered accountant; Edward Trout, president of Monetary Times Co.; Wm. McCabe, manager of North American Life Assurance Co., and D. E. Thomson, Q. C. The various courses are thus guaranteed to be the most practical that can be devised for the purpose of properly training young people for business offices. Persons interested in this line of educational work should write the secretary, Mr. David Hoskins, for the prospectus.

EMPLOYER'S LIABILITY.

A WORKMAN does not assume a risk where he knows there is some danger without appreciating it.

An employer is bound to use reasonable care to see that machinery used by his workmen is in proper condition.

The mere fact that a workman received an injury raises no presumption of negligence on the part of his employer.

A workman does not assume the risk of injuries from a latent defect in machinery, because his opportunity of discovery is the same as his employer's.

An employer is bound to give notice of latent dangers among which the employee is required to work, and to which the employer has knowledge or should have had knowledge.

A person entering the service of another assumes all risks naturally incident to that employment, including the danger of injury by the fault or negligence of a fellow-workman.

Where a workman knows that the appliances with which he works are defective, and does not complain to his employer or representative of their condition, he assumes the risk of their use.

The fact that a superintendent assures a workman that there is no danger, and tells him to return to work, does not relieve the workman of the assumption of the risk, he being of full age and knowing the danger.

The mere fact that a manufacturer hires an unlicensed engineer to run his boiler does not render him liable to other employees for personal injuries caused by the explosion of the boiler.

An employer is not required to use the most improved kinds of machinery in his factory. It is sufficient that the machinery was reasonably safe and suitable for the purpose for which it was used.

An employer is not bound to anticipate every probable risk which may happen in the use of a machine, but discharges his duty if he give such general instructions as will enable the employee to comprehend the danger.

When an employee's duty to inspect and repair machinery is incident to his use of the machinery in a common employment with other workmen, the employer is not liable to fellow-workmen for the negligence of such employee.

An employer who calls a surgeon to aid an injured employee is not liable for the negligence or malpractice of the surgeon, provided the latter had knowledge and skill ordinarily possessed by other surgeons, and the employer had no reason to suspect that the surgeon would fail in his duty.

An employee of mature years, who was removed from one employment to another without objection by him, cannot recover from his employer for injuries received through his unfamiliarity with the machinery which he was required to operate, unless his employer knew of his inexperience in that direction, or was informed of it by the employee.

When the conditions of a mill and the relative situations of the deceased and his fellow-workmen would suggest to a person of common intelligence menacing and obvious perils from the use and operation of the machinery, an employee who continues to work in it assumes the risk, though it arises from the negligence of the employer, and the latter is not liable for the death of the employee.—The Manufacturer.

ARBOR DAY—OF WHAT BENEFIT IS IT TO THE COUNTRY?

By H. G. JOLY DE LOURNAIRE.

LITTLE, probably, if judged only from the number of trees planted; much if it is remembered that in Canada, for two centuries, the only thought has been to remove the forest trees, at any cost, as enemies, which recklessly encumber the ground. A celebration, therefore, of a day in their honor, is a great point gained. Those who reflect least must be struck in seeing, on this day, the representatives of the Queen, and our most eminent men, planting trees with their own hands. Arbor Day is looked for with impatience by our school children, and is a holiday for them; but what is still more important, more than one child who is shown how to plant a tree on that day, becomes attached to it, takes care of it from year to year, and thus learns insensibly the secret of success in life; to plant with care, to cultivate with perseverance.

I think I do not exaggerate in saying that today the majority of the people of the Dominion suffer, more or less, from the scarcity of wood for building and even for fuel. Arbor Day comes apropos to remind them that it is not impossible to repair the evil, and at the same time, it serves as a warning to those who still have wood on their property, teaching them the value and necessity of using it with judgment and economy. I now address myself particularly, not to those who desire to plant ornamental trees although I sympathize with them, with all my heart; they can easily find the small number of trees they need but to those who suffer seriously from the scarcity of wood, and who can only obtain relief by planting extensively, that is, several thousand trees.

At first sight the task seems impossible to the large majority of growers. Where will they go to look for this large number of trees? When could they ever find time to select them, one by one, in the forest, to dig them up with the necessary care, and carry them to their homes? One usually goes to the forest to get trees, sometimes at a great distance. All those who have tried it know how difficult it is to find what they want, how much time and trouble is required to dig them up, and how many of the roots are injured in spite of their precautions. They know also, how often all this work is an entire loss. Trees dug up in the woods and transplanted so often perish that those who plant them are discouraged and consider the task too difficult to repeat. However, when the season is propitious and the ground is favorable for the kind of tree you wish to plant, if the tree is in good condition, you will, with care, succeed. Trees which are found in the woods are rarely in good condition, and cost too much in time lost, if not in money. If you wish to have good trees in large numbers, which will easily take root, without trouble and without expense, take them from a nursery, and let that nursery be your own. Every farmer can establish in a corner of his garden a nursery of forest trees, by sowing the seeds of the trees he wishes to have. With a little attention, it is easy to tell when the seeds are ripe. Thus toward the end of June and early in July, the seeds of the elm and those of the plane are ripe; if you sow them at once, they will shoot up nearly a foot that same summer. The seeds of

the maple, ash, oak, wild cherry and walnut mature in the autumn; it is better to sow them immediately than to keep them in the house all winter. Sow, let us say, maple seeds, half an inch deep, and others in proportion to their size, two or three inches for nuts. Sow thickly and after the first year you can thin them by transplanting some. At the end of four or five years (more or less, for there are some kind of trees which grow more rapidly than others) you can plant your young trees where they are to remain. You should select cloudy or rainy weather in the spring, and without going from home, without trouble, without breaking the roots, you dig up and replant immediately, without giving them time to dry, a hundred young trees, which will certainly take root again, and you will have spent less time than it would have required to get five trees in the woods which may or may not live. The trees will cost nothing, your children will soon learn to weed them, and to take care of them with pleasure, if you encourage them a little by your example. At home the young children amuse themselves of their own accord, in planting acorns, and in seeing the little oaks grow. By means of seeds you can procure without expense an unlimited number of trees, and plant, little by little, all your land which is unfit for cultivation, and which should have been left in wood. But do not forget to protect your nursery and your young trees, when planted, against the ravages of cattle, by means of a good fence. Do not plant without a fence. There are enough causes for annoyance in life without creating new ones, and nothing is more vexatious than the sight of a lot of cows in the act of destroying a beautiful plantation of young trees. In many cases you can even spare yourself the trouble of sowing. Where the ground is favorable, in July or August, along the ditches, the woods, the fences, in the moss, in damp places, in the neighborhood of the elms and the planes, you will find hundreds of little shoots, which have sprung from the seeds fallen from the trees; plant them in your nursery. Try it next summer. The seeds of the elm are so small and delicate that it is much better to use this means than to try and sow seed yourself. Among the maples, the soil is covered with young shoots, as with a thick carpet. One can easily pull them up with the hand, in the autumn or early in the spring, when the ground is still damp, without breaking any of the little roots. Plant them in your nursery immediately. The seed of the pine is very difficult to gather. Early in the spring, in the pastures near the pines, you can pull up, when the soil is damp, as many little trees as you will wish to plant; for this kind it will be better to take the precaution to shelter them from the sun until they have taken root. All those who have gardens must have noticed that if there are maple or ash trees in the neighborhood, the ground of their garden, if it has been spaded in the autumn, is covered in the spring with young shoots grown from the seeds fallen from these trees. Little time is required to transplant hundreds of them, and all will take root again without exception. They must be taken up carefully, so that the small roots may not be broken; if the ground is too hard use a trowel. It is well, as much as possible, to secure them when they yet have only the first two leaves, which can be easily

recognized; they are an inch and a half to two inches long, and about a quarter of an inch wide. For several years I have sought the least expensive, and at the same time the surest means of renewing the woods where they have been destroyed, and what I now recommend is the result of personal experience. I appeal to those who suffer from the lack of wood, and who have the courage and patience to try to remedy the evil. The trial will cost them nothing, and it will give me pleasure to answer all those who need advice; but let them try next summer; let them sacrifice a half or a quarter of a day; it will be time well spent.

ANNUAL RINGS ON TREES.

In the British Museum of Natural History there is a section of the trunk of a large fir tree from British Columbia, the growth rings of which indicate that it was more than five hundred years old when it was cut down in 1885. A correspondent of Nature calls attention to the fact that about twenty of the annual rings of growth, marking the latter part of the first hundred years of the tree's existence, are crowded together in a remarkable manner, indicating that during those twenty years some cause was in operation greatly retarding the growth of the tree. On looking into the history, the correspondent found that nearly all the time when the tree in question was evidently suffering from very adverse conditions, Asia and Europe were undergoing extraordinary disturbances from earthquakes, atmospheric convulsions, the failure of crops, pestilential diseases, etc. China, in particular, suffered even more than Europe. He therefore suggests that possibly the crowded rings in the trunk of the tree may be a record of the existence of the same unusual conditions affecting animal and vegetable life at that time in North America also; and he shows that if the tree had reached its full growth, and ceased to form new rings a few years before it was felled in 1885, the correspondence in time would be complete.

QUESTIONS AND ANSWERS.

A subscriber, Penetanguishene, Ont., asks: "Could you inform me of the price of bird's-eye maple logs, per thousand feet B. M., delivered in New York city?"

Ans.—It is a difficult matter to quote a price which could be taken as a guide. The present market price ranges from \$40 to \$60 per thousand feet, delivered in New York, the price depending, of course, on the grade. The smaller the heart, the more white lumber will be obtained, which is about the only kind that is in good demand at the present time.

"R. A.," Katrine, Ont., writes: "I understand there is a market for balsam, spruce and basswood, cut into lengths of 4 ft. 4 in., for box making. I am desirous of getting a contract for taking out a quantity, which will enable us to make better use of our timber in the process of clearing the land than burning it. Can you inform me where I might dispose of this class of timber?"

Ans.—The principal lumber used for box-making is white pine (the lower grades). Balsam is very little used, owing to the small quantity taken out. Spruce is used in some quantities in Ontario, and in Quebec it is the principal material for box making. Basswood is used for biscuit, starch, baking powder, and such boxes, and the higher grades are becoming quite valuable. Parties wishing to cut basswood in short lengths should first contract for it, as the consumer generally desires it cut to specified lengths, such as 4 ft. 2 in., 4 ft. 6 in., etc. The names of several box manufacturers have been forwarded to our correspondent.

BRITISH COLUMBIA

THE HOME OF THE DOUGLAS FIR AND RED CEDAR.—FOREST TREES OF IMMENSE PROPORTIONS.—LOCATION OF THE PRINCIPAL VARIETIES OF TREES AND THEIR ADAPTABILITY. THE EXPORT TRADE OF CONSIDERABLE IMPORTANCE TO THE WESTERN PROVINCE.—DESCRIPTIONS OF SEVERAL OF THE LEADING MILLS.

NATURALLY in the consideration of the economic products of British Columbia comes the timber wealth. Apart from minerals it represents the most important and most readily available results. British Columbia may now be said to possess the greatest compact area of merchantable timber on the North American continent, and if it had not been for the great forest fires that have raged in the years gone by, during which a very large portion of the surface has been denuded of its forest, the available supply would have been much greater than it is. That was

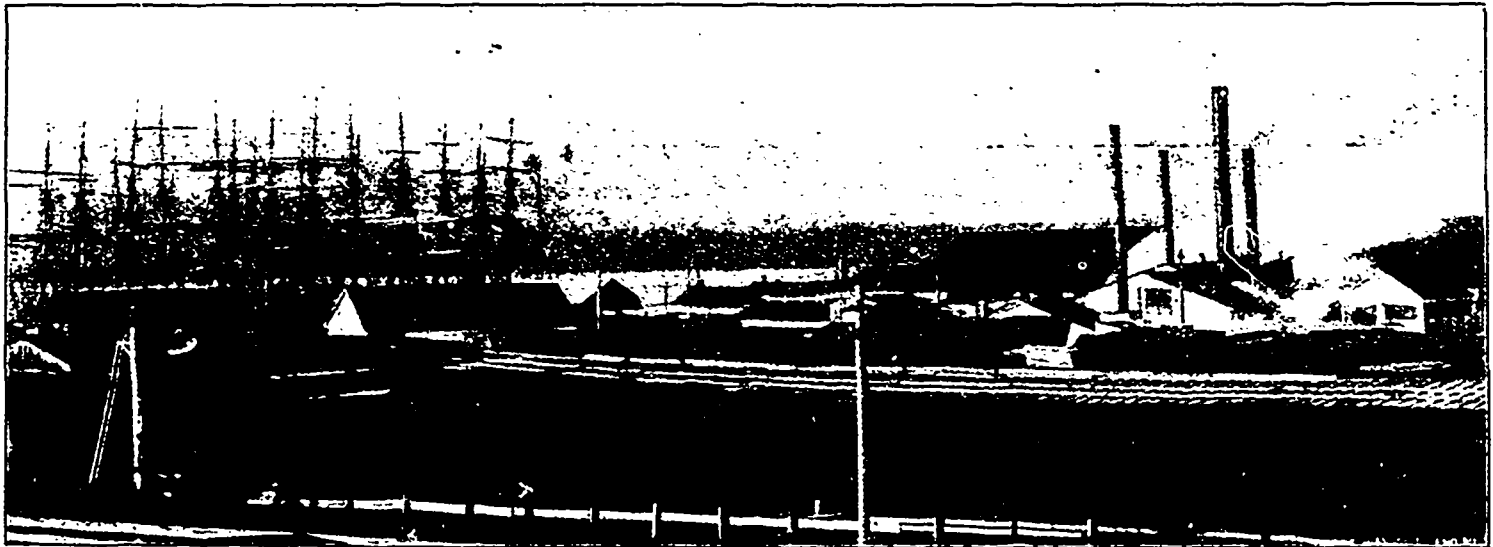
is scientifically described as standing midway between the spruce and the balsam, and in the opinion of Prof. Macoun, the Dominion naturalist, is a valuable pulp-making tree.

Perhaps the next two most important representatives of our forest wealth are the red cedar (*Thuja Gigantea*) and the yellow cedar (*Thuja Excelsa*). The former is found all over the province, but reaches its greatest development on the coast, where it out-girths all others. In addition to its commercial value for shingles and finishing purposes, it is the friend of the settler, inasmuch as out of its straight-grained logs he can build his house, make his

in very large or compact bodies. From its comparative scarcity and the many uses to which it may be put it is commercially more valuable than the Douglas fir, to which it is first cousin. It attains a circumference almost equal to the latter, but does not grow so tall or so clear of branches. It is utilized largely for making doors, finishing salmon boxes, barrels, fruit cases, and many other similar purposes, being, as it is, the best adapted for these uses of all the native timbers. It is par excellence, too, the wood for pulp manufacture, which some day or other will be one of the most important industries of the province, and concerning which more may be said at a later date. It increases in quantity as you go northward.

Hemlock (*Tsuga Mertensiana*) is a common timber, and up the coast is found in considerable quantities. It is a useful tree, and answers about the same purposes as the Douglas fir. For that reason it will not be in general demand until the latter has become to some extent exhausted. White pine (*P. Monticola*) for cabinet purposes and general utility is very valuable, but is limited in quantity. Balsam (*A. Amabilis*) is widely distributed, being found principally in river valleys, but is commercially of little value, except for pulp. With the exception of the yew (*Taxus brevifolia*) and tamarack, of which there are several varieties, principally (*L. Accedulalis*), the foregoing are the principal representatives of the family of coniferous trees.

Of deciduous trees, the large leaf maple (*Acer Mac-*



HASTINGS SAW MILL, VANCOUVER, B. C.

[For description see next page.]

an exigency, which, in the unsettled state of the country, could hardly have been provided against, if at all. However, as the coast possesses the major portion of the choice timber and that which is most accessible, the ravages of fire have not had, by reason of the dense growth and the humidity of the climate, any appreciable effect on that source of supply.

As far north as Alaska the coast is heavily timbered, the forest line following the indents and river valleys and fringing the mountain sides. Logging operations so far have extended to Knight's Inlet, a point of the coast of the mainland opposite the north end of Vancouver island. Here the Douglas fir, the most important and widely dispersed of the valuable trees, disappears altogether, and the cypress, or yellow cedar, takes its place. North of this, cedar, hemlock and spruce are the principal timber trees. It will be of interest to know that Douglas fir (*Pseudo-tsuga Douglassi*) was named after David Douglas, a noted botanist who explored New Caledonia in the early twenties of this century. It is a very widely distributed tree, being found from the coast to the summit of the Rocky mountains. On the coast it attains immense proportions, is very high and clear of imperfections, sometimes towering three hundred feet in the air and having a base circumference of from thirty to fifty feet. The best averages, however, are one hundred and fifty feet clear of limbs and five to six feet in diameter. This is the staple timber of commerce, often classed by the trade as Oregon pine. It has about the same specific gravity as oak, with great strength, and has a wide range of usefulness, being especially adapted for construction work. It

furniture and fence his farm, and that with the use of the most primitive of tools only—an axe, a saw, and a froe. It is especially valuable, however, for interior finishing, being rich in coloring and taking on a beautiful polish. For this purpose it is finding an extended market in the east of Canada, and no doubt its merits will soon find appreciation far beyond these limits. Important as the red cedar is, the yellow cedar, though much more limited in area and quantity, is still more important, and I was going to say useful. It is very strong, comparing with the Douglas fir in this respect, is wonderfully durable, finishes to perfection, and grows to great dimensions. Lying farther north, it will not be probably as soon in demand as the more ubiquitous red variety, but is already occupying attention. During the past year an extensive timber limit was disposed of in England, and a company has undertaken its manufacture. The cypress is found in great quantities in the interior of Vancouver island, and on Mount Benson, near Nanaimo, comes within 1,200 feet of the sea. Towards the north of the island, on Queen Charlotte islands, and on the north coast of the mainland, it is found lower down and is very plentiful. It is one of the cypresses that the Hydah Indians build their celebrated war canoes, some of which have an eight-foot beam, are sixty feet long, and can stem the heaviest seas of the coast waters.

Coming next in usefulness and economically considered this may be taken exception to, as there are many who might class it as the most useful of all our timbers is the white spruce (*Picea Sitichensis*). Its habitat is principally low, swampy and delta lands, usually interspersing the forest of fir and other trees, but in no place is it found

rophyllum), vine maple (*Acer circmatum*), alder (*Alnus rubra*), crab apple (*Pirus rivularis*), oak (*Quercus Garryana*), two varieties of poplar or cottonwood (*Populus balsamifera*) and (*trichocarpa*), aspen poplar (*Populus tremuloides*) arbutus (*Arbutus Menziesii*), birch (*Betula Occidentalis*), willow and juniper are the principal. The maple, alder and arbutus make first-class cabinet woods, though they are not abundant enough to be extensively used for this purpose. They also make popular finishing woods. Poplar, or as it is more commonly called, cottonwood, has been principally used in the past for the manufacture of "Excelsior," but its greatest use will be in paper-making. The aspen poplar is common in Vancouver island and the northern interior of the province. It is also a good paper-maker. The oak is mainly confined to the southern end of Vancouver island. It is a stunted gnarled species, of little use, but very picturesque. Crab apple is plentiful in swampy places around ponds, beaver meadows and along river banks. The hardwoods are usually found in bottom lands and indicate fruitfulness of the soil. There is no part of British Columbia where the timber supply is not sufficient for local demands.

The principal timber limits and the great bulk of the timber are located on: Vancouver island, running up the valleys of the Cowichan, Chemamus, Nanaimo, Englishman's, Little Qualicum, Big Qualicum, Comox, Oyster, Campbell, Salmon, Adams, and Nunkish rivers, and French and Black creeks, and along other streams and tributaries of the foregoing rivers, and in the Alberni valley; in Westminster district along the Fraser and Pitt rivers, on Burrard Inlet, in South Vancouver, and on

Howe Sound; the principal inlets of the coast as far as Knight's Inlet; and on the islands in the Gulf of Georgia—notably Cracow, Valdez and Harwick. North of Knight's Inlet, as already stated, comes the eypress and considerable spruce that will yet be largely utilized in commerce.

One feature of the forests of the coast are their density. As high as 500,000 feet of timber have been taken from a single acre, which seems almost incredible to a lumberman of the east, where twenty thousand is considered not a bad average.

There are over fifty saw mills in the province, big and

a century. Its location on Burrard Inlet is well chosen, both for its extensive foreign shipments and on account of having the Canadian Pacific Railway tracks running through its shipping yard.

The premises occupy several acres of ground. The mill and machinery have undergone many changes since its inception, and to-day we see one of the most modern and best equipped mills on the coast. Eighteen boilers and six engines furnish the motive power. The capacity of the mill is 200,000 feet per day, giving employment to from 150 to 200 workmen. The wharfage is sufficiently

also a box factory and shingle mill in connection with this plant.

The timber limits owned by this company are of the most extensive and valuable character. The greater part of their output is obtained from these limits, but they also buy from loggers and jobbers. Three tugs are owned and consequently employed in the towing of vessels and booms of logs. They are amongst the largest employers of labour in the province.

BRUNETTE SAW MILLS COMPANY, NEW WESTMINSTER.

One of the largest industrial enterprises on the mainland is the Brunette Saw Mills Company, Limited, lumber manufacturers, whose plant is located at Sapperton, and within the corporation limits of New Westminster, on the Fraser river. Some years ago this company was organized, and from the start was successful. Each year has seen their volume of trade increase, their trade limits expand, and their hold upon popular favour grow stronger, until to-day their trade is a very large one, coming as it does from all parts of the province. A considerable export business is also done. Last year the mills were destroyed by fire, which, although necessarily causing a great temporary loss, has in the long run proven a benefit, for to-day the new mill is, without exception, the most perfectly equipped of its kind on the mainland.

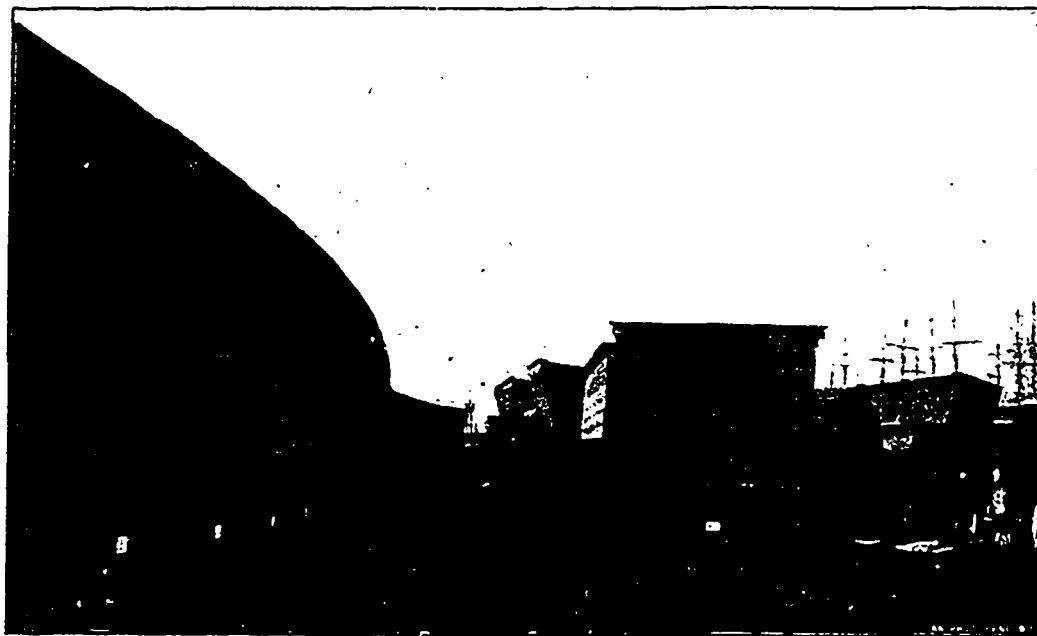
Immediately after the fire, with characteristic enterprise, the management began the rebuilding. With the utmost rapidity the new structure was completed, and the machinery that has been provided represents the very highest triumphs of mechanical skill in this direction. Powerful steam engines provide the motive force. A large staff of skilled workmen are employed. The company manufacture lumber, sashes, doors, mouldings, etc. An idea of the extent of their operations may be gleaned from the fact that the output of lumber alone amounts to 100,000 feet daily.

Shipping facilities of the highest order are provided, and direct shipments are made to all parts of the world. The Canadian Pacific railway track runs immediately through the company's shipping yard.

About eighty men are usually employed. A large feature of the output consists of salmon boxes, which employ several additional hands each season.

POINT ELLIS SAW & PLANING MILLS, VICTORIA.

One of the manufacturing plants from which this city derives considerable benefit is the above-establish-



LUMBER PILED FOR RAIL SHIPMENT—HASTINGS MILL, VANCOUVER, B. C.

small, with a daily capacity of about 3,000,000 feet; over thirty are on the coast, and have a daily capacity of between 1,750,000 and 2,000,000 feet, but this limit has never been reached, the annual cut running between 50,000,000 and 100,000,000 feet. Various estimates have been made of the amount of timber in sight. These range between 40,000,000,000 and 100,000,000,000 feet, a guess that is only practicable as showing the possible limits of supply as extremely wide. The acreage of timber under lease is about 1,175 square miles, and the total area of forest and woodland is put down by the Dominion statistician as 285,554 sq. miles, but this must not be taken as all of commercial value, as much of this is covered with small trees, suitable only for a local supply of fuel and lumber.

For some time the lumber industry of the province has suffered a severe depression, but at the present time the indications are favorable to a speedy revival, and to assist in this a lumber trust has been formed, which includes all the principal export mills of the Pacific coast, 35 in all, and as a consequence lumber has risen in price \$2 per thousand feet. This combination is called the Central Lumber Company, with headquarters at San Francisco, and a branch agency in each of the large centres. The operations are in the nature of a pool through which orders will be distributed and results divided. It represents a capital of \$7,000,000, and a daily capacity of 3,520,000 feet. Some 150 sailing ships are under its control.

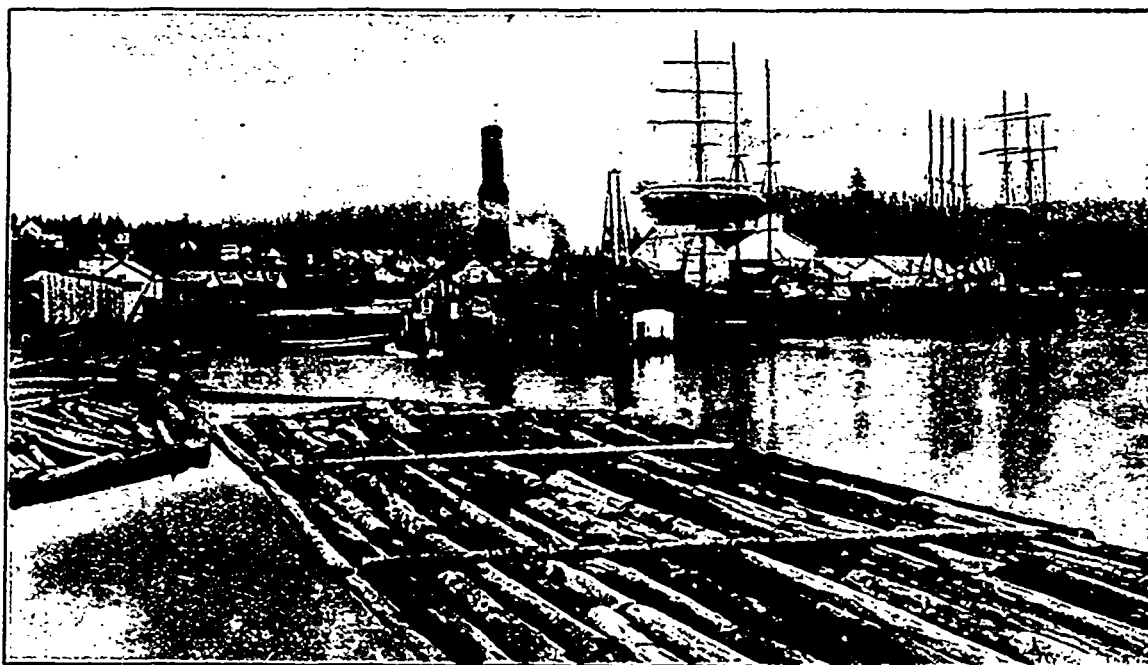
The future of the lumber industry is very great for British Columbia, and when foreign demand fully revives, and the Nicaraguan canal has been completed, it cannot fail to receive an immense impetus. As it stands at present the province will be the last resort of the lumberman on this continent, and those who own timber limits will reap rich harvests. Perhaps not the least remunerative will be the by-products, and particularly that of pulp.

HASTINGS SAW MILL, VANCOUVER.

There are no larger foreign shippers of lumber and its products than the British Columbia Mills, Timber and Trading Company, who own the above mill. It is also safe to say that they are the largest concern in operation in this province. This mill, shown in the illustration on the previous page, is the chief one of the establishment; the other mills owned by them being the Royal City Planing Mill, located at New Westminster, and the Royal City Mill, located at False Creek, Vancouver. The establishment of the Hastings mill dates back at least a quarter of

extensive to allow eight vessels to lie and load at the same time. Steamers of 3,000 tons have already been dispatched from these wharves. The extent of the shipments of this firm to the North-west Territories and British Columbia are sufficiently large to have two sidings from the main line of the Canadian Pacific Railway.

The dry-kilns are on the most improved plan for keeping and handling a large quantity of lumber. A planing



BRUNETTE SAW MILLS, NEW WESTMINSTER, B. C.

mill has lately been added to this plant. The manager's house, workmen's dwellings, machine shop, forge, general store and office complete the buildings.

The branch above mentioned, located on False creek, has a daily capacity of 50,000 feet. Besides the large local trade which it caters to, it also caters to the North-west. The sash and door factory in connection with this establishment is most complete, and, with the glazing rooms and finishing shop, turn out the finest finished work for the interior finishing of stores and offices. There is

ment, owned and operated by Messrs. James Leigh & Sons. Although the business was only established some six years ago, it has assumed large proportions throughout the island. It is very seldom that a shipment outside the local market is made.

The mill is 180 x 52 feet. The planing mill, dry kiln, store houses, machine shop, finishing rooms and offices complete the buildings of this establishment. The products are all kinds of manufactured lumber, and the machinery is of the most modern and perfect description.

The average daily capacity of the premises is 40,000 feet, and from fifteen to thirty skilled workmen are continuously employed.

Some ship building has also been done by the firm, who deserve the patronage so liberally bestowed upon them.

ROYAL CITY PLANING MILLS, NEW WESTMINSTER.

This property is owned and operated by the same company as the Hastings Mill in Vancouver. These mills at New Westminster are well situated for shipping both by water and by rail. The river frontage is 1,650 feet, while

there are two smaller ones. The dry kiln, shipping sheds and office complete the buildings of this concern. The trade is to a great extent local.

CHEMAINUS, VANCOUVER ISLAND.

The Victoria Lumber & Manufacturing Co. own the mill at this point. It is a large two-story building, with metal roof, completely detached from all other buildings, and with the best of shipping facilities both for deep sea vessels and by rail on the Esquimalt & Nanaimo railway. The firm have a lumber yard at Laurel Point, Victoria city.

improved description, having live rolls and other modern machinery. A heavy force pump and full complement of hose is kept, in case of fire.

The planing mill is 400 feet distant from the saw mill, connected by a tramway. It is 100 x 40 feet in size, two stories high, and is operated by a 45 horse power engine. On the lower floor are a heavy planer and matcher, a resaw, a rip saw, moulding machine, dado machine and turning lathe. On the upper story there is a full outfit of sash and door machinery.

The dry kilns, lumber sheds and warehouse are of the most convenient description. The other buildings are a boarding house, dwellings and office.

The daily capacity of the mill is about 30,000 feet. About forty hands are employed in all the departments. The lumber comes from extensive limits on the Lardeau river, consisting of fir, hemlock, pine, cedar, spruce and tamarac. Considerable quantities are also purchased from jobbers from Kootenay lake and neighborhood.

The shipping facilities are such that the largest boats of the Kootenay Lake Navigation Company can call at the wharves.

The development of the upper country is largely due to the enterprise of the proprietor of this establishment, Mr. G. O. Buchanan. It is almost needless to say that the trade is of a local nature.

COWICHAN HARBOR, VANCOUVER ISLAND.

One of the very best mills in this province is situated at this point, which has excellent shipping facilities for vessels of the largest draught. It belongs to Messrs. M. M. Boyd & Co., of Bobcaygeon, Ont. The saw mill is a two-story structure 296 x 44 feet, with two additions of 171 x 24 feet and 78 x 54 feet respectively. It is operated by steam, and contains the best possible machinery and labor-saving devices obtainable.

The firm own extensive timber limits up the Cowichan river and on the borders of Cowichan Lake. They are in a position to manufacture lumber as cheaply as any mill in the province. The mill is at present idle, but it is to be hoped that it will soon be in operation.

MOODYVILLE LAND AND SAW MILL COMPANY, VANCOUVER.

Situated on Burrard Inlet, immediately opposite the city of Vancouver, is the mill owned by this company. The concern was originally started by Mr. Seth Moody, who was drowned by the sinking of the steamer Pacific off Cape Flattery in November, 1875. The style of the firm was Moody, Deitz and Nelson. Some 15 years ago the property was acquired by the late Andrew Welch, of



OX TEAM HAULING LOGS, ROYAL CITY MILLS CAMP.

the Canadian Pacific Railway track runs through their yards. The machinery is all of the most modern description in each of their buildings.

The buildings consist of two saw mills, sash and door factory, two planing mills, glazing and store room, general store, boarding house, stable, dwellings, office, dry-kilns and machine shop.

The output consists of lumber in all its forms, both finished and unfinished, sashes, doors, blinds, mouldings, mantels, laths and shingles. The capacity of the saw mill is about 70,000 feet per day. A large number of salmon boxes are made every season for the canning industry. From 100 to 150 men are employed.

The limits from which the timber is obtained are situated on the coast and up the Fraser river, but at a distance of some fourteen miles from the bank, to which they are conveyed by a logging railroad operated by steam. This also gives employment to a number of men.

The management of this branch is in the hands of Mr. R. Jardine, originally of New Brunswick. Three tugs are owned and used in the towing of their ships, scows and logs.

The majority of the shipments from this establishment are of a local nature, to Ontario and the Northwest Territories, the foreign shipments being mostly handled by the Vancouver branch.

LEMON, GONNASON & COMPANY, VICTORIA.

The planing mills, sash and door factory, finishing shops and offices of this firm are situated on Government street, corner of Orchard street, and cover almost an entire block. It is known by the name of the Capital Planing Mills, and has been in existence and kept constantly busy for the last five years.

The main factory is a substantial two-story building, 100 x 50 feet, operated by steam, where a large staff of men are continually employed. The output consists of doors, sashes, blinds, window and door frames, mouldings, brackets, mantels, newel posts and stair railings. Scroll sawing, turning and planing is done very extensively for stores and dwellings, and executed to order.

The firm are the patentees for British Columbia for the automatic clothes dryer and clothes reel, the latter being for outside purposes. The sale of these devices is considerable throughout the province.

The water frontage is 300 feet on the inner harbor. The main store-house is 150 x 44 feet, besides which

It is worthy of note that this is the only mill in British Columbia which did not join the combine entered into between the California, Puget Sound and British Columbia mills some fifteen months ago. They are at present very busy loading vessels, the greater number of which are destined for China.

KOOTENAY LAKE SAW MILL.

This establishment is situated at the head of the little bay that forms Kaslo harbor. The site consists of five



TRAIN OF LOGS, ROYAL CITY MILLS CAMP.

acres of ground, fully occupied by the buildings, tracks and piling ground. The Kaslo & Slocan railway depot is on the adjoining land, and their tracks encircle this property. It is only half a mile to the centre of the city of Kaslo.

The saw mill is operated by a 75 horse power engine. Sawdust is fed automatically to the fire-box. The machinery consists of a 60 inch circular saw, gang saw, edger, trimmers, shingle and lath machinery, and a heavy double surfacing planer. The mill is of a most

San Francisco, and in 1891 the present proprietors assumed control.

A large area of land is occupied by these premises, which consist, besides the mills, of stores, hotel, manager's residence and dwellings for the employees. The equipment of the saw mill is of the most modern description, and it has a capacity of 120,000 feet per day.

The area of the timber lands owned by this firm is extensive and valuable. Besides the timber cut on their own limits, they also buy from loggers and jobbers. The

output of this company is chiefly shipped to foreign ports, but they have a yard in Vancouver city that supplies the local demand. The company maintains offices in London at 53 Coleman street, of which Mr. Wm. C. Jefferys is in charge. The head offices for British Columbia are in Vancouver, Messrs. Robert Ward & Co., Ltd., being the managers and agents.

ALBERT HASLAM, NANAIMO.

The city of Nanaimo derives a direct and tangible benefit from such an establishment as Haslam's saw mill.

The boiler house has only recently been detached from the mill and transferred into a separate, substantially built structure of brick and stone, the risk of fire being thus practically obviated. It is equipped with three tubular boilers, two being 60 x 16, and one 48 x 16, manufactured by the William Hamilton Company, of Peterboro', and the B. C. Iron Works, of Vancouver. Sawdust and slabs are used for fuel.

In the planing mill are two large planers, manufactured by Cowan & Co., of Galt, Ont., two stickers, a rip saw,

SAYWARD MILL AND TIMBER COMPANY, LIMITED.

The extensive premises of this company are situated within the limits of the city of Victoria, on one of the most convenient points of the inner harbour, with a view of catering to the local trade and foreign shipments. The business was established by Mr. W. P. Sayward many years ago, but was formed into a joint stock company in 1893, with a capital of \$500,000.

The saw mill is 220 x 110 feet, and is a two-storey building, equipped with the most modern woodworking appliances and machinery. The daily capacity is 60,000 feet. Besides the ordinary products of rough and dressed lumber, laths and shingles are also manufactured. This firm has made several shipments of choice spars. The principal countries to which they export are Australia and China. A view of the mill is shown herewith.

PACIFIC COAST LUMBER COMPANY, NEW WESTMINSTER.

One of the largest of the lumbering enterprises of the province is the Pacific Coast Lumber Company, Limited, whose plant is located at New Westminster, on the Fraser river. Five years ago this company was incorporated under the Companies Act. The officers are: President, W. J. Sheppard, a well-known lumberman residing in Waubaushene, Ont.; manager, Mr. J. G. Scott, residing in New Westminster.

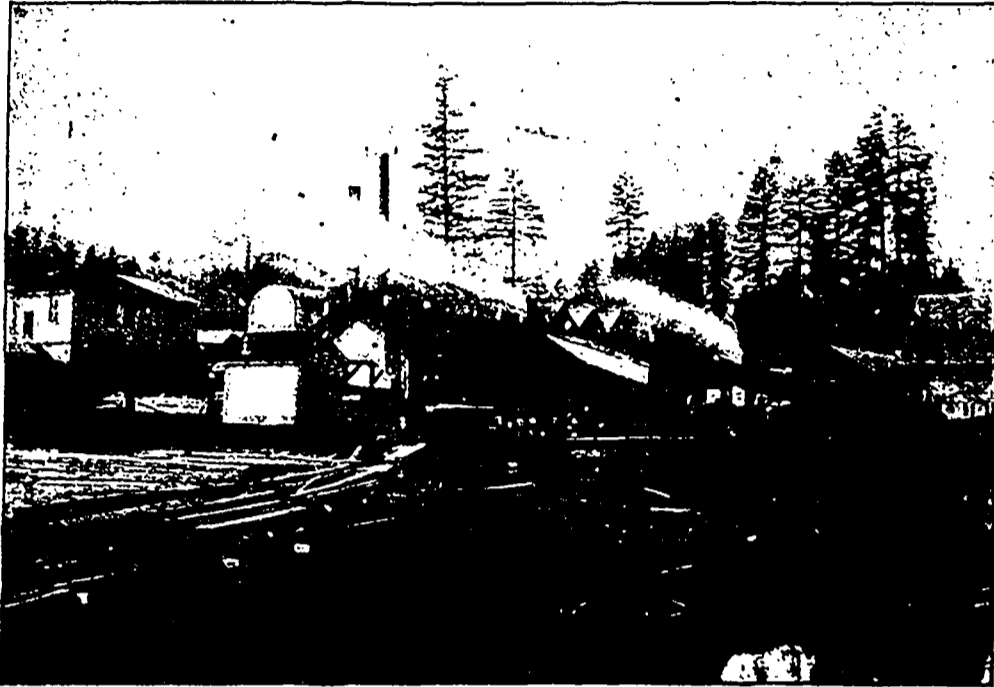
The plant includes several large buildings, covering over an acre of ground, and the equipment of the various departments is perfect. Everything in the line of machinery and appliances that can be in any way conducive to rapid or thorough work is provided, and powerful steam engines furnish the motive force.

The specialties of the company are red cedar lumber and shingles. The output of the former is 15,000 feet a day, and of the latter 150,000 feet a day. On an average 30 workmen are employed. The trade extends through the Northwest Territories, Ontario and the United States.

The shipping facilities, both by rail and water, are of the best order, vessels being able to load at the mills for any part of the world. Red cedar lumber and shingles of British Columbia are too widely known to require any lengthy comment, suffice it to say that no similar product in the world excels them, and that in all markets they find ready sales.

In addition to the well-equipped saw mill, the facilities for drying shingles in the dry-kilns are first-class. There are also large shipping sheds, where the manufactured product is stored, keeping it from the bad weather.

Many orders for the product of this establishment were



HASLAM'S SAW MILL, NANAIMO, B. C.

The property was purchased by Mr. Haslam, as agent of the Royal City Planing Mills, of New Westminster, thirteen years ago. In 1888 Messrs. Haslam & Lees took over the business for themselves, and a year later Mr. Haslam purchased his partner's interest and became sole proprietor. Under his management the saw mill has developed from a primitive arrangement, almost archaic in its simplicity, into a large and thriving institution conducted on a sound commercial basis and provided in every department with the best of modern machinery and appliances. In the early days it used to be one of the small boy's greatest pleasures in life to take a ride upon the logs while they were being sawn up into lengths. The small boy of 1896, whose adventurous disposition prompted him to try a similar experiment would, in all likelihood, share the fate of the log.

The mill comprises an area of nearly two acres and has a capacity of 55,000 feet in ten hours. The

saw mill proper is further supplemented by a planing mill, and a sash and door factory with a capacity of about 100 doors and 200 windows per day. The whole mill employs on an average about thirty men. Mr. Haslam gets his logs from his fir and cedar limits, 19,000 acres in extent, situated on the island and the mainland. There are perhaps 400,000 feet in a boom, and the logs when required are towed up the mill-stream in small quantities. The saw mill proper contains a large circular saw, a gang saw, an edger, a trimmer and a lath saw. The engine room is beneath the saw mill and contains four stationary engines measuring respectively 18 x 24, 15 x 24, 16 x 20 and 12 x 16.

a picket machine and a cut-off saw. The machinery in this building is operated by one 12 x 16 engine.

The drying kiln is situated at a convenient distance from the saw mill and measures 30 x 60 feet. The roof of the kiln is lined with zinc, which draws off the moisture from the piled-up planks and deposits it in a liquid form in the gutters, which run along the angle formed by the roof and connect with the outside. The sash and door factory is also provided with a drying kiln on a somewhat smaller scale.



SAYWARD SAW MILL, VICTORIA, B. C.

The sash and door factory is in an entirely separate building, 75 feet in length and 60 feet wide. Its mechanical equipment is as follows: Pony planer, rip saw, cross-cut saw, shaper, band saw, two stickers, a buzz planer, a door machine, sand-paper machine, lathe, door cramp and grinding, all of which are operated by a 10 x 16 engine. A glazing shop completes the different departments into which the mill, as a whole, is divided.

Mr. Haslam depends to a large extent upon the local market, though he occasionally makes foreign shipments, the last of these being to Alaska in April of this year.

refused this year, on account of the low prices offered. It is hoped that this will soon be a story of the past.

Messrs. Cimon & Co. are building a steam saw mill at Murray Bay, Que., to saw spool-wood.

Shipping reports from British Columbia indicate that the mills of that district had loaded up to the end of August, 1896, 76 cargoes of lumber. Of this number one has gone to Nova Scotia, one to the Baltic, 8 to Ireland, 17 to Australia, 21 to China, 21 to South America, and 7 to South Africa.

MANITOBA AND THE NORTH-WEST TERRITORIES

FOREST POSSESSIONS OF THE DOMINION GOVERNMENT.—NATIVE TREES.—
WESTERN RETAIL LUMBERMEN'S ASSOCIATION.—D. E. SPRAGUE'S MILL.

THE forest lands of Manitoba and the Northwest Territories, together with a tract 40 miles wide by 500 miles long in the Railway Belt of British Columbia, are owned by the Dominion government. So far as Manitoba and the Territories are concerned, in comparison with their vast area, lumbering operations are less extensive than in the other provinces of the Dominion.

The great western region, from the Lake of the Woods to the Rocky Mountains, and from the international boundary to the Arctic Ocean, although containing a vast amount of prairie, is by no means destitute of forest land. The rivers and streams passing through the prairies are fringed with poplars and other timber, and the ridges and hills possess spruce, black pine, poplar, etc., which supply the local saw mills. Spruce of large size is to be found north of the prairie region, where the balsam, fir, Banksian pine, the poplars and other similar trees abound. Confined to the south-east corner of Manitoba, which touches the forest region of Eastern Canada, are the white and red pine, the white cedar, the basswood, the maple, and the white elm. These species, however, are not to be found in any abundance. In the western part of Manitoba are located several species of trees not to be found elsewhere in the province. These are the ash-leaved maple and the green ash, while the burr oak re-appears here after a wide interval. The territories bordering on the Rocky Moun-



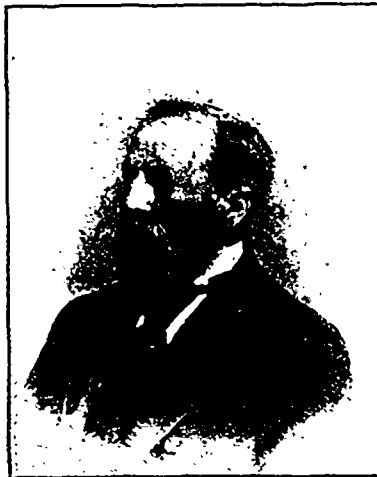
MR. D. N. McMILLAN, Morden,
President Western Retail Lumbermen's Association.

tains contain some of the trees of British Columbia, such as the Douglas fir, the mountain pine, the spruces, etc. These are being largely utilized by lumbermen.

There is a considerable number of saw-mills and wood-working establishments, but the principal timber supply is drawn from the adjoining Lake of the Woods district, where timber is found in abundance.

The Crown receipts from forest lands in Mani-

toba and the Territories range from \$60,000 to \$70,000 annually. Licenses to cut the timber are disposed of to the highest bidder, subject to an annual ground rent of \$5 per square mile and a royalty of five per cent. on the amount of the sales of all products of the berth, or on the value



MR. I. COCKBURN, Winnipeg,
Secretary Western Retail Lumbermen's Association.

of the lumber in the log. The Crown dues are as follows:

Fence-posts 7 ft. long, and not exceeding 5 in. at the small end.	1 cent each.
Fence-rails of poplar, and not exceeding 5 in. at the butt end.	\$2 per thousand.
Rails of any other wood not exceeding 3 in. at the butt end.	½ cent each.
Building logs of poplar when not exceeding 12 in. at the butt end.	½ cent per lineal ft.
Building logs of pine, spruce, tamarac and any other wood unenumerated when not exceeding 12 in. at the butt end.	1 cent per lineal ft.
Building logs of oak, elm, ash, or maple when not exceeding 12 in. at the butt end.	1 ½ cts. per lineal ft.
Shingles.	40 cts. per thousand.
Telegraph poles 22 ft. long.	5 cents each.
Telegraph poles, each lineal foot over 22 feet.	1 cent per foot.
Railway ties 8 feet long.	3 cents each.
Square timber and saw-logs of poplar.	\$2 per M. ft. B. M.
Square timber and saw-logs of pine, cedar, spruce, tamarac and other woods unenumerated.	\$2.50 per M. ft. B. M.
Square timber and saw-logs of oak, elm, ash or maple.	\$3 per M. ft. B. M.

The product of the local saw mills is disposed of entirely in the home market, no shipments to foreign countries being made; in fact, considerable British Columbia lumber finds a market in Manitoba.

WESTERN RETAIL LUMBERMEN'S ASSOCIATION.

To Manitoba and the Northwest belongs the credit of possessing the most active lumbermen's association of the Dominion; indeed, it might almost be said to be the only association existing to-day, one or two others apparently existing in name only. The organization of the Western Retail Lumbermen's Association was effected in September, 1891, the main object of which being the protection of its members against sales of wholesale dealers and manufacturers to contractors and consumers, and the giving of such protection as

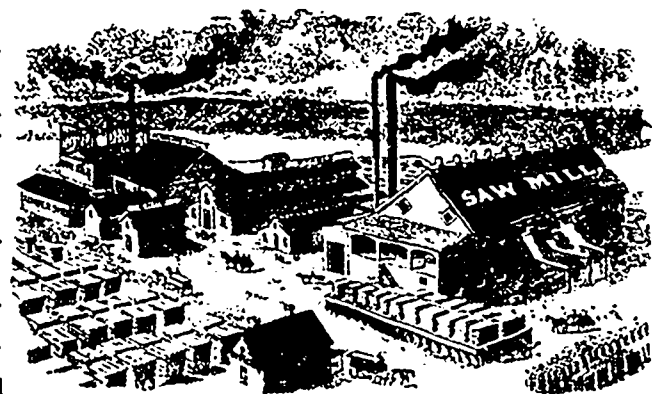
may be within the limits of the co-operative association. Wholesale dealers and manufacturers are admitted as honorary members. At the end of seven months, when the first annual meeting was held, the membership consisted of 130 active members and 15 honorary members, which embraced nearly all the dealers within the jurisdiction of the association.

The first president was Mr. Alex. Black, of Winnipeg, and this position he held until the annual meeting in February of 1895, when Mr. J. L. Campbell, who had been vice-president, was made chief executive officer. The first secretary-treasurer was Mr. G. B. Housser, of Portage la Prairie, to whose energetic efforts, at the inception of the organization, is very largely due its success. At the end of the first year he was succeeded by Mr. I. Cockburn, who has since filled the position with much satisfaction to all the members. At the fifth annual meeting in February last, Mr. D. M. McMillan, of Morden, was elected president, and Mr. T. A. Cuddy, of Minnedosa, vice-president. Portraits of the president and secretary are presented herewith.

Since the organization of the association much important work has been accomplished, and dealers have been enabled to maintain prices at a remunerative figure.

MR. D. E. SPRAGUE.

Mr. D. E. Sprague, of Winnipeg, whose mill we illustrate, commenced business in that city in 1872, in connection with Mr. J. W. Macauley. Previous to his arrival in the Northwest he was connected with the Georgian Bay Lumber Co. at Orillia and Waubaushene. In 1882 he established his present business, which has since steadily grown to its present large proportions. The saw and planing mills contain machinery of the latest and most approved type for the manufacture of lumber and its preparation for the market. In fact the mills possess every facility for the successful operation of the business, the plant altogether being compact, and the most perfect system prevails in all departments. The mill has one circular saw, which, running ten hours, cuts fifty thousand feet of lumber, shingles and lath. The dry kiln has a capacity of 48 thousand ft., and when operated on green pine lumber has a capacity (drying) of eight thousand feet per day. The sheds for dry and planed lumber have a capacity of about one million feet. The mill has



D. E. SPRAGUE'S MILL AT WINNIPEG.

been running night and day this season and will cut about seven million feet, about half of which is from American and half from Canadian pine logs. His trade is of a very extensive nature, extending throughout all parts of Manitoba and the Northwest. The total number of men employed is about ninety.

In all affairs of a public nature for the advancement of the city Mr. Sprague figures conspicuously, and is looked upon as one of the city's most enterprising and progressive business men. He is vice-president of the Winnipeg Agricultural and Industrial Exhibition Association, and one of the board of directors of the Winnipeg general hospital.

NEW BRUNSWICK AND NOVA SCOTIA

THE SPRUCE PRODUCING PROVINCES OF THE DOMINION. EXTENT OF FOREST LANDS. —DIFFERENT METHODS OF DISPOSING OF THE TIMBER.—ENTER-PRISING PULP AND LUMBER COMPANIES.

NEW BRUNSWICK.

NEXT to British Columbia, New Brunswick possesses the largest percentage of forest lands in proportion to the total area. Of the 28,100 square miles contained within her boundaries, 14,766 miles are timbered lands. Spruce predominates in nearly every section, while there are also to be found quantities of pine, white cedar, hemlock, larch, balsam, and a variety of hardwoods, such as maple, birch,



MR. ALEXANDER GIBSON.

ash and poplar. Owing to the rapid development of the pulp industry, and the strong demand in the United Kingdom for deals, spruce timber is now receiving a great deal of attention, and the cut during the present year promises to exceed that of any previous one.

The forest lands of New Brunswick are owned by the government, and the right to cut the timber thereon is disposed of by auction. An upset price of eight dollars per square mile is fixed, and the limit is sold to the highest bidder, subject to stumpage regulations and restrictions, the lease being granted for a term of twenty-five years. The stumpage paid upon logs, timber or lumber is as follows:

For spruce, pine, hardwood or haematac saw logs, per M superficial feet.....	\$1 00
Hardwood timber, up to average of 14 inches square, per ton.....	0 90
Hardwood timber, above 14 inches, per incl. additional, per ton.....	0 10
Pine timber, up to 14 inches square, per ton.....	1 00
Pine timber, additional per inch, per ton.....	0 25
Haematac timber, per ton.....	0 50
Spruce timber, per ton.....	0 50
Cedar logs, per M superficial feet.....	0 50
Or per M on the shingles sawed from same, for the first three grades, each.....	0 10
Shaved shingles, per M.....	0 20
Railway ties, ordinary length, each.....	0 02
Boom poles, each.....	0 02
Brackets, each.....	0 01

Spruce or pine spars, for ship masts, etc., per lineal foot..... \$0 01
 Spruce or pine piling, per lineal foot..... 0 00 1/4
 Hemlock, per M superficial feet (full scale).... 0 40
 White birch logs, for spool wood per M superficial feet..... 0 65
 And for other descriptions of lumber, such as knees, foot hooks, cordwood, etc., etc., twelve and one half per cent. of the market value thereof at the mill, place of shipment, or place of consumption in the province.

No spruce trees are allowed to be cut under license which will not make a log at least 18 feet in length and ten inches diameter at the small end. Licenses are subject to renewal by the first day of August in each year.

According to the twenty-fifth annual report of the surveyor-general, the receipts from the sale of timber licenses during the year ending October 31st, 1895, were \$13,886.25, against \$6,122.33 for the previous year. Renewals of timber licenses produced a revenue of \$25,974.00, and net stumpage \$100,142.39. In the year 1892 an extension of the term of leases was made from ten to twenty-five years, and since the introduction of this system the sales of timber licenses have largely increased. Of late there has been greater competition at sales of Crown lands, and lumbermen are said to evince a strong desire to protect from fire, as far as possible, the lands purchased by them.

It is estimated that there are within the province upwards of 700 saw mills and 150 shingle mills, but these figures cannot be taken as accurate. Situated on the St. John and Miramichi rivers are some of the finest mills to be found in Canada. Excellent shipping facilities are afforded for catering to the European and other foreign trade, which gives promise of more rapid development in the future.

The following figures show the exports to Europe for the past ten years:

	Fl. B. M.		Fl. B. M.
1886.....	276,000,000	1891.....	253,000,000
1887.....	250,000,000	1892.....	325,000,000
1888.....	277,000,000	1893.....	312,000,000
1889.....	369,000,000	1894.....	326,000,000
1890.....	293,000,000	1895.....	291,000,000

Among the principal shippers to the foreign market may be mentioned Hon. J. B. Snowball, of Chatham; Alex. Gibson, of Marysville; W. M. Mackay, Geo. McKear, J. & L. B. Knight and Cushing & Co., of St. John.

MR. ALEXANDER GIBSON.

Mr Alexander Gibson, of Marysville, whose portrait we again present, is known as the lumber king of New Brunswick. His mills are situated on the Nashwaak river, near Fredericton.

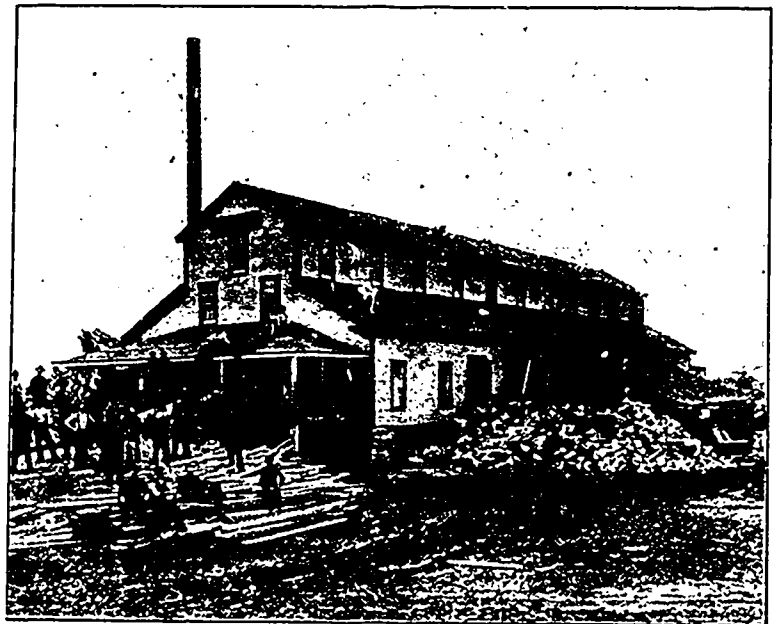
Mr. Gibson is the owner of thousands of acres of timber lands, five saw mills, a large cotton mill and the Canada Eastern railway. He is the shipper annually of upwards of one hundred million feet of lumber to different markets, chiefly to Great Britain. Over a thousand persons are directly in his employ in summer, and upwards of two thousand in winter, in connection with his lumbering operations. Six hundred men are employed stream driving in the spring, and about the same number in the cotton mill constantly.

At Marysville he owns three saw mills, one cutting long lumber, another shingles and another lath. The spruce is cut into deals for the English market, being towed down the St. John river to the harbor of St. John for loading on steamers. The cedar logs are cut into shingles, the clears and extras for the United States market and the other grades for the provincial market. The laths and hemlock also go to the United States market.

He has two mills at Blackville, one cutting hemlock and the other spruce. Last year the cut was 5,000,000 feet each of spruce and hemlock, and about 3,000,000 feet of cedar.

Besides the cut of his own mill Mr. Gibson buys large quantities of lumber for shipment to the British market. His cut averages about 40,000,000 feet annually, while the amount of his shipments to the British market alone exceed 80,000,000 feet per year. Since he began operations on the Nashwaak he is said to have marketed fully a thousand million feet of lumber from his own mills there and at Blackville.

Like many other men who have been eminently successful, Mr. Gibson began life without any capital, working with his axe for the ordinary woodman's wage. Afterwards he commenced business at Milltown, and later on removed to Lepreaux, where he acquired a small fortune. Not feeling satisfied he removed to the Nashwaak,



THE ABERDEEN MILLS, FREDERICTON.

where he laid the foundation of the extensive establishment which exists to-day.

THE ABERDEEN MILLS.

The Aberdeen Mills are located at Fredericton, and were built some three years ago by Messrs. Donald Fraser & Sons, the firm consisting of Donald Fraser, sr., and his two sons, Donald and Archie. They acquired wealth and fame as lumbermen at River De Chute, where they still have a very fine water power saw, shingle, clapboard and lath mill, which they run to its full capacity. Their experience in the manufacture of clapboards led them to make radical improvements in the machinery required for the purpose, and while making and testing those improve-

ments they saw where changes for the better could still be made if building anew. Some years ago they began looking around for a suitable site for milling, as they found it difficult to hold the logs they required for the season, and after consideration decided to build at Fredericton. The mill is about one mile above the provincial parliament buildings, and very prettily situated. So far as scenery from the mill is concerned, there is perhaps nothing to compare with it in Eastern Canada. The grand St. John river is just in front; on the opposite side the placid and enchanting Nashwaak river unites its waters with the St. John; a mile or so above in the main river are to be seen beautiful islands; looking down the river on the opposite side is the village of St. Marys; a little further is the village of Gibson, where the Nashwaak river empties into the St. John. Some three miles up this river is to be seen a great cloud of black smoke, which comes from the chimney of A. Gibson & Son's great cotton factory at Marysville; the long spans of the wooden bridge from Fredericton to St. Marys show up nicely, while a mile further down the splendid iron railway bridge catches the eye both bridges being about three-quarters of a mile in length. One cannot get a very good view of Fredericton from the mill, as the location is flat. Across the river the land rises gradually from the river bank, where are nicely cultivated farms with neat houses and surroundings for a few miles; then as far as the eye can reach can be seen the rich green of the spruce, with here and there a patch of hardwood, the leaves of which are now in all the variegated hues imaginable. Taking in the whole as a panorama one cannot help feeling that he is near the "Celestial City."

Fearing that our readers cannot enter into the spirit of the picture as herein very imperfectly painted, it is hoped that this description of the beauties of this earthly "celestial city," Fredericton, New Brunswick, may be the means of inducing the western people who contemplate a summer trip to stop over at that point, and for a certainty they will confirm all that has been said, and will say that the colors used were not half bright enough.

The Messrs. Fraser having selected the location, erected a very convenient building and

the various machines throughout the mill. Beginning with a quick motion main shaft, the pulleys are very small as compared with some of the mills using the slow motion engines. The firm make a specialty of clapboards, and have a reputation in that line that only time and a close attention to the business can give. In connection with this branch of their business they have a fine dry house, with a capacity equal to their cut, the clapboards going direct from the saw to



HON. J. B. SNOWBALL.

it, and from there to the planers, then to the warehouse.

The firm are also large lumber operators on the Tobique river, getting out from eight to ten million feet per year.

In connection with the mill they are building up quite a village and the business is of great importance to the city of Fredericton.

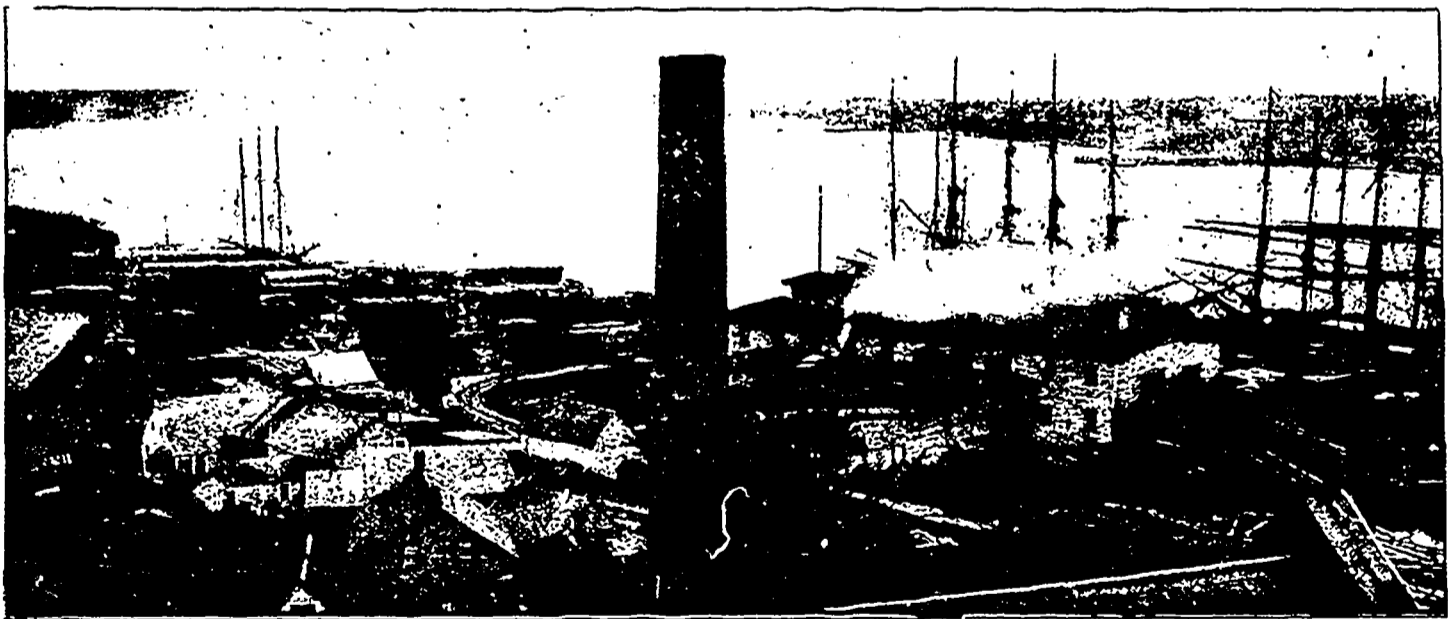
is shipped largely to Great Britain, Messrs. Farnworth & Jardine being his representatives there.

Mr. Snowball, whose portrait may be seen on this page, is a native of Nova Scotia, having been born at Lunenburg in 1837. His family is of German origin, but for several generations were residents of Yorkshire, Eng. His connection with the lumber business of the maritime provinces is of long duration, and the vicinity in which he lives owes much of its success to his characteristic enterprise and enduring qualities. In addition to his lumber business, he is also largely interested in several railways of the province and other financial enterprises. He represented the county of Northumberland in the House of Commons from 1878 to 1882, when he retired, and on May 1st, 1891, was called to the Senate. In politics he is a Liberal-Conservative.

C. M. BOSTWICK & COMPANY.

As is the case with many other settlements throughout the Dominion, the village of Big Salmon River owes its existence to the lumbering industry. It is located a distance of ten miles from St. Martins, and the river of the same name is one of the largest on the coast. The estate of C. M. Bostwick & Co. in the vicinity comprises 100,000 acres, or 156 square miles. The site of the mill, with a square mile or so of territory about it, was granted in 1834 to Allen McLean. Mr. McLean sold out soon after to Messrs. Budd & Robinson, who built two small mills of the "jack-knife" variety. The property came into the hands of the late Henry Chubb, by whom it was sold in 1841 to the late Wm. Davidson and James Adams. Mr. Davidson bought out Mr. Adams and remained sole proprietor until his death. He built a modern mill, fully up to date. The site was a considerable distance above the present mill and the lumber was carried to the shore by a tramway.

The first Davidson mill, with the dam, the cook house and other buildings, were carried away in the great flood of 1854. Mr. Davidson built again on the spot where the new mill stands. This mill was burned and in its place was erected a large and well equipped establishment, which was on the property when the Bostwick firm took possession, more than thirty years



HON. J. B. SNOWBALL'S MILLS, CHATHAM, N. B.

equipped it with the best class of machines. Their circular has a capacity of 30,000 sup. feet, clapboard machines of 8,000 pieces, shingle machines—of which they have two "Dunbar"—of 30,000, and lath machines of 40,000 per day of ten hours. During the greater part of this season they have been running night and day to keep up with orders. The power is steam, a pair of quick motion engines driving the main shaft, from which counter shafts are driven for

HON. J. B. SNOWBALL.

The largest producer of lumber on the Miramichi river is the Hon. J. B. Snowball, whose mills are located at Chatham. His annual shipments, principally spruce deals, vary from twenty million to twenty five million feet. His mill is equipped with three gangs, with a complement of trimmers, and has an output of 30,000,000 ft. per year. The product of three other mills in the district is also handled by Mr. Snowball, and

after. This spring, just as operations were commencing, while five million feet of logs were in the pond and contracts made for the sale of all the lumber as fast as manufactured, another fire swept away the whole structure. A small steam mill on the beach, built by the Davidsons, had been burned some years before.

The property as purchased by the Bostwick firm in 1890 from the Davidson estate included these two mills and a small property with a mill

at Martin's Head. The price paid was the round sum of \$100,000.

Preparations for rebuilding were made at once and a few weeks ago the new mill was put in operation. Like its predecessors, it is run by water power, two water wheels driving the machinery. One of these is a 66 inch turbine which was in the old mill. The other is a Blake or Cleveland improved 60 inch wheel, made in St. John. The two wheels are so arranged that either may be run separately, or by the shifting of a belt both may be connected together with the main driving shaft.

The first floor contains all the shafting and has ten feet posts. The action of the machinery is all made as direct as possible, so that the equipment is a model of simplicity and solidity.

The second story contains a gang adjusted for deals and boards, an edger, a deal trimmer, a trimmer to cut into lath stuff, and a lath machine. There is also a splitter to work up defective or broken timber into lath material. The edger was made by Waring, White & Co., of St. John; the lath machine is a Ross patent, built by Harry Allen. The belt is a 15 inch rubber from the Boston Rubber Belting Company.

The mill itself is 110 by 41 1/2 feet. The frame was made under the superintendence of Mr. Robt. Armstrong. The machinery was built by Mr. B. F. Eagles, after plans devised and arranged by Mr. F. M. Anderson, the general manager.

The roof is heavily coated with fireproof paint. The refuse is carried by an endless chain, running in a trough to a dump built up to where the tide surrounds it, and is there burned. The cutting capacity is 50,000 feet per day.

Mr. C. M. Bostwick considers he possesses about the best timbered land on the Bay shore. He says that it has a perfect system of waterways, as the main stream takes in branches just where they are needed to bring in the timber. He has spent a good deal of money in perfecting an outfit of driving dams and is not troubled with having his logs hung up. The logs are cut and driven by contract. The quantity of standing timber suitable for sawing cannot easily be estimated, but Mr. Bostwick expresses the opinion that while he only takes five million a year

NOVA SCOTIA.

UNLIKE the neighboring province of New Brunswick, the Crown lands of Nova Scotia are purchased outright from the Government, there being no system of timber licenses. While the total area of the province is upwards of 20,000 square miles, or about 13,440,000 acres, not more than 6,500 sq. miles is timbered land, and even much of this is covered with small growth and unfit for lumbering. It is claimed that about 1,500,000 acres are owned by lumbermen, and the balance by farmers and the Crown in equal proportion. Some years ago the province possessed no inconsiderable quantities of white and red pine, but what remains to-day is almost wholly on private property. The spruce forests are now of the greatest value, and furnish an abundance of first-class timber. There is also to be found a fair proportion of hemlock, hachmatac, balsam, etc. Of the hardwoods there is perhaps the greatest supply of beech, birch, maple and ash, which are utilized both for home and foreign requirements.

In the year 1894 the number of saw mills operating in Nova Scotia was roughly estimated at 1,200, while of shingle mills there were over 200. The census returns show that the quantity of timber cut in 1870 amounted to 15,494,000 cubic feet; in 1880 to 27,745,000 cubic feet, and in 1890 to 46,408,000 cubic feet. It will thus be seen that each year the total cut is rapidly increasing. Of the quantity of timber produced, less than one-tenth is required for home consumption, the balance being

shipped to foreign markets, principal of which are the United Kingdom and South America, the main shipping ports being Amherst, Halifax and Parrsboro. The shipments of deals, etc., from Nova Scotian ports in 1893 amounted to 109,252,930 sup. feet, and in 1894 to 106,327,250 feet.

The manufacture of pulp is an industry which has already largely added to the prosperity of Nova Scotia, and promises

to further develop as the quality of the manufactured article becomes better known. By this means is utilized much of the product of the forest which is not adapted for merchantable timber.

THE LIVERPOOL RIVER.

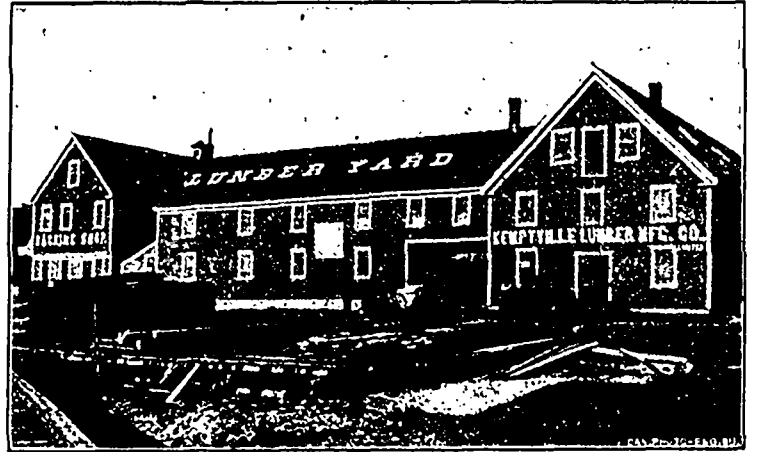
The traveller along the southern coast of Nova Scotia is rather attracted by the pretty appearance of the town of Liverpool, with its streets overshadowed by rows of beautiful ornamental trees, and its well filled and well kept places of business, the more so as he has travelled over a

long and uninviting piece of country before reaching it.

He naturally inquires what the industry of the place is to build up and support, amid apparently unfavorable conditions, such a snug little town.

Among other things, in answer to his question he is told that the river extending up through the town and into the country beyond is the life of perhaps the principal industry of the county of Queens, namely, the manufacture of lumber and pulp. Two miles up the river is the village of Milton.

At present there is a company constructing an electric railroad from Liverpool to the Milton Pulp Co.'s mills at Deep Brook, five miles up the



KEMPTVILLE LUMBER MFG. CO.'S FACTORY, YARMOUTH, N. S.

river, which is expected to be in operation this winter.

Two bridges cross the river at Milton at a distance of nearly a mile apart, located at each of which are lumber mills. Principal among them are those of John Millard and Messrs. Harlow & Kempton, the former at the lower bridge and the latter at the upper or Potanoc bridge.

The mills of Messrs. Harlow & Kempton, which we illustrate, are doubtless the best on the river, and being owned by very enterprising men, are kept supplied with nearly all the modern appliances for cutting and manufacturing lumber of all descriptions.

At the time of writing these mills are undergoing quite a thorough repairing, under the supervision of Mr. Duncan Buchanan, of Apohaqui, N. B., a gentleman with large experience in mill building and thorough knowledge of his line of business. He is putting in two of his improved turbines, one of the same kind having been used by this firm for six years with the best of satisfaction.

This firm is now putting in another planer, a band saw and sash and door machinery, which will employ, all told, about forty men.

One mile above Harlow & Kempton's mill is the establishment of the Milton Pulp Co., the principal shareholder of which is the Hon. A. G. Jones, of Halifax. This mill is first-class in every respect, and appearances indicate that the company intend to be fully up to the times, as they are constantly adding the latest improvements in pulp mill machinery. The capacity of the mill is forty to fifty tons of pulp daily, which seems to be fully maintained as time goes by, under the able and skillful management of Mr. J. S. Hughes.

KEMPTVILLE LUMBER MANUFACTURING COMPANY.

The mills of this company are located at Kemptville, N. S., while they also have a large factory and warerooms at Yarmouth, a cut of which appears herewith. They are manufacturers and dealers in lumber of all kinds, kiln-dried sheeting and flooring, doors, sashes, mouldings, clapboards, shingles, brackets, ballusters, laths, box shooks, and builders' material generally. At present they are making a specialty of mantels in quartered oak and white wood, some of the designs being especially beautiful. The manager at Yarmouth is Mr. A. H. Poole, who reports the company's business as steadily increasing.



HARLOW & KEMPTON'S SAW MILL, MILTON, N. S.

off the property, the quantity standing will always increase, this amount being less than the annual growth.

FROM SOUTH AFRICA.

A letter has been received by the CANADA LUMBERMAN from a firm of timber importers in South Africa, requesting that lumber manufacturers and dealers in New Brunswick, who are in a position to supply the South African trade, should communicate with them, giving specifications of what they can supply. The address of our correspondents will be furnished upon request.

NEW PORTABLE SAW MILL.

THIS mill is designed to meet the wants of those requiring a mill adapted to a wide range of work, using either light or heavy power. The Sawyer & Massey Co., Ltd., of Hamilton, who are the manufacturers, claim that it is simpler and has fewer parts than other mills, is easier to set up and keep in order. The husk frame is a strong wooden frame with an extension to receive carriage tracks. This feature insures quick setting up and perfect alignment of the track with the saw. The frame will take saws up to fifty-six inches diameter. There are three heavy boxes for the saw mandril, one box on each side of the main drive pulley. All shafts are steel and large in diameter. Pulleys are large, with wide faces, so as to insure no slipping of belts. The lever for controlling the friction feed and giggering back are one; by simply throwing the lever back or forward, it throws the giggering back in or out of gear. The sawyer's set works on the carriage are so placed that each time the carriage comes back the lever comes to the sawyer's hand, so that he can set to saw any desired thickness without leaving his position at the feed and gig back lever, and by simply turning his hand he can throw all pawls out, and the opposite motion of lever which brought the knees forward will gigger them back ready to put on the next log.

In connection with the set works there is a lumber gauge which attaches to the husk or saw frame within easy reach of the sawyer, so placed that any desired thickness can be quickly set and a uniform thickness preserved during any entire day's sawing. The set works have a two inch shaft running the full length of carriage, sustained under each head block by a hanging box bolted to the log seat. With each mill is furnished

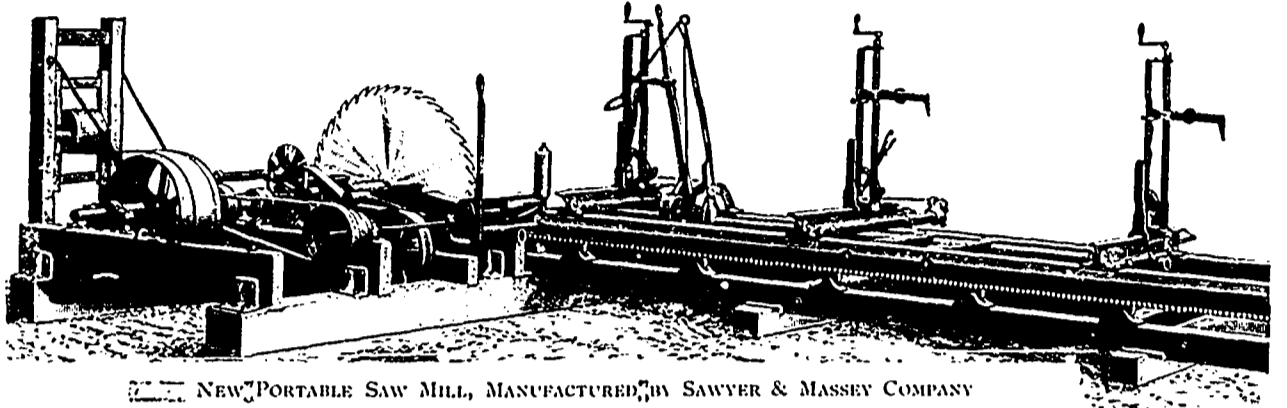
with the best composition metal, have a pivoted bearing and can be adjusted by set screws so as to give any amount of lead to the saw. The boxes are provided with large oil cavities in each end of box, so that oiling once a day is sufficient. The lumber rollers on the husk frame are carried by heavy stand boxes bolted to the frame. The revolving splitter is provided with means for adjusting endways. The saw guide is made so that both jaws can be moved together, so as to give lead to the saw inwards or outwards, as may be required, or either jaw can be adjusted independently. The carriage is 18 feet long and made of yellow pine, well seasoned, well put together, and of sufficient strength to hold the largest logs without the least tremble. The track ways are made of well

peats," which speaks well for the "Unique" telephones, which have now been on the market for several years and give perfect satisfaction.

The Dodge Wood Split Pulley Co., of Toronto, have recently added a new department to their business, viz., the making of shafting, hangers, etc., and report a good outlook for business in these lines.

F. Stancliffe, of Flat Lands, N. B., has had a 50-light plant installed in his shingle mill. This plant was supplied and installed by John Starr, Son & Co., of Halifax, N. S.

The firm of B. R. Mowry & Son, of Gravenhurst, Ont., have attained a wide reputation as manufacturers of saw mill machinery, castings of all kinds, steam niggers, and general repairs. But perhaps their greatest success has been in connection



NEW PORTABLE SAW MILL, MANUFACTURED BY SAWYER & MASSEY COMPANY

seasoned lumber, coupled together with cast iron coupling so as to bring the track in perfect line when brought together.

TRADE NOTES.

Messrs. John Starr, Son & Co. have just installed a fifty-light plant for the St. Croix Paper Mills Co., of Hartville, N. S.

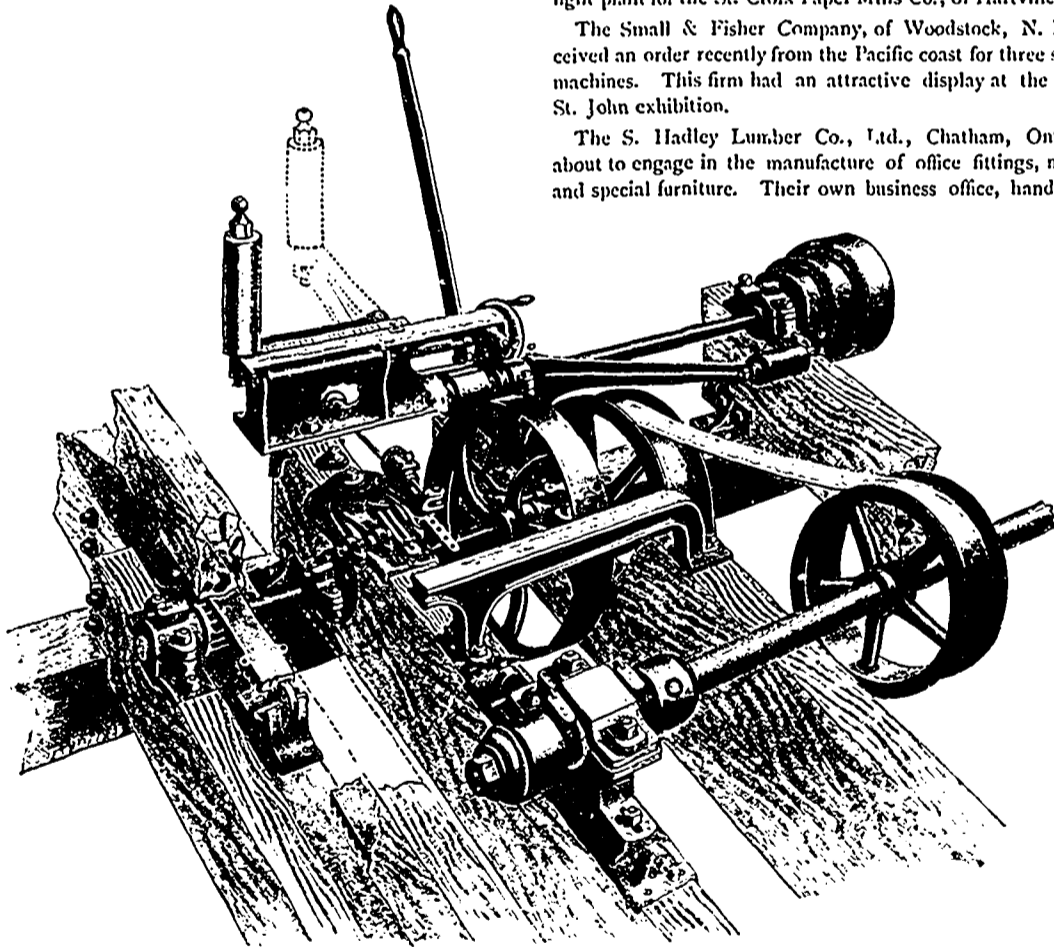
The Small & Fisher Company, of Woodstock, N. B., received an order recently from the Pacific coast for three shingle machines. This firm had an attractive display at the recent St. John exhibition.

The S. Hadley Lumber Co., Ltd., Chatham, Ont., are about to engage in the manufacture of office fittings, mantels and special furniture. Their own business office, handsomely

with the "Boss" shingle machine, which is now being used by manufacturers in every part of the Dominion. They recently shipped a complete shingle machine, jointer and packer, to Mr. G. O. Buchanan, of the Kootenay Lake Saw Mill, Kaslo, B. C. An instance of the popularity of the "Boss" machine is shown by the fact that McLachlin Bros., of Arnprior, purchased two machines, and in the following year duplicated the order. The firm of B. R. Mowry & Son has been established since 1882, and is composed of Mr. B. R. Mowry and his three sons.

The Ottawa Saw Works Co., of Ottawa, inform us that they have, during the past year, made large additions to their plant, especially in the band saw department. They have erected furnaces and put in the latest improved machinery for the manufacture of band saws, and consider that they now have the best equipped band saw plant in America. They are supplying this class of saws to most of the large mills throughout Canada, and their increased trade speaks for the quality of the work. They have had to add to their staff several expert workmen who have come direct from the best American saw shops during the past year. In addition to band saws they make a specialty of circular, gang, shingle and all kinds of mill saws. This concern commenced operations about two years ago in Ottawa. The active members of the firm being practical saw men, it is not surprising that they met with success. Their trade extends throughout Ontario, Quebec, British Columbia and the maritime provinces.

Much attention has been attracted to a dry-kiln installation at Glen Jean, W. Va., in the plant of the Glen Jean Lumber Co. This mill is recognized as up-to-date in all its equipment, and the enterprising president of the company, Mr. J. J. Robinson, is a believer in advanced methods. The dry kiln plant is the compression system installed by the Emerson Co., of Baltimore. We have received a sample of quarter sawn oak flooring dried in this kiln. It is thoroughly dried and shows a splendid finish. The sample illustrates the advantages of the Emerson system, and lumber dried by this process should find a wide demand. Favorable comment regarding the Emerson system is heard on all sides. Recently the company received from Edward E. Rueter, superintendent of the Globe Furniture Co., High Point, N. C., the following letter: "After a person has used half a dozen or more of the various kinds of so-called patented dry-kilns without obtaining satisfactory results, he is calculated to become doubly cautious when desirous of making a change from former experience to another system in order to reach perfection in the drying of lumber. Such was the question with us last April, when we looked about for a method to dry lumber in a more perfect manner, and at the same time more economical in the long run. Past experience taught us to seek such results, if they could be obtained, regardless of first cost. This question now is solved, after having used your method of drying for several months. We congratulate your company on having a better method for the drying of lumber than any heretofore used by us. The kiln does what you guaranteed it would do, and it is with pleasure that we recommend its use to others in need of a first class system."—Manufacturers' Record, Baltimore.



SAW GEARING—NEW PORTABLE SAW MILL, MANUFACTURED BY SAWYER & MASSEY CO.

three of Inksetter's head blocks which can be set simultaneously, or each knee can be moved separately for tapered logs. Each head block is also provided with Inksetter's double ended gravity and screw dogs. This dog will securely hold any sized log down to the last board. The friction feed and giggering back lever, lumber gauge, set works, patent head block with sliding knees, and patent dogs are all under the control and eye of the sawyer.

The saw mandril boxes are long and strong, lined

fitted up in quartered oak, is conclusive evidence of their ability to turn out work of the highest class in the lines mentioned.

Messrs. John Starr, Son & Co., Halifax, have recently installed a 200-light plant for Kilgour Shives, of Campbellton, N. B. This is used for lighting Mr. Shives' extensive lumber mills and yards.

The "Unique" telephones as manufactured by John Starr, Son & Co., Halifax, are having a large sale. This firm have recently supplied a number of telephones and switch-boards to Campbellton and Quebec, both of which orders were "re-



A COMPLETE WOOD-WORKING ESTABLISHMENT.

THE many improvements which have been made in recent years in wood-working machinery are forcibly illustrated by a visit to the establishment of Messrs. J. B. Smith & Sons, on Strachan avenue, Toronto. There the manipulation of lumber into the various classes of stock, such as doors, sashes, mouldings, blinds, boxes, etc., is carried on at a surprising degree of rapidity.

The firm is composed of Messrs. John M., Robert, William J. and James H., four sons of the late J. B. Smith, and the business has been established since the year 1851.

The lumber for the factory is obtained from their saw mill at Callendar, a siding from the Grand Trunk Railway running through the yard adjacent to the mill and affording track room for twenty-five cars. The yard covers an area of $3\frac{3}{4}$ acres, and is kept constantly filled with the various classes of lumber required for their purpose, some of which is obtained from the Southern States. The factory is a three-storey brick structure, 200 x 50 feet in size. The machinery is driven by a 150 h. p. Goldie & McCulloch engine, backed by two boilers. The factory and dry kiln is heated by hot air forced through coils of pipe with a separate engine and fan. This is accomplished by means of a Moffatt feed water heater and purifier, which also purifies the water and removes the scale, thereby preventing it from getting into the tubes of the boiler.

The machinery on the ground floor consists of four planers and matchers, three four-headed stickers, two band saws, circular re-saw and other cross-cut and wood saws. One of these matchers is capable of matching all four sides up to 6 x 24. The second floor contains a double set of sash and door machinery, including an "Invincible" polisher or planer, capable of dressing stock 60 inches in width and 8 inches in depth, which is done by means of sand-paper drums. This planer will perform, it is claimed, as much work as twenty-five men. At the present time the firm have large orders for veneered doors, which they manufacture in white-wood, black and white ash, and quarter cut oak. In a small room off this floor is the gluing department, where the veneers are glued together. This is kept warm by means of the system of coils before mentioned. The top storey is devoted to a store room for mouldings, sash and doors and kiln-dried material. The size of the dry kiln is 50 x 18 feet.

Fuel for the boilers is furnished by the shavings and sawdust, which are blown by fans through galvanized iron pipes running up the outside of the building to cyclone separators on the roof, which separate the dust

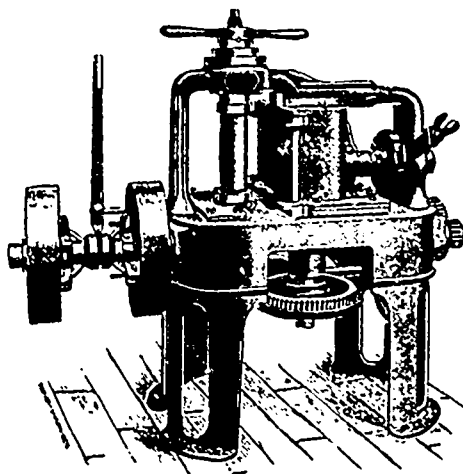
from the shavings and sawdust, the latter dropping into hoppers and being carried to the boilers.

A machine shop is also in connection with the premises for repairing.

DROP CARVING MACHINE.

THE accompanying illustration represents a drop carving machine which is said to possess much merit, and which has been patented in the United States, Canada and European countries.

The machine is simple and easily operated. When the carvings leave the machine they are ready to be placed on the furniture. They can be made of any thickness from one-sixteenth to an inch thick. A furniture manufacturer who



DROP CARVING MACHINE.

has been using the machine says: "Prior to putting in a carving machine I employed eight hand carvers and five spindle carvers. I am now doing all of the carving formerly done by this force of men with one drop carving machine and one man, and am using far more carving on my furniture than when I used the old method; besides this, my saving is very large in that the machine does all of the scroll sawing and sanding of the carvings."

BAND VS. CIRCULAR-SAWN LUMBER IN THE PLANING MILL.

Not many numbers since considerable was said comparing band and circular saws and their work. Some writers were quite hard on the band, condemning its work without scruple, and giving it no credit except that it could saw, and it was a foregone conclusion that it sawed badly.

Self interest looks only from one standpoint, and whatever comes under the scope of the individual observation is either all sunlight or all shadow. The drummer, selling for a house making only circulars, can see no good in the band, and, of course, the band drummer sees only perfection in the shining band, which saves half the stock in each cut—which may, or may not, be even the shadow of truth.

I haven't the least prejudice against either, having no interest in either except to have the work go through and come out of the planing machine as nearly perfect as pos-

sible. It makes no difference to me if a plank is two inches thick at one end and three inches thick at the other, or whether it is band or circular sawed. The question with me is the wear and tear of the machine in planing it, and the loss of time made necessary in such unevenly sawn stock.

I claim, as I will try to show, that all of this poor work comes from either not knowing how to keep saws and machinery in order, or from a desire to rush the work. No matter what shape it comes out, as long as it comes out and is counted and shipped. The stock is sawn and shipped and the planer does the rest. You planing mill machine men who make a specialty of running yellow pine stock, know how it is.

From this standpoint I give you a result of some of my observations running circular-sawn stock. Here is a lot of 5-4x3, sawed by Tift, Brunswick, Ga. The sawing is uniform in width and thickness on much of the stuff, only the cut of every tooth can be seen. So much circular-sawn work shows the feed that this is a very noticeable thing. Some of this stock is so nicely sawn that even the tooth-marks are scarcely visible. Of the 20,000 feet in this little order there were no poor pieces. The strips were very uniform in thickness and width, and the sawing was perfection itself.

This shows one fact in circular sawing: that it can be well done, and that some people can and do keep their saws in good shape. Timber from the same parties always comes sawed squarely, even in size from end to end, and only the tooth marks are to be seen.

About this tooth mark business, what I mean is this: Instead of the feed mark, which is almost invariably seen in sawing, and by which we tell how much the saw is feeding, we see only the cut of each single tooth. This lot under consideration showed just the tooth mark.

Put alongside of this another lot which was shipped us from Fernandina; the same kind of stuff, 5-4x3. All of this lot showed the feed mark very plainly. Some was so bad that you could put a straight-edge across and see one-sixteenth of an inch between the ridges, while the strips in width often vary an inch from end to end, and often almost as much in thickness. A considerable lot had to be thrown out from thin ends, or thin in the middle. Of the 15,000 feet in the lot, as much as 500 feet had to be thrown out on account of thin ends and thin centres.

Now take two lots of heavier stock, the shipment and sawyers of which are not known to me. The first lot of stuff, 3x12, from Fernandina, p48, was even in thickness and width. The sawing was good, the feed marks showing about as usual, but not badly. We ran all day on this lot on a 40-foot feed, and not a belt slipped nor did we have to shut off feed to catch up speed. When the last plank went through I knew we had made a remarkably fine run.

Contrast with this what I shall call the gulf lot, 3x8, also p48. This lot had all the qualities of the 5-4x3 spoken of, wide and narrow ends, thick and thin ends, and middles varying often more than an inch in both. We had to have the ends of much of it chamfered in the thickness. I took off the outside chip-breaker to prevent breaking it and waded through with the feeder's hand on the shipping lever. Of course we put it out, but when we shipped the last plank of this lot out I felt as the parson did who was called upon to make remarks at the funeral of a noted jockey and gambler. He began by reading one of Watts' hymns, the second line of which reads, "Thank God the curse's removed."

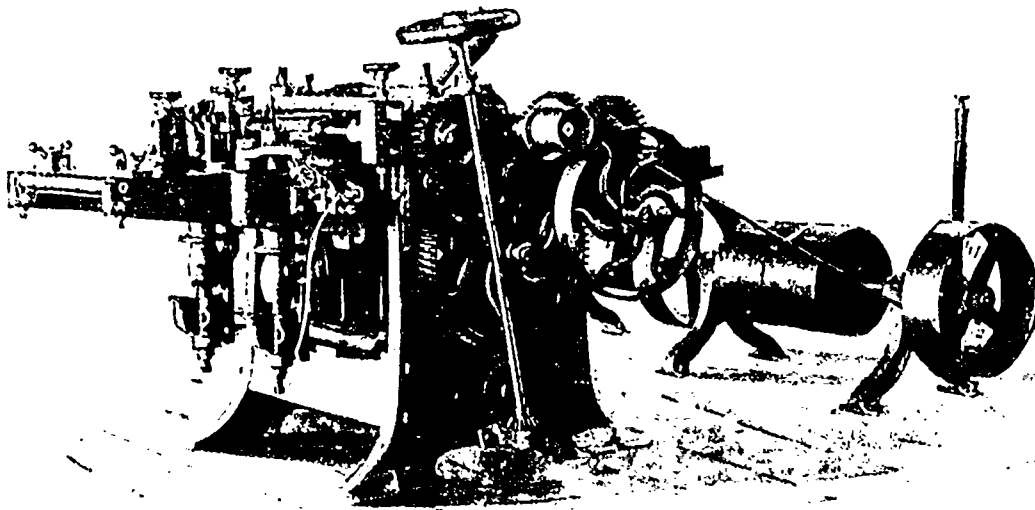
We are repeating these things from day to day as orders come in. I give these instances to show that the circular saw can do good work as well as poor. It all depends on the way it is handled. We see two lots of planed stuff come in, one nearly perfection, the other anything but desirable.

I might say the same about the band-sawn stuff that comes to us. We have lots of 5-4x12 North Carolina stock shipped us by two different parties. Both are band sawed. One is all ridges, the other as nice as can be sawed.

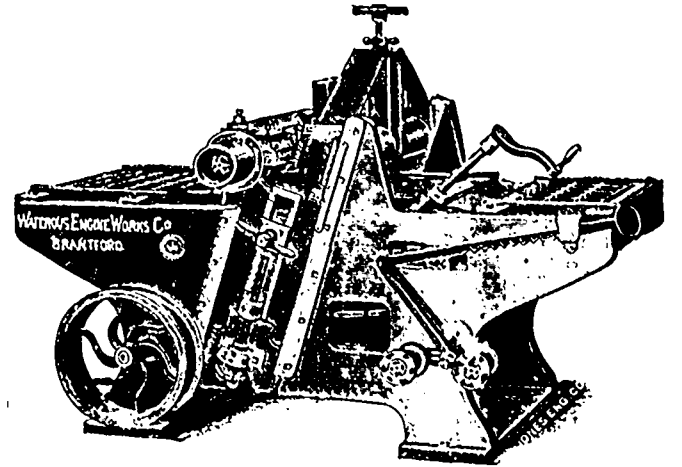
The trouble is with the man handling the machines. It is worse than folly to say that the band is a failure or that it cannot fairly compete with the circular in every place where they may be brought into competition. Place the trouble where it belongs. An old aphorism says: "What man has done, man can do;" hence, if one man can make a circular saw cut so that every tooth will show exactly the same cut, another man can if he has the right education and qualifications.—"E. L. O." in Woodworker,

WOOD-WORKING MACHINERY..

— Suitable for Saw Mills

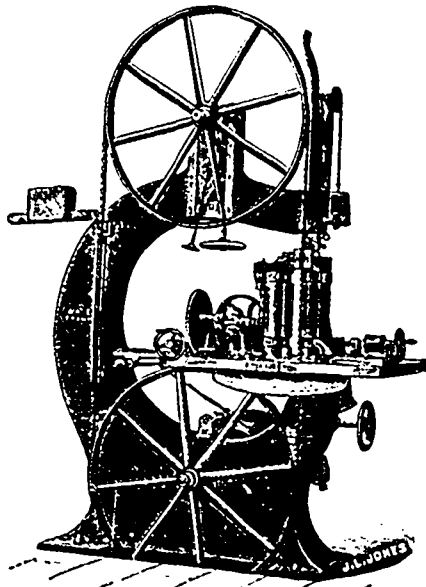


THE ECONOMIST PLANER, MATCHER AND MOULDER.—Mandrel Double-Belted—all Feed-Rolls Driven—Strong, Powerful Feed.



ENDLESS BED SURFACER

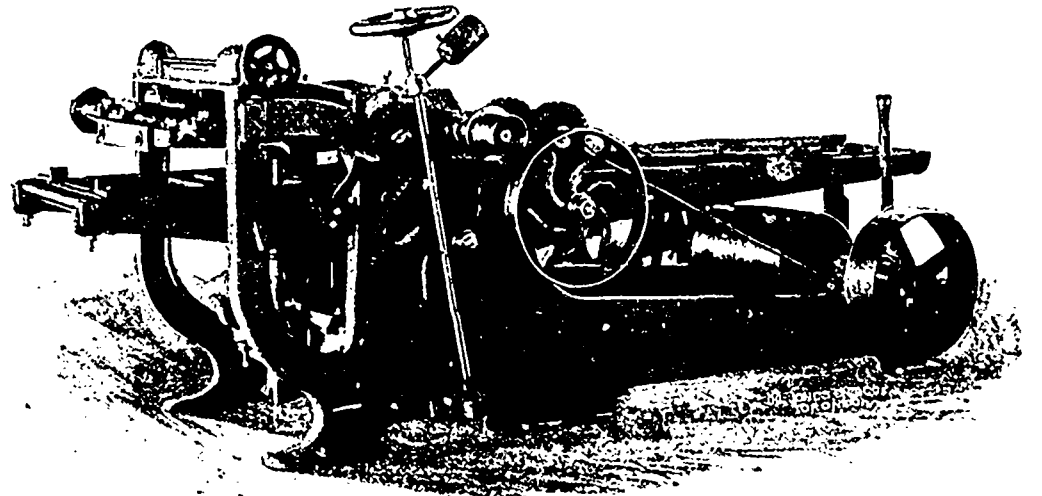
Single or Double Cylinder—a Positive Fast Feed for Green, Wet or Icy Lumber—Very Suitable For Saw Mills that Ship Planed Lumber.



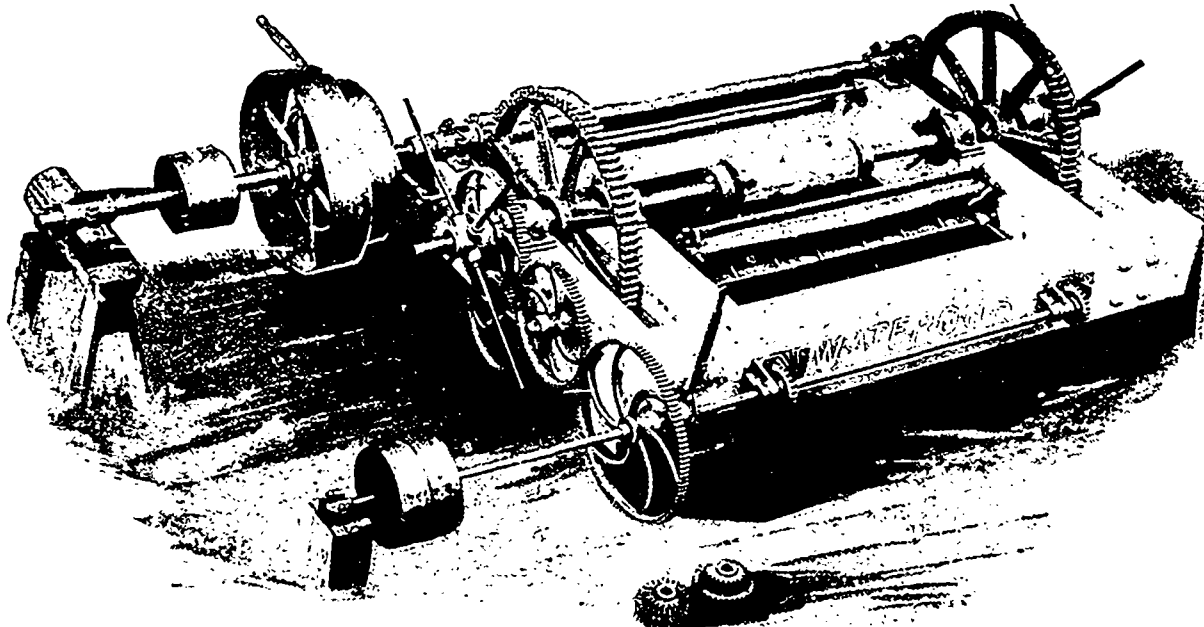
NO. 4 BAND RE-SAW

Band Re-Saws

from No. 4
Weight - 2,750
for
Planing
Factories
to
No. 8—12,500
for the
Heaviest
Re-Sawing
in Slabs,
Deals, &c.

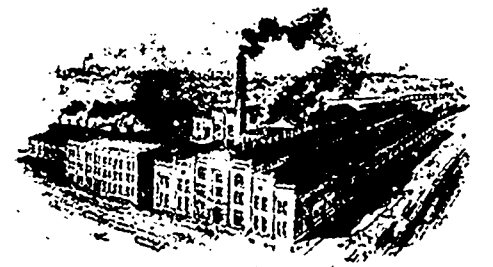


THE CHAMPION PLANER, MATCHER AND MOULDER, with Extended Frame and Table.—Mandrel Double Belted—all Feed-Rolls Driven—a Heavy, Fast and very popular Machine.



VENEER OR PEELING MACHINE Shown peeling a very short log.—No. 1 takes a log 5 ft. x 48 in.; No. 2, 6 ft. x 48 in.—Makes any thickness of Veneers—Handles most of the Soft Woods without Steaming—a Very Profitable Addition to any Saw-Mill.

ESTABLISHED . . . 1844
INCORPORATED . . . 1874
NEW WORKS OCCUPIED 1896



EVERYTHING FOR SAW MILLS—GET OUR QUOTATIONS.

Best Quality of Work
Low Prices

WATEROUS, Brantford, Canada

COWAN & CO. GALT, ONT.

Manufacturers of



Wood-Working Machinery ::

of every description, including SAW MILLS, CORLISS AND SLIDE VALVE ENGINES, AND BOILERS

Write for Descriptive Catalogue and Prices.

IT COSTS YOU NOTHING

FOR OUR

Automatic "Compression"



UNLESS OUR GUARANTEE IS FULFILLED

To convince you of the Superiority of our Process, write us for Catalogue "C" and Testimonials.

Have you ever seen our Channel Steel . . . ?
Roller Bearing Trucks and Lumber Buggies ?

THE EMERSON COMPANY FIDELITY BUILDING BALTIMORE, MD., U.S.A.

THE THREE RIVERS IRON WORKS CO.

Montreal Office: 54 IMPERIAL BUILDING.

Works: THREE RIVERS, QUE.

Founders and Machinists

Saw Mill Machinery

Improved Barking-Double Edgers, Slab-Splitting, Scantling, &c.

Cast Iron Water and Gas Pipes of the very best quality, from 2 inches and upwards in diameter. Made on the latest and most approved principle, by which uniformity and soundness are secured.

Hydrants, Valves and General Iron and Brass Castings

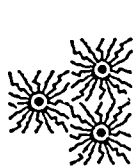
Makers of Law's Patent Improved Duplex Anti-Freezing Hydrant, giving the greatest satisfaction wherever used.

IMPROVED FRICTION AND OTHER PULLEYS

Shafting, Couplings, Bearings, and General Shop Gearing.

B. R. Mowry & Son

MANUFACTURERS OF



SAW MILL AND SHINGLE MILL MACHINERY

Shingle Machinery a Specialty

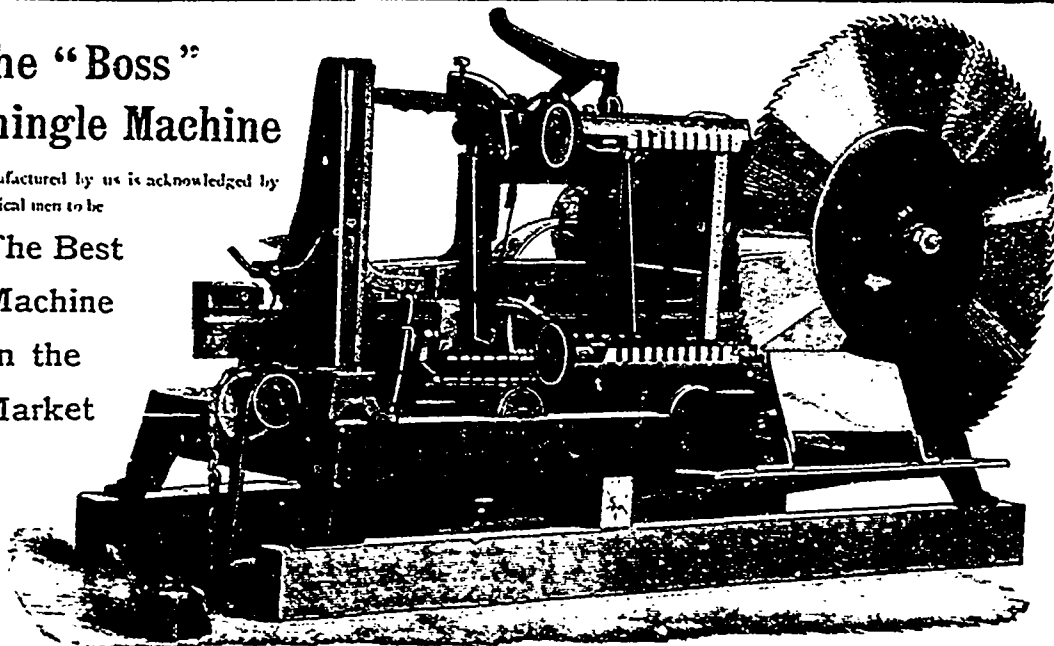
REPAIRING PROMPTLY AND CAREFULLY EXECUTED

Gravenhurst, Ont.

The "Boss" Shingle Machine

Manufactured by us it is acknowledged by practical men to be

The Best Machine on the Market



CALCULATING SPEED OF PULLEYS.

The following are given as rules for calculating speed of pulleys:

I. The diameter of the driver and driven being given, to find the number of revolutions of the driven:

Rule. Multiply the diameter of the driver by its number of revolutions, and divide the product by the diameter of the driven; the quotient will be the number of revolutions.

II. The diameter and revolutions of the driver being given to find the diameter of driven, that shall make any given number of revolutions in the same time:

Rule. Multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven; the quotient will be its diameter.

III. To ascertain the size of the driver:

Rule. Multiply the diameter of the driven by the number of revolutions you wish to make, and divide the product by the revolutions of the driver; the quotient will be the size of the driver.

WOMEN IN SAW MILLS.

The employment of female labor, says the London Timber Trades Journal, is not unusual in the box-making establishments of Great Britain, but the tending of saw mill machinery by the fair sex is an innovation yet to be made. They are ahead of us in this development in America—as usual—for we understand that the saw mill of the Missouri Lumber and Mining Company, of Grandin, Mo., is "manned" (if the term is allowable) by women. A few weeks ago they built a new mill for dealing with Beaver Dam soft pine, and it was decided that only gentle hands should touch the productions. A woman was placed in command of the engine, another took the steam feed, nigger and kicker in hand, others were placed in the band saw department, and even the lath room was not forgotten, that branch of the business obtaining its full complement of fair workers, all attired in neat blouses and skirts. The concern has frequently 25,000,000 feet of lumber in stock, and the annual capacity of the mill is nearly three times that quantity.

CAMP SUPPLIES

We are making a speciality of this class of business and quote a few lines:

Japan tea, good style and cup quality @..... 11c. lb.	Prunes, large bright fruit in cases 4½c. lb.
Y Hyson tea, good style and cup quality @..... 10c. "	Valencia raisins..... 4c. "
Congou tea, good style and cup quality @..... 11c. "	Evaporated apples (choice brights) 5½c. "
Choice medium beans..... 80c. bus.	Dried apples..... 3½c. "
	Dried peaches..... 5½c. "
	Dried plums..... 6½c. "
	½ brls fine quality rich syrup..... 2c. "

WRITE US FOR PRICES

H. F. ECKARDT & CO.

WHOLESALE GROCERS

TORONTO.

The Most Practical Commercial and Shorthand College in Canada.

ESTABLISHED 1860
INCORPORATED 1895



British American Business College

Go., of Toronto, Ltd.

Confederation Life Building

COR. YONGE & RICHMOND STS.

TORONTO

Students may enter any date.
Send for Free Prospectus!

DIRECTORS AND SHAREHOLDERS:

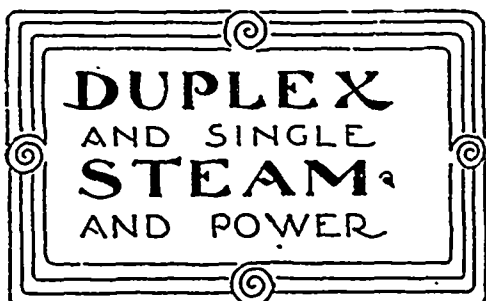
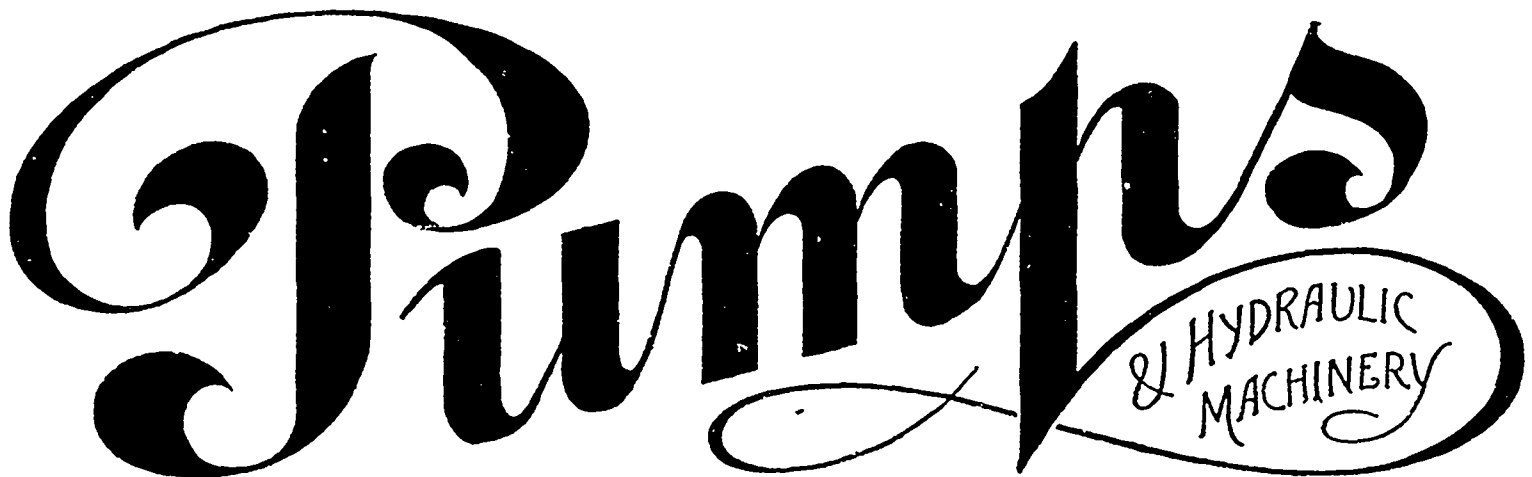
- Edw. Trout, Pres. Monetary Times Printing Co.
- E. R. C. Clarkson, F.C.A., Chartered Accountant and Trustee.
- Stapleton Caldecott, Pres. Toronto Board of Trade
- Fred. Wyld, of Wyld, Gravett & Darling.
- Wm. McCabe, F.I.A., Managing Director, North American Life Assurance Co.
- D. E. Thomson, Q. C., of Thomson, Henderson & Bell, Barristers.
- S. F. McKinnon, Wholesale Milliner.

DAVID HOSKINS, SECRETARY.

OAK TANNED BELTING

TORONTO
20 FRONT ST EAST
TELEPHONE 475

THE J.C. McLAREN BELTING CO MONTREAL



The Northey Mfg. Co. Ltd.
TORONTO

THE LAURIE ENGINE CO. - MONTREAL

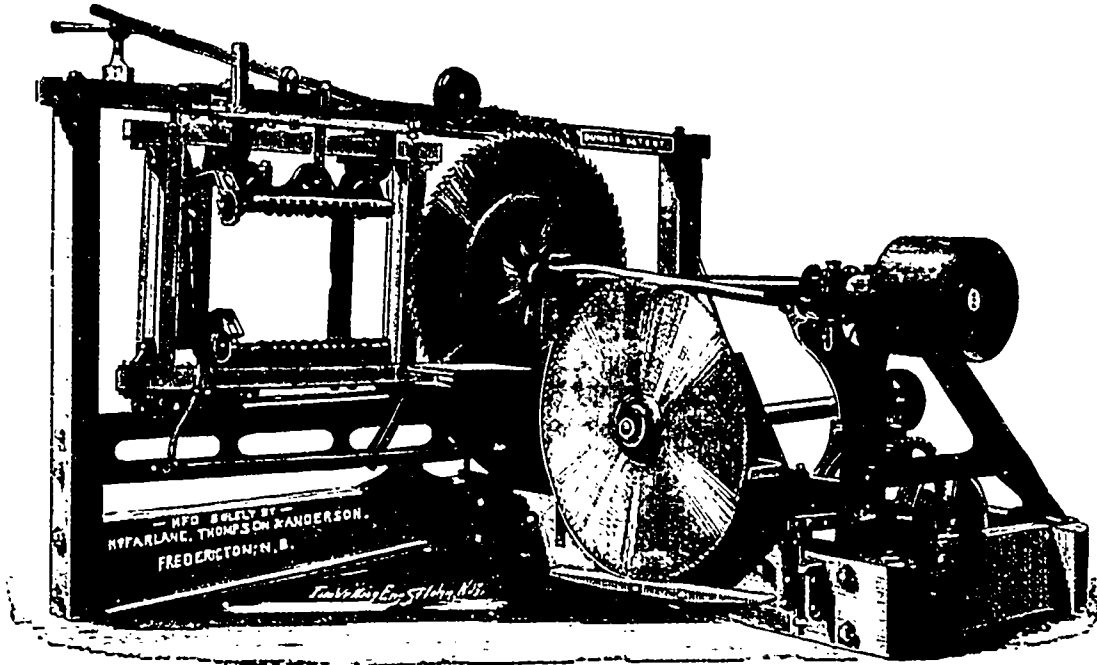
SOLE AGENTS FOR PROVINCE OF QUEBEC.

McFarlane, Thompson & Anderson, FREDERICTON, N. B.

Patentees of the Celebrated . . .

DUNBAR SHINGLE MACHINE

Universally Admitted to be the Best Shingle Machine made



Read the Following Testimonials:

CAMPBELLTON, N. B., February 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON,
 Gentlemen,—I have been from home and only received yours of 21st, this morning. My opinion of the Dunbar Machine is as follows: I have been using the Dunbar Shingle Machines of your manufacture for these past ten years, and have found them most satisfactory machines, in regard to quality of work; quantity of shingles that can be sawn, and freedom from repairs. I have compared your machine with other makes and prefer yours to any others. All experienced shingle sawyers prefer your machine to work on, to those of other makes. I have received to-day, a letter from Allston Cushing, asking my opinion as to your machine, and I shall write to him and strongly advise him to take your machine, (he writes in re Sumner Co. Mill). Yours truly, **KILGOUR SHIVES.**
 We have since sold Sumner Co. the four machines referred to above.—McF. T. & A.

CAMPBELLTON, N. B., February 12th, 1896.
MCFARLANE, THOMPSON & ANDERSON,
 Dear Sirs,—I want you to ship me two more of your Dunbar Shingle Machines this spring, which will make sixteen in my mill, I have used nine of them for four years, and they have given first-class satisfaction. Three of these machines I run all the year. Have one of your large carriage machines cutting 18 inch shingles, and last July in 27 days cut \$40,000 of 18 inch shingles on it, an average of 20,000 each day, and I have cut 27,000 on one of your machines in ten hours. I find no difficulty in getting sawyers to work when they know you use Dunbar machines.
 Yours truly, **A. E. ALEXANDER**

ST. JOHN, N. B., February 12th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Dear Sirs,—In reply to your favor of 8th inst., I beg to say, that I have used the Dunbar Shingle Machines for the past ten years or more and they have given me every satisfaction. I use two of them alongside of two American machines for a time, and so had an excellent opportunity of judging of their merits, and as they proved to be the best I took the American machines out and replaced them with the Dunbar.
 Yours truly, **L. M. JEWETT.**

JACQUET RIVER, N. B., February 14th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Dear Sirs,—I have been using the Dunbar Shingle Machines the past four years, am well satisfied with them and believe them to be the best made.
 Yours truly, **JNO. CULLIGAN.**

NEWCASTLE, N. B., 14th Feb., 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton.
 Gentlemen,—The Dunbar Shingle machines, purchased from you in 1886 and 1887, have been in constant use during summer months since that date. They have given perfect satisfaction and now look as strong and fit for work as when first set-up, and to all appearance will be good for another ten years.
 Yours truly, **RICHARDS & HICKSON.**

FREDERICTON, N. B., Feb. 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Gentlemen,—In reply to your enquiry, we have to say that we have been using the Dunbar Improved Shingle Mills, purchased from you for several years, to our entire satisfaction. We do not hesitate to recommend them to intending purchasers, as we believe they are the best Machine made. They are easily kept in order; we have been using two of them seven years and they seem as good as new.
 Yours truly, **SIMONS & BURPEE.**

DRUMMOND, N. B., May 13th, 1896.
MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Gentlemen,—Yours of the 9th came to hand a few days since, and in answer would say that we consider the Dunbar Shingle Machine the best in the market. We have used 4 or 5 different makes but find none to be as good as Dunbar's.
 Yours truly, **STEVENS LUMBER CO., By J. S. Stevens.**

CAMPBELLTON, N. B., 12th Feb., 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Dear Sirs,—In reply to yours of 9th inst., would say that I have three (3) Dunbar Shingle Machines running in my mill for the last four years and have found them very fine machines, and have not needed much repair. I consider them superior to any shingle machine I have ever used and can safely recommend them to any one requiring a shingle machine.
 Yours truly, **DAVID RICHARDS, Per F. S. Blair.**

RIVER CHARLO, N. B., Feb. 13th, 1896.
MCFARLANE, THOMPSON & ANDERSON, Fredericton.
 Gentlemen,—Your favor received. We have six Dunbar Shingle Machines which we have run seven years, and in that time have never had to put any repairs on them and they are still running in good order. We pronounce them to be the best machines we have ever seen for cutting shingles.
 Yours truly, **GRAY & LAWRENCE BROS. CO.**

FREDERICTON, N. B., Feb. 14th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Sirs,—The Dunbar Shingle Machine manufactured by you is a thoroughly good and satisfactory machine. In comparison with other machines it is superior in the matter of construction, as regards getting out of repair and in even thickness of shingles made.
 JOHN A. MORRISON.

BRIDGEWATER, NOVA SCOTIA, Feb. 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Dear Sirs,—We have yours of the 10th inst., requiring our opinion of the Dunbar Shingle Machine. The machine, "Dunbar," we bought from you has been running the past five years, cutting pine and spruce shingles and during this time has not had one-half hour by breaks, or cost ten cents for repairs. It is heavy, strong and well put up, does good work, and, in my opinion, the best shingle machine we have ever seen. We are running two other machines of another style and would not give the Dunbar for both the others.
 Yours truly, **E. D. DAVISON & SONS, Limited, per C. H. Davison.**

ST. JOHN, N. B., Feb. 13th, 1896.
MCFARLANE, THOMPSON & ANDERSON,
 Dear Sirs,—Yours of the 8th inst. at hand. We are running fourteen machines, six of them are Dunbars and they have given great satisfaction, and if we were going to buy more we should take the Dunbar in preference to any other in the market to-day. Yours truly, **MILLER & WOODMAN.**

CAMPBELLTON, N. B., Feb. 12th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Dear Sirs,—Yours of 10th to hand, contents noted. In reply would say, after having some fourteen years experience in handling very many different makes of shingle machines the Dunbar crowns them all for a first-class shingle machine, and I could with every satisfaction recommend them to any person requiring a first-class machine, and to take no other. Yours truly, **WM P. GRAY.**

ST. JOHN, N. B., Feb. 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Gentlemen,—Replying to yours 8th inst. I have had nine of your Dunbar Shingle Machines in my mill, in use for the past four years and they have given entire satisfaction, and I have found them first-class shingle machines in every particular, so that if I were putting in any more machines I would put in the Dunbar.
 Yours truly, **CHARLES MILLER, per McDonald.**

LOWER SOUTHAMPTON, Feb. 16th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Dear Sirs,—The Dunbar Shingle Machine which I purchased from you has given perfect satisfaction. I would certainly choose it before other like machines, it being the strongest, most durable and easy running one I ever saw. I can highly recommend the friction wheels for running the shingling saw, they being the cheapest and easiest set up.
 Respectfully yours, **JUSTUS L. STAIRS.**

METAPEDIA, P. Q., Feb. 13th, 1896.
MCFARLANE, THOMPSON & ANDERSON, Fredericton, N. B.
 Gentlemen,—We have been using the Dunbar Shingle Machine for eight years. We have had quite an experience with other shingle machines of different make. We feel to-day like saying, that we would not put in any other machine if we got it for putting it in.
 Yours truly, **C. B. CHAMPION & SON, per W. C.**

ST. MOISE STATION, Feb. 21st, 1896.
MCFARLANE, THOMPSON & ANDERSON, Fredericton.
 Dear Sirs,—I have been foreman in shingle mills for the last twelve years, and used different machines and would rather pay \$5000 (fifty dollars) more for the Dunbar Machine than any other machine. We have used 2 Dunbar Machines at Sayabec, in Messrs. Schell, Macpherson & Co.'s shingle mill, and for four years I was foreman there. I must say that we never made one cent's repair on the Dunbar Machines.
NIL CAYOETTE.

CONNORS, N. B., Feb. 14th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Gents,—In reply to yours of Feb. 10th, 1896, I beg to say that the Dunbar Shingle Machines now in operation by me, in the Robert Connor's Mill, so called, that was purchased from you, has proved very satisfactory, and I believe them to be a first class machine in all respects.
 Yours sincerely, **J. J. WHEELOCK**

MARIA PULP AND LUMBER CO., MARIA, 12th March, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Gentlemen,—Our company will probably want nine shingle machines. After the experience which I had with the Dunbar bought from you, I feel disposed to recommend this machine for our new mill; as a matter of fact I did recommend it. On such a number of machines bought at one time, could you not make a reduction on the ordinary price for one machine? However, I must confess that your Dunbar is by far the best shingle machine on the market; it runs so smooth, and especially it is built so strong and solid. On the one we have been using for the last four years, we have not had a single cent of repairs, although it was several times run by green logs, last summer. With a good sawyer and filer, we made 22,500 shingles in ten hours. We had good wood, but it was not picked, we took the logs as they came. Yours respectfully, **J. C. LANGELIER, Manager M.P. & L. Co.**

ROBESTOWN, N. B., Feb. 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON, Fredericton.
 Dear Sirs,—In reply to yours of the 8th inst., beg to say that the two Dunbar Shingle Machines we purchased from you in 1892, have been running in our mill every summer since and they have given entire satisfaction. They have been run under many disadvantages to the machines, in the way of green sawyers, &c., and yet in all these years of use they have cost us little or nothing for repairs. We consider them one of the best machines in use to-day.
 Yours truly, **RICHARDS & GUNTHER.**

JACQUET RIVER, N. B., Feb. 13th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Dear Sirs,—The two Dunbar Shingle Machines I bought of you in 1893, have given entire satisfaction. I had sawyers from Maine and St. John, N. B., working on them, each one saying that the Dunbar was the best shingle machine they ever worked on.
JAMES P. DOYLE.

NEWTOWN, Feb. 22nd, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Gentlemen,—We have used the Dunbar Shingle Machine in our mill for two years and we can truly say, that it gives the best of satisfaction in every respect, and if properly attended will cut from fifteen to sixteen thousand shingles per day, and we can honestly recommend the Dunbar Shingle Machine to any person or persons who need a first class machine.
 Yours truly, **J. H. & R. O. MACE.**

MARYSVILLE, YORK CO., May 6th, 1896.
MESSRS. MCFARLANE, THOMPSON & ANDERSON.
 Gentlemen,—We have used two of your Dunbar Shingle Machines since 1892, and since that time have added eight more, running them since 1892. They have proved entirely satisfactory as shingle cutters, and I question if in Canada, there can be found the equal of the Dunbar Shingle Machine. If making any addition to our present plant, no other machine would be considered.
 Yours truly, **ALEX. GIBSON, JR.**



DUTY ON CANADIAN PULP.

There is friction again between the Canadian manufacturers of wood pulp who want to sell in the United States and the Federal custom authorities, over the valuation of pulp for the purpose of assessing duty. Strange to say, the usual basis of such valuation--the market price in the exporting country does not serve the purpose in this case, as there is really no market price for pulp in Canada, excepting such as is fixed by the demand from the United States. Some time ago there was a great range of valuation at ports of import, the extreme being as low as \$6 and as high as \$18 per ton. At length it was decided, in a conference between the Federal customs officers and the Canadian manufacturers that \$12 per ton should be adopted as the valuation at all ports of entry. But this figure has become unsatisfactory, especially to the managers of the big pulp mills at Sault Ste. Marie, and an effort is being made to have it reduced to \$10 a ton. If the entire output of the Soo mills, when the new pulp mill is in operation, were to be sold in the United States, the difference in duty between the valuations of \$10 and \$12 a ton, would be something like \$40 a day, or \$12,000 a year, a sum that is well worth fighting for. The matter is now under consideration by the Canadian manufacturers and the United States customs officers.—The Paper Mill.

RAILS FOR TRAMWAYS

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.

JOHN J. GARTSHORE,
49 Front St. West, Toronto.

Electrical Supplies

TELEPHONE
TELEGRAPH
ELECTRIC LIGHT



John Starr,
Son & Co.

(LIMITED)

Write for Illustrated Catalogue.

Mfrs. and Dealers in
ELECTRICAL SUPPLIES

Box 448 HALIFAX, N.S.



THE
COMBINED ELEMENTS
OF
SAFETY
And LOWEST COST

Are best secured by taking out an Unconditional Accumulative Policy in the Confederation Life Association.

They are absolutely free from restrictions as to residence, travel or occupation, the only condition being that the premium shall be paid.

Extended Insurance—After two full annual premiums have been paid, extended insurance is provided (without application) for the full face value of the policy.

Paid-Up Policies—Paid-Up Policies are granted, on application, after two years, for an amount guaranteed in the policy.

Cash Values—After five years a cash value will be given for such proportion of the Government reserve as is stated in the policy.

Rates and full information will be sent on application to the Head Office, Toronto, or to any of the agents of the Association.

CONFEDERATION LIFE ASSOCIATION

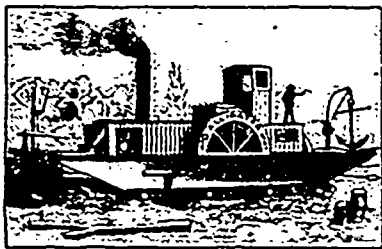
Head Office: TORONTO



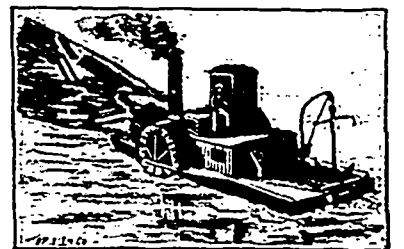
WEST & PEACHEY

SIMCOE, ONT.

MANUFACTURERS OF



ALLIGATOR STEAM WARPING TUGS



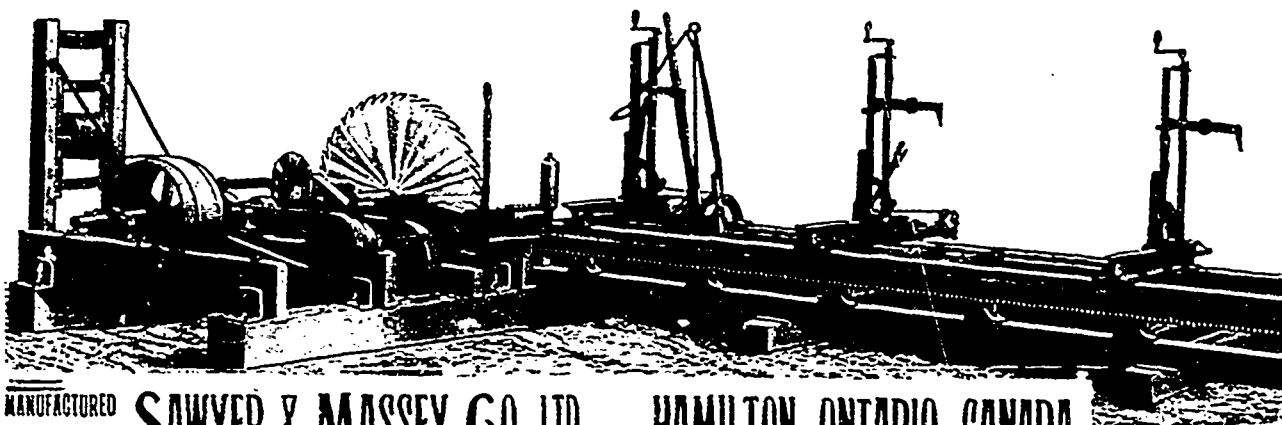
STEAM ROAD MAKER

ENGINES AND BOILERS FOR STEAM YACHTS



•• Saw Mill Machinery ••

NEW PORTABLE SAW MILLS



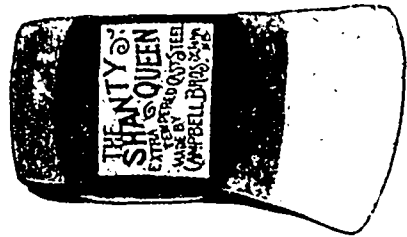
Traction and Plain Engines
of different sizes

Threshers, Clover Hullers,
Horse Powers and Road-
Making Machinery.

MANUFACTURED BY SAWYER & MASSEY CO., LTD. - HAMILTON, ONTARIO, CANADA

SEND FOR CATALOGUE

JOHN SCULLY & CO.
 ESTABLISHED 1878. TORONTO
 Contractors' Plant and Lumbermen's Supplies
 TIMBER LIMITS BOUGHT AND SOLD
 Locomotives and Rails for Lumbermen and Contractors a Specialty.
 SCRAPERS, PLOWS, CARTS, ETC.



THE "SHANTY QUEEN" AXE
 CAMPBELL BROS. Manufacturers
 St. John, N. B.
 Send for sample lot and try this axe in frosty weather...
 WRITE FOR PRICES

J. D. SHIER
 MANUFACTURER OF
Lumber, Lath & Shingles
 BRACEBRIDGE, ONT.

MICHIGAN

Are you thinking of moving to better your condition?
 If so, come to Michigan, where you can get comfortable living, good markets, good neighborhood, reasonable transportation for your products. A PROSPEROUS STATE!

The Flint & Pere Marquette R. R. Co.
 have good lands for sale, prices ranging from SEVEN TO FIFTEEN DOLLARS per acre, according to location and timber; easy terms.
 You make no mistake locating in this territory.

ADDRESS:
 A. Patriarche, Traffic Manager
 Saginaw, Mich.

Your Stomach Distresses You
 after eating a hearty meal, and the result is a chronic case of Indigestion, Sour Stomach, Heartburn, Dyspepsia, or a bilious attack.
RIPANS TABULES
 Promote Digestion, Regulate the Stomach, Liver and Bowels, Purify the Blood, and are a Positive Cure for Constipation, Sick Headache, Biliousness, and all other Diseases arising from a disordered condition of the Liver and Stomach. They act gently yet promptly, and perfect digestion follows their use.
 Ripans Tabules take the place of an Entire Medicine Chest, and should be kept for use in every family.
 Price, 50 Cents a box. At Druggists, or by mail, RIPANS CHEMICAL CO., 10 Spruce St., New York.

ARE YOU LOOKING

FOR A CHANGE IN LOCATION?
 If you are not satisfied with your present site, or if you are not doing quite as well as you would like to, why not consider the advantages of a location on the Illinois Central R. R. or the Yazoo & Mississippi Valley R. R.? These roads run through South Dakota, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Kentucky, Tennessee, Mississippi and Louisiana, and possess

FINE SITES FOR NEW MILLS
 BEST OF FREIGHT FACILITIES
 CLOSE PROXIMITY TO
COAL FIELDS AND DISTRIBUTING CENTERS
 AND
 INTELLIGENT HELP OF ALL KINDS
 MANY KINDS OF RAW MATERIAL

For full information write to the undersigned for a copy of the pamphlet entitled
 100 Cities and Towns **WANTING INDUSTRIES**

This will give you the population, city and county debt, death rate, assessed valuation of property, tax rate, annual shipments raw materials, industries desired, etc.
 To sound industries, which will bear investigation, substantial inducements will be given by many of the places on the lines of the Illinois Central R. R., which is the only road under one management running through from the North-Western States to the Gulf of Mexico. C. F. O. C. POWER, Industrial Commissioner I. C. R. R. Co., 506 Central Station, Chicago.

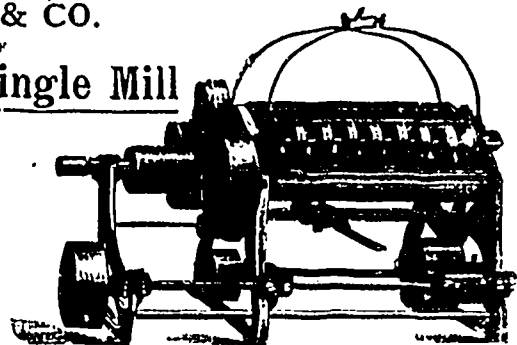


Sole Canadian Agents Prices Reduced.
WATEROUS, BRANTFORD, CANADA.

LUMBERMEN'S VETERINARY MEDICINES
J. C. & W. R. McMURTRY
Veterinary - Surgeons
 ARNPRIOR

Manufacture the Cheapest and Most Reliable lines of Veterinary Medicines. OUR COLIC DRENCH is a valuable acquisition to any lumberman's camp. A safe, sure and speedy remedy, giving permanent relief to COLIC and all other inflammatory diseases in horses, almost instantly. Send for Descriptive Circular and Testimonials from many of the leading lumber firms of Canada.

P. PAYETTE & CO.
 MANUFACTURERS OF
Saw Mill and Shingle Mill Machinery . . .



Boilers and Boiler Fittings
 Shafting, Pulleys, Hangers
 Brass and Iron Castings
 Cant-Hook Handles, etc.

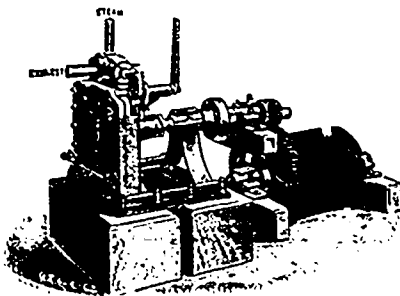
Write for Terms and Prices. PENETANGUISHENE, ONT.

Galt Machine Knife Works




MACHINE KNIVES OF EVERY DESCRIPTION
 FOR **Woodworking Machines**
 . . . Send for Price List . . .
PETER HAY - - - - - Galt, Ont.

THE DAKE STEAM FEED



EMBODIES THE FOLLOWING ADVANTAGES:
 Simplicity of Construction,
 Positive and Easy Management,
 Economical Use of Steam,
 Small Space Occupied,
 Cheapness,
 Easy Adaptation to either New Mills or those now in use.
 The movement of the engine in either direction is under the absolute control of the Sawyer, thus accommodating the speed of the feed to the size of the logs.
 Mill men who have used other makes of Steam Feeds, comment favorably on the economical use of steam of our feed over others.

Write for Catalogue and full particulars.
THE PHELPS MACHINE CO.  **EASTMAN, QUE.**

It Pays to Advertise in the Canada Lumberman

PULLEYS FOR SAW AND SHINGLE MILLS

We make a Special Strong and Heavy
WOOD SPLIT PULLEY
 for Saw and Shingle Mills.
 Millmen, when Overhauling or Extending, write us for Prices. We can save you money and give you good satisfaction.

DODGE WOOD-SPLIT PULLEY CO.



Office:
 74 York St.
 TORONTO

JONES' PERFECT SWAGING MACHINE.

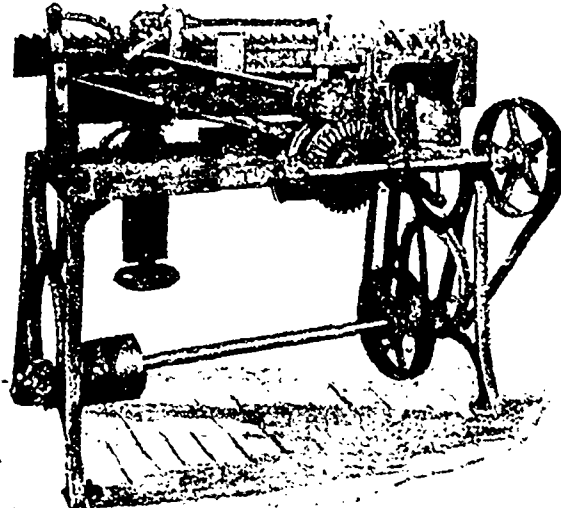
THERE has recently been placed upon the Canadian market an improved machine for swaging hand-saws, known as the Jones' Perfect Swaging Machine, illustrations of which are shown on this page. It is constructed on entirely new lines, adapting the hand swage exactly as it is to be worked by power. The swage and exact mode of operation are the same as if worked by hand, but with the accuracy and precision of a machine making every tooth alike. As a combined machine an emery wheel side dresser follows the swage, making each tooth exactly the counterpart of each other. The following points of merit are claimed for the machine:

To automatically swage and side-dress from 20 to 60 teeth per minute; by simply adjusting the saw in this machine and shifting the belt, it will itself, without further aid, swage a hand saw in 8 to 12 minutes; it automatically adjusts each tooth, swages and side-dresses it accurately; it has an oscillating movement of 1/2 inch, enabling it to overcome any irregularity in space between teeth, and also plays up or down to accommodate either a high or low tooth; short teeth are not missed, as are likely to be in hand swaging, which necessitates extra time to fit the swage; each tooth is swaged and dressed perfectly even, (insuring uniform lumber) which by hand requires time, special care and skill; long or uneven teeth are equally brought into line, and under no circumstances will this machine break, bend or crush a tooth.

It is further claimed that by swaging and dressing the saw automatically, it cuts the lumber evenly, and that the life of a saw is greatly lengthened by its use. By being enabled to keep the saws well and evenly matched, a

ADJUSTING TOLLS.

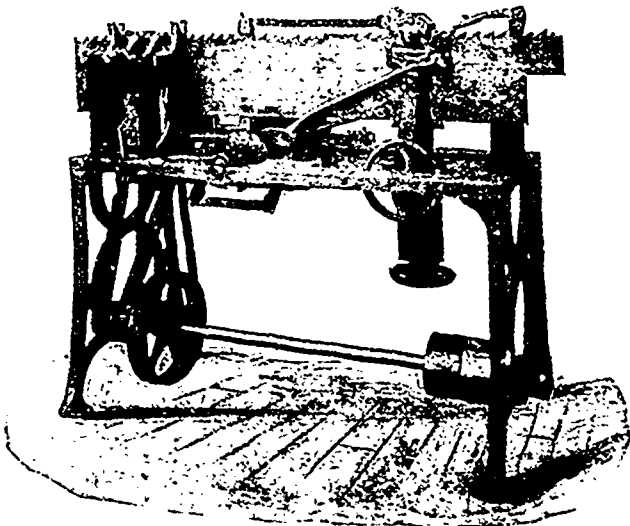
IN the year 1892 the Big East river in Muskoka was improved by a company known as the Big East River Improvement Company. It is now claimed by certain lumbermen using the improvements that the tolls charged are excessive, and the matter was recently brought before the attention of the Commissioner of Crown Lands. Dr.



JONES' PERFECT SINGLE SWAGING MACHINE.

gine properly designed to run a belt 12 inches wide; if it were possible to make from some new material a belt one inch wide that would be as strong as the 12-inch belt, the engine would furnish just as much power to the line shaft as if the 12-inch belt were used. When we once realize that the driving power of a belt is in its strength rather than in its width, it is easy to see why a round belt will often pull more than a flat one. For instance, a common size of belt on feed pulleys is 1 inch wide, and if 1/8-inch thick, which is about the average of 1 inch wide belt, the "area of cross-section" is evidently 1/8 of 1 square inch, or in decimals .125, whereas the area of a round belt 1/2 inch diameter is .196, or a little more than 1 1/2 times as much as the 1 inch wide belt, and will pull a little more than 1 1/2 times as much without stretching.

Do you think of adding to the equipment of your mill this winter so as to be in the best possible shape for business next spring? Then you should see what our advertisement pages offer in the way of machinery and supplies. You will oblige the advertiser and the publisher if in your correspondence you mention THE LUMBERMAN.



JONES' COMBINED SWAGING MACHINE, SIDE DRESSER AND JOINTER.

larger and better output can be accomplished. The machine is 36 inches long, 18 inches wide, 40 inches high and weighs 330 lbs.

The Canadian patent was taken out on the 1st of April, 1896, the manufacturers being the Waterous Engine Works Company, of Brantford, Ont., who will be pleased to supply any further information desired.

Kennedy, law clerk, and Mr. Taylor, the accountant of the Timber Branch, were appointed as referees. The complainants were the Whaley Lumber Company, of Huntsville, and the Brennan Lumber Co., of Hamilton, while the Improvement Company were represented by Heath & Turnbull, of Huntsville. Among other interested persons present were Wm. Martin, John McGeary, Hugh Trainor, Philip Hinds and Harry Heath, all of Huntsville; James Campbell and Wm. Webster, of Bracebridge; Wm. Marshall, of Bethune, and James Johnston, of Sinclair.

The first-named parties claimed that the tolls charged were in fair proportion to the alleged cost of the improvements, but asserted that the alleged cost was much greater than the actual.

An examination of the books of the East River Improvement Company will be made, after which the referees will arbitrate in the matter.

STRENGTH OF BELTING.

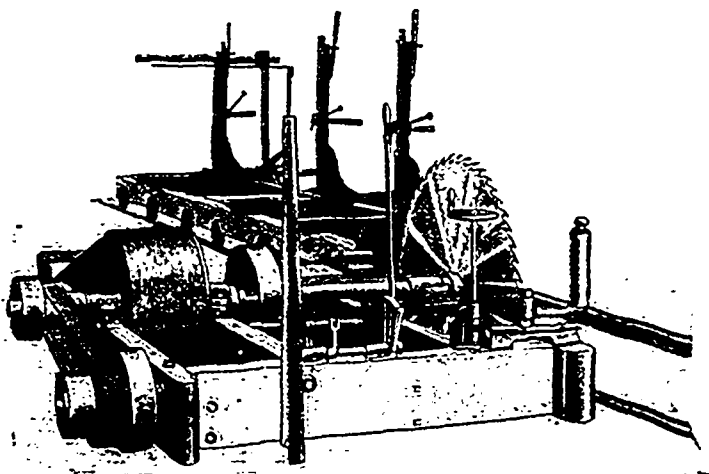
THERE is no more friction between a wide belt and a pulley than between a narrow belt and the same pulley, other things being equal, says a writer to an engineering paper. A wide belt will pull more than a narrow belt when, and only when, it is stretched tighter. For instance, take an en-

THOMAS PINK
MANUFACTURER
OF
LUMBERING
TOOLS

SKIDDING TONGS
 CANT HOOK
 GAFF
 SOCKET
 CANT HOOK CLASP

PEMBROKE, ONT.
 OTTAWA ENG CO

BELL'S No. 2 SAW MILL



The accompanying cut shows our No. 2 mill with wood frame and feed works in the frame. We build this mill with either wood or iron frames as desired. The carriage has any desired number of head blocks, either ratchet or friction set works. We also put on an elevated scale, which is a great convenience to the sawyer, and a newly designed roller gauge to set up to. Lumber cut on these carriages is uniform in thickness and can be made any desired thickness by adjusting roller, which is at the sawyer's hand.

We also build a No. 0 mill for light portable work, and a No. 1 mill, which is a good general mill for either portable or stationary use. Also Edgers, Slab Slashers, Cut-off Saws, Log Haul-ups, Friction Niggers, Lath Trimmers, Lumber Trimmers, Bolting Saws, Saw Benches.

Send for Prices and Description.
 ADDRESS
ROBT. BELL, JR., Hensall Engine & Machine Works,
 HENSALL, ONTARIO, CAN.

DUNBAR'S CLAPBOARD MACHINE.

We illustrate on this page a new and original machine for sawing clapboards, invented and manufactured by Alex. Dunbar & Sons, of Woodstock, New Brunswick. The makers claim that this machine is entirely different from any other made for the same purpose, and as such was awarded a diploma at the St. John Exhibition. In this machine the block to be sawn is placed vertically on

revolution of the saw-carriage. The saw and sapping head is placed on the same arbor, which is attached to a cast iron carriage with adjustable boxes, which can be moved when in motion so as to bring it in perfect alignment with the cutter. The carriage is held in place and guided perfectly parallel by two heavy cast iron guide bars, which are perfectly planed and made adjustable. The carriage is driven up and down by a new device

made to cut on the outer edge of block, allowing of the greatest diameter being left for boards.

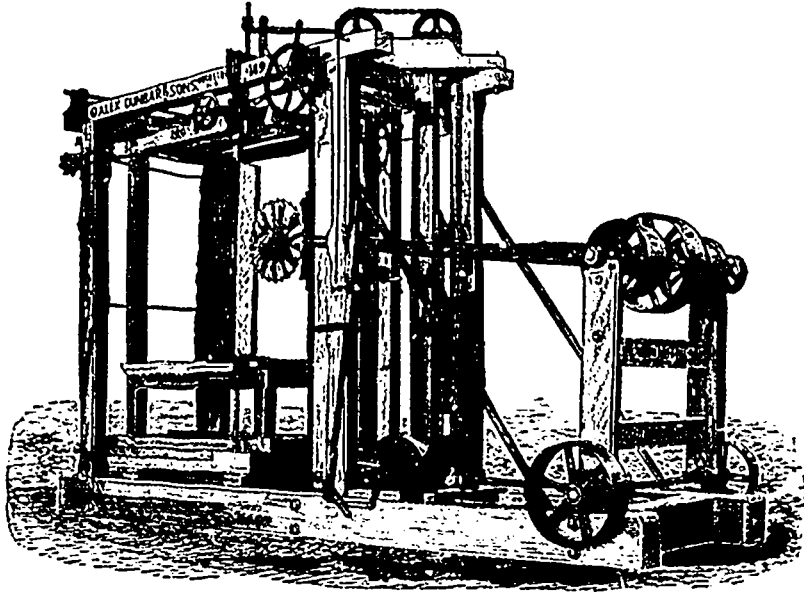
Amongst the principal advantages claimed for this machine are that it will cut into clapboards lumber that cannot be profitably manufactured in any other way, such as very large hollow-hearted pine of any style or shape, leaving only a centre of one-and-three-quarter inches diameter, and the bottom center can be raised so as to cut all short ends up to 24 inches long. It will be understood that the block being on end when being sawn, is very easily revolved and accurately set to give boards of exact thickness. This is one of the principal advantages, as it allows of very thin saws being used.

This machine is guaranteed to take from 15 to 20 per cent. more out of the same lumber and from 30 to 40 per cent. in the same time than the old style of machine. It will take in lumber up to five feet in diameter and four feet three inches long. Its capacity is from five to seven thousand per day, depending greatly on the quality of lumber.

This machine is not exactly new, as three of them were made four years ago, which have been in constant operation since, but owing to the builders having had their foundry and patterns burned in 1892 they have been unable to manufacture them.

Messrs. Dunbar also build a new design of clapboard planer, a large number of which have been sold to United States parties. They are also the inventors and patentees of the celebrated Dunbar shingle machine, of which there have been hundreds sold in Canada and the United States. They also build rotary saw mills with capacities of from ten to forty-five thousand feet per day, and steam engines and mill work of all kinds. Cuts and descriptions of clapboard planers, etc., will appear in following issues of this journal.

The Sault St. Marie Pulp and Paper Co. shipped a consignment of sixty-two cars of pulp recently. This is the largest shipment made by the mill at one time up to date.



DUNBAR'S CLAPBOARD MACHINE.

centers in a frame which can be conveniently moved to or from the saw when in motion, and is perfectly under control of the operator. The block is revolved and held securely in place when being sawn by a spur roll placed on its top end, and which is automatically turned by each

which gives it a uniform speed when in cut, and avoids all jar at the ends of the stroke. The sapping head is of new design, being made of brass, with five steel knives which will make a cut four inches deep without jar of block or arbour. These knives are placed so as to be

LUMBERMEN'S CLOTHING

MANUFACTURERS
OF THE

FAMOUS CARSS MACKINAW

In Jackets, Pants and Shirts

WOOL SOCKS and MITTS

VAN GOODS Specially for the
Lumber Trade.

Write for Prices and Samples.

W. Carss & Co.
ORILLIA, ONT.

WORTHY OF INVESTIGATION

We would be glad to open correspondence with pulp, or paper manufacturers, with the view of establishing a pulp industry in connection with our saw mill. We have a fine water power, surrounded by timbered lands, chiefly hardwood, with pretty extensive tracts of second growth white birch, balsam, poplar, etc.

We would also be glad to negotiate with a responsible person who has had experience in the manufacture of small articles of woodenware, to place a plant here. Our mill produces large quantities of cuttings, that now go up in smoke, which might be utilized to advantage. Power would be furnished at a very low rate.

SAUBLE FALLS LUMBER CO.,
Sauble Falls, Bruce Co., Ont.

MORTGAGE SALE OF VALUABLE STOCK OF LUMBER

Tenders will be received by the undersigned for the purchase of about 1,617,164 feet White Pine Lumber, and about 116,720 feet Red Pine Lumber, and 664,500 pieces Lath, at the Biscotasing mills, on the Canadian Pacific Railway, District of Algoma. This lumber is the cut of 1895, is well put up and in good shipping order; 75 per cent. is 16-ft. lumber, and is all cut good and plump, suitable for the American market, and guaranteed first-class. Offers will be received for the same in lots of 1,000 feet and over.

Apply for particulars to JOHN McDONALD, or to
G. H. HOPKINS,
Vendor's Solicitor,
Lindsay, Ont.

A. McPHERSON

Manufacturer of

SHANKS AND CHISEL BITS

For Inserted Tooth Saws.

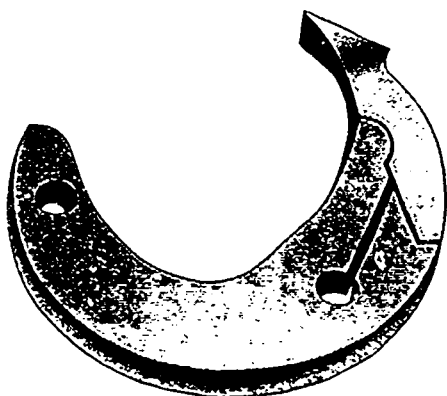
Warranted equal to any on the market.

Also Manufacturer of

Locomotives and Trucks for the Pole
System of Tramways for handling logs
and lumber in the woods.

Correspondence Solicited.

A. McPHERSON - OXFORD, NOVA SCOTIA



Mention the CANADA LUMBERMAN when corresponding with advertisers.

Federal Life

Assurance Company

Head Office: - HAMILTON, CANADA

ISSUES

Accumulation Policies

Compound Investment Policies

Guaranteed Security Policies

and other Liberal Contracts

JAS. H. BEATTY,

President.

DAVID DEXTER,

Managing Director.

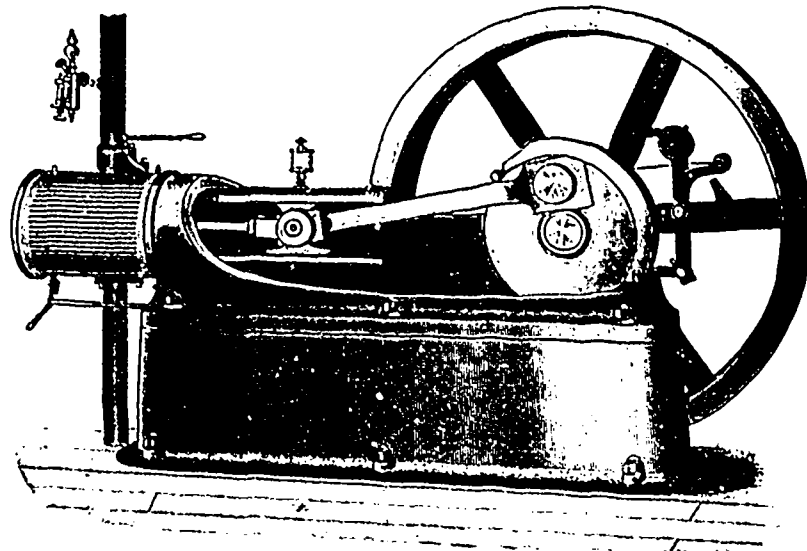
LEGAL DECISIONS.

COCKBURN & SONS VS. IMPERIAL LUMBER COMPANY.—This was an action brought by Cockburn & Sons, of Sturgeon Falls, against the Imperial Lumber Company, claiming damages for the detention of their logs. Messrs. Cockburn & Sons furnish us with the following particulars regarding the suit: Both parties to the dispute have for some years been putting their logs in Deer Creek, the Imperial Lumber Company driving their logs down after those of Cockburn & Sons to a pond which they formed on the creek. At this point they have a loading engine, and their logs are drawn out of the creek and taken by rail to the mill. The logs driven down by defendants during the summer of 1895 were left in the creek all winter. Consequently when the plaintiffs started to drive their logs in the spring of 1896, the pond and the creek for some distance were filled with logs, rendering it impossible for plaintiffs to carry on their operations successfully. It was further claimed by plaintiffs that they were compelled to work on the defendant's logs in order to make room for dumping, which resulted in largely increasing the cost of their season's driving. On June 1st it was endeavored to reach a settlement, but without avail, and an action was brought for damages. Judge Valin, the sole arbitrator, gave his decision in favor of Cockburn & Sons, awarding them the sum of \$1,376 and full costs.

The **LUMBERMAN** is issued fifty-two times a year for \$1.00. Can you afford to do without it?

To Capitalists

Advertiser, man of large experience and extensive connections in Canada and the United States, desires to correspond with party of means with view to engaging in the lumber business in an economical way. Only small amount of capital required; profits from 8 to 20%. Address, "X," care of CANADA LUMBERMAN, Confederation Life Building, Toronto, Ont.



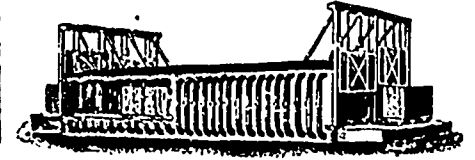
Robb - Armstrong Engines

CENTRE OR SIDE CRANK.
SIZES UP TO 700 H. P.

Stationary and Portable Boilers, Rotary Saw Mills,
Shingles and Lath Machines, Edgers,
Mill Supplies, Etc.

ROBB ENGINEERING CO., LTD. - AMHERST, N.S.

**THE PARMENTER
PATENT DRY KILN**



For Drying **LUMBER**
Staves, Heading, Shingles, &c.

**The Latest
The Cheapest
And Best**

CHATHAM, ONT., June 19th, 1896.

JAS. S. PARMENTER, Flushing, N. Y.

DEAR SIR. We take very great pleasure in being able to say from nearly one year's use of your Patent Dry Kiln, we find it away ahead of anything we ever yet tried for thoroughly drying lumber without injuring it in the least. So far we have found exhaust steam alone sufficient for our purpose, so that it absolutely costs us nothing to run it. We thoroughly dry white oak, rock elm, balsam and other hardwood lumber in less time than we ever did with a blast kiln, and especially find it a splendid kiln for drying white oak hubs. It does its work so naturally that neither hubs nor lumber are injured by it.

CHATHAM MFG. CO., LTD.

D. R. VAN ALLEN, President.

J. S. PARMENTER
PATENTEE

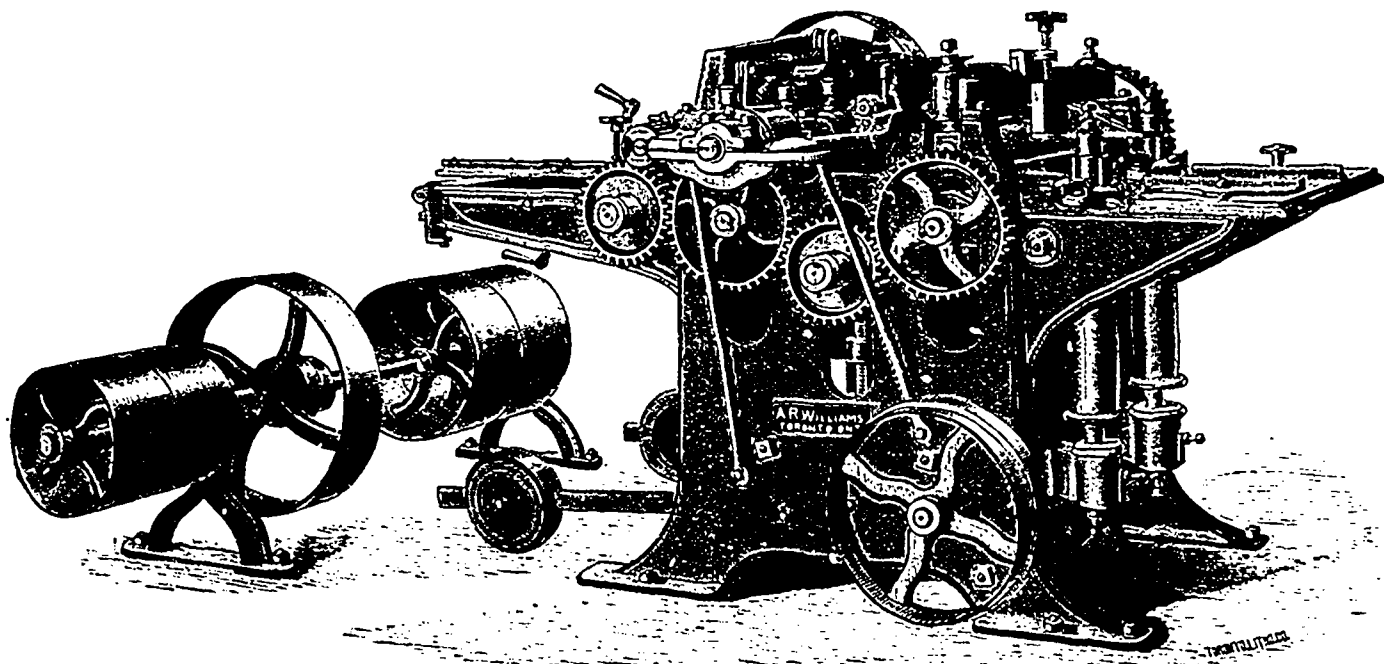
Canadian Office— **WOODSTOCK, ONT.** Head Office— **FLUSHING, N. Y.**

The A. R. WILLIAMS MACHINERY CO., Ltd.

HAVE FOR SALE THE FOLLOWING :

COMplete outfit of Saw Mill, Shingle Mill, consisting of one Three Head Block Saw Mill, two Large Engines, one 65 h. p. Boiler, Shingle Machine, Jointer and Packer; and Chopping Mill with Three Acres of Land, Wet and Dry Yard, with lots of Timber near.

PLANING MILL OUTFIT, consisting of Engine and Boiler, Planer, Matcher and Moulder Combined, with a Full Set of Sash and Door Machinery, Shafting, Pulleys, Belting, Etc., in good town.



"ECLIPSE" PLANER, MATCHER AND MOULDER.—DOES GREAT VARIETY AND FINEST WORK.

Sole Canadian Agents for the Genuine Sturtevant Fans and Heaters for Dry Kilns, Shaving Fans, Blowers; S. J. Shimer, Sons & Co.'s Celebrated Shimer Matcher Heads, Door and Sash Heads; E. Harrington, Sons & Co.'s well-known Chain Hoists and Overhead Tramway.

We have a Large Assortment of Planer and Sticker Knives for Immediate Shipment.

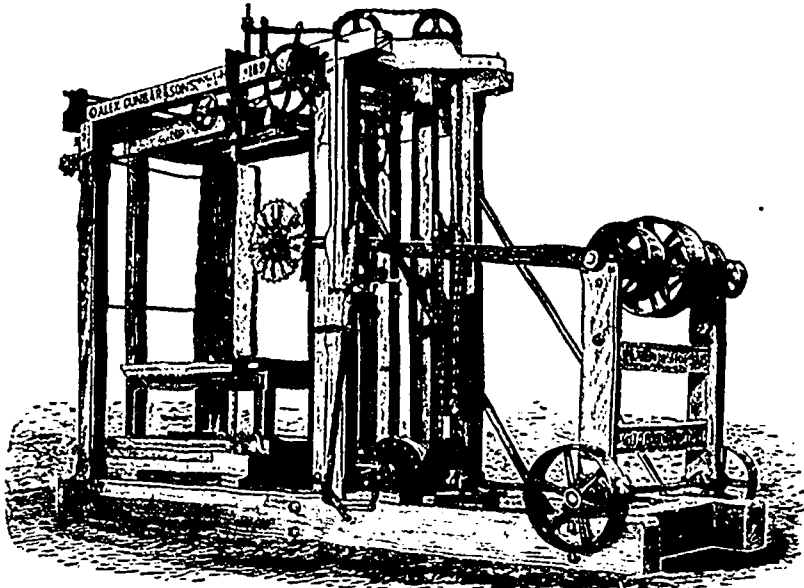
The A. R. Williams Machinery Co. Ltd., Front St. West (OPPOSITE QUEEN'S HOTEL) **Toronto**

ALEX. DUNBAR & SONS

Woodstock, N. B.

MANUFACTURERS OF

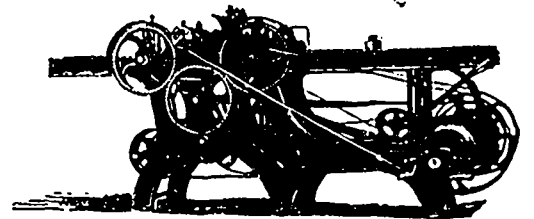
Saw-Mill Machinery of all kinds



DUNBAR'S CLAPBOARD MACHINE.

Including Rotary Saw Mills (3 sizes), Clapboard Sawing Machines, Clapboard Planing and Finishing Machinery, Shingle Machines, Steam Engines, Etc.

WRITE FOR FURTHER PARTICULARS



DUNBAR'S PLANER.

ALEX. DUNBAR & SONS

Woodstock, N. B.

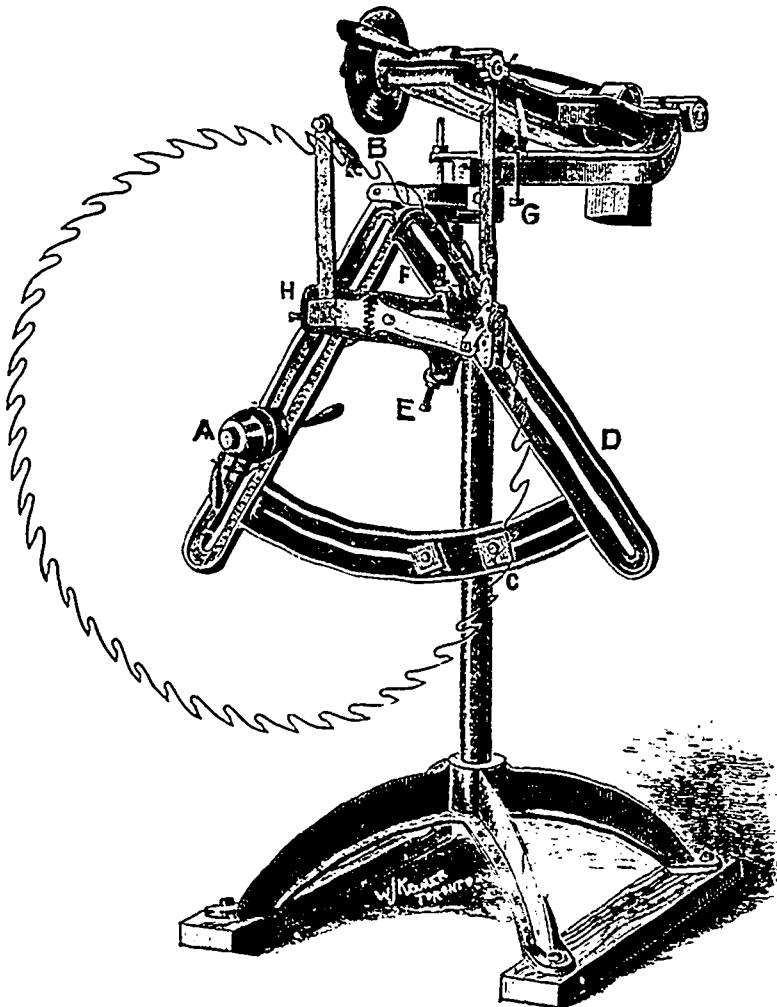
The **XXX** Saw Gummer and Sharpener

Has No Rival

FOR VARIETY, CAPACITY OR QUALITY OF WORK

... OR FOR ...

SIMPLICITY, DURABILITY, CHEAPNESS



Will take saws from 6 inches to 5 feet diameter; sets the saw forward one tooth at a time automatically; sharpens any saw (rip or cross-cut) perfectly, giving the teeth any desired pitch or bevel, and making all the teeth exactly alike. Will sharpen 20 teeth in an ordinary saw mill in one minute, or 100 teeth in a shingle saw in four or five minutes. The cut shows outline of mill saw 54-inch diameter.

PEMBROKE, ONT., Jan'y 28th, 1896.

MR. F. J. DRAKE, Kingston:

Dear Sir,—Re the conversation you had with our manager, I am instructed to inform you that the machine we purchased from you early last spring has proved to be a very useful piece of machinery. Our Mr. McCool, who uses it, is greatly pleased with it, and recommends it to any person who may require a Saw Filer. Wishing you much success with your Filer, we remain,

Yours truly,

(Signed) THE PEMBROKE LUMBER CO.
Per W. H. Bromley.

Send for Catalogue

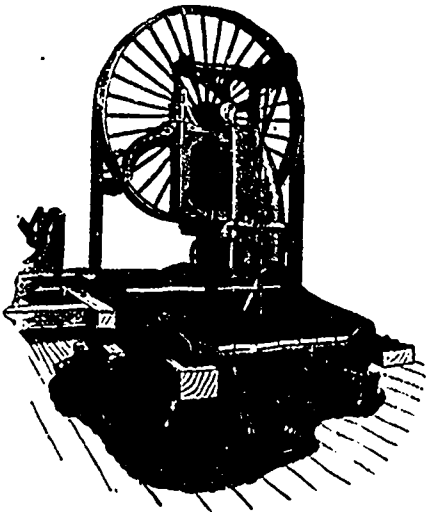
Manufactured only by

Canadian Locomotive & Engine Co.

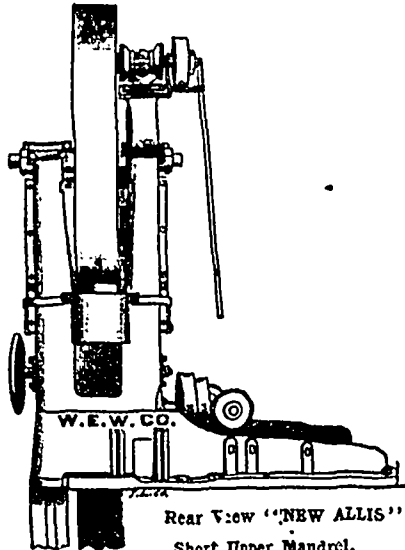
KINGSTON, ONT.

Lumber Machinery

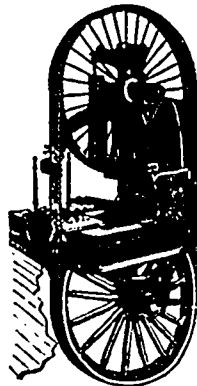
The Most Modern



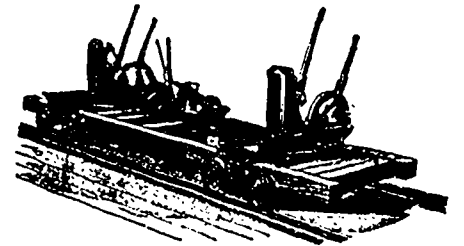
Right Hand—Front View.
"NEW ALLIS"
It surpasses all others in many points.



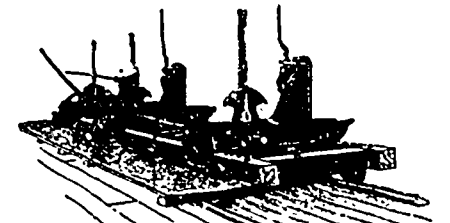
Rear View "NEW ALLIS"
W.E.W. CO.
NOTE Short Upper Mandrel.
Wheel Centrally Hung.
Lower Wheel Inside Frame.



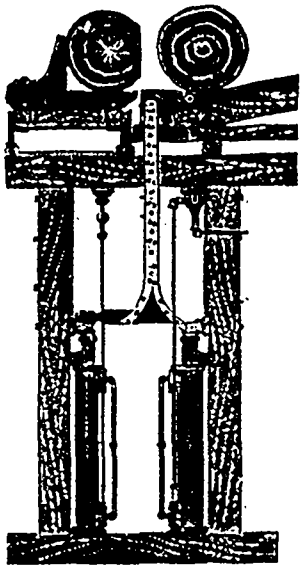
38 NEW ALLIS
BANDS
Sold in Canada since
Jan., 1894.



Reliance 2-Block Carriage.



Unbreakable Steel Girder Carriage.



Our Steam Nigger.

Where It Is Manufactured



ESTABLISHED

1844

INCORPORATED

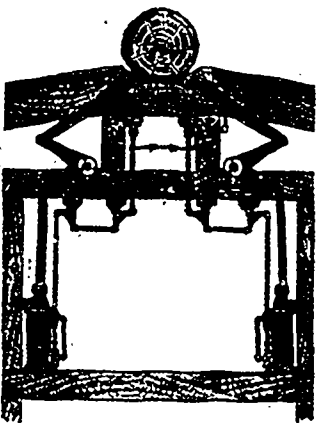
1874

NEW WORKS OCCUPIED

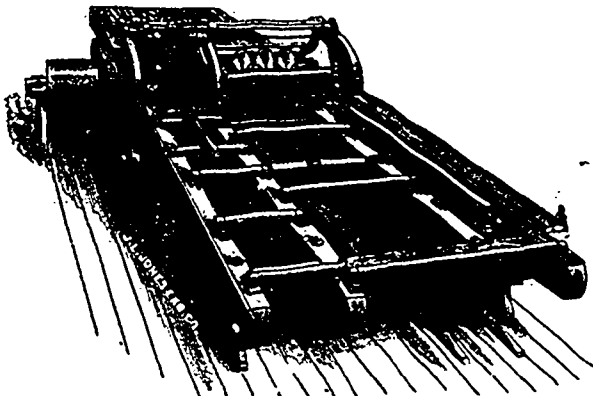
1896

Best Quality of Work
Low Prices

Waterous, Brantford, Canada



Kelly Log Kicker.

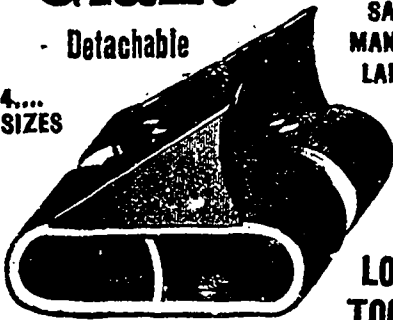


Combined Gang Edger and Flooring Machine.

Giant CHAIN

Detachable

4
SIZES



On 600-1050-1075.

A Most Satisfactory and Durable Chain for Log
Haul-Up, Heavy Refuse Conveyors, etc.

SAVE
MANUAL
LABOR

LOG
TOOTH

~ ~ ~ ~ ~ No. 550 ~ ~ ~ ~ ~

One of our Cheap Detachable Chains
for Sawdust, Refuse, Etc.



Over 50 Sizes and Styles of Chains, varying from 75 to 20,000 lbs. Breaking
Strain. Special Attachment Links for all purposes.

THE JAMES ROBERTSON CO. LTD. Manufacturers of
Saws of all Description

::::: A full line of Mill Rubber and Leather Metal, &c., always

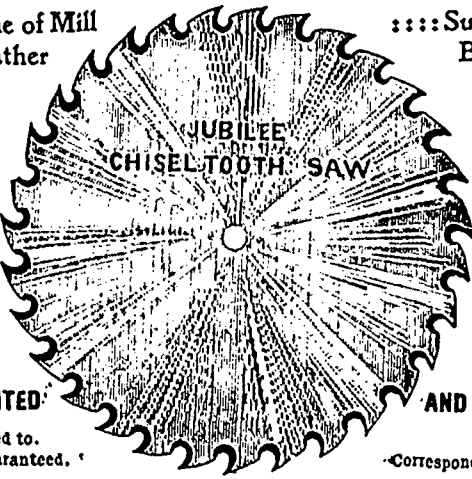
::::: Supplies, including Belting, Babbit carried in stock.

Head Office:
144 William St.
MONTREAL

Factories at
Montreal, Toronto
and
St. John, N.B.

ALL OUR SAWS FULLY WARRANTED

Orders promptly attended to.
Satisfaction guaranteed.



CIRCULAR, GANG AND MILL SAWS A SPECIALTY

Correspondence Solicited.

SUPPLIES
OF ALL KINDS

Chains, Ropes, Axes, Files,
Bar Iron, Horse Shoes,
Peavy Cant Dogs.

RICE LEWIS & SON
(LIMITED)

Cor. King and Victoria Sts. - TORONTO

The McMillan & Haynes Co., Ltd.
ST. CATHARINES, ONT.

We lead all others in High-Grade Crosscuts and Saw Tools. A cheap, thick, clumsy saw is dear at any price.

The price of a good saw is soon saved in the extra work it will do.

Be sure you use McMILLAN & HAYNES SAWS; they are all warranted to give entire satisfaction.

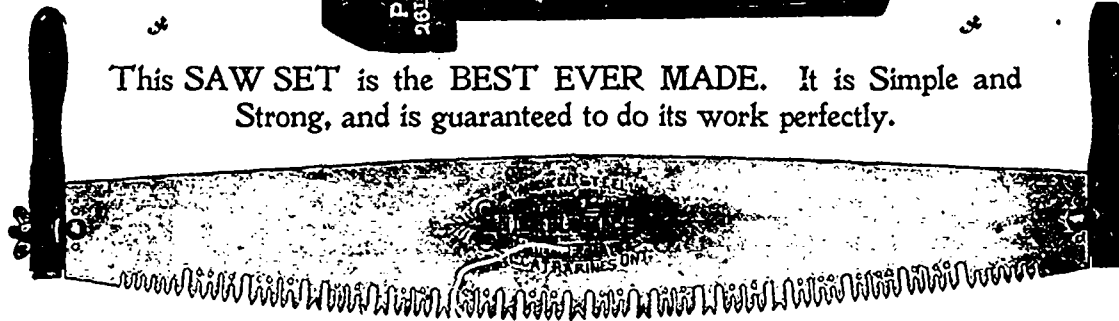
CELEBRATED NICKEL-STEEL CROSSCUT SAWS

We also manufacture Axes, Files, Saw Jointers, Cant Hooks, Steel and Brass Bedsteads. We have a cheap bed with wire mattress attached suitable for shanties.

We handle the famous KELLY AMERICAN AXES. Their Flint Edge is guaranteed to stand in cold, frosty weather, better than any other axe made.



This SAW SET is the BEST EVER MADE. It is Simple and Strong, and is guaranteed to do its work perfectly.



CANADIAN OFFICE & SCHOOL FURNITURE
PRESTON ONT.
FINE BLANK OFFICE, COUNTY HOUSE & BRASS STORE FITTINGS
OFFICE, SCHOOL, CHURCH & LODGE FURNITURE
SEND FOR CATALOGUE

STEEL SHINGLES
SOLD UNDER GUARANTEE,
CHEAP AS WOOD
WRITE FOR CATALOGUE
THE PEDLAR METAL ROOFING CO
O. S. W. ONT.

Every Lumberman wants it

35 cents buys it

Scribner's Lumber and Log Book

SAVES TIME SAVES MISTAKES SAVES MONEY

BRIMFUL OF EVERY-DAY, PRACTICAL INFORMATION

Address: THE CANADA LUMBERMAN, Toronto

USE THE FAMOUS . . . PINK LUMBERING TOOLS

Duck Bill Peavies, Round Bill Peavies, Finest Duck Bill Winter Cant Hooks

Lowest Prices

THOMAS PINK

Cant Hook Handles
Peavy Handles

By Car Load or Dozen

Pike Poles, Skidding Tongs, Boom Chains

PEMBROKE, ONT.

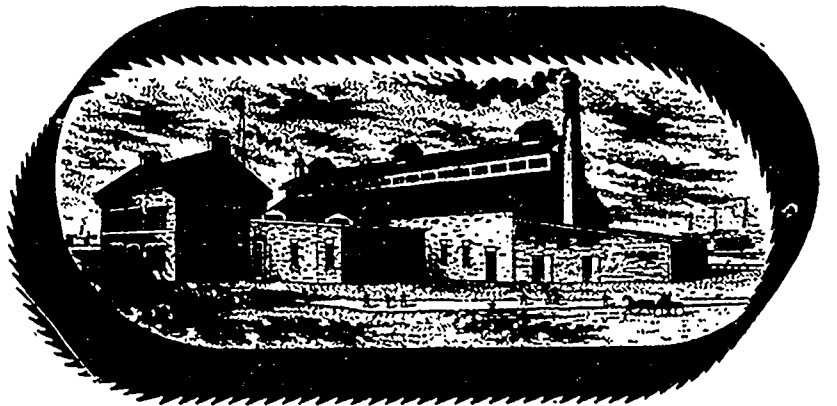


OTTAWA SAWWORKS CO.
SAWS

MANUFACTURERS OF ALL DESCRIPTIONS OF

Circular, Mill & Gang, Shingle, Butting, Concave, Band, Cross-cut, Billet Webs.

MIDDLE ST. Ottawa, Ont.



OTTAWA SAWWORKS CO.
OTTAWA, ONT.

WRITE FOR QUOTATIONS

Are you getting Low Prices for your Lumber because it is Checked, Warped or Discolored from Defective Drying?

THE EMERSON PATENTED

**AUTOMATIC
COMPRESSION
MOIST AIR SYSTEM
OF DRYING** WILL CHANGE ALL THAT

IT COSTS YOU NOTHING

unless our Unequaled Guarantee as to Quality and Quantity is fulfilled to the letter.

IT COSTS YOU NOTHING

for our Illustrated Catalogue "C" describing our process and containing testimonials.

IT COSTS YOU NOTHING

to learn how to Dry Oak, Poplar, Ash, Maple, Beech, Cypress, Pine, Spruce, Hemlock, or any other kind of wood, hard or soft.

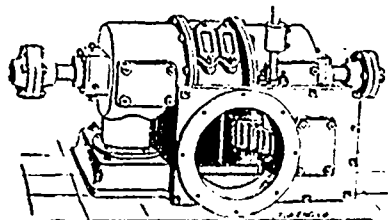
THE EMERSON COMPANY

808-809 Fidelity Building

BALTIMORE, MD., U.S.A.

"Little Giant" Turbine.....

Vertical and Horizontal Built in 44 Sizes



Complete in its own case.
No expensive flume required.
Highest percentage of power guaranteed at full and partial gate opening.
Machine Dressed Gearing, Shafting, Pulleys, Hangers, Etc.

WRITE FOR CATALOGUES AND GEAR LISTS

253 Little Giants sold to the Canadian Government.

J. C. WILSON & CO. GLENORA, ONT.

THE ROYAL ELECTRIC COMPANY

MONTREAL, QUE.

Western Office TORONTO, ONT.

Cable and Telegraph Address, "Roylelectric."

MANUFACTURERS OF

Electrical Machinery and Apparatus

FOR...

LIGHT and POWER

SPECIAL ATTENTION GIVEN TO

LONG DISTANCE TRANSMISSION OF ELECTRICITY FOR LIGHT AND POWER

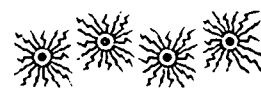
ALSO FOR

ELECTRIC PLANTS FOR MILLS

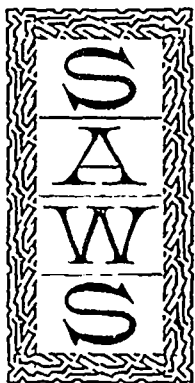
Distant water powers utilized and Mills lighted and operated safely. CORRESPONDENCE SOLICITED.



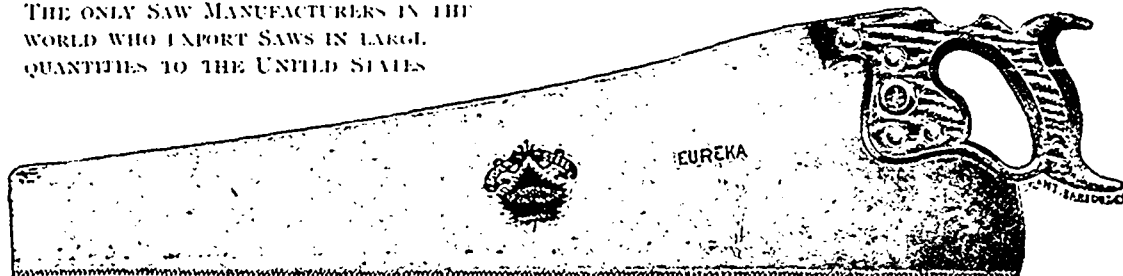
SHURLY & DIETRICH



MANUFACTURERS OF



THE ONLY SAW MANUFACTURERS IN THE WORLD WHO EXPORT SAWS IN LARGE QUANTITIES TO THE UNITED STATES



SOLE PROPRIETORS OF THE SECRET CHEMICAL PROCESS OF TEMPERING : : Our Silver Steel Saws are Unequaled

GALT, ONT.



DO YOU
REQUIRE

RUBBER BELTING?
RUBBER HOSE?
RUBBER PACKING?
RUBBER VALVES AND
GASKETS, or any other kind of
RUBBER GOODS
for Mechanical Purposes?

IF SO, BUY ONLY THOSE MADE BY THE

Canadian Rubber Company

of MONTREAL, as they are the Best Goods
made in America.

Ontario Branch:
Cor. Front and Yonge Sts., TORONTO
J. H. WALKER, Manager.



Chisel Tooth SAWS

LARGE CIRCULARS,
EDGERS AND
SMALL SAWS

Require Less Power, Cut Better
Lumber, and always remain
the same size.

High Price no longer an objection.

SEND FOR DESCRIPTIVE PAMPHLET
AND PRICE LIST.



MR. LYNETT, of Shiloh, Ont.,
(near Guelph), writes :

"The Chisel Tooth Saw you
made for me out of the old solid
saw is a daisy. In twenty years'
experience I have never used a
prettier cutting saw."

THIS IS ONLY ONE OF THE MANY TEST-
IMONIALS RECEIVED REGULARLY BY US.
WE HAVE HUNDREDS OF THESE SAWS
RUNNING IN ALL PARTS OF CANADA.

E. R. BURNS SAW CO.

TORONTO

ONT.