

handle it. The best machine made will not show its worth, or do one half the work it might under such conditions, nor can it be expected to last nearly as long as it would if skillfully operated and properly cared for. The loss falls upon the user, of course, though the maker suffers, too, in the reputation of his work, which is damaged through no fault of his or of his machine. But it should be apparent to any mill owner that to employ unskilled labor to handle a mill equipment which represents an investment of thousands of dollars, is a piece of folly that is wholly without reasonable excuse. There is not only the liability that the machinery will be damaged, but the certainty that it will not do nearly the work of which it is capable. What does the difference of, say, a dollar a day, or three hundred dollars a year, amount to in the attendance for a machine representing an investment of ten to twenty times as much? One breakage saved would pay it all, and the gain in work performed would, in most cases, be more than the entire amount of a capable man's wages. The importance of the skillful operation of machinery is so manifest that it seems strange that it should be necessary to call attention to it; but the experience of machinery men, and the admissions of machinery users, evidenced the fact that the need of reform in his respect is widespread and urgent.—*Chicago Timberman.*

WEIGHTS OF BRITISH COLUMBIAN WOODS.

The following table shows the weights, specific gravities, deflections and breaking loads of nine different woods of the Province of British Columbia. The results have been obtained from experiments made by Mr. Edward Mohun, of Victoria. The pieces tested were 1 in. square, and had a span of 1 ft., being supported at both ends and loaded in the centre. The specimens selected were fair average specimens of building timber, partly seasoned, but free from knots and flaws. The results given by exceptionally good specimens were eliminated in preparing the Table. For instance, one piece of Douglas fir only broke under a load of 660 lb. —

Description of Timber.	Highest Break-Load.		Lowest Break-Load.		Mean Breaking Load.	Specific Gravity.	Weight in Pounds.
	Lb.	Feet in Cubic	Lb.	Feet in Cubic			
Yellow cypresses (<i>Chamaecyparis Nutkaensis</i>)	650	31	650	31	650	0.5005	31.21
Birch (<i>Betula papyrifera</i>)	600	25	600	25	600	0.4925	25.67
Red or Douglas fir (<i>Pseudotsuga Douglasii</i>)	650	31	650	31	650	0.5005	31.21
Maple (<i>Acer macrophyllum</i>)	650	31	650	31	650	0.5005	31.21
Alder (<i>Alnus rubra</i>)	650	31	650	31	650	0.5005	31.21
White pine (<i>Pinus monticola</i>)	650	31	650	31	650	0.5005	31.21
Cedar (<i>Thuja plicata</i>)	650	31	650	31	650	0.5005	31.21
Spruce (<i>Picea Menziesii</i>)	650	31	650	31	650	0.5005	31.21
Hemlock (<i>Tsuga Marientana</i>)	650	31	650	31	650	0.5005	31.21

THE OPENING OF NAVIGATION.

THE coming season promises to be a very successful one for the boat forwarders on both the Rideau and Ottawa River routes. Owing to the passing of the Inter-State Commerce Bill by the American Congress the rates by rail to Burlington and other American ports to which our Canadian lumber is shipped are considerably higher than they were last season, and even last season rates by rail were one-third higher than the rates by water, the only difference being that the shipments could be made in less time by rail than by boat.

The further increase of these rates by rail this season will and in fact has taken all of nearly all of the carrying out of the

hands of the Railroad Companies and in consequence of this it is impossible for shippers to secure enough barges to supply the demand notwithstanding that a dozen new ones were built during the winter.

It is difficult to get at the amount of lumber shipped during a season from Ottawa by boat, but the following is a calculation made by a prominent forwarder and is as nearly correct as possible.

All the mills last year at the Chaudiere, including J. R. Booth, Bronson & Weston, Orier & Co., E. B. Edly, Perley & Pattee, and Harlan & Co., turned out on an average 600,000 feet of lumber per day each, making a total output for all the mills for a day of 3,600,000 feet. The total output for all the mills for the season, which was about 210 days, was about 756,000,000 feet. Of this amount about 252,000,000 feet was carried in American bottoms. The remainder, about 404,000,000 feet, was carried in Canadian bottoms and by rail. Of this last amount it is estimated that at the very least 200,000,000 feet was carried by rail. As this cannot be carried by rail on account of the rise in the freight rates it will have to be carried by boat and the forwarders state that every foot of it will be carried in Canadian bottoms. If this be the case it will easily account for the great demand which there is at present for Canadian barges.

The forwarders have completed the repairs to their boats and are now engaged in placing their barges and loading tows. Messrs. Blanchard & Co. are now engaged in loading a tow of 30 barges with lumber for Burlington. Messrs. Murphy & Co., are loading tows of 60 barges with lumber for Burlington. Messrs. Kirby & Bangs' tow of 6 barges will load with lumber for Buckingham on Monday. Messrs. Blanchard & Co., have leased all the barges and steamers of the Sincennes, McNaughton Line, and will run them in connection with their own line. Geo. Harris' line, of six barges, loads lumber for Buckingham on Monday. S. T. Easton's line of five barges will also load lumber on Monday next, besides these are many other smaller tows and crafts loading for intermediate points. The forwarders on the Rideau route are confident of a splendid season, and state that fully a third more freight will be carried this season than last owing to the high railroad rates between Montreal and Ottawa and Ottawa and Kingston, and also that forwarders this year refuse to make yearly contracts.

Mr. Wise, the engineer of the Rideau Canal, has notified all the forwarders having crafts on the Rideau route that the water will be let in to-day, and that navigation will be open on Monday. The Steamer Olive, of the Merchants' Despatch Line, will arrive down from Smith's Falls on Monday, going to Montreal.

On Wednesday next the steamer Ida, of the Merchants' Despatch Line, will arrive down with a load of freight on her way to Montreal. The wharf of the Olive and Ida, S. T. Eastman's is now open to receive freight.

The steamer Ella Ross will not begin running until the first of June, as she will only carry passengers.

All the other lines will begin running on their old route as soon as navigation is fully opened.—*Ottawa Journal.*

STILL IN THE TREE.

A. G. Van Schaick, who is pretty generally considered able to make as reasonable a guess as any one, has summed up the standing pine in Michigan and Wisconsin. Mr. Van Schaick does more than jump at conclusions; he has maps and charts and charts of each section, and has for years kept a tab on experts, reports, and noted what the output has been. He gives his figures in the *Northwestern Lumberman* as follows:

	Feet.
In the Saginaw district	6,000,000,000
Other Lake Huron districts	12,000,000,000
Mackinac to Manistee, west shore	5,000,000,000
Manistee	5,000,000,000
Manistee to Muskegon	10,000,000,000
Muskegon and south	7,000,000,000
Menominee, in Michigan	4,000,000,000
South shore of peninsula	3,000,000,000
Lake Superior, in Michigan	5,000,000,000
Railway lands	12,000,000,000
Total	70,000,000,000

He estimates the amount in Wisconsin as about the same as in Michigan and locates it as follows:

Green Bay Shore	8,000,000,000
Wolf and Wisconsin rivers	8,000,000,000
Black and its branches	4,000,000,000
Chippewa and its branches	10,000,000,000
St. Croix and its branches	4,000,000,000
Lake Superior	6,000,000,000
Railway land	30,000,000,000
Total for Wisconsin	70,000,000,000

Mr. Van Schaick estimates the amount in Minnesota at about 30,000,000,000 feet, and believes the whole amount will be required for home use.

If consumers of lumber can see anything in the outlook that promises any permanent decline in lumber I cannot, and when

the consumption of the past 20 years has advanced the price of pine in the West from \$1.25 per acre to \$4 per thousand, and from \$1.50 per thousand, in 1866, to \$5 for the same timber in Michigan, in 1886, with a demand for lumber that doubles every 15 years, nothing can, in my opinion, prevent the value of pine stumpage from advancing 10 per cent. per annum on its present value until the whole supply is exhausted. The time has already come when it is difficult to buy pine timber and manufacture and sell it at a profit; and such being the fact timber owners must look with more favor on their supply, and shape their business to cut it with a view to securing the profit it should pay under such circumstances.

THE SAGINAW OUTPUT.

The output of the streams in the Saginaw district is as follows:

Tittabawassee and tributaries	410,000,000
Cass, Flint and Bad river	10,000,000
Kowkawlin	20,000,000
Rifle river	80,000,000
Au Gres river	40,000,000
Saginaw and Shore pine	10,000,000
Total	570,000,000

The railroads hauled directly to the Saginaw river last year 149,555,557 feet and as near as can be ascertained they will handle direct to the river 170,000,000 feet, and about 30,000,000 feet will be floated here from the Upper Michigan and Georgian Bay points. There is now in the mill booms 33,190,000 feet. This gives a total stock for the mills.

Streams in Saginaw District	570,000,000
Railroad logs	170,000,000
Rafted from upper lake, etc	30,000,000
In mill booms	33,190,000
Total	803,190,000

To the foregoing may be added about 40,000,000 feet that will be put in during the summer.

At Escanaba the log output of that river is estimated at 25,000,000 feet.

DECAY OF LUMBER.

Beech, says the *Industrial World*, rots very easily if exposed to the elements, but under shelter remains sound. If covered by water it will remain sound for a long time. Oak, if exposed to the weather, loses its sapwood, but the old wood remains sound for many years. All young timber should either be put in water immediately after it is cut or put under shelter, as the young wood begins to rot very quickly if it is alternately wetted and dried. It follows, then, that deterioration takes place to a far greater extent than we imagine by letting young trees lie out in all weathers, with their bark on, as they can not resist wet without having been first dried. All wood should be either put in water immediately after being cut, or at least when spring comes, as it is absolutely necessary that all timber should be water-soaked before any attempt is made to dry it. It is a well established fact that boards dry much quicker if the logs have previously lain in water. Another fact worthy of record is that water-soaked lumber is never attacked by insects and hence plank treated in this way can stand for many years without injury.

LUMBERING IN NEW BRUNSWICK.

The general estimate of the lumber that would be cut on the St. John river during the past winter, outside of Mr. Gibson's cut, was in the vicinity of 150,000,000 feet B.M. It is now supposed that there will be a falling off one-third or more in this quantity. The depth of snow, which above Fredericton would average 5 feet on the level, was a great drawback to the woodsmen. The winter was a succession of cold snow storms. The snow not packing, made the hauling very hard. Shoveling to the standing trees which in ordinary years begins late in February or early in March, had to be begun about the middle of January, and the work of getting to yarded logs was as great as the chopping, hauling and yarding of them would have been in any ordinary year. Thus the last winter has been one of the most expensive to the log handler in New Brunswick that has been known for many years. Then the cost of portaging, always a heavy item, was increased by the frequent snows, so that it may with confidence be affirmed that few of our log handlers will make much out of their winter's work, while many will be losers. The prospect for a successful drive is good.

—The Messrs. Emery Bros., of Saginaw, Mich., have concluded this year that all the logs they got out, about 40,000, will be sawed in Canada, and they have rented a mill on the Georgian Bay for that purpose. This is a result of the high export duty on logs. The probabilities are that as they own extensive limits in the Nipissing and Georgian Bay territory, they will build mills of their own to saw their Canadian log cut.