

bridges have been built on this principle, in spans ranging from 30 feet to upwards of 500 feet long. There are several types of trusses, such as the King post truss, the Queen post truss, the triangular or Warren truss, the double triangular truss, the trapezoidal or "whipple" truss, the Fink truss, the Bollman truss, &c. The two former types are only used in the shortest spans. The trapezoidal or "whipple" truss is most in use and some magnificent structures have been built up to 525 feet spans. The illustration given is of the whipple type and is called a low truss bridge. The length of span is 68 feet, width of roadway 18 feet, with a sidewalk on each side four feet wide. The bridge is designed to carry a rolling load of 100 pounds per square foot of the roadway, and 80 pounds per square foot of sidewalk, besides the weight of the superstructure itself. No member in tension to be strained to more than 10,000 pounds per square inch, and compression members 8,000 or less, depending on the ratio of length to diameter of the member. The sidewalk railing is made of wrought iron lattice work bolted to cast iron posts, said posts being bolted to the iron cross beams, the flooring is entirely of pine, roadway plank three inches thick, sidewalk plank two inches thick, the whole superstructure is erected on a cut stone substructure and crosses Pigeon Creek, in the town of Omamee, Victoria County, Ontario. In long span bridges, from 90 feet and upwards, the trusses are of sufficient height to be braced laterally on the top, these are called high truss bridges. Sometimes the roadway is carried on the top of the trusses, and this is called a deck bridge.

Before building a bridge all corporations should consult a competent engineer, who would be able to select the most economical and best type to suit the location, and also to examine the designs and plans presented, to ascertain if they are designed on correct and recognized principles, and to ignore any plan that is not, or cannot be analyzed as to the kind and amount of strain the members of the bridge would be subject to when loaded. It is almost criminal to build a bridge, or any structure, on plans that no one can tell approximately anything about, when there are plans that are thoroughly understood and the strains can be correctly calculated.

There is another point to consider and one of the most vital importance, namely, the details, or connections, of the different members of the bridge, if these are weak the whole structure will be measured by their strength. On these points the knowledge of the practical engineer is of great value, it enables him to select the best design, and prevent incompetent and unscrupulous parties from palming their death traps on the public, besides saving large sums of public money.

W. H. LAW,
Central Iron Bridge Works, Peterborough.

THE DUTY.

To the Editor of the Canada Lumberman.

MR. EDITOR.—Mr. Joly's letter in your number of the 15th, with your remarks in answer to the *Free Press*, give valuable information on our lumber interest. I have often wrote and wondered the reason why the export duty on our cedar, spruce, and pine logs are not exacted on the river St. John, N. B., when one steam mill on the American side manufactures about 50,000,000 of cedar shingles, besides the spruce and pine for clapboards, furnished yearly from our forests free of export duty.

It seems astonishing that we have been, for the whole of the Nineteenth century, living alongside of a smart shrewd people who have thrown off the old John Bull bigotry over one hundred years ago, and we yet inherit it to such an extent we must butt our brains out against obstacles to progress before we can see them.

If we had a few more Mr. Jolys, with an independent press, who takes the interest of our country at heart, the Government might condescend to open their eyes and look after our local interests and protect them. And unless we encourage and protect all the feeders, to keep up our revenue, our progress must be retarded; and lumber is one of our natural and most

valuable feeders. Costing us nothing is the reason why it is so neglected, and the day is not far off when our future generations will curse the neglect and those causing it.

I see that the Morrison tariff, if it passes in the United States, throws a sprat at Canada to catch a salmon. It reads to admit all wood and lumber, *not dressed*, on the free list from a country where no export duty is charged; consequently all our shingles and clapboards, when a planer has been used on them, would be subject to duty, and nowadays all our shingles are edged with a planer, and nearly all our clapboards are planed at the mill where they are manufactured. So it stands our Government in hand to not let go with their right hand before they get a good hold with their left, for they have learned there is no friendship in trade with Uncle Sam.

And about our New Brunswick stumpage few of your readers know nearly all our lumber lands are locked up by monopolists who charge \$1.50 per M feet stumpage, and what little lumber we have left, if not preserved more strictly, the reckless slaughter now carried on by Americans, and our own lumbermen, we will soon have none to grow over.

Respectfully yours,

P. O. BYRAM.

Madawaska, February, 1886.

ENTERING the townships of Melbourne we are impressed with the rapid growth of wood. In places that were cleared, since our personal recollection, and cultivated for years, there now appears a strong and healthy growth of maple and other varieties of wood. Some of the trees are nearly large enough for sugar trees. If the country were left for fifty years, the landscape would be converted into an unbroken forest again. If people would only husband the wood growing patches that remain, keeping the cattle and fire out of them, there will never be a scarcity of wood in these townships. —St. John, Quebec, News.

WE learn from the Brandon, Man., Sun that Mr. Jas. Kennedy, son of Mr. D. Kennedy, of Campbellford, Ont., is manager of the Brandon saw mills, which the proprietor, Mr. Christie, lately purchased. 800,000 feet of logs are now in the Fort Ellice booms, and will be sent down as soon as the ice breaks in the river, and arrive there ten days after. It is the intention this season to cut one and a half million feet of lumber. Forty men will be placed in the woods above Fort Pelly this week. This will be pleasing news, the Sun says, to the people of Brandon.

THE Pembroke Observer of February 26th says:—"The timber shipping traffic for the season of 1886 has opened under the most favorable auspices and a busy season is predicted. Mr. Klock, the well known lumber merchant, of Aylmer, has started a force of men to load cars with lumber cut this season on the Veve river. The timber will be launched on the ice Papineauville, where it will be rafted up as soon as navigation opens in the spring and driven to Quebec for the early market.

MR. FLOOD, the agent for Messrs. R. R. Dobell & Co., is at present taking out square birch in the vicinity of Lac Sept Isles, near St. Raymond. Already 12,000 feet have been sent down by the Quebec and Lake St. John railway, and have been piled on the Louise embankment. Eight thousand feet more have to be delivered. The average of this birch was 16 inches and 11 feet in length.

ALLEN OLINSTEAD has been appointed forester for the Adirondack region, N. H., by the state forestry commission. He is an old hunter and a thorough woodsman. His duty will be to see to the preservation of the forests under his jurisdiction from wanton destruction and spoliation.

WHILE engaged in surveying lumber at Malone for the Rathbun Company, Mr. Thomas Pidgeon slipped off a lumber pile and fell against a log sustaining very severe internal injuries which have entailed much suffering. He was taken to his home in Deseronto.

DURING 1883 car loads of lumber and box shooks were forwarded from Potsdam, N. Y., to the number of 1,463; car loads of butter tubs, 165; bark, 29.

A MAN was hit in the right eye by the bursting of a log bind, in a shanty at Mattawa, and taken to Ottawa last week. He has sustained fearful injuries about the face, and it is feared that the eye is totally destroyed.

THE Cobourg Sentinel-Star says that the hickory wood in the buggy which John Boyd, of Baltimore, has sent to the Colonial Exhibition, London, England, was taken from a tree planted by the late Hon. Asa A. Burnham, over 50 years ago.

A SYNDICATE of Quebec gentlemen, including J. E. Ross, E. Beaudet, H. J. Boemer, Andrews, O. Turgeon and others, are about to erect a large saw and shingle mill and furniture factory at River Pierre, on the line of Lake St. John railway, province of Quebec.

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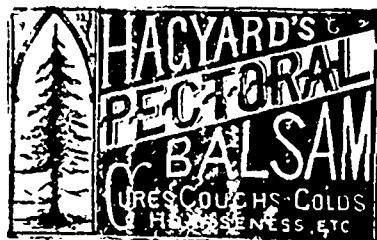
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