

Merritt's Survey and the Tunnel to Nowhere

By Alun Hughes

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The Welland Canal is one of the engineering marvels of the world, and next week hundreds of canal enthusiasts convene at Brock University for the World Canals Conference. They will learn not only about the canal's present operation and future prospects but also its history. That history is a long and complex one, for the present canal is the fourth in a series dating back to the early 19th century. Though much has been written on the canals, not everything is well chronicled, and in this column I'll examine some lesser-known events from the earliest times - including the very first canal-related survey in 1818.

Construction of the First Welland Canal began in 1824, and the map shows its configuration when it was completed in 1833. Initially it was intended to run only from Port Dalhousie to Port Robinson, where a cut allowed boats to enter the Welland River en route to Chippawa. This section was completed in 1829, and the extension south to Port Colborne was begun two years later. Water was provided from the Grand River through what was called the Feeder Canal.

Please note that of the various communities shown on the map only Chippawa and St. Catharines existed prior to 1824. All the others were the creation of the canal. I shall continue to use them as convenient geographical references, however.

There were two main obstacles to be overcome in construction: firstly, the Niagara Escarpment, which was surmounted by 13 wooden locks (the canal had 40 locks in all); secondly and less obviously, the rise of land between Port Robinson and Allanburg, which was sliced through by the Deep Cut (the name is still used). Ironically, the latter was to prove far more of a problem than the Escarpment.

The First Canal was a private venture, and the force behind it was William Hamilton Merritt, who had established a milling enterprise on the Twelve Mile Creek in St. Catharines. To remedy chronic water supply problems, Merritt considered cutting a channel to divert water from the Welland River into the

headwaters of the Twelve. But by the time he and a group of others commenced their survey between Port Robinson and Allanburg in September 1818 the channel had already become a canal.

Canals were a hot topic, and only the previous year Merritt had stated the advantages for St. Catharines of a canal linking the lakes via Twelve Mile Creek. Moreover, the recent start of work on the Erie Canal across the border, which threatened to divert trade from the St. Lawrence to the Hudson, heightened the need for a canal on the Canadian side.

The aim of Merritt's survey was to determine how deep a cut was needed to allow Welland River water through to Allanburg, where it could join a tributary of the Beaverdams Creek. Merritt himself had some knowledge of surveying, as did at least two of his companions, John Decew and George Keefer. Their field notes have survived and provide interesting insights into the methods used.

What they did, in surveying parlance, was "run a line of levels" across the higher ground. They measured three things: distances, directions and elevations. For distances they used a Gunter's chain, which was 66 feet (or 1 chain) in length and divided into 100 sections called links. For directions they had a compass, and for elevations they are said to have borrowed a water level from Samuel Becket, a mill-owner in the Short Hills.

A water level is basically a U-shaped glass tube partly filled with water, mounted on a rod or tripod. By aligning the two water surfaces the surveyor sights horizontally and takes a reading on a staff held vertically further along the line. Subtracting the instrument height from the staff reading gives the difference in elevation. (Strangely, the field notes refer to a theodolite, a much more sophisticated device, but the observations are consistent with a level.)

The survey suggested that the land rose about 34 feet above the Welland River, which as it turned out was somewhat of an underestimate. Perhaps the most interesting thing about the survey, however, is the route it took, for it did not follow the line that the canal eventually assumed. It began at Ebenezer Cavers' farm in lot 201 of Thorold Township, at the apex of a big meander in the river, and proceeded in a direction just west of north for about two miles to Allanburg.

The results of the survey were presented at a public meeting and a petition forwarded to the Legislature, but little more happened until 1823 when a proposal for a canal from the Grand River to Burlington Bay impelled Merritt to

solicit funds for a new survey. Hiram Tibbett, who had been working on the Erie Canal, was engaged to survey two lines from the Welland River to Allanburg (probably Merritt's line and the final canal line), and to continue north-west through the valley of the Beaverdams Creek to Decew Falls before descending the Escarpment into the Twelve Mile Creek.

Events then began to move rapidly, and in January 1824 the Welland Canal Company was incorporated, with Merritt appointed its Agent. A further survey was carried out by Samuel Clowes and his son James, who recommended tunnelling rather than cutting through the high ground above Port Robinson. Earlier Tibbett had suggested that boats should descend the Escarpment by an inclined railway rather than by locks. Both the tunnel and the railway were cheaper than the alternatives, and were part of the plan when work commenced on November 30.

On that day a sod-turning ceremony was held at Allanburg, after which the guests repaired to Badgeley's Tavern at Black Horse Corners for refreshments. Alfred Hovey of Montezuma NY had the contract for the tunnel, and work began at both ends of Merritt's survey line. Good weather made for good progress. The tunnel mouths were excavated, and vertical shafts were sunk in between to test the quality of the earth.

A tunnel, of course, would allow barge traffic only, and though its dimensions were increased early on to match the size of boats on the Erie Canal, there was growing pressure (especially from influential American stockholders) to replace the tunnel with an open cut, so that the canal could accommodate schooner navigation. The last straw may have been a water-induced collapse in one of the shafts that killed a worker, and early in 1825 the tunnel was abandoned and (for reasons that are not clear) the starting point on the Welland River was moved westward.

When work began on the Deep Cut in July 1825 the canal was still expected to follow Tibbett's line over the Escarpment. But schooners were too big to be carried on a railway, and there was no room near Decew Falls to locate the larger locks they needed. A new route had to be found. The people of Niagara [on-the-Lake] had long been agitating for the canal to end at the mouth of the Niagara River, but Merritt was adamantly opposed (quite apart from anything else, his mills still needed water). His view prevailed, and the route adopted took the canal northward from Allanburg, over the Escarpment at Thorold and into Twelve Mile Creek via Dick's Creek.

Samuel and James Clowes had said in 1824 that "the only obstacle worthy of consideration" was "the dividing ridge between the [Welland River] and the headwaters of the 12 Mile Creek," and so it turned out. The ridge defied the tunnel, and it nearly defeated the Deep Cut. Slumping in the Cut precipitated a serious crisis with only two weeks work left in 1828, and major changes were necessary (the Grand River replacing the Welland River as a source of water) to salvage the project.

On November 30 1829, five years to the day from the sod-turning, two ships - the Ann and Jane, and the R.H. Boughton - made the first passage of the canal from Port Dalhousie to Chippawa. Merritt had his canal at last, and his water supply. The original tunnel works were left to decay, and a small gully just west of the Canby Street/Allanport Road intersection in Port Robinson may be all that remains of the tunnel that led nowhere.

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