Schell Memorial Bridge
Spanning the Connecticut River on East Northfield Road
Northfield
Franklin County
Massachusetts

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, DC 20013-7127
Location: Spanning the Connecticut River on East Northfield Road, one-quarter mile west of the intersection of State Highway 63, approximately one mile south of the Vermont-New Hampshire border, Northfield, Franklin County, Massachusetts
UTM: Northfield, Mass., Quad. 18/780520/4731780

Date of Construction: 1903

Structural Type: Steel cantilever Pennsylvania-type through truss bridge

Engineer: Edward S. Shaw, Boston

Fabricator/BUILDER: New England Structural Company, East Everett, Massachusetts (superstructure); Ellis & Buswell, Woburn, Massachusetts (substructure)

Owner: Town of Northfield, Massachusetts

Previous Use: Rural vehicular and pedestrian bridge

Present Use: Barricaded and abandoned, 1985

Significance: The Schell Memorial Bridge is the third oldest of five known Pennsylvania truss bridges identified in the Massachusetts Department of Public Works database. It is a unique variation—at least in Massachusetts—of a Pennsylvania truss, in that it was designed to function as a three-span continuous truss under live load, and as a simple truss span with cantilevered ends under dead load. The bridge also has some unusual Gothic Revival decorative elements. The bridge is a significant artifact of Northfield's social history, in that it was built for the town by one of its most prominent citizens, Francis R. Schell.

Project Information: Documentation of the Schell Memorial Bridge is part of the Massachusetts Historic Bridge Recording Project, conducted during the summer of 1990 under the co-sponsorship of HABS/HAER and the Massachusetts Department of Public Works, in cooperation with the Massachusetts Historical Commission.

Lola Bennett, HAER Historian, August 1990
Description

The Schell Memorial Bridge is a 515-foot, riveted steel cantilever Pennsylvania-type through truss. The bridge was designed to function as a three-span continuous truss under live load, and as a simple truss span with cantilevered ends under dead load. This was accomplished by means of freight car springs, placed under the abutment ends of the bridge, to counter upward movement of the ends when the bridge had a live load in the center. The upper chord is a polygonal curve in outline, and is comprised of three plates and four angles, latticed underneath. The lower chord is comprised of two plates and four angles, latticed top and bottom, except at the center of the bridge, where the plates are connected with tie plates. The upper and lower chords are connected by a series of verticals, diagonals, sub-struts and sub-ties. The verticals are either two plates and four angles, double-latticed on two sides; or four angles, single-latticed. The verticals directly over the piers are comprised of four plates and four angles. The main diagonals, hangers and sub-struts, are generally comprised of four angles, but the heavier diagonals are built up of two plates and four angles. Upper lateral bracing consists of transverse struts (four angles, latticed) between panel points, and single angles crossing between the struts at every other panel. Lower lateral bracing consists of angles crossing between panel points. Steel floor beams, which are built-up of web plates and four flange angles, are riveted to the lower end of the vertical members. The original wooden stringers have been replaced with steel stringers, which support a wood block deck, paved with asphalt. The portals are defined by the inclined endposts of each truss, with cast iron finials at the top, and an ornamental Gothic portal strut crossing overhead. The portal strut is pierced with small Gothic arches and trefoils. Other unique details include Gothic-arch sway bracing between the panel points directly above the piers, stone pylons with pyramidal caps, and connecting low stone parapets at each end of the bridge. The bridge rests on quarry-faced granite ashlars and granite-faced concrete abutments. (See Figures 1 and 2, Appendix D, and field photos.)

Northfield

The town of Northfield is situated about twelve miles northeast of the town of Greenfield, and directly south of the Massachusetts border with Vermont and New Hampshire. The Connecticut River divides the town into two parts, with the village center being located on the east side. Due largely to the surrounding topography, with the river to the west and clustered hills to the east, the village is laid out in a linear pattern along a very straight stretch of road, running nearly parallel to the river. (See Figures 3 and 3a.) Today, the village of Northfield appears much the same as it did in the nineteenth century, with a wide main street lined with trees, manicured lawns, and tidy woodframe houses. Long boasted of for its serenity and beautiful vistas, Northfield is perhaps best known for its association with the famed evangelist, Dwight L. Moody, and the schools that he founded within its borders.
Dwight L. Moody

Dwight Lyman Moody was born at Northfield, February, 1837, the son of Edwin Moody, a brick mason, and his wife Betsey. Four years later, Edwin Moody died, leaving his widow to care for nine children. Dwight attended school until the age of thirteen, and then went to work on nearby farms to help support his family. At seventeen, he left home to seek his fortune in Boston, where he found employment at a shoe store owned by two of his uncles. While there, he began to attend church, and through the interest of his Sunday school teacher, "he experienced what he ever afterward recalled as his conversion."¹

In the fall of 1856, Moody left for Chicago, where he worked as a shoe salesman, and became very successful. Over a period of several years, however, religion and human welfare began increasingly to claim his time and interest, and eventually he left business behind, and became involved in a program of evangelistic services, prayer meetings, philanthropic relief and welfare work. In 1873, Moody embarked on a trip to Great Britain for a series of evangelistic meetings. Great numbers of people welcomed him in his travels through England, Scotland and Ireland. At London, 285 meetings were held, with an estimated total of 2,530,000 people attending.²

Moody's visit lasted more than two years, and was said to be the cause of a tremendous religious awakening in Great Britain. Moody, and his traveling companion and organist, Ira Sankey, returned to the United States in "a blaze of public curiosity and interest, which brought them many more invitations than they could accept."³ At that point, however, Moody returned to Northfield, where he had decided to live, and during the next twenty years of his life, he undertook numerous evangelistic campaigns across North America.

At the same time, his heart was drawn to the needs of the people near his home, and in 1879 he established a school at Northfield Village, for girls of limited means, the Northfield Seminary for Young Ladies.⁴ See Figure 4.) Three years later, Moody established a similar school for boys, the Mount Herman School, just across the Connecticut River, in the neighboring town of Gill. Beginning in the summer of 1880, Moody held a national conference of Christian workers at the Northfield Seminary. These summer conferences eventually brought world-wide reknown to the otherwise peaceful and unassuming village of Northfield.

In 1899, Dwight L. Moody's evangelistic work was abruptly curtailed by illness. He died at his home in Northfield, at the age of 62, on December 22, 1899. Of his life, it was said:

A man of prayer, he was tirelessly and far-sightedly a man of work. "There is no use asking God to do things you can do yourself," he said. A layman, Moody inspired ministers; an evangelist, he understood the importance of Christian education; unschooled, he commanded the admiration and cooperation of University students and teachers; a man of large business ability, he devoted himself unreservedly to what he conceived to be the greatest business in earth or heaven--the saving of souls.⁴
Francis R. Schell

Quite inadvertently, Dwight L. Moody was to have an impact on the town of Northfield that went beyond the schools he founded and the summer conferences he established there. In the winter of 1889, when Moody was holding a series of meetings in New York, he met Mr. and Mrs. Francis R. Schell, who were interested in the summer conferences at Northfield. Francis Schell was the only son of Robert Schell, one of four brothers who were immensely successful as bankers and jewellers in New York City. At Moody's invitation, the Schells went to Northfield in the spring of 1890 and stayed at the Northfield Hotel, which was owned and operated by the Northfield Seminary. They stayed in one of the unfinished cottages built on the property, and Mr. Schell apparently became so attached to it, that he purchased it and about ten acres of land. He began improving the grounds, adding on to the cottage, and purchasing more land, until he had acquired about 125 acres. He and his wife occupied this house every summer during the conferences. (See Figure 5a.)

In 1900, Francis Schell inherited his father's considerable fortune, and decided to build a country estate at Northfield. "The Chateau," as it came to be known, was designed by architect Bruce Price, and modeled after a French chateau that the Schells had admired on one of their trips to Europe. (See Figure 5b.) When completed in 1903, the residence had thirty-six rooms, twenty-four bathrooms, twenty-one fireplaces, a main hall capable of seating 200 people, and an interlaced double-spiral stairway. The Schells spent the rest of their summers at their new estate, until 1928, when Francis Schell died.

Francis Schell had a great fondness for the town of Northfield, and perhaps an even greater fondness for Dwight L. Moody and the Northfield Schools. This was demonstrated in 1901, when, in an act of extreme generosity, Schell offered to pay for a bridge that was badly needed by both the town and the schools.

The Bennett's Meadow Bridge

For many years, the only crossings over the river at Northfield were by means of ferries. The best-known of these were: Stebbins Ferry, also known as Bennett's Meadow Ferry, just below the village center; Munn's Ferry, about a mile downstream; and Stacy's Ferry, at Northfield Farms, in the southern section of Northfield. (See Figures 6 and 7.)

The first bridge over the Connecticut River at Northfield was built in 1849, when the Vermont & Massachusetts Railroad laid tracks through the town and erected a double-deck, covered wooden bridge across the river near the village center. The upper deck was used by the railroad, while the lower deck was a highway toll bridge. (See Figure 8.) The lower portion was sparingly lit with small windows and a series of kerosene lamps, and from all accounts, was quite a frightening place to be when a freight train was passing overhead. For half a century, this wooden structure was the only bridge in Northfield, until the year 1899, when the first highway bridge was constructed at the place known as Bennett's Meadow.

In 1897, a bill was proposed in the legislature for the authorization of the construction of a highway bridge across the Connecticut River at
Northfield. Many people, including the county commissioners, opposed the bill, feeling that the ferry system was adequate, and that the cost of building the bridge would mean an increase in taxes.\textsuperscript{9} The bill passed, however, and the county commissioners were directed to build the bridge at a cost not to exceed $40,000, to be apportioned between the county and the towns of Gill and Northfield.\textsuperscript{10}

Shortly thereafter, the discussion became even more heated, over where the bridge should be located. While Dwight L. Moody had kept out of the discussion fairly well until that time, he let it be known at the town hearing that a bridge at the Bennett's Meadow location would be of great value to the Mount Hermon School—leading some to speculate that Moody himself had been the initiating force behind the bridge bill.\textsuperscript{11} After a two-day town hearing, the matter was finally settled, with the Bennett's Meadow location being selected.

The Northfield Bridge, also known as the Bennett's Meadow Bridge, was completed in 1899, and was a 613-foot arched cantilever, designed by Edward S. Shaw, a civil engineer from Boston. The principle behind this bridge, which was designed to eliminate obstructions in the river flow, was described as follows:

The idea of the bridge is new to this section of the country, but is recognized in bridge construction as sound and is represented in several of the staunchest structures in the country. The bridges across the Connecticut for highways are generally suspension bridges, while the other and older type is the wood truss bridge with comparatively short spans resting on stone piers. The suspension bridge is comparatively cheap and has the advantage of spanning the stream, without obstruction to the passage of ice and logs, the two elements of danger to bridges, aside from the floods; but the suspension bridge is not regarded as the most desirable, from the standpoint of durability and strength.

The principle in the proposed bridge is the cantilever, modified in this plan to what Mr. Shaw calls a "reversed cantilever." The support of the iron superstructure is wholly the two piers, one of which stands on a ledge of rock on the west bank of the stream and the other at the edge of the stream at low water. Thus the river is wholly unobstructed and except at high water the piers offer no obstruction.\textsuperscript{12}

The marvels of engineering, however, were a moot point for residents of Northfield who felt that they had been treated unfairly in being assessed 70 percent of the cost of the bridge.\textsuperscript{13} The whole incident stirred up resentment that was felt long afterward, and had a lasting effect on decisions made by the town, not the least of which was the construction of another highway bridge just a few years later.

The Schell Memorial Bridge

Shortly after the Bennett's Meadow Bridge was completed, the state railroad commission condemned the 50-year-old railroad bridge just upstream.
The railroad—by that time known as the Central Vermont Railway—then petitioned the legislature for authority to build a new bridge in cooperation with the town of Northfield. At first, it appeared that the town favored the construction of another joint railroad and highway bridge, and an agreement was reached by which the town was to pay $10,000 toward the cost of a steel bridge. As time went on, however, a growing percentage of the population expressed interest in a separate highway bridge, which would not only relieve them of paying rent for their portion of the railroad bridge, but would also do away with the nuisances caused by passing trains—namely soot, smoke, and runaway horses. One of the strongest proponents of a separate bridge was the Northfield Seminary, which advocated building the bridge farther up the river, and asked for a delay in the plans. The bridge they projected would greatly shorten the distance between the Moody Auditorium at the Northfield Seminary (where the summer conferences were held) and the nearest railroad station at South Vernon, Vermont. On June 19, 1901, the state legislature passed an act authorizing the town "to construct and maintain a highway bridge, with suitable approaches, across the Connecticut river in said town at a point to be selected by the town." The cost of this bridge, however, was estimated at $35,000, an expense the town felt it could not possibly bear. For quite a few months the discussion waged on, with much resentment building on the part of those individuals who felt that too much money had been spent on the Bennett's Meadow Bridge, and that the town was always showing favoritism to the enterprises of the Moody schools. Hoping to win the town over, the Seminary offered to pay $23,000 toward the cost of the bridge, but that still left the town with the problem of coming up with an additional $12,000, which was several thousand dollars more than they had been expecting to put up for the joint bridge with the railroad.

At that point, apparently, Mr. Ambert G. Moody (D.L. Moody's nephew), representing the Northfield Seminary, approached Francis Schell with the proposal that Schell might donate money to the project, and have the bridge constructed as a memorial to Schell's recently-deceased father. While the idea of a memorial bridge appealed to Mr. Schell, he also wanted to help out the schools founded by his dear friend, the late Dwight L. Moody. Ultimately, (whether for strictly altruistic reasons, or not) Schell offered the entire sum of money for the bridge. In his proposal to the town, Schell wrote:

Desiring to leave an enduring memorial to my honored father, Robert Schell, in Northfield, and also desiring that a bridge be built across the Connecticut River at a point within 500 feet north of the boundary line between lands of the Northfield Seminary and one William D. Alexander, I hereby for myself, my executors and administrators, do offer, covenant and agree that if the Town of Northfield shall cause a bridge to be constructed at such location under the provisions of the Acts of 1901, Chapter 530 or any amendments thereof, within two years from date, I will, and my executors and administrators shall, pay to the said Town the cost of such bridge to an amount not exceeding Thirty Two Thousand Dollars... All payments will be made by check to Mr. Ambert G. Moody and be endorsed over to him.

Two such memorial tables as I shall desire shall be placed
and maintained upon said bridge. It is my wish and expectation that the building of the bridge be begun at once and the dates of said payments are established upon that basis. I make this offer in order that the Town of Northfield and Northfield Seminary may be permanently benefitted, and I desire no formal or informal opening of the bridge to take place when the bridge is done, simply begin to use it.

In witness whereof I hereunto set my hand and seal this 28th day of August, 1901.

Francis Robert Schell.

(See Appendices A and B.)

On September 17, 1901, Mr. Schell's offer was unanimously accepted by the town, putting to rest the year-long stalemate. Plans commenced immediately for the construction of the new bridge.

Construction

Edward S. Shaw, the engineer who designed the Bennett's Meadow Bridge, had previously been asked to design this new highway bridge as well. As first projected, the bridge was "designed for utilitarian purposes only, with three simple and independent spans," but after Mr. Schell decided to have the bridge erected in memory of his father, the plans were changed substantially. The newspaper related this as follows:

This bridge was accepted by the town of Northfield at a meeting called for that purpose last fall, and the plans then submitted to the town, and the proposition made called for a bridge costing $32,000; this bridge was to be a three-span bridge. Upon careful consideration, it was found that the original plan would result in a structure that was not pleasing architecturally. In order to remedy this lack, especially as it was to be a memorial and it was desired that no detail should be wanting to its perfection, an additional cost of $6000 was authorized by Mr. Schell, and now a bridge will be erected with a single ground arch leaping from one bank of the river to its opposite 400 feet away.

Bridge builders who have seen the plans of the proposed structure characterize it as highly artistic in effect and beautiful in all its details. In fact, it is stated that the New England Structural Company, to whom the contract is awarded, submitted a bid for the contract only after the plans had been modified as described above and the superstructure designed in such a manner as to make it a great credit to the company that was fortunate enough to erect it.

The revised plans for the Schell Memorial Bridge showed a structure very similar to the Bennett's Meadow Bridge, designed by Shaw several years earlier. (See Figure 9.) The Schell Bridge, however, was to have considerably more ornamental details than the earlier bridge.

Unfortunately, work had to be delayed for a year, "owing to the
difficulty of getting steel," and thus, construction did not begin until the spring of 1903. The abutments and piers were built by the firm of Ellis & Buswell of Woburn, Massachusetts, and the superstructure was erected by the New England Structural Company of East Everett, Massachusetts. (See Figure 10.) Once the abutments and piers were completed, the shore arms were constructed between them, using falsework on the shore. The rest of the steel superstructure was cantilevered out over the water, using temporary earth loads on each pier to counter the weight of the steel. The material for the bridge was delivered to the west bank, where it was picked up and set in place by means of a 1.3/4" diameter wire cable, suspended between two wooden towers, one on either side of the river, thus eliminating the need for falsework in the river. The trusses were erected one panel at a time from each side, with the erecting and riveting crews switching from side to side. (See Appendices C and D.) On November 21, 1903, the newspaper reported:

The Schell memorial bridge across the Connecticut river is completed and will be used as soon as the grading is finished. This is a beautiful structure of iron of the modified cantilever type built at the expense of $42,000. At Mr. Schell’s request, bronze tablets were placed at either end of the bridge, bearing the following inscription:

This bridge is erected in memory of Robert and Mary Schell of New York, by their son, Francis Robert Schell 1903

Conclusion

After Francis Schell died in 1928, his widow sold their estate to the Northfield Schools, but The Chateau eventually fell into disrepair and was torn down in the 1960s, leaving only the bridge as a reminder of the Schell’s days at Northfield. Today, the plaques have long since been removed, the bridge is barricaded with metal plates across the portal ends, and weeds are growing up around it, yet it has the same type of air about it that one might ascribe to a grand palace left to ruin—of the long-ago aspirations of great men.

Now nearly ninety years old, the Schell Memorial Bridge has remained virtually unaltered over time, with the exception of the floor system which was replaced in 1932 with new stringers and a wood block deck. The bridge was maintained by the state until the 1970s, when Highway 142 was rerouted over a new highway bridge at Bennett’s Meadow, at which time the Schell Bridge became the sole responsibility of the town. In response to a 1977 engineering study, the town studied proposals for the bridge’s rehabilitation or replacement, but concluded that they just did not have the money to fund such an undertaking. The bridge has been closed since 1985, and the town is awaiting assistance from the state to replace it.

The Schell Memorial Bridge is architecturally significant as the third oldest of five Pennsylvania truss bridges identified in the Massachusetts
Department of Public Works database. It is a unique variation (at least in Massachusetts) of a Pennsylvania truss, in that it was designed to function as a three-span continuous truss under live load, and as a simple truss span with cantilevered ends under dead load. It also has some unusual Gothic Revival decorative elements. The Schell Bridge is historically significant because of its association with Francis Schell and the Moody schools, and is a very interesting and unique artifact of Northfield’s social history.

Edward S. Shaw

Edward S. Shaw was a civil engineer who lived in Cambridge, Massachusetts, and maintained a professional office in Boston during the late-nineteenth and early-twentieth centuries. Although the number of significant Massachusetts bridges attributed to him attest to his talent, Shaw apparently led a rather unassuming life, and little was ever recorded about him; however, nearly all contemporary mentions of his work pay tribute to his engineering expertise. For example, a newspaper article on the construction of the Bennett’s Meadow Bridge said that Shaw was "regarded as one of the most expert bridge engineers in New England."27

Shaw was first listed in Cambridge city directories in 1873. He was listed as a student, boarding at 10 Kirkland Place, the home of George S. Shaw, a dealer in "fancy goods." George S. Shaw was not listed prior to 1873. The following year, 1874, the directories carried the same listing. Beginning in 1875, and ending in 1918, Edward Shaw was listed as a civil engineer in Cambridge directories. During this period, Shaw was also listed in Boston city directories. The first listings, in 1881 and 1882, say that he was a draughtsman for the Boston & Lowell Railroad. Beginning in 1883, he was listed under the heading of "Civil Engineers and Surveyors," and advertised his specialty as the design of "Bridges, Roofs, Railroad Stations and Buildings." By the early 1900s, Shaw was advertised as a "Bridge and Structural Engineer." The last listing for Shaw in the Boston city directories was in 1919, the year that he died in Cambridge, at the age of 65.

Among the eleven other surviving Massachusetts bridges known to have been designed by Shaw are: the Holyoke Bridge, between Holyoke and South Hadley, 1890 (HAER No. MA-18); the Willimansett Bridge, between Holyoke and Chicopee, 1891; the Shelburne Falls Bridge, between Shelburne and Buckland, 1890 (HAER No. MA-96); spans 1, 2 and 3 of the Merrimac Bridge, between Haverhill and West Newbury, 1883 and 1895 (HAER No. MA-103); the Chapman Street Bridge at Canton, 1888; and the Essex Bridge, between Salem and Beverly, 1897.

New England Structural Company

In 1892, the Norton Iron Company was established in Everett, Massachusetts, to manufacture the "Norton Door Check," said to be the first practical device of its kind that had been invented.28 Orlando W. Norcross was president, and Lewis C. Norton was treasurer. Orlando Norcross was also engaged, with his brother, James A. Norcross, in the widely-known Worcester building and contracting firm of "Norcross Brothers."29

The Norton Iron Company soon expanded to include the manufacture of iron
used in building construction. This development opened up a wide market, and in 1898, another company was formed, The New England Structural Company, specializing in structural steelwork for buildings and bridges. Within thirty years, this company could boast of being "the largest fabricator of structural steel in New England."³¹

Soon after the company was founded, an office was established in Boston, while the fabricating plant remained at East Everett. The New England Structural Company was listed in both Everett and Boston directories between 1899 and 1938. The company flourished under the direction of president Walter B. Douglass, an 1891 graduate of M.I.T., and treasurer Charles N. Fitts, a classmate of his.³² Both men had worked at the Norton Iron Company shortly after their graduation, and eventually took charge of the company's affairs, and remained in their respective positions until 1938, at which time the company apparently dissolved.

Ellis & Buswell

Jacob M. Ellis was born in Canton, Maine on November 8, 1843. He was the son of a farmer, and one of twelve children. After receiving his education in the public schools, he became a stone mason and builder. At the age of 32, he moved to Woburn, Massachusetts, and established his business, "J.M. Ellis & Company" in 1879.³³ This company built many of the bridges and railroad stations along the Boston & Maine Railroad.³⁴ In the late 1890s and early 1900s, Ellis was associated with John W. Buswell of Winchester, Massachusetts, and although directories only referred to the company as "J.M. Ellis & Co.," company letterheads and news articles dating to the construction of the Schell Bridge, indicate that the company was known as "Ellis & Buswell."(See Figures 10 and 11.) Jacob Ellis died in July of 1908, but according to city directories, his sons carried on the business until sometime in the 1920s.³⁵
Figure 1. View of Schell Memorial Bridge, looking northwest.
(Souvenir Program, Northfield Tercentenary, 1973.)
Figure 2. Plan for Schell Memorial Bridge, Edward S. Shaw, 1901.
Figure 3. Map of Northfield, Massachusetts, F.W. Beers, 1870.
Figure 3a. Map of Northfield Village, F.W. Beers, 1870.
Figure 4. View of Northfield Seminary, looking east from west bank of the Connecticut River.
(Centennial Gazette, 1892.)
Figure 5a. Schell summer residence at Northfield. 
(Centennial Gazette, 1892.)

Figure 5b. "The Chateau," built for Francis Schell at Northfield, 1900-03. 
(Photo, dated 1956, from the collection of Whitfield W. Moretti, 
Acton, Massachusetts.)
Figure 7. Map of Northfield, showing locations of ferries and bridges. (Whittlesey, 1936.)
Figure 8. Photo of 1849 railroad bridge at Northfield.
(Souvenir Program, Northfield Tercentenary, 1973.)
Figure 9. Comparison of elevations of Bennett's Meadow Bridge, 1899 (top) and Schell Memorial Bridge, 1903 (bottom), both designed by Edward S. Shaw.
Figure 10. Letterheads for the New England Structural Company (top) and Ellis & Buswell (bottom). (From Schell Bridge files in the Office of the Town Clerk, Northfield, Massachusetts.)
JACOB M. ELLIS,

Stone Mason
Builder
Contractor

TEAMING AND JOBING.

Concrete Work a Specialty.

Telephone number, 10-3.

(Woburn 200th Anniversary Memorial, 1892.)

J. M. ELLIS & CO.

CONCRETE PAVERS.
Concrete Walks, Drives, Gutters, etc., laid to order. Contractors for laying Stone Work of Every Description.
Sand, Gravel and Loam for Sale.
OFFICE, 193 MAIN STREET - - WOBURN.
Residence, Franklin, cor. Plaza Street.

(Middlesex County Directory, 1879-80.)

Figure 11. Advertisements for J.M. Ellis and Company.
Northfield, Mass., August 20th, 1901.

Desiring to leave an enduring memorial to my honored father, Robert Schell, in Northfield and also desiring that a bridge be built across the Connecticut River at a point within 500 hundred feet of the boundary line between lands of the Northfield Seminary and one William D. Alexander, I hereby for myself, my executors and administrators, do offer, covenant and agree that if the Town of Northfield shall cause a bridge to be constructed at such location under the provisions of the Acts of 1901, Chapter 530 or any amendments thereof, within two years from date, I will, and my executors and administrators shall, pay to said Town the cost of such bridge to an amount not exceeding Thirty Two Thousand Dollars in seven installments as follows:

- December 15th, 1901, Four Thousand Dollars (4,000.00)
- February 15th, 1902, Four Thousand Dollars (4,000.00)
- April 15th, 1902, Four Thousand Dollars (4,000.00)
- June 15th, 1902, Four Thousand Dollars (4,000.00)
- August 15th, 1902, Four Thousand Dollars (4,000.00)
- October 15th, 1902, Four Thousand Dollars (4,000.00)
- December 15th, 1902, Eight Thousand Dollars (8,000.00)

All payments will be made by check to Mr. Amherst G. Moody and be endorsed over by him.

Two such memorial tables as I shall desire shall be placed and maintained upon said bridge. It is my wish and expectation that the building of the bridge be begun at once and the dates of said payments are established upon that basis. I make this offer in order that the Town of Northfield and Northfield Seminary may be permanently benefited, and I hope the Town will use these tables in giving of the bridge to the Town.

In witness whereof I hereunto set my hand and seal this 20th day of August, 1901.

[Signature]

APPENDIX A: Francis Schell's Proposal, 1901.
Newspaper article regarding Francis Schell's gift to the town of Northfield.

(Greenfield Gazette and Courier, August 31, 1901.)
THE NORTHFIELD BRIDGE

The handsome bridge across the Connecticut River past Northfield, Mass., has a total length of 512 feet, comprising a center span of 200 feet, two spans of 100 feet each, and two approach spans of 18 feet each. The bridge has a river width of 20 feet, 3 inches between the two main spans, which are 506 feet long, and continues over the pier below the main abutments. The bridge is erected as a steel truss bridge on iron truss piers in New England, and for the method of erection by temporary reinforcement to make it act as a constant, until the trusses were completely assembled and centered.

The substitutions consist of two masonry piers. Two cast-iron piles and two iron pier bins were abandoned. The two masonry piers are near the water edge at low stages of the river, as shown in Figure 1, and are built of measured-header masonry with rubble concrete fillings. All timber was laid in Portland cement mortar. All masonry has more of one part of Bayshore Portland concrete and two parts of sand. The concrete masonry facings were made of the same Portland cement mortars. There were two piers and four parts of the bridge. Two concrete piles and four parts of the bridge pier. The concrete piers are made of one part Portland cement, two parts of sand, and four parts of gravel screenings with 20-inch stuff to two inches. The gravel screenings are laid 3 to 5 inches apart. The gravel screening is made of the same, Portland cement, two parts of sand, and four parts of gravel screenings with 20-inch stuff to two inches. The gravel screenings are laid 3 to 5 inches apart. The gravel screening is made of the same.

The upper part of each abutment is covered by two episodes 4 feet in diameter and 1% feet high, built of 4-inch steel and filled with dressed green concrete. They are connected at the top by a free-interval steel plate girder, as shown in Figure 2. The cast-iron piles were built with inside square 18-inch steel pipes. On the water side they are carried down to the rock and on the east side they are made of concrete fillings surrounding the same. The ends of the piles are finished by a concrete cap. The caps are made of 18-inch steel pipes. The ends of the piles are finished by a concrete cap. The caps are made of 18-inch steel pipes.

A central view of a portion of a steel truss bridge over one of the piers showing the characteristic details is shown in Figure 3. A longitudinal section of the roadway is shown in Figure 4, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section to the pier piers, and a solid steel pipe to the pier piers, and a solid steel pipe.

The lower end of the bridge is shown in Figure 5, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section. The lower end of the bridge is shown in Figure 5, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section.

A general view of a portion of both bridges over one of the piers showing the characteristic details is shown in Figure 6. A longitudinal section of the roadway is shown in Figure 7, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section. The lower end of the bridge is shown in Figure 8, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section. The lower end of the bridge is shown in Figure 8, which is typical of the lower end of the bridge. The main girder is made of wrought iron and has the customary superstructure of a W-shaped channel section.

APPENDIX C: Article on the construction of the Bennett's Meadow Bridge.

(Engineering Record, vol. 40, no. 14, September 2, 1899.)
THE ENGINEERING RECORD.

Sat., 2, 1899.

We are not on the other side and need not require
more info so that it would have been difficult
and unnecessary to ask a statement.

In view of these considerations it was de-
decided to erect the bridge in the cantilever method by
means of temporary bracing and reinforcing as
the case may be, which are shown in
Figure I. The ends of the cantilever were
reinforced by timber struts
clamped tightly in place as in the
drawing, and the temporary wooden towers, T, about
10 feet higher than the upper chords of the
bridge over the masonry piers, was erected and
secured at the top in the usual manner. Diagonals C, C, were
discarded, but the end of the truss at L O was
up-ended in the cylinder pier, and the said tower,
No. 1, was placed there. Then the truss was completed
in the usual manner, with a center vertical CY L4, which was
not riveted until after the cantilever was
erected. The other towers were run from the end of the
cantilever, to the tower in previous position in a
horizontal direction and to resist wind strains.

The rods BB were connected and the rods CC
were removed, said tower No. 2, were placed, the
second truss was put in position, shown by dotted lines, and the truss was completed
from L4 to L12. Then the rods AA were con-
ected, and towers No. 4 were placed, and the
truss was advanced and emboilered the truss
from L12 to L14. Finally the remaining sand
bores No. 3 were filled and the end span was
placed with enough additional sand to prevent
any strain on the anchor rods at L4 from hight
strain being by the completed boom truss, and
supplied erection piers.

There was carried on simultaneously on both
sides of the river, as above described for one
side, and when the cantilever arms met at the
center a temporary timber was placed above to
cover the main sections, for the grooves had
been purposely cut a little too far away; and the
top piece of the lower cantilever had been
buckled out solid. After the grooves in the
third sections had been driven the cones A, B, and
D were removed, and the sand added, re-
moved from the end span. The main timbers of
the false work were laid on the boom truss, and the
nails of spruce. Rocks sides of the tower were
braced to the elevation of one side, as in Figure I. The boom truss are for the usual
one material, hard wood, were
the same for the upper truss also. The
new timbers were completed by the contractor.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.

Strain in US L, center of moments at US = 11.500 in. 11.500/30 = 11.500 in.
The family of the bridge further shown in the drawings was intended to show the lay-downs of the proper parts of the center span toward the ends. The layout shown in the center span after the center connection was made, but while yet in compression, measured 1/2 inch less than the length as given on the drawings from which the bridge was made.

One of the problems of this method of section was to make each of the center lines of the bridge chords as it was made, and the bridge was then brought in place on the center of the bridge and the center line of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.

...the center points of the bridge were laid out to indicate the center points of the bridge. The center of the bridge was then true in vertical and horizontal.
The Schell Memorial Bridge—L

This is a highway bridge crossing the Connecticut River at Northfield. About a mile below the river, there was an old covered bridge carrying a turn of the Central Vermont R.R. on its upper deck and a town highway below. This bridge had become unsafe from age and traffic in the railroad traffic, and the new bridge was evidently needed to take the place of the highway portion of the old bridge and shorten the distance between the Northfield seminary and the Mount Ascutney, where large numbers of summer visitors at the summer seminary and the statue of the Boone & Maine R.R. and Central Vermont Ry. at South Vermont.

The bridge was first designed for utilitarian purposes only, with simple and independent structures that were subject to a few structural changes later known as the Boston, Portland, Saco & Ossipee. In the design, we had to bear in mind the fact that the bridge was one of the principal features of the all-weather route, and the work was begun in 1902. The bridge is a continuous truss bridge with the upper and lower chords of steel and the general design of the bridge in elevation were modified. The bridge was completed within 18 months, and its final appearance was adopted.

The bridge is 320 ft. long, having four spans, each of which is supported by two steel arches, with the ends of the arches projecting 5 ft. above the level of the river. The two arches are 110 ft. high, and the span, with a rise of 112 ft., gives the bridge a total length of 320 ft.

The bridge was completed in the fall of 1903, and the first section of the bridge was opened to traffic in October of that year. The bridge was designed to carry a maximum of 50 cars, and the total capacity is estimated at 100 cars. The bridge has a clear span of 112 ft., and the maximum height of the arches is 110 ft.

The bridge was constructed by the American Bridge Co., and the trusses were supplied by the Indiana Bridge Co.

SCHELL MEMORIAL BRIDGE
HAER No. MA-111
(page 29)

APPENDIX D: Article on the construction of the Schell Memorial Bridge. (Engineering Record, vol. 50, nos. 25-27, December 17, 24, 31, 1904.)
In the west abutment anchor rods are extended to opposite and - near the side. and 10 ft. farther down into the supporting walls, and terminate on bearing stones and posts of steel beams placed in two directions as shown. All steel beams in abutment are 8 in. 12 ft. long.

The anchor rods were enclosed in walls formed by placing stones of 6 in. stone posts to the concrete as it was laid up. After the superstructure was erected these walls were filled with cement grout.

The surfaces of bridge seats, sides of the masonry concrete facings, and the face of the concrete above the bridge seat have a concrete finish, with granite coping just below roadway surface.

(To be continued)
THE ENGINEERING RECORD

The Shuell Memorial Bridge—II

The main trusses are continuous from abutment to abutment, with all of the deck weights resting on the two spans, and without any weight or reaction at the abutments except when a live load is on the bridge. The upper sides are designed to act as cables, remaining in a curve, from the pivot of the pulleys under the lower one, to the abutments, where the bridge is anchored. This device is accomplished by means of pulleys, the hangers being supported by means of the crane on the abutments, and forming lines of centers by drawing together of男女 the off and on one or wire held in place and separated by water balls and a pulley. The upper most of the gusset cables is supported at the centers of the bridge, in a manner similar to the main girder, but every other cable is supported so that its sag is equal to the center line of the lower one. The hangers are supported in such a manner as to make the same tension in the face, and the tension on the center line is equal to the tension on the lower one. Although the gusset cables are left free to expand and contract under temperature changes, their spread and form under motion is checked by the action of the pulleys.

The gusset cable are continuous from abutment to abutment, with all of the deck weights resting on the two spans, and without any weight or reaction at the abutments except when a live load is on the bridge. The upper sides are designed to act as cables, remaining in a curve, from the pivot of the pulleys under the lower one, to the abutments, where the bridge is anchored. This device is accomplished by means of pulleys, the hangers being supported by means of the crane on the abutments, and forming lines of centers by drawing together of 男女 the off and on one or wire held in place and separated by water balls and a pulley. The upper most of the gusset cables is supported at the centers of the bridge, in a manner similar to the main girder, but every other cable is supported so that its sag is equal to the center line of the lower one. The hangers are supported in such a manner as to make the same tension in the face, and the tension on the center line is equal to the tension on the lower one. Although the gusset cables are left free to expand and contract under temperature changes, their spread and form under motion is checked by the action of the pulleys.

The gusset cable are continuous from abutment to abutment, with all of the deck weights resting on the two spans, and without any weight or reaction at the abutments except when a live load is on the bridge. The upper sides are designed to act as cables, remaining in a curve, from the pivot of the pulleys under the lower one, to the abutments, where the bridge is anchored. This device is accomplished by means of pulleys, the hangers being supported by means of the crane on the abutments, and forming lines of centers by drawing together of 男女 the off and on one or wire held in place and separated by water balls and a pulley. The upper most of the gusset cables is supported at the centers of the bridge, in a manner similar to the main girder, but every other cable is supported so that its sag is equal to the center line of the lower one. The hangers are supported in such a manner as to make the same tension in the face, and the tension on the center line is equal to the tension on the lower one. Although the gusset cables are left free to expand and contract under temperature changes, their spread and form under motion is checked by the action of the pulleys.
The main piers consist of two side plates and four angles throughout, latticed top and bottom in the side spans and panels of the middle span next to the piers, connected by transverse elements.

The two parallel girders over the piers are of open section as shown, the other girders are either two plates and four angles double latticed or two plates and four angles with angles diagonally connected. Some girders, however, have sub-elements of four angles but the bracing elements are of two plates and four angles.

The support of the arches is at the intermediate and center abutments, with the exception of the arches placed upon the abutments and frames, which are arches of the Schell Memorial Bridge.
The estimated weight of steel in the main structure, exclusive of railings, is 266 net tons. The cost of the bridge was $12,700.

In the first installment of this structure press, the work, i.e., 10% of total cost, was incorrectly given, as it is Francis Roberts. (To be continued).
The Schell Memorial Bridge.—Ill.

Chimney Brooklyn by Contract.—Although
when completed the Schell Memorial Bridge is a
constructive bridge, with a central span of 350 ft.
and two shore spans of 200 ft. each, it was treated
for the purposes of erection as a suspension
bridge, with the three spans of the continuous
counterpoised by temporary earth loads, pass-
ed through wooden cradles from the two shore
positions in each position. All materials for
the bridge were delivered and stored on the west
bank and was put to place in the bridge by
means of a wire rope system, supported on
two masts, on the west tower being about
200 ft. high and the distance between towers
200 ft. This method and the plant used involve
a number of interesting features and details, of
which there is no published description of pre-
vious use.

As the bridge was designed with revetted con-
solidations throughout, several care was taken in
placing the timbers, in order that the entire
system was laid together in the best manner
and without the support of temporary parts might be completed
with satisfactory results. The bonains of
or center line of members of one of the shore
spans and one-half of the middle span were
laid out with care on the floor of a large timber
room, and all of the timbers for a tower were
assembled upon the layout line and the more

THE ENGINEERING RECORD.

long holes for rivets at connection were bored
through both members and office the great
length of the same to be used.

The definition of the string during erection
wasconsisted independently in the engineering
office of the contractor, and, generally, by the
contractor, with results varying with the doing
and with the actual result as found by
means taken during erection, the allowance
being made for the exposure of the weight at a
long distance at the outer and of each position
from the outer end, the weight of which was included in the
computed tension, stresses and deflection, but
which was not used as the actual tension. The
ordinate of lower chord was used as stress
increased from those shown in the contract draw.

To compensate for the effects of the tempe-
arture changes, the difference of temperature be-
 tween the lower and the upper chord, and
the other 3 of the upper chords, under dead
load, the dead load, to the contrac

Dimensions and Deflections of Half the Bridge.

Diagram of Elevation Elevations and Directions.

SCHELL MEMORIAL BRIDGE
HAER No. MA-111
(page 34)
Die 31, 1904.

THE ENGINEERING RECORD.

The cable was spread out from the storage position on the west bank by the tank from the cableway. As the west cableway tower is about 100 ft. high, this did not require a very great inclination of the cable, considering that any scattering piece could be run in under the cable by hand, upon timber rollers. Only one heavy member could be handled at one time by the cableway, and as it was necessary to wind the cable frequently from one side of the tower to the other, a system which consumed a good deal of time in the early part of the work, but which was later much simplified, the progress of the erection was not rapid, but was sufficient for the time required of the small gang of mechanics employed and of the four gangs of erecters following, who were rather late in getting their start.

The cantilevers were erected one panel at a time from each side, the erecting gang shifting...
THE ENGINEERING RECORD

SCHELL MEMORIAL BRIDGE
HAER No. MA-111
(page 36)
Cantilever Erection with Cableway, Schell Memorial Bridge.

2. Ibid, p.104.

3. Ibid.


7. Ibid.

8. Ibid.


10. Acts of Massachusetts, Boston, Massachusetts, 1898, p.269.


15. Ibid.


22. *Engineering Record*, vol. 50, no. 25, December 17, 1904, p.716.


25. Ibid, November 21, 1903.


30. Stone, p.925.

31. Ibid.

32. Ibid.


34. Woburn 200th Anniversary.

BIBLIOGRAPHY

Acts of Massachusetts, Boston, Massachusetts, 1898-1903.


Boston City Directory, Boston, Massachusetts, 1875-1919.

"Bridge No. N-22-2," Massachusetts Department of Public Works Bridge Section files, Boston.


Everett Directory, Everett, Massachusetts, 1890-1940.


Middlesex County Directory, 1879-1884.


Obituary for Jacob M. Ellis, in *Woburn Daily Times*, Woburn, Massachusetts, July 10, 1908.


"Schell Bridge," 3 volumes of documents and correspondence pertaining to the bridge, 1901-1980s. (On file at the Office of the Town Clerk, Northfield, Massachusetts.)


Shaw, Edward S. "Plan for Schell Memorial Bridge, 1901." (Copy on file at the Office of the Town Clerk, Northfield, Massachusetts.)


Town of Northfield Annual Reports. Northfield, Massachusetts, 1900-1903.


Winn, Rev. Arthur L. "Schell Chateau and Bridge," a paper given at the March 1, 1949 meeting of the Northfield Historical Society, Northfield, Massachusetts. (Copy on file at the Dickinson Memorial Library, Northfield, Massachusetts.)

Woburn City Directory. Woburn, Massachusetts, 1879-1930.