William Hale, Railroad Surveyor: His Life, His Work

Toward the end of his life Hale was the senior sage of his profession. The Bennington Banner wrote of him, "Mr. Hale knows 'by heart' the railroad facilities and possibilities of our State."

By Gerald B. Fox and Jean Ballantyne

In 1971 when Jerry began studying Vermont railroads, William Hale, a railroad surveyor, was the person who stood out. When first found, he was speaking at an 1874 "railroad meeting" in Burlington, Vermont. His audience was a gathering of railroad advocates, Burlington boosters, and potential financiers, all interested in building the Burlington & Lamoille Railroad, a line leading northeast out of the city. His subject was the potential routes between Essex Junction and Cambridge, which he described in considerable detail. As we were to learn, he had been working on this project intermittently for more than four years.

Hale was born February 20, 1805, in Walpole, New Hampshire. As did most men of his time, he grew up on a farm. After marrying Ancy Gibson in 1823, he farmed in Grafton, Vermont, and the adjoining town of Rockingham.[1]

Ancy's untimely death in 1845 gave Hale an opportunity to quit farming.[2] Taking advantage of the railroad craze that was just then hitting Vermont, he gathered up his two young children, Laura and Henry,

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The Rutland & Washington Railroad Roundhouse and Railyard at Salem, New York. Irish Town, where most of the railway workers lived, is in the foreground. Photograph by B. C. Kinney. Courtesy of William A. Cormier, Salem, New York, Town Historian.

and went off to become a railroad surveyor. It was not a surprising career for the grandson of Enoch Hale, the man responsible for building the first bridge over the Connecticut River (between Walpole and Bellows Falls, Vermont).[3] Nothing is known about how Hale developed his surveying skills. However, according to his obituary, he was "self-taught with the limited facilities at his command." Be that as it may, already a mature man, he joined the Rutland & Burlington Railroad's (R&B) engineering corps. That railroad, which ran across Vermont from Bellows Falls to Rutland and then turned north to Burlington, was completed late in 1849.[4]

As the railroad's completion approached and William B. Gilbert, the R&B's chief engineer, began reducing his staff, Hale moved over to the nascent Rutland & Washington Railroad (R&W). This line started in Rutland and ran west to Castleton. Turning south there, it snaked back and forth along the Vermont-New York border until reaching the north end of its New York state subsidiary, the Troy & Rutland Railroad. That line connected with the independent Troy & Boston Railroad, which in

turn continued on to Albany. All three railroads were completed in March 1852.[5]

The R&W's shop complex was in Salem, New York. During the summer of 1850 Hale and his children resided in Salem at William Giles's Salem Hotel. He was the resident engineer overseeing the shop complex's construction.[6] Also living in the same hotel that summer was thirty-five-year-old Hannah Enos. Hannah and William married on January 1, 1851.[7]

By 1852, Hale and his family were living in Marquette, Michigan. At the time Marquette was just a small Upper Peninsula frontier town on the south shore of Lake Superior. They were among the first settlers. In the frontier tradition, Hale took on some civic responsibilities: county surveyor in 1852 and road commissioner in 1853. But his reason for being there was to plot out a route for the Green Bay & Lake Superior Railroad's initial section from Marquette to Iron Mountain. When built between 1853 and 1857, it was called the Iron Mountain Railroad, a twelve-mile-long iron ore carrier. Twenty years later it was absorbed by the Duluth, South Shore & Atlantic Railroad.[8]

During the spring of 1854 Hale moved on to Ohio, where he was chief engineer for the Ashtabula & New Lisbon Railroad. The railroad's January 1, 1857, annual report said that it was being built on a pay-as-you-go basis. The report noted that grading was underway but that a series of very poor harvests caused by harsh weather was limiting funds and slowing construction.[9]

The financial Panic of 1857, which caused the failure of many infant Midwestern railroads, also crippled this line.[10] It was never completed as originally envisioned. The mostly graded southern section of roadbed between New Lisbon and Niles was leased to the Cleveland & Mahoning Valley Railroad and eventually incorporated into the Erie Railroad system.[11] Later, the remainder, from Niles north to Ashtabula Harbor, became a subsidiary of the Ashtabula, Youngstown & Pittsburgh Railroad Company, which was itself eventually bought by the Pennsylvania Railroad System in 1887.[12]

In the meantime Hale, Hannah, and Laura returned to the Rockingham farm.[13] His son Henry, having married an Ohio girl, stayed behind. Before the end of 1860, however, Hale found employment with the Vermont Central Railroad (VCR).[14] His immediate superior was Daniel Chipman Linsley, the VCR's recently hired chief engineer. The two men already had some common history, having both worked for the Rutland & Burlington during its construction phase. In those days Linsley was a young, inexperienced, albeit Norwich University-trained, engineer; Hale was an adept land surveyor.[15] Since the R&B had a

small engineering staff, it is likely they knew one another, even perhaps had worked together. It is also conceivable that Linsley recruited Hale. As events will show, this relationship lasted the rest of their professional lives.

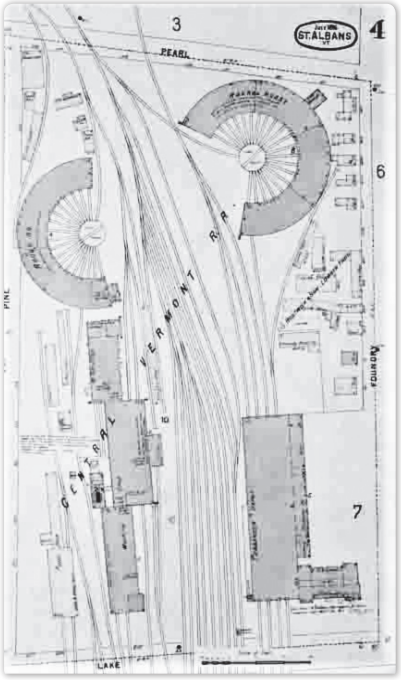
When Hale began working for the VCR, Linsley was revamping the railroad's branch between Essex Junction and Burlington. It was a busy time for Linsley. In conjunction with the branch upgrade, the railroad had hired a well-known Boston architect, Thomas Silloway, to design a new depot for Burlington. Therefore, Linsley was also preparing for its construction. But the really significant part of the project was rerouting the line to Burlington's waterfront via a tunnel under a long sand ridge paralleling the lake shore. No one had ever successfully tunneled though sand before.[16]

As an experienced surveyor and practicing civil engineer, Hale took up his side of the yoke. The tunnel was finished in May 1861, but now they faced another challenge. To reach the tunnel the new route crossed a marshy area known locally as the Winooski River Intervale. Persistent subsidence made this soggy approach very hazardous. Finally, in the spring of 1863 Linsley and Hale resolved the problem by enlarging the culverts under the roadbed.[17]

Coincident with the Intervale challenge and the erection of Burlington's designer depot, the railroad also built a new station at Essex Junction. Hale oversaw the construction of this similar but less ornate structure at the north end of the Essex Junction wye. It was completed in the spring of 1862.[18] In addition to his regular workload, Hale took time to find his son, Henry, a surveyor's job with the VCR at Northfield, Vermont. It was time well spent. Henry later moved on to the Washington Territory and became one of the first surveyors working for the Northern Pacific Railroad, another project of VCR director J. Gregory Smith.[19]

As a team, Linsley and Hale were seemingly adept at juggling multiple projects. Although still engaged with the problems in the Intervale and work on the Essex Junction depot, they were also preparing for construction of a new shop complex in St. Albans. The project's centerpiece, a new combination blacksmith-machine shop building, also designed by Silloway, kept the engineering department busy during 1862 and 1863. Other new buildings included a passenger car storage building, a freight house, and a paint shop, as well as two roundhouses with a total of thirty-eight stalls.[20]

By the time the St. Albans shops were finished, J. Gregory Smith, the railroad's managing trustee, and his fellow trustees had developed a plan to extend the main line to St. Jean de Richelieu, Québec. Since



Floor plans for the Vermont Central's St. Albans 1863 Shop Complex and 1866 Head-quarters and Depot. Adapted from Sanborn Map Company, 'St Albans," (New York: Sanborn Map Company, 1896), map 4. http://uvm.edu/collections/item/StAlbans http://uvm.edu/collections/item/StAlbans_1899_fi_04 (Accessed January 26, 2016).

that line spanned the Vermont/Québec border, it was necessary to build it in two sections. The southern part between St. Albans and the border was built under the railroad's original charter. As chief engineer, Linsley had the leadership role and Hale was his assistant.

The northern section had its own Canadian charter and was named the Montreal & Vermont Junction Railway (M&VTJ). That work started in the summer of 1863; the first train to St. Jean ran on November 18, 1864. In this instance, Linsley was the contractor for the line, a capacity he seemed to prefer, and Hale served as the road's chief engineer.[21] In modern times that branch was known as the St. Armand Subdivision.

Linsley and Hale's next project was oversight of the Vermont Central's new St. Albans headquarters and terminal construction. The general office building was a three-story-high edifice of Victorian architcture facing Lake Street. Adjacent to that on the western side was a 350-foot-long, four-track-wide train shed. The restaurant, waiting room, and baggage room, as well as the ticket, telegraph, and express offices, were all in a separate annex. Situated behind the office building, but attached and open to the train shed's eastern side, its location off Foundry Street made it readily accessible by both foot and carriage. Construction of this complex started in the summer of 1866; the completed buildings opened in the fall of 1867.[22]

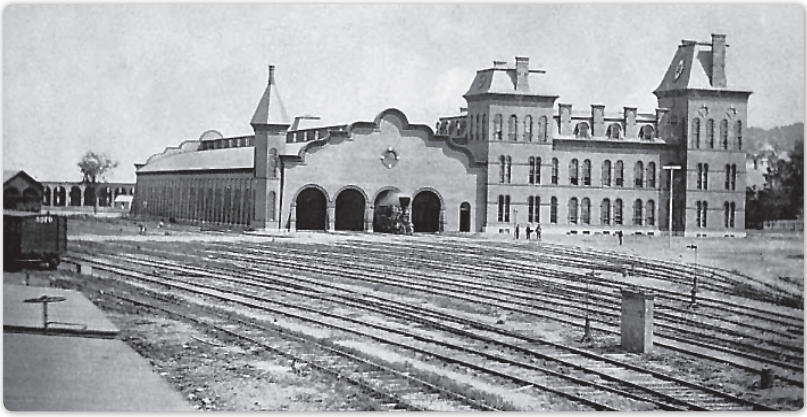
In the midst of all of this building activity, Hale and his wife Hannah found time to buy a farm. Along with their daughter and son-in-law,

Laura and John Davidson, they bought the Alonzo Stevens farm on what is now Old Colchester Road in Essex, Vermont.[23] After its purchase in 1866, the farm became Hale's home base.

One would not normally expect to find Hale working in the southwestern corner of Vermont. The Vermont Central didn't serve that part of the state. However, Trenor W. Park, a friend and business associate of J. Gregory Smith, owned the Bennington & Rutland Railroad, which did serve the region. When Park lost his only rail connection to Albany and New York City early in 1867, he purchased the rights to the partially completed Lebanon Springs Railroad (LSR) between Bennington, Vermont, and a connection with the New York & Harlem Railroad, which ended at Chatham Four Corners, New York. He also asked Smith for some engineering talent to finish it. Smith recommended Hale.[24]

Under Hale's supervision, workmen broke ground at the end of July and in the early days the work progressed at a rapid rate. In six months about thirty miles of the fifty-six-mile-long line were reported ready for the rails. Then the work bogged down. Only five more miles of roadbed were completed during the spring of 1868. The *Burlington Free Press* blamed the harsh winter.[25]

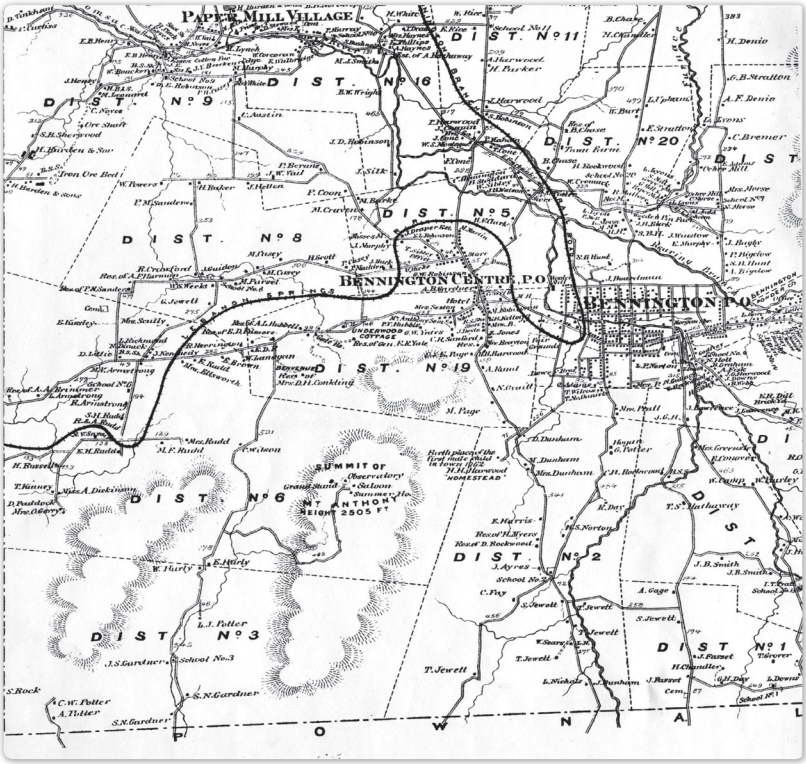
Still, early in May 1868, Hale pressed forward and began laying track at the Bennington end without waiting for completion of all the cuts and fills further on. Whatever the reasons, it was November 18 before



The front facade of Architect Warren Thayer's new St Albans depot and headquarters building opened to the public in the Autumn of 1867. Lazarus Scangas Collection. Photographer Unknown. Lazarus Scangas Collection. Used with permission from the Canada Science and Technology Museum.

the rails reached Lebanon Springs, twelve miles short of Chatham Four Corners. At that point Hale added a passenger coach to his construction train. Still, it was mid-July of the following year before scheduled trains were running. The LSR was a meandering line. In the early twentieth century when the Rutland Railroad bought it, their crews nicknamed it the "Corkscrew."[26]

In February 1871 Hale was again on home turf, running his first rudimentary survey for the Northern Vermont & Lake Champlain Railroad between Essex Junction and Cambridge, Vermont. Chartered in November 1869, it was the first of two predecessor lines to the Burlington



This F. W. Beers map of Bennington shows why the Lebanon Springs Railroad was nicknamed the Corkscrew. In New York State the whorls and wiggles continued until the line reached Hoosick Falls, where things leveled out. At the south end of the railroad there was another loop between Lebanon Springs and Chatham Four Corners. Adapted from F. W. Beers, "Bennington," Atlas of Bennington County (New York: F. W. Beers, A. D. Ellis & G. G. Soule, 1869).

& Lamoille Railroad (B&L). The other predecessor line was the Northern Vermont & Lake Champlain Extension Railroad from Burlington to Essex Junction, which Hale first surveyed in March 1873.[27]

During the B&L's long, slow gestation, Hale often found himself free to find other work. This time the Bennington & Glastenbury Railroad, another of Park's projects, hired him as their chief engineer. This line, with its very steep grades, was considered by many to be impossible to build. The first two miles were fairly level but the rest, five miles or so, rose 1,060 feet with an average grade of 143 feet/mile (2.7 percent). In some places the main line grade was as steep as 230 feet/mile (4.4 percent). The railroad was the steepest standard gauge traction railroad ever built in this country.[28] Undaunted, Hale broke ground on April 22, 1872. He had part of the line operational by October 1873 and completed it during the following month.[29]

Late in 1874 the Burlington & Lamoille finally resolved its organizational issues, and in November Hale started the line's final location survey. In April 1875, when Daniel Linsley, the line's chief engineer, became the line's contractor, Hale was appointed to replace him. They drove the last spike on June 28, 1877.[30]

The locomotive William Hale*, an older engine, purchased and rebuilt by the Burlington & Lamoille shops, named for the line's surveyor and chief engineer. Railway & Locomotive Historical Collection. Photographer Unknown. Author's collection with permission from the Railway & Locomotive Historical Society.*

Although clearly well into his years when this photograph was taken, William Hale still looks spry enough to take on another project. The original photograph was lent to the author by Hale's great grandson, the late John Lester Brownell. Photographer and date unknown. Author's collection.

Hale continued as the B&L's chief engineer after it was finished. However, it is unlikely that it kept him fully occupied, and nothing is known about his activities until 1881, when he joined Linsley on another project sponsored by J. Gregory Smith. But now Smith's railroad had a new name.[31] In 1872, while Hale was working on the Bennington & Glastenbury, the Vermont Central's trustees developed a plan to bring the railroad out of bankruptcy. The plan included renaming the line the Central Vermont Railroad (CVR).

Smith's new project was the Canada Atlantic Railway between Ottawa, Ontario, and Alburgh, Vermont. Although primarily controlled by Canadian lumberman John Booth, J. Gregory Smith and the CVR both had substantial investments in the railroad. Smith saw the line as both an entrance into Ottawa and as a more direct route for western Canadian lumber. Under Linsley and Hale's direction it opened to Lacolle, Québec, just north of the U.S. border, on July 1, 1884. The American section was not completed for another thirteen years.[32]

Hale's last known job was on a winter's day in 1887. Working from a sleigh, he and W. E. Babbitt, the CVR's chief engineer at the time, ran a preliminary survey of the 8.4-mile-long Barre & Williamstown Railroad. This line became commonly known as the Central Vermont's Williamstown Branch.

Toward the end of his life Hale was the senior sage of his profession. Applauding his appointment as the Bennington & Glastenbury's chief engineer, the *Bennington Banner* wrote, "Mr. Hale knows 'by heart' the railroad facilities and possibilities of our State."[33] The following years only further embellished his reputation. Hale died at his home in Essex on January 22, 1892.[34]

Notes

[1] Condensed from Ezra S. Stearns, *History of the Town of Rindge, N.H.* (Boston: Press of George H. Ellis, 1875), 539-544; Robert S. Hale, *Descendants of Thomas Hale* (Albany, N.Y.: Weed, Parsons and Company, 1889), 317; Lyman S. Hayes, *History of the Town of Rockingham, Vermont* (Bellows Falls, Vt.: The Town, 1907), 671.

[2] *Vermont Phoenix*, 23 May 1845, p. 3, col. 2.

[3] Hayes, *History of the Town of Rockingham,* 670; W. S. Rann, *History of Chittenden County, Vermont* (Syracuse: D. Mason, 1886), 834; Abby M. Hemenway, *Vermont Historical Gazetteer* (Claremont, N.H.: Claremont Manufacturing Company, 1877), 3: 1112. William B. Gilbert, who would become the Rutland & Burlington's chief engineer, was out surveying the line as early as January 1846.

[4] James Shaughnessy, *The Rutland Road* (Berkeley, Calif.: Howell-North Books, 1964), 11; map, 28-29. *Essex Record*, "News of the Vicinity," 25 February 1892, photocopy in author's collection.

[5] James Shaughnessy, *Delaware & Hudson* (Berkeley, Calif.: Howell-North Books, 1964), 103; map, 88.

[6] Crisfield Johnson, *History of Washington County, New York* (Philadelphia: Everts & Ensign, 1878), 170, 171; 1850 Census, Manuscript Schedule "Population," Salem, Washington County, New York; Roll: M432_611; P: 267B; Image: 196. The Hale family's last name is incorrectly listed as Hare.

[7] 1850 Census, ibid.; Stearns, *History of the Town of Rindge,* 543-544. In the census Hannah's last name is incorrectly listed as Enus.

[8] John Lester Brownell, letters to the author, January 23 and January 24, 1975, hereafter referred to as Brownell Letters; "News of the Vicinity;" Michigan Historical Markers, Transportation: "First Steam Railroad in Upper Peninsula," http://www. MichMarkers.com, accessed 7/11/2014; *History of the Upper Peninsula of Michigan*, (Chicago: The Western Historical Company, 1883), 386, 387, 416. See also Aurelle A. Durocher, "Duluth, South Shore & Atlantic Railroad," *Railroad History* 111 (October 1964): 12-13. Iron Mountain is now known as Jackson Mountain.

[9] *The Annual Report of the Directors and Chief Engineer of the Ashtabula and New Lisbon Railroad* (Cleveland: E. Cowles & Co., 1857), 3, 9-12, http://archive.org/details/Annual Report of the Directors and Chief Engineer of the Ashtabula and New Lisbon Railroad Co., accessed 7/16/2014.

[10] "Panic of 1857," https://en.wikipedia.org/wiki/Panic_of_1857, accessed 10/19/2015.

[11] "News of the Vicinity;" *Annual Report of the Directors and Chief Engineer of the Ashtabula & New Lisbon Railroad;* Joe Gross, "Ashtabula & New Lisbon," *Railroads of North America* (Spenserport, N.Y.: Joe Gross, 1986); *Annual Report of the Commissioner of Railroads & Telegraphs* (Columbus: State of Ohio, 1881), 616-617, http://books.google.com, accessed 10/28/2015; *Railroad History* 131 (Autumn 1964): 10, 11.

[12] William W. Williams, *History of Ashtabula County, Ohio* (Philadelphia: Williams Bros., 1878), 28, photocopy courtesy of Carl Feather; rnetof.pennsystem.com/corphist/py_a.html, accessed 12/30/2014.

[13] 1860 Federal Census, Manuscript Schedule "Population, Rockingham," Windham County, Vermont; Roll: M653_1325; P: 62. The Hale family's last name is incorrectly listed as Hall.

[14] "News of the Vicinity;" *Testimony Before the Special Masters [Concerning] Vermont Central Railroad Accounting* (St. Albans, Vt.: Advertiser Print, 1877), 256-257. In testimony before the Special Masters, Linsley stated that Hale was his "principal assistant" in 1863. We assume that was also true as far back as 1860.

[15] *Ottawa Citizen*, 9 October 1889, p. 4, col. 3.

[16] *Vermont Phoenix*, 8 May 1862, p. 2, col. 3; Robert C. Jones, *The Central Vermont Railway*, 7 vols. (Silverton, Co.: Sundance Press, 1981), 1: 53, 56.

[17] Jones, *Central Vermont Railway*, 1: 56.

[18] *Vermont Phoenix*, 8 May 1862, p. 2, col. 3; *Testimony Before the Special Masters,* 275. During his testimony to the Special Masters, Linsley stated that he did not supervise the construction of the new Essex depot. Hale appears to be the most likely candidate. A railroad wye is a triangle-shaped arrangement of track that permits trains to enter at any apex and depart from either of the other two.

[19] "Merchy L. Hale," birth, Vermont, Vital Records, 1760-1954, http://familyseach.org, accessed 10/16/2015; Noel V. Bourasaw, ed. "Pioneering in the Cascade County," *Skagit River Journal*, Skagit County Historical Society, 2005, accessed 11/12/2015; "Pioneering in the Cascade County," *Civil Engineering*, 2 (June 1932): 339-344.

[20] Jones, *Central Vermont Railway,* 1: 56-57; Hemenway, *Vermont Historical Gazetteer* (Burlington, Vt.: Abby Maria Hemenway, 1871), 2: 329-330; *Burlington Free Press*, 4 July 1862, p. 1, col. 5; 8 May 1867, p. 3, col. 1-4.

[21] Jones, *Central Vermont Railway,* 1: 61; *Testimony before the Special Masters,* 167, 275-279.

[22] Jones, *Central Vermont Railway*, 1: 57.

[23] Brownell Letters; "News of the Vicinity;" Essex, Vermont, "Land Records," vol. 13, p. 462.

[24] F. Stewart Graham, "Locomotives of the Rutland Railroad and Its Subsidiary Lines," *Railroad History* 90 (May 1954): 103, 106; *Rutland Weekly Herald,* 24 January 1867, p. 4, col. 2; *Vermont Daily Transcript,* 24 January 1868, p. 2, col. 3.

[25] *Albany Journal*, 25 July 1867, p. 2; *Vermont Daily Transcript,* 24 January 1868, p. 2, col. 3; New York *Evening Post*, 29 May 1868, p. 3; *Burlington Weekly Free Press*, 8 May 1868, p. 1, col. 7.

[26] *Burlington Weekly Free Press*, 8 May 1868, p. 1, col. 7; *New York Evening Post*, 29 May 1868, p. 3; *Vermont Daily Transcript,* 17 July 1868, p. 2, col. 3; 20 November 1868, p. 3, col. 1; *Burlington Weekly Free Press*, 28 May 1870, p. 4, col. 8; R. W. Nimke, *The Rutland Railroad*, vol. 4 [np].

[27] *Burlington Free Press*, 17 February 1871, Evening, p. 2, col. 2; *Burlington Sentinel*, 20 May 1869, p. 3, col. 2; *Burlington Free Press*, 20 March 1873, Morning, p. 3, col. 1-2.

[28] *Bennington Banner*, 24 October 1872, p. 2, col. 4; *Rutland Daily Globe*, 27 October 1873, p. 3, col. 1; Tyler Resch, *Glastenbury* (Charleston, S.C.: The History Press, 2008), 36, 41, 50. The Glastenbury here is Glastenbury, Vermont. Connecticut had the East Hartford & Glastenbury Railway, built in 1886, but it was a trolley line. Main line railroads try to limit their grades to less than 1.0 percent and very rarely exceed 2.0 percent. Sections of main lines that are steeper than 2 percent are generally limited to short distances. Shortline railroads sometimes exceeded 3 percent. Thanks to Robert J. Belletzkie for providing the *Bennington Banner* article.

[29] *The Middlebury Register*, 30 April 1872, p. 3, col. 4; Donald E. Shaw, "Bennington & Glastenbury Railroad," *Transportation*, Vol. 6, part 2, (May 1952): 21. *Transportation* is published jointly by the Connecticut Valley Chapter of the National Railway Historical Society and the Connecticut Valley Division, Electric Railroaders Association.

[30] *Burlington Sentinel*, 10 November 1874, p. 3, col. 1; *Burlington Free Press*, 10 April 1875, Evening, p. 3, col. 1; 29 June 1877, Morning, p. 3, col. 2.

[31] *Burlington Free Press*, 6 June 1881, Evening, p. 3, col. 1; 1 October 1883, p. 1, col. 2.

[32] G. R. Stevens, *Canadian National Railways* (Toronto: Clarke, Irwin & Company, 1962), 2: 365 and map on preceding page; *St. Albans Messenger*, 20 October 1882, p. 2, col. 1; 2 March 1883, p. 3, col. 1; Jones, *Central Vermont Railway,* 2: 27; Robert C. Jones, *Railroads of Vermont* (Shelburne, Vt.: New England Press, 1993), 1: 140. Thanks to John C. Hutchins for pointing out the Ottawa connection.

[33] *Bennington Banner*, 24 October 1872, p. 2, col. 4.

[34] Brownell Letters; "News of the Vicinity;" Jones, *Central Vermont Railway,* 1: 85; Essex, Vermont, "Death Records," 1: 93.