Society for Industrial Archeology · New England Chapters

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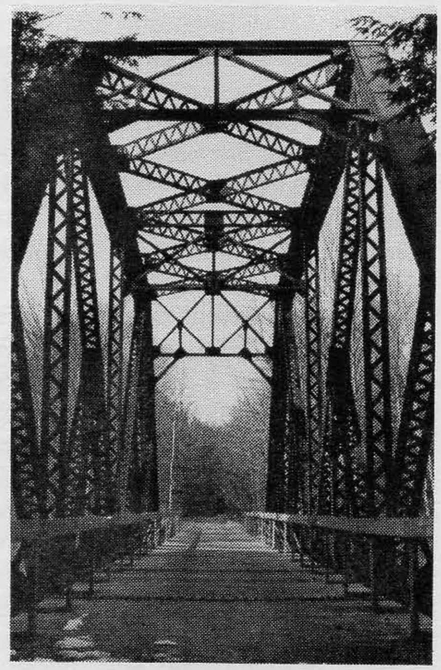
Editorial

This issue of the *New England Chapters Newsletter* contains articles of interest, although not very much news from individual states. We almost never receive any news from Rhode Island, for example. Perhaps that state doesn't have any industrial history!? (Or worst yet, no one is willing to write about it!) Please write up any projects that you're doing this summer and send in copy for the fall newsletter.

I hope to see many of you at Canterbury Shaker Village on Memorial Day Weekend.

David Starbuck



Bridge number 170, a 124-foot long subdivided warren truss, which once carried the tracks of the Sugar River Railroad. See the article by Walter Ryan on page 5.

NNEC Recording Project
Canterbury Shaker Village
1905 Pump Mill
May 23 - 24, 1992

CALL FOR VOLUNTEERS

The Northern New England Chapter will sponsor a recording project at the 1905 pump mill at Canterbury Shaker Village in New Hampshire. For further details please contact Dennis Howe at (603) 225-6649 or David Starbuck at (603) 772-4311, ext. 253.

President's Report, NNEC

I would like to take this opportunity to thank all of the people who made the Winter Conference such a success. Special thanks are due to William Taylor and Plymouth State College, who hosted the conference, and to Dennis Howe who was program chair. Everyone to whom I have spoken regarding the conference felt that it was both interesting and enjoyable. The conference is an important part of the activities of the Chapter, and I hope that more members will consider taking part in the event.

The Chapter has been invited to do a recording project on the Canterbury Shaker Village Pump Mill in New Hampshire during the Memorial Day Weekend. We will need volunteers to work on removing debris, cutting brush, measuring, photographing, and drawing the outer walls of the building remains, and digging a few test pits nearby. If you can volunteer your time for the whole weekend or just for part of one day, I am sure that the experience will be worthwhile. There is a view of both the interior and the exterior of the pump mill as it appeared some years ago in Volume 11, Number 2, 1991 edition of this Newsletter.

On a related note, I spoke with Allen Hitchcock a few weeks ago. He is proceeding with work on the Pittsford Iron Furnace. As he develops his plans there may be opportunities for the Chapter to be of further assistance to him.

The SIA's 21st Annual Conference will be in Buffalo, New York, on June 4 through 7, 1992. It promises to be an interesting event, focusing on the industrial heritage of Buffalo, the Erie Canal, and the Niagara Falls Region. As it is relatively close to us some of our members may wish to attend. Plans are underway for our Chapter to host the SIA Fall Tour in 1993. I expect that the tour will focus on industrial sites along the Merrimack, Contoocook, and Sugar Rivers. Hosting this tour will require a major effort on the part of the Chapter but I am sure that it will be a success.

Walter Ryan
Claremont, NH

President's Report - SNEC

Many SNEC Chapter members made the trek to Plymouth, NH, for the Fifth Annual New England Conference, where they enjoyed a stimulating day in the now familiar environs of Plymouth State College. Inspired by Marie Bourassa's report on the upcoming move of Southeast Light on Block Island, SNEC is arranging a spring chapter meeting at this site, although at this writing a date has not been finalized with the Southeast Light Association. SNEC members should watch for a mailing soon.

A number of Chapter members attended the annual Old Sturbridge Village Colloquium on New England Society and Culture on March 14th. The discussion papers included contributions by two SNECers. Richard Candee's paper, "Landscapes of Expectation: Building, Rebuilding, and Industry in Portsmouth, New Hampshire, 1790-1850" incorporated Professor Candee's most recent intensive research on this port city. The paper portrays the conflict and confrontation surrounding the expansion of the commercial, residential and industrial districts of the city, particularly the controversy surrounding the passage of the "Brick Act" following the great fire of 1813, an ordinance which sought to limit rebuilding in the city core to brick construction. The paper further characterizes the diversified industrial economy of Portsmouth in the second quarter of the nineteenth century, when the persistence of English-born stocking weavers running hand-powered knitting frames in home workshops contrasted with large-scale steam-powered mill districts emerging along the city's waterfront and railroad corridor. Much of the material developed in Professor Candee's paper should find its way into the field guides for the annual Vernacular Architecture Forum meetings, scheduled in Portsmouth May 14-16. Chapter member Robert Gordon's paper, "Energy and the Landscape: Changing Attitudes Toward the Cost of Wealth," assessed the environmental consequences of changing industrial technologies, particularly the transition from wood and water power to coal in New England in the nineteenth century. Professor Gordon points out that this shift allowed New Englanders to export many of the environmental costs of energy use outside the region, specifically to the anthracite fields of Pennsylvania. The shift to steam power freed factory owners from the complex problems of watershed management involved in large-scale water power systems, although it introduced new local environmental costs in terms of air and thermal water pollution. Moreover, coal power allowed New England industrialists to expand beyond limiting water-power sites to establish urban locations, releasing them from the social costs of creating and regulating company towns. Professor Gordon's paper thus suggests a compelling construct for understanding the transformations of the industrial landscapes of the Northeast in this period. The ideas presented are developed further in Professor Gordon's forthcoming book with SNECer Patrick Malone, *The Texture of Industry*, Oxford University Press. Both papers stimulated an afternoon of wide-ranging discussion.

I'm pleased to report that an important southern New England IA landmark, the South Hadley Canal, was recently listed on the National Register of Historic Places. Completed in 1795, this important early navigational canal was built to circumvent the falls of the Connecticut River at South Hadley, Massachusetts. In its initial construction, the 2½ mile canal included an inclined plane on which boats were transported on a "Grand Carriage" up and down the fifty-three foot difference between canal levels. By 1804, the plane had been replaced by a series of hydraulic locks. The canal remained of navigational importance through the 1840s, and local mills subsequently utilized the system as a waterpower source. The surviving features of the canal represent an important source of information on early lock and canal engineering methods, particularly on possible variations between design specifications and actual contract construction practices. In 1987, the Boston Society of Civil Engineering section of the American Society of Civil Engineers named the canal a Massachusetts Historic Engineering Landmark.

Things are looking hopeful for another significant and gravely endangered IA resource, the *Tugboat Luna*. Listed as a National Historic Landmark in 1989, the *Luna* and her sister ship the *Tugboat Venus* had been abandoned by their owner and left to sink in Boston's Charles River Basin where they had been berthed. For the past eighteen months, the Metropolitan District Commission (MDC) under whose control the abandoned vessels came, has been seeking a new owner with a financial ability to rehabilitate the Luna. With time running out and a scuttling on the horizon, the MDC has just accepted a proposal from the Luna Preservation Society. Within two months the MDC will raise the *Luna*, remove hazardous materials, and deliver the vessel to the Fitzgerald Shipyard in Chelsea. Scuttling of the *Venus* will occur, but efforts will be made to remove all salvageable components in support of the Luna restoration. Contact person for the Preservation Society is Todd McCullough, 617-739-1214 (h), 617-397-9006 (w).

Mike Steinitz
Somerville, MA

Article

Climatic Chambers Building, U.S. Army Natick Research and Development Laboratories, Natick, MA

An Historic American engineering Record (HAER) documentation has recently been completed by the Public Archaeology Laboratory, Inc. of Pawtucket, Rhode Island, for the Climatic Chambers Building (Building 2) at the U.S. Army Natick Research and Development Laboratories (now known as U.S. Army Natick Research, Development & Engineering Center, NRDEC), in Natick, Massachusetts. The recording project was undertaken at the request of the Army Corps of Engineers, New England Division, in advance of modernization plans for the 1952 to 1955 testing facility. The report includes text and archival photographs documenting the original construction and present condition of the building and its equipment and outlines their historical context under the designation HAER No. MA-52-A.

The Climatic Chambers Building is important as the first research and testing facility in the country to merge the testing of materials, equipment, and products with the study of human response under all known global ground environmental conditions. As such, its construction represented a major conceptual shift from prior private industry and military testing approaches geared toward evaluation of the characteristics of materials. It also reflected the Army's commitment to outfitting the individual combat soldier and its need for testing and modification of items, whether developed by the Army or by commercial firms, for use in the field. The facility is considered highly significant, primarily for its engineering and scientific functions, despite the fact that it does not meet the National Register of Historic Places age criterion of 50 years.

Authorized by Congress in 1949 as the Army's primary center for the research and development of food, clothing, and personal and organizational equipment in support of the individual combat soldier, the Natick Labs occupy a 78-acre site 20 miles from Boston. The Climatic Chambers Building, constructed from 1952 to 1955, was integral to the initial plans. It contains two environmental testing chambers — the Arctic and Tropic chambers — along with their wind tunnels, mechanical and test equipment, and office, observation, and support spaces. The symmetrical U-plan structure consists of a 1-story, T-plan, flat-roof building of reinforced concrete, with two standing-seam, steel-plate wind tunnels set into the angles of the T. The Ballinger Co., a Philadelphia architectural and engineering firm, prepared the innovative design. The George A. Fuller Co. of Boston was the general contractor, and the New York firm of Arthur E. Magher erected the test chambers and wind tunnels. The Worthington Co., an early pioneer in the development of mechanical refrigeration, supplied the refrigeration equipment and systems.

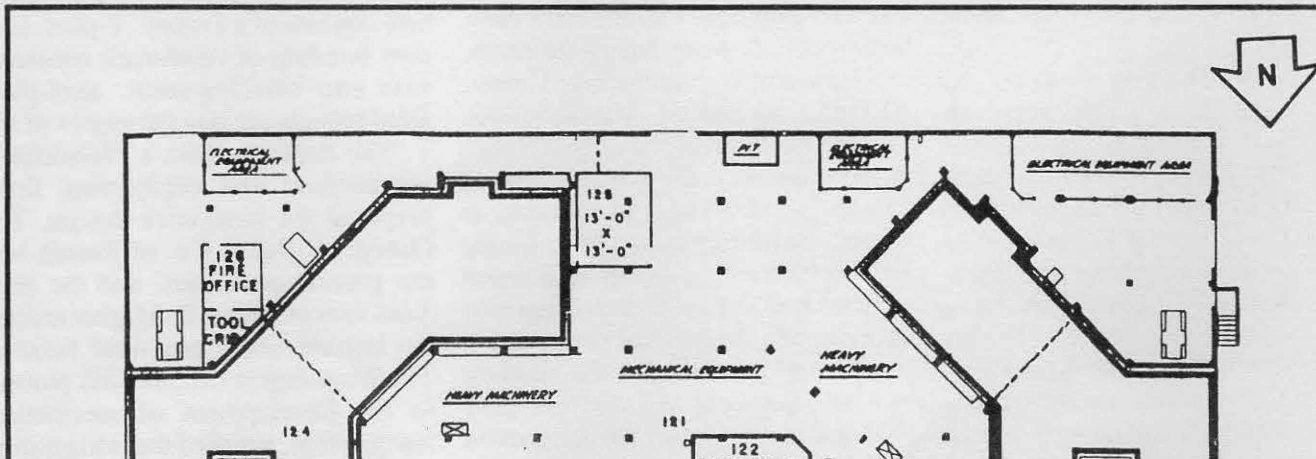
The Arctic chamber is designed to provide and maintain temperatures from −70 to +70 degrees Fahrenheit, and the Tropic chamber, temperatures from 0 to 165 degrees Fahrenheit. The two chambers are essentially similar in layout and method of operation. They consist of a test section/wind tunnel circuit and an angled by-pass leg section. The rectangular test sections, which occupy the interior side of the circuit adjacent to the observation rooms, include a raincourt, bivouac, and treadmill area for different types of tests. The wind tunnel sections run parallel to the test chambers on the exterior line of the building and contain the 400 H.P., electric motor driven, propeller type fans with drive shafting and humidifier sprays on the downstream end. Each fan generates air speeds of

2 to 40 M.P.H. Temperatures are determined by cooling and reheat coils and a 40 H.P. fan in the by-pass sections. Chamber conditions (air velocity, dry bulb temperature, and dew point) are controlled at a panel in the machine room, with additional indicators and controls in the observation rooms.

In each case, the primary components of the individual, compound, closed system refrigeration cycle are similar. Each system delivers 600 tons of refrigeration via one 400-ton centrifugal compressor and two 100-ton reciprocal compressors. Freon-12 is used both as a refrigerant and brine, while Trichlorethylene (TCE) is also used as a brine and heating medium in the Tropic chamber. The other principal components of each system include a shell and tube condenser, flash liquid cooler (evaporator), discharge gas cooler, oil separator, and intercooler. In general, the reciprocating compressors are used for light load and moderate temperatures, and the centrifugal compressors for lower temperatures.

Mechanical refrigeration was initially used primarily for food preservation, but developments in the first half of the 20th century quickly established new applications, particularly for air conditioning. Among the most important technological advantages were improvements in the design of the centrifugal compressor for large-scale installations between about 1905 and the late 1940s, along with the collaborative introduction of the Freon family of refrigerants by the Frigidaire Division

Floor plan of the Natick Research and Development Laboratories: Climatic Chambers Building (Building 2) HAER No. MA-52-A.



(Source: U.S. Army NRDEC)

FLOOR PLAN

of General Motors and DuPont Chemical in 1931. By the late 1940s, large scale air conditioning installations for office buildings and industrial applications averaged between 300 and 400 tons, putting the Climatic Chambers systems at the upper end of the standard installation size. Their importance, therefore, lies primarily in the custom design engineered to meet the unusual needs of the testing facility and in their interaction with mechanical wind and humidity systems. Unlike standard installations designed to attain and maintain a relatively narrow range of temperatures, the Climatic Chambers operations were substantially more complex and required constant expert monitoring when in operation. The multiple units allowed a high degree of flexibility in that they were capable of functioning in any combination to provide a wide range of temperatures.

Early tests included studies of human tolerance limits in acid and fuel resistant suits for hot environments and the extent of encumbrance caused to soldiers by arctic clothing. These types of studies, designed to determine testing measurement techniques and to study various aspects of the interrelationship between human physiology, the properties of different materials and products, and a wide range of hot and cold climatic conditions have been the focus of research and development at the Climatic Chambers since the facility's construction. Nearly all personal equipment used by the Army and other military soldiers, and many materials and items found in the civilian market, have been tested at Natick.

Virginia H. Adams
Sr. Architectural Historian
The Public Archaeology
Laboratory, Inc.

Article

Rails to Trails: A Walking tour on the Sugar River Railroad

Chartered in July, 1855, the Sugar River Railroad ran its tracks from Bradford, NH, which the Concord and Claremont Railroad had reached in 1850, fifteen miles to Newport, and then fourteen miles further to Claremont. Although the railroad was chartered in 1855, construction did not immediately start. The first trains between Bradford and Newport did not run until 1871.[1]

Adequate capitalization was always a problem for small railroads such as this. The towns along the way all contributed to the building of the railroad (Claremont gave $100,000, Newport $30,000, and Sunapee $7,000), but still the line was lightly built, and there were frequent mishaps.[2] In April 1872, shortly before track laying started from Newport west to Claremont, a flood on the sugar River carried away one of the railroad's bridges east of Newport. Less than a month after the first train went through to Claremont, sixty to eighty feet of track passing over Cilley's Bog, near Bradford, sank. While workers sank piles into the bog to provide a firm base for the track, passengers and baggage went around the bog on a plank walk.[3]

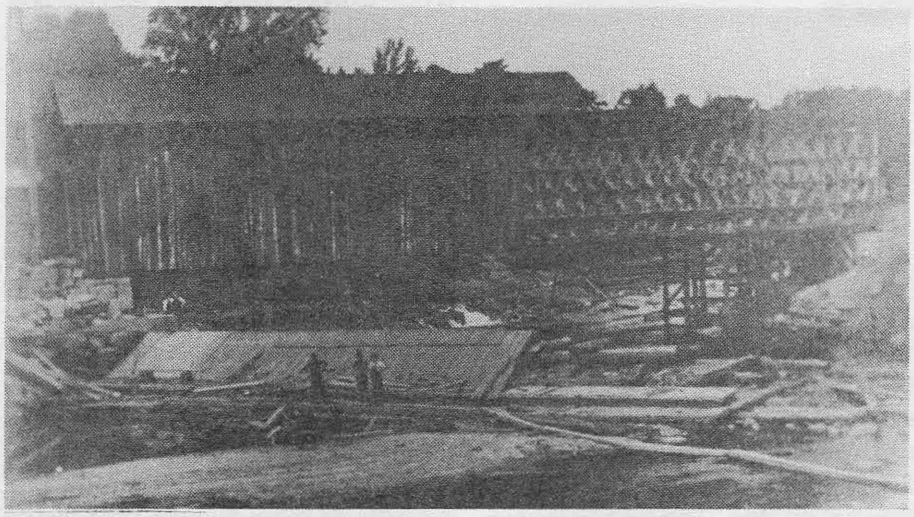
Still, the work went forward. A crew of forty carpenters and stone workers raised the bridge in North Newport, over Sibley's millpond, in May.[4] The line, which closely followed the Sugar River, was complete, through Claremont, by September.

A test train made the trip on September 10, 1872, and after opening festivities on the sixteenth, regular service started on the twenty-eighth. From Bradford to Clarement, the line ran fifty-six miles through 1495 feet of covered bridge, and over 1500 feet of trestle, and 650 feet of piling. There were sixty-four individual bridges in the stretch: Twenty-eight of them were major spans crossing the Contoocook, Warner, and Sugar Rivers.[5]

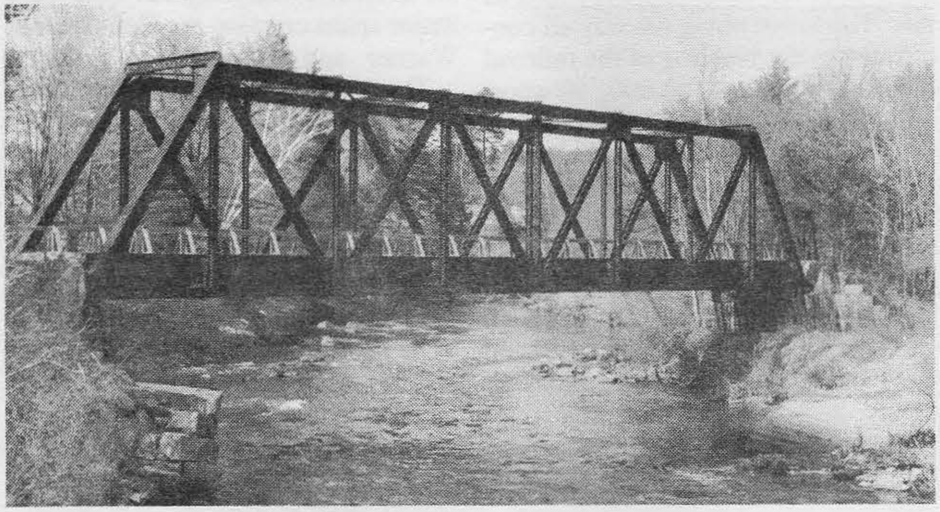
The independent life of the Sugar River Railroad was a short one. Thirteen months after the line opened through to Clarement it, and the nearby Contoocook Railroad, merged with the Concord and Claremont Railroad.[6]

The Concord and Claremont, itself the product of consolidation, continued to be part of the wave of railroad consolidation that took place in New Hampshire in the late nineteenth century. By 1890 the line was operated by

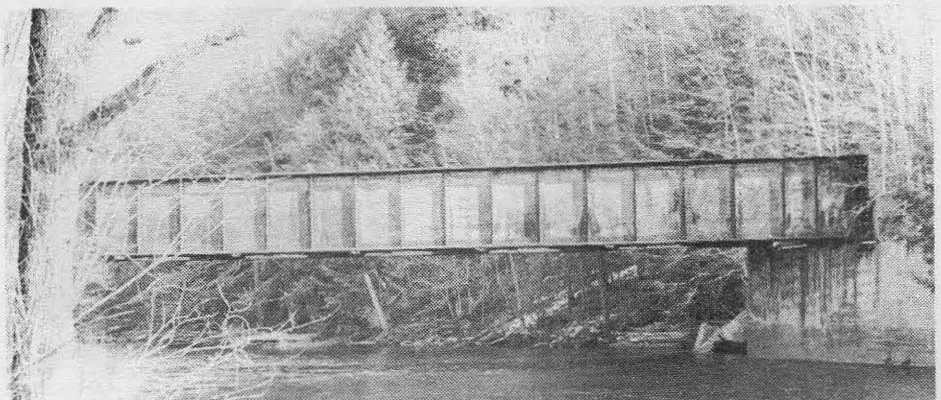
Bridge number 165, a 84 foot-long Warren truss with vertical tension members.



Sibley's Bridge torn down in preparation of the construction of bridge number 166. Photo courtesy of Ray Reed.



Bridge number 166, a 144 foot-long Warren truss which replaced Sibley's Bridge.



Bridge number 169, a 90 foot-long riveted plate girder truss.

the Boston and Maine Railroad. Known as the Claremont Branch of the Concord Division, it first was run as a leased line and later was purchased. The Boston and Maine sold the Claremont Branch to the Claremont and Concord Railway in 1954. A year later, the Claremont and Concord abandoned its passenger service.[7] By the early seventies, traffic between Claremeont and Newport was ended. The tracks were pulled up, and the roadbed is now part of the New Hampsire Rails to Trails system. (The Claremont and Concord Railway survives as a short line, handling freight between Claremont Junction and Claremont.)

The Rails to Trails section of the old Sugar River Railroad starts just beyond Belknap Avenue in Newport and runs some twelve miles to a point near Washington Street on the outskirts of Claremont. There are seventeen bridges on this stretch: six crossing the Sugar River, two crossing a power canal in North Newport, and nine crossing small brooks that feed into the Sugar River.

The bridges crossing the Sugar River were originally named and later, when the line was taken over by the Boston and Maine, were numbered. The Rails to Trails section includes bridges 165 through 181. All of those crossing the Sugar River were originally covered bridges.

Starting in Newport, the first bridge is number 165. It is an eighty-four-foot-long pony truss built by the American Bridge Company of New York in 1908. This is the only bridge in this section with a builder's nameplate. A simple Warren truss with vertical tension members, the girders are built up and through rivited.

In North Newport, the original bridge, Sibley's, was replaced with a 144 foot-long through-rivited Warren truss, bridge number 166, in 1909. North Newport was a busy manufacturing section of Newport at this time. An 1892 map shows a scythe factory, a saw mill, a box and tub factory, the North Newport Post Office, and a railroad station and store, grouped around a dam across the Sugar River.[8] The mills drew water power from the dam. A separate bridge carries Oak Street across the Sugar River in North Newport.

A rivited girder truss spans the upper end of the canal. Leaving North Newport, a second plate girder truss carried the rails across the tail race end of the canal. a few feet further down the line bridge number 169 crosses the sugar River. This ninety-foot-long rivited plate girder bridge was built in 1911.

On Saturday, March 19, 1910, a wheel broke on a gondola car loaded with coal as a train was crossing the covered bridge at this point just west of the Draper Company siding in North Newport. The gondola car jumped the track and was pulled diagonally through the bridge, wrecking the structure. The train crew survived the accident, but the bridge did not.

By 11:00 A.M. on Monday, the remains of the old bridge had been burnt and a temporary one built. The steel bridge, number 170, a 124 foot-long subdivided Warren truss, was built later that year.[9]

Simple timber bridges with cut stone abutments carried the line across several brooks which flow into the Sugar River. All of the timber spans along the line are made of six ten-inch by sixteen-inch timbers, arranged three on each side of the bridge. In some places these simple bridges have been replaced by steel and concrete culverts.

At Kellyville in Newport a concrete arch bridge carries New Hampshire Route 103 across both the Sugar River and the rail line. The underside of this bridge is protected by steel plates where the trains ran under it.

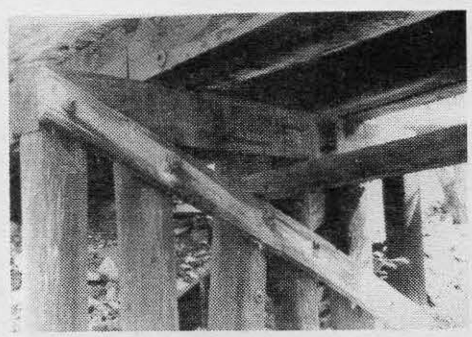
Passing over Chapins Brook and Peabody Brook the line approaches the Pier Bridge, number 176. This bridge, one of two covered bridges in this section, is a double Town lattice truss. The bridge, 228 feet long, was built in 1872 and rebuilt in 1906. The line passed through the Pier Bridge, along the Chandlers Mills Road, past the remians of Chandler's Mill, over Kelly Brook, and through Wright's Bridge, back across the Sugar River.

Wright's Bridge is a 122 foot-long covered bridge. It is a laminated arch sandwiched between Town lattice trusses. The trusses pass through the floor of the bridge and butt against the cut stone abutments at either end.

The Town lattice was often used for railroad bridges in the ninteenth century. They were rigid, easy to build, and required relatively short timbers. This rigidity served the Wright's bridge

This bridge is typical of the timber spans that cross the small brooks that feed the Sugar River.

The Pier Bridge.



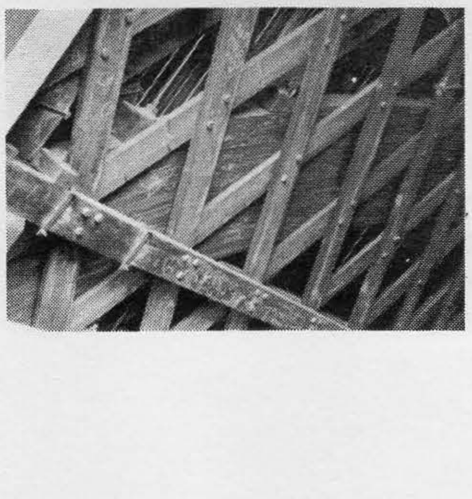
One set of the timber supports of bridge number 179.

well during flooding in March 1896. High water that spring washed out eighty feet of track near Wright's Bridge and shifted that bridge on its abutments. It also washed out thirty feet of track and changed the course of the Sugar River, leaving two bridges near North Newport with no river to span. The line was closed for five days while the tracks were repaired and the bridge was pulled back into place.[10] Both of these covered bridges are listed in the National Register of Historic Places and inventoried by the Historic American Engineering Record.

The only trestle type bridge on this section of the line is number 179. This timber is about thirty-one feet long. The west end abutment is cut stone. The east end abutment, originally cut stone, was washed out at some time. That end of the bridge is now supported by a timber supported by rubble rock. The timber is wedged in place by long tree trunks, one on either side of the bridge. The center of the bridge is supported by two sets of vertical timbers.

What we have here is a twelve-mile-long industrial artifact. The technology spans the history of railroading from wood burning steam engines to diesel. The timber Town lattice truss is 1820's technology. The rivited Warren truss was developed between c. 1890 and c. 1910. Rivited plate girder bridges were developed somewhat later.[11] These bridges have survived because this was always a branch line, and the older bridges were kept in place as long as they were able to carry the loads required of them.

Walter Ryan
Claremont, NH



Notes

1. L. Peter Cornwall and Carol A. Smith, *Names First - Rails Later, New England's 700 Plus Railroads and What Happened to Them*, Arden Valley Group, 1989, p. 117.

2. *New Hampshire Argus and Spectator*, Jan. 5, 1872.

3. *New Hampshire Argus and Spectator*, April 12 and Oct. 25, 1872.

4. *New Hampshire Argus and Spectator*, May 10, 1872. For a discussion of the ethnicity of railroad workers see William L. Taylor, "the Nineteenth Century Hill Town: Images and Reality," *Historical New Hampshire*, Winter, 1982, pp. 291-292. See John Seelye, ed., *Yankee Drover*, University Press of New England, 1988, *passim* for a discussion of stonework and earthmoving construction techniques used on nineteenth century railroads.

5. *Covered Bridge Topics*, Spring, 1984, pp. 8, 9. This is the source of all data concerning bridge types, names, numbers, and dates of construction. Edgar T. Mead, Jr., *Through Covered Bridges to Concord, A Recollection of the Concord and Claremont RR (NH)*, The Stephen Green Press, Brattleboro, VT., 1970, pp. 15-17. *New Hampshire Argus and Spectator*, Jan. 5, 1872.

6. Cornwall, p. 29.

7. Cornwall, *passim.*

8. *Old Maps of Sullivan County New Hampshire in 1892*, Saco Valley Printing, Fryeburg, Maine, p. 4.

9. *Claremont National Eagle*, March 26, 1910.

10. *Claremont National Eagle*, March 7, 1896.

11. For a discussion of bridge technology see David Weitzman, *Traces of the Past, A Feild Guide to Industrial Archaeology*, Charles Scribner's Sons, New York, 1980, pp. 80-115.

The laminated arch can be seen sandwiched between the Town Lattice trusses.

Article

Limited Foundation Excavation at the Pittsford Iron Company Furnace, Vermont (VT-RU-57)

Background

Having spent many years researching blast furnace ruins throughout the Northeast, the author has never ceased to marvel at the ingenuity that had to go into constructing such tall and heavy structures as 19th-century blast furnaces. No record has been found documenting the construction of the immense stone walls of these furnaces, a technique that was probably handed down orally from family to family. One has to marvel how exactly each large stone was placed one above the other and the spaces between carefully chinked with smaller stones. There was also the foundation that supported and stabilized this gigantic structure from tipping, not only from the shear weight of the furnace itself but also from the weight of the charcoal, limestone, and iron ore that filled the operating furnace, the molten iron and slag in its hearth, the weight of charging ramps, furnace-top ovens and chimneys, and the building that sat atop the furnace to protect the stack from the weather. There must have been some careful ground preparation. What lay deep in the ground directly beneath these structures?

In his treatise on *The Manufacture of Iron* (1850), Frederick Overman devoted a paragraph to ground preparation prior to the construction of a blast furnace:

> A furnace should be located on a dry spot, free from springs and water of any kind, and not exposed to floods after heavy rains. The ground should be then excavated, until the bottom is sufficiently solid to bear the heavy weight of the

stack. The foundation should be at least one foot larger in each direction than the base of the furnace; that is to say, if the furnace is thirty feet at the base, the foundation ought to be thirty-two feet square. Any kind of hard, large stones may be used to fill the excavation. No mortar should be used in the stone work. We should be careful to leave some channels through which rain or spring water, in case it should penetrate the foundation, may flow off. Such a drain should be carefully walled up and covered. The cavities or channels for the blast pipes are to be placed level with the ground; and the four pillars of the furnace then laid out (Overman 1850: 153-154).

Pittsford Furnace

A recording session was conducted at the iron furnace and on the grounds of Allen Hitchcock at Pittsford, Vermont, by the members of the Northern New England Chapter - SIA, the Pittsford Historical Society, and the Vermont Archaeological Society on the weekend of May 25-27, 1991. The author excavated a corner of the furnace to compare Overman's foundation recommendations with construction techniques at the Pittsford furnace. Although the first furnace at this site was built in 1791 by Israel Keith, the structure was rebuilt and enlarged by later owners and most likely completely razed when it was rebuilt to a 42-foot height and "modernized" in 1853. This was the last recorded modification, making the present structure contemporary with Overman's 1850 publication (Rolando 1991: 7-10).

The referenced 42-foot height included furnace-top ovens that preheated the blast. These ovens no longer exist atop the furnace ruin. The furnace now stands about 35 feet high with a 32-foot square base at a point 3 feet above the present ground level (measured December 18, 1983 by the author). Although sections of stone walls and earth around the furnace have

collapsed against it, the stack continues to exert heavy pressure on the ground directly beneath the corner pillars.

The front furnace wall is oriented at approximately 45° east from magnetic north-south. Facing the front of the furnace (the front defined as that containing the large, red-brick-lined casting arch and facing on Furnace Brook), starting with the immediate left-hand corner and continuing clockwise around the stack, the corners were identified as the northwest, northeast, southeast, and southwest corners. The two corners on the rear side of the furnace (northeast and southeast) were buried beneath fill that covered the entire rear wall level to the rise behind the furnace. These corners were for all practical purposes inaccessible, leaving the front two corners (northwest and southwest) as the only two accessible for excavation. A low mound of firebrick, red brick, slag, and miscellaneous hardware lay adjacent to the southwest corner. Additionally, this corner was in the immediate vicinity of trees being cut and felled from the hillside next to the southeast wall, and also beneath that corner of the stack from which trees and brush being cut at the top of the stack were dropped to the ground. The remaining corner, the northwest corner, was therefore chosen for excavation.

Excavation

Assisted by Krista Jackson, excavation started on Sunday morning, May 26, first by taking photos of the ground and inspecting the surface. Using the location of David Starbuck's transit as the site's datum point, the northwest corner of the furnace (hereinafter referred to as "the corner") was located 37 feet at an angle 10° east of north from the transit. An azimuth was shot from the transit to a point near the corner of the wall to be used for vertical reference for the excavation. This corner reference point was located 28 inches above the ground at the base of the corner (height of the transit telescope was $60^7/_8$ inches). The reference point was $1^3/_8$ inches below the top of a $21^1/_2$-inch-high by $46^7/_8$-inch-long block (stone A in figure). This block had a major piece of its northwest corner missing (later found in the excavation). The reference point was $24^1/_2$ inches (inward) from the corner and coincided with a small crack in the block A into which a nail and a blue/white striped tape was inserted.

A rectangular area for excavation was laid out 38 inches perpendicular from the corner in a southwest direction by 60 inches parallel to the wall starting from the corner (at undisturbed ground level) in the southeast direction. The surface was inspected and cleared of pieces of charcoal, slag, glass, miscellaneous domestic trash, and pieces of firebrick and red brick. This debris continued through the first 8 inches of excavation. Excavation was done with trowels and a military-style shovel/pick. At 4 inches into the excavation and sticking into the excavation from its northwest wall the missing corner chip of the reference corner block was found, measuring $6^1/_2$ inches across the bottom and 10 inches across the top. It was estimated to weigh about 30 pounds. The chip (stone A1) fit perfectly into the corner and held without support, although for the safety of the diggers, it was removed and put aside.

Underneath stone A, two side-by-side blocks were exposed measuring 17 inches high (stone B) and 18 inches high (stone B2), and separated by a small vertical triangular stone (stone B1). The bottoms of these blocks were $40^1/_8$ inches below the reference point ($12^1/_8$ inches below local ground level). Beneath was an approximately 15-inch-high block (stone C) that lay wholly under stones B, B1, and B2. The bottom of stone C was 57 inches below the reference point (29 inches below ground level). These measurements were approximate due to the blocks not being cut exactly flat. In addition, spaces between blocks varied between virtual contact inside the wall's surface to an inch or two of space containing flat, stone chinking.

While exposing the face of stone C, less glass, trash, slag, and brick were encountered while more pieces of iron were found. Some of this iron appeared to have spilled while in a molten state, retaining a "puddle" look. Other pieces looked like sprues, that is, pieces of iron that had broken from castings upon removal from the mold. Also uncovered was an end of a $2^1/_4$ inch (outside diameter) threaded pipe, sticking into the excavation out of its southeast wall. The pipe was worked around, resulting in its sticking about 6 inches into the excavation and into the backs of the diggers. The pipe was measured 44 inches below reference (16 inches below local ground level).

Firebricks unearthed measured $4^1/_2$ by $2^1/_2$ by 9 inches and $4^1/_2$ by $2^3/_4$ by $8^1/_2$ inches. The latter was marked OSTRANDER & SONS NO 1 TROY N.Y., a common marking found at 19th-century blast furnace and lime kiln remains throughout Vermont. A beveled firebrick measured $9^1/_2$ inches long by $2^7/_8$ inches thick by $4^1/_2$ inches at its wide end and $3^3/_4$ inches at its narrow end. Beveled firebricks were used for furnace lining. Two red bricks measured $3^1/_4$ by $1^3/_4$ by $6^3/_4$ inches and $3^5/_8$ by $2^1/_8$ by $7^3/_4$ inches.

At 61 inches below reference (33 inches below local ground level), the

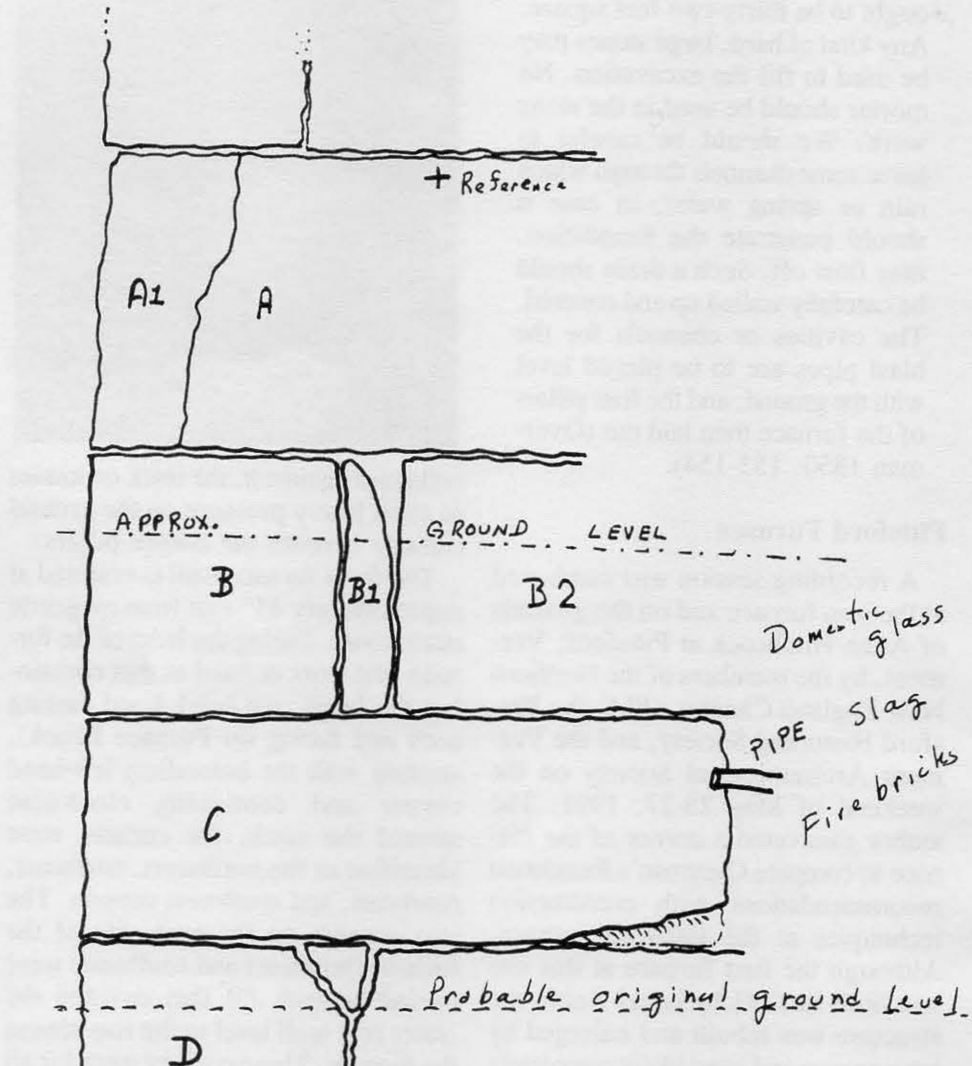


Figure 1. Sketch of the northwest corner of the furnace, showing the reference point (near top), the approximate ground level at the start of excavation, blocks explosed through excavation, layers of yellow clay and sand, and foundation boulders at bottom (sketch by author).

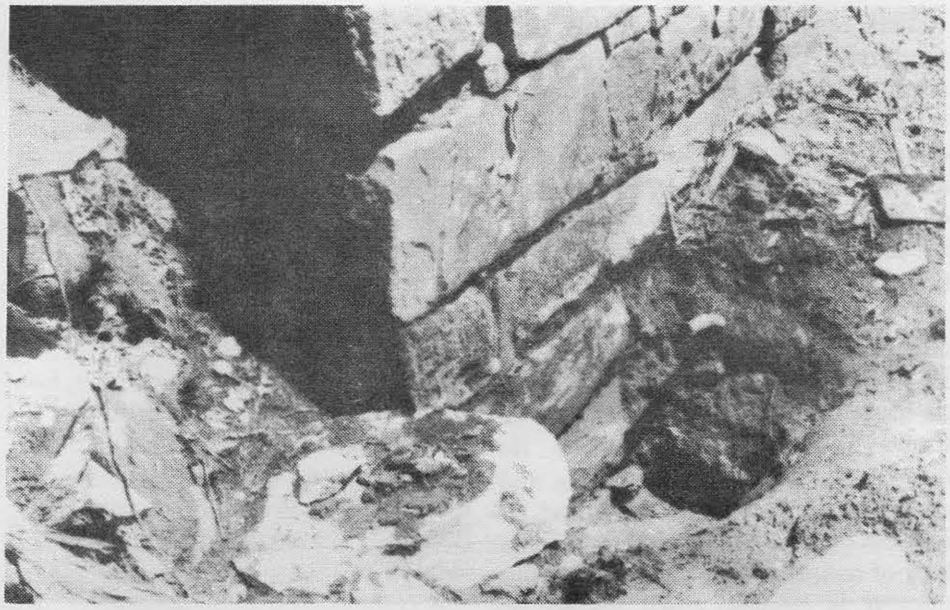


Figure 2. View into excavation at northeast corner of the furnace showing reference (with tape), exposed wall blocks, the pipe extending into excavation, and top of foundation boulder on floor of excavation (photo by author).

earth changed from black dirt to a yellow or light-brown clay material, possibly yellow ocher. This yellow clay continued for 9 inches, at which time sand was encountered. The associated exposed block in the wall measured approximately 16 inches high (stone D); its bottom was 74 inches below reference (46 inches below local ground level). Stone D was the lowest measurable block encountered. Underneath this block, at 77 inches below reference (49 inches below local ground level), were smaller, irregular-shaped blocks (stones E, E1), whose faces were not as smooth as the blocks above. The excavation now uncovered the tops of large, round boulders (stones F, F1) in the floor of the hole. The sand continued down into the small spaces that could be dug from around the boulders. There was no way to excavate any of these boulders without enlarging the area of the excavation or significantly disturbing the area directly beneath the furnace wall. At this time (3:00 p.m.) it was pouring rain, and the entire site was abandoned for drier quarters.

The excavation was revisited by the author the following Saturday morning, June 1, a bright, sunny, dry day. Nothing appeared changed in the excavation from when it was left six days earlier. Measurements and photos were taken. As the levels of stone block in the furnace wall were exposed by the excavation, the gently sloping corner angle of the furnace was seen to continue down to the foundation boulders, maintaining the stack's truncated and stable configuration. All horizontal levels of stone block were generally flat and in line with the wall; no outward bulging or stone block movement was detected.

Measurement of the bottom of the excavation, where tops of large boulders were uncovered, found that the area had reduced from its surface area of 38 by 60 inches to about 28 by 36 inches. This could reflect poor excavation control, but having encountered many pieces of large stones on the way down and not wanting to dislodge them and make the excavation area larger, it was decided to bypass them and, thereby, allow the excavation to become smaller with depth. The excavation did, however, keep flush with the furnace wall. After all measurements were made and before the hole was refilled, a plastic sheet was laid flat on the bottom of the excavation, both to mark the depth of the excavation for future reference and to preserve a waterproof cover over this exposed and disturbed section of the foundation.

Conclusions

It is assumed that the tops of the large, round boulders found at the bottom of the excavation were the start of the large stones that were used to provide the furnace foundation, as recommended by Overman. The bottom of the excavation was 28 inches wide and also indicated that the stone foundation agreed with Overman's building the foundation at least one foot larger than the base of the furnace. It was a surprise to find, however, that the furnace foundation started only 46 inches below the present ground level. The first 33 inches excavated revealed sufficient trash and debris to conclude that this was overburden and not there when the furnace was in operation. Realistically, therefore, the foundation started a mere 13 inches below original casting floor level, which closely coincides with the start of the layer of yellow clay. We presently have no idea of the depth of the foundation boulders, but it is expected that they continue much deeper beneath the furnace walls, in the order of many feet. What lies below this? How far outward the foundation boulders extend beyond the lowest layer of blocks would also have been nice to know, as well as the many other unanswered questions that came to mind as we stared into the little excavation.

The function of the yellow clay might be to waterproof the foundation from surface rainwater and the sand to provide a porous run-off medium for that which gets through. Overman recommended that the furnace foundation remain dry, and the combination of the 9-inch-thick layer of yellow clay and 7-inch layer of sand below the clay might afford a degree of moisture drainage beneath a moisture barrier. A lateral continuation of this yellow clay was also encountered in another limited excavation by Megan Battey and Walter Ryan the same day, about 15 feet away, directly in front of the main arch, and into what was probably the front of the casting room floor (Ryan 1991: 12-13).

Overman's recommendations for surface preparation prior to the construction of the blast furnace were obviously followed to some degree here at the Pittsford iron furnace. Whether the furnace builders were using Overman's instructions or were even aware of Overman is unknown. What the common furnace construction practice was during the mid-19th-century is likewise unknown. Was Overman leading the technology or merely recording it?

Victor R. Rolando
Rutland, VT.

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Rolando, Victor, "The Granger Furnace, Pittsford, Vermont." *Society for Industrial Archeology New England Chapters Newsletter,* Vol. 11, No. 1, 1991, pp. 7-10.

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Request for Information

I am very much interested in canal and lock restoration. Which canals in your area or Massachusetts in general have restorable canals?

Does anyone in the Northern or Southern New England Chapters of SIA have an interest in canal restoration.

This canal restoration would be a wonderful item to help the children read their history book, for they could see touch and use a waterway . . . The towpath would be a wonderful hiking and fishing area. The industrial archeology would really be wonderful if we could save some canals for modern boat use.

I hope some of our membership will realize that the canals and locks of the Northeast are disappearing because of no industrial archeology interest. The Canal Societies in the U.S.A. do nothing toward saving the locks and canals. They just talk history and go on field trips looking at cadavers. The lack of restoration by those who claim interest is causing canal history to decay to worthless piles of stone works.

Anyone who can provide information about New England canals and efforts to preserve them, please contact:

Mr. Bev. W. Morant
Industrial Archeology Tool Engineer
61 W. Bonita
Sierra Madre, CA 91024

Recent Publications

Building Hardwick: Community Histories in Landscape and Architecture by Claire W. Dempsey. Hardwick, Mass: Hardwick Historical Commission, 1991. Available for $10.00 from the Hardwick Historical Commission, Hardwick, MA 01037.

Newly published by the Hardwick Historical Commission is a handsome history of this small town in Worcester County, Massachusetts, which flourished on the waterpower of the Ware River. Two chapters are devoted to the industrial development of the town's two mill villages, Gilbertville and Wheelwright. In the 19th century, the woolen mills of Gilbertville and the paper mill in Wheelwright provided the town's major employment. Remarkably, many of the mills and much of the housing and community buildings constructed by the Gilbert Manufacturing Company and the Wheelwright Paper Company still survive.

This thoroughly researched and handsomely illustrated publication is the outgrowth of a survey of the town by the author, a social and architectural historian who now teaches in the American and New England Studies Program at Boston University.

A History of Canton Junction by Edward D. Galvin. 100 pages, 170 photos, and many maps and diagrams of rail facilities. Available for $17.95 from Sculpin Publications, RFD #3, Box 4027, Brunswick, Maine 04011. (Maine residents add 5% sales tax.)

A complete history to the present, including the Canton Viaduct, its interior and quarry. Also featured are rare turn-of-the-century photos of rural stations and structures long extinct.

"Well researched and intelligently written . . . An unusually comprehensive job with equally extensive illustration. Galvin has captured the entire length and breadth of railroad history in concrete and graspable terms. Indeed Canton Junction seems to be an almost perfect microcosm of everything in railroading . . ." Herbert H. Harwood, *Railroad History.*

Waste Paper Baler Available

We have a *Lowell* Waste Paper Baler made of wood, 90+% complete I believe, 36" High, 24" Wide and 19" Deep, that we would like to get rid of! It would be at no cost to the group or institution receiving it, my son would like a valuation for tax purposes.

I would *estimate* its age as late 19th century. It is physically located at 122 Brigham Hill Road, North Grafton, MA 01536, (508) 839-2012.

It is the property of Halsey Platt. Any interested party may contact either him or Philip L. Platt.

Current Research in New England

Maine

Presumpscot Falls Bridge

[Editor's note: The following article is a condensed version of one which appeared in the *Portland Press Herald* on January 30, 1992.]

A historic, heavily travelled bridge linking several northern suburbs of Portland may escape demolition because of its historic significance. The 78-year-old Presumpscot Falls Bridge (usually called the Allen Avenue Bridge) would instead be preserved, according to state officials, and a wider bridge erected beside it to handle the 6,000 vehicles that use the bridge each day.

If the new span were built, the existing one would be used as a pedestrian walkway with an access path to the Presumpscot River.

The 240-foot-long open spandrel concrete bridge was built in 1913. The structure underwent significant renovation in 1956, when it was widened from 18 to 22 feet.

Earle Shettleworth, Jr., Director of the Maine Historic Preservation Commission, said the bridge is one of only two of its type remaining in Maine. Chisolm Park Bridge in Rumford, built in 1929, is the other. The open concrete spandrel arch was an engineering technique used between 1910 and 1930.

The MDOT's plans to replace the bridge in 1993 were stalled last year when the Maine Historic Preservation Commission notified it that the bridge was eligible for listing in the National Register of Historic Places. By its action, the commission halted any further design work until MDOT, the town of Falmouth and the commission can reach agreement. Several more meetings between the state agencies and the town officials will be held before a final design will be presented at a public hearing.

Submitted by
Ed Galvin
Brunswick, ME

New Hampshire

New Hampshire Industrial Heritage Park

The New Hampshire Legislature found that the state's "industrial heritage is poorly preserved, inadequately understood, and fails to enjoy a level of popular appreciation which would assure its preservation and continued vitality." The body, therefore, enacted legislation which would create a museum of New Hampshire's industrial heritage.

The act, HB409-FN-A, became Chapter 234 of the state's laws on July 1, 1991 with little fanfare. Yet, for those who study the technological past, it is recognized with enthusiasm that the passage of the law is an important beginning to the process of promoting a fuller understanding of the Industrial Age, and bringing into focus the significant role of industry in the state's history.

The law established an Industrial Heritage Commission, and outlined goals to include a consortium of state agencies and private organizations to acquire, develop and maintain an industrial heritage park which is to become part of the New Hampshire historic sites system. The state agencies in the consortium include the Division of Economic Development, the Division of Historic Preservation, the Department of Labor, and the New Hampshire Division of Parks and Recreation which manages the historic sites system.

The single private organization presently involved is US FIRST (U.S. for the Inspiration and Recognition of Science and Technology) whose founder, Dean Kamen, was appointed Chairman of the seventeen-member Industrial Heritage Commission by Governor Hugh Gregg.

At their meeting of December 18, 1991, Governor Gregg and the Executive Council approved the Commission's plan to pursue the acquisition of Mill Building No. 3 within the Amoskeag Millyard in Manchester. The mill building will become central to the park which the Commission visualizes as multi-dimensional, having an Omni-Max 360 theater which will present the over 200 years of industrial change, including "the primitive New Ipswich mills of 1801, through the world-famous giant Amoskeag manufacturing complex; then deep into the very hearts of such creations as the Comerford turbines, the Seabrook reactor, mini-computers, and in-place biotechnology; all against a backdrop of New Hampshire's changing landscapes and labor force."

Plans for the park also include "an inspired exhibit space celebrating New Hampshire's industrial art and photography amid a fascinating collection of the polished 'art' of New Hampshire-made engines and machinery of unbelievable diversity." Also, the "Mill-You," a place where visitors can "journey back to an earlier day to actually participate in solving problems of harnessing power of all kinds, making thread and cloth, milling lumber and grain, making glass and paper," and "producing ball bearings and micro-chips." It will be a place where visitors can "touch, handle, take apart, reassemble, and even improve working replicas of machinery" which has been used over the past two Centuries.

Also planned is "the *Labor Lobby* where visitors become operators of looms, pulley and belt systems, street railways, knitting machines, stitching machines, pneumatic drills, power plants, and a variety of production equipment.'' There will be a transportation theater where visitors may ''experience life on a Merrimack canal boat, live with the rise and fall of the railroads, and discover all that goes into a functional highway, airport, seaport, and the world's first aerial passenger tramway.'' There will be a mall presenting people whose inventive geniuses contributed to the state's technological development and industrial heritage ranging from agricultural equipment developers and clockmakers to shipbuilders and textile manufacturers.

The Amoskeag Millyard, which is to become the site for the new Industrial Heritage Park, is an impressive mill compound which exhibits architectural and social designs reflecting the careful planning of the Utopia-minded 19th-Century Amoskeag Manufacturing Company management. It is a visually pleasing complex which has seen much adaptive rehabilitation in recent years. Buildings which were once part of the world's largest textile factory now house a variety of businesses and educational facilities. Considering the significant history of the place, it is ideally suited to this further adaptation for the display of New Hampshire's industrial history.

Dennis Howe
Concord, NH

Historic Bridges

Federal and State Programs

In 1987 Congress passed the surface Transportation and Uniform Relocation Assistance Act, its last major highway reauthorization bill before the 1991 landmark Intermodel Surface Transportation Efficiency Act.

One of the lesser known provisions of the 1987 legislation was the addition of a new subsection (o) to Section 144, the Highway Bridge Replacement and Rehabilitation Program of Title 23, United States Code. This new subsection required the US Secretary of Transportation to do several things related to the preservation of historic bridges.

First, the Secretary was to encourage ''the inventory, retention, rehabilitation, adaptive reuse, and future study of historic bridges.''

Secondly, the Secretary was to require each State to ''complete an inventory of all bridges on and off the Federal-aid system to determine their historic significance.''

Thirdly, the Secretary was required to see that any State which proposed to demolish an historic bridge using Federal-aid funds first make ''the bridge available for donation to a State, locality, or responsible private entity'' if such party would enter ''into an agreement to maintain the bridge and features that give it its historic significance; and assume all future legal and financial responsibility for the bridge, . . .''

In order to offer an inducement toward effectively implementing these provisions, ''[r]easonable costs associated with actions to preserve, or reduce the impact of a project. . .on the historic integrity of historic bridges'' were deemed ''eligible as reimbursable project costs'' if certain capacity and safety measures in the reuse of the bridge were met.

How have these provisions been implemented in New Hampshire? Through a great deal of inter-agency cooperation and open communication, and hundreds of hours of work, the Federal Highway Administration, the New Hampshire Department of Transportation, and the New Hampshire Division of Historic Resources have successfully implemented all of the requirements of the 1987 highway reauthorization act.

The State-wide inventory of historic bridges that was mandated in 1987 was actually well under way in New Hampshire several years before as the result of efforts to compile a comprehensive inventory of all bridges in the State. One of the Sub-categories in that earlier effort was the identification of historic bridges. Although this earlier inventory was never finalized in its own right, it formed the groundwork for much of the post-1987 effort.

The methodology that was employed in the historic bridge inventory paralleled efforts in a number of other States. Since bridges are a rather unique resource, the majority of State efforts to identify those of historic significance culminated in the creation of a set of criteria unique to each State. Rather than the doctrinaire application of the nationally-used Criteria for Evaluation for eligibility for the National Register of Historic Places, New Hampshire and most other States elected to create a point system based on such factors as Historicity, Technological Significance and Environmental Quality.

Among the considerations for Historicity were such factors as the Development Period, Rarity in New Hampshire, Integrity, and the Historicity of the Site. The considerations for Technological Significance included the Engineer/Builder/Company, the Structural System and materials, the Length and Number of Spans, and the Architectural and/or Engineering Details. The considerations for Environmental Quality included Aesthetics and the Integrity of the surrounding Site.

Point values were assigned to each of the subsets of criteria under the aforementioned factors. For example, under Rarity in New Hampshire, a Sole Survivor scored 6 points, a Rare scored 4 points, an Unusual scored 2 points, and a Common scored 0 points.

Bridges were evaluated by structural type. Any necessary fine tuning to the general criteria as they applied to a given structural type was worked out by consensus during the application of the criteria by the evaluation team. Thus, for example, the evaluation team looked at pony trusses one day, high trusses another day, masonry arches another day, etc. The parameters of the Development Period in assigning points would have to be adjusted from bridge-type to bridge-type since they did not all develop during the same time period.

The evaluation team was composed of bridge engineers, environmentalists, and historians from each of the three aforementioned agencies. The NHDOT provided all available archival material relating to a given bridge. Photographs and a videotape of each bridge were presented to the evaluation team for its consideration in applying the criteria. Consensus-building through collegial discussion of the applicability of the criteria to a given bridge was the way the methodology worked in actual use. If it was necessary, points or half-points in between scaled criteria (for example, assigning 1 point for a bridge that was considered somewhere between Unusual and Common in the previously mentioned Rarity scale) were used by consensus. It turned out that 16 points out of a possible 38 was necessary for eligibility. The highest point total achieved by any bridge in the State was 26.

In total, the bridge evaluation team reviewed approximately 500 bridges that met the fifty year threshold for consideration under the National Register criteria for evaluation. Of these, 168 were found eligible for the National Register: 54 covered bridges and 114 others.

The next phase of the effort in New Hampshire will be to identify which of the 168 historic bridges should be considered for retention under a State-wide Preservation Plan. This process is currently underway. The Federal Highway Administration will also be encouraging the NHDOT to publish the findings of the bridge evaluation team in the near future.

Any NHDOT project that involves the removal of an historic bridge must first pass the so-called 49f0 test (named after the section of the 1968 Transportation Act from which it came), which requires that it must be demonstrated that there is "no feasible and prudent alternative" to such removal. If such conclusion is supported by a thorough study of alternatives to the removal, the NHDOT can then proceed to remove the historic bridge. Often times, this test cannot be met and an historic bridge is preserved in place and a parallel structure built.

If an historic bridge must be removed, the bridge is first recorded in accordance with the standards of the Historic American Engineering Record of the National Park Service. It is also actively marketed by the NHDOT through advertisements in local and regional newspapers and through contact with various preservation and conservancy groups. The most recent example of such advertising is that of two historic bridges in the Enfield-Canaan area.

The landmark Intermodal Surface Transportation Efficiency Act of 1991 further recognizes the significance of historic preservation interests. It sets aside ten percent of a State's apportionment under the Surface Transportation Program for so-called "Transportation Enhancement" activities. Among the items specifically enumerated in the legislation for use of these funds are "historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals)." It is certainly plausible that some of these funds could be designated for the preservation and maintenance of historic bridges under the State Preservation Plan.

Harry S. Kinter
Realty Officer
Fed. Highway Admin.
Concord, NH

Vermont

Crystal Lake Falls

The Crystal Lake Falls Historical Association has just received a grant from the Vermont Council on the Humanities to build a topographical model of Barton's Mill Hill - Brick Kingdom.

A scale model by local regional high school students, supervised by a landscape architect's staff, will show Barton's factories and mills as they appeared in their heyday in the early 20th century. These buildings stood on a steep, hilly, stream-side site.

In addition to producing the model, the project will include taping oral histories, running features in the *Chronicle* (the local newspaper), and involving students with work on related historical events. It is hoped that this project will also serve as a step to realizing a Crystal Lake Falls Historical Park on the Water Street site.

Robin Tenny
Crystal Lake Falls
Historical Association
Barton, VT

Massachusetts

Photographic Work of Langenbach Lost

[Reprinted from: *The Nation*, January 20, 1992, page 38.]

The Oakland fire that devastated the work of photographer Randolf Langenbach destroyed more than the holdings of a gifted photographer [Alexander Cockburn, "Beat the Devil," Nov. 11]. It incinerated a record of the lives and landscape of New England. For thirty years, camera in tow, Randy would head to neglected mills and mill towns, a step ahead of a wrecker or (portentously) a step after a fire had left only their charred remains. No one created more evocative images of the historic, and lost, landscape: deserted railroad stations, living ones too, industrial and historic places. Randy's work resonates in his classic *Tale of Amoskeag: A Sense of Place, A way of Life* and in works by others like myself graceful for his special documents.

The TV had yet to transmit the news when Randy called, his voice dense with the pain of his loss. It was the loss of his and our heritage. In image after image, in historic photos, in thousands of books, in tapes of oral history he had amassed an archive. "This was going to be my legacy, to make people see," he said. To see, in Randy's words meant people seeing that where they live has value and hence cherishing how they live and work. "It was this chance to transmit what was real and what was familiar," he said later after many sleepless nights. "It was done for a purpose: It was for making people preserve their heritage. And it proved so fragile."

Randy did not say that he could well have lost his life trying to rescue that heritage. Avoiding police blockades, he headed back to the inferno. As burning cedar shingles pinwheeled inches away, he approached his house. "It was like driving into the vortex of a volcano," Randy said, recalling the fireballs, the flames blistering the paint on his deck. He tried to spray down the house with a garden hose, managed to extract some negatives from an old icebox and fled. Leaving the house in flames he turned and, professional that he is, shot the scene: "That is the only picture of all that work," he said. "I feel stripped of all the resources I had."

Randy's photographic testament couldn't survive the 1,200-degree fire, but those of us who value the impact of those resources—and who respect his talent and tenacity—can only hope that the commitment to document that heritage endures.

Jane Holtz Kay

Connecticut

Merritt Parkway

Connecticut Transportation Commissioner Emil H. Frankel has announced that a national Park Service team will conduct a study of the Merritt Parkway (Route 15) this summer to document its roadway, bridges and landscaping. The parkway is 50 years old and listed on the National Register of Historic Places. It was designed to provide a through route across Fairfield County that was both efficient and pleasant.

"Our challenge is to preserve the unique character of this parkway while, at the same time, providing for the safe and efficient travel of the tens of thousands of motorists who use it daily."

The study of the 38-mile stretch of the parkway between Greenwich and the Housatonic River in Stratford, officially called the Merritt Parkway Project, is co-sponsored by the Federal Highway Administration (FHWA) and the state Transportation Department, working in consultation with the Connecticut Historical Commission.

In doing the study, the Park Service will prepare a permanent record of drawings, photographs and written data for deposit in the Historic American Engineering Record's (HAER) State of Connecticut collection at the Library of Congress.

"Written documentation will describe the physical characteristics of the Merritt Parkway, its place in the history of roadway planning and design, and provide biographical information on key figures involved with its construction," Frankel said.

After completing this summer's field work, copies of the drawings and a draft of the historical manuscripts will be provided to the DOT and the Connecticut Historical Commission for their review and comment. By April 1993, the completed study will be delivered to the state Transportation Department, the Historical Commission and the Library of Congress.

A Working Mill in Norwich

Though many people in Norwich are serious about their history, none is quite so serious as Dale Plummer, town historian. Among other things, Mr. Plummer currently helps to run the Quinnehticut Woolen Company, founded last year, in the Ponemah Mill in Taftville.

The Quinnehticut Woolen Company buys fleece from farmers in the region. The fleece is scoured and "dyed in the wool," then carded and spun. The product is a wool yarn designed for hand crafts such as knitting, weaving and crochetting.

The original idea to start a manufacturing operation came from Mary Wollemeyer, an economist. "She had been asking for some time if there couldn't be a small woolen mill in southeast Connecticut for producing wool for hand-knitting," says Mr. Plummer.

In 1989, Mr. Plummer purchased machinery from the owners of a defunct mill. The machines used for this type of yarn have changed little since the nineteenth century.

The mill is open to the public. As an historian dedicated to the idea of making history relevant, Mr. Plummer is delighted that his working mill has an educational component. As a businessman, he is equally delighted that the educational component of the mill seems to have positive market results.

"When people come in to tour the mill, they always stop in our store."

The Schwarzmann Mill in Burlington

The Schwarzmann Mill in Burlington is deteriorating rapidly; some portions have already collapsed. A nonprofit corporation has been formed to save the Schwarzmann Mill (the SOS Corporation).

Over the past 275 years, the large,

four-storied mill has functioned variously, as a lumber, grist-, shingle and cider mill. According to William Crosskey, architect of the restoration, machinery for most of these functions remains in the building along with many other artifacts.

The delapidated mill stands on a sloping site which provides a twenty to thirty foot drop for the fork of Burlington Brook which is channeled underneath. The mill is built directly over the sluice with its water well inside, an uncommon arrangement in early mills.

The town of Burlington purchased the mill from the Schwartzman family in 1976 but little money has been raised to restore it.

The mill's roof is caving in, the walls need to be braced and the roof must be repaired to prevent further damage, according to Mr. Crosskey's evaluation.

"The Schwarzmann Mill, an excellent example of vernacular industrial architecture, is the only building of its type remaining in Burlington." Mr. Crosskey said. The mill is listed on the National Register.

Last year the legislature approved $200,000 from the Dept. of Economic Development for the restoration and a state historical grant will provide $40,000 if the town can match the funds.

These grants must still be approved by the State Bond Commission.

Submitted by David Poirier
Hartford, CT

Meetings and Announcements

The New Hampshire Historical Society and the Society for the Protection of New Hampshire Forests will offer special educational programs and field trips in conjunction with their collaborative exhibition, "At What Cost? Shaping the Land We Call New Hampshire," on display at the Historical Society's Museum of New Hampshire History, 30 Park Street, Concord from April 22 - December 31, 1992.

On Sunday, May 17 at 3:00 p.m., as part of an ADULT LECTURE SERIES, funded, in part, by a grant from the New Hampshire Humanities Council, " 'A rugged pasture': New Hampshire's Literary Landscape," a lecture on how writers, past and present, have perceived the New Hampshire landscape, will be presented by David H. Watters, Associate Professor of English at the University of New Hampshire.

Field trips will be held on Saturdays from 1:00 - 4:00 p.m. Each trip will include activities for children and insightful information for adults. Families are encouraged to attend.

Advance registration is required. Call (603) 224-9945 to register. Directions to field trip sites will be mailed with confirmations.

Fees: Adults $5.00, under 13 $4.00. (Forest and Historical Society members can deduct $1.00 per person from registration fees.)

May 23 Manchester's Riverfront
Water power, urban wildlife, mills and fish ladders along the hard-working Merrimack River.

June 20 Franconia Notch Lakeshores
Tourist haven, artistic impressions and conservation pioneers in a breathtaking mountain setting.

July 25 Portsmouth's Waterfront
Commerce, mercantilism, trade and development where New Hampshire meets the sea, and the world beyond.

Aug. 15 Berlin's Millyards
The logger's life, lumber, paper, and pollution abatement in the land of the northern forests.

Sept. 12 Winnipesaukee's Weirs
Native fishing camp, tourist destination, and condo developments impact the ecology of our largest lake.

Oct. 3 Walpole's Valley Farms
Classic common, ingenious tools, fields and croplands of a model rural community.

Guided school tours of the exhibition "At What Cost? Shaping the Land We Call New Hampshire," are available for elementary, middle, and high school classes. Tours are available Monday through Friday by appointment only. A pre-tour kit will be sent to the teacher. Elementary level students will each receive a Land Use Workbook as part of their visit. Call (603) 225-3381 for fee and registration information.

Classroom programs are available for students grades kindergarten through high school. Forest Society docents offer programs such as "Growing, Going, Gone" and "Neighborhood Trees" to educate young people about the environment and land use issues. Call (603) 224-9945 for fee and registration information.

New England Chapters Newsletter Now Available on Electronic Network

As a pilot project, undertaken by the writer, the *New England Chapters Newsletter*, plus other newsletters, historic property lists, legislation, and other historic preservation material here and abroad, are now available in an electronic form for anyone with a personal computer and modem. The network is "EcoNet," a non-profit group of electronic "conferences" on a wide variety of community planning.

Because the network has potentially a worldwide distribution, this conference is not limited to material from the U.S. Already posted is material from UNESCO, the United Kingdom, and Australia. For example, among the UNESCO items are the World Heritage List, and the text of the 1972 World Heritage Convention. Although much of the U.S. material may be familiar to U.S. users, we anticipate that the increasing variety of international material will, in the coming months, attract a growing number of readers.

Even more important than the document collection, however, seems to be the potential for the "internationalization" of the field of historic preservation and related fields like industrial archeology. Electronic networks, whether non-profit like EcoNet, or commercial like Compuserve or GTE Telenet, offer the opportunity to send electronic messages instantly, and (in EcoNet's case) for substantially less than either the cost of postage or a telephone call. Messages are not limited to EcoNet, and can be sent with equal facility to most other networks in the U.S. and abroad. The cost ($10 a month plus a small charge for actual online time) is minimal when viewed against the potential of the system. (Such was the telephone in its infancy!)

For a brochure describing the project, send a self-addressed stamped envelope to the undersigned at Box 240, Fletcher School of Law & Diplomacy, Medford, MA 02155. For membership in EcoNet and other particulars relating to the network, write to the Institute for Global Communications, 18 de Boom Street, San Francisco, CA 94107.

Peter Stott
West Medford, MA

NEW MEMBERS SOUGHT

Both the Southern & Northern *New England Chapters* are *eagerly seeking* **NEW MEMBERS**

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To apply for membership in either the Southern or Northern New England Chapter of the Society for Industrial Archeology please fill out the following form. Membership in either Chapter automatically includes a subscription to the Newsletter.

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