

EXTRAORDINARY RAILROAD LOGGING.

Some time since the *Gazette* alluded to a projected movement of the Ward Brothers to transport a large amount of first quality of timber from the headwaters of the Manistee river to the Saginaw river mills for conversion into lumber. . . . Mr. Ward has demonstrated that it is entirely feasible to transport these logs by rail to the Saginaw river after running them down the Manistee 250 miles. Four million of these first-class logs have already been brought here from the Manistee, in demonstration of the entire feasibility of the plan adopted by the Ward Brothers.

The new log loader built by Ward Brothers, at Manistee, has been running successfully for a month and the Flint & Pere Marquette railroad are unloading daily a train of 20 cars of logs.

The log deck consists of an endless chain and incline with two log canters and double log pulleys. A 12x18 engine fed by a 14 foot by 44 inch steel locomotive boiler drives the machinery. The chain, canters, and sliding skids for top loading are run by heavy frictions and the entire machinery works effectively, handling the largest logs with ease and dispatch.

With a full force of 18 men, 60 cars carrying 300,000 feet, can be loaded daily and sixty million feet of logs delivered via the Flint & Pere Marquette railroad to Saginaw during an ordinary sawing season of 200 days.

With a crew of eight men, Ward Bros. are loading 20 cars per day with 100,000 feet of logs which are hauled by the same crew. The pine being shipped consists of six million feet of selected cork pine logs running $\frac{3}{4}$ logs per M foot and one million feet of selected Bull sap pine running $\frac{3}{4}$ per M foot.

The following table shows the work done during the first two weeks of shipping:—

	Feet.
Largest train load 20 cars scaled.....	121,072
Smallest train load 20 cars scaled.....	95,000
Average car load, largest train.....	6,082
Average car load, smallest train.....	4,760
Largest car load.....	7,450
Smallest car load.....	4,000
Average car load for two weeks hauling.....	5,900

These logs were cut in town 26, N. R. 6 west, and run 250 miles by river and 140 miles by rail to Saginaw. Manistee cork pine has the same characteristics that distinguished the Cass, Chippewa, and Tobacco river stocks of early days. On account of it being among the first good stocks cut in an early day when the choicest trees were selected and knotty and small logs left in the woods. Cass river pine gained the reputation of being the best timber that ever grew in the state, despite the fact that just as good timber was cut from the Chippewa and Tobacco rivers, and is now being cut from the Manistee as ever grew on the Cass. The Manistee timber grows among hardwood, is long trunked generally cutting from four to five logs to first limbs, has thin sap and runs very rich to uppers and fine common, selects and cutting up.

Three million feet of logs cut from the same tract of timber that Ward Bros. logs were cut from were sawed at Dempsey, Carter & Co.'s mill at Manistee a few years since which graded 60% uppers and 25% fine common and selects.

The chief recommendation of large cork pine is its light soft cheesy character, and the great width of the thick uppers and selects. It is cheaper to freight, dries out quick, and when finished stays in its place without shrinking or warping, better than any other timber, consequently it is preferred by builders and piano-makers.

The Ward logs are being sawed at Backus & Binder's mill, Saginaw City. Clear plank 40 inches wide and six inches thick have been taken from this stock and can now be seen at the above mill.

The railroads centering on the Saginaw river are also interested in this movement as well as the timber owners and mill men. Here is 1,000,000,000 feet of first class timber which can be fastened on with certainty if the railroads will furnish transportation direct from the source of supply.

The Grand Rapids and Indiana road is making a movement looking towards securing this

timber for Grand Rapids, by building a branch from Kalkaska into the heart of the timber country. The Michigan Central road can reach this timber by constructing 12 miles of track; and a system of branch roads will enable them to handle 1,000 million feet of this timber. It is certainly worthy of their earnest consideration, as it would require about 300,000 car loads to complete the job. The F. & P. M. railroad can also reach it from the Harrison branch, which is only 24 miles from the timber, and it will certainly be to its interest to make the move, as the country through which it will pass is, outside of the log traffic as liable to be remunerative as some other portions of the road. —*Lumberman's Gazette.*

THE STRONGEST PART OF A TREE.

It might be supposed that every layer from pith to bark is in a different stage of perfection, the innermost or earliest being the most matured, would be the strongest, but experience teaches us that this is only true up to a certain period of growth; the greatest strength and toughness lies nearer the more recently formed heartwood, or part nearest the sap-wood. For this reason it becomes a matter of great importance in selecting timber for special purposes requiring great strength and toughness, to have as little sap-wood as possible and as little pith. That is to say, cut as near the sap-wood as the timber will allow, for it should be observed that a tree does not cease growing when it comes to maturity. As long as it is alive it continues to increase in bulk by the addition of the annual layer, but when maturity is once passed each succeeding year produces a certain degree of deterioration. This decay appears in various stages, and generally exhibits in the first instances either a white or yellowish color at the butt or root end of the stem. If white the decay is very slight and does not appear more than a few feet up, but if a yellowish red in color, it is not unfrequently of a most serious character; again if the affected parts have assumed a decidedly red tinge, the tree is said to be foxey, and scarcely fit for any purpose, as the decay will be found to pervade a great portion of it. A more advanced stage is that which may be described as a drying up or wasting away of the wood surrounding the pith. It forms a hollow, first at the butt, and then spread upward, gradually increasing in size as the tree gets older, while the defect may eventually reach into the branches. Trees are most valuable as yielding the largest amount of good timber just prior to their reaching maturity, which is indicated by the topmost branches and branchlets becoming stunted. If, therefore, we wish to select a healthy tree for felling, we must seek one with an abundance of young shoots, and the topmost of which look strong, pointed, and vigorous, this being the most certain evidence that it has not passed maturity. When there is evidence of permanent decay in a tree the best thing to do is to cut it down and convert such parts of it as will answer the purpose into lumber, and the balance into firewood. The longer it is permitted to stand, after decay sets in, the more worthless it will become for any purpose. —*Builder's Journal.*

HINTS ON THE CIRCULAR SAW.

We know of no manufactured article of which more is required than of circular saws, and probably none heretofore so little understood. Improvements have demonstrated that they can be made as reliable as the most common article, and circulars have been issued explaining some of the principles governing them, that errors may be more readily discovered and corrected.

A circular saw may be dressed on both sides alike, accurately rounded, and in perfect balance, so that all the teeth in their contact with the timber shall have an equal amount of work to do. When saws are out of round, to remedy the defect a piece of grindstone or emery wheel should be held against the teeth while the saw is revolving, thus reducing the most prominent points.

ON FLYING SAWS.

When taking orders for new saws we intend always to get explicit information as to what they are required to do, and in sending out saws to put in the pitch and depth of teeth

best adapted to the work they have to perform; consequently, in sharpening the same, preserve as nearly as possible the original style and pitch of teeth as were in the saw when received from the factory. The filing should be done almost exclusively on the under side of the tooth, the top being filed only just sufficiently to keep the same in proper shape.

The filing of a saw more steaming on one side than the other causes the saw to lead in or out; it soon heats and trouble ensues.

The throat of the teeth should be kept chambered out, so there will be sufficient space to carry the saw-dust, or it will choke and heat, the rim will become too large, and the saw will run shaky.

Saws of any kind are liable to crack if filed to a square corner.

ON GUMMING SAWS.

In the use of emery wheels on large saws much care should be exercised. Saws under no circumstances should be "blued," by the wheel, for when the points of the teeth are heated to a red heat, as is often the case, the life of the tool is destroyed and rendered tender, brittle and fractious. Again, some emery wheels, even with the most careful use, will leave a glaze on the steel, in which case the teeth will check and split in swaging; after being dressed with the wheel, the teeth should file without difficulty, and, if they do not, trouble in swaging is almost sure to follow.

We have had saws returned to us, of which the points of the teeth were brittle and tender, but which stood all necessary tests when shipped from our works. We reduced these one-half inch in size, and found the teeth excellent, standing the swage perfectly, which was conclusive that the trouble was caused by the emery wheel. The harder the wheel the more it will glaze; for this reason soft wheels should be used, and both saw and wheel should kept in motion as the work is being performed, to prevent glazing and heating the saw.

ON HANGING THE SAW.

In hanging the saw care should be taken that the mandrel be absolutely level, so as to allow the saw to hang plumb, fitting as tightly in the boxes as it can be made to run without heating; and that the collars are perfectly and properly made.

The mandrel should be made of steel, it being difficult to make an iron arbor that will continue to run true, as from the nature of the metal hard and soft spots will appear, which cause it to wear out of round.

Both collars should be turned flat from the outer edge three quarters of an inch toward the centre, then chambered out a trifle, (say 1-64 of an inch) to the shaft. Both should be perfectly true.

To ascertain whether the collars are defective, place the saw on the mandrel and tighten up the collars by hand, test the saw with a straight edge, and if made correct, tighten up the collars with a wrench, and test again with straight edge to see if the position of the blade has been altered. If any change is noticed, it is safe to assume that the saw is true, and that the trouble lies in the collars; nor will it be possible to secure satisfactory results until the defects are remedied.

The saw should slip freely on the mandrel and close up to the fast collar. In many cases the stem of the arbor being a trifle large near the collar, the saw, by being forced to its place by the nut is made full on the log side.

When it is found necessary to do any filling at the centre or lug-pin holes, see to it carefully that no burr is left on the edges.

A saw should never be taken from the arbor very hot at the eye and placed in a leaning position, as it is liable to dish it. It is well to cool the saw by allowing it to run for a short time out of the cut before it is removed from the arbor.

ON LINING THE SAW.

Observation has taught us that the principal cause of trouble is in the lining of the saw, for if not done properly, the saw heats, causing it to run snaky in the cut.

A new saw should be lined almost straight, leading into the log the least amount that will keep it in the cut, prevent its heating at the centre, and scratching the lumber when the carriage runs back; we should say from 1-64 to 1-32 of an inch in the diameter of the saw,

The only proper way to change the line of direction of the saw is by sluing the mandrel in the way necessary to accomplish the object.

Trouble is often caused by the track—on which the carriage runs—being out of true, and should be often examined.

A simple method of lining a saw, first ascertaining that the saw hangs perfectly plumb, and that the track is true, is to move the carriage up until the headblock is on a line with the front edge of the saw; take a pointed stick or sharp instrument and lay it upon the headblock, placing the point lightly against the saw; then move the carriage back until the point is opposite the back edge, and if the saw is properly lined with the carriage, the point should clear the saw from 1-64 to 1-32 of an inch.

After trying the saw as above, by turning the same a quarter of the way round, and repeating the operation, any imperfection in the saw will be shown.

Saw arbors should have from 1-64 to 1-32 of an inch end motion, and should never be run rigid.

The guides should be placed near the roots of the teeth, and should as a rule, be run close.

Care should be taken that the spread wheel be on a line with the saw. Poor lumber is often the result of oversight in this direction. Set the spread wheel full flush with the face of the saw, and half an inch clear of the teeth.

The tendency of all circular saws is to grow large on the rim as they wear away, and saws in this condition can be used by leading the saw out of the log a trifle, which causes the log to bear on the centre of the saw, heating and thus expanding the centre to counterbalance the expanded position of the rim. —*From the Catalogue of the Simonds Manufacturing Co., Fitchburg, Mass.*

THE SEASON IN THE WOODS.

The prospects of the lumbering business for the approaching season are not favorable. All the operations in the back country will be greatly reduced, and in every branch the production will be very limited. Our back country friends will do well to prepare for a considerable curtailment in all lumber operations, which means low wages and low prices for the farm products they have been in the habit so many years of supplying to the lumber shanties. It appears probable that there will not be half so much lumbering as was done last year,—and last season the work was done not by any means extensive. The three firms, Hilliard, of Peterborough, Smith, of Fendelon, and Boyd, of this village, according to report, will confine their operations to small limits, and the other firms will do but little. The cause is to be found in the lack of American demand for lumber. For clear stuff the demand is fair and the price good, but for common lumber the price is not only low, but the demand is very slight. In fact the lower qualities can not be sold at all. This depression will probably be only temporary, and after the close of the Presidential contest, business will be resumed and a better demand arise, but it will be too late to effect this year's operations, and the large firms are acting wisely in shutting down and reducing the season's cut to the lowest point possible. The Georgian Bay Lumber Company will lessen its output of logs to one-half its usual quantity, whilst the British Canadian Lumber Company will close entirely for the season. It may be that in this district the output will reach one-half of that of last season, but it is quite possible it may not reach more than one-third. Our back country friends should bear this in mind, and govern themselves accordingly. —*Bobcaygeon Independent.*

Staining Pitch Pine.

Pitch pine has a strong tendency to quickly get darker in color. This arises chiefly from the effect of the air upon the turpentine and resin contained in the wood (just as varnishes get dark by exposure), and therefore, except the work is required of a dark color to begin with, it is advisable that no stains be used on the mass of the work, and that the varnish used be as light-colored as it is possible to be got, for if we varnish with a common dark-colored varnish the wood will all the sooner become discolored.