The Wisconsin lumberman, devoted to the lumbering interests of the northwest. Volume I. Number 6 March, 1874

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Wisconsin Lumberman,

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Lumbering Interests of the Northwest.

MARCH, 1874.

PRINCIPAL CONTENTS:

EDITORS: E. B. NORTHROP and H. A. CHITTENDEN, JR.

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THE

WISCONSIN LUMBERMAN.

VOL. I.—MARCH, 1874.—NO. 6.

"SPRING PROSPECTS."

The Grand Rapids, Wis., *Reporter* of a recent date publishes an article under the title "Spring Prospects," which is calculated, unintentionally of course, to do injury to the lumber trade. The *Reporter* says:

"Reports coming from 'below' are of the most cheering character. Mr. Reeves returned from St. Louis last week. bringing the encouraging intelligence that lumber had advanced one dollar per thousand feet and that the demand would probably exceed the supply the coming summer. Already buyers are anxious to contract, and the old custom of begging a buyer to make an offer is played out. The glove is now on the other hand, and buyers are anxious to ascertain how much can be furnished them *at the mills* contiguous to the railroad."

The *Reporter* does not state what grade of lumber has so recently advanced $1 per M. There is now an overstock of lumber at St. Louis amounting to at least *three-fourths* of last year's sales. If St. Louis buyers are "*anxious*" to make purchases at the present time, they have rare opportunity to buy of well known Wisconsin river parties who now have large amounts of lumber in pile at St. Louis on their own account, and who are perfectly willing to sell at anything like fair prices. The real situation is this: There is a tolerably firm feeling in the lumber market of St. Louis, because trade has opened active at localities where the spring trade begins as early as February 1st. St. Louis dealers, of course, see that with the abundance of money now in possession of the farmers, there is likelihood of better trade from that class of consumers than was enjoyed last season. They, in common with other dealers at Chicago, Milwaukee and the numerous large markets, understand that the railroads of the country are not to consume so much lumber in 1874 as they did in either 1872 or 1873; also that there is at present no certain indication of renewed activity in building throughout the large cities. Dealers generally, consider that, on account of the fact that there is a falling off of the amount of logs cut this winter, there is just a reasonable hope that lumber will be worth more money per thousand during the remainder of the season than it is now; and are therefore visiting the different pineries and in many instances making, as is usual at this season of the year, considerable purchases by contract. But we

warn manufacturers that the mere fact of dealers being in their midst with a view to purchasing at present prices does not guarantee that there is soon to be an enormous demand for lumber from consumers, nor that prices are about to rush up to fancy figures or even to remunerative prices, should the mills commence running at full capacity and place upon the market the usual spring amount. Lumber usually advances in price at the commencement of the spring trade, and will undoubtedly be enhanced somewhat before the first of June; but such advance in price will only be maintained by judicious action of manufacturers in not placing upon the market the usual spring run, or shipments. Prospects now are just fair; that is all. Judicious action of manufacturers will maintain and develop the present prospects until great good to themselves will result. Consider that indications for a tolerable business season are favorable, but do not be deceived into the belief that there is to be, this season, any great scarcity of lumber in the great markets on account of increased demand; for the present overstock *must* be disposed of before former prices can gladden the pockets of manufacturers of lumber.

The logging season in northern Wisconsin has been all that could be desired, and in fact better than may be profitable. It is earnestly to be hoped that manufacturers will at least be able to withhold their lumber from the spring markets, and will do so, until their is marked advances from present prices.

THE DESTRUCTION OF PINE FORESTS.

Pursuant to published notice the pine land owners resident in the Saginaw Valley, Michigan, will hold a convention at Lansing, on the 11th of the present month, for the purpose of organizing an association which shall have in object prompt and efficient measures towards prevention of the present reckless slaughter of pine timber. A few facts will impress our readers with the necessity of prompt action in their own behalf in reference to economical use of their pine forests, far more than columns of theory, probabilities and guess work as to the amount of pine timber now standing. Thirty years ago in the valley of the Genesee, New York, village merchants were in the habit of receiving pine lumber from customers at the rate of $5 per thousand feet and giving therefore "store pay," as value received. To-day, in some portions of the Genesee valley, there are a few acres of pine yet standing and single trees are worth from fifty to one hundred and fifty dollars as they stand. The present development of the west is as rapid, proportionately, as that of the east has been during the past thirty years. Owners of pine land in the west have been anxious to realize the greatest immediate profit from their valuable acres, rather than adopt measures whereby a reasonable return would result from labor and investment, and at the same time, fully utilize the timber cut. The manner of procedure in many localities has been to log only the very best portion of the best timber and allow the remainder to be recklessly destroyed. For instance

men have become wealth very rapidly by selecting only the best timber, felling it and taking only a cut or two cuts from a tree, being *careful* to get only as much clear stuff as possible. Sudden wealth has been realized by that process of logging, but of course greater value still has been ruthlessly destroyed. It is not the common system now practiced, yet large quantities of timber are annually wasted that will one day be needed. It is to be hoped that the convention to assemble at Lansing will be productive of great good; and it will be if earnest effort is made to convince pine land owners that there is profit in slower, but surer, riches than they have yet been accustomed to.

ST. LOUIS.

Among the principal lumber firms of St. Louis are:

Phillip Gruner, Jr., s. e. cor. of 9th st. and Case Ave . . ..St. Louis
Woerheide & Luehrmann, planing mill, 813 Cass st.....
Schulenburg & Boeckeler.....
Lesley, Garnett & Co., planing mill, 124 Olive st.....
Parker, Spencer & Co., 3,922 Broadway....
Knapp, Stout & Co., Bremen Ave.....
Patrick Bros. Lumber Co., Bremen Ave....
Schuelle & Querl, n. Main st.....
Phillibert & Johanning, planing mill, 1502 to 1518 Market st.....
Theo. Bloess, Carondelet Avu. cor. Barton..
August Leisse, 609 Choutean Ave. bet. 6th and 7th sts .....
Boeckenkamp & Surkamp, cor. 9th and Monroe sts.....
Lobsinger, Meegan & Co., Carondelet.....
Clear Water Lumber Co.....
Fleitz & Ganahl, 1320 Jackson st.....
Methudy & Meyer, commission, 22 s. Main st. .....
Berthold & Jennings, commission, 28 s. Main st. .....
Williams & Alford, commission, 100 s. Main st.....

The amount of lumber, including hardwoods, handled at St. Louis yearly, averages about 200,000,000 feet; and about 60,000,000 shingles, 20,000,000 lath, 2,000,000 pickets and 20,000 cedar posts is a close aproximate to the annual receipts of those commodities. There is at present a very large overstock of lumber at the St. Louis yards and also a large amount in pile which is held for the spring sales by manufacturers of the Wisconsin and Minnesota pineries. The yard trade of St. Louis rarely opens active until about April 1st., consequently a recent visit to the various yards did not witness the activity now apparent in the Chicago or Milwaukee lumber districts. The very encouraging demand now exhibited in the last mentioned cities may, and should, be taken as a strong indication that when it is time for the spring trade to open in St. Louis a season of activity will ensue at least equal to that of former seasons. There is at present a wide diversity of opinion as expressed by prominent St. Louis dealers regarding the prospective spring and summer trade.

Some few believe the seasons business will be such as to relieve the burden of present overstock amounting to nearly 80,000,000 feet, even if the usual yearly receipts should be placed upon the St. Louis market. Others, looking to the well known fact that the lumber trade of St. Louis is being gradually absorbed by the more northern Mississippi river markets, fairly dread the landing of a single raft at their levee, realizing that the present overstock is nearly equal to the amount of last year sales. It will be well for Wisconsin and Minnesota manufacturers to bear in mind this significant fact of the large overstock in the St. Louis market, and not create further disaster for themselves and St. Louis dealers by plac-

ing upon that market their spring run of lumber. At the river markets north of St. Louis the spring trade is opening with considerable activity and the demand is really beyond the expectations of the most hopeful dealers. Business in general seems very active in St. Louis, and it is worthy of remark that but few buildings, comparitively, are for rent. A brief visit to the well-known saw manufactory of Curtis & Co., furnished ocular evidence of business and activity at their works. The houses of Branch, Crookes & Co., and Curtis & Co., rank first among the saw manufacturing firms of the west, and indeed, of the country. Considerable interest is being felt in St. Louis in relation to the proposed Milwaukee & St. Louis Air Line Railroad, and the admirable daily newspapers of the city are agitating the subject earnestly. In conclusion we would again warn Wisconsin and Minnesota manufacturers that they should "look before they leap" when thinking of, or contemplating, running their spring fleets to St. Louis.

Manufacturers and dealers, generally, throughout the Northwest, are in great good spirits at the strong indications, now observable, that the lumber trade for 1874 is to be lively and renumerative. The only danger which threatens the lumber interests now, lies in the fact that manufacturers will be too sanguine of success and too anxious to manufacture and place upon the market more lumber than the prospective demand will warrant.

MEASURE OF DAMAGES FOR THE WRONGFUL CUTTING OF TIMBER.

During its session of 1873, the legislature of Wisconsin passed an act to prescribe the measure of damages for the wrongful cutting of timber. The act should be familiar to every lumberman, pine land owner and real estate agent. We publish the law, that its provisions may be brought prominently before the lumbermen of the State. It will be observed that the act is a complete law governing the matter of trespass whether the same be intentional or unintentional. By the provisions of this law the timber *thief* is hardly dealt with as severely as his crime merits, yet the unintentional trespasser is protected to a justifiable extent.

CHAPTER 263.

[*Published March* 27, 1873.]

AN ACT to prescribe the measure of damages in certain actions for the wrongful cutting of timber.

The People of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. In all actions hereafter commenced in any of the courts of this state to recover the possession of logs, timber or lumber wrongfully cut from the lands of the plaintiff, or to recover the value thereof, or damages for such cutting, if the plaintiff shall succeed, he shall, unless possession of such property is restored to him, recover as damages the highest market value of such logs, timber or lumber, in whatsoever place, shape or condition, manufactured or unmanufactured, the same may be between the time of such cutting and the time of the trial of the action, and while it remained in the possession of the party so cutting the same, or any purchaser thereof with knowledge of such wrongful cutting: *provided*, that the defendant may, within ten days after the service of the complaint in such action, serve upon the plaintiff an affidavit that such cutting

was done by mistake, and a tender of judgment a sum certain as being the full value of such logs, timber or lumber at the time the same were cut, with interest thereon from the time of such cutting to the date of such tender, and ten per cent. upon the whole amount as damages, together with the cost of such action to the time of such tender, in full satisfaction for such cutting. If the plaintiff shall accept such tender, judgment for the amount thereof may be entered against the defendant in favor of the plaintiff by the clerk in vacation, upon filing the complaint, and such tender, together with the plaintiff's acceptance of the same. If the plaintiff shall refuse to accept such tender, he shall notify the defendant thereof, and within twenty days from such tender, serve a traverse of the allegations of such affidavit that such cutting was by mistake. Upon the trial of such action such traverse shall be tried separately, or with the other issues in the action as the court shall direct, and for that purpose the court may order the jury to find a special verdict. If it shall be found upon the trial that the amount of the sum certain, for which judgment was so tendered, was equal to the value of such logs, timber or lumber when so cut, and that the cutting was by mistake, judgment shall be entered for the plaintiff for the amount of such tender against the defendant, less the cost of such action since the date of such tender, to be taxed in favor of the defendant. If the jury find that such cutting was by mistake, but that the value of such logs, timber or lumber was greater than the amount so tendered, then judgment shall be entered in favor of the plaintiff for the amount so found, with ten per cent. damages and costs of such action. If such action shall be against several defendants, not alike liable, either or any of such defendants may serve in such tender and subsequent defense, and thereupon the several proceedings and issues shall be had, tried and disposed of separately in the manner hereinbefore provided.

SEC. 2. This act shall take effect and be in force from and after its passage.

Approved March 19, 1873.

Gov. Taylor has given the Wisconsin Central R. R. Co. certificates for all the road it has thus far built.

INSPECTION OF LUMBER.

Text of the Michigan Law Providing for the Uniform Inspection of Lumber—Something for Wisconsin Lumbermen and Wisconsin Legislators to Study.

Wisconsin now produces annually over one billion feet of lumber. Its production is the greatest manufacturing industry of the state. The united wealth and influence of the lumbermen of Wisconsin is at least equal to that of any one interest of the commonwealth. It is time that the imperfect and almost useless laws of Wisconsin, regulating the inspection of lumber and governing its commercial interests, be erased from the statutes of the state and legislation substituted which shall be effective in determining, at least, a wise standard of qualities. We have published in full the lumber inspection law of Michigan, that our lumbermen and our legislators may become familiar with its provisions, and also in hopes that the necessity and advantage of enacting a similar law in Wisconsin, may become apparent. With such a law in force, the difficulties now continually met with by Wisconsin lumbermen in making contracts and fulfilling them, will be done away with, inasmuch as the law shall declare the quality of their boards and not the judgment of themselves or their customers. The present lumber inspection laws of Wisconsin are simply useless. The following is the full text of the Michigan lumber inspection law:

SECTION 1. The people of the state of Michigan enact: That each organized county within this state shall constitute a district for the inspection of lumber therein, except the counties of Saginaw

and Bay, which shall constitute one district, to be known as the Saginaw district. Provided that two or more counties adjoining each other, and not having an inspector general may be united in one district if the several boards of supervisors of such counties shall, by resolution approve such union, and in such case it shall be the duty of the several clerks of such counties to transmit to the clerk of each of the other of such counties, and to the governor a certified copy of such resolution adopted by the board of supervisors of his county, before any application shall be made for the appointment of an inspector general in such district.

SEC. 2. There shall be appointed for each district an inspector general of lumber, who shall be appointed by and shall hold his office during the pleasure of the governor, but shall not be removed without sufficient cause, provided that no such appointment shall be made, except in the Saginaw and Muskegon districts, until the same shall be requested by the board or boards of supervisors of the county or counties composing such district. And the board or boards of supervisors shall only request such appointment after the application of not less than two-thirds of the lumber manufacturers in any proposed district. Any vacancy in said office may be filled by the governor; and every inspector general, deputy inspector and sub inspector appointed under the provisions of this act, shall before entering upon the duties of his office, take and subscribe the oath prescribed by article eighteen of the constitution of this state. Each inspector general before entering upon the duties of his office, shall execute a bond to the people of the state of Michigan, in the penal sum of fifteen thousand dollars, with sufficient sureties, to be approved by a circuit judge, conditioned for the faithful and impartial discharge of the duties of his office, accounting for and paying over according to the law of all monies received by him, and for the delivery to his successor, of all bills, books, papers and effects belonging to his said office.

The official oath and bond of the inspector general shall be filed in the office of secretary of state and the official oaths of every deputy inspector and sub inspector shall be filed in the office of the clerk of the county in which he resides.

SEC. 3. Each inspector general shall reside within the district to which he is appointed, and shall keep such offices and at such locations within his district as the board or boards of supervisors within such district shall direct.

The inspector general for the Saginaw district shall keep an office in each of the cities of Saginaw, East Saginaw and Bay City, and shall appoint two deputy inspectors, each of whom shall have charge of an office of such inspector general and who shall be subject to the control of and to removal by the inspector general.

The inspector general shall make such rules and regulations as he may deem necessary to carry into effect the provisions of this act as are not inconsistent therewith, and he shall cause the inspection to be as uniform as is practicable. It shall be the duty of every inspector general, deputy and sub inspector in determining the quality and quantity of lumber inspected by him, to place the same in that class or quality as hereinafter defined, to which it approaches the nearest in description and value, at all times using the descriptions of qualities contained in this act as the standard for comparison.

SEC. 4. Each inspector general shall appoint such number of deputies and sub inspectors as may be necessary to discharge the duties of his office, for whose conduct, fidelity and impartiality in the discharge of their duties, he and his sureties shall be held responsible. Upon the appointment of any deputy or sub inspector by the inspector general, such deputy or sub inspector shall execute a bond to such inspector general in such sum as the inspector general shall require, conditioned for the faithful performance of the official duties that may devolve upon him, and and the true accounting for all monies that may come into his hands. Upon the appointment of any sub inspectors, by the inspector general, he shall grant under his hand and seal, a commission confirming such appointment, and the same shall remain in force one year from the date thereof, unless revoked by the inspector general. The inspector general and his deputies shall have power to issue certificates of inspection upon the return being made by the sub inspector to the office of the inspector general, and the inspector general shall keep an official seal for each office kept by him, and a record of all lumber measured and inspected in his district.

SEC. 5 All inspectors general, deputy and sub inspectors, shall be men of experience in the business of inspecting lumber, and no person shall directly or indirectly offer to an inspector general,

deputy, or sub inspector any sum of money, or gratuity for his services, other than the fees allowed by this act.

Provided, That nothing herein contained shall prevent the selection of a sub inspector by the parties to the sale of lumber, notice to be given in writing to an office of inspector general, naming such selection and such sub inspector shall be detailed to make such inspection if not otherwise engaged.

SEC. 6. The inspector general or his deputies are hereby empowered to collect all legal fees from the parties for whom inspection or measurement has been performed by all sub inspectors under this act, and to pay said inspector for such labor performed, the fees hereinafter provided; he is empowered to collect at the same time an additional amount of four cents on each and every thousand feet of lumber so inspected and measured; the latter amount to create a fund for the purpose of paying all salaries, office expenses, printing, stationery and all other expenses incurred in carrying into effect the provisions of this act, except fees of sub inspectors for the work of inspection.

Provided, That all bills for inspection shall be payable on delivery for the certificate of inspection by the seller of lumber; and the inspector general shall pay all salaries of his deputies and fees of sub inspectors monthly. The inspector general after having paid all salaries and expenses as herein mentioned out of the fund created for said purpose, shall report any surplus if any, and shall distribute the same as soon as practicable to the sellers of lumber from whom the same may have been collected during the previous year pro rata, upon the amount of lumber inspected or measured for each.

Provided, also, That in no case shall any salaries or deficiency be paid from the state treasury.

SEC. 7. The inspector general is hereby required to make and transmit to the Governor of this state, on or before January 1st, of each year, a report of the business transacted for said year, giving the amount of lumber inspected and measured in his district, showing uppers, commons and culls, the amount of receipts, also the amount paid, inspection fees, salaries, office and other expenses, and such other information that he may deem proper, or which may be required. The offices, books and papers are to be at all reasonable times open to inspection by the chairman of the board of supervisors of any county embraced in the district.

SEC. 8 The inspector general and deputies of the Saginaw district shall be paid for their respective services as follows, viz: Inspector general a salary of three thousand five hundred dollars per annum. The deputy inspectors two thousand dollars each per annum; and in the Muskegon and other districts, organized under this act, the salaries of the in pector general, and his deputies, shall be fixed by the board or boards of supervisors upon the application of two-thirds of the lumber manufacturers of said district, said salaries to be paid monthly; and

Provided, That in no case such salaries and expenses of said office shall exceed the four (4) cents per thousand feet, provided in section six (6).

SEC. 9. All merchantable white pine lumber shall be classified as follows, for the purpose of inspection: First clear, second clear, third clear, common and shipping culls; and boards six inches wide shall be known as strips. Norway pine shall be classified as common and shipping culls, except as hereinafter provided.

SEC. 10. *First Clear Lumber*—Shall not be less than eight inches wide, twelve feet long and one inch thick, and at such width and up to ten inches wide, shall be free from all imperfections. If the width is twelve inches, defects shall be allowed that will equal knots in the aggregate of one inch in diameter, or sap that will be equal to one, one and one-half inches in width on one surface. If the width is sixteen inches, defects shall be allowed that will be equal to knots in the aggregate of two inches in diameter, or sap that will be equal to two inches on one surface. If the width is twenty inches, defects shall be allowed that will be equal to knots in the aggregate of two and one-half inches in diameter, or sap that will be equal to three inches in width on one surface. The Inspector shall take particular notice and shall allow a due proportion of defects for all pieces of widths between or above the given standard; also shall allow additional defects as the lengths increase above twelve feet long, in proportion to such increased dimensions. He shall also allow as follows in each of the three grades of clear lumber, viz:

For each additional half inch in thickness, additional defects in proportion that shall be equal to knots in the aggregate of one-quarter of an inch more in diameter,

or sap that will be equal to one quarter of an inch more in width. All the pieces shall be well manufactured, and of full thickness, (all knots to be sound) and all sap to be free from black stain that is of such character that cannot be removed by dressing. And no piece shall be allowed with more than one straight split, and that to be not over one-fifth the length of the piece which shall be counted as one defect.

Second Clear Lumber—Shall be not less than eight inches wide, twelve feet long and one inch thick, and at such width and up to ten inches wide defects shall be allowed that will be equal to knots in the aggregate of three-quarters of an inch in diameter, or sap that will be equal to three-quarters of an inch in with on one surface. If the width is twelve inches, defects shall be allowed that will be equal to knots in the aggregate of one and a half inches in diameter, or sap that will be equal to three inches in width on the edges. If the width is sixteen inches defects shall be allowed that will be equal to knots in the aggregate of two and a half inches in diameter, or sap that will be equal to four inches in width on the edges. If the width is twenty inches, defects shall be allowed that will be equal to knots in the aggregate, of three inches in diameter, or sap that will be equal to five inches in width on the edges. A straight split, shall be allowed in this quality as before provided in boards of the width of twelve inches and over and counted as one defect.

Third Clear Lumber—Shall not be less then seven inches wide, twelve feet long, and one inch thick, and at such width, and up to ten inches, defects shall be allowed that will be equal in injury to a knot one and one half inches in diameter, or sap that will be equal to one and one-half inches in width on the best side. If the width is twelve inches, defects shall be allowed that will be equal in injury to a knot of two and one-half inches in diameter, or sap that will be equal to two inches wide on the best side. If the width is sixteen (16) inches, defects will be allowed that will be equal in injury to a knot of four inches or sap that will be equal to four inches wide on the best side. If the width is twenty (20) inches, defects shall be allowed that will be equal in injury to a knot of five inches in diameter or sap that will be equal to six inches on the best side. But sap in no case, to exceed one-half of the surface on the poorest side. In this quality shall be included pieces ten feet long, and not to have more than a due proportion of defects. Also all pieces six (6) inches wide, and more than one inch thick with not more than two small sound knots, or sap more than one inch in width on one side.

First Clear Strips—Shall be six inches wide, one inch thick, and not less than twelve feet in length and free from all imperfections.

Second Clear Strips—Shall be the length, width, and thickness of first clear, and may have two small sound knots or if no knots, then sap equal to one inch in width on one edge of one side.

Third Clear Strips—Shall be of the width and thickness of first clear strips, and many have three small sound knots, with sap, one inch on one side, but if no more than three small sound knots, then sap equal to two inches, on one side, may be allowed, to be free from rots, split and shake. First and second clear, Norway strips of full width and thickness, and first and second, clear white pine strips, ten feet in length; also first and second clear strips, rejected; also first and second clear strips, rejected on account of thickness, and not less than five inches in width, shall be classed in this quality.

Common Lumber—Shall include all boards, planks, scantling, strips, joist and timber, and lumber not otherwise defined, which is not as good as third clear, but is generally of a sound character well manufactured, of full thickness, and free from large loose knots, and bad skakes, that show on both sides of the piece. Scantling joists and timber must be free from imperfections, which so weaken the piece that it cannot be used for substantial building purposes. Scantling, joists and timber, made from worm eaten logs and pieces with a small streak of rot, when not so badly damaged as to render the same unfit for ordinary uses of common lumber shall belong to this quality. One straight split shall be allowed, provided it does not exceed one-quarter the length of the piece. Pieces that have not more than two augur holes which are placed near the end of the piece, shall be allowed in this quality, provided they are measured in lengths of even numbers of feet between said augur holes, and conform in all other respects to the requirements of this quality. No lumber under 10 feet in length shall be considered as merchantable.

Shipping Culls—Shall constitute the lowest grade of merchantable lumber, and shall include all lumber not as good as

common, which can be used for ordinary purposes, without a waste of more than one half.

Mill Culls shall include all lumber not as good as shipping culls.

All boards or plank over twelve inches in width, of which one end shall be wider than the other, shall be measured at a pointed one-third its length from the narrow end, to determine its width, and all such boards and planks less than twelve inches in width, shall be measured at the narrow end. All lumber over 10 feet, up to and including 20 feet leng, shall be measured in length of even number of feet and all over 20 feet long, each additional foot in length shall be counted, unless it shall be otherwise agreed by the buyer and seller. No fractional part of a square foot shall be counted, except in the measurement of joists, scantling, or timber.

SEC. 11. Merchantable lumber may be measured and inspected in either of the three classes following, viz.:

The first-class shall be an inspection of the lumber in the five qualities aforesaid, and the fee for such inspection and measurement shall be twenty-five cents per thousand feet. The second class shall be an inspection of the lumber in three qualities, of which the first, second and third clear shall form one, which shall be denominated uppers, and the other two shall be common and shipping culls, as aforesaid, and the fee for such measurement and inspection shall be twenty-five cents per thousand feet. The third class of inspection shall be in one quality, which shall include the five qualities first mentioned, and shall be denominated straight measure, and the fee for such measurement shall be fifteen cents per thousand feet. The fee for measuring and inspection, including the fee mentioned in section six (6) of lumber shall be borne equally by buyer and seller, unless otherwise agreed.

SEC. 12. Whenever required to do so, the inspector shall mark on each piece of lumber inspected by him, the quantity and quality thereof, using such letters or characters therefor as the inspector genereal may by rule prescribe. And the fee for such marking shall be ten (10) cents in addition to that herein provided for the class of inspection, and shall be paid by the party requesting such marking to be done.

All orders for inspection shall be filed in the office of the inspector general, and in districts with more than one office, the order shall be filled in that most convenient to the seller of the lumber; and returns thereto of such inspector within twelve hours after the completion of such inspection if practicable.

SEC. 13. The inspector's record, and the certificate of inspection, shall show the names of the buyer and the seller, the place and date of inspection, the quantity of each quality, and if inspected for shipment by water the name of the boat or vessel on which it was shipped, and name of the sub-inspector by whom inspected. And such record, or a copy thereof, certified by the inspector general or a deputy inspector under the official seal of such inspector general, and every certificate of inspection shall be *prima facie* evidence of the facts therein stated.

All original tally lists kept of inspection and measurement of lumber, under the provisions of this act shall be returned by the officer making such inspection with his return to the office of the inspector general.

SEC. 14. No pine lumber sold for shipment by water, in any district having an inspector general, shall be inspected by any person other than the inspector general or a deputy, or sub-inspector, for such district. Nor shall it be inspected into any other qualities than such as are herein named, unless such lumber shall be manufacted to order, or under a contract, to be less than one inch, or over two inches in thickness.

SEC. 15. Whenever any person interested in an inspection of lumber by any inspection, shall be dissatisfied with such inspection, such person shall make complaint thereof to that inspector general, or deputy, who shall thereupon, without delay, inquire into the matter of such complaint, and determine upon the proper inspection to be made, and he shall substitute another sub-inspector, to continue the work of such inspection, if either party interested therein shall require a change.

SEC. 16. Every person who shall willfully violate any of the provisions of this act, shall, on conviction thereof, be punished by a fine not exceeding one thousand dollars.

SEC. 17. All acts and parts of acts contravening the provisions of this act are hereby repealed.

Passed the Senate and ordered to take immediate effect. March 15th, 1871.

HENRY S. SLEEPER,
Sec'y of the Senate.

Passed the House and ordered to take immediate effect, March 24th, 1871.

N. B. JONES,
Clerk of the House of Rep's.

Approved by the governor March 27th, 1871.

AMENDED APRIL 10, 1873.

AN ACT to amend sections thirteen and sixteen of an act entitled "An act to provide for the uniform inspection of lumber," approved March twenty-five, eighteen hundred and seventy-one, being sections one thousand five hundred and twenty-one and one thousand five hundred and twenty-four, of the compiled law of eighteen hundred and seventy-one.

SECTION 1. *The People of the State of Michigan enact.* That sections thirteen and sixteen of an act entitled "An act to provide for the uniform inspection of lumber," approved March twenty-five, eighteen hundred and seventy-one, being sections one thousand five hundred and twenty-one and one thousand five hundred and twenty-four, of the compiled laws of eighteen hundred and seventy-one be amended so as to read as follows:

SEC. 13. The inspector's record and the certificate of inspection, shall show the names of the buyer and the seller, the place and date of inspection, the boat or vessel on which it was shipped. And such record or a copy thereof, certified by the inspector general, or a deputy inspector, under the official seal of such inspector general, and every certificate of inspection, shall be *prima facie* evidence of the facts therein stated. All original tally-lists kept of inspection and measurement of lumber under the provisions of this act, shall be returned by the officer making such inspection, with his return to the office of the inspector general.

(1524.) SEC. 16. Every person who shall sell or purchase any pine lumber, sold by qualities within any organized district, for shipment by water, without having the same inspected according to the provisions of this act, or who, not being an inspector general, deputy or sub-inspector within the district where such lumber is shipped, shall inspect any such lumber; and every person who shall willfully violate any of the provisions of this act, for each and every such offense be subject to a fine of not less than one hundred dollars and not exceeding one thousand dollars and costs of suits, which fine may be recovered in an action of debt, to be commenced in the circuit court by *capais*, summons, or declaration, in the name of the people of the state of Michigan; and upon the trial of every such action, proof of a shipment by water shall be *prima facie* evidence of a sale. It shall be the duty of the inspector general and his deputies, to visit the various shipping points within his district during the shipping season, for the purpose of supervising the work of the several sub inspectors, so that the inspection may be uniform; and it shall further be the inspector general's duty to see that the provisions of this act are strictly enforced.

SEC. This act shall take immediate effect.

Approved April 10, 1873.

Now that the Wisconsin Central Railroad Company have received the certificates of construction which will enable them to obtain their valuable land grant, it becomes a matter of certainty that the various railroad developments originally proposed by that corporation, will speedily be brought about. With the Wisconsin Central completed to Ashland on Lake Superior, the construction of a line west from "section 40" to the Mississippi, and the building of the Portage City and Stevens Point airline, the Wisconsin Central will become the leading railroad company of the state and be enabled to exert a power for the future growth and development of the state, unequaled.

The City of Stevens Point is to take $10.000 worth of Stevens Point Boom Company stock. There is no better opportunity offered for safe and remunerative investment of capital, than would result from purchase of stock in the Stevens Point Boom, and the "Central City" is fortunate in appreciating the fact.

A CONSERVATIVE VIEW OF THE SITUATION.

The Prospects of a Large Crop on the Chippewa for 1874—Nothing short of a Poor Drive or a Strong Organization of Manufacturers can Bull the Market for the Coming Season—But the Logging this year has been Better and more Economically done than usual—And Manufacturers are in a Better Shape than was Expected—A Prediction of Fair Prices for an Average Crop.

Correspondence of the Wisconsin Lumberman

EAU CLAIRE, Wis., Feb. 16, '74.

Parallel columns of the February number of the WISCONSIN LUMBERMAN contain the following assertions:

"It is generally understood that the new supply added to the amount of logs at the close of last season will exceed the amount of lumber that reached the principal markets during 1873, etc."

"And now all are willing to admit that the season's cut will not average above fifty per cent. of the operations of either 1871-2 or 1872-3. Indeed, it is very questionable if the log crop of Michigan, Wisconsin and Minnesota, this season reaches even that proportion."

It ought, perhaps, to be explained that one is the assertion of a correspondent, the other an editorial statement, and they show nothing but a wide divergence of opinion.

Unfortunately this is not one of the cases in which "you pays your money and you takes your choice." One or other of these views is the correct one, and, however persistently men may try to shut their eyes to the real facts, sooner or later they will be demonstrated beyond question. And it is a matter of considerable importance that the lumber interests generally should arrive at correct conclusions. For no class is anything to be gained by withholding the truth, and nothing can be more childish than any attempt to hoodwink lumber merchants in the hope of luring them into making contracts for future delivery at high prices. To become fully informed on this matter is easy for any who have as much interest in it as they.

That there were reasons in the early winter, apparently well-founded, for thinking that the cut would be light is true. Money was scarce—there was every indication of low prices for logs and lumber in the spring—people were inclined to take a gloomy view of things generally. Many prominent loggers affirmed that they *would* not put in a stick; and of the smaller jobbers it was asserted that they *could* not, for the want of money; while the manufacturers, although they would put in a few camps to keep their men and teams employed, would go very slow and depend largely upon getting forward old stock. In short, judging from all that was said, the observer, especially the transient observer, was justified in thinking that the log crop would be a very light one. But it was not very difficult to trace the paternity of this thought to the very earnest wish of every manufacturer and jobber that it would prove to be true, so far, at least, as his neighbors and competitors were concerned. As a prominent Michigan logger somewhat emphatically and perhaps extravagantly put it: "Some men wished so much that it *might* be so—it was of such vital importance to them that it *should* be so—that they

made "blanked" liars of themselves trying to make out that it *was* so."

But there were scores and hundreds of men with a loggers' outfit on their hands and with no other business that they could turn to. They could not hibernate if they would. The larger jobbers found, as the season wore on, that they could get contracts nearly or quite as favorable as those of last season, and so closed them and set to work with unabated energy—the smaller fry learned that they could obtain credit for supplies almost as readily as ever, and as the risk was chiefly assumed by their creditors, concluded to pitch in and take the chances. Nor has any manufacturer yet been found magnanimous enough to let his plant of machinery lie idle during any part of the sawing season of 1874, out of consideration for the public. What is the result? I will try to answer the question for this valley according to the best information I have been able to obtain.

There is not a mill that has not arranged for a full supply of logs. I am told by what I believe to be the best authority, that there are 139 camps on the Chippewa and its tributaries above and not including Yellow river, against 98 camps in the same district last year. Many of the camps are larger; logs have seldom been put in so rapidly and easily as now. It is asserted that an equal number of men and teams will put in twenty-five per cent. more logs this year than last. The cut on the Eau Claire river will not be so large as last year, but on the whole the cut for the Chippewa and its tributaries of 1873-4 will probably fall little if any below that of 1872-3, and nothing short of a poor drive, which some are now forced into predicting, will prevent a large stock from being driven.

It must needs be a poor one indeed that will cause any great shortage for the mills that look to the Chippewa for a supply.

Concerning other pineries you have doubtless arrangements for obtaining the most reliable information, still I will venture to give you briefly the substance of a conversation with a gentleman recently from Michigan, whose judgment and opportunities for observing are good. He predicts a full cut there. In the boom at Muskegon were stored 125,000,000; there were 140,000,000 up that river on skids thirty days ago with a prospect of being increased to 175,000,000, making a total of 300,000,000. And this was, in his opinion, fairly typical of the condition of things in the various lumber-producing sections of Michigan—although in each locality he visited the opinion seemed to prevail that all *other* localities were going to fall short.

Judging from these statements, presuming them to be true, it would seem that there is little prospect of prices ruling high during the coming season, save through some such organization on the part of manufacturers as is recommended by your Chicago correspondent; a consumation which, however devoutly it is to be wished, is but faintly to be hoped.

There is, however, another side to this subject which remains to be looked at.

The drive of 1873 was a very clean one; comparatively few logs were hung up and the per centage back at this time is much smaller than usual —although to partly offset this it is true that the quantity in the boom at Beef Slough is unusually large.

Another thing: of the logging this winter a much larger proportion than usual is being done on the small streams—most of them somewhat uncertain and some of them very poor driving streams. It is probable that in any event a good many of them will be hung up, and an unfavorable stage of water may cause a shortage. Another fact may be mentioned in this connection; the logs as a rule will be of much better quality than if cut on the main stream.

Moreover, the sales of lumber at all the Mississippi river towns have, in January and February been exceptionally good—never better some of them report—and the prospective demand from that direction is encouraging. Notwithstanding the dullness of trade during the fall and early winter, the stocks in the yards are broken up to a degree that will make it imperative upon dealers to provide for the coming seasons' trade upon nearly if not quite as liberal a scale as usual. Up to this time they have been laying back, talking low prices, waiting to be importuned for money by needy mill-owners, and expecting to be able to dictate terms; which expectations, much to their surprise, not to say disgust, have not been realized. The manufacturers have demonstrated their ability to prosecute their business without accepting money at ruinous rates, and the result is that the advances from below to this valley upon lumber and logs for future delivery are insignificant as compared with former years. Within a short time there has sprung up a healthy if not a brisk inquiry for lumber, and there is opportunity to contract at fair prices.

Any attempt at prediction is perhaps presumptuous, but judging from the facts, and seeking to avoid being influenced, alike by the sanguine or dolorous prognostications of interested parties, it would seem safe to conclude so far as this region is concerned, that the season of 1874 will furnish an undiminished supply of lumber, though not an overstock, for which there will be a healthy demand at prices, not high, but fairly remunerative, to such firms as can manufacture and place it in market in the economical manner that is habitually demanded to secure success in other branches of manufacturing.

Of business generally I should certainly confirm the opinion of your correspondents—that it bids fair to be prosperous.

There is but little local news of a special nature. We have rumors of a state of uneasiness and discontent among the Comt'de Oreille Indians because of alleged non-fulfilment of terms of purchase of the pine on their reservation, on the part of some one, but whether it is the purchasers or government agents that are at fault I cannot say, having heard nothing that was definite or reliable enough to repeat.

Those who are so unfortunate as to have windfall timber, have been busily engaged putting it in this win-

ter, but find that the worms have made sad havoc in it—so much so, that when it has to be hauled any considerable distance, it is questionable whether it would not be as profitable to abandon it altogether. Neither fall fires nor winter frosts seem to kill these persistent borers or check their ravages.

Work is being pushed on the Eagle Rapids boom and flooding dam, with considerable vigor, and it will probably be in efficient working condition by spring. Its value to the mill-owners and loggers on this stream can hardly be over-estimated.

MAX.

In addition to the names of jobbers on the Oconto river, which we reported last month, we are enabled to place the following, with estimated amount of logs to be got in by the parties respectively named:

James Conners	1,200,000
Michael Melloy	1,000,000
James Clary	800,000
Cayo & La Clare	2,000,000
Levi S. Lindsey	2,000,000
Ploin Bros.	800,000
Simpson Bros.	1,500,000
	9,300,000

Little Suamico is to receive an important addition to its manufacturing business in the building of Anson Eldred's new mill. The capacity of the mill will be about 25 000 feet of lumber and 175,000 shingles per twelve hours run.

Rafting on the ice commenced at Wausau, about February 15. The Wausau *Central* predicts an early spring, and lively times "when the logs comes down."

THE HARDWOODS OF WISCONSIN.

White oak, red oak, burr oak, hard and soft maple, beech (mostly in northeastern Wisconsin), elm, hickory, ash, birch, basswood, butternut, cherry and poplar, constitute the principal varieties of hardwoods in Wisconsin. As yet the immense hardwood forests of northern Wisconsin have hardly been disturbed by the tread of the land looker, much less by the axe of the woodman. Hundreds of thousands of acres of magnificent hardwood lands yet remain subject to entry or homestead settlement. To day their is, proportionately, more active demand and more ready cash sale for hardwood lumber, than there is for pine. The railroads are now making the hardwood timber of the north accessible, and saw mills, stave factories and wagon hub factories are commencing to utilize this portion of the material wealth of the state. One of the best regions for the investment of capital in the manufacture of hardwood lumber, is along the line of the Wisconsin Central north from Stevens Piont. A fine opportunity is soon to be offered on the route of the Wisconsin valley railroad as that line is extended to Wausau and the north. The Green Bay and Minnesota railroad already traverses localities growing the finest hardwood timber and possessing first-class facilities and inducements for manufacture.

Portions of the Milwaukee & St. Paul line of road and the West Wisconsin railroad, also render accessible thousands of acres of these valuable timber lands. The pine

forests have naturally engrossed the attention of manufacturers almost exclusively, but for very profitable investment for those who can afford to tie up capital for a few years, the hardwood lands undoubtedly offer rare inducements. The experience of investments made in former years in eastern states, indicate to a certainty the profitableness of the opportunity now offered in central and northern Wisconsin. There is yet large tracts of these hardwood lands in this state subject to entry at the government price per acre, and we would call the special attention of capitalists to the fact.

Work is again resumed on the Wisconsin Valley Railroad and Wausau papers are jubilant at the prospect of seeing the iron horse in their "Forest City" as early as September. The Wisconsin valley road is to become one of the principal lumber freighting lines of the north and will prove of incalculable benefit to central Wisconsin.

Reliable authority estimates the amount of new logs to be got in this winter on the Menominee river at 103,000,000. By referring to the February number of the WISCONSIN LUMBERMAN it will be noticed that the amount of logs handled by the Menominee River Boom Co., during 1873, was in excess of 122,000,000. It would seem that the Menominee river mills are to secure very nearly their usual amount of logs.

THE MENOMINEE RIVER LOG CROP.

The capable superintendent of the Menominee River Boom Company, Mr. C. J. Ellis, furnishes us with an estimate of this season's logging on the Menominee, the northeastern boundary of Wisconsin. There is no doubt but the favorable weather will continue well into March, so the probable log crop of the Menominee may be placed at 110,000,000.

MARINETTE, WIS., Feb. 14, 1874.

EDITORS WISCONSIN LUMBERMAN:—I have not been able to get the amount of new logs cut on the Menominee up to the present time, but give you the amounts that each firm expects to cut as follows:

The Kirby Carpenter Co	26,000,000
R. Stephenson & Co	21,000,000
The Menominee River Lumber Co.	18,000,000
The N. Ludington Co	16,000,000
The H. Witbeck Co	12,000,000
The Hamilton & Merryman Co	7,000,000
Wm. McCartnery	1.500,000
Other Parties	1,500,000
Total	103,000,000

Should the weather continue as favorable as now, well into March, I think the amount will exceed the above figures by five or six million feet. I think about seventy million feet of new logs are now cut.

Yours, &c.,
CHAS. J. ELLIS.

S. W. Fowler of the Manistee, Mich., *Times*, called upon the WISCONSIN LUMBERMAN recently, and reports that the Manistee lumbermen are now in excellent spirits at the spring prospects. It is the general belief in Michigan that the lumber trade of 1874 is to be exceptionably good.

NECEDAH, WIS.

Thirty Millions per Year, the capacity of Necedah's Saw Mills—Ten Million Feet of Lumber now in Pile—Sixty Millions the Product of Last Seasons Log Crop—The Cut this Season will not Exceed Seventeen Millions—The Kilbourn Dam Nuisance.

Special Correspondence of Wisconsin Lumberman.

NECEDAH, Wis., Feb. 23, 1874.

EDITORS WISCONSIN LUMBERMAN:—Necedah is the principal lumber manufacturing town on the Yellow river. It is situated twelve miles from the junction of the Yellow and Wisconsin rivers. "Necedah Bluff" forms a grim and rocky western boundary of the thriving village, while the limpid waters of the river mark out the eastern limits of the town. Necedah numbers 2,000 inhabitants and possesses four steam saw mills capable of manufacturing thirty million feet of lumber annually, one sash, door and blind factory, one grist mill, five hotels, two drug stores, two restaurants, two millinery establishments, five stores selling general merchandise, and one church. Necedah possesses first rate natural facilities that assure the rapid growth of the town, and it is destined to become a leading business center of Juneau county. On the first of January, 1874, there was in pile at Necedah ten million feet of lumber. During the winter season a brisk retail trade is carried on at the lumber yards in Necedah, the farmers of Juneau and adjoining counties being the principal buyers. The farmers of Marquette, Adams, Sauk, Columbia, Vernon, and even of Dane counties, bring large amounts of grain and produce here for the pinery markets, and haul back lumber, shingles and lath, that are received by them in exchange for their productions of the soil. During the winter season as many as one hundred and fifty farmers and their teams will some days make Necedah hotels their headquarters. The principal lumbering firms on the Yellow River are:

Bradford, McCoy & Co.
T. Weston & Co.
Geo. B. Burch & Co.
P. Shory & Bro.
Davis & Co.
W. L. Fuller & Co.
W. D. Dilley.
Capt. Arnold.

As the logging season is now drawing to a close we may quite accurately estimate the amount of new logs to be got in this winter on the Yellow river and its tributaries. The amount will not exceed one-quarter of the cut of last season. There was logged last season on the Yellow river and tributaries about sixty million feet. Of that amount about forty-three millions reached the booms and mills, leaving about seventeen millions "hung up" on the river. Estimating this seasons cut at the very largest figures and we shall have, with old logs left over, thirty-four million feet ready for the spring drive. Under most favorable circumstances it is not probable that over sixty-five per cent. of the drive will be got into the booms. We may therefore consider that not to exceed twenty-two or twenty-three millions in logs will be the product of the Yellow river and its tributaries this year. The prospect now for a favorable spring freshet, is not first rate; for although there is considerable snow in the

woods the ground is not frozen, and the usual quantity of water run off by the melting of the snow, will be absorbed by the earth. The tributaries of the Yellow river are almost entirely dry and jobbers who are working on those streams will have active work, in taking advantage of the spring freshet, if they would get their logs to the mills. Intense interest is manifested by the residents of Necedah in relation to the suit, now pending in the Supreme Court, between Bradford, McCoy & Co., of this place, and the Kilbourn Dam Manufacturing Co. It is hoped and expected that justice in this matter will be secured to Bradford, McCoy & Co., and the lumbermen of the Yellow and Wisconsin rivers, by a decision that the Kilbourn Dam is the nuisance it really is, and that an order for its abatement will result. Messrs. Bradford, McCoy & Co., are men of the right stamp to bear the brunt of this legal fight, and they will be backed and seconded by the combined energies of the lumbermen of the Wisconsin and Yellow rivers. With justice, law and eminent legal talent on their side in the cause, there is scarcely a doubt but Bradford, McCoy & Co., will win their suit and that the Kilbourn Dam nuisance will be abated. S. P.

We have received from Geo. W. Lord, 232 Arch Street, Philadelphia, Pa., a neatly bound volume of "Roper's Catechism of Steam Engines." The price of the work is $2 and will be of practical use to its engineer readers. Address Geo. W. Lord, Philadelphia, Pa. 232 Arch Street.

PINE LANDS.

It may interest the public to know that a movement is being made by the owners of this species of property to form an organization for mutual conference and co-operation. A meeting of pine land owners is called at Lansing, Mich., for March 10th.

A card is being circulated, of which the following is a copy :

IONIA, MICH., Feb. 13, 1874.

DEAR SIR—At a meeting in Grand Rapids on the 9th inst, the undersigned were instructed to invite representative pine land owners in the state to meet with us at Lansing, Tuesday, March 10, 1874, at 2 o'clock P. M., to consult with reference to a permanent organization for mutual protection and to take such steps as shall unite us and secure concert of action for the future for this important interest.

We therefore invite you to meet with us, trusting that the urgent importance of this move will insure your personal attention at that time.

Respectfully yours, etc.,

D. M. BENJAMIN,
Grand Rapids.
S. N. WILCOX,
Chicago.
L. B. TOWNSEND,
Iona, Mich.

We call the particular attention of our readers to the advertisement of J. M. Robinson, offering for sale his large and first-class saw mill situated on the Wisconsin River one mile from Stevens Point. "Robinson's Mill" is known as one of the best located mills in Wisconsin ; the mill is new and perfect in all respects. There is no more desirable mill property, in proportion to sum required for its purchase, than that Mr. Robinson now offers for sale. We would rceommend, from personal knowledge of the mill, location, boom, &c., that any person desirous of investing in mill property, should visit Stevens Point, Wis., and examine the "Robinson Mill" before purchasing elsewhere

THE SHEERING BOOM PATENT CASE.

A Claim Upon Loggers that Matches Woodbury's Claim Upon Planing Mills—The Eau Claire Lumber Company Against the Logging Interests of the Whole Country—History of a Pretty Little Piece of Special Legislation in Congress—How Senator Carpenter Protected the Interests of His Constituents and What Congressman Sawyer Did to Prove Himself a Wisconsin Lumberman Indeed.

There is now pending in the circuit court of the United States for the western district of Wisconsin, and in he congress of the United States, a patent case that bears about the same relation to the logging interests of all sections where lumbermen depend upon swift-flowing streams to get their logs to market as the noted Woodbury claim bears to the interests of the planing mill men of the country.

The Mississippi River Logging Co. and the Beef Slough Company are sued by Levi W. Pond and the Eau Claire Lumber Co., for infringment of a patent for the "sheer" or "fin" or "rudder" boom—a piece of mechanism that is known by these names to most lumbermen, that has been in use in this state for twenty years, and that has come to be considered indispensible on all swift rivers. The attorneys for the plaintiffs are Messrs. Cameron and Losey and Hugh Cameron, of La Crosse. The defendants are represented by Messrs. Guy C. Prentiss and M. P. Wing, of La Crosse, attorneys, and Mr. J. P. C. Cottrill, of Milwaukee, counsel.

The claim for past damages now amounts to $40,000. As, however, nearly all the logging streams in the northwestern part of Wisconsin that are tributary to the Mississippi, all those of Minnesota, of Maine, of northern New Hampshire, and of northern New York, besides many in Michigan, Pennsylvania and other parts of the country, have swift currents by which this "improved device for sheering booms" either is now used or is liable to be used, the extent and magnitude of the interests assailed by the plaintiffs in this case may be readily understood.

This immense claim is also now the subject of legislation in congress. Unless it is there determined in such a manner as to protect the vested interests which are menaced by it in all parts of the country, it will undoubtedly go through all the courts, and the constitutionality of the special legislation in congress by which the Eau Claire Lumber Co., have fortified their claim will be thoroughly tested. A brief history of the case will serve to illustrate, among other things, the way in which important laws affecting vast busines interests are sometimes passed in congress.

The "improved device for sheering booms" which is the subject of this controversy consists of a series of parallel hinged "fins," "flanges" or "rudders" so placed on the lower side of any boom as to regulate, by the resistance they oppose to the water that has passed under the boom, the position of the boom in the stream. The angle of these flanges to the boom determines the angle of the movable boom to the shore, and the flanges are moved and secured by a windlass on the boom.

This method of sheering booms, it is claimed, has been in use on some

of the rivers of Wisconsin since 1852. It is not known who invented it. In 1859, Adin Randall built a boom of this kind in Half Moon Lake at West Eau Claire. Mr. Randall at first thought of applying for a patent, but on learning that it had been in general use in various parts of the state for several years he abandoned that purpose. In January 1868, Mr. Randall being kept from attending to business by sickness, Mr. Levi W. Pond, who was then in the employment of Randall, made application for a patent for the use of the fins herein described. His application was for a patent on the use of these fins in connection with boats on current ferries as well as in connection with sheer booms. This application was rejected on the ground that this use of flanges on boats propelled across streams by the force of their currents was too ancient and notorious to admit of a patent. Mr. Pond was instructed to so amend his application as to omit the specification for current ferries. In March 1868 Mr. Randall died and in August the same year Pond obtained a patent for the attachment of fins to swinging booms. The patent was granted for 17 years from June 1, 1870. This was the first step towards the establishment of this monopoly.

Now, Mr. Pond did not sue at once any of the parties then using this method of sheering booms, for this reason: While the constitution of the United States (Sec. VIII., 8) declares that, "Congress shall have power; To promote the progress of science and useful arts by securing for limited times to *authors* and *inventors* the exclusive right to their respective writings and discoveries,"—the Patent Laws of 1870 (section 61) provide that in any action for infringement, the defendant may plead any or all of the following general matters:

"Fourth. That he was not the original inventor or discoverer of any material and substantial part of the thing patented, or

"Fifth. That it had been in public use or on sale for more than two years before his application for a patent or had been abandoned to the public."

Mr. Pond, meanwhile, had entered the service of the Eau Claire Lumber Co. He is an inventor of considerable genius, as well as the appropriator of the inventions of others, and the WISCONSIN LUMBERMAN, as its readers may remember, had the pleasure of describing in a recent issue an ingenius and valuable invention for lumbermen known as Pond's gang saw jointer.

In the senate of the United States, February 12, 1872, Mr. Carpenter asked, and, by unanimous consent, obtained leave to bring in the following bill; which was read twice, referred to the ciommttee on patents, and ordered to be printed.

Confirming and extending a patent right to Levi W. Pond and Eau Claire Lumber Company.

Be it enacted by the senate and house of representatives of the United States of America in congress assembled, that the rights described in the letters-patent granted on the fourth day of August, eighteen hundred and sixty-eight, to Levi W. Pond and Eau Claire Lumber Company, of the county of Eau Claire, and state of Wisconsin, and citizens of the United States, to an invention therein described and referred to, be granted, confirmed, and extended to the said Levi W. Pond and Eau Claire Lumber Company, their heirs and assigns, for the full term of seventeen years from the first day of June, eighteen hundred and seventy, notwithstanding that said invention may have been to some extent

possessed and enjoyed by the public prior to the date of the application for said letters-patent, which was filed on the twenty-third day of January, eighteen hundred and sixty-eight, said invention so granted and confirmed being described in said letters and application as an "Improved device for sheering booms—letters-patent number eighty thousand six hundred and sixty-three, dated August fourth, eighteen hundred and sixty-eight—Levi W. Pond, of Eau Claire, Wisconsin, assignor to himself and Eau Claire Lumber Company, of same place:" *Provided*, That all rights and privileges heretofore sold and granted by said patentees to make, construct, use, or vend the said invention, and not forfeited by the purchasers or grantees, shall inure to, and be enjoyed by, such purchasers or grantees respectively as fully and upon the same conditions, during the period hereby granted, as for the term that did exist when such sale or grant was made.

SEC. 2. That any person who had, more than two years prior to the date of application for said letters-patent, bona fide erected or constructed any such machine or structure for the purpose of putting said invention into use in any of its modifications, shall have and enjoy the right of using said invention in any such specific machine or structure so actually erected more than two years prior to the date of said application for said letters-patent as aforesaid, in all respects as though this act has not been passed: *Provided, however*, That no person without grant or license from said patentees, or their assigns, shall have or enjoy by virtue of this act any other or greater privileges or rights than he would have or enjoy if this act had not been passed.

Senator Carpenter now says that he was entirely ignorant of the scope, nature and intention of this extraordinary bill. He claims to have been mislead by the statements of the prominent member of the Eau Claire Lumber Company who went to Washington to secure the passage of the bill. From the course of affairs it seems that the committee on patents as well as both houses of congress were about as ignorant of the nature of this bill as Senator Carpenter. The bill lay in the hands of the committee entirely neglected, for aught that appears in the record, for several months. When the bill came before the house Mr. Sawyer consented to its passage on the understanding that a clause was to be added in the committee excepting from the operation of the act confirming the patent all parties in Wisconsin who were then using the method in question for sheering booms. Hence it appears that Mr. Sawyer showed himself a real Wisconsin lumberman, proposing by a piece of special and unprecedented legislation to secure to all Wisconsin loggers the monopoly of a process that had been known and used in various parts of the country for twenty years and more. Mr. Sawyer, however, over-reached his purpose. No such clause as he had stipulated for was ever added. On the contrary, by the second section of the act any "*specific machine or structure*," involving the invention which had been "*actually erected*" more than two years prior to the date of the application for the patent, which was January 23, 1868—that is, *more than six years* before the passage of this law—was exempted from the operation of the law. As the average duration of the plank flanges, in which this invention consists, is *three years*, this section so far as securing (according to Mr. Sawyer's intention) the rights of Wisconsin parties then using it in the invention itself, is entirely useless.

The final haste and manifest ignorance with which this important act

was passed, appear from attention to the following circumstances. President Grant was inaugurated for the second time June 9, 1872. When the senate reassembled the following morning, and fifteen minutes before its long adjournment *sine die*, it was moved and carried that the committee on patents be dischanged from the further consideration of bill 624.

The bill was then read a third time, passed, and sent to the president who signed it that afternoon. Such is the history of legislation by which it is proposed to collect for the next seventeen years for the benefit of one logging company in Wisconsin a heavy royalty out of every other logger in the United States who has occasion to use this ancient and indispensible device for sheering booms. This was the second step towards the establishment of this monopoly.

After the passage of this act demands for royalties were made, and in June 1872 a bill in equity was filed by the patentees in the circuit court of the United States for the western district of Wisconsin pleading this act of congress in connection with the patent which it confirms, claiming damages for the past infringement and an injunction against the further use of the patented device. The royalty now demanded is twenty-five cents per thousand feet. The boom used by the company that has been sued, at Round Hill, passed 120,000,000 feet of logs during 1873; the royalty, at the rate given, being $30,000 at this one point. The Mississippi River Logging Company, alone, ran past this boom—in 1871, 34,619,280 feet, in 1872, 51,514,304 feet, and in 1873, 70,942,707 feet; making a total for those years of, 157,076,291 feet, upon which the royalty demanded of twenty-five cents per thousand feet is $39,269.07.

The Mississippi River Logging Company lease of the Beef Slough Company, which latter company, prior to 1868, had expended over $50,000, and prior to June, 1870, over $100,000 in preparing their rafting grounds and for necessary real estate to carry on their business. The former company has a capital of $1,000,000; and used in 1870 and 1871 in their business $300,000 each year, and in 1872 and 1873, upwards of $600,000 each year. Its members now own the charter and works of the Beef Slough Company, and are largely engaged in the lumbering business at Winona, La Crosse, Lansing, Clinton, Moline, Rock Island, Davenport, Dubuque, St. Louis, and most of the river towns between Winona and St. Louis. The parties interested reside and do business in Michigan, Illinois, Iowa, Missouri, Wisconsin and Minnesota.

Mr. Cottrill, instead of resorting to the courts and subjecting his clients to years of expensive litigation to have this act of congress overruled as unconstitutional, has appealed directly to congress to repeal the law or to modify it so far as the vested rights of his clients are concerned. Mr. Sawyer, who seems to have been frightened at the results of his excessive shrewdness, has accordingly introduced during the present session the two following bills:

In the house of representatives, January 20, 1874, Mr. Sawyer, on leave, introduced the following bill, which was read twice, referred to the committee on patents, and ordered to be printed.

To repeal the act entitled "An act confirming and

extending a patent right to Levi W. Pond and Eau Claire Lumber Company," approved June tenth, eighteen hundred and seventy-two.

Be it enacted by the senate and house of representatives of the United States of America in congress assembled, that the act entitled "An act confirming and extending a patent right to Levi W. Pond and Eau Claire Lumber Company," approved June tenth, eighteen hundred and seventy-two, be, and the same is hereby, repealed.

In the house of representatives, January 20, 1874. Mr. Sawyer, on leave, introduced the following bill which was read twice, referred to the committee on patents, and ordered to be printed.

To amend the act entitled "An act confirming and extending a patent right to Levi W. Pond and Eau Claire Lumber Company," approved June tenth, eighteen hundred and seventy-two.

Be it enacted by the senate and house of representatives of the United States of America in congress assembled, that the second section of the act entitled "An act confirming and extending a patent right to Levi W. Pond and Eau Claire Lumber Company," approved June tenth, eighteen hundred and seventy-two, be, and the same is hereby, amended so as to read as follows:

"SEC. 2. That any person who, prior to the date of the approval of this act, bona fide had used, erected, or constructed any machine or structure and thereby had put in use said invention, or any substantial part thereof, in any of its modifications, shall have the right to continue to use said invention in all respects as though this act had not been passed, without liability to damages, or otherwise, by reason of such prior use, erection, or construction."

Mr. Cottrill argued the case before the committee on patents of the senate on the 22d, and of the house on the 23d of last January. He has just prepared a statement of facts for the use of members of congress which proves by annexed affidavits that this method of sheering booms was in use prior to the date of plaintiff's application for a patent, as follows:

			Affidavit of
At mouth O'Neil's Creek, Wis.,	1852,	James	Perry.
Squaw Creek Eddy,	" 1861,		"
Boonville,	" 1865,		"
Little Falls,	" 1862,		"
Mouth O'Neil's Creek,	" 1852,	Jacob Spaulding	
Black River Falls,	" 1852,		"
Lewis Island,	" 1852,		"
Melrose,	" 1852,		"
Amsterdam,	" 1864,		"
Half Moon Lake,	" 1859 or 1860,	D. Shaw.	
Chippewa Falls,	" 1860,	James Taylor.	
do do	" 1862,	"	
Half Moon Lake,	" 1860,	"	
Lafayette Mills,	" 1864,	"	
Wilkins' Island,	" 1866,	G. A. Buffington.	
Round Hill,	" 1868,	"	
Half Moon Lake,	" 1860,	"	
do do	" 1860,	John Barron.	
Chippewa Falls,	" 1860,	"	
Blue Mills,	" 1867,	"	
Half Moon Lake,	" 1860,	E. S. Chase.	
Gravel Island Mill,	" 1860,	"	
Porter & Moon's Mill,	" 1867,	"	
Wilkin's Island,	" 1868,	"	
Round Hill,	" 1868,	"	
Brunswick,	" 1863 or 1864,	G. E. Porter	
Gravel Island,	" 1860,	"	
Chippewa Falls,	" 1862,	"	
Round Hill,	" 1868,	"	
Blue Mills,	" 1867,	"	
Lafayette Mills,	" 1866,	"	

In the statement of facts which we have quoted, as above, Messrs Prentiss and Cottrill submit that "the act of congress is without a parallel in legislation." "Congress," it is argued:

"Under the constitution, has the undoubted power to grant a patent directly, should it see fit. But we find no case where that has been done. Its policy has been to provide general laws regulating the manner of applying for, and the granting of them; and regulating the defences that may be made to them, so that not merely the inventor, but the public as well, may be protected. It has sought both to secure the inventor, but not less to guard the public. It has frequently granted extensions of patents, after they had once been extended under the general laws; and even where the time to secure the extension had been allowed to lapse on the ground that the inventor had not been adequately remunerated. But in all these last class of cases, it has always been careful to protect the rights of those who had put the invention in use after it had become open to the public."

"The act in question takes away the defence that the patented device had been in public use since 1852, and clothes this patent with a panoply which the general patent laws do not afford. It makes this alleged patent an exception to every other that has ever been granted. It gives a monopoly for a thing that for twenty years has been in common use. As well and as properly might congress select any article in common use as a flat-iron, a common horse-shoe or any other ordinary article—and vest an individual not only with a monopoly in it for seventeen years, but may date it back

not merely two years as in this case, but further even.

The applicants for the legislation proposed, respectfully ask that the act of 1872 be repealed. This will remit the patentees to their rights under the patent. If they have a monopoly and rights under that, the courts will protect them, and have adequate power and jurisdiction to that end. If they have no rights under this patent as against the public under the general laws, they should have none by special enactment of congress. The policy of congressional legislation is to prove general laws, under which all may come; not special acts which give monopolies at the expense of the public."

The interests of Wisconsin lumbermen generally, it will be seen, would be well enough served by the passage of the second of Mr. Sawyer's bills.

The interests of loggers in all sections of the United States urgently require the passage of the former of these bills and the repeal of the act of special legislation, which was passed through the ignorance of congress and the ignorance or adroitness of Senator Carpenter, contrary to all precedent and custom of congress, and which wrests away the rights of the many for the benefit of a few contrary to the constitution and patent laws and common law of the United States.

NOTICE TO READERS.

We shall thank every person to whom this number of the WISCONSIN LUMBERMAN comes, no matter in what section of the country he may be, to forward us a correct list of the lumber dealers and manufacturers of his vicinity, distinguishing between dealer and manufacturer.

IRON ORE FROM THE PENOKA RANGE.

From the Milwaukee Journal of Commerce.

Capt. Rich, formerly of the Wisconsin Central engineer corps, now with the La Pointe Iron Co., arrived in Milwaukee Monday noon, direct from Ashland via the Wisconsin Central, bringing with him several fine specimens of magnetic iron ore fresh from the mines now being developed by the La Pointe Iron Co. Within one half mile of the Wisconsin Central railroad, on section 15 of T. 44, R. 3 west, is the locality where the La Pointe Iron Company have sunk a 10x16 foot shaft, and already, having dug 18 feet through the loose sand and gravel drift, have struck a vein of very rich ore from twenty to thirty feet in width. A few tons of the ore, taken from the surface, will yield at least 55 per cent. pure iron, while 65 and even 70 per cent. "specimens," are common. Specimens of the ore from the mines of the La Pointe Company are so strongly magnetic as to represent perfectly both the magnetic poles, and will attract or repel the compass needle held at a distance of six or eight inches. There is no longer doubt that the Penoka Iron Range is rich in valuable magnetic ore, and it is safe to predict that northern Wisconsin will soon become a rival of the peninsula of Michigan in its production of iron ore.

FROM THE WOODS.

Lumbering on the Willow River, Wisconsin —A Dollar and a Half Railroad Organized.

Correspondence Hudson Star and Times.

CAMP, Feb. 18, 1874.

I hope a letter from Willow River will prove acceptable, especially as many of your readers are interested in our logging operations. Besides the better part of the winter must now be over, and I am able to give a tolerably accurate estimate of what will be done the present winter on this noted stream. Beginning with the camps further down stream, and working our way up; we have first to note Mr. Simeon Jones, who is putting in logs for Comstock & Dennison, where Captain Page first began to lumber on Willow river, known as the "North Fork," who will get in about fifty thousand. Mr. Jacobs is landing his logs at the old "tie camp," and has in about 800,000 at the present writing.

Mr. Jewell has some 200,000 landed at

the same place. George Harrington, known as the "irrepressible George," is banking logs for the firm of Isman & Staples at the high landing, and will get in about 900,000.

S. A. Jewett will get in 1,500,000 if the winter holds good until the middle of March. Your honorable correspondent comes next, and should the sleighing last as long as usual we expect three million by the time the drive begins.

Mr. Orrin Greaton is the last on the list, and will get in pretty close to a million feet, making a total of 7,500,000, much less than the usual quantity. The character of the winter has added greatly to the expected amount.

In all my lumbering experience, I have never known such magnificent roads as the present winter. Once on the main road no one can tell whether his load is heavy or light by the appearance of his team. I would take more time, and try to get up a better letter, but just now I am busily engaged in organizing a company to construct the railroad to Bayfield. We organized only two weeks ago, and already we have $1.50 subscribed. The only trouble is that all the stock subscribed for is in the very questionable shape of orders on your humble servant; do you think the First National would discount our paper for us? We have an unexceptionable list of officers, as the public will certainly allow when I mention their names. I am, of course, president; John Norway, vice-president; William Hurde, treasurer; and T. Beal, Pinkey Hardy and Hank Courtwright, directors.

You will observe Mr. Editor that our capital exceeds that of the Wisconsin railroad company by one third of our entire capital and one half of theirs.

This I think should be sufficient evidence in the mind of any unprejudiced person that our company should have the precedence even had we no other claim to superiority. But just look at the innumerable advantage we have in the character of our officials. Surely no one would have the effrontery to compare those Chippewa Valley fellows to the names on our list, of which I have the honor to be chief. I hope to secure the powerful influence of the *True Republican* in securing the passage of our bill, we have this hope in the name we have given our company, which is the "How not to build it, Baldwin Defeating and Hating company."

MICHIGAN LUMBER.

Summary Statement of the Lumber Cut of Michigan During 1873.

From reports received from various parts of the state, we compile the following, showing the lumber cut of Michigan during the season of 1873. The figures in most cases are official, and in instances where we have been compelled to make our own estimates, generally based on knowledge of the surroundings, we have been careful that the figures should be low, rather than too high:

EASTERN MICHIGAN.	
Saginaw Valley, shore and district	1,103,660,286
Huron county	58,000,000
Sanilac county	25,280,000
Tuscola county	14,800,000
Lapeer county	38,000,000
St. Clair county	56,000,000
Detroit	44,138,000
Other points	12,000,000
Total Eastern Michigan	1,351,878,286
WESTERN MICHIGAN.	
Muskegon	329,688,825
White Lake	88,579,468
Peniwater	16,744,817
Ludington	83,670,191
Frankfort	7,800,000
Manistee	183,245,071
Grand Haven and vicinity	118,535,000
Grand Rapids	68,696,387
Big Rapids	20,000,000
Newago	125,000,000
Saugatuck	65,000,000
Ford River	18,600,000
Grand Traverse, Van Buren and other points not included in the above	80,000,000
Total Western Michigan	1,205,559,739
UPPER PENINSULA.	
Menominee	123,913,002
Other Points	10,000,000
Total Upper Peninsula	133,913,002
MISCELLANEOUS.	
Railroad and interior mills not included above	175,000,000
RECAPITULATION.	
Eastern Michigan	1,351,878,286
Western Michigan	1,205,559,739
Upper Peninsula	133,913,002
Railroad and interior	175,000,000
Total for State	2,866,351,027

If the lumber cut into shingles was reduced to feet, it would bring the aggregate to very nearly three billion feet of lumber.—*East Saginaw (Mich.) Courier.*

Mr. Charley Single, proprietor of the Forest City House and one of the leading citizens of Wausau, and Mr. William Mitchell, of Stevens Point, were prominent attendants this week at John Nazro's shelf-hardware matinee.

AMOUNT OF LUMBER HANDLED AT DETROIT, SANDUSKY AND ERIE DURING 1873.

According to a statement published by the *Tribune* the amount of lumber handled in the Detroit market during 1873 was as follows. Leveral of the dealers manufacture larger at other points handling possibly more lumber elsewhere than in Detroit. Such operations are not included in the aggregates reported:

	Lumber.	Lath.	Shingles.
H. A. & S. Wight...	7,000,000	1,725,000	1,400,000
†Hugh Moffatt.....	6,000,000	.....	.....
Pitts & Cranage....	7,000,000	2,250,000	.....
Ives, Green & Co...	10,000,000	2,000,000	.....
E. G. Allen.....	2,000,000	200,000	300,000
Martin Klein.....	2,000,000	.....	.....
R. C. Faulcener & Co.....	4,000,000	200,000	150,000
D. A. Ross & Co.....	12,000,000	3,000,000	3,000,000
H. H. Crapot.....	7,000,000	1,000,000	2,200,000
J. F. Webber & Co..	2,000,000	500,000	400,000
John Japes.....	2,000,000	.....	100,000
A. Ross & Co.....	4,000,000	1,500,000	1,500,000
A. E. Bigelow.....	1,500,000	500,000	1,300,000
— Schneider.....	1,000,000	500,000	200,000
Geo. A. Ross & Co...	4,000,000	550,000	1,500,000
C. F. Osborne	2,500,000	300,000	300,000
A. & E. G. Webber..	500,000	.....	.....
Dingeman & Rabaut.	1,000,000	.....	.....
Backus Brothers....	8,500,000	.....	.....
Williams, Osborn & Co.....	3,500,000	250,000	4,300,000
Hubbard & King....	7,000,000	3,000,000	.....
Huff & Vandermuellen.....	7,000,000	.....	7,500,000
F. & S. Moore.....	8,000,000	2,500,000	3,000,000
Adams & Ferguson..	2,500,000	.....	1,000,000
C. F. Brooks.....	8,000,000	500,000	3,000,000
Total handled.....	120,000,000	10,475,000	30,950,000

†Estimated.

The stock of lumber, lath and shingles on hand in Detroit on or about January 1st, were as follows:

	Lumber.	Lath.	Shingles.
H. A. & S. G. Wright	2,000,000	200,000	100,000
†Hugh Moffat.....	3,000,000	300,000	.....
Pitts & Cranage.....	4,000,000	1,000,000	.....
Ives, Green & Co...	4,000,000	.....	.....
E. G. Allen.....	2,000,000	.....	300,000
Martin Klein.....	800,000	.....	.....
R. C. Faulcener & Co.....	1,000,000	200,000	100,000
D. A. Ross & Co....	2,000,000	300,000	300,000
H. H. Crapo.....	700,000	.....	200,000
J. F. Webber.....	600,000	500,000	200,000
John James.....	800,000	.....	150,000
A. Ross & Co.....	350,000	100,000	250,000
A. E. Bigelow.....	250,000	100,000	200,000
— Sneider.....	200,000	.....	100,000
Geo. A. Ross & Co..	300,000	100,000	100,000
C. F. Osborne.....	500,000	.....	.....
A. & E. G. Webber..	150,000	.....	.....
Dingman & Rabaut.	150,000	.....	.....
A. J. Stockhall.....	500,000	.....	.....
Backus Brothers....	2,000,000	.....	.....
Williams, Osborn & Co.....	1,500,000	50,000	400,000
†Hubbard & King...	1,500,000	.....	.....
Huff & Vandermuellen.....	1,000,000	.....	500,000
F. & S. Moore.....	2,000,000	100,000	.....
Adams & Ferguson.	1,500,000	.....	100,000
C. F. Brooks.....	2,000,000	100,000	100,000
Total stock in yds.	34,800,000	3,350,000	3,100,000

‡Estimated.

SANDUSKY.

Messrs. Ryan, Johnson & Co. furnish the following statement of lumber operations of the yard men and operators at Sandusky, during 1873:

RYAN, JOHNSON & CO.

	Lumber.	Shingles.	Lath.
Receipts.....	7,600,000	8,800,000	2,400,000
Sales.....	6,900,000	9,725,000	2,775,000
On hand.....	6,000,000	1,833,000	763,000

R. B. HUBBARD & CO.

Receipts.....	8,000,000	5,000,000	2,500,000
Sales.....	6,500,000	7,000,000	250,000
On hand.....	2,500,000	2,000,000	750,000

LEA & MOSS.

Receipts.....	4,000,000	2,500,000	1,250,000
Sales.....	3,250,000	3,500,000	125,000
On hand.....	1,250,000	1,000,000	375,000

E. B. AYERS.

Receipts.....	4,500,000	5,200,000	1,800,000
Sales.....	1,800,000	4,200,000	1,000,000
On hand.....	2,700,000	1,000,000	800,000

P. GILCHER & CO.

Receipts.....	4,000,000	3,000,000	1,500,000
Sales.....	2,600,000	2,000,000	1,200,000
On haud.....	2,000,000	1,000,000	300,000

THE RAILROAD.

Received by Cincinnati Sandusky & Cleveland R. R. Co.	4,261,552	605,500	2,690,000
Baltimore & Ohio R. R. Co.....	7,781,688	758,000	2,938,000

ERIE.

The receipts at Erie, (Pa.) during 1871, 1872 and 1873, were as follows:

	1871.	1872.	1873.
Lumber, ft.....	24,653,295	20,140,740	44,799,440
Lath.....	1,019,200	95,750	1,114,958
Shingles.....	4,212,000	500,000	4,712,004
Timber, round ft....	300,000	1,300,000	.....
Salt, bbls.....	16,223	12,016	.....

THE AFRICAN FOREST.—It is a popular impression that animal life abounds in the forest. But the west African forest is not a game country; elephants are met with merely in small families, not in enormous herds, as in the Minosa groves of southern Africa; a few antelopes lie about, in "forms" like hares, and as such gramivorous animals are rare, those wild beasts which prey upon them are rare also. Even birds and monkeys are seldom to be met with; one may travel for hours in the forest without hearing a sound; for days without seeing anything larger than an insect.—*London Times.*

The Illinois Central railroad company is preparing to plant European larch along its line in the spring to supply its road with ties.

ON THE BLACK RIVER.

Meeting of the Log Driving Association at Neillsville.

From the Clark Co. Republican.

The annual meeting of the Black River log driving association was the principal event in our village this week. This is a voluntary association of the Black river lumbermen, for the purpose of conducting and facilitating in common the drive of logs in the river. And this means a great deal. Not only are the logs of each member of this association driven under the direction of a few competent persons appointed to the performance of this duty, but the property of each is carefully guarded and protected against trespassers and thieves, who, if caught, are prosecuted and brought to justice. According to the custom of previous years this meeting was called for the purpose of making necessary arrangements for the coming season. We give an account of the proceedings, as follows:

The meeting was called to order at 9 o'clock in the morning by Secretary S. L. Nevins, and C. L. Colman was then elected President for the ensuing year. S. L. Nevins was re-elected Secretary and Treasurer.

The following members of the society were present and subscribed their names to the articles of association: C. L. Colman, W. T. Price, W. W. Crosby, S. L. Nevins, Jas. Hewitt, R. Weston, A. McMillan, L. Withee, N. H. Withee, D. Austin, A. E. Sawyer, S. C. Boardman, Robert Ross, John Paul, Hiram Palmer, D. J. Spaulding, H. A. Bright, M. Bump, B. B. Healey, R. Schofield and Jones Tompkins.

After reading and approving the minutes of the previous meeting the Treasurer's report was received and adopted. It shows that during the past year the total expenditures of the society amounted to $24,000. Sawyer, of the police committee, reported that $3,100 had been expended for keeping a proper guard over the river, and the prosecution of trespassers and others.

W. W. Crosby introduced a resolution requesting the improvement company to keep the channel of the river open from the Onalaska bridge to the railroad bridge near the mouth; adopted.

N. H. Withee, James Hewett and H. A. Bright were appointed driving masters.

The following committees were appointed:

Messrs. Price, Paul and Gile, to audit other than claims for driving, and to keep the channel of the river from being unnecessarily obstructed.

On finance to audit claims for driving and fix the rate of toll.

To make arrangements with D. J. Spaulding to facilitate driving through his pond.

Messrs. Crosby, D. D. McMillan and C. L. Colman to superintend log driving through the shutes above the booms.

A. E. Sawyer to employ agents to watch the river and to conduct proceedings against persons for the protection of the logs.

A resolution was adopted instructing the driving masters to do no more on the upper three divisions of the river than is necessary to keep the channel open, but from Gale's ferry down the banks to be rolled as clean as practicable.

The association pledged itself to compensate any of its agents for any injury or cost sustained by them in the performance of their duty. The meeting adjourned, subject to the call of the secretary.

A short session of the directors of the Black River Improvement Co. took place in the hall at 2 o'clock in the afternoon. About the only business transacted was the appointment of S. L. Nevins a committee of one to inspect the several booms in the river and make all needed repairs.

By an inexcusable oversight the name of the firm of J. & A. Stewart of Wausau, Wis., has been regularly omitted from our "LUMBERMEN'S REGISTER." The Stewart brothers are among the heaviest lumbering firms in the state and represent probably as extensive interests as any concern in the Wisconsin river valley. They are first clear every time, and will appear hereafter in our personal quotations.

Stevens Point, Wis., is becoming an important shipping place for the products of the Wisconsin pinery. Orders direct from Denver, Colorada, Omaha, Nebraska, and other localities of the west and southwest are frequently received and filled by Stevens Point lumber firms.

PATENTS AND IMPROVEMENTS IN THE LUMBER TRADE.

For the week ending January 13th:

Patents issued for the week ending Jan. 13th, included the following:

For machine for gumming saws, to Thomas S. Jackson, La Grange, Texas. The horizontal portion of the stand is slotted lengthwise, and is adjustably attached to the bed-plate by set-screw through the slot. There is an arm adjustable perpendicularly and axially in the hollow upright portion of the stand.

For lumber drier, to Horace E. Wells, Van Wert, Ohio. In order to equalize the draft, the orifices may be either of unequal sizes or at unequal distances.

For planing machine, to Solomon A. Woods, Boston, Mass. A flexible chip-breaker is employed in connection with a pressure-roll and bar.

For mitering machine, to John Henry Rowland, Denver, Colorado. The claim is, for the combination of a bed, saw and plane guide and adjustable stops for sawing and smoothing miters; 2, for the work-table, jointed to the bed, also the saw and plane guide and the fastening screws.

For the week ending January 20th:

For bench plane, to Henry H. Gatley, south Boston, Mass. The cutting bit is adjusted by a screw and the cap iron is regulated by a clamp screw.

For boring and tenoning machine, to Amos H. Gettel, Lebanon, Pa. Tenons may be cut and holes bored at any angle.

For saw jointer, to Horton Barron, Eau Claire, Wis. This patent claims—1. In a saw-jointer, the combination of bed-piece, affording two guides, the vertically adjustable file-holder and a swinging and sliding standard.

2. A file-holder, in combination with a swinging slide, consisting of a standard with hinging eyes and pendent post.

2. The bed piece of the file holder, constructed with guides, flanges, and stay-strip, as set forth.

4. The file-holder, with a T-shaped groove, tubular extension, and screws, in combination with the pendent post standard, hinging eyes as set forth.

For lath machine, to James Allen, Allegany, Mich. Self adjusting gages are placed in front of the saws and narrow guides in their rear, which preserve the parallelism of the laths after they have passed the saw.

For device for swaging saw teeth, to Eckford Buell, Columbus, Ohio. A metal casting having a slot cut through its under side, and so formed that its upper portion will rest upon the top of the tooth. A set screw serves to regulate the pitch of the teeth upon the anvil. Said anvil is formed with rounding and flat surfaces, for the purpose of making the under side of the teeth concave.

For saw-mandrel, to George W. Bugbee, of Cincinnati, Ohio. A device for adjusting the saw centrally is applied to the saw-mandrel, as well as an adjustable pin for holding the saw in position during the operation of filing.

For saw filing machine, to Michael S. Brewer, Phelps County, Mo. The claim is for—1. A hand-hold provided with slot, in combination with a vertically adjustable file-holder and pressure-stem, inclosed by said hand-hold for joint operation.

2. The combination, with a saw-filing device having a feed movement over and upon the points of the teeth, of a glass bearing-surface.

The file-holder fitted within guides in a slide for movement vertically therein, in combination with a pivoted open way-bar, between which the slide and the file holder are arranged for operation.

4. A pawl, in combination with stem and frame, whereby the feed of said frame is effected automatically, by force applied to the pressure-stem, to straighten the pawl and force back the frame.

5. A thumb device, in combination with the stop and handle of the file holder.

6. A pressure thumb-knob and the gage-stop, in combination with the feeding-pawl.

For the week ending January 27:

For handle for crosscut-saws, to William Clemson, Middletown, N. Y. The handle is allowed to project beneath its attachments to the saw, so as to form an additional hand-hold beneath and in line with the saw.

For sawing-machine, to Harvey Morey and Samuel H. Bellah, Cameron, Texas. The gearing, which gives motion to the saw, is inclosed in a box, which also furnishes a place of deposit for the tools necessary to the working of the machine.

For stave-jointer, to James C. Moore, Curdsville, Ky. The staves are placed between clamping-jaws provided with adjustable guide-rails, which control the movements of the cutting-tool during the operation of jointing.

For the week ending February 3d:

For saw-sharpening machine, to Daniel H. Iseminger, Heyworth, Ill. The spring-stop, attached to the gage-plate, is connected to the hinged file-holder, and released when the said holder is tilted.

For screw-driver, to George P. Loomis, Utica, N. Y. A double pawl, having a projecting arm, is operated in the slot to turn the driver-blade in either direction.

For lathe for turning wood, to Joseph Beaudry, Ottawa, Canada. The articles to be turned are secured between centres placed near the periphrey of two revolting disks, and are operated upon by a rotation cutter.

For machine for gluing moldings, to J. Harwer Brown, Buffalo, N. Y. The pieces to be glued are passed between rollers. The glue is supplied from a hopper.

For log-turner for saw-mills to George H. Shearer, Bay City, Mich. The lower end of the turning-bar is pivoted to and guided by radius rods, and the friction-pulley upon the chain-shaft is so arranged as to be thrown out of gear with the driving-pulley, and into contact with a stationary brake, by a single movement of the controlling-lever.

LUMBER SHIPMENTS FROM GRAND RAPIDS MICH.

During the month of January the shipments of lumber show a large increase over the closing month of last year, and for the past fifteen days of this month the G. R. & I. R. R. has averaged fifty cars per day. The following table shows the shipments over that road for the first month of 1874:

Fort Wayne	100
Avilla	2
Kendallville	2
Sturgis	7
Nottawa	1
Mendon	1
Vicksburgh	37
Kalamazoo	55
Plainwell	1
Chicago	7
Alleghany	10
Pittsburg	12
Geneva	1
Ridgeville	34
Winchester	8
Richmond	111
Cincinnati	63
Hamilton	15
Eaton	3
Jones	1
Carthage	1
Cummingsville	23
Brighton	21
Clark & Co	9
Total	534

—*Democrat.*

THE SITUATION IN MICHIGAN.

Early Thaw and a Short Crop—The Manufacturing Capacity of Manistee—Wisconsin Lumbermen Called on to Co-operate with the Michigan Convention of Pine Land Owners.

Special Correspondence Wisconsin Lumberman.

MANISTEE, Mich., March 3, 1874.

EDITORS WISCONSIN LUMBERMAN:—It is some time since I corresponded with your paper, but on account of being to busy in the woods I had no time. Now I wish to let you know some facts in regard to the lumber interests at this point.

Up to December 27th last fall we had little or no sleighing. Since then we have had fair sleighing until the first of March when a general thaw set in and now the sleighing is completely broken up. Men and teams are coming down from the woods to-day in large numbers, and contractors are generally from 10 to 20 per cent short of having their contracts filled even as small as they were this year; for only ⅔ the amount had been contracted for last fall, of what had been done the year before. The above will show that the supply of lumber from this place will be considerably less than what it was last season. Although Manistee has the advantage over many other lumbering places. For if lumber should bring a renumerative price, logging can be done here in summer to good advantage as the Manistee river can be driven all summer, logs never hang up on account of low water. Mills are generally being repaired and got ready for another season's work, and if this state of weather keeps on they will start much earlier this year than last.

Two new shingle mills have been built at this place this winter, with three old ones that were here, gives this place five shingle mills, five picket and lath mills, nineteen saw mills which will all be in good running order in three or four weeks and can turn out 250,000,000 feet of lumber in a season, when run to their full capacity, but as they generally have only one-half stock this year they will run to that extend unless the price of lumber improves considerably so as to make it an object for summer logging.

A meeting is called at Lansing on the 10th of March of the representative pine land owners in the state of Michigan, to establish a permanent organization and to take such steps as shall unite them and secure concert of action for the future. This is a step in the right direction, now if the Wisconsin lumbermen will join hands with us, much good can result from this movement.

Yours,

F. W. H.

STEVENS POINT, WISCONSIN.

From the Mauston Star.

The city of possibilities is Stevens Point. Located at, almost, the geographical center of the state, with water privileges unequalled and railroad communications completed and in course of construction equal to those of any other point, its business and population must soon make it the leading and most important interior point in Wisconsin.

A recent visit to the Point gave us new and enlarged ideas of its advantages as a city. We found it had a population of 3,500 which is fast increasing, it has six churches, well conducted schools, three banks, seven hotels, five very large steam saw mills, one water power saw mill, a grist mill. three steam shingle mills, with other manufactories, carriage shops, lathes, &c., &c., in proportion.

The leading hotel is the Curran House, Henry and J. D. Curran proprietors. It is one of the most popular hotels in the country. Its guests are always cared for as only attentive landlords can and do care for guests and all who have once enjoyed its hospitalities return to its rooms whenever business or pleasure call them to the Point.

The citizens have recently engaged in an enterprise that promises great results and an enormous increase to the business and population of the place. We allude to the organization of the Stevens Point Boom Company. * By the kindness of Henry Curran, who took us up the river behind his well known trotting stallion "Dan," we had a fine view of the work done by this company. Although the work was commenced but a year ago, the company already has safe boomage for about 50,000,000 feet of logs which can and will be very largely increased. The booms and peirs are located in slack water in a bend of the river nearly two miles long and about 300 feet wide, it seems, and experienced men claim, that neither ice nor freshets can ever disturb the stock. Lumbermen have already shown their appreciation of the value of this work and have nearly completed no less than four steam saw mills of the largest capacity. They will all be ready for operation as soon as the river opens. These mills are being erected by the following firms: Weston & Sons, Cronkhite, Davis & Plummer, Karner & Stevens, and the Knox Brothers; the estimated capacity of each mill is 80,000 feet per day. Knox Brothers are also erecting a large shingle mill as are also Cronkhite, Davis & Co. When we estimate the amount of capital that will be required to operate the great wood butcheries, the number of men that will be there employed and these great addition they must make to the population and business of the city all will appreciate the value of the Stevens Point Boom.

The Wisconsin Central railroad is adding largely to the business of the place. Its machine shops are located here and are to be enlarged this spring. The line of this road runs through some of the finest timber lands in the state and lumber is being moved as fast as the company can furnish transportation, the great drawback being the lack of cars. This the company promises to remedy as fast as cars can be manufactured.

* [This boom already has capacity for 80,000,000 feet. There are eleven saw mills really tributary to Stevens Point, instead of four. All but one of those here named were in operation last season.—Editors WISCONSIN LUMBERMAN.]

THE WINTER'S LOGGING ON THE BLACK RIVER.

Total Product not to exceed 125,000,000—350,000,000 the cut of 1872—Logging done Cheaper this Winter by $1.00 per thousand, than in any Previous Season.

From the Clark County Republican.

In consulting with some of the leading lumbermen who were in attendance at their meeting here the other day, we are enabled to make a pretty close estimate on the amount of this winter's operations in the woods. The total log product will be about 100,000,000 or 125,000,000 feet, according to the length of the season. Our statements heretofore that this winter's business would be much smaller than usual, will be found verified in a comparison with the operations of the two previous years:

	No. Feet.
Logs cut in 1872	350,000,000
" 1873	250,000,000
" 1874 not to exceed	125,000,000

It is well known that a good stock of old logs are in the river, but there is not an unusual quantity. By referring to the proceedings of the lumbermen's meeting it will be noticed that a clean drive is not intended to be made above Gale's ferry. This is for the purpose of not overstocking the market. The weather during the winter on the whole was never more propitious for logging opera-

tions. One lumberman remarked that the weather "had been provokingly pleasant." Nearly all have practised more economy, and have been largely aided by the low price of hay and other commodities, besides a decrease in wages. We were informed by a lumberman that what cost him $3.30 last winter, he was getting done this season for $2.10. On an average it is thought logging has been done one dollar on a thousand feet cheaper than any previous year. Although the limited amount of business on the river, together with the hard times financially, has had a very depressing effect upon all business enterprises in our midst, the success that has attended all efforts gives hopes that a new and brighter era will dawn when the logs go down—for which we all most fervently pray.

LUMBER.

The Trade In Northwestern Wisconsin—Proposed Organization of Dealers to Regulate Prices.

From the Chicago Tribune.

EAU CLAIRE, WIS., Feb. 17.

Gentlemen interested in the lumber trade in the northwestern part of this state have been in the city of Eau Claire, consulting with our lumbermen on the subject of organizing a lumbermen's association for the purpose of collecting statistics of stocks on hand, the capacity of streams, and the extent of operations planned, in different quarters of the state, with a view to regulating the lumber supply so as not to allow it to outstrip the demand. It has been found that the interest in Wisconsin is suffering from a disorganized system of operations, and, in spite of the dull prospects, during the fall and early winter, there are probabilities that the spring will find lumbermen surprised to see a great many millions more of logs in the streams of northwestern Wisconsin than they had any intention of putting in. Something must be done, and it is hoped to effect an organization during the spring. The present consultation has reference to the propriety of attempting to include the whole lumbering region of the northwest, or whether the whole of Wisconsin alone, or only that part of it immediately tributary to the Mississippi river.

While the local trade in the lumber districts has seldom been better than now, the prospects from the lower Mississippi are not yet flattering, and the stock of logs on the Black, Eau Claire, Chippewa, Menominee and St. Croix rivers, is now figured up to an amount nearly equal to that of last year.

PRESERVATION OF FORESTS.

From the New York Spectator.

The American association for the advancement of science have prepared a bill to be introduced into congress, having reference to the care and preservation of our forests, and the cultivation of timber, and advising the creation of a commission of foresting, to be appointed by the president. The necessity for some legislation in behalf of our forest trees has been long manifest, the terrible drain upon our timber threatening to denude the country of its trees within the present generation. Mr. Marsh has shown the evil results to climate and soil of the destruction of timber, and a very good illustration of its effects is offered in the case of Nantucket island, which was once covered with forests, but does not now support a tree six feet high. The need of timber for the uses of manufactures and construction has increased enormously with our growth in population and trade, and the quantity employed for railroad ties alone is positively appalling. In transmitting to the senate and house of representatives a memorial upon this important subject, accompanied by the bill alluded to above, the president has added to these, communications from the secretary of the interior and the commissioner of the general land office, upon the same topic, heartily approving of the propositions involved. Possessed of these documents, and, doubtless, of all the necessary statistics in the premises, it is greatly to be desired, and for the interest of the country that the necessary legislation should take place; and that, in so far as is possible, the timber of the country, and certainly that which grows on government lands, should be preserved and protected. The idea of a "commission of foresting" is an excellent one, and a romantic one withal, leading us back in imagination to the day of Robin Hood and the ancient foresters of England, and suggesting immediately the classic tales of dryads or wood-nymphs, and the weird story of Herne, the hunter.

THE DESTRUCTION OF THE FORESTS.

The *Philadelphia North American* has the following remarks concerning the "Forest Panic," which is now a prominent topic in the press of the country, as well as the press of the lumber trade:

Some writers connected with the leather and lumber interests constantly ply the press with panicky paragraphs about the waste of the forests, the enormous destruction of trees, and the danger of the exhaustion of the supply. Just now a fresh start has been given to this sort of thing by a newspaper alarm about what is called the danger of a hemlock famine. Bark is the essential element in tanning, and the production of hides and leather having risen to colossal proportions in the United States, the usual exaggerated stories are put in circulation as to the enormous destruction of forests. As to the dependence to be placed on such things, a single statement in the *Shoe and Leather Reporter* will serve to illustrate the subject. It is that in "the western part of Pennsylvania alone there will be found hemlock forests large enough in extent to supply the needs of the tanning interests of the whole country for fifty years to come, leaving out of the question the discovery of new tanning agents. Yet this is only one region, and in Maine, New York, Michigan, Wisconsin, Minnesota, Virginia, West Virginia, Kentucky and Tennessee there are immense forests of oak and hemlock." The *Reporter* properly observes: "We do not believe in the total annihilation of our pine, spruce and hemlock forests within a hundred years, unless some more destructive agent than the legitimate uses of lumbering and tanning sweeps them off;" and it adds what many writers forget, that "the benefits derived from the pioneering proclivities of tanners are of more importance to the nation in clearing and bringing into cultivation of vast districts of the country, otherwise comparatively useless, than the injury done to the forests would amount to."

AN IDEA FOR TEAMSTERS.

A great deal of labor and hard tugging may be saved if every wagon or truck is provided with one hundred feet of stout rope and a single pulley. A snatch block is the best arranged with a strong hook, and the usual construction for slipping the tight of the rope under the strap to the sheave instead of waiting to reeve the line through on end. If a wagon gets stuck in heavy mud or in the snow, the driver has only to fasten his block to the tongue, reeve the rope through it, and attach one end to a tree or post and let his team pull on the other. Their work is of course just halved, or rathar they bring twice as much power to bear in dragging the wagon clear. There are plenty of other applications for this simple device, which will readily suggest themselves. With a couple of skids for an inclined plane, heavy logs could easily be drawn on a sleigh by the unhitched team. Another case where it is likely to be useful is when loaded sleighs attempt to cross a wooden bridge. Although the horses draw the load very easily over the snow, they are often unable to start it over the generally denuded wooden flooring of the bridge, and hence would be materially aided by the tackle hitched on as we have described. —*Scientific American.*

THE PRESERVATION OF TIMBER.

Correspondence of the Scientific American

I came here thirty years since, and began clearing land and building houses with hewn logs and boards split from the tree. After several years' residence I noticed very often that pieces of the same kind of timber decayed more quickly than others; and after much thought and observation, I came to the conclusion that timber felled after the leaf was fully grown lasted the longest. I noticed that timber felled after the leaf first commenced to grow rotted the sap off very quickly, but the heart remained sound; that timber felled after the fall of the leaf rotted in the heart, even when apparently sound on the outside. When firewood cut in the winter was put on the fire, the sap came out of the heart; but when cut in the summer, the sap came out of the sap-wood and next the bark. I noticed also that all our lasting wood had but little sap at any time in the heart; such as cedar, mulberry, sassafras and cypress.

A cypress post cut in the summer of 1838 is still sound, although exposed to all weathers, while one of the same kind of timber, cut in the winter of 1856 and painted, has rotted in the heart. I saw yesterday a piece of gum plank, which I sawed in the summer of 1859, that has been exposed ever since, and is perfectly sound; white oak timber that was felled in the winter before is now entirely rotten. My conclusion is: Cut timber after

full leaf, say in July and August, to get the most last from it. The sap goes into the heart of tne tree after leaf fall, and causes decay. JAMES A. MOORE

THE TIMBER OF THE PACIFIC COAST.

From the Sacramento Record.

It is well known to those who have taken any pains to obtain correct information upon the subject that the Pacific coast, including both North and South America, was originally much less evenly timbered than the Atlantic coast of the same countries. That south of the gulf of California there is comparatively no timber of any acconnt immediately on the coast. That the timber on the coast of this state does not grow to any size south of Santa Cruz county, but increases as you go north. So also in the Sierra Nevada mountains, south of El Dorado county, the timber belt is very much broken and the quantity of good timber is comparitively light. As you go north from El Dorado, the timber becomes more even and dense. And from Los Angelos to the head of the Sacramento valley, the whole interior of the state is almost one treeless plain. The rivers are, or were, bordered with a narrow strip of low growing scrub oak, willow and ash of but little value except for firewood. They have been of no value for timber purposes. The northern portion of California, Oregon and Washington territory are what may be termed good timber countries. But the timber of these countries is confined to a few varieties; mostly pines, redwood, cedar and fir. No hard wood timber of any account is found. The Atlantic slope on the contrary, including nearly all the useful varieties of soft and hard wood known in the world. We think it quite within bounds to say that from the equator north as far as the United States' possessions extend, the Atlantic slope originally contained ten times as much timber as the Pacific slope extending to the same summit. Although the settlement of the Atlantic slope commenced about four hundred years ago, the consumption of timber, except for firewood, did not commence to any extent until after the revolution, about one century since. A committee of intelligent gentlemen have lately been looking into the timber business of the Atlantic slope of the United States, and have come to the conclusion that with the rate of consumption necessary to supply the wants of the country, the great forests of the west will be consumed within the period of five years. That whole slope will then have used up her original supply of timber, and will be compelled to fall back on the timber of second growth, and this will go down almost like prairie grass before a devouring fire. In view of these facts of history, and in view of the comparatively limited extent of the timber on the Pacific coast, and the much more rapid consumption here than there in proportion to population, it becomes an interesting and very important question how long our timber on the Pacific coast will hold out. The State Board of Agriculture, in 1871, investigated this subject pretty thoroughly as to the timber in this state. In their report for that year they state their conclusions in the following language:

"It is now but about twenty-two years since the consumption of timber and lumber commenced in California, and according to a careful estimate of those best acquainted with the subject, at least one-third of all accessible timber of value growing in the state is already consumed or destroyed. We have but just commenced the great work of internal improvement, such as the building of railroads, bridges, warehouses, wharves, factories, bulkheads, timbering mines, etc., and in the twenty-two years to come we shall require for such purposes ten times as much timber as we have used in that period of the past." To show that sagacious business men, both on the Atlantic and Pacific slopes, are acting upon the views above set forth, as to the rapid consumption and conseqent value of timber, we have only to state that accessible timbered land is greatly sought for, and is rapidly rising in value, that this kind of land has more than doubled in value in the Mississippi states in the past two years.

THE WISCONSIN LUMBERMAN.

Being absent from home on the arrival of the February number of this sterling publication, we have until now neglected to notice it. "Excelsior" is practically if not theoretically its motto, for it continues to grow better and better and more elevated. As an exponent of the lumber interests of the northwest, it is far in advance of all periodicals of its class, and is indispensable for all who are interested in lumber trade or manufacture. It costs only $2, a year. Send to Milwaukee and get it at once.—*Marinette and Peshtigo Eagle.*

THE SCIENCE OF FORESTRY IN AMERICA.

Remarks of Col. D. A. Robertson, of St. Paul, on the Subject Before the Farmers' Club of the American Institute in New York City.

The northern temperate zone is the region of man's highest development, because it is there his power over nature to improve or injure, to create or destroy, is greatest; and it is in this zone of extreme temperatures, that his physical and intellectual enjoyments most depend upon a wise use of his capacity and opportunities. It is in this zone man has shown his greatest power over the vegetable kingdom, by producing from plants, of little or no value for food, our most palatable and nutritious fruits and vegetables; and from other wild plants, the staples of the fabrics most essential to the needs of our highest civilization. In the tropical regions, nature overpowers man, but, at the same time, provides him with every need of physical enjoyment, exacting in return, little other labor than that of gathering nature's bountiful crops, which fall into his hands like gifts from Heaven. Not so in this temperate zone, where man is vouchsafed his highest development and greatest recompense, only on condition that he shall work for it, earn it; that he shall be the architect of his own fortunes, and, failing to improve nature, that he shall be punished by want, causing him to sink into the lowest depths of human degredation. That this is true we learn from the history of the oldest nations, which, after having improved nature most, and compelled the earth to yield its largest increase, thereby sustaining great rural populations and magnificent cities, opulent in various industries, disappeared long ages ago, not on account of wars, but because the earth had ceased to yield remunerative crops. The actual causes of this loss of fertility and national decay are now known to have been the exhaustion of soils by improvident agriculture, accompanied by

THE DESTRUCTION OF FORESTS

followed, as a natural consequence, by the failure of natural grasses and remunerative field crops. History, enlightened by science, teaches that where agriculture once flourished, in Palestine, and other parts of Syria and Persia, the destruction of natural forests has been succeeded by many centuries of arid and treeless deserts. Of the cedars of Lebanon, thousands of years old, seven only remain to recall the memories of the great forests of these venerable and majestic trees, which were destroyed to provide lumber for the building of Jerusalem and timber for the ships of Tyre. After this vast destruction of fertile regions in the temperate climates of Asia, the tide of human immigration poured over into Europe, and there encountered vast forests and swamps, damp climates, colder in summer and warmer in winter than now. Nearly all Europe had to be cleared of its forests, which required the hard labor of many centuries—thousands of years—before a high order of agriculture could be possible. As the summer climate of Europe became ameliorated by the clearing away of forests, the vine and other southern plants advanced to their present northern limits. In Europe as in Asia, the increase of population, mechanic arts, of cities, of ship-building, and the multiform and increasing requirements of civilization have so reduced the native forests that, notwithstanding the attention bestowed thereupon, the growing of artificial forests, the supply of timber has become quite inadequate to the demand, and the other consequences of not having enough trees, is beginning to excite among the scientists, statesmen and governments of Europe earnest solicitude and alarm. And now, looking over the surface of our own country, we see that our people and governments, state and national, are repeating upon a scale of unexampled magnitude the destruction of native forests, without making any provision whatever for their restoration.

THE GREAT PINE FORESTS

of the states of Maine, Michigan, Wisconsin and Minnesota, upon which the whole country must depend for its supply of white and Norway or red pine, are rapidly disappearing before the destroying armies of lumbermen. Formerly the younger trees, of sufficient diameter for saw logs were allowed to grow, but these are now cut in vast numbers to supply the demand for railroad ties and other purposes. If the present rate of destruction be continued for one generation longer, the great pine forests of the northeast and the northwest must almost entirely disappear. Forests of pines and firs formed a rampart, a living wall just beyond the northern boundary of profitable agriculture, the area of which will be greatly diminished by the removal of this natural protection. These evergreen trees of the north, which

preserve their natural verdure during the severest winters, not only provide the most complete wind breaks and shelters from the fierce winds of the arctic zone, but serve in some mysterious way to neutralize the effects of intense cold. The fact has been demonstrated by experiments that the firs and pines of the north are in mid-winter, several degrees warmer than decidous trees, exposed to the same low temperatures.

In the Hartz mountains, as I have been credibly informed, low-growing fir trees, there called nursing trees, are planted among the apple, cherry and other fruit trees, to nurse and protect them against the severe cold of winter, without which nursing care they could not survive. It is a most important fact, that the evergreen trees of the north are the

WIND BREAKS AND SHELTER BELTS,

provided by nature, which the people of the north cannot afford to destroy. Among other valuable qualities of the pines and firs are the health-giving odors which they exhale, making the pine forests of the north, as of the south, favorite resorts for invalids. The destruction of the sheltering forests of the north may prove to be a far greater injury to the agricultural interests of the northern states of this Union than any now suppose to be possible. Within the last six centuries the destruction of forests in their most northern latitudes has been followed by increased cold, and consequently dimished agriculture. A few centuries ago wheat was grown in Iceland, and now barley yields a poor and precarious crop. This deterioration in the agricultural capacity of Iceland followed the destruction of its birch trees, which have changed from dense forests of tall trees to low, scattering shrubs. About 600 years ago the southeastern coast of Greenland—then a greenland in fact, as well as in name—was, as we are informed, covered with herbage and forests, and enlivened by several Scandinavian villages. That whole region is now perpetually covered with fields and mountains of ice and snow. Every vestige of civilization has disappeared, the result, probably, of forest destruction; or, if not, a consequence of increasing cold in the northern portions of the earth. The acceptance of either cause for this effect should admonish the inhabitants of the northern temperate latitudes to husband their resources and strengthen their defences against the advancing march of the fierce boreal aggressor. The pine, white and red, furnishes the most important and useful lumber of the northern states.

As the demand increases the supply diminishes. The consequent enhanced price serves only to hasten the entire destruction of our pine forests. The ownership of nearly all the pine forests of the northwest has passed from the government into the possession of lumbermen and speculators who will convert them into lumber in the shortest time possible. Along the northern parts of Michigan, Wisconsin and Minnesota there is a bulwark of deciduous and coniferous forest trees, stretching from Sault St. Marie along the southern water-shed of Lake Superior and extending westward along the line of the Northern Pacific railway to the Red river of the north. That the destruction of this great wind-break and shelter-belt will inflict serious damages upon the climate and resources of the northwestern states cannot be doubted. This subject is unquestionably worthy the serious investigation of American scientists and statesmen. Nature has prepared this extensive region for the growing of forests to furnish the Mississippi valley and northwestern states with an ample supply of timber and sawed lumber. Over this extensive region the national government may yet, by retaining its lands, establish a system of

JUDICIOUS FOREST PROTECTION.

There are sandy tracts on and near the shores of Lake Superior and the lower lakes exposed to the disturbing influences of the winds and almost entirely destitute of vegetation, that might be covered with valuable pine forests, the product of which would in time reimburse the cost, besides protecting the neighboring lands and populations from the blowing sands and fierce lake winds. The pines may be successfully grown upon lands too sandy for the propagation of deciduous trees. Pine trees are nature's crop for producing chemical, mechanical, and organic changes in sandy soils necessary's to prepare them for the next crop in nature's rotation, namely, social deciduous trees and nutritious grasses, nature's handiwork, which, by such process converts barren, sandy wastes into the richest soil for growing the most valued crops of improved agriculture. That these barren, sandy wastes may be covered with pine forests, that will in resulting product and climatal

amelioration justify the cost, I have no doubt. The experiment has been successfully tried in Europe. In France, upon the coast of the Bay of Biscay, there were extensive tracts of sandy land, now known as the Landes, where the sands were blown about into drifts and dunes, causing great damage to the neighboring villages and adjacent farms. These barren wastes, entirely destitute of vegetation, have been reclaimed and covered with extensive forests of pines. This was accomplished by sowing together the seeds of the common broom and of the pine, and covering them with branches of trees and with hurdles obtained from forests in the vicinity. The rapidly growing broom overtopped and sheltered the young pines from the sun and wind, until the latter grew large enough to shade and overpower the brooms, and by their horizontally extending roots to hold the loose sand in place. The whole cost of making this pine forest was fully recompensed by the shelter it afforded to the adjacent inland districts from the fierce winds of that stormy coast, while at the same time its crops of timber, tar, pitch, rosin and turpentine affords a profit upon the original cost. There are various plants that might be substituted for the broom, to weave a matting of roots to hold the sand and shade the young pines, among which certain grasses and the blue lupen may, I think, be safely recommended. There are many tracts of blowing sand upon our northern sea-board and lake coasts, and in the interior, also, where the Landes experiment might be advantageously repeated.

THE BOIS D'ARC FOR LUMBER.—In a recent visit to northern Texas we saw large numbers of the Bois d'Arc Osage orange trees in the river valleys, and heard marvellous stories of the endurance of the wood in situations where it was much exposed to alternate moisture and drought. It was much used by the Indians for bows, and the early French *voyageurs* gave it the name of *Bois d'Arc*, or bow-wood, a name often corrupted into "Bodock." The tree grows sometimes to a diameter of two or three feet, and is sawed into lumber for wagons. It is close grained, and the tire once set upon the wheels never becomes loose until it is worn out. This is a great advantage in any climate, and would be invaluable in the almost rainless region of the plains. They tell of wagons in Texas that came in with the first emigration, and, after thirty years, are still serviceable and in good condition. The wood is also much used for fence-posts, and resists decay longer than any other wood in that region. If these claims are well founded there must be an immense demand for the lumber west of the Missouri, where wood is so scarce and where there is no hard wood at all. The forests of this wood in Texas should have protection by law, and it should be more estensively planted in the northern states as a timber tree.—*Ex.*

FOREST TREES AND CULTURE.

The *Lincoln* (Neb.) *Ledger* gives the results of the system of tree planting inaugurated by the Burlington & Missouri railway company along its line for a distance of 120 miles, between Lincoln and Lowell. This latter experiment is of special interest to the farmers of Nebraska and many of the territories, showing, as it does, not only the method pursued in planting, but also the kinds of trees selected, and the percentage of loss in the case of each variety.

The prairie was broken up the year previous to planting, a portion of it as late as the month of November. In the spring the ground was again plowed and made mellow. The trees are planted in a variety of ways, according to their age and condition, but many were laid in a trench made by plowing. The following is a list of the number and variety of forest trees planted:

Ash, two years	20,000
Box elder, two years	11,000
Honey locust, one year, set for hedge	144,000
Soft maple, one year	17,000
Soft maple, two years	60,000
European larch, two years	72,000
Scotch pines, transplanted and root burned	29,000
Norway spruce, transplanted and root burned	6,000
Norway spruce, root burned	8,000
Cottonwood sprouts	28,000
Cottonwood cuttings	82,000
White willow cuttings	92,000
Total	560,000

A subsequent careful examination of the trees gives the following percentage alive and in a thrifty condition: Ash, 98⅔; box elder, 92; honey locust, 92; soft maple, 83; European larch, 82½; Scotch pine and Norway pine, each 80; cottonwood cuttings and sprouts 72; white willow cuttings, 75—giving an average loss of about fifteen per cent., most of which was suffered in the evergreens and cuttings, and may easily be prevented under ordinary circumstances

It will be seen that the lowest percentage of loss was found among the ash trees, amounting to but 1⅛ per cent. The railway company, on this account, and for the value of the timber, have decided to refill with one or two year old ash trees, and have let the contract to replace the trees that fail to grow and cultivate them next season.

LUMBER INTERESTS OF THE SAGINAW VALLEY.

Amount of Available Pine in Michigan—History of the Lumber Trade of this Section—Statistics or the past Eight Years Compared.

The *East Saginaw Courier* has published its eighth annual statement of the manufacturing industries of the Saginaw valley. From it we extract the following information concerning the lumber interests of that locality :

LUMBER, PINE, ETC.

Under this head we shall not attempt to review the lumber market during the past year, leaving this matter for subsequent pages, when the operations of the year will be reviewed in detail, and the causes which tended to affect it, summararized.

Since our last report, large tracts of pine included within the district bordering on streams emptying into the Saginaw river and shore, have been denuded of the pine. As to the extent of the pine still standing, no intelligent estimate can be made. Six years ago we made a computation of standing pine within this district, estimating that at the rate of 700,000,000 feet consumed annually, in the valley and along the shore, the pine forests would be swept away in 16 years. Five years have elapsed, the consumption has increased with each year, and there is scarcely a perceptible diminution in the supply, except on the older lumbering streams. Two facts, however, must be admitted, that the proportion of upper or first-class lumber is largely diminished, and that lumbering is attended with more difficulty and expense, owing to the distance from streams to haul increased each year, and lumbermen have learned to cut clean, not selecting the best pine as in former years, leaving the balance of the tree to rot. The value of pine lands has largely increased, and the bulk of it is centering in the hands of a few capitalists, who can hold and control it in after years. Mr. James Little of Montreal, the oldest lumberman in Canada, prepared a paper which was read to the National Board of Trade at Chicago last year, in which he makes the startling statement that at the present rate of consumption, lumber in the United States will be exhausted in ten or twelve years at most. Mr. Little does not appear to be making random assertions, for he details with great minuteness the present rate of consumption in each lumber producing district, and the probable number of years they are likely to stand the drain put upon them.

The total annual consumption of lumber in the United States at the present time, is put at about ten thousand million feet. The vastness of this annual lumber pile may be better conveyed to the mind by putting it in numerals, 10,000,000,000—or sufficient in amount to plank a road once and a half times around the globe. The chief sources of supply are Maine, Canada, Pennsylvania, Northern New York, Michigan, Wisconsin and Minnesota. Maine, Mr. Little computes, furnishes seven hundred million feet annually. At this rate of consumption, he concludes that the "Pine Tree State" will not only be without any kind of timber, but will also be completely stripped of all the lumber it has worth bringing to the market in less than ten years. Other authorities say that five years will suffice to put Maine out of the list of lumber-producing states. The Canadian product amounts annually to about a thousand million feet or one-tenth of what is required for the United States; and Mr. Little estimates that if Canada was called upon to furnssh the whole supply for this country, every stick of pine east of the Rocky Mountains would be exhausted in three years. Pennsylvania furnishes annually five hundred millions; and at that rate five years will exhaust the lumber of that state. Northern New York furnishes three hundred millions, but the reservation of the lumbering country for a state park and water reservoir, will cut off that source of supply. Michigan produced last year nearly three thousand million feet; and at this rate, it will take but ten years to exhaust the pine forests of this state. Taking into account the increase of population, it is predicted that Wisconsin and Minnesota will be stripped of their wealth of lumbering during the next decade.

If Mr. Little's statements are correct, and it must be admitted that in connec-

tion with the topic, there is an unpleasant air of certainty in his figures, the lumbermen of the Saginaw valley can not be too careful in husbanding their resources and their untold wealth, which lies in the preservation of the pine.

COMPARATIVE STATEMENT.

The statement that the first mill was built on the Saginaw river in 1836 is a stereotyped one. There is no further statistical record of lumber manufactured on the Saginaw river until 1854, when an article was prepared for a Chicago paper, a copy of which is now in the possession of Hon. Wm. L. Webber, mayor of East Saginaw, showing that there was on the river at that time 23 mills, with an estimated cut of 59,500,000 feet. The mills were mostly of a cheaper class, the average cut of the mills being less than 2½ million feet each. Including all the territory north and west, and south to and including Genesee and Shiawassee counties, there were 61 mills, for which the cut was estimated at 108,000,000. In this same territory there are to-day over 300 mills, with a manufacturing capacity of over one billion feet of lumber annually. From 1854 to 1863 we have no record, but since the latter date our record is complete as follows :

	Feet.
1863	133,500,000
1864	215,000,000
1865	250,639,340
1866	349,767,884
1867	423,963,190
1868	457,396,225
1869	523,500,830
1870	576,726,606
1871	529,682,878
1872	602,118,980
1873	619,867,021

The figures, it will be understood, are for the Saginaw river only, and do not include contiguous territory, which will be shown in the following pages. It is generally conceded that our maximum rate of manufacture has been reached, and succeeding years are more likely to show a diminution than an increase. The large number of mills built and being built in the interior along the line of the railroads will consume much of the pine that would otherwise find its way to the Saginaw river.

The following is an interesting tabular statement of the number of mills in the Saginaw valley, their capacity, capital invested, product of different years, lumber on hand etc.

No. of mills	0
No. of mulay saws	40
No. of circular saws	102
No. of gang saws	67
Capital invested	$5,076,000
Capacity of mills	885,500,000
Lumber cut 1873	619,867,021
*Lumber on hand unsold, ft	191,178,665
Lumber on dock sold, ft	30,893,000
Logs in mill boom, ft	62,628,078
Men employed	4,071
Pickets cut	109,900
Lath cut, pcs	89,320,400
Lath on hand, pcs	25,807,250

*From this amount should be deduced 50,000,000 feet of lumber sold to Feb. 1st, 1874, and 60,000,000 held by parties who ship to their own yards, to properly show the amount on hand, unsold, which is less than 100,000,000 feet.

This statement shows an increased capacity of 84,500,000 feet over last year, an increase of $682,000 in capital, and an increase of 17,748,041 feet of lumber cut.

During the past year three mills were destroyed by fire, as shown by remarks in the table, two mills have been built and four rebuilt, being nominally new mills, with an increased capacity. In many others the capacity has been largely increased by improved machinery, etc. One mill has been changed from a shingle to a saw-mill. The new mill of John McGraw, built on the site of the mill destroyed in 1872, is one of the finest in the world, having an annual cutting capacity of about 50,000,000 feet.

BAY AND SAGINAW COUNTY MILLS.

In the large table is included 21 mills, with an annual cutting capacity of 50,000,000 feet, which last year cut 35,000,000 feet of lumber, designated as county mills. These are located in Saginaw and Bay county, along the line of the railroads, those at Chesaning and St. Charles being the most important. Following is a list of the most important mills with an estimate for the balance :

	Lumber cut.	On hand.
C. S. Kimberly, St. Charles	3,500,000	3,500,000
L. Penoyer & Co, "	3,500,000	1,000,000
D. W. Green "	2,250,000	2,250,000
Nason, Gould & Co., Chesan'g	4,000,000	4,000,000
R. W. Andrus "	1,500,000	1,500,000
J. C. Coombs "	1,500,000	1,500,000
J. C. Goodale "	1,000,000	
R. H. Nason "	1,500,000	1,200,000
Wilcox Bros. "	1,500,000	1,000,000
Phil. Mickle, Oakley	500,000	
Leavett & Co., "	300,000	
John Gamble, Buena Vista	2,000,000	5,500,000
Tom Nester, Blumfield	2,500,000	1,000,000

with an estimated cut of 4,450,000 for the balance. The other mills, excepting the Blackmer mill at Birch Run, are smaller mills, mostly portable, and their cut is used principally for local consumption. There are, also, distributed through Saginaw and Bay counties, eight shingle

mills which cut in the aggregate last year 22,500,000 shingles, employed 155 men, and had a capital invested of $120,000.

THE MULBERRY AS A SHADE TREE.

The hard wood mulberry, that is, the morus alba or the morus moretti, makes one of the prettiest and most ornamental shade trees that can be set out either in the city or country. Its foliage is a dark green, and the leaves are glossy and smooth, and to a greater extent than most any other tree, shed the dust, so that when other trees, in the latter part of the summer in this country, assume the color of the dust, and are therefore an eyesore rather than an ornament, the mulberry is still green and ornamental. It also, being a rapid grower, and by nature a quick recoverer from excessive pruning or cutting back at any time of the year, can be shaped to almost any form desired. Another advantage the mulberry has over many other kinds of trees is found in its habit of throwing its roots deep down in the ground, so that it will withstand the most severe drought without injury, and may be planted in cultivated grounds without fear that the roots will interfere with plowing. The locust is a surface-feeder and is very seriously affected by a dry season and will not bear summer irrigation. The locust throws up sprouts from any root that may be disturbed, as by plowing or cultivation, and is therefore a very bad tree to set out inside a yard or field. The mulberry, on the contrary, may be irrigated without injury, and seems to rejoice in a plenty of water. It may also be cultivated close around it, and there will not a root even, when cut off, throw out a sprout or sucker. Another consideration, the mulberry bears a fruit—some of them, especially the Moretti, bear a very excellent berry, about the size of the blackberry and nearly as valuable for cooking purposes. Although not so tart as the blackberry, to many persons it is quite as palatable. Even the fruit that grows on the Alba is useful to feed the birds, and thus keep them from the cherries and other small fruits that ripen about the same time. Again, if a family has a few mulberry trees about the place, the leaves may be picked and fed to silkworms by the children, who in this way may be led into habits of industry and care-taking, and may learn many useful lessons in natural history by observing the changes of the worm from the larva to the chrysalis, and then to the perfect insect—the butterfly. If people would begin in this small way to cultivate the mulberry tree and to make use of the leaves, it would be but a few years before the children might be induced to feed the worms and prepare the raw silk, as a means of securing for themselves a small income, and thus be induced to adopt habits of earning something for themselves and laying it aside for future use. To those who are going to plant out trees for shade and ornament, we would recommend to plant the mulberry, if it can be obtained. We presume that all tree dealers can supply them, as we know that a great many have been grown in different portions of the county.—*Ex.*

FORESTS AND FORESTRY.

From the New York Times.

A vast amount of absurdity is said and written upon the subject of the climatic influences of forests. As a valuable adjunct to our economic resources, forests are good things to have, but even as such they may, to a great extent, be said to have had their day. So many substitutes for timber have been introduced into the arts that the demand for it has been lessened to a remarkable extent. The "wooden walls" of ancient Athens, for instance, have now their counterparts in iron-clads, and the merchant fleets of the world are now constructed of iron. The chief drafts upon our forests at the present day are to supply the perishable material for the least permanent of buildings. It is, indeed, questionable whether it would not have been more profitable to us nationally had our forests measureably disappeared many years ago, rather than two of our chief business cities should have been made a prey to the flames, or that scores of lesser towns and villages should have been visited with similar fiery trials for years past. A more substantial method of building, although more costly at first, would have been far cheaper in the end, and would have spared the pecu-

niary ruin of thousands of our citizens. Looking at the matter in this light, it will to some extent be a source of congratulation to us when our pine forests shall have been so much thinned out as to enhance the price of lumber as a building material beyond that of brick. The introduction of the art of forestry with us is not a desirable thing if it is to perpetrate the existence of wooden towns and cities. Neither is the introduction of this art so desirable with us on any other account as to call for the fostering care of the United States government, as is frequently proposed by some, together with the establishment of innumerable petty offices and the necessary adjuncts of superintendence, costly expenditure and onerous taxation which will inevitably follow. We cannot safely follow European precedent in this. The assumed need for all this is a grossly mistaken idea. It is founded upon a total misapprehension of the facts of the case. The amount of rain-fall does not depend upon forests. The contrary is most positively and satisfactorily proved by the present condition of the country east of the Mississippi river. Formerly one vast forest, it is now the home of nearly forty millions of people. Still, "seed time and harvest, summer and winter" regularly arrive and depart, the supply of rain and snow is not appreciably interfered with, and the only change apparent to the "oldest inhabitant" is the occasional occurrence of sudden and sweeping floods, which are the immediate consequence of the loss and absence of the former reservoirs of the fallen water which were furnished by the abundant forests. And here is precisely the great service rendered by the forests. The shade afforded by the dense foliage and the soft, spongy soil, covered deeply with the debris of centuries, prevent evaporation and the rapid passage of the water, which, imprisoned closely, only finds escape slowly through the minute interstices of the soil into undergound channels that supply perennial springs. Accurate observation in the state of Michigan, since its forests have given place to the broad farms of that "pleasant peninsula" have shown that the intermission, during the summers, of hitherto permanent springs, is the only marked results of the clearance of the land. Of course the rapid rise and equally rapid ebb of the water courses and streams are also concurrent features of the changed condition of the surface. But this is all; the rain-fall is unchanged, and there seems no reason to expect any change.

Upon the other hand, in the great prairie states exactly the contrary condition of things is existing. There, where a score of years ago the horison alone bounded our view, now thousands of groves have sprung up. Yearly the number and extent of these groves increase. Still there are no meteorological changes to be noticed. If anything, the inhabitants complain of dryer seasons, a strange inconsistency, which seems to have escaped the notice of those who are exercised so much about the destruction of our forests.

There is no cause for alarm. Our existing forests are saved by the predilection of our rising race of farmers for the more inviting prairies, and their serious objection to the slow, wearisome labor of clearing woodlands. As they occupy these more favorable fields, they plant instead of plucking up, and find it much easier to grow trees than to destroy them. Then groves arise around each homestead, either by spontaneous growth, or by the care of the planter, and already the prairies, bare of timber twenty years ago, are now yielding saw-logs for the mill. If the general government will reserve perpetually from sale all such wooded mountain regions as are now public property, selling only a portion of the mature timber annually, it will perform all it can possibly and profitably do. The planting of new groves can be done better by individual enterprise, guided by individual necessities, than by any official action. In this manner a vast amount of land in the aggregate is every year being covered with new plantations. It is useless for us to impress upon those interested the need for this work where there is a need for it that is so conspicuously plain to the dullest that self-preservation, as it were, enforces it upon them. Where the need is not so pressing, circumstances every year are throwing thousands of acres out of cultivation, and a new growth of timber immediately occupies the abandoned ground. Nevertheless, we would proclaim the fact that to-day there is no more promising investment to be made than the planting of all the rougher portions of the farm with such timber as walnut, butternut, oak, chestnut, maple, ash and hickory, timber which has a special value in the arts, and for which the demand must every year increase.

YELLOW RIVER IMPROVEMENT REPEAL BILL.

From the Chippewa Herald.

"With all due deference to our logging friends who are anxious to have the Yellow River boom bill wiped out, we would say, we hope it will not be done—rather modified in such a manner as will be just and equitable to all parties. The manufacturing interest is the basis of our wealth in this valley. It is for the interest of all citizens to have the pine on the Chippewa and its tributaries manufactured in the valley, hence the manufacturers should have a reasonable encouragement in this direction. Who is there that has not seen year after year the manufacturers investing their surplus, yea and more, in improvements so as to enable them to continue and expand their business, and as often as the spring rolls round, a large share of these improvements more or less damaged by the elements? These improvements have come to a comparative substantiability, only by the expenditure of thousands of dollars, and in these improvements lies the prosperity and back bone, not only of Eau Claire, but Chippewa Falls. We further state that the principle, embodied in the Yellow River bill, is correct. That where parties expend considerable sums to improve the "driving and holding" on a stream, and if this is absolutely done, and others enjoy the benefits therefrom they should be compelled to bear some of its burdens."

We clip the above from the *Free Press* of the 2d inst. It bears the impress of fairness and honesty. As to whether the tolls provided for in the law of last winter are equitable and just, we are unable to judge, and question whether our neighber is not a little hasty in presuming them too high, without further investigation. We are informed that the Union Lumbering Company have already expended upon that river, in the construction of three flooding dams, two rolling dams, straightening and clearing channels, closing sloughs, etc., upwards of *thirty thousand dollars*, and all for the purpose of facilitating the floating or driving of logs down and out of said river; that to operate and keep these improvements in repair, will cost them from *three* to *five thousand dollars* per annum. Such a vast investment and continuous annual outlay, if one in the public interest, is entitled to receive from those who participate in its benefits a fair return. From the best light we can get on the subject, the interests of loggers and pine land owners have been greatly promoted by these improvements, and they should be duplicated, so far as applicable, upon every tributary of the Chippewa river, if not upon the main Chippewa. To be obliged to put in 2,000,000 feet of logs to insure getting 1,000,000 down to the mills, as our manufacturerrs have been and are still doing, must be unsatisfactory and very expensive. Instead of petitions to repeal laws authorizing improvements which develop the resources and enhance the wealth of our county, should we not rather petition for further improvements. *Onward*, not *backward*, should be our motto.

Below we give extracts from a letter to Hon. Thad. C. Pound, President of the Union Lumbering Company, signed by Gilbert, Hodge & Co., of Burlington, Iowa, who formerly owned the Yellow River Mills:

"We are surprised to hear that the Wisconsin Legislature is talking of repealing the law of last winter, providing for the improvement of the Yellow river. The immense outlay of your company, in dams, straightening channel, closing sloughs, clearing out rocks, etc., thereby benefitting all operators as much as yourselves, should be shared by them in some way, and no more just or reasonable way can be devised for it than the law referred to.

In consequence of your large expenditures of money in those improvements, we judge that logs on the river are worth at least $1 more per thousand now, and pine lands increased in value in proportion, as now all the logs cut can be got down on the spring drive.

Before your improvements were made and while we were logging and manufacturing at Yellow River, we were obliged to cut nearly enough each year for two years—that is, to keep a year's stock on hand. Any year that we got two-thirds of the logs, we thought ourselves remarkably fortunate. Before your improvements were made, there was no certainty of getting any considerable proportion of the logs."

PINE LANDS IN THE SOUTH.

Concerning the agricultural value of pine lands in Alabama, the *Mobile Register* says:

We have frequently directed the attention of our people, to the unknown, and almost fabulous value, of the thousands and thousands of acres of pine lands which lie upon the railroads, leading from this city. These lands, when properly planted and cultivated in sugar cane, yield an immense profit, nearly, if not actually, equalling the rich alluvial bottoms of Louisianna. This is no exaggerated statement, but truth. This season Mr. Isaac George, of Washington county realized nine hundred and ten gallons of choice molasses on two and a half acres of common pine land, one and a half acres of which was stubble, or rattoon. It was cowpened, single cane, and planted in rows five feet apart. Does cotton, or any other crop, even upon our best cane-brake lands, pay better than this? We think not. Then why cannot our people, who, dissatisfied with their present surroundings, are in many cases, sacrificing everything in a mad rush to the wilds of Texas, come here and settle upon these lands, surround themselves, in a few years with all the comforts that wealth and health can command? The Mobile & Ohio Railroad Co., to encourage immigration, is holding out liberal inducements to those who wish to buy their lands, and is offering large premiums for prize crops of cane the coming year.

The *Pascagoula Star* has a word upon the subject of pine lands in Mississippi:

There are immense quantities of these pine lands, lying upon and contiguous to the Pascagoula, the Chickasahay, and the Leaf rivers and their tributaries, which have their outlet at this place, which can be bought for a song, and the timber from which, in clearing, can be sent to a market and sold at remunerative prices. The products of the farm, whether molasses or other productions, could find cheap transportation to this point, and thence be shipped by rail to market; and we hope at no distant day, that the pine lands of south Mississippi will be properly appreciated, and be found as remunerative as the alluvial lands of Louisiana, or the bottom lands of the Mississippi.

THE MANUFACTURE OF SQUARE TIMBER.

Some Account of the Business in Michigan—How It is Carried On—Growing Demand for Oak Timber.

The *Farwell* (Mich.) *Register* gives some facts concerning the square timber business, gleaned from a visit to Midland county, which are of interest, in view of the importance the business is attaining. The information gleaned, and given below, was mainly furnished by Mr. J. Simpson, one of the firms largely engaged in the business.

The firms now operating in Midland county are, Petrie & Co., who intend to get out during the present season, about 1,200 pieces, averaging 60 cubic feet each, which is the lowest average allowed, making a sum total of 72,000 cubic feet: McArther & Brothers, 75,000 cubic feet; Coburn & Murry, 65,000 cubic feet; J. Simpson 25,000 cubic feet; J. Kelsie, 45,000 cubic feet; Mosher & Murry 70,000 cubic feet.

What attracted our attention most was the general extent of this business, which we learn is owing mostly to the increased demand for oak timber in the Quebec market. Persons having but a few trees find ready sale for the same, while larger lots are bought up at prices not to be resisted in these close times when money is so scarce; so that after the present winter, the available oak timber left in Midland county will be but little.

Instead of hauling to to the streams, to be rafted and run by water, as heretofore, the timber got out the present winter is being hauled to the railroad track, in some places a distance of ten miles, to be shipped part way to its final destination by rail, which has been found preferable to shipping entirely by water.

Getting out square oak timber is quite a different business from ordinary lumbering, generally requiring more skilful labor, and workmen commanding higher wages. Hewers not unfrequently receive from $3 to $5 per day and board, and on their skill depends not a little the market value of the timber, which is worth here delivered on the railroad track, from $45 to $50 per 1000 cubic feet.

The firms herein mentioned are mostly from Canada, who are here in the interests of Quebec dealers. This timber is to be shipped by rail to Bay City, there transferred to vessels, which in their turn unload the same at Garden Island, where

it is rafted and run down the St. Lawrence river taken out at Quebec, counterhewn and reshipped to Europe, where it sells for $80 per 1000.

A WISCONSIN LUMBERMAN ABROAD.

Interesting Letter from Mr. J. G. Thorp of the Eau Claire Lumber Company—Description of Menton, France—Habits of the Peasantry—The Terrors of Gambling.

From the *Eau Claire Free Press* we obtain the following portions of a private letter published with the permission of its recipient:

MENTON, FRANCE, Jan. 20, 1874.

* * The old world here on this continent is now at war with the Jesuits. Since they, the Jesuits, have lost their temporal power, they are determined to make war if possible between France, Germany and Italy, but it seems to me that France, will not in her present situation, be thus drawn into the struggle which would certainly be defeat, as Germany would stand by Italy. Bismarck has the Jesuits fully in his power, and he will never loose his hold while he lives. I can hardly feel that we are living here in the land of many and interesting historic changes. Here, where in modern times, Napoleon the great, commenced his military career in 1797, ending as it did in the seizure and capture of Venice, which had stood, such a republic as it was some 1300 years, is to any one well read in ancient and modern history full of great and wonderful interest. The wild and majestic scenery of the Alpine mountains, and the beautifully tinted shades of the Mediteranean cannot help impressing one, and furnishes us food for thought and reflection which we can never forget.

We have now passed through, they tell us, the winter's cold, and may now expect gradually warmer weather. But during this winter weather the flowers in our garden were in full fragrance and bloom, and green peas, cabbage and other vegetables, growing in gardens adjoining. On New Year's day we had fine green peas from our next neighbor. Then the many evergreens and shrubs, intermixed with golden colors of the orange and lemon, produce a landscape anything but wintry. The scenery for many miles along this western Riveria coasts is the finest, perhaps, found in Italy. The Corniche road and the railroad through from Nice to Genoa, seems, almost beyond the work of man, and such masonry is no where else found except the railway through the valley and the Mont Cenis pass. If labor cost here as with us, the expense of these works would be fabulous. This Corniche road was commenced by Napoleon at the beginning of this century, and is one of the wonders of the world. What a contrast. When we visit the churches and read the history of these papal countries, and learn of the many wars, and of the instability of the governments, the proscription and drafts both military and eclesiestical,—we can readily account for the poverty of the masses.

The peasants who largely own and cultivate the lands, which about here are mostly covered with Olives and vines and quite extensively, also, with lemon and oranges, are mostly Italian, and are a very quiet and industrious people; also a very honest people, formerly belonging to the principality of Monaco, and during the last 50 years, previous to 1860 I think, when they were united to France, were outrageously taxed and barbarously treated by the Princes of Monaco, whose palace and town is only 5 miles from here, and which the prince of that name now holds, being secured to him in the treaty with France, with the privilege of containing the gambling place "Mont Carlo," which is now the Baden-Baden of the world. I went down there last week and saw the playing. In each of two large and elegantly furnished rooms are three tables, around which are the ladies and gentlemen of wealth and fashion, eagerly and rapidly laying their gold and silver in large and small amounts, and each run of the wheel depositing the ball into a certain number of either red or black, decides winners or losers. And this continues in rapid succession day and night. Very large amounts daily change hands, a considerable percentage being, of course, in favor of the "bank." At one table the gambling is conducted with common cards, and which, as they turn up, decides as to red and black—on this table nothing but gold is staked, and the heaviest bets made. I saw two and three thousand dollars in gold change owners in the space of ten or fifteen minutes. Most wonderful to see, around those tables full of excitement and intense eagerness, all ages from the young men and women of 18 and 20 to the old men and women of three

score and ten, from appearances you would judge, to see them anywhere else, most exemplary and pious. About three days since, a young man having lost all he had, retired from the table to a sofa in the room and shot himself. He was carried out, and the play went on as usual—the grounds and surroundings of the place are most magnificent. Everything is done to facinate and the frequenters are quiet and orderly, and are furnished with the finest hotel, living and other luxuries.

Great numbers come and go daily, from Nice and also from Menton and other adjoining towns, to play, and witness gambling, on a "legal, well conducted and fashionable" basis. Many fortunes are here lost. This gambling is terrible, in its apposite and effects, but is perhaps, no worse in God's sight than our Wall street and American gambling in gold, stocks, wheat, etc., or in the excessive betting in England and elsewhere on horse racing. But enough of this. Write me all the Eau Claire news. My kindest regards to all inquiring friends, of whom I count many in Eau Clair, and whom I hope to meet again in good time.

Yours very sincerely,
J. G. THORP.

MILL TRANSFER. — Messrs. Tolfree, Simpson & McLean closed a contract yesterday for the purchase of the mill property of C. M. Blanchard, Saginaw City, and will take possession to-day. The consideration was $65,000. The mill has a stock of ten millions feet of logs on hand for the cut of the season of 1874, about seven million feet of which are for Mr. Blanchard and the balance for the purchasers. The mill is in good repair and will be operated under the personal supervision of W. S. McLean, an experienced mill man. The capacity of the mill is estimated at 10,000,000 feet per season. The facilities this firm enjoy for the prosecution of the lumber trade are extensive. Tolfree & Simpson own the fine schooner barges E. T. Judd and C. B. Jones, and jointly with a Buffalo party own the propeller Sun. Tolfree, Simpson & Mordoff, also own a lumber yard at Rochester, N. Y., which does an extensive business. Tolfree, Simpson & McLean have on the docks in this city about 1,700,000 feet of lumber.—*Saginaw Enterprise, Jan. 3d.*

THE STAVE MAUFACTURES OF BROWN COUNTY, WIS.

The Successor to the Shingle Trade—Some Particulars of the Business—The Old Saw and Shingle Mills Being Transformed into Stave Mills—Value of the Hard Woods of Wisconsin.

From the Green Bay Advocate.

The long mooted question, as to what shall replace the shingle mills in Brown county when the pine gives out, is receiv- practical solution. The immense supplies of the best white oak, which exist throughout this region, and which until lately were regarded as of little value except for cord-wood, are now being utilized in the manufacture of "tight" staves, so called—that is, staves for oil, pork whiskey, &c., as distinguished from "slack work" staves, for flour, salt, lime, &c. These staves are made by sawing-machines, the saws running "with the grain" in contradistinction from lumber saws, which saw across the grain—and turn out the stave from the machine with the proper curve given it to suit the circle of the barrel. Various machines have been invented for this class of stave-making, but we believe it is now generally admitted that the "Bishop" machine is the best. this consists of a saw rather longer than a stave—say 3 feet long—with a curve corresponding to the circle of a barrel, which saws the stave from the bolt vibrating forward and back, and lifting when the stave is sawed off, so as to allow the bolt to be pushed in again, ready for another cut. This leaves a stave with rough, parallel edges, ready to be shaped either by the drawing knife of the cooper, or by another machine called the jointer. Besides a great advantage over the old method of riving staves by hand in the saving of timber, it saves a vast amount of cooper work, and is also a great economy in shipping—the nearly finished stave taking up much less room. In the first introduction of these machine-made staves, there was prejudice against them on account of their not strictly conforming to the grain the saw running undeviatingly straight ahead, while the riving knife would permit the split to follow the eccentricities of

the grain. But time and use have overcome the prejudices of the coopers and demonstrated that the machine stave is in all respects as good as the hand-stave. Indeed, it is quite probable that it is better, as a handsome and more uniform stave is produced, having no inequality in its thickness, and making a stronger barrel. It has, however, taken time and experience to bring about this result. The first machine staves were made here some ten years ago, and found very slow access to market, being opposed by the prejudices of coopers and the doubts of the pork packers, distillers, &c., who were the consumers. Now, however, all these difficulties have vanished, and though many mills have lately been erected here, and more are being started, the supply is not at all equal to the demand. One concern alone, the Standard Oil Co. of Cleveland, needs 4,000 barrels per day, and uses, so far as it can get them, these machine staves. A barrel requires on an average 16 staves and 4 pieces of heading so that, to supply this establishment alone will require a daily production of 80,000 pieces, staves and heading, per day. It is estimated that a cord of bolts will make 1,000 staves—so that to supply this one concern requires a supply of 80 cords of bolts per day. If then we add the demands of the pork packers, distillers, and and so on, it is easy to see what an immense industry this is becoming. Oak assumes a place at once in advance of pine, and our oak forests which are almost without limit, step forward to supply the place of our exhausted pine land.

At present, the "tight" stave mills of Brown county and those on the borders of the county, which market their products at Green Bay and vicinity, are—

N. C. Foster's mill, at Owego, on the Shawano road.

Anton Klaus' mill, at Seymour, formerly Andersons' sawmill.

Albert Gray's mill, near Mill Centre.

Abram Taylor's mill, Oneida Reservation.

Robert H. Wright's mill, Seymour.

C. G. Mueller's mill, Wrightstown.

B. F. Smith's mill, Rockland, formerly the Hoskin mill:

McKesson's mill, Wrightstown.

C. Glawe's mill, New Denmark.

Stetson's mill, Holland.

John Brœren's mill, Holland.

M. Fenton's mill, Glenmore.

L. J. Day & Co's mill, Holland, formerly Brown's mill.

Heading mills of Britton, Green Bay; Hatch & Matteson, Ft. Howard; and D. Collette, Depere.

All these mills, so far as we learn, have contracted their products to the Cleveland oil company. Their joint product will probably average 50,000 staves and heading per day.

In addition to the manufacture of "tight" staves, a considerable amount of flour barrel staves are being made. Among the mills engaged in this work are those of—

Hein & Rogers, at Greenleaf station on the Wisconsin Central, in town of Morrison.

Hammell & Parkhurst, at Seymour, on the Green Bay & Minnesota railway.

The material used for flour staves is mostly red oak—the heading being of the same timber or basswood. Both of these classes of timber have been considered of little value even for firewood. Now, they can be readily marketed at $3 per running cord of bolts, 30 inches long, which would be equal to two-thirds of a cord of wood. Mills for their manufacture would be peculiarly adapted to Green Bay itself, where labor is always plenty, and the timber could be drawn from every direction, by land or water.

Tight barrel staves, delivered on the dock, are worth $20@22 per 1,000. Heading is worth $26@27 per 1,000.

As we have before stated, most of the tight staves made here are contracted to the Standard Oil Co., of which Mr. Theodore Arter is the local representative here. Several of the mills are "stocked up" by parties here, such as Anton Klaus, L. J. Day & Co., and others, who supply the capital and handle the products.

This large showing can only be called in its infancy at the present time. Old saw and shingle mills are constantly being transformed into stave mills, and in five years from now we may expect to see the business doubled or trebled.

DULUTH LUMBER TRADE.—The shipments of lumber from Duluth for the season of 1873 is estimated at 3,000,000 feet, and the stock on hand the first of January was 4,000,000 feet. Most of the lumber shipped went largely to the mines along the south shore. A large business is anticipated this coming season, a contract having been made to supply Isle Royale with 2,000,000 feet for 1874.

RAILROAD LANDS.

Sales of the Land Department of the Flint and Pere Marquette Railroad Company.

From the Saginaw Courier.

From William L. Webber, Land commissioner of the Pere & Marquette railroad company, we learn that 99 sales were made by the department during the year 1873, covering 7,408,12 acres, and at an aggregate cost of $67,796.14, being an average of $9,15 per acre. This amount of land was much less than was disposed of during any one year since 1869. The average price per acre is less than for the sales of 1872, but greater than the average of any previous year, and greater than the average of all the sales of the land department. The total sales for the department aggregate 252,284 acres, for which the department received $2,006,897.33. being an average of $7,95, as will be shown by the subjoined table :

Remarks.	Acres.	Per acre.	Am't.
Sales to Jan. 1, 1870	2,879.60	$6.85	$567,818.98
During the year 1870	29,658.68	8.11	240,820.27
During the year 1871	113,146.73	8.27	936,176.81
During the year 1872	19,989.72	10.08	201,496.36
During the year 1873	1,408.12	9.15	67,797.14
Total sales to Jan '74	252,284.88	$7.95	$2,006.897.33

The fact the footings do not appear to to be the correct result of the addition of the figures, is explained in the fact that contracts have not been filed in every case and thed lan has reverted back, or the purchaser, for various reasons, subsequently has taken less land than originally contracted for.

The original grant comprised 511,492. 22 acres. But a deduction must be made from it, as, for example, 131,000 acres granted to the F & P M, G R & I, and J L & S railroads in common, the grants are conflicting. About one half of the original grant received by the company has been disposed of. The lands are located west of the Saginaw river and in the counties through which the road runs.

These lands are valuable, not only for the pine found upon them, but for farming purposes. The government in granting this land to the railroad followed its usual course and charged double minimum price for the even numbered sections within the railroad limits. Still its lands are nearly all disposed of, and very largely settled upon, which certainly would not have been the case if the country had not been opened by rail.

LOGGING ON THE SUSQUEHANNA.

Estimate of the Logs Being Put in the West Branch of the Susquehanna River and its Tributaries.

Having made some inquiry, says the *Raftsman's Journal*, relating to the number of logs being put in on the west branch of the Susquehanna and its tributaries, we give the result of our investigations in round numbers, to-wit : On Chest, Clearfield, Anderson, Moshannon, and Deer creeks, Lick Run, and other small streams in this county about 83,000,000 feet; on the Sinnemahoning and its branches, about 75,000,000; other streams tributary to the west branch above Williamsport, 100,000,000; making a total of 258,000,000 feet of logs, broad measure, that will seek a market at Lock Haven and Williamsport next spring. Last year the whole amount of logs, old and new, run into the various booms on the river was about 400,000,000 feet. Notwithstanding there will be from 125,000,000 to 150,000,000 less logs on hand this year than last, yet, we presume, the amount being put in this season is 100,000,000 in excess of what it really should have been, considering the condition of the finances of the country. Our statement being based upon the statistical returns we have little doubt that the actual "run" of logs the ensuing spring will approximate the figures above given, at least should the season for hauling prove a little more propitious.

A GOOD CHANCE FOR OUR LUMBERMEN.

We call the attention of our lumbermen to the fact that the United States Centennial Board of finance will receive proposals for the supply of lumber, iron, and other materials, for the execution of certain works required in the erection of main exhibition building, covering 30 acres, in Fairmount Park, Philadelphia.

Plans and specifications of the same may be seen on and after February 9, 1874, at the office of the centennial board of finance, No. 904 Walnut street, Philadelphia, and sealed bids in conformity with the specifications, will be received fer the whole or part of the building up to noon on February 23, 1874, at the same place.

Information as to the nature and extent of the work may now be obtained at the office of the architects, Messrs. Vaux & Radford, No. 119 Broadway, New York.

The erection of this building will in-

volve the consumption of many million feet of lumber, and the subject is worth the earnest attention of some of our enterprising lumbermen, who, with a little figuring, can get the cuntract.—*Ex.*

STEAM BOILER EXPLOSIONS.

The Work Accomplished By The United States Commission.

From the Scientific American.

We have received many inquiries of late as to what has been accomplished by the commission appoinled to investigate the causes of steam boiler explosions. The preliminary report of this commission has just been transmitted to congress. Below we give a summary of the principal points:

The following commissioners were appointed to conduct the experiments:—D. D. Smith, supervising inspector-general of steam vessels, president; Charles W. Copeland, of New York city; Benjamin Crawford, of Alleghany City, Pa.; Isaac V. Holmes, of Mount Vernon, O.; and Francis B. Stevens, of New Jersey. Mr. Stevens having declined to serve, J. R. Robinson of Boston, Mass., was appointed in his place. The commission above named held their first meeting on June 25, 1873, and in September issued circulars to scientific men and engineers, asking for expressions of their views. In these circulars they state the various theories of steam boiler explosions:

1. Gradual increase of steam pressure.
2. Low water and overheating of the plates of the boiler.
3. Deposit of sediment or incrustation on the inner surfaces exposed to the fire.
4. The generation of explosive gases within the boiler.
5. Electrical action.
6. Percussive action of the water, in case of rupture of boiler in the steam chamber.
7. The water being deprived of air.
8. Spheroidal condition of the water.
9. Repulsion of the water from the fire surfaces or plates.

The commission also issued a circular, askidg that safety valves be sent to them for test.

They received numerous replies to their first circular, which they state contained valuable suggestions. More than twenty safety valves were sent to them, both from the United States and abroad.

The commissioners divided themselves into two committees, the eastern and western, the first to make arrangements for conducting experiments at Sandy Hook, and the second at Pittsburgh. There were five boilers, with the necessary connections at Sandy Hook, which had been placed there by Mr. Stevens, and these were presented to the commission by that gentleman. A bomb-proof was erected, the pipes were re-arranged and extended, a blower engine and blower were set up, an old steamboat boiler was connected, and four ordinary range boilers were set up. Guages were procured and were compared with each other and otherwise tested for several days. On the 7th of November, 1873, the commissioners commenced their experiments.

A boiler was tested by hydrostatic pressure to 182 pounds per square inch. A pyrometer was arranged so that the temperature of the crown sheet could be ascertained. Steam was raised to 50 pounds per square inch, and the water was blown off below the crown sheet. When the temperature of the latter had reached 750°, and the steam pressure was 54 pounds, one of the flues collapsed.

An old steamboat boiler had been tested with cold water to a pressure of 44 pounds was next experimented with. A fire was made in the furnace, the boiler having an ample supply of water; and when the pressure was 70 pounds per square inch, two of the top sheets of the boiler gave way. The pressure gradually rose to 73 or 74 pounds, when the safety valve suddenly opened and the experiment was brought to a close. A subsequent examination showed that an old crack had existed at some points of the rupture.

On the 13th of November the water in the pipes was frozen, and the commissioners decided to suspend operations at Sandy Hook for the season.

Preparations had been completed for the experiments at Pittsburgh, five boilers being placed in position, bomb-proofs erected, and a shop and store room fitted up. The boilers were of the ordinary two flue variety in use on western rivers, two of them being of steel and three of iron.

Experiments were commenced on November 20th, with one of the iron boilers. The fire was not sufficient to produce a greater pressure than 195 pounds per square inch. The experiment was repeated, and a pressure of 202 pounds per square inch was attained. On the 21st of November another boiler was tested, and the fire gave out when the pressure had reached 342 pounds per square inch, with no other effect than producing some slight leaks. The first boiler was also tried again, its furnace having been enlarged, but the highest pressure attained was 220 pounds per square inch. On the 22d of November the same boiler was tried once more, and this time a pressure of 275 pounds per square inch was reached before the fire gave out. Steam was then raised on the second boiler, and both flues were col-

lapsed from end to end. An instant before the collapse two men entered the bomb-proof which contained three recording gages. According to their statements the three gages showed, at this time, 400, 450 and 500 pounds per square inch, respectively; but the record given by the gages, when examined after the collapse, was 350 pounds. The commissioners remark that one of the results of the experiments has been to develope the fact that the instruments employed were quite unreliable, under the extraordinary pressures and temperatures to which they were subjected. No other results or conclusions are given, it being remarked that they can be more effectively embodied in a final report. The commissioners report that about $50,000 (half of the appropriation) has already been expended.

The above is a careful synopsis of the report given nearly in the words of the commissioners. But we feel that we ought not to let the matter drop without some few comments. Our own position on the subject of boiler explosions has been often clearly defined, and our readers well know that we look for nothing more mysterious than too much steam or too weak a boiler. At the same time we are willing to concede that great good may result from experiments of this kind properly carried out. One part of the work of the commission we have looked forward to with the greatest interest. We refer to the test of safety valves. The only extended trial of the kind of which we have knowledge was made by the Life Saving Commission, a few years ago; and the result of that trial showed clearly that many of the safety valves in common use were wrongly named. It is difficult for us to see why the commission, organizing early in the summer, delayed their experiments until the approach of cold weather. It is still more difficult to understand why the cessation of operations has been so complete. Surely, if every change of pressure and temperature of the steam affects the accuracy of a gage (which is quite a novel proposition to engineers) the commissioners could continue their experiments, and reach a definite conclusion upon this point. The tests of safety valves, also, might well be continued through the winter. There is a strong suspicion in the minds of many that this commission is not working purely in the interest of science. It seems somewhat remarkable that the supervising inspector-general, who has so many other important duties, should be the chief man in the commission. The fact that such an enormous sum of money has been expended, with such slight results, is calculated to awaken inquiry; and the refusal of Mr. Stevens, who inauguratnd this style of experiments, to serve on the commission, is a most significant fact. The public are vitally interested in all work of this character, and we but do our duty in calling attention to the shortcomings of the commissioners, as evidenced by their own report

THE LUMBER BUSINESS IN MIDLAND COUNTY.

Saginaw Enterprise.

A correspondent of the *Detroit Post* writes that the annual statement of the lumber statistics of Midland county makes a very favorable showing. The following items relative to the lumber business for the past year may be of interest to our readers. The number of mills of all kinds in the county was 28, only four of which were exclusively lumber; those four were as follows: J. B. Adams' mill at Colemans, with a capacity of 3,500,000, burned late last fall; the new mill of Wm. Reardon at Colemans, with a cutting capacity of 3,500,000, Paul Lingle's mill at Midland, with a cuttiug capacity of 3,000,000, and the mill of L. B. Fletcher, with a capacity of 1,000,000. In the matter of shingle mills we find 15 mills in the county especially devoted to the manufacture of shingles. They are as follows: C. Steele's, Averills, cut during the season of 1873, 3,840,000; Wm Tinker's, Averills, cut 5,000,000; Wm. R. Button, Buttonville, cut 2,000,000; Chapin & Barber, Colemans, operated by Ketcham Bros., cut 9,000,000; George Robeson, Colemans, (formerly Geo. Miller's) cut 4,000,000; S. W. Hubbell, Coleman, cut 4,000,000; Pease & Tuttle, Coleman, (formerly W. R. Porter's) cut 2,500,000; Wm. Reardon, Coleman; capacity 3,500,000 This mill was formerly at Midland, and while there cut 9,000,000, but was decreased in size and moved to Coleman late in the season. Lindsey & Waldo's, Midland, cut 6,500,000; Phineas Herrick's, Midland, cut 7,445,000; Curry & Mericle's, Midland, cut 8,078,000; Duncan Brothers, Midland, cut 1,000,000. (This mill was burned to the ground on the morning of the 25th ult, but is being built again on an enlarged and improved scale.) J. Maloney's, Midland, cut 250,000; Howard's, formerly Hinkley & Howard, Midland, cut 1,000,000, and J. Purdy's, Sanford, cut 1,500,000. In addition to this, we find seven mills doing an extensive business in lumber and shingles as follows with the cut for last year:

John Larkin, Midland, capacity 12,000,000; lumber cut, 8,163,713; shingles cut, 1,000,213 and lath cut, 2,867,050 pieces; lumber on hand, 1,284,000; lath on hand, 540,000.

Samuel Sias, Midland, capacity 6,000,000; lumber cut, 2,000,000; shingles cut, 2,500,000.

A. Brooker, Smith's Crossing, capacity 3,000,000; lumber cut, 5,000,000; shingles cut 2,500,000.

J. Pierce, Coleman, capacity 3,500,000; lumber cut, 250,000, shingles cut, 1,000,000.

C. M. Blanchard, Coleman, capacity 4,500,000; lumber cut, 1,000,000; shingles cut, 100,000,000.

William Ferguson, Coleman, capacity 3,500,000; lumber cut, 1,500,000.

H. Averill, Averill, capacity 5,000,000;

lumber cut, 200,000; lath cut, 500,000. A shingle mill is being added this winter.

Henry Baker, Averill, capacity 3,000,000; lumber cut, 500,000; shingles cut, 1,000,000.

The aggregate of this statement shows as follows:

Total capacity of mills, 58,500,000 feet.

Amount of lumber cut during 1873, 17,363,713 feet.

Amount of lumber on hand January 1, 1874, 4,955,000 feet.

Number of shingles cut, 75,326,000.

Number of pieces of lath cut, 3,367,000.

Number of lath on hand, 540,000.

A new postoffice has been established at Ingersoll. It is known as "Lei's Corner."

For the month of January there were issued 101 money orders from the postoffice of this city, aggregating $1,028.22.

S. W. Hubbell, of Coleman, sold last week 1,140,000 shingles for $4 per M, including freight. Time 30 days.

Heavy trains loaded with logs pass down the F. & P. M. Railway every day. The trains usually contain 20 cars, and three such trains pass every two days. The logs, generally, are of a superior quality, and are said to excel in size and soundness those cut last year.

LUMBERING OPERATIONS.

The Amount of Logs Being Put in on the Sable, and at Harrisville, Greenbush and Alcona.

From the Saginaw Enterprise.

Mr. F. B. Smith, of Bay City, who has just returned from a visit up the shore, furnishes the *Tribune* with the following carefully prepared statement of the amount of logs that will be put in this winter at the points named:

ON THE SABLE RIVER.

	Logs, ft.
Loud, Gay & Co	9,000,000
W. G. Grant & Son	3,000,000
Moore, Platt & Glenney*	4,000,000
Charles Stone Lumber Co	4,000,000
Bliss & Pierce*	6,000,000
Wm, Sanford & Bro*	3,000,000
D. A. McDonald*	3,000,000
D. A. McDonald, (square)	1,000,000
T. F. Thompson, (⅔ long, ⅓ short)	2,000,000
—— Mansfield*	2,000,000
D. Tracy*	2,000,000
C. M. Cummins*	1,000,000
D. N. Runnels*	2,000,000
J. C. Cameron	2,500,000
Other parties, (short and long)	2,000,000
Total on Sable river	47,500,000

HARRISVILLE.

There are being put in on the lake shore at Harrisville, 18,000,000 feet, as follows:

	Logs, ft.
Weston, Colwell & Co	4,000,000
Joseph Lonsby	500,000
J. Van Buskirk	500,000
Moore & Alger*	8,000,000
Colwell & Chappell, (spar timber)	1,000,000
Backus Bros	4,000,000
Total at Harrisville	18,000,000

GREENBUSH.

Wm. Conklin	1,000,000
Wm. Conklin*	2,000,000
Total at Greenbush	3,000,000

ALCONA.

E. R. Harris*	4,000,000
E. R. Harris	1,000,000
Total at Alcona	5,000,000

*Long timber.

At Harrisville, Weston, Colwell & Co. have already put in 1,500.000 feet, and are getting out now 10,000 feet daily. Their mill has a capacity of 5,000,000 feet per season. The firm is now getting out timber for a new one to be erected next season on the site of the present mill. The new mill will have an increased capacity.

Moore T Alger are putting in 125,000 feet daily.

The spar timber being put in by Colwell & Chappell, at Harrisville, is very fine. Two hundred pieces already prepared averaged 3,100 feet to the piece.

E, R. Haines is stocking his mill at Alcona, which has a capacity of 4,000,000 feet per season. Backus Bros. are also stocking their mill at Harrisville, which has a capacity of 4,000,000 feet per season, and which is in operation this winter.

Moore, Platt & Glenney, on the Sable, are putting in 75,000 feet daily.

LEVELLING OIL-STONES.—The ordinary way of shaping an oil-stone is to grind off the highest parts and then rub it on a gritty floor, or if near a foundry, to get some parting sand and spinkle on the floor or board on which you are rubbing; better still if you can find the true surface of a casting before it is cleaned—this will cut it away quite fast. But recently, while trying to shape a small slip, it occurred to the writer to try some glass-paper, and to his surprise he found that it cut away very fast. For "trueing" an ordinary oil-stone for sharpening planes, take a sheet of glass-paper No 2, and lay it on the bench and rub your stone on it; in this way you can true the stone in one-quarter the time it would take in the ordinary way, and cabinet-makers have always such means at hand. Five or ten minutes' rubbing will be found sufficient. The glass-paper will not be spoiled by the operation.

THE WISCONSIN CENTRAL.

What this Company has done for the State and what it now asks of the State—Relief from being obliged to Build a Crooked Line where the Trade of the State requires a Direct Line—Will the State of Wisconsin Grant Reasonable Encouragement to the Only Real Wisconsin Railway in the State?

The Hon. H. L. Palmer, delivered the following argument in the assembly chamber before the assembly railroad commit tee February 12, on the location of the line of the Wisconsin Central railroad, between Portage city and Stevens Point:

MR. CHAIRMAN, AND GENTLEMEN OF THE COMMITTEE—On my arrival here from home last night, I learned that it had been arrrnged to have a meeting of the railroad committe for the purpose of considering this bill, 385, and hearing the parties in interest on both sides of the proposition. I had supposed that this bill would be considered by the committe in the usual manner, and I had not anticipated anything like a public discussion of the merits of this bill. I desire to say in behalf of the Wisconsin Central railroad company, and other friends of this bill, that we appreciate the kindness, and courtesy, which the committee have chosen to extend to us.

HISTORY OF THE GRANT.

In what I have to present in the opening of this discussion, I shall limit myself substantially to a statement of the history of the transactions which have led to the introduction of this bill and explain the bill, its objects and purposes.

In 1864, the congress of the United States, by an act passed on the 5th of May of that year made a grant of lands to the state of Wisconsin for the purpose of aiding in the construction of certain railroads in this state, running from one of four given points—Portage City, Fond du Lac, Berlin or Doty's Island, in a northwestern direction to Bayfield, and thence to Superior the initial point to be determined by the legislature of the state of Wisconsin.

In 1866, the legislature passed two acts for the purpose of executing this trust, one incorporating the Winnebago & Superior railroad company, and the other incorporating the Portage & Superior railroad company. The Winnebago & Superior railroad company was authorized to construct a road from Doty's Island by way of Stevens Point to Bayfield, and thence to Lake Superior. The Portage & Superior company were authorized to construct a railroad from the city of Portage by the route indicated in the charter to Stevens Point, and thence on the same line to Bayfield and Superior. These two companies consolidated under the name of the Portage, Winnebago & Lake Superior railroad company, and at a later period the name was changed to the Wisconsin Central railroad. That company is, to-day the successor of, and clothed with all the powers, and subject to all the responsibilities which were granted to, or imposed upon, the two companies I have named.

WHAT THE WISCONSIN CENTRAL HAS DONE FOR THE STATE.

The Wisconsin Central company has constructed a line of road from Doty's Island to Stevens Point, and from thence northward in the direction of Lake Superior, a distance of 101 miles beyond Stevens Point, and on the Superior end of the route from Ashland thirty miles southwardly, and has constructed as good, if not a better railroad, so far as its construction and equipment is concerned, than has ever been built in this state. It has been constructed in all respects in accordance with this act of congress, and so far as its construction is concerned, the company has in all respects complied with the laws of this state and the act of congress.

In the act of the legislature incorporating the company this company was obliged to build a road from Portage to Stevens Point by way of the city of Ripon, in Fond du Lac county and the city of Berlin in Green Lake county. This was the land grant line under the act of the legislature of 1866.

The distance from Stevens Point to Portage City by the way of the line prescribed in this bill under consideration is 68 miles, the distance from Portage City to Stevens Point as described in the charter of 1866 is 114 miles. The difference in distance is 46 miles.

WHAT THE STATE HAS DONE TO THE COMPANY.

In the construction of the amount of road which the Wisconsin central has already completed, it has expended a little over $6,000,000. From the time the certificate was issued for the completion of

the first twenty miles, until the present winter the authorities of the state seem to have placed themselves right in the pathway of this company, and have prevented them from obtaing any more of the lands, which they have earned. We stand here to-day with five sections of twenty miles each, completed, for which we have earned the lands and for which we claim we are entitled to certificates, and yet we have not been able to obtain them. The day has come now that the company needs the assistance to which they are entitled, and they need to be relieved from some of the provisions which are imposed upon them by its charter of 1866 The people of Stevens Point, Portage and Marathon counties, and in this portion of the state desire that instead of this "crooked" road a direct line be completed from Portage city to Stevens Point. Delegations from these localities appointed by authority, assembled here and proposed to the company to amend the charter so as to relieve the company from the construction of the line, via. Ripon and Berlin, and to authorize and require it to build a direct road from Portage to Stevens Point. This was agreed to by the companyand for the purpose of carrying out the arrangement we have prepared this bill. The bill further provides that this road shall be constructed from Stevens Point to Portage by the first day of October, 1875. It further provides that whenever the first half of the 68 miles shall have been completed, between Stevens Point and Portage, then the governor may issue the certificate for the land lying in section six, and when the balance is completed, the governor may issue certificates for the lands in section seven of the land grant.

REASONS WHY A CHANGE OF THE LAW IS ASKED.

One of the reasons why the company desire to have the rout changed is that one line is forty-eight miles longer than the other and save the cost of building that much road. From Stevens Point northward this line of road was through an unbroken and exceedingly dense forest, there are no openings, no settlements, and its pathway is hewn through dense timber.

The congress of the United states made this grant for the purpose of enabling somebody to construct a road through that country and bring it into connection with the better settled portion of the state and afford an outlet for the lumber and timber of that region. Now for the interests of the people of the prairie and open portion of the states for the interest of Dane, Rock, Iowa, Grant and Columbia counties, it is all important that they should have as direct communication as possible with that portion of the state traversed by the land grant road.

It is not necessary to transport lumber and pay freight on it 114 miles, when the same thing can be obtained with a line 68 miles in length. Another reason, this extra forty-six miles of road required to be built by going around by way of Ripon, if it costs as much as it has for what road has already been conssructed, will cost about $30,000 per mile, amounting in the aggregate to $1,380,000 which this railroad company would be required to expend to construct a road around by Ripon, more than it would to construct a direct line from Portage City to Stevens Point. This is a consideration of vast importance to the railroad company. These millions do not grow upon every bush; they are not to be obtained every day; it requires long and arduous effort to secure money enough to construct any considerable extent of railroad, and we do not desire to be required to furnish that much more money to make a connection between this portiou of the state and Lake Superior, than is necessary.

What objections may be suggested, I do not know. I can anticipate some of them, but I will not do that. My associate, Gen. Smith will be fully competent to deal with such objections as may be presented.

THE INTERESTS OF THE STATE AGAINST THE INTERESTS OF THREE TOWNS.

I can very readily see that the city of Fond du Lac might feel indisposed to consent to this change in the charter. I can readily see that the people of Ripon and Berlin may also object to this change in he line. And yet the people in those localities are not destitute of railroad communications with other portions of the state. It is different with the section of country between Stevens Point and Portage, and unless this line is constructed they will be entirely destitute of any railroad facilities running in this direction.

In view of what this railroad company has done; in view of the amount of money which they have expended; in view of the fact that direct lines are becoming more and more necessary as the country is being thrown open to railroads; in

view of the large additional expense imposed upon this company if required to build the line by Ripon and Berlin; in view of the necessity for a more rapid communication between the open and settled portion of the state and the timberep region through which this road passes,we have concluded, in accordance with the wishes of the people at Portage and along the straight line in that region, to come to this legislature and ask it to relieve us from building the circuitous line and impose upon us the duty of building a straight line instead and provide that we take the certificates for the land we have earned.

WHAT THIS BILL REQUIRES.

The provisions of this bill requires the company to build a road from Portage on the most direct and feasible line, to Stevens Point. It authorizes, and requires, this to be done provided the congress of the United States shall, prior to the 20th of April next, assent to this amendment to the original charter.

The act of congress as it was passed originally contemplated the construction of a road from one of the points before mentioned in a northwesterly direction to lake Superior. It never intended it to be in a northeasterly direction.

When the legislature of this state prescribed the line by way of Ripon and Berlin it was necessary that the assent of congress should be obtained, and in 1866 the congress of the United States did, on the request of this legislature, and after the passage of this charter, pass a joint resolution by which they assented to and ratified that change of route. Now if this change is made by the passage of this bill, it is contingent upon the assent of congress being obtained, and when that is obtained, then the line will be a direct one from Portage City to Stevens Point. When this change is accomplished, this company will be in a condition to carry out the original intention of congress in making this grant, to-wit: the building of a road in a northwesterly direction from the initial point to lake Superior. Section 8 of the original charter makes Portage the starting point for the construction of that road, but if the first section of this bill passed it would become nugatory, because we would not be required to build by Ripon and Berlin, and would not be required to start at Portage City.

WHY THE COMPANY SHOULD BE ALLOWED TO BUILD TOWARD INSTEAD OF FROM PORTAGE.

The Wisconsin Central railroad (as is a matter of public history) has become the essor of the Milwaukee & Northern railway, and of its road,and as a consequence the Wisconsin Central now has a continuous line of road from the lake to Stevens Point, a distance of 262 miles from the city of Milwaukee, all the material used in the construction of the railway, except tnat which goes into the embankments, and the ties, and timber for bridges and culverts, is necessarily imported into this state. It is necessarily transported a long distance. It must be transported from the lake shore to the point where used. If this company were to commence at Portage City it would be obliged to hire the transportation of all its material from the city of Milwaukee to Portage, and thence to the point where it would be used, when if they commenced at the other end they could transport all the material upon their own line

CAN WISCONSIN REFUSE TO ENCOURAGE SUCH AN ENTERPRISE AS THIS?

The straight line will be of little value to the company until the road is completed to Lake Superior. Up to this time there is no business on the road to be transacted by the company, except that which the construction of the road produces. There is nothing to come down, except such logs as are ready for transportation—mills are not yet erected with which to manufacture these logs into lumber. There has been one large mill built since a portion of the road was constructed, somewhere near a mill creek, which is an illustration of what may be expected when the road is completed to Lake Superior. When the road gets that far, through freight and passenger business may be expected; and by that time there will be more business to be transacted by way of transporting supplies to the settlers who are following the track of the road and making homes along its line.

This land grant line road from Stevens Point to Lake Superior has been divided into sections of so many miles each. Five of the sections extending from Stevens Point northward, and one section extending from Ashland southward, have been completed between Worcester, a point 101 miles north of Stevens Point, and from the point of the line from Lake Superior there remains a gap of fifty miles to be

completed to extend their line through to Lake Superior. We think that the encouragement asked for this purpose is not unreasonable, and that it will repay the state one thousand fold for all the liberality it may extend to us by the passage of this bill. I may say (and I don't know that there is any secret about it), that the company is embarrassed in its finances on account of the want of these lands. There is due to them $2,000,000 on subscriptions for their bonds and stock. Although they are entitled to them, these payments cannot be obtained because the subscriptions were made upon the understanding that whenever any 20 miles of the road should be completed, certificates of that fact would be issued, and the patents for so much of the land applicable to so much of the road would be issued by the secretary of the interior to the railroad company, and they would then become a part and parcel of the security upon which these subscriptions are based. We cannot complain if the subscribers refuse the subscriptions until the company gets possession of the lands it has earned and own as much as any one of you owns the house he lives in.

We do not believe that the expenditure of $6,000,000 in your state has done the state any harm; we do not believe that the construction of a railroad that has cost more mile for mile than the average of the Pacific road has cost, has injured the state; but we do think that it is due to us that we should be placed in a condition that we can complete this road in the manner provided in this bill if congress will consent to it, by the fall of 1875, and thus give the state of Wisconsin the benefit of a new and important line of road, built where no other company would have attempted to construct one.

THE WISCONSIN CENTRAL THE ONLY REAL WISCONSIN RAILROAD IN THE STATE.

This Wisconsin Central railroad is about the only real Wisconsin railroad we have in the state. Every other road runs directly through it, or across the state. Some are so constructed and arranged as to run everything from Chicago on the lake shore directly through the state of Wisconsin to Minnesota and westward, or from the northwest directly through Wisconsin to Chicago on the lake.

This road is in the state and can benefit no locality but the state of Wisconsin.

Another consideration which should weigh largely with you in these days, when railroad monopolies are the subject of so much complaint. One of the surest remedies you can apply is to encourage the construction of a road like this that will be a competing road. It cannot be consolidated with the Milwaukee & St. Paul or the Chicago & Northwestern. It is under a positive ban of this legislature that it shall never consolidate with the Chicago & Northwestern. It can never be relieved from that ban except by the action of the legislature, and that is not asked for, and if it was it would not be given.

WISCONSIN'S MOST NEGLECTED TOWN.

How the City of Superior has not Gone Ahead within the last Thirty Years—Incredible Indifference of Wisconsin Statesmen to the Developement of Northwestern Wisconsin.

A writer in the *Ashland Press* presents the following considerations, which we commend to the attention of Wisconsin legislators:

City building in North America is one of the American professions. To be a successful builder one ought to be learned in most of the sciences. But with all these we have failed to improve on Rome and build one in a day. Without elements of success one must fail; mineral, agriculture and commerce are the best elements; without either, corner lots and railroad charters make very good substitutes for about twenty-four calendar months.

Superior started in on the "substitutes" and collapsed in due time. Tried again and again with like results; until ten railroad charters have performed their mission. The corner lots are still on hand plus the twenty years' taxes; a lot worth fifty dollars in 1854 can now be said to be worth a hundred; if the owner will take in payment the local legal tender, county orders.

In 1853 Benjamin Cadotte, Francis Roy, Daniel A. J. Baker, Daniel A. Robertson, Rensselaer R. Nelson, Charles G. Petteys, Erwin T. Shelley, Orater K. Hall, August Zachau, Joseph Du Bay, Abraham Emmitt and Joseph A. Bullen took up by pre-emption the bay shore tracts at the mouth of the St. Louis and Nemadji rivers. These, with other purchases at the land sale in 1854, made by W. W. Corceran, Edmund Rice, George L. Becker, James Stinson, Geo. E. and.

Wm. Nettleton, William H. Newton, Benjamin Thompson, Horace S. Walbridge, Robert J. Walker, George W. Cass and Antoine Choinier, amounting in all to quite 6,000 acres, were consolidated, titles perfected and conveyed in trust to R. R. Nelson and W. H. Newton.

These lands were laid out in lots and blocks. Two thousand of the lots were sold in 1854-5-6 and 1857 mostly to actual settlers, at prices ranging from forty to one hundred dollars, and the proceeds of these sales were devoted to the payments or reimbursements for the lands, surveys, openings and clearing of streets, building a hotel and the wharf at Quebec pier; the balance of the property was equitably partitioned, set off and conveyed to the several parties in interest; the whole being divided into twenty-seven equal parts, each owner or proprietor receiving one or more twenty-sevenths, according to his interest, services and skill, in founding and "doing the most good" for the town.

Before making the division four ten-acre public squares were laid out, near which are ample grounds designated for public buildings, and distributed over the plot a hundred or more church and school house lots, and along the bay and river numerous public landings; the streets and avenues are eighty and one hundred feet broad.

At the junction of Nemadji with St. Louis river are also railroad depot grounds held in trust for any company or corporation which may be disposed to occupy; these grounds have a mile or more of bay and river frontage and extend to the uplands for shop and station grounds, amounting in all to about 100 acres.

The St. Croix & Lake Superior company's charter and that of the Minnesota & Northwest were railroad charters employed for the first two years as co-efficients with the town site for the object —the building of Superior.

In July 1854 Col. Robert Pattese effected a preliminary survey for the former company's line from Hudson to Superior, and the report on this survey vindicated our application to congress for "the St. Croix land grant."

Thus the substitute elements were accepted as matter of fact, auspices to insure the vigorous building of the city, and the buildings went up as by magic, from day to day inspiring a confidence too honest for contempt.

The Algonquin and Ward constituted the merchant navy, plying between the Sault and Superior, bringing lumber and provisions as well as immigrants.

Messrs. Nettleton & Culver opened the first store, and O K. Hall the first hotel, in the unfinished house now known as the Avery House. The entire second story was done off in one bed room; guests, boarders, ladies and gentlemen had no cause for complaint, for each could have his share of the best room in the house.

Actual settlers had their choice of lots at fifty dollars on conditions to build. Speculators purchased "shares," subdividing them into halves, quarters, eighths, sixteenths and thirty-seconds, the latter were recorded as units at a thousand dollars. A share, or "twenty-seventh," represented about two hundred acres average of the town plat; and a thirty-second six acres, at one hundred and sixty-six dollars an acre; the whole plat aggregating a million dollars, and the public records demonstrate that about half of the town changed owners at the latter figures, and in some instances more, before the close of the second year.

Nor is this beyond grounds of reason in the light of the national belief. The Hudson & Superior railway was counted upon as certain, as was the St. Paul & Duluth, ten years later; and the speculative prices in 1870 at the latter place vindicated the Superior notions by more than three hundred per centum.

And had Wisconsin's statesmen utilized the land grant trust of 1855 and fostered to completion the Hudson, Bayfield & Superior railroad, the northwest quarter of this state would to-day be a settled region. That it can be developed as an agricultural district is not problematical, short as are the seasons, the latitude thirty-six degrees forty minutes, gives sixteen hours sun warmth, in which vegetation advances with vigor; potatoes mature in fifty days, spring wheat, barley, oats and the grasses in from eighty to ninety, and clover yields a heavy aftermath. Of the disadvantages, the long winters, the hard labor in clearing the timber and under-growth to prepare for cultivation, there can be nothing said to militate. To improve a farm here the same hardships must be endured that were met by the first settlers of the wooded states; but every farmer well knows the higher value of timbered soils over thas of the average prairie. An acre of thit cleared land will yield forty bushels of

wheat alternate years, or two tons annually of hay ; such an acre's income represents a capital value greater than a United States' $100 gold interest bond.

MACHINE LATHES.

Machine or automatic lathes, as they may be called, consist of four classes :— First, gauge lathes, with a slide rest and tool carriage, after the manner of an engine lathe, for metal workings. Second, lathes with rotary cutting tools, that have a compound motion of the wood and the cutters, both revolving. Third. eccentric lathes for turning elliptical or other irregular forms. Fourth, chuck lathes, hollow mandrils, or rod machines.

The gauge lathe was invented by Bentham, described in his patent of 1793, and has, possibly under modification, been in use ever since. What is known as the Alcott slide,to be used in connection with an ordinary hand lathe, is but a modification of this machine. The principle of operation consists in a following rest, in front of which is a roughing gouge, to reduce the piece is that it will fit the rest; behind this rest other tools follow, one to three in number, as the work may require, the rest supporting the piece. This produces duplicate pieces very rapidly, but if the profile is in any degree irregular the work is too rough for any but the rougher use. By tumbling the pieces in a cylinder with leather scrap, after they are thoroughly dried they can be made smooth enough for painted work, but not to varnish or polish. Gauge lathes have been helped out of this difficulty of making rough work by shearing knives, that come down diagonally behind, and follow the rest, cutting off the light shavings with a thin tangential edge, corresponding to the action of a hand chisel that leaves the piece true and smooth. This device has been extentively and successfully used, and manufacturers need have no fear in adopting it to any work to which it can be applied.

If a gauge lathe is to be used, have a good one. It was a long time being discovered that a gauge lathe for wood turning required to be as accutately, and even more carefully made, than an engine lathe for machine fitting. Such lathes require to be made in a most thorough manner, and will cost a large price from any responsible maker. If the amount and character of the work does not justify the outlay for a first-class gauge lathe, it is better to do the work by hand, or with an Alcott slide, than to buy a cheap one.

The spindle bearings of the gauge lathes should be made of the hardest brass, set into accurately planed seats, so that they may be adjusted or renewed without trouble. Centres project 6 to 10 inches from the ends of the spindles, have sharp points, and the head and tail points must come together precisely, and keep there, that is, the lathe must keep in line; this must be the test of a gauge lathe,and is one that would condemn nine-tenths of all the engine lathes in use.

Of the second class, lathes with rotary tools are but little used; the cutters and the wood both running in circles, and intermittently, make rough work ; it is difficult enough to produce smooth surfaces with either the wood tangential to the cutters, or the cutters tangential to the wood, without having two circles to meet. There has been a limited use of these lathes for turning hubs and other coarse work, but nothing to merit a further notice here. We suggest to wood manufacturers that whenever they find this compound rotary motion of both the tools and the piece in a machine to do cylindrical turning, to buy some other; it is a subversion of the true principle of wood cutting, and as such should be employed only when it is unavoidable.

Eccentric lathes for oval turning are among the machines which require special knowledge to manage. The Blanchard lathe, if driven at its utmost speed, may turn from five to seven huudred small spokes a day, the surface so rough that the grinding and polishing becomes a more important matter than the turning. We do not want to find fault with a machine so long and so successfully used as the Blanchard lathe, but will suggest that if, instead of turning six hundred spokes on one machine, the same man were to three hundred spokes on two machines, a great gain would be made. The investment in machinery would be something more, but this is a small matter, to be rated as the interest on the money, and is balanced by a small daily gain in either the quantity or quality of the work performed. What we contend for is, that these eccentric lathes should be better made, do their work more smoothly, and if necessary, keep up the quantity turned by increasing the number of machines. In eccentric turning, the rough character of the work is due in a great measure to

the cutting being done across the grain, and to the very inferior quality of the cutters used; these are, as a rule, made from saw-plate steel, tempered to a blue only, so as to be filed, and the edges break or bend as they touch any bark or grit. The plan of filing answers for rough work, and plate-steel is good enough for cutters, but it should be of the finest quality, carefully tempered, and the inside which forms the edge polished.

The best lathes for eccentric turning are those which have the reciprocating movement in the cutter-head. The fact is that no durable and substantial machine can be made that has its spindles and driving gearing vibrating on a swing frame. It is therefore suggested to manufacturers that in fitting up new works, or in increasing old ones, that this subject of elliptical turning be more carefully considered, and investigations made as to the relative cost of grinding and polishing, compared with the turning, also the cost of turning by different machines.

The cost of turning is the wages paid for operating the machine, and its ware and repairs added; for polishing it is the cost of the labor, the wear of belts, cost of glue, sand, and the time of laying the belts. A little gained by fast turning may be easily lost in finishing, and it is quite unfair to rate the capacity of a machine by the number of pieces that may be turned out regardless of the manner in which it is done.

Chuck turning relates to parallel rods, like dowel pins, chair braces, or fence pickets. As machines, chuck lathes are simple, efficient and labor-saving, cost but little, and should be used whenever there is anything for them to do. The principle of their operation is the same as the hand gauging tool, a little device that should be among tools on every hand lathe.

This gauge tool is used in turning any kind of parallel stuff, dowel pins, wooden screws, gauge stems, in fact anything that is in whole or in part straight. Cabinet turning, such as nulling, cottage spindles, or other pieces that are turned straight before being moulded, can be sized much quicker and more accurately with a gauge tool than with chisels.

The tools are made of cast iron, are inexpensive and easy to operate. One stirrup and cutter will do for several sizes by exchanging. The only fitting in making gauge tools is to bore them to the size wanted and cut away the throat. In using them the handle runs on the rest, and should be held down firmly; some of the first experiments may be failures, until there is some skill skill acquired in setting the cutter. The tool may either go perfectly straight, which is its natural and most easy course, or it will not go at all. Although but little known, they have been in successful use for years, and are especially needed in turning the stems of wooden screws, and other pieces that have to be accurate.—*Operator's Hand Book.*

CHAIN-BED PARALLEL PLANERS.

This somewhat anomalous kind of wood-planing-machine was invented some eighteen years since, with the object of evading the notorious Woodworth monopoly, by James Farrar, an object which is certainly attained, so far as surfacing boards on one side. Although mechanically one of those things that presents an aspect of impractibility, its success is sufficiently attested by the fact that not less than two thousand such machines have gone into use in America, and are at the present time more largely made than at any previous period.

There distinguishing feature is the feeding mechanism, which consists of a continuous or endless chain of narrow bars, linked together so as to be flexible. This chain is carried on wheels and shafts at each end of the machine, passing under the cutting cylinder, at which part it was supported on bearing bars, set parallel to its motion. In front and behind the cutting cylinder, there are the usual pressure rolls, that keey the lumber down upon the chain, creating the friction or traction that carries it through the machine. This device of a chain platen or bed is quite an old one for other uses, but it would hardly be supposed that its bearing surfaces under severe pressure would, without lubrication and covered with dust, last and give good results as to duribility.

We regret that the delay in engraving will prevent the introduction of an illustration of a heavy machine of this class which was at first intended. It is, however, a machine which has nothing to recommend it for an European market, and is too well known in America to need even the brief description given.

In the arrangement of these machines as now built, there is one feature that challenges criticism, and seems at great

variance with what would seem to be suggested by the nature of the operation: we allude to the plan of adjusting the bed to and from the cylinder. One of the incontrovertible laws, not to say axioms, of mechanics, is that when two parts are to be moved relatively, move that one which is easiest to move, a rule which is certainly violated in the ordinary construction of the chain-bed plan-machine, for it is hardly a debatable question as to the cost and convenience of adjusting the cylinder and pressure rolls, or the bed and driving gear, in fact all the machine except the frame.

The fixed cylinder was no doubt at first used to secure convenience in belting, but to contrast this with the inconvenience of having the bed continually varing its position, as the thickness of the lumber may require, would be to chose the greater of two evils.

The durability of such machines is dependent almost entirely upon the construction of the chain, which should be of hard, close, cast iron for the traveling bars; but the stationary bars should be faced with tempered steel, not soft steel, which is even worse than soft iron. The connecting links should be of the best iron, riveted with steel,

The danger of abrasion occurs in start- a new machine, and when once begun can never be safely guarded against in the future. These machines are built as a rule 24 inches or more in width, and are used for surfacing pine boards in the lake districts of the United States, where the cost of planing is almost compensated in the reduced weight of the lumber for shipment. The enormous amount of 40,000, feet, and even 50,000 feet, has been passed through one of these machines in ten hours. To do this, two boards at once, unless very wide, are fed through. So far has this system of lumber-planing been carried, especially in Chicago, that in the transition of lumber from one railway train to another, the planing is no more, nor even so much, considered as the handling.—*Boston Lumber Trade.*

CIRCULATION OF SAP IN TREES.

The Flow of Sap In Trees And Plants—A Lecture By Professor Clark, of Massachusetts.

The following very interesting lecture by Prof. Clark, president of the Massachusetts Agricultural College, we obtain from the *Boston Cultivator.*

At the conclusion of President Clark's paper, Prof. Agassiz, in a few remarks, spoke of the Agricultural College at Amherst, and said "that from this time forward it has a place among the scientific institutions of the country, if it had not before." He also said "that this one paper had amply repaid every dollar that had been spent on the college."

Prof. Clark began by speaking of the structure and growth of plants, and the theories of the early botanists, who very naturally regarded the root, the stem, and the leaf as the vital organs of the plant, and ascribed to them special functions. Thus Theophrastus said the root was the stomach of the plant designed to take up nourishment, and Malpighi compared roots to hands which, in absence of the power of locomotion, were extended for food. Linnæus also regarded them as the mouths through which the plants were nourished. In like manner the function of the stem was simply to convey the food absorbed by the roots to the parts above it, and that of the leaf to exhale or perspire surplus moisture just like the skin of animals.

After the discovery of atmospheric gases about the beginning of the present century, it was found that the leaf inhaled carbonic acid and exhaled oxygen, which was regarded at first as a sort of respiration, and this function was then added to that of perspiration. These half truths of science concerning vegetables were accepted as satisfactory for a time. It was found, however, that a fragment of a leaf or the cutting of a stem or a root could readily be made to produce buds and plants That a plant might be inverted, and its branches become roots, while the true roots put out leaves. So it became evident that these were not true organs, with special functions, like the lungs and stomachs of animals, but were of a complex nature, with various and under some circumstances, interchangeable offices. The earlier physiologists were impressed with the idea that some kind of circulation was necessary for the distribution of nutriment to the several parts of the plant, but they were unable to derive any theory for the explanation of growth. There has been a prevalent idea, however, for more than 100 years that the crude sap ascends in the wood, especially in the sap-wood, and that the elaborated sap descends in the bark. This seemed to be

proved by the fact, first observed by Magnok, that colored liquids absorbed by plants, rose unchanged through the wood, but not through the bark, and also by the fact that if a ring of bark be removed from a growing stem, it ceased to increase below the ring, but formed a swelling at the edge of the bark above the ring. It was observed also that the bark of those trees, which, like the birch, bled freely from a fresh wound in the wood in the spring, was always at this season comparatively dry and free from sap.

Knights experimented upon the potato plant, and discovered that when a ring of bark was removed from the stem, no tubers were formed under ground or below the ring, but small tubers appeared in the axils of the leaves, about the ring, and the plant remained fresh and vigorous, and when the auxiliary tubers were taken off, blossomed and bore fruit. Further proof of the downward or rootward tendency of the elaborated sap is seen in the effect of ringing a fruit-bearing branch of a grape vine or pear, by which the fruit is increased in size through the abundance of nutriment, which, under ordinary circumstances, would descend to the lower part of the plant.

Prof. Ramey, of London, describes an interesting experiment performed by him on some young lilacs, which seems to prove conclusively that the crude sap rises in the wood, and the perfected sap, which is essential to the life of the plant descends only in the bark on the cambium layer just beneath it,and that it is incapable of penetrating the sap-wood or any other tissue.

The peculiar vital and organic power of the cambium is remarkably illustrated in the structure and growth of grafted trees. Every person is aware that pear trees are grown upon quince roots and that they often produce finer fruit than when cultivated as standards. This is doubtless owing to the fact that quince roots, being diminutive, furnish less water for the leaves, which thus elaborate a richer sap and a more perfectly developed wood and fruit. The apricot may be grafted on the plum, and the peach on the apricot, and the almond on the peach, and thus we may produce a tree with plum roots and almond leaves. The wood, however, of the stem, will consist of four distinct varieties, though formed from one continuous cambium layer. Below the almond and bark, we shall have perfect peach wood and bark, then perfect apricot wood and bark, and at the bottom perfect plum wood and bark. In this curious instance we see the intimate correspondence between the bark and the leaf, for if we should remove the almond branches we might cause the several sorts of wood to develop buds and leafy twigs each of its own kind. Each section of the compound stem has its seat of life in the cambium, and the cambium of each reproduces cells of its own species out of a common nutrient fluid. Thus there is seen to be a flow of crude sap upward in the wood and a flow of organizable material essential to the life of the plant proceeding from the leaf to the root through the bark and cambium layer. From this perfected sap the growth of the season is formed, and provision for the beginning of the next season's growth is also stored up, commonly in the root. As the fact of a rootward flow of elaborated sap is very generally denied at the present time, it may be well to quote a single line from the edition published in 1870, of the admiral text-book on botany by the late Prof. Henfrey, of London, which has been carefully revised by Dr. Masters. In reference to this subject he says, on page 590: "The evidence of a descent of elaborated sap is overwhelming. There is then a peculiar motion or circulation of the fluid contents of every living cell, called clyclosis, or rotation of sap, and there is a general movement of fluids upward and downward in the entire plant which may be named circulation of sap. The upward flow is vastly greater and more rapid than the downward, but the motive power in all three of the cases specified is unknown, except we rest satisfied with the old-fashioned, and to some persons unphilosophical, but nevertheless real and most wonderful, power called vital force, which in the living vegetable cell subordinates all other places. Numerous hypotheses have been advanced to account for the circulation of sap through the operation of some chemical or physical forces, but their very multiplicity exposes their unsatisfactory character."

Greu, in his Anatomy of Plants, gives an illustration to explain the ascent of sap, which reminds one of the attempt of a man to lift himself over a fence by pulling on his bootstraps. He represents a number of cells surrounding a tube or duct, and states that water, being absorbed by the cells, passes into the duct to a given height. The cell membranes then swell so as to compress the duct which forces the water a little higher. It now passes out into the empty cells above those first named; their walls are swollen by the absorption of the fluid, the duct is again compressed, and so on to the top of the tree. Malpighi was of the opinion that the contraction and expansion of air in the ducts under the influence of heat and cold pumped up the sap, but this could not be without valves to obstruct its reflex action, which do not exist, since willow or rose cuttings will grow as well with one end up as wtth the other. Moreover, at the period of greatest pressure, there is often no air in the tree, but every cell and duct is gorged with sap, as has been fully shown in the experiments at the college. De Saussure naturally supposed the sap vessels to be endowed with a capacity for contraction and dilation under the influence of appropriate stimulants, and thus force up the fluid which had been absorbed by the ordinary imbibition of the spongy rootlets.

Mr. Knights, without any good reason, as-

sumed the pith rags extending from the centre to the circumference of the stem to possess irritibility, and by their contraction and expansion to compress and dilate alternately the fibre vascular tissue, and so cause it to act somewhat like a force pump.

Du Petit Thomas, rejecting all mere physical forces, advanced the hypothesis that the original force is a vital one, but that in the spring, after a period of repose, the buds, under the influence of the sunshine, begins to expand, and by the absorption of sap which they exhale, create a vacuum or suction which puts the fluid in motion tnroughout the entire plant. Exhalation and chemical changes, then occurring, keep up the flow till the fall of the leaves in Autumn. This, however, entirely fails to account for the familiar fact that the sap is pressing into the plant with tremendous force months before there is the slightest activity in the buds. Ordinarily absorption land capillary attraction have been thought to assist in producing the phenomena of the motions of sap, though no one regards them as sufficient of themselves, since they not only lack the requisite power, but also that peculiar ability manifested by the living plant to select from the soluble materials of the soil just thase substances which every species needs for its peculiar constitution.

After this general discussion concerning the circulation of sap in plants, we are prepared to consider in a very brief manner the results of a few experiments instituted for the purpose of asking the trees a few questions which the books did not satisfactorily answer.

The earliest investigatiots in this direction of which we have a record were begun about the year 1820 by Rev. Stephen Hales, an English clergyman, and published in a volume entitled Statistical Essays, containing vegetable statistics; or an account of some statistical experiments on the sap of vegetables; being an essay toward the natural history of vegetation. Of use to those who are cnrious in the culture and improvement of gardening, &c.

For the first experiment described, he took a flower-pot in which was growing a sun-flower 3½ feet in height and with a leaf surface of 39 square feet, and covered the top of the pot with sheet lead, into which he inserted a narrow glass tube to admit the air, and a wider one stopped with a cork through which he watered the plant. This pot he weighed every morning and evening for fifteen days, and as there was no way of escape for the water poured into it, except through the absorption of the roots and the exhalation from the leaves, he learned that the average amount exhaled per diem was one pound and four ounces, or about one ounce of water for two square feet of leaf surface. Similar experiments with other plants showed that a cabbage exhaled in proportion to its surface nearly twice as much as the sun-flower, or one ounce for each square foot, and that a grape-vine exhaled less than most other plants. Hence the vine rarely suffers from drought.

Nearly all modern books on vegetable physiology, in whatever language printed, have given the result of Hales' experiments as the maximum pressure attained in observations upon the ascent of sap, and the grape-vine has been generally regarded as an exceptional plant in this particular, and a kind of stumbling block in the way of speculating physiologists. To learn how far this might be true, and what were the facts concerning the spring flow of sap in our forest trees, and especially in the sugar maple,in regard to which scarcely any accurate observations had been made, we begun some investigations at the agricultural college last March, the results of which may be summarily stated as follows: The great majority of trees and shrubs do not bleed from wounds at any season of the year, and the few species in our latitude which exhibit this phenomena at all do so only when deprived of their foliage. No peculiarity of structure or habitat has yet been detected to account for this extraordinary differance among them. The soft and spongy wood of the willow or elm, which often grows in moist ground, might be deemed specially suited to absorb and pour forth water before the expansion of their leaves or flowers in spring, but the wood appears to contain scarcely any sap at that time. Of more than sixty species of trees and shrubs tested by boring a three-quarter-inch hole, usually to the depth of two inches into the sap wood near the earth, only those of the following genera showed any tendency to bleed,vix.: Betula, which includes the birches; Acer,the maples; Vitis, the vines; Ostyra, the hornbean; Juglans, the walnuts. The genus Garga, to which belong the hickories, sometimes exudes a very little sap, and possibly the fagus, or beech, and carpinus, the hop hornbean may do the same, though no opportunity offered of testing them satisfactorily. On the 19th of March, when the ground was still covered with snow, but free from frost, fourteen species of the common forest trees were tapped, and nearly all the species brought under observation were tapped first on the 21st of April and again on the 30th of the same month. It was discovered that each species of those which flowed had its own time of beginning, when it seemed to awake from its winter's repose; that the flow steadily increased in quantity and force, as indicated by the weight of sap and the pressnre on a mercurial gauge, until it reached its maximum, and then gradually declined; and that the composition of the sap of the several species differed remarkably, according to the date of the flow, and especially the time of its beginning. The sugar maple begins to flow in November, reaching its maximum about the 1st of May. The black birch begins the last of March, attains its maximum flow about the last of April, and stops by the middle of May. Tne wild summer grape-vine begins to flow by

the 1st of May, arrives at its maximnm flow and pressure about the 20th of May, and ceases early in June. This difference in the season of flowing is of course accompanied by a corresponding variation in temperature of the soil and atmosphere, and with the chemical composition of the sap. Thus the principal ingredient of maple sap is cane sugar, that of birch sap, grape sugar, while that of vine sap is dextrine or gum.

In regard to the circumstances which affect the flow of sap from the sugar-maple, the following results have been arrived at: A careful comparison of the daily weight of sap from several trees with the meteorological observations of the same period conclusively prove that while the general flow corresponds with the season, rising to a maximum and then declining, yet the daily and hourly flow varies with the weather. The most unfavorable weather is that which is either steadily and severely cold, or uniformly warm and foggy, while the best sap days are such as are bright and warm at mid-day, but preceded by freezing nights. Such variations of temperature as affect the flow of maple sap are most likely to occur when the ground is covered with snow, because the heat of the sun during the day cannot then accumulate to moderate the cooling influence of the night. The most probable explanation of the effect of these alterations appears to be that the outer tissues of the trees are partially emptied of their contents by the contracting influence of cold, the sap being driven into the heart-wood of the trunk and large roots. Meanwhile absorption goes on as usual underground, and thus, when relief is afforded by the heat of the sun, the sap rushes back to the surface and flows abundantly. Experiments also proved that spring sap enters and fills the heart-wood as well as the albumen. Trees tapped on the north side yielded twice as much sap as those tapped on the south side, and flowed two weeks longer. Sap flows most freely within twelve feet of the earth, and flows from both ends of a cut root. The average yield of ordinary trees in a sugar orchard is sixty pounds of sap and two pounds of sugar, but a tree in Leverett is reported to have produced 1,400 pounds of sap—probably about forty pounds of sugar. There is no good evidence that the bleeding of trees or vines has any appreciable effect upon their growth or health It only remains to state in a few words some of the surprising results obtained by the application of mercurial gauges to the sugar maple, the black birch and the grape vine. Observations were made on one or more gauges several times daily, and occasionally every hour of the day and night, from the 1st of April to the 20th of July. A gauge was attached to the sugar maple on March 31st,which was three days after the maximum flow of sap for this species, so that further observations are required earlier in the season to complete the record and determine with certainty the maximum pressure which it exhibits in the spring. Of the record made the following facts are specially interesting: First, the mercury was subject to constant and singular oscillations, standing usually in the morning below zero, so that there was indicated a powerful suction into the tree, and rising rapidly with the sun, until the force indicated was sufficient to sustain a column of water many feet in height. Thus, at 6 A. M. on April 21st, there was a snction into the tree sufficient to raise a column of water 25.95 feet. As soon as the morning sun shone upon the tree the mercury suddenly began to rise, so that at 8:15 A. M., the pressure outward was enough to sustain a column of water 18.47 feet in height, a change represented by more than 44 feet of water. On the morning of April 22d, the change was still greater, requiring for its representation 47.42 feet of water. These extraordinary fluctuations were not attended by any peculiar state of the weather, and happened twelve days before there were any indications of growth to be detected in the buds. These observations are quite new and as yet wholly inexplicable, but will receive further attention another spring. The maximum pressure of the sap for the season was observed at 10 A. M. on April 11th, and was equal to sustaining a column of water 31.73 feet high. This was an excellent sap day considering the lateness of the season. There was noted a general correspondence between the flow of sap in other maples and the pressure on the gauge. After April 29th the mercury remained constantly below zero day and night. During May there was a uniform suction equal to about eight feet of water, and the unaccountable feature of this fact is, that though apparently produced by exhalation from the expanded leaves, it remained the same, day and night, for several weeks. In June the suction gradually lessened and finally disappeared, the mercury standing steadily at zero. The fact that exhalation from the leaves of growing plants would cause a suction capable of holding up several feet of water was discovered by Hales, but has no apparent connection with these phenomena. On the 20th of April two gauges were attached to a large black birch, one at the ground and the other thirty feet higher. The next morning at 6 o'clock the lower gauge indicated the astonishing pressure of 56.55 feet of water, and the upper one of 26.74 feet. The difference between the indications of the two gauges was thus 30.20 feet, so that they corresponded almost precisely, as if connected by a tnbe. In order to learn whether the same principal would prevail if the upper gauge was moved, it was raised twelve feet higher. The same correspondence continued through nearly all the observations of the season, notwithstanding the gauges were separated by 42.2 feet of close-grained birch wood. At 12:30 P. M. on April 21st a hole was bored into the tree on the side opposite to the lower gauge, and at the same level. Both gauges at once began to

show diminished pressure, while sap issued freely from the whole. In fifteen minutes one pound of sap having escaped, it was found that both gauges had fallen equal to 19.27 of water. Upon closing the hole, the gauges rose in ten minutes to their previous level, showing that the rootlets had reabsorbed in that brief period the sap which had escaped from the tree, notwithstanding the enormous pressure already existing. A stop-cock having been inserted into the hole opposite the lower gauge, it was found that the communication between it and both the gauges was almost instantaneous, which shows that the tree must have been entirely filled with sap, which exerted its pressure in all directions as freely as if standing in a cylindrical vessel 42.2 feet in height. The sap pressure continued to increase, until the 4th of May it represented a column of water 84.77 feet in height, which is nearly double the highest pressure of vegetable sap ever before recorded. The buds of the birch now began to expand, the pressure of the sap to diminish, and the oscillations of the mercury to become more decided and regular than before. The upper gauge ceased to vary on May 14th, remaining stationary at zero. The suction manifested by the birch was very little, never exceeding nine feet of water, and continned only a few days. To determine if possible whether any other force than the vital action of the roots was necessary to produce the extraordinary phenomena described, a gauge was attached to the root of a black birch tree as follows: The tree stood in moist ground at the foot of the south slope of a ravine, in such a situation that the earth round it was shaded from the sun by the overhanging bank. A root was then followed from the trunk to the distance of ten feet, where it was carefully cut off one foot below the surface, and a piece removed between the cut and the tree. The end of the root, thus entirely detatched from the tree, and lying in a horizontal position at the depth of one foot in the cold, damp earth, unreached by the sunshine, and for the most part unaffected by the temperature of the atmosphere, measured about one inch in diameter. To this was carefully adjusted a mercurial gauge on April 26th. The pressure at once became evident, and rose constantly, with very slight fluctuations, until at noon on the 30th of April. it has attained the unequaled height of 85 8 feet of water. This wonderful result showed that the absorbing power of living birch rootlets, without the aid of any of the numerous helps imposed upon them by ingenious philosophers, such as exhalation, dilation, oscillation and contraction, capillarity, &c., &c., was quite sufficient to account for the most essential of the curious phenomena connected with the circulation of sap. Unfortunately, in an attempt to increase the capacity of the gauge, the bark of the root was injured, and this most interesting experiment terminated. There can be little doubt that future trials, carefully conducted, with suitable apparatus, will achieve still more marvelous results.

The original experiment upon the grape vine, the story of which has come down to us through 150 years, was repeated on May 2d, and a pressure of 49.52 feet of water obtained on May 25th. This is 6½ feet higher than was observed by Hales, or than has been recorded in any of the books. The peculiar features of the pressure of the vine sap are, its lateness in the season; its apparent independence of the weather; its uniform and moderate rise day and night to its maximum; its very gradual decline to zero without any marked oscillations; and its constant and almost unvarying suction of from 4.5 to 6.5 feet of water, manifested from June 20th to July 20th, when the observations ceased.

In conclusion, we may as well admit that life is still a special force in nature, and not to be resolved by vain and ignorant man into any other sort or combination of attractions or repulsione, whether called electricity, osmose, or any other name. There is obviously need of much more investigation and definite knowledge concerning the phenomena of vegetable nutrition and development, and it may be well to remember that we are everywhere surrounded by objects for scientific research demanding our utmost talent, position and skill, but sure to give ample and profitable results to every diligent inquirer. We are often inclined to encourage ourselves to remain in ignorance and idleness by dreaming of grand opportunities for study in some far-off time or space, but let all remember what every student of nature knows full well, that within the limited circle of our vision lie concealed more mysteries than with our best endeavors we can ever solve.

THE WASTE OF FENCES.

It is certainly within the bounds of fact to state that the absolute cost of fences in the United States is equal to the value of all the live stock kept upon the farms. But, unfortunately, this vast sum does not include the annual loss arising from the waste of land consequent upon our costly system of fencing, which, including the damage done to crops by the encouragement of weeds and their encroachment upon our fields, will, doubtless, reach every year to fully six per cent. upon the cost of the fences, upon the whole, and their annual cost, may be estimated at equivalent to double the value of all our live stock. The Commissioner of the Agricultural Department, in his last monthly report, estimates the cost of fencing a farm of 100 acres in Pennsylvania, with chestnut

posts and rails, at $1,610.62, a sum actually far in excess of the aggregate value of the stock kept upon farms in that State. We, therefore, claim for our own estimate a very close approximation to the actual facts.

When we come to realize that this ruinous expense is in large part unnecessary; that it is, in fact, maintained in defiance of common sense and better knowledge, and that its abolition in a great part is entirely and easily practicable, it becomes matter for astonishment that such a costly system should be continued. No wonder that farming does not pay. What business can be made to pay when the principles of economy are so defied?

In our article last week we spoke of this waste as being one of the first that should be remedied under a system of improved farming. We wish to point out how this has been done, is now done, and may be done. There are two ways in which this wasteful system may be either totally or partially abolished. One is, by following the soiling system of feeding and confining the stock altogether to yards, thus entirely doing away with the need for inside fences, and the other by fencing off a field which is used for pasture, and removing all other inside fences. At the outset we are met with the objection that soiling stock requires so much labor that it is not possible for the poorer farmers to follow that plan. But we have passed through extensive districts in France and Germany, where the farmers are much poorer than any here, and cultivate only very small farms, or rather patches, seldom equal to twenty acres each, and, curiously enough, they agree that they cannot afford to do anything else with their stock but shut them up, and grow, cut, and carry feed for them, to be consumed in the stable or the yard. In their case it is "their poverty and not their will consents," and they adopt the system because they cannot afford any other. For many miles through the richest and most closely populated country in that part of Europe, the boundaries between the farms are low, narrow banks, mere furrows covered with grass or clover, and no other fence is visible, not even upon the roads. And yet the choicest dairy products are there made in abundance. At the same time it is the boast of the farmers who cultivate with most success and profit the high-rented farms in Great Britain that their land all lies within a ring fence, with nothing to obstruct its cultivation. It may, therefore, be taken as demonstrated that so far from it being impossible for the poorer farmer to keep his stock upon what is known as the soiling system, it may be accepted as a good reason for his poverty that he keeps his stock in any other way. It must be understood that we refer to those cases in which the farming is mixed, and where land is scarce and high, and not to those in which sheep farming is carried on, or where the dairy is a special pursuit, and pasturing altogether followed, nor where land is so low in price that a small crop upon a large area is for the present more desirable than a large crop upon a small area.

Wherever it is desired to farm with the greatest economy we would recommend that all interior fences should be removed, a simple wagon road or path being maintained between them, and sown to clover and grass, which is mowed as any other crop; and as far as possible that a portion of the farm most conveniently situated for the purpose should be appropriated to a succession of crops, which should be devoted to the maintenance of the stock in sheds and yards. The good results of this system have been found to be: First, an actual saving of time and labor in growing the feed and feeding it; second, a better yield of milk from cows and of beef or pork from feeding stock, and better health in all the animals subjected to it; third, an immense gain in the quantity and the quality of the manure saved; fourth, a greatly increased product from the same area of ground; and, lastly, but not least, a far greater subordination of all the business of the farm to methodical and consequently easy and profitable management. When we assure our readers that our own experience has resulted in the plentiful feeding of one cow upon the product of one acre for the whole year, and that others who have fed their stock upon this system have done even better than that, it is to be hoped that some enterprising farmers at least, who are looking to the most profitable management of their farms, will, as soon as may be, inaugurate this system, and give an example of its benefits to their neighbors; and in so doing help to show that the present great waste of fences need exist no longer.—*New York Times.*

AMENITIES OF THE LUMBER CAMP.

The Hospitalities of Prominent Michigan Lumbermen—Lumbering on the Tittabawassee—What Messrs. Green & Plummer and others are Doing this Winter.

From the Saginaw Enterprise.

Reader did you ever visit a lumber camp among the pines of our beautiful peninsula? Not one of those half-way concerns near some large mill, but one of the 'regulars' where men, and horses and cattle bury themselves from the busy haunts of civilization for months, for the use of man. If you have never been there, then you can form but a vague idea of the business which is so largely prosecuted, and which represents untold wealth.

Among the heavy operators in the woods this winter is the firm of W. S. Green & Son and C. H. Plummer, of Saginaw City, their camps being located on the Tittabawassee. Several of the friends of Messrs. Green & Plumer having expressed a wish to look into the business in detail, cards of invitation were issued on Monday afternoon. These cards, by the way, were as unique as appropriate, and deserve a passing notice. They were sawed out of a pine slab, three by four inches, bark and all a ribbon was tastefully fastened through a hole in one corner and on the inside was the inscription:

"You are gushingly invited to a backwoods dinner at C. H. Plummer's camp, Feb. 10. Wine cards will be furnished."

The object of the party was to drop into a lumber camp in its every day life, and consequently Messrs. Green & Plummer took special care that it should be an entire surprise to the men in the camp.

The party took the 7:55 A. M., train on the F. & P. M. rallway yesterday, destined for Averill's, a point on the road seven miles above Midland. The party was made up as follows: C. H. Plummer, C. H. Green, Miss Georgia Green, Miss Peck, A. F. R. Braley and wife, Rev. A. P. Shaw and wife, John Handley and wife, Mr. Eugene Coleman and wife, and a representative of the *Enterprise.*

At Averill's the party left the cars and were packed into a sleigh which had been sent up from Midland for the purpose. It required some knowledge of the elasticity of the human frame to crowd thirteen healthy individuals into one sleigh, but Mr. Green "bossed" the job, and did it well. A pleasant ride of eight miles north brought us to the turning point, and the well beaten track was left for a tote road two miles long into the camp. These tote roads are peculiar to themselves and bear no comparison to any other roads that could be imagined. They are used solely for hauling supplies into camp and are as narrow and intricate as the movements of a Congressman. The party reached Mr. Plummer's camp about noon, the cook being taken completely by surprise. While dinner was being prepared our item hunter took a look into the surroundings. This camp is about three and one-half miles from the Tittabawassee, and eleven miles nearly north of Averills The firm have three other camps on this stream, which, however, are operated by jobbers. C. C. Plummer has the entire supervision of the lumbering of the firm, and having followed the business from a boy, in Maine, Minnesota and Michigan, understands it in detail from taking the log in the tree to piling the lumber on the dock. At this camp they are putting in 1,700,000 feet of logs, all of which are cut and skidded. C. Loomis, is the foreman, and with four teams and twelve men he has banked already 9,000 pieces, which is considered by experienced lumbermen to be rattling work. The teamsters are called at 3 o'clock in the morning, and are allowed an hour to feed their teams and get their breakfast. They make five trips at this camp per day, getting in about 8 o'clock in the evening. The work is laborious, but the men are strong enough to knock down an ox, and hearty enough to eat him. Their pay averages from $20 to $25 per month this winter.

The total amount which the four camps of this firm will bank this winter is estimated at 6,500,000 feet, which with the seven million feet hung up last year, will stock the mill of Sturtevant, Green, Plummer & Co., at Saginaw City, to its full capacity, making due allowance for those that may be "hung up" the coming season. As the firm of W. S. Green & Son, and C. H. Plummer, control over a hundred million feet of pine yet in the tree, it will be seen it will be some years before the supply will be exhausted.

In the vicinity of these camps are several of other firms. D. W. Jenks, of St. Clair is running two camps, and expects to get in about four million feet. Charles

Sterling is running one camp, putting in a million and a half.

The estate of E. C. Litchfield is operating one camp and expects to bank about a million. Fowler, Merrick & Hesselman, of Detroit, have two parties, Burnett and Kelsey, getting out pine and oak timber for the European market. They have already got out 400 pieces of oak, and expect to put in 5,000,000 feet of square pine timber, having 100 men and a large number of teams at work. This timber is as fine as any we ever saw.

While noting these operations dinner had been prepared at Mr. Plummer's camp, and the party with appetites sharpened by their morning ride needed no urging to partake of even a camp dinner. It was a *fac simile* of the every day fare of the lumbermen, and we give the bill of fare, which was emblazoned on a chip for the occasion.

Pork, beef, potatoes, bread, warm rolls pickles, butter, tea, pie and doughnuts.

It was served up in good style, on the rude wooden table, and was relished by the entire party. After the dinner they visited the banking grounds, where the logs are rolled to await the spring freshet, and then took their homeward route, reaching Averills in good time for the 4:36 train. A series of resolutions, acknowledging the hospitality and liberality of Messrs. Green & Plummer were adopted, but are crowded out.

It is seldom that more real enjoyment can be crowded into one day than was experienced by this party yesterday.

ST. LOUIS SAW WORKS.

Branch, Crookes & Co.

From the Leavenworth Daily Commercial.

The manufacture of saws has been brought to a degree of perfection in the United States that has given them a higher reputation than the finest imported, and almost entirely superceded those made in Europe. This is especially so in the class of saws used by lumbermen and others requiring heavy saws, such as circular, gang, mill, muly, cross-cut, &c.

Among the prominent manufacturers in this country, the house of Branch, Crookes & Co., of St. Louis, which was established in 1849, now enjoy a national reputation of producing the best saws known to the markets of the world. These gentlemen have not only secured a national reputation for the steel they use and the unsurpassed facilities they have for tempering their large saws, but also manufacture large saws of a very superior quality, used by carpenters, cabinet makers, and others, which are rapidly taking the place of those imported.

The American saws manufactured by Branch, Crookes & Co., command higher prices than those made by any other establishment of the kind, upon this or the European continent, and are now used by all the heavy lumbermen in the large pineries of Wisconsin, Minnesota and Michigan, as being the cheapest saw they can use, on account of their superiority over all others in the market.

While their orders from the great pineries of the northwest are not equalled by any other manufacturers in the country, they have secured equally as large a trade from the lumber districts of the southern and western states.

Those using saws have become convinced, that a saw not properly tempered or made from inferior steel, although sold at less figures, is much the dearest saw in the end.

The facts that Messrs. Branch, Crookes & Co., are known to import only the best steel made in the world, and use none other, and having facilities for tempering steel known only to themselves, and having an experience of nearly thirty years, and being among the most responsible and reliable business men in the country, have enabled them to command the patronage of the most experienced lumbermen in the United States, also carpenters and others using small saws of every description.

We understand their increased facilities to supply their old as well as new customers in 1874 will enable them to fill orders more promptly than at any former period of their long and successful career as manufacturers.

Wisconsin lumbermen visiting Milwaukee should not fail to visit the evening entertainments offered by manager HARRY DEAKIN at the Grand Opera House. Mr. DEAKIN has spared neither energy or expense in making the Opera House attractive by the exhibition of the best talent of the legitimate drama.

NATIONAL LUMBER ASSOCIATION.

Opinions of Practical Men on the Necessity of a Practical Organization.

The following letters from gentlemen of Boston, Grand Rapids, Mich., St. Louis and Quebec, Canada, were written in response to the solicitation of the editor of the *Boston Lumber Trade* calling for expression of views in relation to the necessity of a National Association of Lumbermen. The WISCONSIN LUMBERMAN has repeatedly produced editorial argument in favor of such National Association, as well as both State and local organizations, and we are pleased to note that an increasing interest in the matter is being felt throughout the lumber localities of the country.

OFFICE CITY SAW MILLS,
SAVANNAH, GA., Feb. 3, 1874.

J. HENRY SYMONDS, ESQ., *Boston, Mass.*

Dear Sir:—Your favor of the 27th ult., is at hand and contents have had my best attention; I have noticed at different times your views as to the great benefit to be derived from a unity of feeling on the part of manufacturers and dealers in lumber, and most cordially endorse them. A National Convention would no doubt be beneficial to the whole trade in that it would give to the people at large a more correct idea of its importance (it being the second great industry of our country,) would by bringing those at interest together, tend to remove differences that ought not to exist, and establish fixed rules for inspection and sale of lumber. The last can only be done by united action on the part of the manufacturers. The manufacturers of white pine and spruce and the manufacturers of southern yellow pine have but few interests common to both. The inspection for both kinds of lumber cannot be made alike, neither can any scale of prices be fixed to govern both branches of the trade; for these reasons a national convention will not be of any material benefit to southern manufacturers until the latter shall have become have united and established for themselves fixed rules and regulations to govern the inspection and sale of their lumber. This has been accomplished to a certain extent by their action in convention last year and I hope the convention, to be held in March next at Wilmington, N. C., will be productive of great good to our branch of the trade. At that convention we hope to have a full attendance from all parts of the south and to them reconcile the slight differences that at present exist between the several lumber ports in our section. The question of a national convention will no doubt be brought before the convention and its actions upon this subject will be duly reported to you. I see no good reason why manufacturers of lumber should not regulate the classification of lumber and the price and terms of sale as do those that manufacture iron, cotton and woollen goods, etc., and I hope the efforts you have made in calling the attention of lumber manufacturers to this matter will aid in a convention of all interested, that must necessarily be productive of good to them. Should it be decided to hold a convention, if the place of meeting is a central one, you will no doubt find a number of our manufacturers that will make it convenient to attend and if advisable participate in its deliberation.

I remain very truly yours,
T. L. KINSEY.
President Southern Lumber and Timber Association.

EMPIRE GANG SAW MILLS,
GRAND RAPIDS, MICH., Feb. 5, 1874.

J. HENRY SYMONDS, *Boston, Mass.:*

Dear Sir:—Yours of 26th ult., received and noted. There is evidently great need for some move by the manufacturers of lumber for a provision in some form, by which at least once or twice a year views may be exchanged. Would it not be a good plan to make a call for a meeting of manufacturers of lumber at some point in Pennsylvania to form a National Association, as to meet about the 1st of June. If If you should think a call advisable as named above, after looking over your various correspondents, it would likely be well enough to send blanks with proper headings, (printed) naming the objects, etc., to some principal lumber manufacturers in each district through the United States and Canada, for them to get the signatures to such call, after which the same to be returned to the publisher for publication. We would be glad to get all parties interested in the manufacture of lumber through this portion of the country, to signify their approval by their signature, etc. Yours very truly,

WONDERLY & Co.

ST. LOUIS, Feb. 5, 1874.

J. HENRY SYMONDS, ESQ., *Boston, Mass.*:

Dear Sir:—In replying to your favor of the 26th ult., requesting opinions and suggestions concerning the idea of a national association of lumbermen similar in some respects to the existing organizations of iron men etc., we beg leave to preface our views with the remark that our suggestions are not so much original, but are based upon convictions forced upon us by the results of a quiet ventilation of the subject dating back some time. The central idea or aim is the necessity of perfecting the systems of transacting and conducting this immense interest, and it is only through an interchange of opinions and the profits of a lesson from the experience of others that a general benefit can be obtained. There are many things that need correcting, which operate perniciously and which can only be bettered through a combined action on the part of the manufacturers. It has only been within the past five years that statistics of a reliable character have been collected and published in the United States, and the lack of a fair knowledge of the character of a season's operations among many, even where the knowledge was attainable, its lack being peculiarly marked and at the same time reprehensible (?), has left many operators in a position without proper or adequate means of forming their ideas for future transactions and the assertion will bear criticism that lumbermen work more in the dark than any other class of manufacturers.

It is true, that there is a radical difference in the mode of managing the business, but this fact should more clearly set forth the necessity and desirability of more light on the subject. Our own experience is no doubt the best school but this does not apply when we are governed by the actions of others entirely.

It would be a good deed accomplished if the association only educated the trade to a standard which is really demanded. We take occasion here to say that your publication and others are valuable agents in promoting the interests of the trade in this respect.

The waste of timber and destruction of the forests are matters claiming the attention of many, and we fear very little charge will be made, or more economy become noticeable soon, but the question is a serious one, and will give the country food for reflection for a long time to come. Many wild speculations are indulged in by writers of the different sections, and it would be well to have some progress towards a fair degree of accuracy atrempted as regards the future yield, and this cannot be better accomplished than through the instrumentality of the association.

The question of transportation assumes great importance and as there is room for improvement in the methods of handling lumber, thereby saving large amounts each year to the manufacturer, this would no doubt, as it does now, in a certain way, receive the requisite attention and consideration.

State organizations would be the first steps towards a general organization but the national association should follow as the different sections of the country are too intimately connected in a great chain, as it were to allow of any division.

We deprecate any such objects as attempting to govern and rule the prices by a combination of this character, which would be a monopoly, and in its action would carry with it an unjust discrimination, and tend a constriction of the cardinal principles of trade.

There are numerous other points, which deserve notice and which naturally suggest themselves, but we think that the foregoing, without specious comment, is sufficient argument in favor of the association. We regret we did not see the articles alluded to which you published in the spring of 1873, as we may have repeated facts which you have used, and offered nothing new. However, it is general endorsement and expression that is wanted and we state the views of a considerable portion of the trade here in the west.

Respectfully,

BERTHOLD & JENNINGS.

QUEBEC, Jan. 30, 1874.

J. HENRY SYMOND, ESQ., *Boston*:

Dear Sir:—We duly received your esteemed favor of 27th. We heartily enter into your views, as we know from experience under what great and numerous disadvantages the lumber trade labors, owing to the want of some sort of general and acknowledge basis, as between buyers and sellers.

We are sorry, however, to have to make the confession that in our district here, (St. Lawrence,) there never has been any attempt made to ameliorate the lumber business by establishing a uniform system of inspection, etc., but it has been always met by our dealers and manufacturers

with hostility. It is a pity such stupidity reign, but so it is, and we would be afraid to undertake the herculean task of removing it. But we are very hopeful that the praiseworthy movement will be crowned with success in the United States, and then our folks here, like sheep, will follow suit, or become more tractable.

In the Ottawa section, we think there is more chance of success; but unfortunately our Mr. Routh, who works that section, is absent in Europe, until May next.

Wishing the national lumbermen's association a brilliant success which it deserves, we are dear sir, yours very truly,

CARBRAY & ROUTH.

THE CURRENT DEBATE.

Continuation of the Argument on the Timber Famine Question—Reply of Mr. James Little to Mr. Wait—Further Considerations in Support of his Position—Condition of the Resources of Canada.

Mr. James Little, who may be called tha author of the present panic concerning the timber supply, gives the *Boston Lumber Trade* a further exposition of his views in which he argues that the United States cannot reasonably depend on Canada for any length of time when the forests of Wisconsin, Michigan, and the other lumber producing states shall have been exhausted. The subject is one of such exteusive interest that we give our readers the benefit of Mr. Little's argument in full:

When, a few years ago, it was supposed the coal beds of Britain would be exhaused in two or three centuries, the people there were alarmed beyond measure at the prospect of a terrible calamity so soon to fall on the country. The press was full of the subject—had daily leaders on it, and, if I am not mistaken, it was made a subject of parliamentary inquiry; and until practical scientific investigations stepped in to allay their fears, the coal supply was the one sole question of discussion and the one topic of conversation in the British Isles. And now, although the people of the United States and Canada are on the very eve of a total exhaustion of the timber supply, a question of not much less importance to us than that which so powerfully exercised the minds of our friends across the Atlantic, hardly a thought is given to the subject by either press or people. We have, to be sure, seen paragraphs going the rounds of the press and giving me for authority, (evidently to throw discredit on my statements), "that the pine crop, east of the Rocky mountains, will be exhausted in five short years," and that the United States "will require seventy thousand millions of feet, and that we have not more than half that amount remaining in the woods." Neither of which statements was ever made by me—and this is about all the leading papers, with but few exceptions, either in the states or Canada, say on the subject, giving it more as an ordinary fragment of news than any thought to the matter as worthy of investigation.

I brought the subject of the timber supply to the notice of the public, both here and in the states, in a communication which was submitted to the national board of trade convention, which met at Chicago on the 22d of October last, and again through the columns of the *Lumber Trade* on the 3d of January last, in answer to Mr. Wait, the associate editor of the *Michigan Lumberman*, who appeared anxious to present the supply as large as possible, in which I showed on his own figures, that the whole pine timber crop of the Union, east of the Rocky mountains and the Gulf of Florida, would only give a supply to the northern states alone for a period of fifteen years at the present rate of consumption, and, with the addition of but five per cent. yearly increase, the north would use up all the pine of both north and south in the short time of twelve years. I have, since the publication of that article, obtained some valuable statistics from the congressional reports of 1870, which place the lumber question in a yet more alarming position so far as regards consumption, than my investigations warranted me in doing at that time. It appears from these reports, that the consumption of all descriptions of timber amounted to nearly thirteen thousand millions of feet in 1870, and that, of this quantity, that of pine alone, I am advised, amounted to eight thousand eight hundred millions. This however, included the importation from Canada, the exact amount of which is not given, but, as the whole of that year's production in Ontario and Quebec amounted to some seven hundred millions of boards and deals exported to all countries, it will be safe to

assume that the states did not receive over six hundred millions of that product; and now confining the question as we should do, to the states and territories east of the Rocky mountains, if, in addition to the amount received from Canada, we allow two hundred millions to the Pacific slope and deduct these from the eight thousand, eight hundred millions, we have eight thousand millions of pine as the product and consumption of the north and south in 1870; and I think it will hardly be disputed, when we take into account the large amount of pine timber, square, flatted and round used for all purposes, the enormous amount of shingles manufactured out of that description of timber, and the excess of consumption of the present time over that of 1870, the whole will foot up two thousand millions, which, added to the eight thousand millions of that year, will give us ten thousand millions as the present yearly consumption of pine by the northern and southern states and territories; and as the associate editor of the *Michigan Lumberman* already referred to, who professes to be thoroughly posted and "good authority" on the subject, and who certainly appears desirous of giving it at its highest figure, has given us, after a careful estimate of the pine crop of the Union this side of Rocky mountains, a total amount of one hundred and five thousand millions, and, being myself also desirous of giving every foot that can be claimed for other localities, I will add to that gentleman's estimate, one thousand six hundred millions for Alabama and fourteen thousand millions, claimed by a Wisconsin paper to be underestimated for that state, and thus increase the total supply from one hundred and five thousand millions, to one hundred and twenty thousand six hundred millions. And now, if we divide the latter amount by ten thousand millions estimated about as the present annual consumption, it will be seen that a little over twelve years will strip both north and south of all the pine timber at the highest estimate those interested claim for those states, without adding a foot for the large yearly increasing consumption, which must inevitably take place and which must reduce the time of total exhaustion by several years. So much for the pine timber crop of the Old Union as estimated by its own people.

It has been well and truthfully remarked by a writer in the *New York Real Estate Record* that "when we go west, we hear of the inexhaustible forests of Canada, and when in Canada, we are called on to contemplate the illimitable forests of the west," and thus each country is looking to the other as the ultimate source of supply; and the Ottawa region as regards Canada, and Michigan as regards the states, are pointed to by the respective parties as boundless and unfailing fields for the lumberman's axe, but it is high time this illusory idea was expelled, and this I will endeavor to do, so far as regards the resources of this country, by presenting the facts on the subject as near as we can gather them.

Mr. Wait, the gentleman already referred to, insists that the Canadian supply will amount to one hundred thousands millions of feet, giving us as the sources of supply, from which he says that enormous amount can be drawn, namely St. John, Ottawa, Gatineau, Rideau, Trent, Lake Simcoe, Georgian Bay, Penetanguishene, Spanish and French rivers, Fort William, Red river of the north and the Sascachewan valley.

Mr. Wait seems not aware that the Gatineau is one of the tributaries of the Ottawa, as he speaks of them as distinct sections of supply, and this he also does in mentioning Penetanguishene and the French and Spanish rivers, which empty into Georgian bay, as distinct from it, thus, perhaps unintentionally, increasing by four the enumeration of the different localities from which he thinks large supplies can be obtained; and he also speaks of having made a personal inspection of them all, but he does not tell us when that took place. It surely must have been many years ago, as I am confident, if he visited them now, he would be forced to a different conclusion of the extent of the supply. I will, however, now try to make him sensible of his error by placing before the public as near as it is possible for me or any one else just now to do, the present state of those localities as regards their capacities of furnishing us with the supplies of pine he claims for them. And first, beginning in the order he has presented them, with St. John. We all know that the territory drained by that river has been undergoing a course of depletion for about a century, and from all accounts from that section, the pine timber may be considered all but exhausted, the spruce now to a large extent taking its place as an article of commerce. With regard to the Ottawa which is the only pine territory we have worth a moment's

consideration in discussing the question, one would conclude by hearing some people speak of that river, that the country it drained was one vast pine forest up to the height of land, dividing the province of Quebec from the Hudson bay territory on the Quebec side, and from the river up to the watershed on the Ontario side, but, in this he would be very much mistaken; not a fourth of it ever had pine on it either scattering or in groves; and there is hardly a stream on it, but what in the first instance has been ransacked over and over again from its month to its source for square timber, a course very destructive to the forests; and this ever since the provinces of Quebec and Ontario became exporters of that commodity, and the mill men found that the best timber paid best, have for years been following in the track of the hewers looking for what would make clear lumber, often taking but a single saw log, and not even that if the least defect appeared, out of a tree, leaving the greater part of it to rot in the woods, thus, while making fortunes for themselves recklessly destroying millions of dollars worth of timber, which, had they preserved it, would now add largely to the revenues and be otherwise a source of wealth to the country. The best timber is now gone from the greater part of the territory and any one visiting the mills at Ottawa will be convinced of this on seeing what an inferior description of logs they are now stocked with. The amount of the annual products at the present time may be given at four hundred millions of feet, besides square timber and having myself had frequent opportunities of discussing the question of supply with lumbermen from all sections of the valley, I am confident where one can be found to give it over twenty years supply, a dozen will be found to give it under that term at the present rate of consumption and as there are new mills constantly being built, the time of total exhaustion will of course be correspondingly lessened and but little need be looked for for exportation in a dozen years from now.

It is a mistake to suppose that the timber sections of the county have not been explored. The government of Quebec have paid special attention to this matter for years, and so far as regards the Ottawa region, we find that under its direction, Mr. Bignall a provincial land surveyor, explored in 1871, from a point called Weymontachinque, about sixty miles from the source of the St. Maurice river, up to its sonrce and over for some distanee, into the Hudson bay territory without finding any pine. He then returned and explored the head waters of the Gatineau river and found no pine in all that distance. He then explored its principal branch for a distance of some sixty miles from its source until he struck a surveyed section of it and found no pine. He then explored two other branches for a considerable distance with a like result. He then struck for the head waters of the Ottawa itself and reached it without finding any pine. Here we have a government expert in charge of a gang of woodsmen, starting from the St. Maurice which empties into the St. Lawrence about ninety miles below Montreal, and traversing the country for hundreds of miles, till he reached the Ottawa, exploring the head waters of the Gatineau, and crossing several other rivers at their sources without finding a stick of pine on the whole route.

Again we have Mr. Lindsay Russell, also a provincial land surveyor, despatched by the government in 1870 to examine the country between the river du Lievre which empties into the Ottawa and the river St. Maurice already mentioned. He started from the Lievre, about half way between its mouth and its source, and explored the country, crossing the Petite Nation and the Rouge rivers, to the St. Maurice, striking it about twenty miles further down than where Mr. Bignall started from as above detailed. The report says for the first section they "found no pine elsewhere than in places where the lumbermen had cut most of what was worth taking. Even before they came, there must have been little in that section." On sections 1, 2 and 3 they found no pine; on section 5 they found some that, in the language of the report, "would warrant lumbering" and this was all they found in the whole of their explorations between the river du Lievre and the St. Maurice a distance of over one hundred and fifty miles.

Thus it will be seen that the Quebec side of the Ottawa is not all a pinery as some are led to suppose.

Turning now to the Ontario side, we find no pine, worth mentioning, above the river Matawan, which takes its rise near Lake Nipissing and empties near where the Ottawa begins to take a more northerly course. The several rivers below have been more extensively lumbered on that those on the Quebec side, every

stream has been run over for equare timber and clear lumber from its mouth to its source, as nothing else would pay, and the millmen are now rapidly gathering up the leavings. And when we are called on to supply New York, New Jersey, Pennsylvania and the Eastern states, which we very soon will be, a total exhaustion of the pine will be a matter of but a few years.

The Trent has been extensively lumbered on for many years; they are now at its head waters and it may be the mills, supplied from that river, will have a stock for a few years longer. The Rideau is all but exhausted, Lake Simcoe has no timber to speak of in its neighborhood, Penetanguishene has not enough to supply a shingle mill. A single circular saw would use up all the pine timber on the French river, from lake Nipissing to its mouth,in two seasons. There is some pine timber on the southwest side of that lake, but nothing to speak of. The Maganetewan river has perhaps two hundred millions; the Spanish river has about the same amount, and these are the only two rivers on the north side of the bay on which any extent of supply will be found. The Ontario government sold by auction, the year before last, thirty-four townships on the bay, comprising over 2500 square miles, or 1,600,000 acres, and I will venture to say that one well-timbered township in Michigan would turn out more pine than the whole of them together. One party purchased ten townships, and he informed me that on examination he could find pine timber on but one of them and that scattering. There is not, in fact, as much pine timber on the whole of Georgian Bay, including Lake Simcoe and Fort William, as would amount to a single year's production of Michigan alone, and it seems trifling to speak of the small amount of timber on the Red River and the patches of pine they have on the Sascachewan up to the base of the Rocky Mountains, when informed at the same time they have a territory to supply that would make thirteen states of the Union as big as the state of New York, and that chiefly prairie. The same remark will apply as well to the Pacific Slope, as both the northern and southern states and Canada might better go to Europe for supplies than get them from either the Red river, the Sascachewan or the Pacific coast, even if they had them to spare.

According to the congressional returns already referred to, the United States consumed in 1870 in the neighborhood of thirteen thousand million feet of sawed lumber of all descriptions, hard and soft, and from the large increase in consumption, it cannot at the present time be computed at less than fifteen thousand millions, and if we add to this but seven per. cent of an annual increase for the short period of ten years, it would then require four million five hundred thousand tons or as much as all the tonnage of all the shipping ports of England, Scotland, Ireland and the Maritime Provinces to freight it yearly from the Pacific Coast.

The more the question of a total exhaustion of the timber supply is considered, the more terribly calamitous appear its consequences.

In conclusion I will reiterate what I have said in a former communication, that we have not much pine and spruce timber in the Dominion of Canada, east of the Rocky Mountains as would supply the present consumption of the United S ates for three years, and I shall here add,if we have enough to supply them for two years it is more than I calculate on.

The question now is *not* "what will he do with it," but, what will we do without it?

LOGGING.

Messrs. Hurlburt, Smith & Co.'s camps on the Chippewa, are doing lively business this winter. They have put in up to February 14th, between eight and nine million feet of logs, with twelve span of horses, two yoke of oxen and eighty men. The teams and men are divided into three camps. Advices from the pineries are that everybody and every animal is pressed into service to secure as many logs as possible while the sleighing lasts.

AT J. A. MITCHELL'S CAMP,

on Bobs' Creek, work is going on briskly. Mr. Mitchell had in up to Saturday the 14th, upwards of 700,000 feet. The work was all done with eleven men, one ox and two horse teams. His opinion is, that there will be as many, if not more logs put in this winter than last.

MR. WM. POND,

who is also logging on Bobs' Creek, has seventy-five men employed, and has put in 2,500,000 feet so far this winter. He has contracted his logs to the Beef Slough Company, for the round sum of $5.25 per thousand feet, in the river.—*Chippewa Falls Avalanche.*

LUMBER MARKETS.

Milwaukee, Wisconsin.

MILWAUKEE, Mar. 2d, 1874.

Actual advance in prices does not characterize the Milwaukee lumber market at this date, yet the firmness of quotations is materially enhanced. The trade in this market is so unusually active for the season that several firms are enabled to report that their sales for the past month are actually double the amount sold last year during February. In January there was a general tendency and practice among dealers to shade quotations materially, but now buyers are obliged to pay quoted prices. It is expected that an appreciable advance in prices will soon occur. Should navigation be resumed later than usual, Milwaukee yards will be well depleted and undoubtedly be obliged to receive large shipments by rail from the north. The demand for shingles is particularly active, large orders being received from the Mississippi river towns. The farmers' trade has never been so great at Milwaukee yards at this season, as now. We quote prices as follows:

Common boards	13 00@
Joist and Scantling, 12 by 16 ft	13 00@
do do 18 ft	14 00@
do do 20 ft	15 00@
do do 22 to 24 ft	17 00@
Fencing	13 00@
1st and 2d clear dressed siding	25 00@
1st com. do do	20 00@
2d com. do do	16 00@
1st com. flooring	35 00@
2d do do	30 00@
3d do do	25 00@
1st and 2d clear boards	45 00@
3d do do	35 00@
Narrow select finishing boards	28 00@30 00
Wide select com	20 00@
1st and 2d clear 1¼, 1½ and 2 inch	47 00@50 00
3d clear do	35 00@38 00
Wagon Box Boards	30 00@35 00
A stock do	35 00@
B do do	25 00@
C do do	@18 00
Square pickets	14 00@
Flat pickets	@13 00
Lath ℔ M pieces	2 75@ 3 00
A shingles, ℔ M	3 50@
No. 1 do do	1 50@ 2 20
Timber, 18 to 22 ft	15 00@18 00
Timber, 24 ft and over	18 00@35 00

Chicago, Illinois.

CHICAGO, March 2d.

The Chicago market has been active throughout February, and prices have ruled firm. A much better feeling exists among dealers than was observable the first of January, and it is now conceded that prices must soon advance, and that the prospects for a very active season are decidedly good. The fact of the activity of the trade during the past month, is mainly due to the prosperous condition of the farmers. The dealers generally concede that the activity of the spring trade is far beyond their expectations. We quote yard prices as follows:

First and second clear	$50 00@55 00
Second clear, 1 to 2 in	47 00@50 00
Third clear, 1¼ to 2 in	45 00@46 00
Third clear, 1 in	38 00@40 00
Select, 1 in	25 00@35 00
Wagon-box boards, 13 in. and upward, select	35 00@40 00
Stock boards, A	36 00@38 00
Stock boards, B	27 00@30 00
Stock boards, C	15 00@17 00
Common boards, joist and scantling, 12 to 16 ft	13 00
Fencing	13 00
Joist and scantling, 18 to 20 ft	14 00@16 00
Joist, 22 and 24 ft	16 00@18 00
Flooring, first and second clear	43 00
Flooring, first common, rough	33 00@36 00
Flooring, first common, dressed	33 00@35 00
Flooring, second common, dressed	26 00@30 00
Siding, first and second clear, dressed	23 00
Siding, common, dressed	18 00@20 00
TIMBER—Sawed, 12 to 16 ft	13 00@13 50
Square pickets	13 00@15 00
Flat pickets	12 00@13 00
SHINGLES—Sawed A ℔ M	3 75
LATH	2 75

Hardwood lumber is quoted at the annexed prices:

Black walnut, counter tops	$100 00@150 00
do clear	75 00@ 85 00
do common	40 00@ 55 00
do cull	25 00@ 35 00
do flooring	60 00@ 70 00
Ash, clear	28 00@ 40 00
do common	15 00@ 25 00
do cull	8 00@ 15 00
Oak, clear	28 00@ 40 00
do common	15 00@ 25 00
do cull	8 00@ 15 00
Hickory, clear	30 00@ 50 00
do common	25 00@ 35 00
do cull	8 00@ 15 00
Maple, clear	25 00@ 35 00
do common	12 00@ 20 00
do cull	8 00@ 15 00
Butternut, clear	40 00@ 60 00
do common	25 00@ 35 00
Cherry, clear	40 00@ 60 00
do common	20 00@ 30 00
do cull	10 00@ 20 00
Whitewood, clear	28 00@ 40 00
do common	15 00@ 25 00
do cull	8 00@ 15 00

WAGON STOCK—		
Hickory axles, per set	1 00@	1 50
Wagon poles, each	45@	60
Box boards	30 00@	40 00

ON TRACK—Shingles on cars were held at unchanged prices. We quote:

A or Star	$3 37@3 50
No. 1 sawed	1 25@1 50

Three dollars per car to be added when transferred, which charge follows the shingles.

Thickness—Five shingles to be two inches in thickness.

Length—Sixteen inches.

St. Louis, Missouri.

ST. LOUIS, MO., Feb. 25th.

There continues a good demand for depot and levee lumber of good descriptions, but inferior qualities are slow and less salable.

Shingles firm at $4 del for best grades in car-lots, and lath at $3 del.

Sales at the depot and on the levee reported: 22 cars yellow pine flooring and strips at $24@14, 6 yellow pine flooring at $25@14; 3 do at 27@16; 5,000 feet cedar plank (poplar) at 19; 17,000 poplar boards at 16; 6,000 do at 17.50; 50,000 do strips 2d clear at 22.50; 7,800 ash at 20, small lot oak at 25; 1 car do at 28; 14,000 feet walnut at 40; 11,000 hewn cedar timber at 26@28; 1 car cedar posts at $30 and $15 per 100.

We quote the range for depot and levee lots: Yellow pine flooring—3d rate at 14@16; green 2d and clear do at 24@25; dry do 26@27.50, yellow pine mill run dimensions at 14@15; poplar at 18@20 for mill run boards and strips—2d and clear do 21.50@22.50, 3d rate 13@14; black walnut 20@25 for inferior, 30@35 for common to fair, 38@40 for good, and 42.50@45 for choice; oak at 16@28; ash at 20@27; hickory at 20 to 30@35; sawed cedar timber 32.50@35; hewn sold at 26; cedar posts at 30; walnut table legs sell at 16@20c per set. Special orders filled at higher rates.

COOPERSTUFF—We quote small hoop poles nominal at 4@6; mixed do 8@10; shaved hoops 5.50; machine staves 10@11; rived do 8@10; tight barrel do 15@20.

COOPERAGE—We quote: Flour bbls at 45@50c; iron-bound whiskey bbls 1 90@2.10; whiskey half do 1.40@1.50; pork bbls 1.00; lard tcs 1.25@1.30; lard kegs 50@60c; ham tcs $1@1.10; bacon csks 2@2.30; half casks 1.10. All kinds hard to place—no demand.

Saginaw, Michigan.

EAST SAGINAW, Feb. 27th.

ROUGH LUMBER, CAR LOTS.

The following is the price list for lumber delivered on cars, reported by Chas. Merrill & Co.: Subject to change without notice:

Three upper qualities	$38 00
Select boards	25 00
Common stock, 10 and 12 inch	12 00
Fencing strips	12 00
Flooring strips No. 1	25 00
do do 2	20 00
Common boards	10 00
Coarse common	7 00
Scantling, joint and timber, 12 to 20 feet	10 00
do do do 20 feet	12 00
do do do 22 to 24 feet	15 00
Lath	1 60

ROUGH AND DRESSED LUMBER.

The following is the price list of rough and dressed lumber at the yard of Charles Lee, corner of Hoyt and Water streets:

ROUGH LUMBER.

Three upper qualities	$34 00
Common boards	12 00
do 12 inch stock boards	12 50
Fencing strips	10 00
Cull boards	6 00
Timber, joist and scantling 12 to 18 ft	10 00
do do do 18 to 22 ft	12 00
do do do 22 to 26 ft	15 00
Lath	2 00

DRESSED LUMBER.

Siding No. 1 clear	21 00
" No. 2	18 00
" No. 3	14 00
Flooring No. 1, 6 in	26 00
" No. 2, select 6 inch	20 00
Ceiling No. 1, clear	40 00
" No. 2	30 00
" No. 3	20 00
Clear boards, s 1 side, 7 to 20 in	40 00
No 2 " " "	30 00
No. 3 boards, select 7 to 20 in, s one side	25 00
Common boards, " "	17 00

Detroit, Michigan.

DETROIT, Feb. 25.

Reported by Geo. A. Ross & Co., dealers, corner Michigan Avenue and Griswold street:

First clear, 1, 1¼, 1½, 2 in., per M	$48 00@43 00@
Second do do do	28 00@38 00
Third do do do	18 00@20 00
Stock Boards, A	16 00@18 00
Stock Boards, B	17 00@18 00
Common Boards	14 00@18 00
Fencing	@45 00
Clearing Flooring, undressed	@38 00
Second Flooring, undressed	25 00@26 00
Common Flooring, dressed	20 00@23 00
Second com. flooring dressed	@25 00
Siding, clear, dressed	@22 00
Second clear, dressed	17 00@12 00@14 00
Common Siding, dressed	17 00@18 00
Cull boards	18 00@20 00
Scant'g and Joist, 16 ft long and under	20 00@22 00
do do 18 ft long	20 00@25 00
do do 20 and 22 ft long	@18 00
do do 24 and 26 ft long	@26 00
Timber, 16 feet long and under	4 00@5 00
Timber, 20 to 30 feet long	3 00@4 00
Shingles, sawed, No. 1	2 75@3 00
Shingles, sawed, A No. 1	18 00@45 00
Lath, per M	18 00@25 00
Posts, per 100	
Pickets, per M	

SHINGLE STANDARD.—Length, 16 and 18 inches; thickness, 5 shingles to be 2¼ inches; bands, 20 inches; packages, 25 courses.

San Francisco, California.

SAN FRANCISCO, Feb. 19.

Imports from Jan. 1st to Feb. 15th; Lumber eastern, pcs 18,817; domestic, feet 22,262,382.

The long continued rainy spell has retarded greatly all outdoor work, and curtailed business and building to a very considerable extent. The export demand from mill ports is continued. We hear of no changes affecting values. The market is well supplied with lumber, with a fair local inquiry. The cargo rates for Puget Sound Pine at the mills are $10@12 for rough, and $18@20 for dressed. The nominal rates for cargoes in this market are $15@16 for rough, and $2.50 for dressed; jobbing at $17@19 for rough, and $27 50 for dressed Redwood cargoes are quotable at $18@19 for rough, $30 for surfaced, and $32.50@35 for Rustic; rough pickets, $14; do do rounded, $16; fancy do, $25. Sugar Pine is quiet at $30@42.50; cedar, $45@35@25 for the three qualities. Sugar Pine is jobbing at $55@60 for clear, $40@45 for second quality, and $25@30 for third quality. Laths, $3. Shingles, $2.25.

Denver, Colorado.

Corrected by Billings & Moffat, corner Blake and Eighteenth streets, February 21:

Color do rough, ₱ M		@25 00
do clear	34 00	@40 00
do lath	6 25	@ 6 50
do shingles	4 50	@ 4 75
do flooring, 1st		@40 00
do do 2d	25 00	@37 00
Eastern Siding, 1st		@30 00
do do 2d		@20 00

St. Joseph, Missouri.

ST. JOSEPH, Mo., Feb. 22d, 1874.

Lumber—In 1¼ M 2 inch 1st, $5 @6; 1 inch, 3d clear, 45@50; A box boards, 50; B 3d 1 inch, 4 @45; A stock boards 45@47.50; common boards Chicago 22.25; do for river rough, 2 @21; common ⅜ inch ceiling 22 50@25; clear ceiling, 27 @; clear ¼ ceiling, 4 @42 50; common ceiling 35@37; fencing 21; joist 2x4, 18 and under, $21; clear 2x4, 2x6, 2x8, $40; 12t common flooring, 40@42 50; clear siding, 2; A sawed shingles, 4 50; No 1 siding, 28; pickets 2 @ 35; common and No. shingles, 2 50@3; lath 4,50; sash 8x10, 35c; doors, 2-6x6-6, 4 panel 1¼ inch, 1.90 @2; cedar posts 2 @30c; oak posts 18@20c.

Cincinnati, Ohio.

CINCINNATI, Feb. 25.

Clear	$55 00	@60 00
First common	45 00	@50 00
Second common	30 00	@32 00
Third common	20 00	@22 50
Cull boards	20 00	@22 50
Clear flooring	57 50	@60 00
Second common flooring		@42 00
Third do do		@32 50
Yellow Pine do		@42 50
Clear siding	27 50	@30 00
do dressed		@30 00
Second common, siding		@20 00
do do dressed		@22 50
Sewed shingles, 18-in	6 00	@ 6 50
Shaved do 18-in	7 50	@ 8 00
Fencing		@27 25
Joist Scantling and Timber, 16 feet and under	25 00	@27 50
Joist Scantling and Timber, 18 feet and over	27 50	@32 50
Lath	4 00	@ 4 50
Gutters		@50 00
Ash plank and boards	30 00	@35 00
Cherry do do	50 00	@55 00
Walnut do do	60 00	@70 00
Poplar do do	30 00	@40 00
Oak do do	30 00	@35 00
Maple do do	30 00	@35 00
Cedar Shingles	50 00	@60 00
Cypress shingles	20 00	@25 00
Hemlock plank and boaods	20 00	@22 00

Indianapolis, Indiana.

INDIANAPOLIS, Feb. 20th, 1874.

Lumber—Pine is in but moderate demand. Walnut is moving more freely, and is in good demand at $40@45 per M for Nos. 1 and 2. green, and 50@55 for dry. Culls 15@17; poplar clear 25; common 15; sheeting 16; Pine—1st 2d 3d clear, in yards, $55 per M; stock boards 25; joists, scantling and timber, 16 feet long and under, 20; 18 feet, 21; 20 to 24 feet $22 50@22; Georgia pine flooring, 40; flooring, good, 37.50; common 3; dressed siding 22.50. Shingles, pine, 18 inch, 5 50; 16 inch, 4@4.50; poplar, 3.40. Lath, pine, 3.55 per M. We quote buying rates for hard lumber and selling for pine.

Toledo, Ohio.

TOLEDO, Feb. 19th.

Rough Lumber—Clear $50 per M feet; second clear, $48 do; box 38 do; select common, inch, $30 do; common and select 1¼ and 1½ inch, $3 do; common boards 15 do; fencing 15 do; joist, scantling and timber, yard size, 18 ft and under, 15 do; joist, scantling and timber, yard size, 20 to 24 feet, $18@20 do; cull boards 12 do; cull fencing 12 do; cull joist and scantling 11 do; stock boards, "common," 17; "W & B" $3; do common strips flooring $30; clear and 2d clear strips, 40@43 do; flat and square pickets 25@30 do; lath per M pieces 2.75; cedar posts 20c.

Dressed Lumber—Common flooring $28; clear and 2d clear flooring $35; fence flooring $20; ash flooring 35; common siding 17; clear and 2d siding, 24; common 1 in beveled and matched siding, $28; clear and 2d 1 inch beveled and matched siding. 45; O. G. and beveled batts, $35.

Shingles—Sawed, extra 18 inch, $5; sawed No. 2, 18 inch, 3.25.

Cleveland, Ohio.

CLEVELAND, Feb. 20th.

The following are the wholesale prices to builders, adopted February 16, 1874:

ROUGH.

First clear, 1 inch, per M, $50; do plank $52; second do 1 inch, $47; do do plank 48; third do 1 inch, $40; do do plank $43; box 1 inch $32; do plank $34; strips, 1st 2d and 3d clear, $45; do flooring 28; do fencing $18; No. 1 barn boards, 12 inches, 22; No. 2 do $18; select common, 1 inch, $20; do do plank 22; common, inch and plank, $15; culls $11 to 12; joist, scantling and timber, 18 ft and under, 18; joist scantling and timber, 22 ft and over, price same as length.

DRESSED.

Flooring, 1st 2d and 3d clear, per M, $45; do common wide $30; do do narrow. 34; do do 2d quality, 25; siding, half inch, best, $30; do do common $24.

SHINGLES, LATH AND POST.

XXX 18 inch shingles, per M, $5; No. 1 or clear butt shingles, 3 50@4; No. 2 shingles 2.50@3; A 1, 16 inch shingles, 3 75; lath 2 75; cedar posts 25@40c.

COOPERS' STUFF.

Elm staves, per M, 6.5 @7; hard staves, oak, ash and maple, $7; apple barrel staves, $5; half, do do, 5.90; hoops 6.50@7; soft heading, per bbl, $2; hard, do do, 2.25; apple barrel headings, per bbl, 1.50.

Pensacola, Florida.

PENSACOLA, Feb. 17.

Arrivals of chartered vessels have been delayed, but we can soon look for a large number. The tonnage in the bay is fast thinning out and some little inquiry is made for timber ships. Rates may be quoted as follows: 52s 6d to 54s to direct ports U. K. In other directions nominal.

Hewn Timber—The heavy rains have opened the rivers, and timber is coming down rapidly. The few parcels not on contract sell at full figures, and we can see no reason to predict lower figures. Sales range from 12 to 20 cents at Ferry Pass, according to class and average.

Sawn Timber—Free receipts at Ferry Pass render our merchants more easy in this wood, and the demand is more slack. Rates are about the same with less inquiry.

Deals—We hear of some inquiry for cargo deals but at this writing we cannot report sales only for parcels at giving rates.

Assorted Lumber—There is no inquiry and the prospect is not flattering for our mills. There is every reason for concert of action among our mill men as to the future trade, but at present they all work in their own line and have to submit to prices offered by a few.

Outside of sawn timber, stowage deals, and a few

cargoes of prime deals, our lumber trade is inactive, and we relinquish to Pascagonia and the eastern Atlantic mills the large domestic and foreign lumber trade. We annex last week's quotations, with the remark that we have not heard of a cargo sale this week.

Cuba Lumber—Nominal.

We quote Stowage deals per M	$12 50@	
prime, per M	14 00	14 50
South America—Rates are still the same for standard deals	18 00	20 00
Texas deals	10 00	14 00
" long length	18 00	
" ¼ inch flooring	18 00	20 00
" 1 inch flooring	20 00	
" wide b'ds, No. 1, 1 in	16 00	
" edge " No. 1, 1 in	9 00	10 00
" " " No. 2, 2 in	7 00	8 00

Boston, Massachusetts.

BOSTON, Feb. 21, 1874.

The following have been the total surveys of foreign and domestic lumber in this district for the past week, as compiled by the surveyor-general:

	Feet.
Black Walnut	29,643
Hardwood lumber	57,750
Pine lumber	176,266
Southern pine plank and timber	185,984
Southern pine flooring	344,245
Spruce lumber	49,205
Whitewood	10,584
Total	853,677
Same time 1873	1,545,631

We quote:

Western Lumber—Michigan pine, Nos. 1 and 2, $60; No. 3, $50: No. 4, $35@38. Black walnut Nos. 1 and 2, $80 to 87.50; do culls $50; Ash, Nos. 1 and 2, $40 to 48; 3d quality do $30 to 40. Cherry Nos. 1 and 2, $60@70; 3d quality do, $35@40. Whitewood, Nos. 1 and 2, $40@45; do ¾, $33@35; 3d quality, $25@30. Oak $45@50. Butternut, Nos. 1 2, $55@65; 3d quality, $30@35. Michigan pine saps, $30@42; do. pickings $4 @42. Michigan shippers, $25@28. Best Michigan 6-inch strips, $55 to 58.

Canada Pine—Selects dressed, $60. Shelving dressed, $50@52; second shelving, $40@42; sheathing, 1st quality, $50@52; do. 2d do. $33 @38; ceiling dressed, $38@40. Dressed shippers, $30@32.

Eastern—Pine clear, Nos. 1 and 2, $65; No. 3, $50; No. 4, $38@40; No. 5, $30@35; Common, pine shipping, boards, $22@25; No. 5, $22@23; Refuse, $15@16; Spruce, scantling and plank, $16@16.50; Boards, $15@17. Hemlock boards, $12@13; Laths, spruce, $2@2.25; Hemlock, 1.75; Pine, 2.75@3.00.

Southern Pine—Our quotations as obtained from different houses are: Flooring, No. 1 and 2, $32@36 and $38@46; Ship stock, $34@39 and $36@40; Dimension factory, $30@4 , according to size; Hewn timber, $20@33; Random cargoes, $4@5 less; Refuse, two-thirds price.

Shingles—Spruce, extra, $2@2.25; No. 1, 1.50@1.75; Shaved pine, 6@8; Sawed, 2.50@3; Shaved cedar, 3@6.50; Sawed, extr , 4 50; Clears, 3.50@4; No. 1, 2.5 @3; No. 2, 1.50@1.75.

Clapboards—Spruce, extra, dressed 4 ft $34@35; clear, 24@26; No. 1, 15@20. Dressed, extra, 6ft. 6in. 42@48; Clear, 37@40; No 1 30@35. Pine, extra, sap dressed, 50@69. Clear, 50@55; No. 1 25@35.

FURNITURE WOODS.

Ash, per M feet	$55 00	@60 00
Oak	45 00	65 00
Cherry, good		85 00
" second quality	40 00	50 00
Maple	35 00	50 00
Black Walnut, good	90 00	110 00
" " second quality	55 00	70 00
Whitewood	50 00	60 00
" chair plank	75 00	90 00
" ⅝ "	35 00	45 00
Cedar—Nuevitas and Mexican, log per foot	15	25
Cedar—Surinam, log, per foot	10	12
" Florida, boards	20	25
Mahogany—Honduras	15	20
" Mexican	15	20
" Nuevitas	12	15
Rosewood—Rio Janero, per lb	6	10
" Bahia	4½	8
Satinwood—Log, per foot	17	30

The *Boston Lumber Trade* says:

Business continues to be quiet, and at this season of the year, dealers expect nothing else. There have been no arrivals from the east, but it is said there are indications of an early spring, and we may soon look for arrivals, and the beginning of a large trade. We report a larger number than for several weeks, of cargoe of yellow p ne. The revival of ship-building and the assurance of a great increase of this business during the coming season at all points along the coast, where it has hitherto been carried on will create a large demand for this kind of lumber.

New York City.

NEW YORK, Feb. 26.

The market here is quiet. The few sales indicate a steady range of prices. Sales are 200,000 feet of timber at $17. Ordered schedules quoted at $18@19, and random cargoes at $16@17. Shingles quoted at $6.50@10 per M for pine extra shaved, and $17@27 for cypress; southern pine is quoted within the range of $36@38.

Southern pine	$36 00	@38 00
White pine box boards	25 00	30 00
White pine merchantable box boards	28 00	31 00
Clear pine	65 00	75 00
Poplar and whitewood b'ds and planks	54 00	56 00
Cherry boards and planks	78 00	80 00
Oak and ash	50 00	60 00
Maple and birch	38 00	44 00
Black walnut	100 00	130 00
⅝-inch sycamore	44 00	53 00
1-inch "	42 00	52 00
Spruce boards and planks	24 00	26 00
Hemlock boards and planks	18 00	20 00
Basswood boards and planks	25 00	30 00

The *Real Estate Record* says:

We have no reports of, and so far as we can gather, there have been no sales for shipment. Retail trade has been fair, and the yards are kept busy enough to present an air of activity, although trade is not heavy. Pine is in ordinary request. Spruce is inactive, eastern quoting at $16@19. Yellow pine is rather dull, and hard woods meet with a fair share of trade, although with perhaps less business than of late. The market generally is not provocative of comment, although it is not dull, and is far removed from depression. Dealers are cheerful and seem to expect good times. Business must therefore be encouraging, even if done in a small way.

The charters comprise: An Am. barque, 476 tons, hence to Cadiz, staves, $45, on light pipe; a schr., 100 M resawed lumber, from Brunswick to Milbridge, Me., $18; a tern schr., 301 tons, part of derelict timber cargo of ship Elizabeth Hamilton, from Bermuda to New York, lump sum; one, 337 tons, from Pensacola to Boston, resawed lumber, $12; and a schr., 175 M resawed lumber, from Jacksonville to New York $9.

Lath—The market has been sensibly weaker for some time, although dealers have tried to withstand pressure and to sustain prices. Little has been done

since our last report, and we quote the market quiet ane dull at 1.80@1.85.

Whitehall, New York.

The early closing of navigation has been severely felt by the lumber interests in this locality. Many boats loaded with lumber consigned to parties here, are ice bound between this port and Canada. Along the line of the canal are many loads of lumber. sold to parties south by our dealers. The season has not been a good one; yet all of our dealers have weathered the storm, which speaks well for this class of mercantile men of our town. Quotations remain about as usual.

Pine, clear, per M	$55 00@58 00
Pine, fourths, per M	50 00@53 00
Pine, selects, per M	45 00@48 00
Pine, good box, per M	22 00@25 00
Pine, common box, per M	16 00@20 00
Pine, clapboards, strips, per M	30 00@40 00
Pine, 10 inch plank, each	35@ 38
Pine, 10 inch plank, culls, each	22@ 25
Pine, 10 inch boards, each	25@ 28
Pine, 10 inch boards, culls, each	18@ 20
Pine, 10 inch boards, 16 feet, per M	25 00@28 00
Pine, 12 inch boards, 16 feet, per M	26 00@29 00
Pine, 12 inch boards, 13 feet, per M	25 00@28 00
Pine, 1¼ inch siding, per M	35 00@38 00
Pine, 1¼ inch siding, select, per M	40 00@43 00
Pine, 1¼ inch siding, common, per M	18 00@22 00
Pine, 1 inch siding, per M	28 00@30 00
Pine, 1 inch siding, selected, per M	40 00@42 00
Pine, 1 inch siding, common, per M	18 00@20 00
Spruce, boards, each	14@ 16
Spruce, plank, ¼ inch, each	18@ 20
Spruce, plank, 2 inch, each	28@ 30
Shingles, cedar, XXX, per M	4 50@ 5 00
Shingles, cedar, mixed, per M	3 50@ 4 00
Shingles, cedar, No. 1, per M	@ 2 50
Lath, spruce and pine, per M	2 00@ 2 50

Williamsport, Pennsylvania.

From the Gazette and Bulletin.

WILLIAMSPORT, Feb. 23d.

The shipments of lumber the past week show a large and increasing trade, while there has been considerable activity in the woods; many of our lumbermen now have their logs banked and waiting for the spring freshet.

During the week ending Feb. 21, 1874, the shipments from Williamsport were as follows: Catawissa railroad, 2,957,680 feet; Philadelphia and Erie, 2,118,280 feet, making a total of 5,075,960 feet, an increase of 1,574,080 feet over last year.

For the week ending Feb. 22, 1873, the Catawissa shipped 1,757,000, the Philadelphia and Erie 1,184,640 feet, a total of 2,891,640 feet, being 2,184,320 feet less than for the corresponding week in 1874.

Lock Haven shipped 34 cars for the week ending Feb. 21, 1874, containing 333,760 feet, which is 19,760 feet less than the previous week. For the year there have been 168 cars forwarded, containing 1,618,180 feet.

From points east of Renovo there were 23 cars last week containing 223,720 feet, being 169,640 feet in excess of last week. For the year there have been 92 cars forwarded, containing 866,480 feet of lumber.

From points south of Troy, over the Northern Central, there have been 28 cars forwarded, containing 266,520 feet, an excess of 32,520 over last week. For the year 1874 there have been 110 cars with 1,032,200 feet of lumber.

Bodine's and Fields' station, on the Northern Central, appear to be the bark centre, and 435 cars have been forwarded up to Feb. 18, 1874; the past week 38 cars of bark were shipped, making a total of 173 cars.

SHIPMENTS OVER CATAWISSA RAILROAD.

For the Week ending Feb. 21, 1874.

1874.	LOCAL. Cars.	No. Ft.	THROUGH. Cars	No Ft.	TOTAL. Cars	No. Ft.
Total	147	1,417,760	158	1,539,920	305	2,957,680
Pre. re.	—	———	—	———	1,155	11,015,760
Total '74	—	———	—	———	1,460	13,973,440

COMPARATIVE STATEMENT.

1874.	Cars.	Feet.
For week ending Feb. 14	220	2,097,480
do do 21	305	2,957,680
Increase	85	860,200

SHIPMENTS OVER P. & E. RAILROAD.

For the Week ending February 21, 1874.

1874.	LOCAL. Cars.	No. Ft.	THROUGH. Cars	No Ft.	TOTAL. Cars	No. Ft.
Total	85	645,680	151	1,472,600	219	2,118,280
Pre. re.	—	———	—	———	894	8,567,600
Total '74	—	———	—	———	1,113	10,385,880

COMPARATIVE STATEMENT.

1874.	Cars.	Feet.
For week ending Feb. 14	146	1,404,400
do do 21	219	2,118,280
Increase	73	713,880

GENERAL SUMMARY.

1874.	Feet.
Shipments over Catawissa Railroad	13,973,440
do do Philadelphia and Erie R.R.	10,685,880
Total for 1874	24,659,320
Total to Feb. 22, 1873	16,448,680
Increase in 1874.	8,210,640

Toronto, Ontario.

TORONTO, Feb. 28, 1874.

The following are the prices of lumber at the Toronto yards:

Clear	$30 00@35 00
Pickings	16 00 22 50
Common box	10 00 14 00
Culls	7 00 10 00
Flooring, undressed	15 00 17 00
" dressed, 1¼ inch	23 00 26 00
" " 1½ inch	28 00 32 00
Fencing	12 00 14 00
Bill lumber, 19 to 16	12 00 14 00
" 18 to 20	13 00 14 00
" 24 to 25	14 00 16 00
" 26 to 30	16 00 20 00
" 31 to 35	20 00 25 00
" 36 to 40	25 00 30 00
" 41 to 45	30 00 35 00
" 46 to 50	35 00 40 00

St. John, New Brunswick.

ST. JOHN, Feb. 16th.

This market continues without any change to note. Late advices from Cuba, report that box shooks still continue to decline in prices, and this fact connected with a scarcity of vessels has caused our exports to fall off during the past fortnight very materially. In spruce deals we hear of no sales, and at present there is not a vessel loading here for Great Britain. There is no demand for lumber for shipments to the United States, but we hope before long to receive orders for that market at fair rates.

We quote: Aroostook pine boards and planks, Nos. 1 and 2, $45@50; No. 3 $35; No. 4 $25; shippers $20; poor 4's and scoots $8; sapling shippers $12@16; spruce deals $11; spruce boards $10@12; do scant-

ling $10@12; do laths 75@90c; pine do $1 50; sugar box shooks 60@65c.

Liverpool, England.

Messrs. Farnsworth & Jardine open their annual circular on the timber trade of 1873, dated January 30th, with the following remarks:

The business of the past year, as shown by our table of import has been on a scale far beyond that of any previous year, and prices on the whole have ruled unusually high, though in too many instances, through the excessively high rates of freight that have been current, shippers have derived very little benefit; the consumption, though it has not kept pace with the import, has been very large and shows no signs of diminution—we therefore look forward to an active business during the spring. Operations, however, for the ensuing season are entered into with a good deal of hesitation, the chief element of danger being the continued high rates of freight, which in many instances form one half to two thirds the value of the article imported. Prospects, however, on the whole are fair, and there is little doubt that the demand for all kinds of wood will be large; still we commence the year with full stocks at high prices, and as rates abroad rule high, and ship owners demand a further advance in freights, the coming import will be very costly, therefore extra caution on the part of importers will be required, for, should there be any fall in freights or any check to trade, a considerable decline in value might follow.

The aggregate import of wood into Liverpool during the past year shows a large increase, the tonnage employed having been 584,277 tons, as against 509,842 tons during 1872, the consumption has also been large, the excess in both cases having been almost entirely in spruce deals. The stock, which appears large is no more than likely to be required for the increased demand, our area of consumption being considerably extended

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A TREE OF LIFE.—The wouderful fever-tree of Australia seems adaptable to transplantation, and maintains its remarkable reputation for disinfecting febrile districts. The experiment of raising it in places where fevers have been chron ic has, in every instance thus far, proved its beneficent power of neutralizing miasmatic exhalations and destroying the seeds of disease.

Green Bay & Minnesota Railway

Passenger Time Table.

GOING WEST.	STATIONS.	GOING EAST.
7:30 A. M. Dep.	Green Bay	8:45 P. M. Arr'e
7:47	Duck Creek*	8:27
8:04	Oneida*	8:10
8:34	Seymour	7:40
8:57	Black Creek	7:17
9:20	Shiocton	6:54
9:50	New London	6:24
10:10	Royalton	6:04
10:23	Manawa	5:51
10:40	Ogdensburg	5:34
11:00	Scandinavia	5:14
11:30 } † Arrive.	Amherst	4:44 } † Depart.
11:50 } Depart.		2:24 } Arrive.
12:30 P. M.	Plover	3:44
1:17	Grand Rapips	2:57
2:07	Dexterville	2:07
2:34	Scranton	1:40
2:45	City Point*	1:29
3:10	Hatfield*	1:04
3:58	Black River	12:17
4:28 } † Arrive.	Merrillan	11:47 } † Depart.
4:48 } Depart.		11:27 } Arrive.
5:00	Alma Center	11:14
5:19	Hixton	10:54
5:41	Taylor	10:31
6:00	Blair	10:11
6:22	Whitehall	9:48
7:05	Arcadia	9:00
8:11	Dodge*	8:00
8:39	Marshland	7:35
8:45	Bluff Siding*	7:20
9:05	Winona	7:00

* Trains stop only on signal. † Trains will stop for meals. Trains do not run on Sundays. Black Figures denote the stations for meeting and passsng trains.

CONNECTIONS.

At Green Bay, with C. & N. W. Railway and Wisconsin Central Railway for Chicago, Milwaukee, Fond du Lac, Oshkosh, Neenah, Menasha, Appleton, and all points in Lake Superior; and in the season of Navigation, with Union Steamboats Co's Line First-class Propellors between Green Bay, Buffalo, Detroit and Cleveland, with Connections at Buffalo for New York, Boston, and all Eastern points.

At Amherst, with Wisconsin Central Railway for Stevens Point, Waupaca, Menasha and inteamediate points.

At Grand Rapids, with Wisconsin Valley Railroad.

At Merrillan, with West Wisconsin Railway for Hudson, Stillwater, St. Paul, Minneapolis, Duluth and intermediate points.

At Marshland Junction, with La Crosse, Trempeleau & Prescott Railway for La Crosse.

At Winona, with Winona & St. Peter Railway for all points in Western and South-Western Minnesota, and with M. & St. Paul, Minneapolis, La Crosse and intermediate points.

S. B. KENRICK,
Assistant Superintendent.

ST. LOUIS SAW WORKS

Established in 1849.

SAW

BRANCH, CROOKES & CO.

MANUFACTURERS

224 Lake Street
CHICAGO.

114 & 116 Vine Street
ST. LOUIS.

80 Carondelet St.
NEW ORLEANS.

W. MACKWITZ. ST. LOUIS

LUMBERMEN'S REGISTER.

The following list is intended to represent every firm in the pineries of the Northwest who are engaged in the manufacture or the buying and selling of lumber, shingles, &c. The list will be published from month to month and names added just as rapidly as we can, through the medium of canvassers, obtain them. We propose making this Register perfect in all its details, but of course several months must necessarily elapse before we can hope to obtain anything like a full and complete list.

The Register will prove of much benefit to lumbermen generally. Names will be classified as nearly as possible in accordance with post-office address. We desire the assistance of lumbermen in correcting and making complete this department. Send us names of all reliable firms in your locality.

WISCONSIN.

Upham Chas M & Bro.....Angelica
Laird & Co.....
McCartney D.....
Foster N C.....
Smith & Riekett.....
Oleson & Co.....
Clinton McLaren & Co.....
Hall A & Co,.....Ahnapee
Young D,.....
Jewett Lawrence & Co,.....Algoma
Sawyer P,.....
Reynolds & Tibbetts,.....Appleton
Jerard J F.....
Ross Huntress.....
Rose & Heath.....
Dorr & Steele.....
Phillips Dr,.....Arena
Yorker S. J,.....
Goodrich J & Co,.....Augusta
Randall S,.....
Bennett & Hurd.....
Parr G,.....Avoca
Bowon E.....Albany
Morrison Creek Lumber Co.....Albion, Jackson Co
Smith J B.....
Ashland Lumber Co.....Ashland
E Inglalls & Co.....
Daniels E W.....Auroraville
Holbrook M S & Co.....Arkansaw
Humphrey D & Bros.....
Miles & Knight.....
Flower J H,.....Bangor
St. Louis & Wisconsin River Co,.....Barnum
Hodgman S & N, Spring c Mackie.....Beaver Dam
Townsend Jones & Co, Spring c Second
Gratiot E H,.....Belmont
Goodhue W T,.....Beloit
Peet & Keeler.....
Gray James.....
Weed J H & Co.....
Peck S W.....
Talbot H G,.....Berlin
Treadway S N,.....
Cohn L S.....
Harmon S C.....Berlin
Troan E,.....Black Earth
Ward J S & Bro,.....Black River Falls
Edmonds J,.....
Elliott A,.....
Given P G.....
Ice J,.....
Price W T,.....Black River Falls
Shephard A,.....
Spaulding D J,.....
Mark Bump.....
Burchard Harrison.....
Porter W B.....
Sawyer A E.....
Smith John B.....
John and James Dickson.....Bloomingdale
Barron John.....Blue Mills
Briggs & Barnes.....Boaz
Bucker A.....Buffalo
Rouch & Erding.....
McCarty J,.....Bloomer
Smith, Brooks & Macauley.....
Nelson H & Co,.....Boscobel
Weston, Miner & Co,.....
Pierce & Sly,.....Branch
Yerty J & Kripp,.....Brandon
Bowen E,.....Brodhead
Lamson C & Co,.....
Usher & Hassinger,.....Burlington
Blake Francis W,.....Barton
Woddford & Davis.....Bay City
Betcher & Alley.....
Carney & Fairbanks.....
Phillips L D.....Bell Center
Haines H.....Bellevue
Delveux A & C.....Binghamton
Randall Johnson.....Black Creek Station
Herman Henry.....Casco
C B Fay & Co.....Cedarburg
Horn F W.....
Wehausen Henry.....Cadiz
Deniston J C,.....
Deniston C R,.....
Martin & Deniston,.....
Staines J M,.....Calumet
Bock.....Centralia
Edwards J & Co,.....
Garrison & Blinchley,.....
Jackson H W.....
Lefevre H,.....
Lyon R C.....
Clark & Scott.....
Frahern W C.....Charlestown
Graves James.....
Montgomery Geo H.....Chippewa Falls
Union Lumbering Co.....
Allen C.....
Marriet, La Beulf & Co.....
Phillips Jackson.....

Robson John.....Chippewa Falls
Vincent, Mandilett & Co .....
Woodruff & Taft.....
Lyon & Co,.....Clark's Mills
Crosby P,.....Clinton
Lampheer H P,.....
Wilcox Bros & Co,.....
Bond A D,.....Columbus
Long & Henderson,.....
F. F. Farnham .....
Aldrich V M,.....Cooperstown
Wright P,.....Coral City
Stricher M,.....Cross Plains
Bates, Hoag & Co,.....Darien
James T & Co,.....Darlington
Pratt & Carpenter,.....
Woodward T,.....
Clark H,.....Deansville
Gormley P & Co,.....Delevan
Watson J J & Co,.....
Blake Samuel,.....DePere
B. F. Smith.....
A. Reid.....
John McLelland.....
Kingsley W O,.....
Marsh G S,.....
Ritchie James,.....
Monroe John.....
Stetson Q S.....
Struthers Themas.....
Hiles G,.....Dexterville
Nason S L,.....
Remington H W,.....
C M & A R Worth.....De Soto
Kinney Francis.....Durand
Plummer & Morse.....
Hoard & Earl,.....Doylestown
Peck M N,.....
Knapp, Stout & Co,.....Dunnville
Rosenberg & Co,.....Dykesville
Stockman W H,.....Eagle
Smith W F,.....Elkhorn
Larson & Olsen,.....El Paso
Magee Bros & Anderson.....
Eau Claire Lumber Co. .....Eau Claire
Northwestern Lumber Co.....
Bangs & Fish.....
Boyd A.....
Burdock, Preston & Co.....
Chubb H C.....
Estabrook W B.....
Graves D P.....
Ingraham & Kennedy.....
Graham, White & Co.....
Kiley Hiram .....
W Maxter & Bro.....
Ira Mead.....
Pinkham J.....
Daniel Shaw & Co.....
Smith & Buffington .....
H D Stockman & Co.....
Tarrant E.....
Wilcox & Co.....
Carson & Rand.....Eau Galle
Week John.....Eau Pleine
Hutchinson & Bro.....
Webster & Palmer,.....Embarrass
Fifield E,.....Evansville
Parker A,.....
Mack H & Bro,.....Evanswood
Shaw J,.....Fall River
Griffith J Q & Son,.....Fond du Lac
Meyer Charles J L,.....
Merayman & Co, ...
McDonald Alexander, ...
Sexmith G W, ...Fond du Lac
Moore, Galloway & Baker.....
Parker N & Co.....
Mihills N D & Co,.....
Hamilton & Finley, ...
Bryant & Brown .....
Hunter, Stewart & Co.....
Dale J L,.....Forrestville
Curtis & Cornish.....Fort Atkinson
Wilcox, Southwell & Co,.....

Coe & Lyman.....Fairchilds
Pedrick & Co .....
Cook & Foster,.....Fort Howard
Howard Mill Co,.....
Lamb, Watson & Co,.....
C Schwartz & Co,. .....
J. P. Laird & Co .....
Oscar Gray .....
Taylor A.....
Clapp & Mead,.....Fountain City
Matthaies F & C,.....
Bohan & Grant.....
Bowman W,.....Frankfort
Arpkee J,.....Franklin
Cooley & Race,.....Fredonia
Bergtresser L,.....Fremont
Schroeder & Co,.....
Kinsman C C.....
Townsend E.....
Edwards J & Co,.....Frenchtown
Freeman A W,.....Genoa
Wightman E D,.....Germantown
Natchway H,.....Gibson
Clark & Thorp,.....Glenbeulah
Rasfans & Co,.....Glen Haven
Olds J S,.....Glenmont
Coulson T,.....Grafton
Berrey Bros.....Glenmore
Bowen E & Co.....
Hubbard S.....
Smith Charles .....
O. & W. Freeman.....Genoa Junction
Arpen A,.....Grand Rapids
Arpen J,.....
Byron F,.....
Clark & Scott.....
Langworthy, Mehan & Co,.....
Meehan P & J,.....
Neeves Geo & Son,.....
Rablin John.....
Roe & Butterfield,,.....
Sampson H,.....
Scott Thos B,.....
Miller John.....
Whipple E E.....
Hickerson N H.....Grantsburg
Graves J A,.....Gravesville
Modlin Henry,.....
Earle & Case, Washington,.....Green Bay
Lamb, Watson & Co,.....
McCartney D,.....
Sanford & Co,.....
Schwartz C. & Co.....
Shirland & Co,.....
Whitney & Foster,.....
Woodruff J W & Co,.....
Benjamin S A.....
Holmes & Thompson.....
Anton Burkhart.....
Kellogg C W.....
K aus Anton.....
Lefehre Charles.....
Lucas J & T .....
Marshall L M.....
Herling Theo,.....Green Bush
Bailey D. R.....Hammond
Schmidt Adam,.....Harrisville
Cook J,.....Hartford
Mills J D,.....Hartland
Olmstead Sheldon P,.....
King P,.....Helena
McCutcheon A,.....
Roands W P,.....High Cliff
Tripp N D,.....Hillsborough
Fisher J, Lake,.....Horicon
Baily D R,.....Hudson
Palmer M P & Co,.....
Andrews F M & Co,.....Jenny
Matthews Thos.....Jenny
White C F,.....
Jewett A & Sons,.....Jewett's Mills
Sutherlan Sol,.....Juda
Blair & Wagner, Jackson,.....Janesville
Fifield, D R. River .....
Lovejoy & Blount, W Milwaukee,.....

Rexford J D, Academy,.....Janesville
Rockwood & Sons, High,.....
Schutt U, River,.....
Clapp J R,.....Juneau
Taber J B &o,.....Kunsasville
Backus N G,.....Kenosha
Grant & Son, Market,.....
Truesdell Gideon, 3 Main,.....
Hitchcock & Masbek,.....Kewaunee
Murray, Slauson & Co,.....
Slauson, Grimmer & Co,.....
Stranky W,.....
Dikeman & Latimer.....
Clapp N S.....Kinnickinnic
Brauman B.....Knowlton
Brook V.....
Wallace & Redford.....
Starte & Bros.....
Hurlburt H H,.....Kilbourn City
Cloespeck M,.....Kossuth
Kellnor M,.....
Black River Improvement Co,.....LaCrosse
Hogan & Chamberalin.....
McDonald Bros.....
Salzer G. J.....
Crosby W. W.....
Coleman C L.....
Gile & Holway.....
Mooer R M.....
Bright & Withee,.....
Bussell W C, Main c Second,.....
Gile Abner, Third,.....
Hankinson & Son,.....
Hewett & Woods, Main c Second,.....
Hixon & Withee, Main c Seeond,.....
McMillan Alexander, Main c Third,.....
McMillan Duncan D, Main c Third,.....
Nevins S L, Main c Second,.....
Paul John, Front,.....
Polleys W H, Main c Second,.....
Root W C, c Second,.....
Servis John,.....
Sill Wm R, Main c Third,c.....
Vincent & Edwards, Front,.....
Washburne C C, Main c Second.....
Weston RS Main c Second,.....
Abbey Edwin.....
Abbey Hiram.....
Emery T B.....
Farnum Geo.....
Goddard H.....
Hankerson A H.....
La Crosse Lumber Co.....
Mitchell.....
Ross Robert.....
J. H. Ross & Co.....
Barron John,.....Lafayette
Hodgens & Robson,.....
Holbert Thos & Co,.....
Mitchell & Clement,.....
Barney S P,.....Lavalle
Sanford J F & Son,.....
Hull Elijah,.....Luha
Leigh J,.....Little River Mills
Bailey & Vincent,.....Little Sturgeon
Gardner, Davis & Co,.....Little Suamico
Chase & Dickey.....
Conn A C & Co.....
Lamont A.....
Peters C & Co.....
Mikeljohn James,.....Little Wolf
Furitze W,.....Logansville
Hankevitz F,.....Lomira
Zeider L,.....
Vaedsch & Runkle,.....Lowell
Amby P,.....Lyndon
McMillan A,.....
Bunker & Vroman, Mifflin c Carrol,.....Madison
Sorenson & Frederickson.....
Stein C R, Washington av,.....
Walsing & Bailey,.....Maiden Rock
Maiden & Jones, Quay,.....Manitowoc
Emerson L,.....
Guyles & Pankratz, Quay,.....
Horn W H, Commercial.....

Hubbard H F,.....Manitowoc
Cooper & Jones.....
Smith Ira B.....
Smith, Fliegler & Co.....
Wallach A & Co.....
Wallich T H A.....
Zander & Co.....
Klingbolz Charles.....Manitowoc Rapids
Pierce Plinn.....
Reune Chas,.....Maple Works
Brayton, L J,.....Marquette
Green J S,.....
Hamilton, Merriman & Co,.....Marinette
Hilbeck H & Co,.....
Menomonee Mfg Co,.....
Spaulding, Houghtaling & Johnson,.....
McCartney Wm.....
N Ludington Co.....
Witbeck H & Co.....
Bartlett L H,.....Marshall
Bronson D W, Broadhead,.....Mazo Manie
Rein Daniel,.....Medina
Hewitt Henry, Jr,.....Menasha
Pope, Ross & Co,.....
Spaulding, Houghtaling & Johnson,.....Menekaune
Stephenson T & Co,.....
Knapp, Stout & Co,.....Menomonee
Bainbridge W,.....Mifflin
Harker & Bainbridge.....Mifflin
Greene N S & Co,.....Milford
Brown & Evans,.....Mills Centre
Dunham L.....
Lucas & Bro,.....
Greenman R J,.....Milton
Hutchinson James,.....Mineral Point
Pierce J H,.....
White S,.....
Weyhausen A,.....Mishicott
Williams J W,.....Monroe
Dessert J R,.....Mosinee
Goldsbury W,.....
Brnneau J.....
Kronenwetter S.....
Roberts & Sicard.....
Sterling W A,.....Mukwa
Garland J,.....Muscoda
Parr & Co,.....
Bull & Bowers,.....Muskego Centre
Houghton Geo G & Co.....Milwaukee
Schroeder & Steinman, dealers.....
Ernst Herzer, Planing mill.....
Wm. Willer, planing mill.....
H. Jalass & Co., planing mill.....
Brockhaus & Bradley, planing mill.....
W. C. Conway, planing mill.....
Nic. Schuh & Son, dealers.....
Engelmann, Babcock & Salling, Manufacturer and dealer.....
Weston Bros, manufacturer and dealer.....
Mayhew Bros.....
Durr & Rugee.....
Schmidt & Reichel.....
Judd T H & Co.....
Comstock L & Co.....
Chandler Walter S.....
Seyfried Martin.....
Brembach Fred.....
Mabbett & Foster.....
Simpson E. B & Co.....
Pierce R. W. & Co.....
Merrill Bros.....Merrillan
Ketchum L & Co.....
Warren J M.....
Hayden A S.....
Clark S & Son.....
Merrill L G.....
Kellogg A S,.....Neshoto
Cooper, Myers & Co.....
Cooper & Jones.....
Raymond & Jones.....
Lamb W,.....New Franklin
Latham & Smith.....New Franklin
Smart J & E (manufacturers) Bridge,.....New Lisbon
Bradford & Co,.....Necedah
Burch G B & Co,.....

Dawes W F & Co,.....Necedah
Shorey P & Co,.....
Weston T & Co,.....
Sherry Henry,.....Neenah
Hewitt & Woods,.....Neillsvilel
King G W,.....
Blakely C.....Neillsville
Clark A W.....
Green A.....
Lindsley F D .....
Ross Robert.....
Putnam L G,.....Neosho
Cooper & Jones,.....
Hale & Springsted,.....New London
Bell Marcus,.....New Richmond
Crozier & Jacobs,.....
Moore & Bro,.....Northport
Wisconsin mnfg Co,.....
Streeter J & A C & Co,.....Oconomowoc
Vilas G, opp depot.....
Woodruff Bros, n depot,.....
Brunquest W .....Oconto
Orr, Newell & Co. .....
Jacob Spies.....
Anson Eldred.....
Leigh John,.....
Oconto Lumber Co,.....
Comstock & Simpson.....
Hart L W .....
Holt, Balcom & King.....
Pierce L M .....
Winslow & England.....Ozekee
Brownsigg John.....
Monizeneux E.....
Vanderpool & Clark.....
Woodley Samuel.....Omro
Johnson H & Co .....
Curtis & Burlishesser .....
Gerard N.....
Morton, Arnold & Morton.....
Webster & Foster.....
Wilson A.....Cswego
Foster N C.....Onalaska
Aiken F & D.....
Hall Chas.....
Hayden L D.....
Jenks C L.....
Moore R M.....
Nichols Chas H & Co.....Oscola
Bradley C G.....
Dresser & Wilso.....
Talboys & Hauscome.....Oskkosh
Knapp L E.....
Jenkins J & Co,.....
Harris M.....
Osborn & Christenson.....
Conlee Bro & Co.....
Lane C & W.....
Gill & Son .....
Copeland Alex.....
Freeborn John.....
Turner Bros.....
Sturtevant & Son.....
Stevenson Chas.....
Bray Jefferson.....
Danforth Josciuh.....
Danforth E M .....
Edwards Henry.....
Elwell Joseph.....
Farrow T H.....Oshkosh
Reynolds Paul.....
Jewell, Lawrence & Co.....
McNair Jas.....
Barnes W W.....
Doughty & Bro,.....
Streeter Geo.....
Rockwell & McCord.....
Bray & Chote.....
Lynch John.....
Wall & Fitzgerald.....
Rumery & Kellogg.....
Hutchinson Thos.....
Miller L J.....
Fulnely & McDonald.....
Eighme R P.....

Williamson G M & Co.....Oshkosh
Wetherby David,.....
McAllyster J P.....
Hanson W E.....
Crowell & Son.....
Webb, Albert & Co.....
Myers & Van Every.....
James & Stille. .....
Nash, Lines, Libbey & Co.....
Morgan Bros.....
Fraker J S.....
Spalding & Peck.....
Campbell Wm & Sons.....
Libby D L & Co,.....
Regan, Cheney & Pratt.....
Doe & Miller.....
Ripley & Mead.....
E. C. Kellogg .....
John A. Paige ... .
Dorby & Curran.....
McMillan R. & Co.....
Sawyer] P & Son.....
Raine C N & Co.....
Reed L B,.....
Sheldon L P & Son,.....
Laabs J & Co .....
Buckstaff Bros & Chase.....
Foster & Jones.....
Henderson & Wilson,.....Palmyra
Wentworth, McGregor & Co,.....Portage City
Gillon N.....Pine Grove
Glawe C.....
Bruce, Fuller & Co.....Rock Falls
Garland & Nichols.....
Bates & Hoag, Second n Main.....Racine
Hall & Scott,.....
Hood S & Co, Main c Second,.....
Murray, Slanson & Co, Second .....
Peck S B & Son.....
Tremble & Doud, State.....
French D C. .....Randolph Station
Cushman A G.....Readstown
Smith Timothy,.....Reedsburgh
Rudolph C J.....Richland Centre
Richardson Mrs. W.....Richland City
Learmouth J.....Rio
Barlow J B & Co.....Ripon
Pedrick M.,.....
Bowman Na.....Roundhill
Moore J P & Co.....Royalton
Judd, Walker & Co.....Saint Croix
Roberts George.....Sandy Bay
Halasz Chas.....Sauk City
Obrecht U.....
Cowles H H.....Scott
Carrol S.....Seneca
Campbell Y.....Sharon
Treat J A.....
McCord.....Shawano
C. D. Wescott .....
Asa Hicks.....
C. Crowley .....Sheboygan
Hockner A.....
Schrage Joseph.....
Weeks A L.....
Haseltine C P .....Sherman
Kelly W P & Co.....
Stafford & Gray.....Shiocton
J. H. Parks.....
Mason, Barnes & Co.....
W. D. Sordon.....Siegel
Nutwig Ole.....Somerset
Harriman Samuel .....Sparta
Irwin O L, Maple.....Springfield
Johnson S E.....Staffordsville
Stafford L R.....Stevens' Point
Bailey D C.....
Blake & Mitchell.....
Benson P & Bro.....
Burns, Thompson & Co.....
Boynton N.....
Brown E D.....
Burr, Emmons & Co.....
Bean T G & Son.....
Campbell P.....

Homestead Seth.....Stevens Point
Gilchrist A B.....
Goodhue Geo J, Jr .....
Gamble Ross.....
Hungerford Seely.....
Hutchinson & Bro.....
Hubbard ——.....
Karner S H,.....
Kelly Bros.....
Knox Bros.....
Meehan Bros.....
McCulloch H D.....
McDill T & Bro. .....
McMillan & Sons.....
Moe Louis I.....
Lester and Plummer.....
Park G L.....
Pike E L.....
Perry I & J.....
Quinn Jas.....
Rennie John.....
Robeson J M.....
Reading & Van Order.....
Richardson Chas.....
Clifford Wm J.....
Rousseau M. A.....
Sherman S A.....
Scott Bros.....
Sheckels Wm.....
Wadleigh & Walker.....
Woods ——.....
Whitney Ebenezer.....
Wade Geo & Co.....
Warner ——.....
Welch Adam.....
O C Wheelock.....
Callahan Chas.....
Redfield John.....
Isherwood J & H.....
Blow Louis.....
Johnson J O.....
Martin John R.....
Clark Owen.....
Cooper B F.....
Cronkhite, Plummer & Co.....
Clements D R.....
Cook Cornelius.....
Curran H & J D.....
Lawson & Co.....Stoughton
Severson S H.....
Turner O M.....
Ives W A.....Sturgeon Bay
Anderson Geo.....Seymour
McIntosh, Ross & Perry.....
Pope G M.....
Procker & Blair.....Sheboygan
Freyverg E.....
Thompson & Schrader.....
Winter M.....
Graham W.....Sheldon
Wait S.....
Wilson George.....
Callon Wm.....Sherman
Gray J.....
Davidson D.....Saumico
Klaus & Wright.....
Trumble M E & Co.....
Gray O.....
Lamb, Watson & Co.....
Marshall & Co.....
Weed A & Co.....Saumico
Coburn R G.....Superior
Howard John D.....

Peylon H M & Co.....Superior
Mann J H & Co.....Sun Prairie
Anson Aldred.....Stiles
Huct John.....Trim Bell
Barrett J M.....Trempealeau
Healy Benj B.....
Reed Joseph.....Tyrone
McCaul & Son.....Tomah
Hinton T.....Trap River
Mann Joseph & Co.....Two Rivers
Goyt C.....Ualo
Foster N C.....Upper Duck Creek
Lucas J & Bro.....
Taylor A.....
Arntz P.....Wauceda
Smith & Foster.....Wauzeka
Lewellen & Lunn.....Waterloo
Squires & Sheldon.....
Coe O K.....Watertown
Hamlin & Sleeper.....
Streeter J & A C & Co W Water .....
George V. Brill.....Wrightstown
Hammond Alfred.....Waukechon
Semple A.....
Semple F.....
Kimball R N, Madison.....Waukesha
Richardson Silas.....
Morse O A.....Waupun
Yewdike A H.....
Andrews & Parcher.....Wausau
Ancutt & Callon.....
Allen Henry.....
Bernhard & Simpson.....
Brown John.....
Clarke J C.....
Clark T W.....
Cohn & Curran.....
Daniels H. .....
Fitzer Al.....
Gray Robt.....
Hermann & Miller.....
Kickbush & Bro.....
Leahy Capt J.....
Lawrence & Peters.....
Manson Rufus.....
McLain Henry.....
McGinnis Daniel.....
McCrossen Jas.....
McGinnis John.....
Nichols Ed.....
Plummer B G.....
Single Ben.....
Single Jas.....
Stafford M.....
Wenhime & Kickbush.....
Zastrow Ed.....
Shaw Daniel & Co.....West Eau Claire
Wheaton Lumber and mfg Co.. ...
Shell Bros.....West Salem
Allen N H & Co, Railroad. .....Whitewater
Esterly Geo W & Co.....
Littlejohn A M.....
Nutt M E & Killips.....Winneconne
Jones, Wellington & Co.....
Knapp Bros.....
McArthur & Co.....
Starks, Stickles & Co.....
Schultz C.....Woodland
Converse H.....Wyocena
Wells & Craig.....
King P & Sons.....Wyoming
McCutchen H.....
Baker & Blair.....Yankeetown

ILLINOIS.

Ludington, Welles & Van Shaick, 224 south water street.....Chicago
Palmer, Fuller & Co., planing mill, cor. w. 22d and Union streets .....
Adams & Lord, 338 Lumber street.....
Park & Soper, 775 Canal street, cor. of Lumber.....
Batcheller & Slaght, Throop st, s of 22nd...
South Branch Lumber Co., cor. 22d and Loomis st.....

Wilce, Stephens & Co., planing mill, 22d Chicago and Throop st.....
Kelley, Wood & Co., cor w 22d st and Center Ave.....
Soper, Brainard & Co., 69 Beach st.....
R S Whitecomb, 711 w. Washington st.....
Gilbert, Hubbard & Co, 226 to 220 s water st.
Benedict Franz .....East St. Louis
Livingston John B.....

MINNESOTA.

Chute S H.....Minneapolis
Smith E K.....

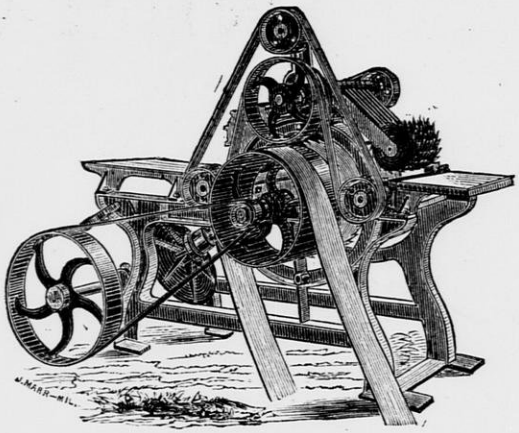
Judd W S.....Minneapolis
Brood E.....East

MISSOURI.

Lobsinger, Meegan & Co.....Carondelet
McAlister & Bowling.....Columbia
Gruikshank, J J Jr.....Hannibal
Northwestern Lumber Co.....
Phillip Gruner, Jr., s. e. cor. of 9th st. and Case Ave.....St. Louis
Woerheide & Luehrmann, planing mill, 813 Cass st.....
Schulenburg & Boeckeler.....
Lesley, Garnett & Co., planing mill, 124 Olive st.....
Parker, Spencer & Co., 3,922 Broadway.....
Knapp, Stout & Co., Bremen Ave.....
Patrick Bros. Lumber Co., Bremen Ave.....
Schuelle & Querl, n. Main st.....
Philibert & Johanning, planing mill, 1502 to 1518 Market st.....

Theo. Bloess, Carondelet Avu. cor. Barton..St. Louis
August Leisse, 609 Choutean Ave. bet. 6th and 7th sts.....
Boeckenkamp & Surkamp, cor. 9th and Monroe sts.....
Lobsinger, Meegan & Co., Carondelet.....
Clear Water Lumber Co.....
Fleitz & Ganahl, 1320 Jackson st.....
Methudy & Meyer, commission, 22 s. Main st.....
Berthold & Jennings, commission, 28 s. Main st.....
Williams & Alford, commission, 100 s. Main st.....

ATTENTION LUMBERMEN!



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YOU CAN GET, ONLY AT THE

Cream City Iron Works,

The Best Steam Engine,
The Best Circular Saw Mill,
The Best Water Wheel, (new invention.)
The Best Shingle Mill, "
The Best Gang Edger, "
The Best Gang Lath Mill, "
The Best Gang Bolter, "
The Best Automatic Bolter, "
The Best Swaging Machine, "

We are willing to risk the amount asked for either machine that a trial will verify this assertion. Also on hand

Leffell, Bryson and other Turbine Water Wheels Judson's Governors, Bird's Chain Pulley Blocks, Patent Oilers, Feed and Flour Mills, Steam Guages, etc., etc.

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Northwest corner Clinton and Florida Sts.,

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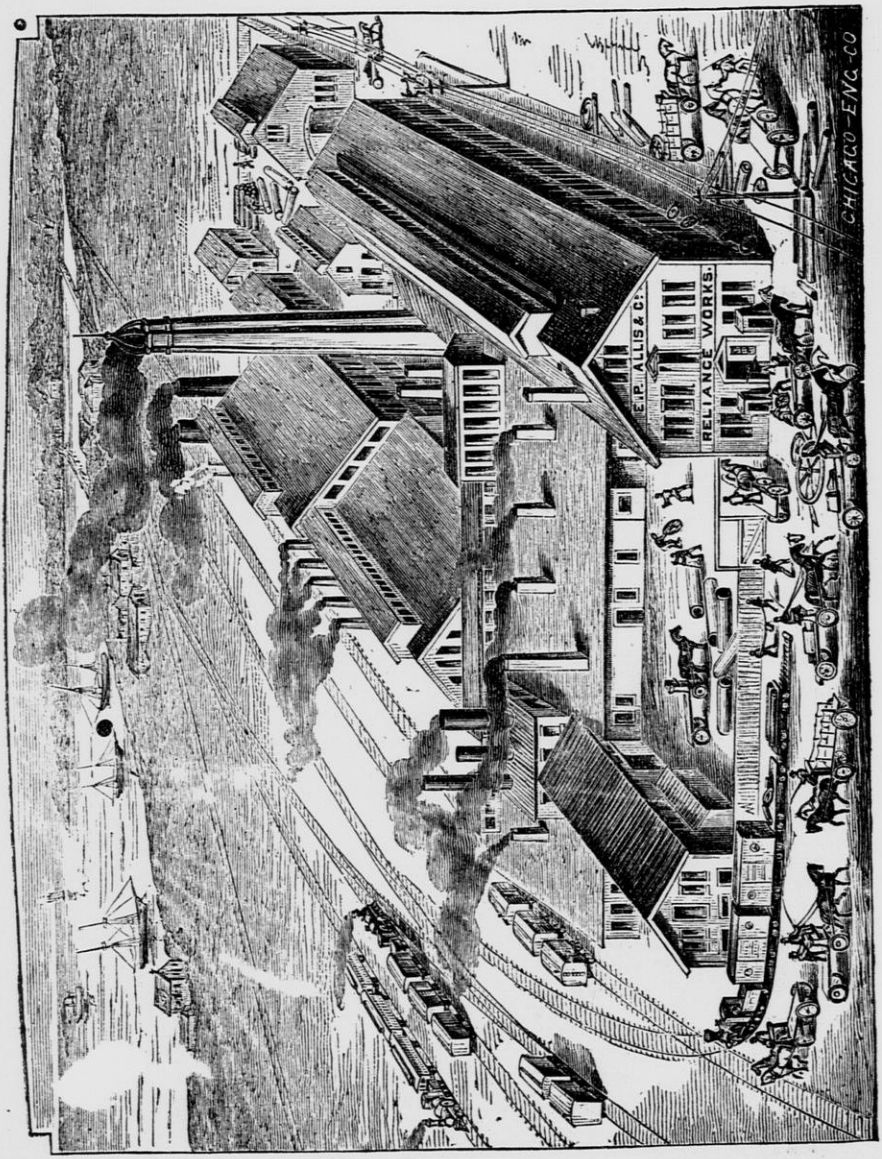

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