

Harwood's Rail Heritage

A Brief History in Four Parts

by Ted Rafuse

Part 3. The Rice Lake Bridge

The most incredible engineering aspect of the Cobourg & Peterborough Railway was the construction of the bridging necessary to cross Rice Lake, the body of water just north of Harwood Station. When undertaken, this structure was one of the largest engineering projects in North America, a feat of which most people are unaware.

One of the reasons Harwood was selected as the site on the southern shore of Rice Lake was its location was the proximity of Tic Island which could be included in the bridging of the lake. The plan for the crossing of Rice Lake consisted of several bridging techniques.

From Harwood, a pile trestle bridge 3,754 feet in length would be constructed north to Tic Island.



The Rice Lake Bridge showing the trestles used

North of Tic Island a succession of 10 by 20 foot wooden cribs would extend a distance of 2,760 feet, each crib at 80 foot centres from each other. These cribs, filled with stones, would support seventeen Burr Truss Bridge spans. The last eight of these were to be built on a slight incline to a Pivot swing bridge supported on a 20 by 40 foot pier to provide tow openings of fifty feet each. This was followed by another series of 8 Burr Truss Bridges on a decline similarly laid on cribs. A final pile trestle, 6,728 feet long ended on the north shore of Rice Lake at Indian Village (Hiawatha).

The original tender for construction specified a rock and gravel causeway to be held in place by piles. A draw span towards the middle would allow unencumbered navigation of the waterway. Both the contractors and the engineer underestimated the depth of mud on the floor of Rice Lake. To cut their costs, they substituted a less costly wooden pile trestle for the causeway. This change of plan ultimately proved ruinous to the fortunes of the C&PRy.

The contractors for the bridge were Zimmerman & Balch who had more experience in promotion of railways than in their construction. Ira Spaulding, was the chief engineer in charge of construction and at the time it was thought he was an independent professional but it was later discovered that he was affiliated with the contractors.



Rice Lake Bridge - probably taken after being damaged.

Construction of the bridge structure commenced in the spring of 1853. Catherine Parr Trail, writing in the *Anglo-American Magazine*, October 1853, described in some detail the activity at Harwood that summer. Her article, in part, reads:

"The shore is alive with workmen. There is a boat building at the edge of the water; there is a scow, and a small steam-engine is being fixed to move the hammer of that pile-driver;

it will be the third or fourth in operation; boats, skiffs and scows are moving to and fro, each guided by some hand who has his appointed labour in the bee-hive.

The three principal buildings are a boarding-house for the workmen and two stores, where all the necessaries of life may be purchased in the shape of groceries, provisions, and ready-made clothing. You see no women in this temporary village."

Trail continued her description of the bridge work by painting a literary image of a pile-driver methodically pounding trestle piles into the bottom of Rice Lake. She estimated that the work was about half finished by the end of the summer of 1853 the time when she finished her record.

The quantity of materials consumed in the construction of Rice Lake Bridge were mammoth. To erect the various trestles, cribs and bridging sections totalled 184,000 lineal feet (nearly 35 miles). 138,000 feet (26 miles) of round timber and 644,000 feet (121 miles) of square timber were used in the cribs. 1,932,000 feet (365 miles) of square timber was employed in erecting the actual bridge structures. A total of 250,000 pounds of iron stays, bolts and nuts held the wooden structure together. Finally 20,000 cubic yards of gravel anchored the cribs which supported the bridge ends. The completed cost of Rice Lake Bridge approached £35,000 currency at the time when a labourer earned about one dollar per day for a twelve hour day.

Late in December, 1854, the bridge opened for traffic with a free excursion from Cobourg to Peterborough on open railway cars. Today one can only imagine how bone numbing an experience that must have been.

The bridge was but shortly in use. On January 1, 1855, ice served notice to Rice Lake Bridge that it was a force with which to contend. Weather conspired to create a condition whereby ice proved stronger than the bridge anchors. The northern portion of the trestle suffered some movement but that damage was slight by comparison to other sections of the structure. The southern seventeen Burr Truss bridges were forced towards Tic Island with such force that the last span slid four feet upon the solid embankment. South of Tic Island the pile bridge was shoved towards the south shore with such force that 12 by 18 inch oak stringers were splintered that action bending the iron rails double. Only a small portion of the trestle remain in place. As the bridge was being repaired, it was discovered that the contractors had not filled in with stone some of the cribs which may have stabilized these foundations and prevented the bridge spans from shifting.

The railway repaired the damage in the following weeks but over the next six years Harwood alternated its function as the end of the line or the mid point of the railway.

The last lessee of the C&P Ry was John Henry Dumble. He embarked upon a vigorous program to restore the security of the bridge in 1858. He commenced filling in the trestle bridge between Harwood and Tic Island and did the same south from the north shore. By the end of that year much of the southern embankment was complete, and about one half mile south from the northern shore had similarly been filled. No ice damage was inflicted to the bridge during the winter of 1858-59. In November Of 1859 Dumble hired 150 men to work towards completing the embankment through the entire length of the bridge over the winter. Where completed a twenty foot wide base above the water would be in place secured by gravel and boulders. The top of this bank would be six feet above the high water mark. The track on top of the embankment was further ballasted as a means of anchoring the rails. This new structure suffered little deterioration over succeeding decades.

Despite his success in reinvigorating the railway, Dumble was relieved of his lease through an act of deceit. The railway became the property of a rival group of men from the Port Hope Lindsay and Beaverton Railway. There is some debate as to whether or not it was during the winter of 1860-61 or the following winter when the pins and rails were removed from Rice Lake Bridge ostensibly on the order of

one of the Port Hope men. Be that as it may, a portion of the bridge was removed by winter ice and floated away to the east and drifted to a place the southern shore. That breach terminated rail service north to Peterborough and proved to be the end of such service. Over subsequent decades other parts of the bridge superstructure were damaged and it was never rebuilt.

What was one of North America's most remarkable engineering marvels ended as one of the area's most colossal collapses.