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VOL. 2.

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NO. 4.

THE SAW MILL CHANGES OF A CENTURY.

Among the most marvellous of the many wonderful things which distinguish the United States from other nations, are the results which have grown out of the possession of immense forests of valuable timber, in stimulating inventive genius to the preparation of an article of building material so cheap as to enable the poorest to have a comfortable home, while at the same time so excellent in character as to be not only suited, but indispensable, to the working classes. Those more readily accessible regions of the continent which possessed these forest growths in the greatest abundance were among the first to receive large accessions to their population, drawn together at those centres which presented the easiest access to cheap building material, not less than for their personal safety from a savage foe. It was not until the demand for lumber far exceeded the ability of the "greatest" mills of a half century ago to supply, leading the manufacturers to feel the need of a more extended system of production, that the star of empire made any progress westward, or it became a possibility to settle on the prairies of the West, or to develop the mineral resources which have already shown our nation to be the peer of, if it does not excel, all others in the extent of its possessions. To possess is to need. And the cheap building material which the cheap mills of the days long gone by enabled a scanty population to utilize, stimulated a more extended immigration, with its increased needs, as well as a higher order of genius to increase the supply.

The mills of the olden time were, first, the windmill, with its uncertain power, scarce exceeding that of the men who ran the pit saws, which were then in a measure superseded, and whose indignation at the effort to lessen their manual labor caused them to mob the owner and tear down his machinery. Second, the adoption of a current water-wheel of scarcely greater power, if more reliable, run by the natural current of a small stream. Next came the simple flutter-wheel, to impart motion to which required the building of dams to hold large bodies of water, which would at all times be available. But for large operations the flutter-wheel was found to possess too little power, and the overshot or undershot wheel became a necessity, to be superseded later by the adaptation of turbine-wheels, now so much in favor with mill owners who control water power. For the first fifty years of our national growth as well as during the preceding portion of the world's history, none of the mills were equipped with anything more than a single upright saw working in a gate, and when another saw was added, as the inceptive idea of the gang, which quickly succeeded with its large number of saws, words could scarcely express the astonishment of all who saw the working of the bold innovation.

Up to this time, all the lumber which was manufactured had been edged upon the top of the log after it was turned down; an auxiliary saw was not thought of, for the buzz saw, just beginning to be used, was considered a most dangerous piece of machinery. But the increased manufacture growing out of an increase in the power and an increase in the number of saws, led to the introduction of the small circular or "buzz" saw, which was at once found to nearly double the capacity of the mill. It is needless for us to enlarge upon the introduction of steam power into the saw mill, or to follow the original idea of an engine, 6x8 inches, attached to the lower end of the pitman or saw gate, through its successive stages of development and enlargement to the present time, when the Corliss, or Estes, or other well known engines, of a power from ten to one hundred times greater capacity than was the original device, are by the thousand in number engaged in turning out lumber, each in one season aggregating a greater manufacture than were all the saw mills of the country combined at a period scarcely fifty years in the past.

The old gate saw was superseded by the mulay, with a reduction of friction equal to thirty or fifty per cent. increase in cutting capacity. The mulay gave way to the circular, and with its introduction may be dated the commencement of an era which has been prolific of innovation, improvement, and advantage to the saw mill world. As the use of the circular became better understood, and men became more expert in dressing it as to make true lines and smooth surfaces, they found themselves able to produce more lumber in the rough than they could properly edge and prepare for market. The old edging-table could not keep up with the cut of the saw. This was remedied by the introduction of gang-edgers, which no mill doing any considerable business could dispense with. Now the work of the main saw could be safely increased, for the gang—or, as it was at first known, "double"—edger was abundantly able to keep pace with it, and while at first a capacity equal to 1,000 feet per hour was doubtfully claimed, later developments have shown in not a few instances an entire season's work at the rate of 6,000 feet per hour.

This increase in capacity called for a more speedy method of handling the logs on the carriage, and the lumber as it left the saw, and a multitude of inventive minds were concentrated on mill dogs, which should successfully take the place of the lever and pike, driven by a mallet, and the modern saw mill could not now be operated with the original method of dogging the log. The "nigger" for turning the log on the carriage, as well as rolling it on the skids, has superseded the cant-hook and muscular power formerly relied upon, while the lumber, as it leaves the saw, drops upon a system of live rollers, which does the work so much better

advantage than it was formerly accomplished by a hard-worked "off-bearer," who could not in these days by any possibility keep up with the work which would crowd upon him.

Plenty of lumber, cheaply manufactured, and sold at reasonable prices, has enabled the settling up of a nation at the rate of nearly fifty per cent. increase of population during each decade. This in turn demanded a network of railroads, and carriage by them has not yet been reduced to a science, which enables us to believe that rates have reached a minimum which they will realize in the future. The manufacturer of lumber, bearing this in mind, must reduce the weight of his product to the lowest possible point, and the trimmer became a prime necessity as an economizer, not less than for advantage in an aesthetic point of view. And the old gang mill, from its original adaptation of two saws, hung in a cumbersome frame, upon monstrous posts which headed in a weigh beam, made from the largest stick of timber which the forests afforded, and footed in the mill foundations, shaking the structure and the surrounding country, and keeping the machinery about one-half the time in the repair shop from its everlasting jar, has been displaced by the neat, effective, and comparatively noiseless devices of more modern times, developing a sawing capacity of which the fondest anticipation of the original inventor of the idea had not the remotest conception. The heavy weigh beams have disappeared, the monstrous wooden posts have given way to equally advantageous and strong but less cumbersome and more sightly iron supports, resting upon foundations independent of those which support the mill frame. The old, stiff, and full-of-friction gate has been superseded by oscillating slides, giving to the saws the same motion which the pit sawyer seeks to obtain in order to accomplish the most work with the least outlay of strength.

Time would fail us to trace out all the changes which a quarter of a century has developed in the saw mill. Should a Rip Van Winkle of the last century be suddenly awakened from his long sleep, still dreaming of the last act of dogging the log on his old-fashioned carriage, in the old mill, when he took long naps between the cuts, and esteemed a production of 1,000 feet per day something to brag of, and open his eyes on the floor of a modern mill of the smallest size, he would truly think that the world had turned upside down, and if he saw the army of men carrying off a quarter of a million feet of boards per day from the saws of some of the larger mills, he would not believe the evidence of his senses. All has changed; the water wheel has given place to the steam engine; the single small cylinder boiler, to the monstrous tubular or flue in large batteries; the upright saws in a gate, to the mulay and the circular, the two-saw gang, to a forty-saw; the rag-wheel, to the steam feed, adding countless possibilities to the

ability of the circular saw to cut up logs; the single buzz saw, to the double-edger; the rough end lumber to the well-trimmed; the vast piles of worthless slabs, to a useful article of lath and pickets; and the final debris, in many localities, to usefulness in the manufacture of other commercial articles. The pioneer knew nothing of lath and shingle manufacture; live rolls had not entered his noddle; gang slab cutters would have been pronounced by him an invention of the devil to feed the flames of his insatiable furnace. Endless chains would have no use in his mill economy; saw sharpeners and gummers would have no value in his eyes, for he could cut all the lumber he expected to, and find plenty of time for dressing his saws by hand.

The modern saw mill is indeed full of improvements, down to the last device for sorting by machinery. The production in one day, by one saw, of more lumber than was accounted the work of a year in former times, is not only the result of the genius of invention such as marks the spirit of the age, but has rendered possible the remarkable development of the youngest in the sisterhood of nations, forming no unimportant factor in the influence of this country among the people of the earth. All hail to the modern saw mill, and the wise intelligence of nearly every man who is connected with it, either in the production of logs from the forests or the manufacture and sale of lumber, for each progressive step in the march of improvement has reduced the cost of manufacturing lumber, keeping pace with the inevitable increase in the cost of timber, due to the gradual decadence of forests!—*Northwestern Lumberman.*

MICHIGAN BUSH FIRES.

DETROIT, Feb. 1.—A meeting of the State Fire Relief Commissioners was held here yesterday, at which Governor Jerome and a number of gentlemen from different parts of the burnt district were present. The Governor stated he had received many communications asking that a special session of the Legislature might be convened for the purpose of granting aid to the fire sufferers. After a long discussion as to the wants of the people a memorial, extensively signed, was adopted urging the Governor to call a special meeting of the Legislature as requested. The Governor subsequently urged on the members the necessity of preparing full, comprehensive, and correct reports of the necessities of their respective districts for submission to the Legislature, so that that body, if called together, can act intelligently and without delay. The meeting then adjourned. From reports submitted by the agents of the Commission, the assistant secretary compiled the following statement of the loss incurred by the fire:—Number of houses burned, 1,464; number of barns burned, 1,516; number of persons, 13,995. Total loss, \$2,251,564; average loss per family, \$732.

OUR QUEBEC LETTER.

THE HALL ESTATE—A LAND DISPUTE—INCREASED COST OF MANUFACTURING TIMBER—IN THE BUSH—HIGHER PRICES—MINING NOTES.

From Our Own Correspondent.

QUEBEC, Feb. 8th.—A rumour which proves to be a canard has been in circulation for some time past, to the effect that the estate of the late G. B. Hall, including the mills, etc., at Montmorenci, and limits elsewhere, were about to be disposed of to a company for the sum of \$2,000,000.

A dispute is now in progress with respect to the timber upon a large tract of land recently secured from the Crown Lands Department of Quebec, by the English Colonization Society, of which Lord Dunmore is President. The land in question is a portion of that under license to Messrs. G. B. Hall & Co. for lumbering purposes, and this firm assumes therefore that the usual conditions of lumbering licenses had not been effected by the consent of the Department to grant the land for colonization purposes. Their contention is therefore that they have the same right as heretofore to cut timber over the limits in question, with the exception of those parcels of it allotted to actual settlers for a year past. The Colonization Company on the other hand affect to believe that in virtue of the Hon. Commissioner's decision to grant the land as it may be required for settlement, they have become actual proprietors, not only of the land, but of all the timber standing upon it. Hence a dispute which has recently occupied the attention of the Lieutenant-Governor-in-Council. Some time ago the Company caused a lumberman in the employ of Messrs. G. B. Hall & Co. to be arrested for robbery, because he was found cutting timber on the land in question. The case was dismissed, and later a writ of injunction against the firm was applied for. The whole case was argued a day or two since before the Lieutenant-Governor-in-Council.

Logging, which was for so long a time delayed in the early part of the winter, through the absence of the necessary snow, is now by all accounts vigorously prosecuted. Last week's thaw caused very bad roads in the bush in portions of the Eastern Townships, but subsequent snow storms must have remedied this condition of affairs very materially.

Manufacturers complain that the cost of making timber has very materially increased this winter in consequence of the higher cost of provisions, and of the increase in wages and Government charges.

Advices received here by last mail from England confirm previous reports as to the scarcity of stocks and increase in prices on the other side of the Atlantic. Holders in this city, in consequence, are not apparently anxious to sell, and manufacturers prefer not to enter into any immediate contracts for future delivery. Several offers for the cut of deals at mills in this district have been refused. I have been unable to obtain the prices offered.

A quantity of manufactured lumber for special building purposes, a portion of the yield of the Montmorenci Mills, has been sold in New York at a considerable advance on last year's prices.

As there have been no transactions for so long a time, it is difficult to give quotations. From enquiries made of several brokers, however, I have reason to believe that the following may be regarded as approximate:—

Waney white pine, 19 in average	\$00 00/100 33
Square 60 ft. av'ge, 15 in	00 30/100 31
Oak, 60 ft. average	00 00/100 50
Elm, 45 to 60 ft.	00 00/100 30
Ash, 15 inches and up	00 25/100 30

A meeting will be held here to-morrow of the promoters of the new Asbestos Manufacturing Co. The directors will be selected, four from the Quebec shareholders, and three from those in Boston. The capital is \$300,000, and the factory, which will employ about 100 hands, will be erected either at Quebec or Lewie. This Company owns the celebrated Ward Asbestos Mine at Thetford, Megantic.

LIVERPOOL.

The *Timber Trades Journal* says.—It may be as well to contrast the present position of the stocks held here now with what they were last year at the same time, leaving out pitch pine, which will be referred to later on; and we find that the whole of the stock of square timber is

only 1,689,000 cubic feet, as against 2,510,000 cubic feet last year, or, to put it briefly, nearly 1,000,000 cubic feet loss.

This great shortage is mainly accounted for in the deficiency of three or four articles, viz., Quebec yellow pine, oak, birch, and Baltic fir timber. The unsatisfactory condition of the market at the opening of the year made buyers reluctant to enter into contracts; hence the importations of these goods have been comparatively small, and this has had the beneficial effect of lightening many of the old stocks, and bringing them into their present moderate dimensions.

In hewn goods, deals, battens, boards, &c., we find a similar reduction compared with last year's stock; thus at the end of 1881 the total stock of all kinds was 29,859 standards, while at the end of the preceding year it was 53,664 standards, showing here a reduction in stock of not less than 24,005 standards, or nearly one-half, so that, even taking the present quiet state of the trade into consideration, the outlook is hopeful from a seller's point of view, especially as the weather in the various provinces in Canada continues to be from the most recent advices of an almost unprecedented character, little snow having fallen and the task of getting out logs in the forests being thereby hampered to a large extent. In addition to all this there is the increased cost of provisions, and the advance in wages which have now to be paid to the lumbermen.

These facts all point towards an advance in prices upon those now current, and buyers must be prepared to pay prices for Canadian goods which a couple of years ago would have appeared absurd. Owing to the causes referred to above, there is a very strongly marked decline in the extent of the importation of wood goods into Liverpool and the other ports in the Mersey, the tonnage employed only amounting to about 360,000 tons in 1881, as compared with 485,000 tons in 1880, 326,000 tons in 1879, and 373,000 tons in 1878. This 360,000 tons is distributed amongst the great timber shipping districts as follows:—Quebec and Montreal, 83,000 tons; St. John, N. B., 70,000 tons; Miramichi and other spruce deal shipping ports, 81,000 tons; pitch pine ports, 68,000 tons; and the Baltic, White Sea ports, etc., 59,000 tons.

With this moderate importation merchants have not experienced the effects of over-crowded quays to the extent that has been the case in former years, and which has caused so much loss and expense in endeavoring to keep the vessels discharging without incurring the cost of demurrage. This, in some measure, was owing to the use made of part of the system of new docks opened during the past summer, which may sometimes afford relief to the ordinary timber docks, when any occasions of emergency present themselves, though it would be unwise to assume that any regular accommodation will be given to the timber trade, as these magnificent constructions are intended chiefly for the use of the great transatlantic lines of steamers plying from this port.

The import of Canadian yellow pine timber from Quebec for the past year was 29,634 logs, as against 48,147 in 1880, 25,253 logs in 1879, and 25,100 logs in 1878; and from St. John, N. B., only 1,140 logs, compared with 2,228 logs in 1880, and 2,631 logs in 1879. This is about an average quantity of Quebec wood, but so far as the St. John, N. B., pine timber is affected it shows a steady decline, which is owing solely to the over-increasing scarcity of this favourite wood. The import of Quebec pine deals has been much less than that of 1880, the relative quantities being 1,530,000 pieces, against 2,040,000 pieces of the preceding year, but the increase in consumption has again shown how yellow pine in the form of deals is taking the place of log timber, for the consumption has not only swallowed up the whole of the past year's import, but has made an inroad into the old stock of 1880 to the extent of about 4,000 Petersburg standards. The importations of spruce deals from St. John, N. B., and the various other New Brunswick and Nova Scotian ports, show a considerable decrease from 1880, when the quantity was about 6,300,000 pieces, whilst during the past year about 4,900,000 pieces were imported. This shows a large decrease at first sight, but it must be remembered that the import of 1880 was excessive, and the quantity is only a moder-

ate one, being as nearly as possible the same as that of 1879.

The stock of these goods on hand now is only about one-half of that of last year at this time, and this fact, together with the reports from St. John, N. B., and other deal-making districts, of continued mild weather, which prevents saw-logs being got out of the woods, makes this article, at the prices asked for it, appear one of the safest in the market to purchase now.

There has been a considerable reduction in the consumption of Canadian oak logs, which is, however, balanced by the increased quantity of oak shipped from the United States, and cut into sizes suitable for railway waggon building, and as this branch of business has increased to such an extent that not less than 305,000 cubic feet has been sold since the commencement of the past year, it is palpable that it must greatly affect the price of the old-fashioned shipments from Quebec, seeing that at present these goods sawn ready to size and of prime quality, can be bought at less rates than the oak in the log.

Pitch pine timber has been imported very freely, and the arrival of vessels with this wood on board may be said to have continued without cessation from the first day of the year to the last, the steady increase in this trade being shown as follows:—In 1879, about 39,000 tons of shipping were employed, in 1880 about 56,000 tons, and in 1881 about 70,000 tons. With this continued pressure upon the market prices have ruled low throughout the past year, and this state of things is likely to continue so long as the pressure to sell for arrival is so visible and the stocks on hand so large. In hewn timber the stock now is 510,000 cubic feet, and sawn timber and deals 471,000 cubic feet, say nearly 1,000,000 cubic feet of all kinds, as against about 630,000 feet at the end of 1880, and, as the import season for this wood is now again commencing, there is little prospect for any immediate rise.

The importation of Baltic timber has been so small during the past year that the comparison between it and that of the previous year is most noteworthy. During 1880 the quantity of fir timber imported into Liverpool was 33,700 logs; in 1881 it amounted only to 8,200 logs, roughly speaking, one-fourth. So far as this port is concerned, we can only look upon the prices asked for red and white fir as being altogether out of proportion to the merits of the wood, when compared with its rivals.

STILL APPROVED.

We have received the following letter, which speaks for itself:—

To the Editor of the *Canada Lumberman*:

GENTLEMEN,—Please send your paper, the CANADA LUMBERMAN, to the enclosed addresses. I can get quite a number more subscribers, as it is a very useful paper.

I am yours respectfully,

C. WEBSTER.

Lion's Head, Feb. 3, 1882.

THE value of the lumber cut yearly on the Pacific coast, at the rate of £10 per 1,000 feet at the port or place of shipment, is \$6,000,000. A thousand years would not suffice to exhaust the giant woodlands extending from Alaska to Santa Cruz, so that on a very rough estimate this portion of the resources of the Pacific slope is worth at least \$6,000,000,000.

THE *Cincinnati Gazette* says there is now at the Public Landing in this city a steamboat of large size, built for the purpose of developing a new enterprise, which, if successful, will add to the long list of American exportable produce. The boat is supplied with machinery for the purpose of grinding and compressing tanbark. She will be run up the Tennessee River, where bark is obtainable. There the bark will be taken on board, ground, compressed, and packed in kegs or half barrels, and in that shape shipped to Europe. Bark is now brought to market in bulk and handled at great expense, and cannot be shipped to Europe at all. It is needed in that country to enable tanners to compete with American manufacturers in the production of leather. The compressing of cotton has greatly reduced the cost of transportation, and it is this principal that is to be applied to the tanbark business.

MICHIGAN FOREST FIRES.

DETROIT, Feb. 10.—The Michigan Commissioner of Insurance reports that the losses of 1881 exceed those of 1880 by \$500,000. Only twenty stock companies had losses in the burned districts, aggregating \$101,942.00, which has been paid, nearly half of it by one company, the Watertown, N. Y. The two mutual companies of Huron, Sanila, and Tuscola counties had about \$80,000 losses, none of which have been paid. It is estimated that the property losses of persons who applied to the Fire Relief Commission for aid amount to \$2,138,820, or over \$200,000 less than those occasioned by the forest fires of 1871. It is probably however, that when full statistics are collected, the fires of last fall will be found to exceed in damage those of 1871 by many thousand dollars. There are one hundred companies of other States doing business in Michigan, whose aggregate capital is \$45,719,280; reduction of assets, \$2,392,937.65; admitted assets, \$112,935,346.47; liabilities, \$31,380,246.23; surplus as regards policy-holders, \$77,274,360.24; surplus over capital, \$31,555,100.24; risks written in Michigan, \$139,891,998.59; premiums on risks in Michigan, \$1,675,853.06; losses incurred on above, \$1,111,168.19; losses paid, \$1,091,956.52. There are only two Canadian companies doing business in this State, the British American Assurance Company of Toronto, and the Western Assurance Company of Toronto. The 1881 statement of the latter is not yet received, but the former has a capital deposited in the United States of \$200,000, and its Michigan business for 1881 amounted to \$1,588,301 in risks, \$27,078 received for premiums, \$17,569.03 losses incurred, and \$3,959.98 losses paid.

THE *Montreal Witness* says the lumbermen are pushing operations vigorously in the vicinity of Lake Kazizakichiwogamog.

It is now thought that the Maine lumber cut on the Penobscot waters the present season will not be far from 100,000,000 feet. Last year the total reached 150,000,000. There is, however, said to be an overstock of 60,000,000 of old logs.

END SPLITTING OF LOGS AND PLANKS.—Logs and plank split at the ends because the exposed surface dries faster than the inside. If muriatic acid be saturated with lime and applied to the ends like whitewash, the chloride of calcium formed attracts the moisture and prevents the splitting.

A CALAIS correspondent says on Wednesday morning last, the Custom House door was surrounded by teams from the St. John River. They were being bonded, for the purpose of working in the Maine woods, for which they started as soon as they had complied with the Government requirements.

THE *Northwestern Lumberman* says the New York Central Railway Company has supplied a train of new lumber cars, which arrived at Tonawanda, N. Y., recently. They are so constructed that they can be utilized for either lumber or cattle. Other roads would do well to take pattern after the Central, and thus greatly benefit their patrons, and facilitate the business of lumber shipping, which would prove to the former's pecuniary advantage.

THE *Moncton Times* says reports that have reached us show that the season so far has been good and favorable to economical logging. The lack of snow till January prevented hauling operations, but the weather was most favorable for cutting and yarding. Since the snow has come, hauling has been prosecuted vigorously, there not being sufficient snow to impede the work, as is often the case. Should the season continue steady the result will be very favourable.

MRS. PARTINGTON SAYS, don't take any of the quack nostrums, as they are regimental to the human system; but put your trust in Hop Bitters, which will cure general dilapidation, costive habits and all comic diseases. They saved Isaac from a nevere extract of tripod They are the *re plus unum* of medicines.—*Boston Globe*.

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Tan Bark.

The *Globe* says Canadian capitalists should take immediate note of an enterprise just being introduced on the rivers of the Southern States—namely, the pressing of tan-bark for carriage by rail or export. The press is carried on a stern-wheel steamer which is to run on the Tennessee River as far up as Florence, Ala. She cost \$50,000. The press, which is a 14 inch cylinder, is driven by the engines which drive the boat. A pressure of 1,500 tons is put on the bark in the cylinder. The bark is first ground on a machine located in the fore part of the vessel, and is then conveyed by a traveller to hoppers which feed the cylinders. Another traveller conveys the pressed cylinders of bark to the hold for shipment. The substance when pressed is as hard as rock, and needs no barrel, bale tie, or covering. On soaking in water it expands to its former size. In that section loose tan-bark is worth \$10 to \$15 a ton. The price in Europe is about \$30 to \$35 a ton.

The *Port Hope Times* says that the Georgian Bay Lumber Co. intend shipping 50,000,000 feet of lumber at Port Hope next summer.

LARGE quantities of cedar are being gotten out in Door county, Sturgeon Bay region, Wis., notwithstanding the lack of snow. The local papers pronounce the industry a bonanza to the people in that vicinity.

The *Duluth Lake Superior News* says that the Shell Lake Lumber Co. recently received one hundred cars of snow with which to manufacture lumber roads.

GOLDEN INFORMATION.—A while ago, said Mrs. Dr. A. A. Jordan, 51 Lincoln street, Worcester, Mass., one of my friends from the south spoke to me very highly of St. Jacobs Oil. I resolved to try it on my patients, and I must confess that I was surprised at the results. It has never failed to cure all that it claims to, and I prescribe it willingly and confidently to those of my patients who suffer with rheumatism, sprains and all bodily pains. It is certainly a wonderful remedy, and I can highly recommend it.

IS IT A HUMBUG? Some people think all proprietary medicines humbugs. In this they must be mistaken. A cough medicine like N. H. Down's Elixir that has stood the racket of 52 years must have some virtue, and must cure the diseases for which it is recommended, or people would not continue to buy and use it as they do. It seems to us that even if we knew nothing of its merits, the fact of its large and continually increasing sale justifies us in recommending Down's Elixir to all who may need a reliable cough medicine.

HOW TO CURE A COLD.—Upon the first feeling of chill or shivering remain indoors if possible, bathe the feet in tepid water, gradually increasing the heat as long as it can be comfortably borne, drink freely of warm ginger tea or sage tea, to induce perspiration, and take Hagyard's Pectoral Balsam according to directions on the bottle. Hagyard's Balsam cures coughs, asthma, and bronchitis.

MACK'S MAGNETIC MEDICINE.



Is a Sure, Prompt and Effectual Remedy for Nervousness in ALL its stages, Weak Memory, Loss of Brain Power, Sexual Prostration, Night Sweats, Suppression, Torraha, Seminal Weakness, and General Loss of Power. It repairs Nervous Waste, Rejuvenates the Jaded Intellect, Strengthens the Enfeebled Brain and Restores Surprising Tone and Vigor to the Exhausted Generative Organs. The experience of thousands proves it an INVALUABLE REMEDY. The medicine is pleasant to the taste, and each box contains sufficient for two week's medication, and is the cheapest and best. Full particulars in our pamphlet, which we desire to mail free to any address.

Mack's Magnetic Medicine is sold by Druggists at 50 cts. per box, or 12 for \$5, or will be mailed free of postage, on receipt of the money, by addressing MACK'S MAGNETIC MEDICINE CO., 133-w49-123 Windsor, Ont., Canada. Sold by all Druggists in Canada.

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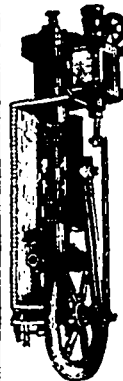
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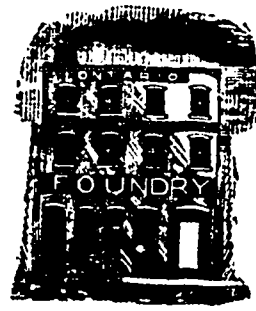
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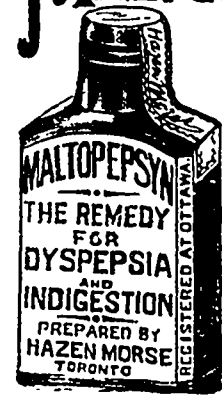
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Two doses (30 grains), of Maltopepsyn will digest the entire white of a hard boiled egg in a bottle of water, in from 3 to 4 hours. How much more will it digest in the stomach assisted by that organ? About twenty times the quantity.

Test this for yourselves,—it is an interesting and useful experiment.



Get from your druggist ten drops of Hydrochloric Acid in a four ounce bottle, fill bottle half full of tepid water (distilled water is best, though soft water will do), then add the finely cut white of a hard boiled egg, then add two doses (30 grains) of Maltopepsyn and shake bottle thoroughly every 15 or 20 minutes, keep the bottle warm, as near the temperature of the body (100° Fahrenheit) as possible, and in 3 to 4 hours the egg will be entirely dissolved or digested.

Maltopepsyn is endorsed by the leading Physicians and Chemists throughout the Dominion of Canada.

Send for Pamphlet, 24 pages, giving full treatment of Dyspepsia with the rules of Diet, etc., mailed free upon application to HAZEN MORSE, TORONTO.

Price per bottle, with dose measure attached, 50 cts., contains 48 doses or about one cent per dose.

A NEW DEPARTURE.

The lunch meetings of the lumbermen of this city have resulted in much good. Nothing could have been devised that would do more toward creating a brotherly feeling, and bringing about an understanding between the members of the trade. Several questions of great moment have been discussed, and no doubt with much profit. Over the lunch and cigars good feeling invariably prevails, and when such is the case there is always exhibited a degree of frankness which is not at other times observed. The benefit thus far is almost incalculable, but it need not rest here. There are other steps that can be taken, and which, possibly, would be more valuable than any that have been taken.

The Lumberman's Exchange is a great power. Among its members are included men of unusual intelligence, as well as business ability. It represents a vast capital, and its united voice is one which would not be likely to be ignored. When it speaks it represents one of the leading industries of the nation, and its voice proceeds from the headquarters of that industry.

A question that the members of the Exchange could profitably discuss is, What steps can be taken toward bringing to the notice of the government the necessity of protection against forest fires? It is a question that has a direct bearing, not only on the interest of every owner of pine lands, and manufacturer, but every wholesaler as well. The interests of these classes are inimicable, and any action by government toward the protection of the pine that forms the stock in trade of each, would be of mutual advantage. Individuals have labored to interest our law makers in the question of fire protection, as well as forest protection from other sources, but with little success. We believe the voice of the Exchange would command attention, and attention is the first thing to be desired. Some of the states have made provisions for the cultivation of trees, and it would be eminently proper for government to arrange for the protection of trees.

We believe there is no lumberman who owns pine lands who will disagree with us. A man who purchases timber lands is of course the owner of them, but it does not follow that ownership should give him the liberty to do with them as he likes. If his timber patch is isolated let him operate as he desires. If his leaving are permitted to accumulate and dry, and at last be the means of his standing timber being destroyed, he alone will suffer. But when his timber stands on land adjacent to other of the same kind, or if in case his possessions were swept by fire it would hazard the homes and property of others, the question takes another form. The same law should hold good that is forced in other directions. Under good municipal management a tinder box is not permitted to be constructed in a city where the burning of it would hazard the property of others. By common consent a man must pay some respects to the rights of others, but in the logging business he does not. If he steps over the line and steals a few trees from his neighbour, the law stands ready to make him suffer a penalty, but it is in reality a small offence when compared with the course he does pursue—a course to prevent which there is no law. It is the absence of such a law, and its enforcement, that so often makes pine lands risky property to own. A single winter's operation, as logging is now conducted, forms a good excuse for the flames, if once started, to make havoc that, while deplorable, might easily have been prevented. When the ground is covered with dry tree tops, fire finds food to feed upon, and gets such headway that it sweeps through forests which it would not except for the force which it had already obtained. To do away with these conditions would require considerable work, but no work could be done in the woods that would pay better. As a proof of this we may instance the loss in Canada by forest fires for the year recently ended. In the Ottawa Valley it has been estimated at \$5,000,000, and in the entire Province as high as \$10,000,000. That amount of money would pay for a vast amount of labor, and a small proportion of it expended at the proper time would have prevented the loss of the balance.

It is a fact that most men learn sooner or

later that there is a cause underlying every effect. With no material for fire to feed upon there will be no fire. It is not an impossible thing to get this material out of the way. The tree tops could be piled into heaps and burned under the supervision of men who would see that the fire did not spread. There are wind-falls which leave vast areas in shape for conflagration. In this territory the match of the careless hunter or woodsman will, to the end of time, for aught we know, set the dead timber ablaze, but beyond this forest fires need not be extensive, or occur often.

No state in which the lumber business has been extensively carried on has suffered so little from forest fires as Maine. The reason is very apparent, and is due to a species of forest preservation which is practised nowhere else in America. The larger trees are cut, leaving the smaller ones to shade the earth, and thereby so much humidity is retained as to make the running of a fire next to impossible. We do not make this statement, however, with the expectation that such a course will be pursued in Michigan, Wisconsin, or Minnesota until timber is much scarcer than it is now. It shows the wisdom of the Maine lumbermen, nevertheless, and gives them a solid foundation upon which to stand when they assert that there will be timber in that state for the coming generations, in response to the oft-repeated statements made by the western lumbermen for the past twenty years that the timber resources of Maine are exhausted.

It is the experience of nearly every man that to make a success of life he must unlearn much that he has learned. Our pine has been so plentiful that operations have been carried on recklessly. If a portion of it burned, there was thought to be plenty left. It is time that such operations were checked. A habit of carelessness that has been prevalent since the first blow was struck by the lumbermen in the Michigan woods, and an indisposition to spend a few dollars, when the expenditure of them would be an almost perfect assurance against losses which are irreparable, should be rebuked and corrected.

There are no hopes that men in the woods will so conduct their work that fires will be less frequent, unless they are obliged to. They plainly see the necessity of it, and many of them would welcome a law that would force them to do as they are conscious they ought to do. The members of the Exchange can discuss no question that is of more interest to most of them financially. They can decide among themselves what ought to be done, and then take the proper steps toward its accomplishment.—*Northwestern Lumberman.*

TREE CULTURE AND ITS EFFECTS ON RAINFALL.

The rapid denudation of the forest lands of the country has been the subject of much thought and study, not only on the part of those interested in a pecuniary sense, but has called forth numerous lengthy discussions in regard thereto on the part of literary and scientific men whose motives may be less sordid than those of the former class, and whose only object apparently has been the prevention of the wanton waste of one of nature's great donations to humanity, in order that future generations may reap a portion of the benefit thus lavishly bestowed, but of the value of which many people of the present day and generation appear to have a very faint conception. Forest culture to supply the present use and waste of timber has been urged upon the government, and has received such serious consideration on the part of our national legislature that the commissioner of agriculture has been induced to form a distinct division in that department, to be devoted entirely to the investigation of this subject, with a distinguished professor at its head, who has been to Europe for the sole purpose of the investigation of this subject, and who is at present engaged in the preparation of recommendations to congress, having in view the planting, preservation, and maintenance of forests on the prairies of the west; the principal object of which, of course, is to supply the future demands of that country, in regard to lumber.

But another and very different motive for the consideration of this subject has lately at-

tracted the attention of writers thereon. Not only do forests supply a necessary want—the supply of the material on which such a vast number of the industries of the country are based, but the influence of the forests on the rainfall of a country is receiving at the present time thoughtful and serious consideration. That they do exert such an influence there is no possible room for doubt. Not only is the view sustained theoretically, but the actual practical experience of thoughtful and observing men, whose interests and occupation has led them to an investigation, coincides precisely with the views of scientific men in this connection.

The writer remembers several years ago, during a trip through Iowa, Kansas and Dakota, having his attention called particularly to this subject, by the pioneer settlers, some of whom had so far succeeded pecuniarily that they were enabled to make practical tests, in order, if possible, to demonstrate the correctness of the theory, that tree-planting or forest culture, systematically carried out on the prairies of the great west, would supply the much needed and anxiously coveted rainfall, the lack of which was the only obstacle to the immediate pecuniary prosperity of the pioneers of civilization, whose influence on the development of the resources of that country has never yet been properly estimated or recognized. So serious consideration had this subject received at that early period in the history of those territories that very many of the settlers were already carefully watching and noting the results of their tree culture, and its influence, and the invariable testimony was that in proportion to the extent to which it was carried on, the increase in the amount of rainfall kept steady pace. Of course when pressed for an explanation as to the manner of this influence, they were unable to give any very definite ideas, but the fact was there nevertheless, and that was satisfactory to them at least.

That forests do therefore induce and increase the rainfall to no inconsiderable degree is indubitable, but as to the manner or methods by which their influence induces such a result it is not quite so comprehensible to ordinary mortals. Experiments not only in this country but in Europe, prove beyond a peradventure that tree planting is beneficial in more directions than one, but especially in regard to the increase of the humidity of the atmosphere.

The *Cincinnati Commercial* of a recent date, in a well written article on this subject, in a measure explains the influence of tree culture on the atmosphere. It says:—

"Forests influence the atmosphere, though, more powerfully by their effect on its general humidity than in any other way. An evaporation of moisture from both earth and trees takes place constantly. The evaporation is greater from open soil than from woodland, but the difference is far more than made up by what is called 'transpiration' of leaves of the trees. This corresponds in a degree to the insensible perspiration of animals. Some conclusive experiments have been made with growing pot plants, going to show that leaves do not absorb moisture, but that, on the contrary, they give it out. The moisture is absorbed through the roots.

"The quantity of insensible vapour that is given off through leaves is immense, amounting to one and a quarter ounce to the square foot of leaf surface. The world-old metaphor of counting the leaves of the trees has a new significance in the light of science. Painstaking experiment has enabled those studying the matter to make an approximate estimate of the comparative amounts of vapour given off by earth surface and leaf surface. They have calculated that a square foot of soil sets free about six times as much moisture as a square foot of leaf. The leaf surface is, however, many times greater than the soil surface—twelve times greater, the scientists put it—so that twice as much evaporation takes place from forest as from open land. When the wood of the country is cut away, therefore, other things being equal, two-thirds of the moisture-giving material of the atmosphere is gone with it. Hence the long, fearful droughts on lands bare of trees."

A writer in the *American Naturalist* also says in this connection:—

"From the data obtained it would seem safe

to infer that when the percentage of woodland is fair (25 to 30 per cent) at least twelve inches of water is transpired in the course of a season in mild or temperate climates, or, in other words, twelve inches of the total annual terrestrial evaporation. All this vast amount of water is transpired in about six months, or during the vegetative period. Under these circumstances an equivalent of nearly half the rainfall during the warm season may be accounted for by the transpiration. These are striking facts, and tell in indisputable terms of the happy effect of plant life upon the humidity of our atmosphere, as this substance in due proportion is very essential to an equable and salubrious climate. Were it not that the atmosphere was properly moistened so as to intercept nocturnal radiation from the earth, our cereals and other products of husbandry as well as vegetation generally, would greatly suffer if not be entirely destroyed by the resulting frost.—*Lumberman's Gazette.*

A TALK WITH A TIMBERMAN.

When an *Advance* reporter dropped into the office of Messrs. Burton & Bros., yesterday, he found Mr. James Burton, the senior partner in the firm, scanning a map of the Muskoka and Parry Sound Districts. "No, we don't own the whole district, my gentle gazelle," he said with a laugh at the reporter's little familiarity. "But we have a stake in the country. You see these colored sections. Well, they represent \$750,000 of timber limits. A nice little figure, and don't you wish you had it to your credit in the bank?" The newspaper man disclaimed any such sordid ambition. It was glory he was after,—and local items. "Our limits," continued the timberman, "are in those townships. They embrace about seventy square miles. In this one, Armour, we have now at work over 100 men and teams." "How do you get out the timber, and where do you ship it, Mr. Burton?" queried the scribe. "The Magnetawan runs right through our limits. We take our stuff down that river to Byng Inlet; there our boats take it on down to Kingston where it is rafted and sent down the St. Lawrence to Quebec." "You are not in the lumber business now, I believe." "No. Last year we sold our lumber interests in Michigan for \$50,000. But we have land there—15,000 acres of good land, and the Marquette railway runs right through it." "Business good?" "Splendid!" "Paying?" "At present prices I should think it was. Nobody needs to lose money in the timber business in this country now. The demand is constantly increasing while the supply is rapidly decreasing." "You are one of those alarmists who believe that our forests are disappearing and that before many years there will be a wood famine?" "That's a fact; unless some means are taken to repair the waste going on we must exhaust our timber resources. What with bush fires and wasteful cutting, timber is becoming more and more scarce and dear. Take a look around you in this very county. Twenty years ago Cook Bros. bought 1,800 of bush land in Tiny township for 10 cents an acre. To-day they refuse \$90,000 for it. This may be hard to believe, but it's true. Oh, yes! There is money in timber just now." The lumberman turned to his map and the reporter turned to his heel.—*Barrie Advance.*

PLANTING FORESTS.

A correspondent of the *Timber Trades Journal* says:—"In our day we have seen the desirable policy of planting forest trees largely pursued. In the hands of those interested in this national work the old stock of native trees has not been neglected, overlooked, or despised, but along with them have been planted great numbers of soft-wooded trees, which were previously strangers to the land, viz., the Scotch fir, the Norway spruce, and the European larch. As these trees are ready for the market, we have for the first time in English history a native-grown soft wood, which can be used for the thousand and one purposes to which the soft imported woods of the Baltic provinces are applied."

"AND fools who came to scoff remained to pray."—We receive many letters from those having tried while doubting, yet were entirely cured of dyspepsia and liver troubles with Zopeas. Clergymen write us earnestly to its wonderful effects.

PROTECT THE FORESTS.

Those who have read the late census reports of the rapid destruction of the timber in the great lumbering districts, and note on the maps the location of forests distant from navigable streams, will see at a glance that in the near future lumber must largely increase in value from necessary increase of cost in procuring it. Men raised in woody countries seem to cultivate an enmity to trees, and the destruction from the axe, from carelessness and from fires can scarcely be overestimated. It has been the history of the West and Northwest. There are millions of acres which have been denuded of their forests to make way for farms, where to-day single trees that were then sacrificed would sell for more money than any acre of the ground. It may be said that this was a necessity, which is doubtless true to a certain extent; but that necessity does not continue. The man who owns a forest should guard it and reasonably expect a rich reward in the future for his care. It would seem as if the United States should imitate the German empire in protecting its timber, and, as well, replanting large districts not otherwise used. Germany has acted far more wisely in this matter than other European countries. Italy, Spain, Austria and Russia have allowed the destruction of millions of acres of as fine forests as ever grew, and are now paying the penalty of gathering their timber from mountains and places difficult to reach, or importing from more favored countries. The Gulf States and Oregon and its adjacent Territories are yet rich in fine timber. That there should be some sure means of protecting it from needless ravage and destruction no thinking man can doubt.—*Inter-Ocean.*

THE WAY IT IS DONE.

The extent to which the modern appliances of railways and rollways are employed for getting logs to waters and mills is illustrated by the following:—The Saginaw and Northwestern railway runs from Saginaw Bay through Pinconning, a distance of ten miles, then north twelve miles. It has several branches from one half to two miles in length. At the Bay there are two trestles, their united length being 3,000 feet, and they stand about twenty feet above high water mark. On the line of this road and its branches are twenty-two camps in operation—three camps belonging to Yawkey & Bradley, three to H. W. Sago, two to Falsomo & Arnold, and four operated by W. J. Miller & Co. These camps are worked by an average of eighty men, divided into a day gang and a night force. At the Bay there are eighty men, divided in the same way, one gang to load cars and the other to unload. The road has six engines, five in constant use, night and day. At the Bay the logs are dropped off the trestle and rolled a distance of 600 or 800 feet, and then "tiered up," so that at the finish they are in perfect tiers, each marked by itself with appropriate camp marks. At this rollway have been banked this year 26,000,000 feet of logs. The President of the Company operating this road is W. S. Gerrish, of Muskegon, and W. J. Miller is the general manager.—*Northwestern Lumberman.*

Manufacturing Economy.

While on all sides endeavors are being made for the preservation and culture of our forests, why is it that so little is said about proper economy in the use of forest products? We do not refer to the reckless spirit which leads the farmer in some districts to build hog pens out of black walnut, but to the failure to utilize all that is possible in large manufacturing establishments. Not only the vast piles of slabs from the saw mills, but the ends and strips from the furniture manufactories, and kindred establishments, might, it would seem, be used to better advantage than to feed the furnace. In some of the large mills abroad a most rigid economy is practised in this respect, and indeed this spirit is beginning to be introduced into this country. Of course it is a little difficult to be economical, when seemingly unlimited supplies are within reach, but manufacturers are already feeling the effects of the scarcity which is bound to come sooner or later. Would it not be wise to anticipate things a little by employing much of what goes to waste for purposes for which it is fitted?—*Buffalo Lumber World.*

PLANT HICKORY TREES.

Many people would like to have a hickory grove, but have a vague idea that it is a terribly hard thing to get. But it is not so much of a task. Plough your ways four feet apart, follow the marker with a roller that will not efface the mark. Do this the first week in October, or maybe earlier. Have a sack of nuts, with the hulls on, sent you as soon as they get ripe enough to grow. Take a hoe, and at each crossing of your check-rows plant a nut about an inch and a half deep, stepping hard upon it. Next spring run a harrow over the ground quite early, say as soon as the frost is well out. When your trees come up cultivate them the same as corn, being careful not to bruise in any way. After they get too high for the cultivator, attend to them with the hoe. Mulch in the fall sufficiently to keep the weeds out the next spring. If any should come, keep them pulled. In ten years you will have all the hickory nuts and timber you want, if you have an acre in your grove. A moist location is the best—just as wet as will do to plough—if you have it.—*Lincoln (Neb.) Journal.*

TWO ORGANS.—Regulate first the stomach, second the liver; especially the first, so as to perform their functions perfectly and you will remove at least nineteen-twentieths of all the ills that mankind is heir to, in this or any other climate. Hop Bitters is the only thing that will give perfectly healthy natural action to these two organs.—*Maine Farmer.*

A healthy man never thinks of his stomach. The dyspeptic thinks of nothing else. Indigestion is a constant reminder. The wise man who finds himself suffering will spend a few cents for a bottle of Zopesa, from Brazil, the now and remarkable compound for cleansing and toning the system, for assisting the digestive apparatus and the liver to properly perform their duties in assimilating the food. Get a ten cent sample of Zopesa, the new remedy, of your druggist. A few doses will surprise you.

"DON'T GIVE UP THE SHIP" were the memorable words of Commodore Perry. We repeat, "Don't Give up the Ship," poor, despairing invalid, but try Barcock Blood Bitters. It cures others, why not you? It renovates, regulates and tones all the organs of secretion, and restores lost Vitality.

The seven kings of Rome were Romulus, Numa Pompilius, Tullus Hostilius, Ancus Martius, Tarquinius Priscus, Servius Tullius, and Tarquinius Superbus, and the King of Steel Pens is Esterbrook's Falcon, No. 048.

TRIPLE WARNING.—Now is the season for sudden colds and distressing coughs, treat them with Hagar's Pectoral Balsam, it cures in influenza, asthma, croup, whooping coughs, bronchitis, and all pulmonary complaints leading to consumption.

"TWENTY-FOUR years' experience," says an eminent physician, convinces me that the only way to cure nervous exhaustion, and weakness of the sexual organs, is to repair the waste by giving brain and nerve foods, and of all the remedies compounded, Mack's Magnetic Medicine is the best. See advertisement in another column.

LAME BACK.—Lumbago, Kidney complaint, Neuralgia, Rheumatism, and all pain and inflammation is speedily cured with Hagar's Yellow Oil. Croup, sore throat, colds, burns, scalds, bruises, frost bites, chilblains and all wounds of the flesh are quickly healed by Yellow Oil.



WELLAND CANAL.

Notice to persons skilled in fitting up Electric Lights.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Electric Lights," will be received at this office until the arrival of the Eastern and Western Mails, on TUESDAY, the 21st day of FEBRUARY, next, for Lighting the Locks, &c., on the new part of the Welland Canal by means of Electric Lights.

A plan, showing the relative position of the proposed light, can be seen at this Office and at the Office of the Resident Engineer, Thorold, where a printed copy of general conditions and other information can be obtained, either on application personally or by letter.

Tenders must be made in accordance with the General Conditions.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,
F. BRAUN, Secretary.
Dept. of Railways and Canals,
Ottawa, 31st January, 1882.

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Best accommodation in the City. TERMS \$1.50 and \$1.00 per day, according to Location of Rooms. 1221 WILLIAM HANCOCK, Proprietor.

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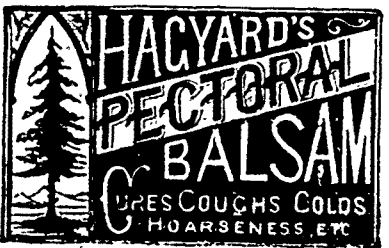
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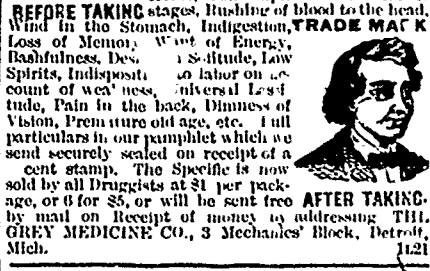
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PETERBOROUGH, Ont. FEB. 15, 1882.

Mr. S. C. KANADY, lumber dealer, of Toronto, has taken into partnership Mr. A. R. RICHES, the firm now being S. C. Kanady & Co.

The pine forests of Georgia are being rapidly destroyed. The State exports 300,000,000 feet of lumber every year, and so strips 96,000 acres, and it is thought that half as much more is spoiled and wasted by the turpentine makers.

B. F. Weston, of Muskegon, is building a tram road to facilitate his lumbering operations. He don't propose to be dependent on snow in the future, but will get out the logs whether the "beautiful" puts in an appearance or not.

The project of a hospital for lumbermen, at Chippewa, Wis., is growing apace. A considerable proportion of the \$8,000 required to put up the building is already subscribed. Subscriptions are to be asked among the loggers themselves to pay the running expenses of the enterprise.

Messrs. Bryce, Junor & Co., of Glasgow, have taken Mr. Joseph White into partnership, the firm now being Bryce, Junor & White. In their circular they say:—"Our Canadian friends, Messrs. H. B. Rathbun & Son, have greatly enlarged their factories, and we can now offer their doors and mouldings in increased quantities."

We take from the *Timber Trades Journal's* table of the distribution of imports, the principal British timber ports with the number of loads they received:—

London.....	1,404,793
Liverpool.....	524,404
Hull.....	364,831
Cardiff.....	238,182
Hastlepool.....	259,042
Grisby.....	216,942

No other ports received over 200,000 loads, Newcastle coming next with 175,413. In the Clyde, Glasgow has 67,042 loads, and Greenock 175,157, a total of 222,201. Of Irish ports, Belfast heads the list with 89,998 loads.

POLE ROADS.

In reply to an enquirer the *Northwestern Lumberman* says:—Pole roads for logging purposes are the simplest among the many forms of road which lumbermen find convenient and necessary in the prosecution of logging operations, when snow and ice roads are not available. They can be constructed in any locality where the ground is reasonably level, and are particularly adapted to such locations as present a sandy or fairly firm soil. They consist of long, small, peeled poles, the longer the better, from four to five inches in diameter at the top, to eight or ten inches at the butt end. The more evenly they carry their size from butt to top, the better the road. The ends of the butts, as well as of the tops, are long scarfed, and pinned together with suitable hardwood or strong pins, of one and a half or two inches in diameter, according to the size of the timber through which they are to be driven. Tops should be scarfed to the butts, and butts to butts, in order to provide a perfect bedding of all parts in the ground. If the scarfing is done so as to cause the poles to lay naturally on the ground when in place, the pins should be long enough to penetrate the ground for some distance. This is all the fastening or anchoring usually provided. The wheels of the car are concave, or V shaped, and as they pass over the rails naturally force them to maintain their proper distances from each other, while preventing them from spreading apart. It will take but a few trips of a loaded car over these poles to bed them in the earth, when spreading is practically out of the question. The wheels must, in their concave surface, be adapted to the general size of the poles to be used, and if larger poles are employed, or large butts are used, the axle must be used in hewing off enough of the surplus wood to give the wheels a sure bearing. Any kind of timber that carries its size well, may be employed, and if a pole gives out it is easily replaced. But comparatively little grading is requisite, although it is obvious that the more level the top of the track is kept, the less friction is encountered, for this reason it is well to bed the butts enough to bring them level with the bedded tops. No cross-ties is employed, and so solid are these roads that in many sections light locomotives are run upon them. With these general points stated, any man who comprehends the conditions under which concave wheels may be kept from running off through mounting the poles should have no difficulty in building a pole road. If the soil is not sufficiently firm to prevent the poles from becoming too deeply imbedded, cross-ties of poles may be used, but as a rule they are more harm than advantage, as they tend to prevent the self-adjustment of the track for which the concave wheels would naturally provide.

THE CLYDE TIMBER PONDS.

The Glasgow *Herald* states that an inspection of the timber ponds along the south side of the river, from Greenock to near Langbank, which were broken up by the severe gale of Friday, the 6th Jan., shows that the damage done is very great, many of the ponds being completely denuded of their logs. The river from Bowling to near Greenock was covered with floating timber on Friday and Saturday, rendering navigation very difficult. Thousands of logs have got stranded on the north banks, but the greater proportion is still afloat. Squads of rafters were despatched from Greenock and Port Glasgow to the ponds on Friday night, and they were engaged up to dark on Saturday securing what timber remained in the ponds, and repairing breaches made in the palings. The timber measurers of both ports resolved to act together for the benefit of all concerned, and on Sunday morning three tugs left Greenock with about twenty-five men each on board. One of the tugs proceeded down the river as far as the Cloch, and picked up every floating log which could be seen, instructions having been given that any timber found on the shore was to be allowed to remain in the meantime. The other two tugs proceeded up the river collecting the timber afloat, and having it towed to places of safety. Their efforts proved very successful, upwards of 2,000 logs being towed into Port Glasgow the same night by the three tug steamers. A like number of logs was again

picked up on Monday, but this is only a fractional part of the timber afloat and ashore on the north side of the river. It will be several days yet ere the river is clear, and steamboat masters would therefore do well to use every precaution while navigating their vessels. Already two paddle steamers have sustained considerable damage, and the traffic on the river for some days past has been comparatively light, also greater damage would probably have been done. It is computed that the cost of collecting this enormous quantity of drifting timber, replacing it in the respective ponds, and repairing the damage to the stakes will not be less than from £2,000 to £3,000.

TORONTO LUMBER SUPPLY.

It is probable there will be a somewhat limited supply of lumber in the Toronto market this year. Most of the pine lumber used in this district comes from Muskegon, and although there is at present very fair sleighing in that region, the snow was so tardy in putting in an appearance that many of the lumber operators dismissed their hands for fear that they would not get good hauling. There is, moreover, and will continue to be, an unprecedented demand for lumber in the United States, so that it may be expected to be abnormally dear in the spring and summer. A *Mail* reporter yesterday interviewed several of the prominent lumber operators, and they all were apparently of the opinion given above. Mr. H. H. Cook, M.P.P., thinks there will undoubtedly be a shortage of logs. He is of opinion that the supply of lumber in this country will be about the same as in former years, but cannot be increased, and will be absorbed by the demand. There will in all probability, he says, also be a short supply of logs in the United States, as in North and South Michigan, where large quantities are cut, there is no snow at all. A great quantity of logs had been cut in the Ottawa district, but he did not think the lumbermen would be able to get them to the mills. It often happened that it took the Ottawa lumbermen two years before they got their logs down to the mills. In regard to the future supply of lumber, Mr. Cook said there was not the slightest danger of overstocking the market as long as the present prosperity of Canada and the United States continued. It is almost a certainty that most kinds of lumber will be much dearer this year, and the additional price will no doubt affect the cost of buildings in this city, and increase the estimates for contracts generally. In view, however, of the augmented business of the country and the prosperity of all classes, the differences in prices is not likely to check building operations, and may perhaps pass unnoticed in the general capacity to pay more money for all kinds of material and labor.—*Mail*.

OLD TREES.

The ages attained by some of the coniferæ are scarcely less extraordinary than their colossal bulk. The greatest longevity assigned to any tree is perhaps credited to the celebrated taxodium of Chapultepec, in Mexico, 117 feet in circumference, which is thought by De Candolle to exceed in age the baobab of Senegal, inferred to be 5,150 years old. Goepfert states that *Taxodium distichum* has been ascertained by its annular rings to live 2,000 years. The mammoth tree has been estimated to live 4,000 years in California. De Candolle quotes a number of instances of longevity in the yew, and Endlicher considers one in Derbyshire to be 2,096 years old, and the one at Grasford, in North Wales, 1,400 years old. The pines, cypress, firs, larches, and cedars are credited with ages of 200, 300, and even 500. Picea 200 feet in height is mentioned by Goepfert, as ascertained by its annular rings, to be 460 years old, and a larix of 120 feet to be 576 years old. The Scotch pine (*Pinus sylvestris*) is said to require 200 years to mature its timber to perfection. In Veitch's *Manual of the Coniferæ* the ages of some of these are stated at considerably less. Other examples of longevity greater than 500 years are mentioned. These are *Cedrus deodara*, 750 to 900 years; cedar of Lebanon, 600 to 800 years. It is important, however, to recognize the fact that rings of growth are not in all cases trustworthy guides, and the subject is still in-

volved in some obscurity. The rings of growth in eucalyptus have been ascertained to be biennial. White cedar planted in England show symptoms of decay, as in Richmond Park, as if their full age in this climate at least were already reached.—*Gardeners' Chronicle*.

MADOC.

The *North Hastings Review* says that the Midland R. R. Co., have arranged with Mr. Wood for their supply of ties on the Madoc Branch. Mr. Wood is also buying for Messrs. Rathbun & Son, on the Moira river at and below Malons. We are informed he has a large quantity already secured. Taking the lumbering operations in all its varied branches in this section and vicinity, including logs by the Messrs. Gilmour & Co.; square timber by Messrs. Buck & Stewart, with the ties, posts and round timber by Mr. Wood, on the Moira, and Messrs. Thompson & Diamond on Black Creek, and Mr. Harrison on the Scotomatta, for Rathbun & Son, and the amount must be simply enormous. At the Madoc station alone there has been, we are informed, delivered by teams and railway, oats and peas, for supplies to these various lumbering establishments, not less than 60,000 bushels, to which must be added large supplies of pork and flour. We also learn that supplies are purchased at this point for some of the charities belonging to H. R. Booth and Bronson & Weston, of Ottawa, Mr. Booth having purchased a large quantity of oats and flour from Mr. A. F. Wood for the use of shanties where the logs will be drawn to the Madawaska and its branches for Ottawa. The amount of business done at the Madoc station by Mr. Blount for Gilmour & Co., and Mr. Dwyer for Rathbun & Son, must have been very large, and shows beyond a doubt the wisdom of railway connection in the lumbermen's interests alone. We are informed that the quantity of logs and ties that will be driven down the Moira this coming season will exceed anything in that line that has ever taken place on that river before.

IMPORTS AT CLYDE PORTS.

The following is a table of comparative imports at Clyde ports during 1879, 1880, and 1881:—

	1879.	1880.	1881.
Waney board pine, Quebec.....	2,101	11,167	9,124
Square yellow " ".....	13,231	36,787	33,136
Red " ".....	3,028	13,241	6,094
	18,360	61,195	48,354
Oak, Quebec.....	4,300	6,789	6,943
Elm, ".....	992	5,712	4,625
Ash, ".....	408	2,215	2,381
Birch, all sorts.....	2,039	9,676	7,256
	7,730	24,392	21,205
Deals, Quebec.....	498,760	1,003,262	415,704
" N.B. and N.S.	29,500	773,344	895,826
	629,260	1,776,606	1,311,530
Staves, Quebec.....	142	436	175
" New York.....	480	203	500

The following is a comparative statement of stock in Clyde ports, on December 31st, 1880 and 1881:—

	1880.	1881.
Quebec waney board pine.....	672,525	676,511
" square yellow pine.....	1,316,300	1,127,900
" red pine.....	387,232	372,306
Lower port yellow pine.....	4,199	—
Baltic red and white pine.....	190,311	94,905
Pitch pine timber.....	535,000	1,106,381
Quebec oak.....	319,344	345,500
" elm.....	32,307	244,781
" and lower port birch.....	60,230	35,855
" maple.....	—	62,336
" cherry.....	—	8,154
" hickory.....	—	1,442
" whitewood.....	5,991	3,961
" tana.....	633	3,408
" 1st pine deals.....	1,511	1,123
" 2nd ".....	548,450	271,451
" 3rd ".....	80,102	29,242
" 4th ".....	387,150	271,599
" red pine deals.....	129,100	81,809
" spruce deals.....	134,000	59,154
Lower port spruce deals.....	144,810	75,533
" pine deals.....	174,230	186,292
	168,600	174,898
Pipe staves.....	47	12
Punchon staves.....	166	49
New York staves.....	30	80

The *Lumberman's Gazette* says that a bill is to be introduced in the Wisconsin Senate levying a tax of 15 cents on every 1,000 feet of logs run out of the state. This is aimed particularly at one company. If the bill passes it will add \$100,000 to the revenue of the state.

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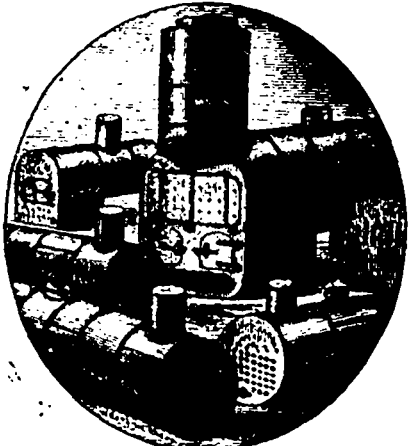
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175	" do	1 x 12 "
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20	" do	2 x 12 "
140	" do	1 inch Siding
20	" do	1 1/2 "
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18	" Cedar,	3 x 6 "
19	" Basswood,	1 1/2 inch.

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For full particulars, apply to the Company's Land Commissioner, JOHN McTAVISH, Winnipeg; or to the undersigned. By order of the Board.

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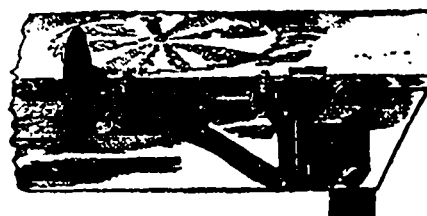
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combines, at a moderate price, more points of excellence than any other. Jointer is built in machine, a few inches from the saw. The cast steel feed rolls are opened by a foot lever, and grip the block like a vice. Traverser of carriage to suit large or small stock, is under control of operator when running. Will run for days without cutting a shim. Warranted to cut, with one attendant, three thousand in an hour, under forfeiture of \$100. Send for circulars to

T. HODGSON, AMHERST, NOVA SCOTIA.

FORESTRY, ITS CLIMATIC AND HYGIENIC INFLUENCE.

The following is the conclusion of Mr. M. McQuado's essay:—

THERMAL INFLUENCE OF TREES.

In the former paragraph we considered the use of timber in the collection and condensation of water, and shall now try to show their influence in modifying the heat and cold of the climate. It is one of nature's laws that when a body passes from a rarer to a denser state, heat is liberated, and from a denser to a rarer, heat is absorbed. Now, the sun's heat is a very powerful agent in the growth of plants, so much so that without it no vegetable can come to maturity, but experience proves that too much heat will destroy vegetation. Newspapers report that crops have been burned off the ground in several parts of the Western States during the past season. We have had similar experience in Huron County some five years ago, when a hot wave, of some two days' duration, passed over us, at the time when fall wheat was getting in the milky state; the result was that there was no grain formed. In a rich field which had been summer-fallowed from an old common at Exeter, and was some twenty acres in extent, with a crop of straw that should ensure forty bushels to the acre, there was not one grain of wheat. Others, from fifteen acres, got from forty to fifty bushels of chicken feed, while others, who happened to have it on strong clay land, and with timber land on the west side, got somewhat over half a crop. (Our prevailing winds in summer blow from west or south-west). The question is, How did the woods to the windward save the grain? Was it by its shelter or by its evaporation? By both. First, a hot wind moving rapidly will heat and dry more than a slow one, or a calm of the same temperature. Second, the chemical action going on at the surface of the tree tops takes the fierceness out of the sun's rays, which afterwards reached the ground through a stratum of vapour, and on that account the crop was not completely destroyed.

If this paper were intended for scientific rather than agricultural information, we could show how much heat is converted into motion, and therefore rendered insensible by a given quantity of water at, say sixty degrees, passing into vapour and then into its gases; but since the calculation would not be very interesting to farmers, we shall take a familiar illustration. To change water into steam at the least requires 212 degrees; but this is not all. You may confine that steam, and add another equal quantity of heat and the thermometer will indicate no higher temperature. The only difference between steam at the boiling point and steam which has taken the double quantity of heat, is, that that which has absorbed the most heat will have the greatest motion among its particles. We see then that the power of water to neutralize heat is very great, and will increase as the heat is intensified. But we must go a step farther in this direction, and show that the leaves of vegetables are natural laboratories in which, through the agency of heat, an intense degree of cold is generated. Part of the water which flows as sap, by the natural forces, at the surface of the leaf, is decomposed and changed into its elements—oxygen and hydrogen. We have seen that water passing into vapour may neutralize from 450 up to perhaps twice that quantity of heat; but when we come to consider its still greater change to its gases, a very much greater effect will be produced.

If we wish to decompose water by means of heat we must first bring it to steam, then throw that steam against some body that is as hot as iron at a red heat, when the water will pass into its elements. (This is the cause of steam boiler explosions). From these facts we may easily comprehend the wonderful influence of growing timber in the reduction of temperature in our hot spells in summer, when our crops are liable to be roasted before they come to maturity, and pastures are burned brown.

Let us now take a look back, and see how these facts square with our experience from thirty years ago down to the present time. At that time, when little land was cleared, when such a thing as prevailing wind was unknown, when the sun's rays struck directly down on the little clearings and were reflected from the walls

of timber both morning and evening, when one would suppose that by the addition of reflected heat the crops should be in more danger—what was the result? Were there any sunstrokes, did our crops wilt prematurely, or pastures get parched? Never. It is true that we then had rather unfriendly showers in haying and harvest; that he who wrought hard, watched the weather signs, and was not afraid to haul in hay or grain all night, would have good flour and fat cattle; but he who took his ease, stuck to the ten or twelve hour system, would have spoiled clover, and see his calves run out of the pen. Short or parched pastures were unknown in those days. Cattle which could be brought through alive to the first of May would be fit for the butcher on the first of November. Even the after-grass on stubble-fields was so rank as to interfere with fall ploughing. Contrast then and now. Bare, square, open pasture fields, with the colour of the soil shining through, as if fire had passed through them, leaving the stubble of grass as brown points, and the roots like dry stubble. Nothing green, except, perhaps, a few omnipresent perennial thistles; cattle pining with heat, or going in a trot to watering trough; while some unfortunate, ignorant of the thermal influence, or driven by necessity to dangerous exposure, falls a victim to the sun's rays. The verdict charges the calamity to the sun, and some extra religious body may go so far as to charge the Maker of the sun with the damage, when in reality it or He had nothing to do in the matter. The paying price of cordwood, the great demand for salt and flour barrel staves, the wasteful conduct of the farmer and lumberman must shoulder the blame. The time is very near at hand when we shall not be able to find a single tree fit to make a stave in our district—when all the elms over twelve inches in diameter will have vanished from the land. Then, why not spare before all is spent? Save at least the remains of our original forest elms which have not attained maturity; do not cut down a young, healthy, vigorous-growing tree, unless you have more timber than clearing—unless you are prepared to see your grain and grass shortened beyond the point of profitable cultivation.

THE EFFECTS OF GROWING TIMBER IN MODERATING COLD.

Like the raw recruit who blew his fingers to warm them and his soup to cool it, nature uses water as a check to the extremes of cold as well as heat, and has placed a beneficent law which, under proper management, will soften down both ends of the scale. Water increases in its density from its elements down to forty degrees, where further density stops, and from that point it will begin to lose density and be changed into snow or ice. Here we have to begin at the other end of the process, and use the agent that destroyed or stored up heat to give it out again, confirming the philosophic axiom, that nothing can be lost in the world. As we saw before, that when a body passes from a denser to a rarer state cold is produced, so, when it passes from a rarer to a denser, the heat is once more given off. When the sun's rays strike the surface at a small angle, and the mercury drops down to thirty at nights, the vapour in the atmosphere condenses to water, and is further converted into snow or hail. That heat which was used in vapourising the water is again thrown out on the air, to warm the breeze and make northern latitudes habitable.

TREES AS SHELTER AND FENCE POSTS.

It will be only a tedious repetition to go further into the climatic influence of woods, and we shall now consider its use as shelter to fields, and the necessity of keeping our fields covered with snow, if possible, during winter. Where our wheat and grass lands can be kept covered during the winter season—which will prevent the surface from freezing and thawing—good results are sure to be obtained; while if left bare the ground will freeze, and by its expansive force break the roots of grain or pull up clover. When a thaw follows the surface shrinks, and sometimes runs, leaving the surface roots exposed, which are dried out and killed by the sun's rays and dry winds—a practical experience of which we had last spring, when the surface roots of the wheat were so dried up that all the side shoots died out, and only about one or two of the centre stalks in each bunch came to

maturity. Such a state of things is new with us, which only proves that we must be prepared for new and costly experience, unless we can, in some way, replace the timber that has been taken away.

The kinds of timber to plant can easily be learned by every one, for each soil and climate has some variety peculiar to itself—some sort that would do on one soil and would fail on others. The evergreens, pine and spruce family, are best suited as wind-breakers, and some, among which may be mentioned the European larch, very valuable for the durability of its wood. Our own and Norway spruces grow well when properly started. The tamarack grows fast on any soil, but has the disadvantage of shedding the leaf in autumn, and its timber is not durable, besides it is liable to be attacked by borers and killed early. The Austrian pine succeeds very well in heavy or light soil, but, except for variety, must give place to the spruce family. Anyone desirous of planting should consult an experienced nurseryman, who will not only furnish him with the proper stock, but the information concerning his soil and modes of planting. One thing must be borne in mind, that the cone bearing, or resinous trees, must be planted by themselves, for when mixed with those that shed the leaf, such as the hardwoods, or even poplars, neither will succeed. Our own forest timbers, those which grow naturally on the soil, should be preferred for general planting, and may be so placed as to be used as shelter and fence posts. By selecting some of our rapid-growing kinds, such as hard maple for high land, soft maple, black ash, and soft elm for low, heavy land—and planting in close triple rows along boundaries, or dividing fences in such a way that the middle row might, after it had grown sufficiently large, be used to fasten fence wires to, thus securing the double purpose of shade, shelter, and fence. On that side of the farm most exposed to storms it would be advisable to plant the coniferous kinds, which would not only tend to the beauty of the landscape, but protection from storms, and would more effectually secure a covering of snow to the adjoining fields. Unless in cases where there may be a plot of poor land, unprofitable for cultivation, we know of no better place to plant than around fences.

PLANTING.—"Where there is a will there is a way" is as true in this as in any operation; and anyone who is in earnest will find not only the plants, but information and time to put them down. Since failure or success in the first attempt will exercise considerable influence in after operations, it is desirable that ardour should not be damped in such beneficial operations, but that all the elements to secure success be present from the commencement.

In our short, hurried seasons time is a great deal to the farmer, and the labor of planting should not interfere with seeding. Although it will be both cheaper and better to get spruces, larches, and the like, from the nursery; the hardwoods can be got in abundance almost anywhere that old timber has been extensively cut and left commons. There are places in this vicinity where hard and soft maple and all the kindred timber plants can be got of any age, growing in the sunlight, and standing often so thick that a person cannot get between them, from half an inch to an inch through, and from seven to nine feet high, healthy, vigorous and straight. For those who have not much seeding or other work in early spring, the supply can be got in spring and immediately set out; but where it is desirable to set out many at a time, the better plan will be to take a sharp axe and spade and dig up the required number just as the snow is beginning to fall, shake the clay from the roots and dip the roots into a puddle of clay, made to the consistency of thick cream, pile them in your hay rack and take home. Next, select a place in some of your fields where snow will not drift very high, but away from fences, for fear of mice, and plough three furrows, throwing one twice over; lay the trees close in a row with roots against last furrow thrown out; hitch one horse to your plough and throw one furrow back on the roots; then put on your other horse and throw up two deep furrows, level the clay in over the collar and part of the stalk with the shovel, and the fall work is done. The object of the deep furrow is

drainage, and should run with the water-shed of the ground. We would also plant with the plough, and, if possible, summer-fallow the ground. Before setting down in spring, all bruised roots should be cut off smooth with a sharp knife, and the head shortened in to correspond with the reduced roots, then dip once more in clay puddle, plant while the ground is in good order, shake the tree to get the fine mould well among the roots, set a little deeper than it stood in the woods, stamp well down, seed with clover, and mulch heavily with sawdust or short straw around each tree and leave the rest to Providence. It will be prudent to bring about two plants to the hundred more than you have spaces for, which can be set in a corner to fill a vacancy in case of accident.

THE PRESERVATION OF OUR ORIGINAL FOREST.

On this topic very little need be said. Like a fish out of water, the few patches of original forest have had their surroundings changed by being exposed to rapid currents of air to which they were not accustomed at birth, or during growth, and therefore their means of feeding have been entirely changed. The result is that those that have advanced towards maturity and attained high loads are dying of starvation, while trees of later growth with low heads drink up all the carbon of the air which circulates among their branches, and leaves the light barren air to rise in mockery around the heads of their hoary parents.

The cause of decay of high-headed trees may be explained in this way: Trees derive nearly all their vegetable food from air. The coat of leaves which annually falls undergoes fermentation. In this process carbon, which forms the more bulky part of wood, is, by the action of oxygen, converted into carbonic acid gas, which is once and a half as heavy as air. This gas, in forest in its pristine state, rose slowly in the calm of the woods till it came within reach of the high-headed trees, where, in the sunlight, they drank it in and flourished. Since plant-food plentifully only in sunlight, the younger trees that were lower and consequently in the shade of the older ones, were enabled to take only a small portion of this vegetable food. On account of their unfavorable stature they struggled with all their strength to get their heads up in the light. In an unbroken forest a breeze is impossible, and the gases rise calmly and slowly to the top of the tallest trees, but the moment that forest becomes reduced to a clump or thin belt, a continual breeze sweeps through, the vegetable gases are hurried along at a low level, and never, in any considerable quantity, reach the high-headed trees. The result is that they are robbed by their more humble and younger neighbours; they soon die at the top, and, unless they can push a few branches lower down, cannot long survive.

The only plan at present apparent is to cut down all timber that shows any symptoms of decay at the top; plant three young trees where one was cut down; fence woodland so that cattle cannot get through it till a new growth of seedling wood has been obtained, and, where the owner can afford the time and outlay, set out a hedge-row of spruce on the side of the prevailing winds.

If we would secure a growth of tall, young, clear wood it must not only be shaded, but sheltered. Our main resource must consist in planting. Although very much more might be said on this point, still what everybody knows is no news.

What our Legislature should do in the way of promoting tree planting is not quite clear. It is evident that the bonus system will not have the desired effect. Would it not be well to make it a statutory obligation on everyone who owns an acre of clear land, in fee simple, to plant or cause to be planted a given number of trees? By this means, everyone who owns cultivable land would be obliged to contribute his proportion to the general good; while by the bonus, or by the voluntary system, some would save their timber and plant more, while a next neighbor, more selfish, would destroy his timber and reap the benefit equally with those who do plant.

TEABERRY whitens the tooth like chastened pearls. A five cent sample settles it.

Chips.

S. P. Bliss, of Tonawanda, reports not yet having found a large raft of long timber, of fifteen cribs, containing 88,000 feet, which went out of Au Sable river during the month of November. On the opening of navigation he will send parties along both shores of Lake Huron in search of it. The raft is valued at over \$1,000.

LUNCH meetings are the latest feature on the Chicago Lumbermen's Exchange. The members got together on the invitation of some one member, and eat, smoke and talk. Says the *Lumberman*:—"The Saturday lunch was largely attended, the lunch was bountiful and appetizing, while the after discussion was particularly interesting and able.

LETTERS patent of incorporation are being applied for by the St. Lawrence Lumber Co., of Quebec and Lewis, the applicants being G. B. Hall, E. J. Price, A. Thompson, J. Hamilton and P. P. Hall. The capital stock is to be \$80,000, and the business to be carried on that of manufacturing various kinds of wooden goods, as well as the dressing of lumber, &c.

NOTICE has been given that application will be made, at the next session of the Dominion Parliament, for an Act to incorporate a company for the erection and maintenance of Booms and other improvements affecting the lumber interest on Rainy River, for the levying of tolls, dues and charges thereon, and for colonization upon the territory bordering on said river.

THE Minneapolis *Lumberman* says:—"Men and provisions are being pushed forward, but teams are scarce and hard to find. We have had little flurries of snow lately over portions of the north-west, enough to whiten the ground, but not enough to cut any great figure in the prospective log crop. On the whole the Chippewa and North Wisconsin people are hopeful, and are now pitching in lively to secure a fair supply.

THE interior department at Washington has decided that Lombardy poplar, balm, and cottonwood are not timber in the meaning of the law relating to tree planting. The *Olympic, W.T., Transcript* states that a petition is now in circulation in Eastern Washington to get the decision amended so as to include these trees in the list of those lawful to plant. Many have set out Lombardy poplar in good faith, thinking that it was in compliance with the law, and they are now in danger of losing their claims.

THE *Timber Trades Journal* says that the gravest fears are being expressed at Greenock for the safety of the large timber laden ship *Eastern Empire*, which sailed from Quebec for Greenock early in November, and since leaving her, at the mouth of the St. Lawrence, a few days afterwards, has not been heard of. As all the other timber vessels which left the St. Lawrence subsequent to the *Eastern Empire* have now been accounted for, there is much reason to fear that she has broken up during the fearful gales which swept the Atlantic during the two last months of the past year.

ACCORDING to the *Bangor Commercial*, which is good authority, the lumber cut this winter on the Penobscot and tributary streams will be at least one-third lighter than that of last year. Then the season was a most favorable one. It lasted four months, during which time fully 150,000,000 feet was cut, nearly all of which was turned into the streams. The total cut this season is estimated at from 85,000,000 to 100,000,000 feet. Last season 40,000,000 feet was the cut on the Mattawamkeag, while this year it is not likely to be over 30,000,000 feet. Last season's cut on the west branch of the Penobscot was about 50,000,000 feet, and this season it will not exceed 35,000,000. Three-eighths of the season is already gone, and until recently there has been but a very light fall of snow. At present the average snow depth is from fourteen to fifteen inches, and there is good hauling. There is a large overstock—some 60,000,000 logs—and if there shall be plenty of water in the spring, so that these, together with this season's cut, can be rafted to the mills, all will be well. Otherwise the stock for 1882 will be astonishingly light and prices will be high.

Novel Ending in a Bankruptcy Case.

OTTAWA, Jan. 27.—A dividend of one hundred cents on the dollar in all filed claims, with a surplus of about \$20,000 after making due allowance for reserved claims and reasonable costs in the case, is a new item in the record of the Insolvent Courts. Four years ago the fine timber limits owned by Mr. John Lorne McDougall and Mr. Duncan Campbell McDougall, were taken possession of by their creditors, and the firm forced into insolvency. At this time a Mr. Frazer held a mortgage on the properties to the amount of over \$40,000, and valued his security at \$20,000, and the best experts say that had the estate been turned into a cash realization he could not have got more than \$25,000 for the estate. Two banks hold large claims against the concern, and so convinced were their representatives that the affair was "gone up," that they advised the assignee to hand it over to Frazer and relieve them of the liability. Mr. Bell, of Carleton Place, who was the party in charge, refused to do so. He had every confidence in the recuperative power of the country, and now has the satisfaction of knowing that he has enabled the estate to pay all its claims and have a handsome amount on hand for the benefit of its first owners.

It is the intention of the Canadian Pacific Railway, late Canada Central, to appeal against the judgment rendered last week in the suit brought by Mr. Peter McLaren. The case in all probability will go to the Privy Council.

THE *Northwestern Lumberman* says that a number of camps in the Muskegon district, since the opening of the new year, have been broken up, though the freeze about January 7 checked the disposition to relinquish logging, and encouraged operators. Of course the larger operators, in favorable locations, continue to push work vigorously, by the aid of the modern appliances of tram and pole roads, trucks and sprinkled roads for short hauls. Snow, while yet not to be despised in the lumber woods, is not as important as it once was, capital and energy having made operators largely free from the effects of capricious weather.

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Market Reports.

MONTREAL.

From Our Own Correspondent.

FEB. 10.—Business has been about as usual for the season, but nothing extra is reported. Some Americans have been looking after lots here, but have not picked up much that is suitable, as their market is now supplied nearly as cheap as here, and so little difference in prices makes it hardly worth their while coming here, and they have a better assortment to choose from in their own markets than in this city. The tendency in prices here is upward, and we advance quotations for 1st quality pine, pine shipping culls, and basswood. Stocks of choice lumber here are small. Lately the weather has been good for work at the shanties, and lumber will be plentiful if only got well out. Rates of freight this summer by boat are expected to be low from Ottawa, about \$1.25 per M. ft. The railway is now importing it at \$1.10@1.25, which will help to keep down prices. We now quote:—

Table listing lumber prices for Montreal, including Pine, 1st quality, Pine, 2nd, Pine, shipping culls, etc.

Commonwood keeps dull and can now be bought about half a dollar cheaper than at the date of our last report, this remark does not apply to tamarac, which is firm and maintains its value. No green wood has been drawn yet, and this year's cut is not expected to be large. Dry wood is in good supply at the depot, and large importations are coming forward. We quote prices at the railway depot, ex cartage:—

Table listing lumber prices at the railway depot, including Long Maple, Short, Long Birch, etc.

TORONTO.

From our own Correspondent.

FEB. 8th.—Lumber shipments to this city at present are dropping off rapidly in consequence of the action taken by the various railway companies in the matter of weighing rail car loads of lumber. At this season of the year it usually appears in epidemic form, and doubtless may be partly accounted for through the fact that the various railway companies have more time to attend to weighing cars, as well as being desirous of supplementing their decreased earnings at this season, by charging excess upon all cars having more than 24,000 lbs. The railway companies seem to forget, or else ignore, the fact that what is in for the interests of their customers is also to their advantage, and so they bleed them unmercifully. Of course there are two sides to this question, as well as to most others. The companies claim that if they do not take this step to protect their rolling stock they would soon have none to protect; but still it is plain that selfishness has the most to do with it, or why not avoid all this bad blood being stirred up between them and their patrons, by consenting to carry by the thousand, instead of by weight, there would then be no inducement left for the shipper to overload, and it would tend to encourage the shipment of more of the coarser grades of lumber, such as hemlock, whereas, the present system of charging by weight is virtually prohibitive to shipping hemlock bill stuff. The writer had the opportunity of seeing one weigh bill for a car load of 2x4 hemlock, and the total charge was \$71.75, and the value of the carload at this place was about \$90, leaving the splendid margin of \$18.25 for the manufacturer. Shippers would not complain so bitterly, I presume, if the N. & N. W. R. Co. would do the same as the G. T. R. Co., that is, charge the entire load at the schedule rates, but the former company charges on all excess as follows:—On the first ton of over weight, single rates, and on all over that double 4th class rates. There is no question if our lumbermen had only vim enough to

test this question no such rates as that just named could be collected, unless means were furnished shippers to weigh all cars at the point of shipment, but there is no reason why this matter could not be amicably arranged, if the company would not adopt that stand-of-arms-length tone, which ill becomes a company dependent upon the lumber carrying for three-fifths of their entire revenue. Lumbermen are noted for their forbearance and patience, but they are somewhat riled just now, and if they will only work shoulder to shoulder, this matter can soon be solved.

The various yards are doing a quiet trade at present, and none of them are at all overstocked, and prices remain firm at last quotations. Dry stuff is rapidly diminishing, and by the opening of spring but little dry lumber will be left on this market. There has been but little diminution in building this winter, so far. Of course it cannot be pushed as rapidly as during the summer months, still there is a large number of houses in course of erection, and many more just started. The sizes and lengths of dimension stuff that are the most difficult to obtain just now, are 2x8 18ft. and 2x4 all lengths. Lath are also hard to get at any price, and will likely continue scarce until the opening of the spring.

In your last issue you state the probable quantity taken away by farmers from the city's consumption as being 100,000 feet, it should have read 1,000,000.

QUOTATIONS, FROM YARDS.

Table listing lumber quotations from yards, including Mill cull boards and scantling, Shipping cull boards, etc.

B. M.

Table listing lumber prices for B. M., including 1 1/2 inch flooring, dressed, etc.

OTTAWA.

From Our Own Correspondent.

FEB. 9th.—Little is at present transpiring at the head offices of the lumbering firms in this city. No sales have been reported lately, and few will now be made until the opening of the spring trade in March. The necessary supplies and men having already been forwarded to the shanties of the different firms, a quiet spell will prevail until the beginning of preparations for the drive. Advices from the shanties are not altogether encouraging, the recent

HEAVY SNOW FALLS

having seriously interfered with the progress of work. This is a remarkable change from former reports. Until a few weeks since grave fears were entertained of an insufficiency of snow, but the state of things is now quite the reverse. On the south side of the Ottawa lumbermen have no great reason to complain. On the north side, however, there is a great deal too much snow. On the Kippawa for the past two weeks contractors have experienced great difficulty in having their supplies conveyed to the

SENK OF OPERATIONS,

The woods have been blocked, and in some instances operations have had to be completely suspended. How long this state of affairs will last it is difficult to say. The estimated cut of logs on the Ottawa and its tributaries this winter is about one and a quarter millions. This includes merely the logs cut in the immediate vicinity of this city, irrespective of the quantities taken out for manufacture at the mills at Arnprior, Braséide, and others in the Upper Ottawa district. It will be observed that this estimate about equals the

CUT OF LAST YEAR,

but owing to the unprecedented lowness of the

water the past season, not less than one million logs were stuck in the various streams in that district. In addition to the actual cut of this season, the quantity to be manufactured during the coming summer will include this one million left over from last season, all of which it is confidently expected will be floated down successfully to its destination in the spring. Every thing points to the probability of

HIGH WATER

in the streams and lakes in the lumbering districts. It is said that all the swamps are full of water, and as many and valuable improvements have been made as to navigation, it is safe to assume that there will be no repetition of the detrimental effects of last season's low water.

CHIPS.

John P. Mills recently purchased James Findlay's limits on the Black River, paying therefor \$60,000. The limits comprise 100 square miles.

Considerable trouble is experienced this season with teams in the woods. Wages advanced about a month ago. In some shanties this fact having been heard of, and the demands of the parties having been refused, a strike was resorted to. Wages at present paid are from \$1.50 to \$2.00 per day.

The Scottish Lumbering Co. have fourteen shanties in operation this season on the Upper Ottawa, employing about 700 men. The Company will take out in the neighbourhood of 125,000 logs on the Kippawa, and 25,000 on the Black River. They will take out about 1,200,000 feet of square timber.

Between seventy and eighty shipbuilders are employed in the yards opposite this city on the Hull side, constructing barges, tugs and steamers for the next season's navigation. All these will be engaged in the lumber trade.

The patent "Kenny Swedge," is being placed in a number of mills in the Chaudiere, for trial next season. All the mills are now undergoing repairs in preparation for the coming busy months.

LONDON, ONT.

From Our Own Correspondent.

FEB. 10.—I cannot give as favorable a report of the lumber market here as I did in my last. There is a desire on the part of merchants to make concessions on the late advance, and where cash transactions are made the old rates are invariably accepted, but booked accounts remain firm at my last quotations. There is a general appearance of lassitude throughout the trade in this city. Little stock is coming in, and the demand is not what would have been expected. One reason for this may be the very open winter, and the opportunity to "make shift" by those who needed lumber in the event of an ordinary season. Building in this city will be very brisk this spring, as builders are well engaged ahead, and architects are, and will be, well employed for many months. Though prices are somewhat easier, I cannot give you any reliable lower quotations, and my list must remain the same as in your last issue.

QUOTATIONS.

Table listing lumber quotations for London, Ontario, including Mill cull boards and scantling, Shipping cull boards, etc.

ST. JOHN, N. B.

From Our Own Correspondent.

FEB. 7.—At present the only noticeable occurrence bearing on the wood trade since last report is the very severe snow storm of Sunday last, exceeding in severity anything of the kind we have experienced for many years. During the fore part of the winter the logging operations of our lumbermen were greatly impeded for want of snow; latterly, however, since snowing has fairly commenced, the supply is so liberal as to cause fears of becoming troublesome in the

other extreme, so that altogether the supply of lumber the coming season cannot be other than moderate.

Taking these circumstances into account in connection with the prospects of the markets abroad, there is every reason to count on a very profitable business being done, in the deal trade especially, this year, which should stimulate our operators to do their best, as an over supply for the present year appears now quite impossible.

The following extracts from the London Timber Trades Journal, of 21st January, are very strong in support of the views above expressed:—

"In point of fact we do not remember the commencement of any year on which we could venture to speak with less reserve of the good prospects of the trade than we feel justified in doing now."

"Assuming that active operations will be carried on successfully on both sides, there is nothing likely to operate unfavorably to a good spring trade for all."

FREIGHTS.

We have no new feature in the freight market to report. The latest charters we hear of are:—Syringa, 604 tons, for Cork, at 60s., and Grace E. Cann, 683 tons, direct port, East Coast of Ireland, at 61s. 3d.

SHIPMENTS.

The shipments of deals and other sawn lumber are as follows:—

Table listing lumber shipments for Europe, United States, West Indies, etc.

The number of sugar box shooks shipped for Cuba is as follows:—

Table listing sugar box shipments for Sept. 1 to Jan. 21, and since.

SHIPPING.

The following is a list of the vessels in port, with their tonnage and destinations:—

Table listing shipping vessels including Souvenir, Gettysburg, Memory, Fidalis, Buteshire, Alfarin, Syringa, Grace E. Cann.

CHICAGO.

The Northwestern Lumberman says that business at the wholesale yards in this city has made considerable improvement within the past few days. As a favorable sign one dealer reports the constant and liberal receipt of orders from various western points. The same dealer makes a very encouraging showing for January, having shipped during that month 450 cars—an amount that would appear well on his books for any month in the year. February promises a brisk trade, the opening week of the month bringing an increase of orders to nearly all the yards. The shipments of the week ending February 2, show an increase of about 5,000,000 feet over the corresponding period last year.

The feeling in regard to prices is still very firm, and sales are being generally made up to the full list rates, and the prospect of an advance is being considered.

It is now quite apparent that the log crops in Michigan, Wisconsin and Minnesota, will fail to come up to the intended cut by 20 to 30 per cent. It is reasonable to conclude that this fact will have some effect on the manufacture of lumber next season, and also in prices. That there will be a large amount of logs put in cannot be doubted, and if the demand for lumber were only moderate, probably the percentage of shortage would not be noticed. But when it is considered that the demand has been well sustained throughout the winter, and that many mills have continued to run, some of them night and day, to satisfy the railroads and other requirements, that stocks are much reduced and broken in assortment, it may be inferred that manufacturers will fix an enhanced value on their diminished stocks of logs, and will not crowd their product on the market to such an extent as they have in former years. The result on prices is not hard to guess.

Receipts and shipments of lumber and shingles from January 1, to and including Feb. 2nd, 1882:—

	RECEIPTS.		SHIPMENTS.	
	Lumber.	Shingles.	Lumber.	Shingles.
1882...	19,410,000	6,532,000	87,916,000	31,000,000
1881...	18,045,000	6,911,000	85,890,000	32,100,000
Ino. 1,907,000			22,517,000	
Dec. 329,000			443,000	

For an entire week we have no arrivals or clearances by lake to report, so that with the close of January navigation may be said to have finally come to an end.

ALBANY.

JAN. 20.—Quotations at the yards are as follows:—

Pine, clear, 2 M.	255 00@25 00
Pine, fourths	48 00@50 00
Pine, select.	43 00@53 00
Pine, good box	19 00@31 00
Pine, 10-in. plank, each	00 38@00 44
Pine, 10-in. plank, culls, each	00 19@00 23
Pine boards, 10-in.	00 26@00 28
Pine, 10-in. boards, culls	00 18@00 19
Pine, 10-in. boards, 16 ft., 2 M.	25 00@30 00
Pine, 12-in. boards, 16 ft.	26 00@30 00
Pine, 12-in. boards, 13 ft.	26 00@28 00
Pine, 11-in. siding, select.	38 00@40 00
Pine, 11-in. siding, common	16 00@18 00
Pine, 1-in. siding, select.	40 00@42 00
Pine, 1-in. siding, common	16 00@19 00
Spruce, boards, each	00 00@00 16
Spruce, plank, 11-in., each	00 00@00 20
Spruce, plank, 2-in., each	00 00@00 30
Spruce, wall strips, each	00 11@00 12
Hemlock, boards, each	00 00@00 13
Hemlock, joist, 4x8, each	00 00@00 31
Hemlock, joist, 2x4, each	00 00@00 13
Hemlock, wall strips, 2x4, each	00 00@00 10
Ash, good, 2 M.	35 00@40 00
Ash, second quality, 2 M.	25 00@30 00
Cherry, good, 2 M.	60 00@70 00
Cherry, common, 2 M.	25 00@35 00
Oak, good, 2 M.	38 00@43 00
Oak, second quality, 2 M.	20 00@25 00
Hasswood, 2 M.	22 00@25 00
Hickory, 2 M.	36 00@40 00
Maple, Canada, 2 M.	26 00@30 00
Maple, American, per M.	26 00@28 00
Chestnut, 2 M.	35 00@40 00
Shingles, shaved, pine, 2 M.	0 00@ 6 00
" 2nd quality.	0 00@ 4 50
" extra, sawed, pine.	0 00@ 4 40
" clear.	0 00@ 3 40
" cedar, mixed.	0 00@ 3 25
" cedar, XXX.	0 00@ 4 00
" hemlock.	0 00@ 2 25
Lath, hemlock, 2 M.	0 00@ 1 62
Lath, spruce.	0 00@ 1 87
Lath, pine.	0 00@ 2 00

BOSTON.

The Journal of Commerce, of Feb. 4th, says the firm tone referred to last week still continues and there is a very satisfactory demand for both building and manufacturing purposes. There is also a very good export inquiry. From the south and west reports continue to be received of the inability of handlers to fill orders, owing to short supplies and poor facilities for shipping stock. All of the mills, both in the east and west, are fully employed and are working up the logs as fast as possible. In the New York market trade is reported as good, with prices firm and a short supply of desirable grades. From all points come the most encouraging reports, and it is universally agreed that trade thus far has been "immense," considering the season of the year. The loggers at the west have been delayed a great deal by unfavorable weather, but the latest reports say that sufficient snow has fallen to allow operations to go on in a more satisfactory manner than for some weeks past. Hardwoods are firm and in good demand. The following are car load prices:—

CANADA PINE.	
Selects, Dressed	43 00@50 00
Shelving, Dressed, 1st.	40 00@42 00
" 2nd.	33 00@36 00
Dressed Shippers.	27 00@29 00
Dressed Box	18 00@20 00
Sheathing, 1st quality.	42 00@45 00
" 2nd	34 00@35 00

BUFFALO.

We quote cargo lots:—

Uppers.	36 00@38 00
Common.	18 00@19 00
Culls.	13 00@16 00

TONAWANDA.

CARGO LOTS—SAGINAW INSPECTION.

Three uppers	40 00@45 00
Common.	17 50@20 00
Culls.	11 50@12 50

GLASGOW.

From Singleton, Dunn & Co.'s annual timber circular, dated January 7, 1883, we learn that the imports of wood goods into the Clyde during the year 1881 were as follows:—Waney board 3,560 logs, yellow pine 32,661 do., red pine 6,241 do., oak 6,325 do., elm 4,855 do., ash 2,688 do., birch 2,859 do., sundry hardwoods 3,645, deals, battens, etc., 424,235 pieces, pine and spruce boards 1,437 pieces, oak plank 16,135, pipe staves

16,135, puncheon staves 163,699. The imports all round were slightly less than in 1880. The following quantities in cubic feet of Quebec timber were in Clyde ports on December 31, 1881:—Waney board, 767,531; yellow pine, 1,126,464; red pine, 372,366; white oak, 948,577; rock elm, 244,781; birch, 41,570; spruce deals, 79,030. The circular says:—"Business during 1881 was fairly good, and the consumption in the aggregate fully one million cubic feet over that in 1880. The imports during the year of Canadian goods were nearly the same as in 1880; while in pitch pine there was an enormous increase. The consumption of Canadian timber was less over all than it was in 1880. There is a large increase in the items of deals. This increase is mainly of lower port spruce and pine. Quebec deals have not gone into consumption so extensively as was anticipated. The consumption of pitch pine was fully half a million feet ahead of the consumption the previous year, and this increase to a considerable extent explains the falling off in the absorption of square white pine and red pine. Quebec pine, of the various qualities, are only about half what they were a year ago. This deficiency is not compensated by any substantial increase in lower port pine deals, which are only a few thousand pieces in excess of the stock at the same date last year. In red pine deals the stock is just about one-third what it was twelve month ago."

LONDON.

The Timber Trades Journal says that the importation from Canada to London last year was:—

	Pieces.
Yellow pine deals and battens, from the St. Lawrence.	1,673,500
Spruce deals and battens, from the St. Lawrence.	1,989,000
Spruce deals and battens, from New Brunswick.	1,074,500
Total.	4,737,000

Against in 1880:—

Yellow pine.	1,805,000
Spruce.	2,977,000
Total.	4,782,000

Showing a decrease in the importations during the last twelve months, on Colonial deals and battens, of only 45,000 pieces; so that the imports may be reckoned, as far as the effect on prices is concerned, about the same.

Of timber, Canada sent to this market last year:—

Yellow Pine.	5,000 loads.
Red.	1,763 "
Elm.	2,086 "
Ash.	2,282 "
Hickory.	182 "
Oak.	3,604 "
Birch.	4,324 "

The importation of oak has been a full one, notwithstanding the large stocks that were in the docks at the beginning of the year, and prices did not share last season in the almost general advance. Birch timber, however, owing to the stocks being greatly reduced, showed considerable improvement as the season drew towards its close, assisted by the moderate importation and the large unreserved sales that were held during the summer. The low price at first realized, induced by the excessive import of the previous year, proved attractive to buyers from all sides, and we have now not more than a fair average stock in hand to meet the spring demand.

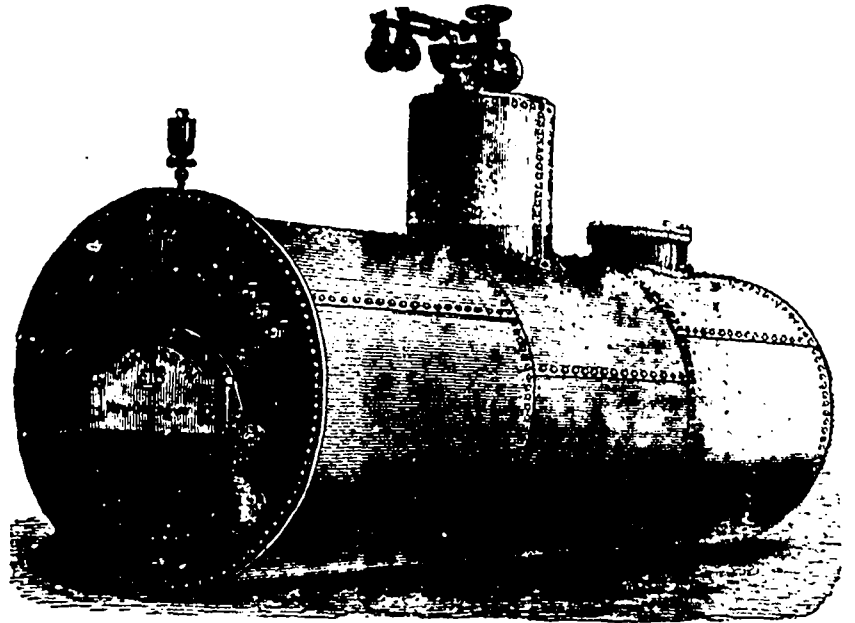
In 1880, Canada sent to London:—

Yellow pine timber.	4,357 loads.
Red.	992 "
Elm.	1,991 "
Ash.	2,719 "
Hickory.	311 "
Oak.	3,739 "
Birch.	8,617 "

With the exception of ash, oak, and birch, the Colonial import of timber for 1881 has been heavier than that of the preceding year.

TRADE WITH GREAT BRITAIN.

The Timber Trades Journal says the increasing influx of United States timber is the principal cause of the difficulty which our own North American possessors have to contend with in getting remunerating prices for their wood production in this country. There has been a large increase in the importation of pitch pine, and a proportionate decrease in Canadian pine; and now the importation of oak from the States cut to scantling is supplanting that from Canada in the log, and is sold even at lower prices. This seems a paradox, but on reflection it is account-



GLASGOW FOUNDRY
 MATHESON & CO. ENGINEERS & BOILER MAKERS.
 NEW GLASGOW, N.S.

ed for. Wood is more easily handled in sawn scantling than hewn timber, and stows closer, and it is carried over sea at the freight of deals, also smaller and less perfect trees are convertible to this fashion of wood, and what is lost by the sawing is made up by these advantages and the saving in freight and waste. Scantlings and deals are brought over at about 12 to 15 per cent. less carriage than square timber. Canadian houses will doubtless soon put themselves on a level, as regards the conversion of oak, with their enterprising neighbours, but the low price of pitch pine and its ample dimensions and length rendering it applicable to almost all the purposes of Canadian pine will not be so easily got over. The importation to Liverpool this year was smaller than that of 1879.

BRITISH TRADE RETURNS.

The following are the official returns for the month of December and the year 1881:—

TIMBER (HEWN).	QUANTITY.	VALUR.
Russia.	15,190	32,928
Sweden and Norway.	45,656	73,889
Germany.	35,013	91,898
British North America.	11,060	50,277
Other Countries.	25,020	54,066
Total.	131,939	302,677

TIMBER (SAWN OR SPLIT, PLANED OR DRESSED).	QUANTITY.	VALUR.
Russia.	74,121	184,261
Sweden and Norway.	137,545	343,789
British North America.	51,162	135,120
Other Countries.	17,740	53,467
Total.	280,570	730,637

HAD SUFFERED MANY PHYSICIANS and grew no better but rather worse. Mr. D. H. Howard, of Geneva, N. Y., after dismissing his physicians, tried nearly half a grove of the various blood and liver remedies advertised, no benefit; when one bottle of Burdock Blood Bitters cured him of Paralysis and General Debility. At the advanced age of 60, he says he feels young again, and is enjoyed at his wonderful recovery.

Liverpool Stocks.

	1st Jan. 1881, ft.	2nd Jan. 1882, ft.
Quebec Square Pine.	869,000	318,000
" Waney Pine.	303,000	353,000
St. John's Pine.	21,000	32,000
Other Ports Pine.	43,000	37,000
Red Pine.	63,000	26,000
Oak, Canadian and American.	524,000	347,000
" Planks.		32,000
N.B., &c. Spruce Deals.	30,641	15,935
" Pine.	1,856	718
Quebec Deals.	11,025	7,832

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 (A Medicine, not a Drink.)
 CONTAINS
HOPS, RUCHU, MANDRAKE, DANDELION.
 AND THE PUREST AND BEST MEDICAL QUALITIES OF ALL OTHER BITTERS.
THEY CURE
 All Diseases of the Stomach, Bowels, Blood, Liver, Kidneys, and Urinary Organs. Nervousness, Sleeplessness, and especially Female Complaints.
\$1.00 IN GOLD.
 Will be paid for a case they will not cure or help, or for anything impure or injurious found in them.
 Ask your druggist for Hop Bitters and try them before you sleep. Take no Other.
 D I C is an absolute and fresh cure for Drunkenness, use of opium, tobacco and narcotics.
SEND FOR CIRCULAR.
 All Agents sold by druggists.
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Cash advanced on Goods put in for sale. No Storage charged. All kinds of Merchandise Bought and Sold. New and Second-hand Furniture always on hand. Agent for Hazellhurst & Co's WINTHROP COOKING RANGES, WATERLOO WOOD STOVES, FRANKLIN, &c., &c.

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Fire-Engine

HOSE,

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Mill Supplies, &c.

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Wrought Iron Shanty Cook Stoves

The Best Article ever offered to the Trade.

I have much pleasure in drawing attention to my **WROUGHT IRON COOKING STOVE**, for Shanty, Hotel and Boarding House use. These Stoves are made of Heavy Sheet Iron, the top and lining of the fire-box being of Heavy Cast Metal and all the connecting parts of substantial Wrought Iron Work. The dimensions of these Stoves are as follows:—

SINGLE OVEN STOVE

Top surface contains six 10-inch holes, with ample room between, and one oven 16 x 21 x 26.

DOUBLE OVEN STOVE

The Double Oven has a top surface containing twelve 10-inch pot holes, with two ovens, each 16 x 21 x 26. One fire-box of suitable size for area to be heated. Below will be found Testimonials from some of the leading Lumbermen, who have used my Wrought Iron Cook Stoves since I commenced manufacturing them. They are the names of gentlemen who are well known and reliable, and will carry more weight than any recommendation of my own could do.

The Best Stove I have ever Used.

PETERBOROUGH, May 31, 1880.

ADAM HALL, Esq., Peterborough. Dear Sir,—I have used your Wrought Iron Cooking Stove in our lumbering operations since its introduction here, and have no hesitation in saying that I prefer it to any other. For durability, economy and efficiency, where a large number of men are employed, it is the best stove I have ever used. You can, with confidence, offer it to hotels, boarding houses and lumbermen.

Yours truly, THOS. GEO. HAZLITT.

The Stove for Lumbermen.

PETERBOROUGH, June 1st, 1880.

ADAM HALL, Esq., Peterborough. My Dear Sir,—We have used your Wrought Iron Cooking Stove and find it is very satisfactory for lumber operations, especially so on drives. We can recommend it highly.

Yours truly, IRWIN & BOYD,

Gives the Greatest Satisfaction.

PETERBOROUGH, June 3rd, 1880.

A. HALL, Peterborough. Dear Sir,—I have had the Wrought Iron Cook Stove, purchased from you, in constant use ever since last fall, and it gives the greatest satisfaction in every respect. I can recommend them highly to any one who is in the lumber business.

Very truly yours, GEO. HILLIARD, M.P.

EVERY STOVE GUARANTEED

All the necessary **TINWARE** and **CUTLERY** for Shanties supplied at the **Lowest Prices.**

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ADAM HALL, Peterborough.

MILL SUPPLIES.

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COTTON BELTING, for Flour Mills. &c., Superior Quality.

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Steam Packing of all kinds, Rubber and Linen Hose, Silk Bolting Cloth, Emery Wheels, Lacing Leather (Page's Genuine), Lard, Seal, Cylinder, Spindle, West Virginia and Wool Oils. Our Stock includes Mill Supplies and Rubber Goods of all kinds. Quotations furnished for any part of Canada.

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 Men's Flannel Shirts and Durable Underclothing.

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THE HOE BIT SAW.

FLANGE TOOTH SAWS.

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BROWN'S PATENT SPALT MACHINE.

Cuts three perfect shingles out of each board. Cuts shingles out of stals and all manner of refuse. Will soon pay for itself around any large Mill.

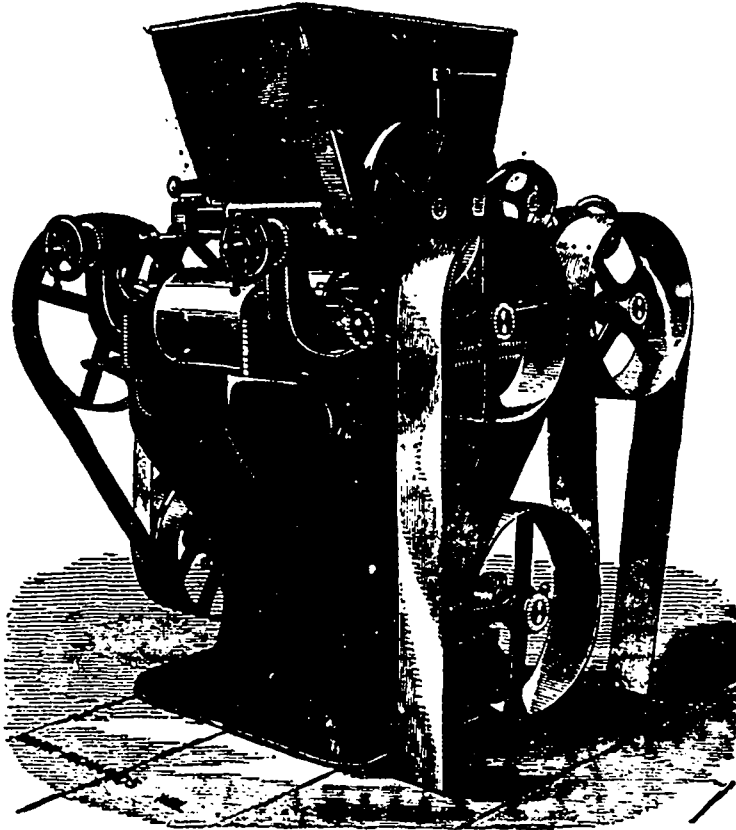
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A. NORMAN, Esq., Dear Sir,—Please send me a waist belt. Enclosed find price. Head band I got for my wife has almost cured her of neuralgia. Yours truly, C. L. TILLEY.

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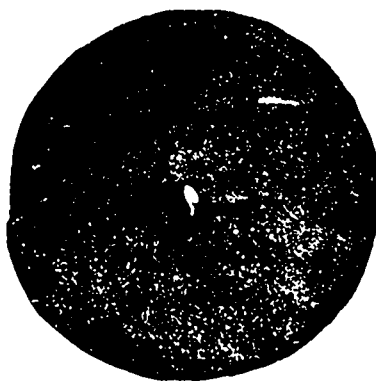
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EMERY and CORUNDUM WHEELS

These Wheels are
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M. Covel's Latest Improved Automatic Saw Sharpener!

Is the Most Perfect Machine that has ever been introduced into Mills for that purpose.

**CIRCULAR SAW
STEAM FEED!**

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Heavy Circular Saw Mills

and for STEAM MILLS, would recommend the Steam Feed, having put in several which are giving the best of satisfaction, as will be seen by the following testimonials:

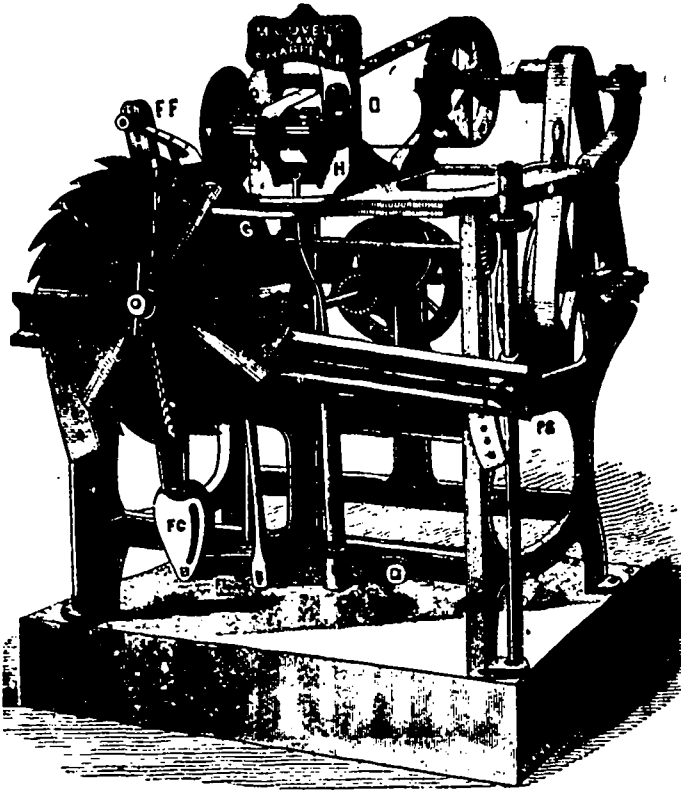
GRAVENHURST, August 20th, 1880.
WM. HAMILTON, Esq., Peterborough.

DEAR SIR—I have used your Steam Feed for near four months, and it has given me perfect satisfaction in every way; it is admitted by every person who has seen it work to be the best feed ever invented. Since I put it into my mill, I have not lost ten minutes time fixing anything belonging to it. I can cut 18 boards 13 ft. long in one minute. It can do much smoother and better work than the piston feed. It is easily governed and reverses the carriage instantly. I am thoroughly satisfied with it and can recommend it to any person who has a Circular Saw Mill for cutting long or short logs. I consider I have cut more lumber than will pay for the Steam Feed since I got it than I would have cut had I not put it in.

Yours respectfully,
WILLIAM TAIT,
Lumberman, Gravenhurst.

TORONTO, August 11th, 1880.
WM. HAMILTON, Peterborough, Ont.

DEAR SIR—The Steam Feed you put in is working splendidly.
Yours, &c.,
THOMPSON, SMITH & SON.



MILL MACHINERY!

I am also manufacturing Saw Mill Machinery, for all sizes of Gang or Circular Mills, Span or Double Chockers for Slabbing Small Logs. My Patent Jact Chain for drawing logs into Saw Mills, acknowledged by all to be the Cheapest and best ever got up; also, my Patent Lumber Markers, different sizes of Edgers, Gang Lath Mills, Timberers, Power Gummers, and all Machinery used in a first class Gang or Circular Saw Mill, also, small Hand Gummers for use in the woods, for Cross-cut Saws. Rotary Pumps of different sizes, for Fire Protection in Mills, &c.

HORIZONTAL ENGINES and BOILERS



Where economy of fuel is the great consideration, along with uniformity of speed, such as is required in Grist and Flouring Mills, Woolen and Cotton Factories, or large Factories of any kind, I supply the Corliss Engine. I feel justified in saying that our Style, Workmanship and Finish on this Engine will be no discredit to its renown, and certainly is not equalled in this country for economy of fuel I have them working at 2½ pounds of coal per horse-power per hour.

**WILLIAM HAMILTON,
PETERBOROUGH, ONT.**

EMERY WHEELS FOR SAW GUMMING!



Solid Emery Wheels are now almost in universal use for the purpose of gulletting and gumming saws. Statistics show from 25,000 to 30,000 saw mills in the United States. Many of these run only a single saw each. A one-saw mill would use one or two wheels a year, costing \$3 to \$1 each, and when such small mills order single Emery Wheels from the factory, the express charges often equal the cost of the wheel. There was a time when the quality of Emery Wheels was so uncertain, and the demand so fickle, that storekeepers could not afford to carry them in stock. Now, however, Saw Gumming Wheels have become as staple an article as Files, and every dealer in saws, Hardware and Mill Supplies can afford to carry a few dozen standard sizes in stock. Large dealers order stocks of \$500 to \$750 worth at a time. Saw Gumming Wheels are used with the edge (or face) square, round or beveled. Probably seven-eighths of all in use are beveled.

The principal sizes are:

8x½	} ¾ in. hole.	10x½	} ¾ in. hole.	12x½	} Holes, ¾ and 1 inch.
8x¾		10x¾		12x¾	
8x1		10x1		12x1	
		10x1½	12x1½		
		10x2	12x2		
		10x2½	12x2½		

Probably more wheels 12x½, 12x¾ and 12x1 are used than all the other sizes together. Saw Gumming Wheels are used, however, of all sizes up to 21x1½. The most frequent complaint is that Emery Wheels harden the saw so that a file won't touch it. The answer is that you don't want a file to touch it. An expert workman will shape and sharpen the teeth with an Emery Wheel, leaving the teeth case hardened, in which condition the saw will cut about 33 per cent. more lumber than a soft saw will. Those who want to use the file, however, have only to touch the saw lightly a second time (after going all over it once), and this second touch will cut through the case-hardened scale.

A QUESTION OF QUALITY.

Thirteen years of experience as makers of, dealers in, and actual users of Emery Wheels, have led us to a decided opinion as to what quality is the best. We prefer for almost every use an "Extra Soft" wheel like the "Poccono." We believe that money lost through the rapid wear of the wheel is more than made up by the money saved on wages. As we cannot get every one to adopt our views, we make several qualities, so as to meet their views. We say to those who think they can only be satisfied with some other make of wheels (not Tanite), that we can furnish qualities to match any and every other make. If you have got used to some special quality of wheel, let us know what it is, and we can send you a Tanite Wheel of similar quality. Our regular classification of Saw Gumming Wheels is as follows:

CLASS 2. MEDIUM-HARD.—This Wheel is THE STANDARD Saw Gumming Wheel all over the world. Probably seven-eighths of all the Saw Gumming Wheels used are "Class 2." It cuts fast and keeps its shape well. Some think it too hard, some too soft. We prefer the "Poccono."

CLASS 3. MEDIUM-SOFT.—The same as to coarseness and fineness as "Class 2," but a softer, and therefore freer cutting wheel.

CLASS "POCONO." EXTRA SOFT.—This Wheel we prefer to all others. It is both finer in grain and softer than either of the above. As a Saw Gumming Wheel, Class "Poccono" is specially suited to those practical and experienced Sawyers who know how to grind with a light touch, and who want a free cutting wheel that will not create much heat.

Illustrated Circulars and Catalogue, showing Cuts of Saw Gumming Machines, and Shapes, Sizes and Prices of Wheels, sent free on application. 113

The Tanite Co. Stroudsburg, Monroe Co. Pennsylvania
CANADIAN TRADE SPECIALLY SOLICITED.