Society for Industrial Archeology · New England Chapters

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SNEC Plans Two Tours

On Saturday, April 27, the Southern New England Chapter will host a downtown Boston fireproof construction tour led by Sara Wermiel. Participants will meet at the Custom House Tower, India Street side, at 9:30 am. The tour will last approximately two hours.

The tour includes sites that show three periods of 19th-century fireproof construction practice, including the Boston Custom House (constructed 1837-1849), Olde City Hall (1861-1865), and the Boston Custom House Tower (1912-1915).

The second tour, on Saturday, May 4, will explore a rare surviving aspect of Peabody, Massachusetts's leather-making heritage. Participants will tour the facilities of the Larrabee & Hingston Company, builders and installers of wooden tannery vessels, used in various stages of soaking and washing hides.

The Peabody tour group will meet at George Peabody House Civic Center, 205 Washington Street, Peabody, at 9:30 am.

Please R.S.V.P. Matt Kierstead, SNEC Program Chair, 617-237-5952, for either or both tours.

Graphite Mine and Mill Ruin Recording Project Scheduled for May 11-12

The Northern New England Chapter is holding its Spring recording event and meeting at the site of the former Saratoga Graphite Products mine and mill complex in Wilton, New York on Saturday-Sunday, May 11-12. The project will be led and hosted by Carol Weatherwax, on who's property the site is located, and Matt Kierstead, researcher of mining industries.

Graphite was first discovered in the eastern Adirondacks in the 1840s and was mined cursorily until the turn of the century, when demand for graphite for foundry crucibles, facings, and dry lubricants prompted increased mining activity. In 1908 the Saratoga Graphite Company was organized and operated a small mine and milling plant on this property. In 1915 the operation was purchased by the Graphite Products Corporation, which opened the main mine and quarry, and constructed a larger, steam-powered milling plant closer to the mine.

Mining methods were primitive and consisted of a dozen large openings driven down to meet two long horizontal drifts. The mined rock, bearing 7% flake graphite, was trammed from the quarry and mine to the upper milling plant where it was crushed, stamped, separated using buddles (separators that relied on water and differences in specific gravity), screened, and dried. Dozens of small graphite mines and primary mills operated in the region, however, this operation was one of three large enough to also perform the final refining steps on site. Milled graphite was carted down to the old Saratoga Graphite Co. mill which had been converted to a refinery by SGP. Here the graphite was purified using Hooper air

jigs. The Hooper family dominated Adirondack graphite and garnet mining and designed many of the plants and beneficiation equipment used in the region. The Wilton mine closed in 1922 due to the discovery of superior deposits in India, Ceylon and Madagascar, a development that soon led to the failure of the regional graphite industry as a whole.

The surviving sites roughly followed a small, densely-wooded gorge. The lower dam is a wide rough-laid drywall structure with the foundation of a former sawmill at its breached south end. The refining plant site consists of a two-level stone foundation and include the remains of a boiler room, graphite storage bin, machinery footings, and grindstones. A stone dam stands immediately upstream. The boardinghouse site consists of a small concrete boiler foundation and a larger cellar hole with visible metal and ceramic artifacts. The main mill site consists of a massive multi-level concrete foundation with machinery footings built on a steep hillside. The mine is a grotto-like series of giant arched openings, and the quarry is now flooded. Roads, drain trenches, and former tramway routes cross the complex.

The goals of this recording project are to map the roads, dams, mine, quarry, and foundations within the complex; create measured drawings of the three foundations and the dams; and to excavate the boardinghouse cellar. Further reconnaissance of the complex is required to locate additional structures and mining excavations. The patterns of raw material movement within the site need to be determined. The results of this recording project will be incorporated in a National Register archeological site nomination for the complex. Fieldwork to date includes survey and preliminary mapping of the lower dam, refining plant, and boardinghouse.

Selective clearing will be performed before the project begins. The entire mining complex is within walking distance of the Weatherwax house, however, a four-wheel drive shuttle for participants, equipment, rest room trips, etc. will be provided. An additional 4WD vehicle or two might be helpful. Please bring whatever IA field recording gear you can, particularly drawing, measuring and excavation equipment. If you can bring any surveying equipment, please let us know in advance.

The courtesy of an RSVP by telephone at least one full week in advance is requested. Please let us know about any particular equipment, skills, or work preferences you have so that we can best organize this event—and so that we can estimate provisions, etc.! Dress for changeable weather. The Adirondack blackflies will not be out in strength, but bring bug repellent just in case.

A brief chapter meeting will be held on Saturday morning. The field project will begin at 8:00 am with a breakfast provided by Carol Weatherwax at her home. A small Saturday afternoon cocktail party is planned.

Wilton is ten minutes from the shops, restaurants, and historic architecture of downtown Saratoga Springs. If you plan on working just one day at the site or lingering in the Saratoga area, local attractions include Lakes George and Champlain, and French and Indian and Revolutionary War forts and battle sites. For the IA minded, destinations include locks on the Barge Canal, mills and bridges on the Hudson River, other mines to explore in the foothills of the Adirondacks—and of course, our beloved SIA Troy gasholder.

To RSVP and discuss recording activities, call Matt Kierstead at 617-237-5952. For further food, lodging, and travel questions, call Carol Weatherwax in Wilton at 518-584-1827.

Carol's house and the site are located about 3.5 miles North of Saratoga on Route 9. After going by the Villa Luisa Restaurant on the left, her house is the next large white house opposite WORTH ROAD. If coming from the North, the house is just past the Wishing Well Restaurant on the right. A circular drive goes around the house; there is lots of parking space and a screen house to meet in if the weather permits.

Carol Weatherwax
Matt Kierstead
Wilton, NY

President's Report, SNEC

I'm pleased to note that two recently completed IA bridge restoration projects have recently received award recognition. Many New England chapters members heard Dr. Frank Griggs, Professor Emeritus of Civil Engineering at Merrimack College, present a paper at the February Winter Conference on his successful restoration of the 1864 Upper Pacific Mills Moseley Iron Arch Bridge, which spanned North Canal in Lawrence. Dr. Griggs saved the oldest surviving iron bridge in Massachusetts from demolition, and then succeeded in restoring it and relocating it as a pedestrian bridge over a reflecting pond (which he also built) at Merrimack College. I attended the dedication ceremony for the bridge in December, and the enthusiasm on campus was great! In May Dr. Griggs will receive a 1996 Massachusetts Historical Commission Preservation Award for this project.

In addition, the Massachusetts Highway Department will receive a 1996 Preservation Award for its $1 million rehabilitation of the Bardwell's Ferry Bridge on the Deerfield River in Conway and Shelburne, Massachusetts. The 1882 bridge is one of the oldest and longest spanning (198 feet) lenticular truss bridges that survive in the US. The bridge follows William 0. Douglas's patented design of 1878 and includes a number of unusual details, including open end post, four-bar lower chords, and web verticals that pass outside of the chords in the panel points. It was designated a Massachusetts Historical Civil Engineering Landmark by the Boston Society of Civil Engineers in 1990 and documented by a HEAR recording team (MA-98) the same year. The Massachusetts Highway Department previously received a Preservation Award for its restoration of the French King Bridge on Route 2 over the Connecticut River

New England Chapters members are invited to cheer for these projects at the award presentation ceremony, which will take place at the Andover Town House, Main St., Andover, MA, on May I5th from 5:30 to 7:30. Please R.S.V.P.

the Massachusetts Historical Commission (617) 727-8470 by May 13. And swing by Merrimack College in North Andover on the way to the awards to see the new IA centerpiece of the campus!

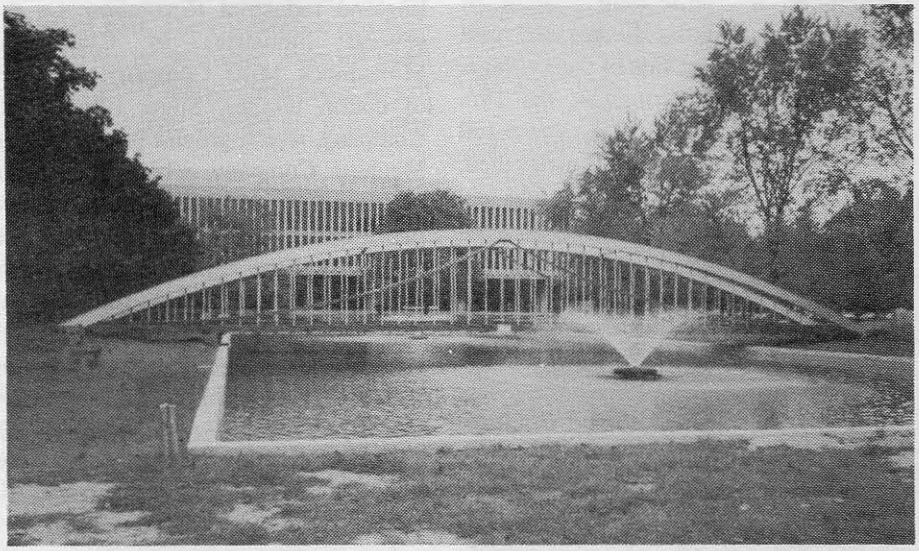
On Saturday, April 27, the SNEC will hold its first Spring 1996 program in downtown Boston, which will be a follow up to Sara Wermiel's Winter Conference paper on nineteenth-century fireproof building construction technology. The morning tour will include sites that show three periods of 19th-century fireproof (no structural wood) construction practice. The example of the earliest type -- the solid masonry style -- is the Boston Custom House of 1837-49. Next, the iron beam and brick arch type style is illustrated by Old City Hall (1861-65). The third period, steel frame and hollow tile (perfected in the 1890s), is shown in the Boston Custom House Tower of 1912-1915. We will visit the basement and several of the tower floors of the Custom House and the ground floor of Old City Hall (entrance to Maison Robert Restaurant) on School Street. The structural engineering of the Custom House building and tower is currently exposed as part of the Marriott company renovation and will soon be closed in and finished, so this does represent a once in a lifetime opportunity! A flier has gone out on this to SNEC members. NNEC members who wish to attend should contact Matt Kierstead., SNEC Program Chair, at (617) 237-5952 for details. We'll be meeting at 9:30 at the East India Street side of the Custom House.

As of press time we are still trying to confirm a second program for the next Saturday, May 4, at the Larrabee and Hingston Company in Peabody, Massachusetts. This small shop is the last manufacturer in the Northeast devoted to the building and installation of wooden tannery vessels. Samuel Hingston began manufacturing wood tanning tubs on this site in 1928, and soon formed the partnership of Larbabee and Hingston. The shop remains in the Hingston family to the present. The company has constructed custom wooden tanning tubs and drums for installations from Maine to Cuba, as well as down the street in the Peabody tanneries. The company is currently operating with two employees and faces displacement by the impending construction of a new Super Stop & Shop store. The shop is particularly interesting for its unusual truss roof construction and for the continued use of a variety of large, power wood-working tools driven by overhead line shafts and leather belting! The original steam boiler footings and belt-drive flywheel bearing pads are also still in place. Co-owner Steve Buckley has offered a Saturday morning demonstration. The morning may start off at the nearby George Peabody House Civic Center, 205 Washington Street, in Peabody Center, which has excellent exhibits on tanneries and the tanning process. Larrabee and Hingston is located right at the Peabody-Salem line where Main Street (Peabody) turns to Boston St. (Salem) a short distance from Rte. 128/I-95. Again we have as yet been unable to confirm this program for May 4. Look for a mailing. Interested NNEC members should contact Matt Kierstead (617) 237-5952.

On May 18th, join the SNEC at the Chester On Track Day, at Chester, Massachusett, a local celebration that revolves around the town's significant IA resources, including the 1840 Railroad Station, the Western Railroad Keystone Arch Bridges, a Roundhouse, Coal Tower, Live Steam Engines and Rolling Stock. Events are planned from 9 am to 4 pm. Again, contact Matt Kierstead, and if there is enough of a SNEC contingent planning to come, we can arrange an informal group program. Otherwise, come out and spend part of the day! Chester is located about 30 miles west of Springfield on Rt 20, halfway between the Westfield and Lee exits of the MassPike.

Many of you probably followed the news stories of the destructive fire that ravaged the historic Malden Mills (listed on the National Register of Historic Places) in Lawrence and North Andover, MA. Malden Mills makes the very popular Polartek fleece and is a major employer in the Lawrence area. As plans move forward to rebuild, SNEC is looking for an opportunity to visit this site to see their continuing operations, their determination to remain in Lawrence, and recovery efforts. We are working on a possible program here in June. Watch for a mailing!

Michael Steinitz
Somerville, MA



This rare ca. 1860s Moseley arch bridge was saved from the scrap yard and reconstructed on the campus of Merrimack College, North Andover, MA, through the efforts of Dr. F. E. Griggs, Jr. The bridge is the only surviving example of eight which once spanned the North Canal in Lawrence, MA.

Conference on NE IA Held at Plymouth State College

The Ninth Annual Conference on New England Industrial Archeology was held on Saturday, February 10, 1996, at Plymouth (NH) State College. This event is alternately sponsored by the Southern and Northern New England Chapters in mid-winter. It was the Northern New England Chapter's turn this year, and Vice President Kate Donahue coordinated the arrangements with the College, Treasurer Walt Ryan handled registration, and Dennis Howe was the paper chairman.

As has been the custom at the N.E. conferences, the papers this year were varied, with topics ranging from bridges to mining. *Mother Nature* gave us a pleasant break in this winter's very snowy weather pattern so that nearly 100 people were able to drive into New Hampshire's north country to attend.

The audience was welcomed by the President of Plymouth State College, Donald P. Warton. Also providing welcoming words were David Switzer, Director of the PSC Institute for New Hampshire Studies; Katherine Donahue, theDirector of the PSC Heritage Studies Program; and Woodard Openo, NNEC President.

Dr. F.E. Griggs, Jr. presented his paper, *Thomas W. H. Moseley and his Bridge, A Study in Rehabilitation, Part II.* Dr. Griggs provided a description of the development of the Moseley Iron Arch Bridge in the 1860s and the construction of eight Moseleys across the canal of Lawrence, Massachusetts, and the rehabilitation of one of the bridges beginning in 1989, when it collapsed into the North Canal, through 1991. In addition, the problems encountered when it was proposed to move the bridge back to Lawrence, and the background for the decision to instead place the bridge on the campus of Merrimack College were discussed. Finally, Dr. Griggs provided a description of how the bridge was moved, how the reflecting pond was constructed, and how the bridge and pond are becoming a centerpiece for the campus.

New England's Nineteenth Century Fireproof Factories was the subject of a paper presented by Dr. Sara E. Wermiel, who noted that industrial archeologists are familiar with the characteristic style of nineteenth century factory construction in New England, which is called "slow-burning" construction. However, few realized that this style evolved as a less expensive, but still fire resistant, alternative to the true fireproof style of factory construction, the brick and iron-frame system that originated in England. Although they were very rare, a handful of English-style iron and brick fireproof factories were built in New England in the second half of the 1800s, and at least two of these factories are still standing. She reviewed the characteristics and development of English iron and brick fireproof factory buildings and described the few instances these buildings were constructed in New England. One of these, the old Brown and Sharpe works in Providence, was discussed in detail.

In his paper, *Recent Research on the Shaker Mills in Canterbury, New Hampshire,* Dr. David Starbuck explained how the Canterbury Shakers developed a 3-mile-long system of water-powered mills, ditches and mill ponds along the east side of their village. While successful throughout the 19th and early 20th century, this system fell into disuse as the last Shaker males died, and mill buildings were either sold and removed or else burned down. Between 1978 and the mid-1980s, the physical remains of this system were documented by the author and others, resulting in a series of maps and site reports that have subsequently been published. In recent years Shaker Village has made it a priority to begin interpreting the mill system to the visiting public, and a self-guided walking tour now leads visitors past three of the mill ponds. Stabilization work has also begun on a 1905 pump mill site -- assisted by the Northern New England Chapter-SIA -- and in the fall of 1995 trash was removed from the interior of a 1915 sawmill site, revealing the original wheelpit and much well-laid stonework. Dr. Starbuck noted that it was anticipated that the village's industrial component will attract increasing numbers of visitors in the years to come.

Gilmore G. Cooke, P.E., presented *Early Power Stations of the Boston Elevated Railway Company.* The development of the electric railway system in Boston over 100 years ago touched the lives of nearly everyone living in the region. It was an awesome project, conceived and developed by Henry M. Whitney and engineered by Fred Stark Pearson. The West End Street Railway was not the first electric traction system, but it was the first and largest commercial system of its kind anywhere. Mr. Cooke's paper briefly discussed the design and construction of the early power generating plants of the West End Railway and Boston "El," predecessors of the MBTA.

Ellen L. Barry, a graduate student at Plymouth State, presented a video tape that she had made, entitled *Claremont, New Hampshire: A Story of a Community.* The video presented a visual story of Claremont, New Hampshire, including the history of settlement, and the contributions of the town to the New England Industrial Revolution. Of the several industries in Claremont, Monadnock Mills Company, producer of cotton textiles, Sugar River Mills Company, which ground flour, Sullivan Machine Company, which became an innovator in mining equipment, and two paper companies, Coy Paper Mill and the Sugar River Paper Company, were featured. Monadnock Mills Company and Sullivan Machine Company, both operating for nearly a century or more, appear to have been the primary employers in the community. While preparing the video, Ms. Barry recorded turn-of-the-century graffiti found on mill walls.

Restoration of the Green Mountain Iron Company Furnace Stack at Forest Dale, Vermont was presented by ironworks researcher and author Victor R.

Rolando. During the summer of 1995, the State of Vermont restored a major part of the ca. 1840s Green Mountain Iron Company's blast furnace stack. The repairs concentrated on rebuilding the casting arch wall, which was severely damaged in the early 1950s. The work was one of the rare projects of this dimension to be undertaken in the Northeast in recent years. A selection of work in progress slides taken by Mr. Rolando were shown as he described the restoration.

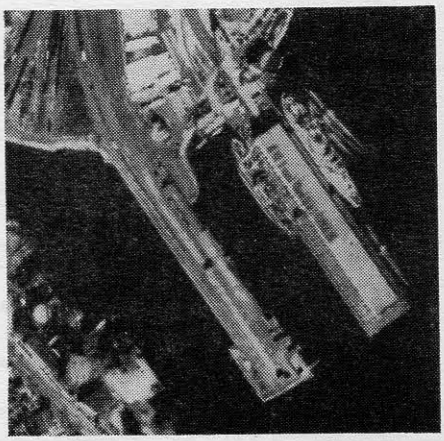
Mine owner Robert Whitmore presented *The Palermo Mines in Groton, New Hampshire,* which revealed his research of mica mining in New Hampshire. He presented a chronology of mica mining which began when Sam Ruggles opened a mine in 1803, developed into a major industry producing hundreds of tons per day, and finally ended in 1952. Using slides, a display of tools, raw materials, and finished goods a synthesis of the mica mining process was presented.

The New England Chapters are grateful to Plymouth State College for its gracious hospitality, and for the encouragement of its staff who recognize that the exchange of information in conferences such as our's is an important way to advance the study of the industrial past. The conference proceedings will not be published. Persons interested in further information about any of the papers should contact the presenters directly.

Dennis E. Howe
Concord, NH

Connecticut State Pier

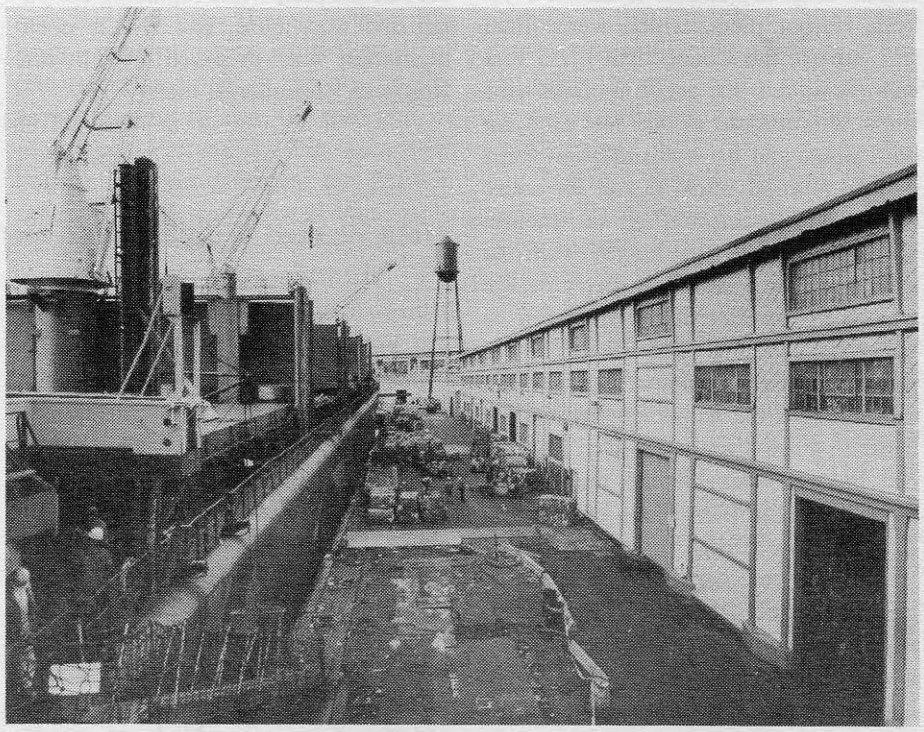
The Connecticut State Pier in New London, Connecticut, was recently documented to HAER standards as part of a major reconstruction project. Built in 1914, the pier is a large earth-filled, timber pile structure extending into the Thames River at the northern end of New London's downtown waterfront. The pier measures 1,020 feet long and 200 feet wide, with a two-story wood-framed warehouse occupying most of its surface area.



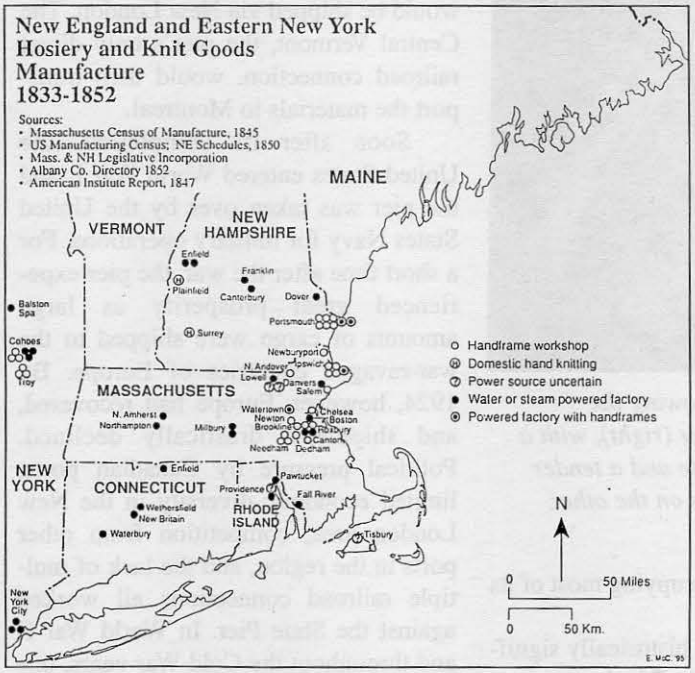
Aerial view, 1951, showing the Connecticut State Pier (right), with a cargo ship on one side and a tender and three submarines on the other.

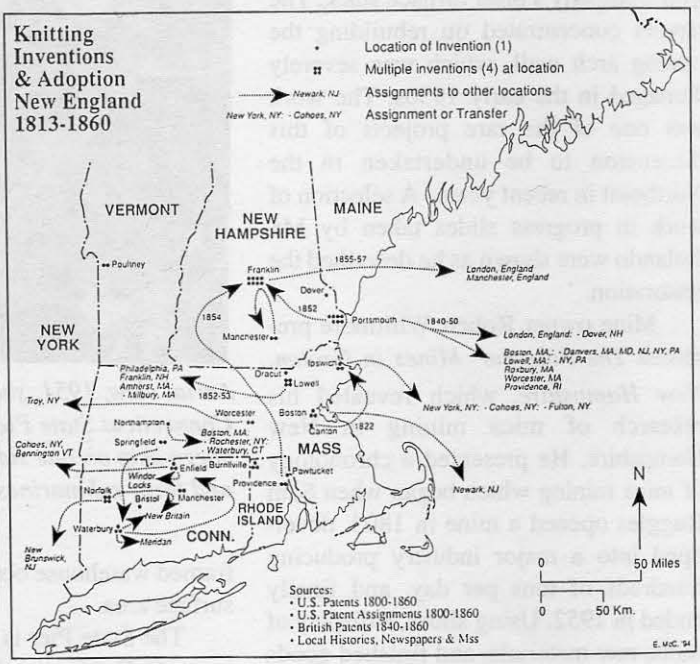
The State Pier is historically significant as Connecticut's first large state-funded transportation facility. The pier was built in hopes of encouraging economic development for the southeast region of the state. Although it proved to be only a modest success, its proponents envisioned the pier serving a major port in which large amounts of sugar, hides, and other products en route to Canada would be shipped via New London. The Central Vermont, the pier's only direct railroad connection, would then transport the materials to Montreal.

Soon after its completion, the United States entered World War I, and the pier was taken over by the United States Navy for military operations. For a short time after the war, the pier experienced great prosperity as large amounts of cargo were shipped to the war-ravaged countries of Europe. By 1924, however, Europe had recovered, and shipments drastically declined. Political pressure by Canadian ports, limited economic diversity in the New London area, competition from other ports in the region, and the lack of multiple railroad connections all worked against the State Pier. In World War II and throughout the Cold War years, one side of the pier was used to berth the Navy's submarine tenders, while the other side handled the occasional shipment of paper scrap and other bulk materials.



The Odigitria *takes on baled paper waste at the pier, april, 1993. R. Moore photo.*





The Connecticut State Pier also has technological significance as an example of early 20th century American pier engineering. In contrast to earlier New York Harbor piers, which were small and narrow, the Connecticut State Pier was designed to accommodate two ships, with lengths of 500 feet each, on both sides, and its width allowed for a double railroad track to run its entire length. By incorporating an integral warehouse and full-length railroad access for each side, the pier's design was a highly functional approach to materials handling. The use of timber framing for the warehouse seems at first to be archaic, but wood actually held up better in a fire than unprotected steel (as can be seen today in the burned and twisted ruins of piers along the Hudson River in New York).

Today the pier has partially collapsed, a result (according to one theory) of higher pollution standards that have allowed a resurgence in marine organisms that attack timber piles. The current project, being undertaken by the Connecticut Department of Transportation, will retain the central earth-filled core of the pier, while replacing the piling and warehouse. The HAER documentation was prepared by Historic Resource Consultants, Inc.

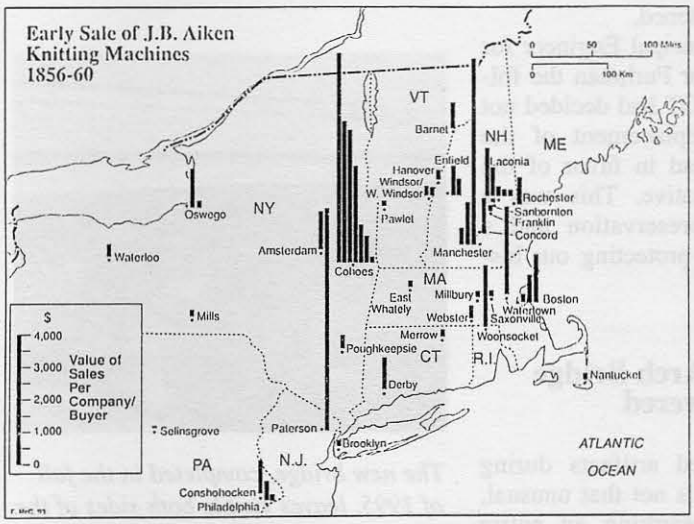
Hoang Tinh
Hartford, CT

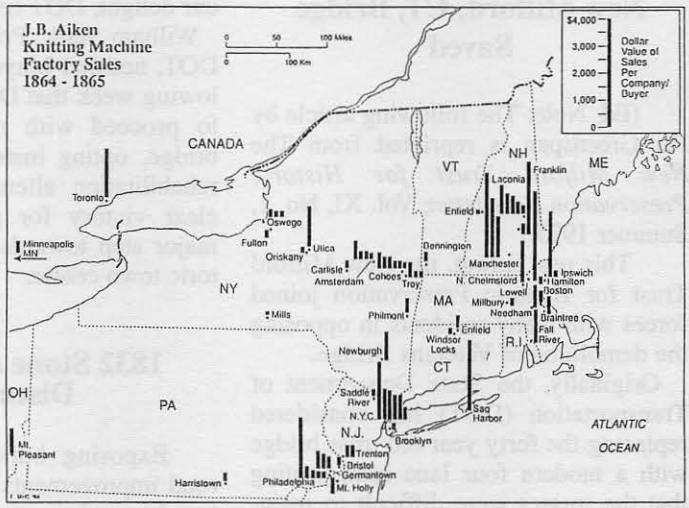
Help Wanted With Knit-Goods Manufacture Research

For the past five years Richard Candee has been exploring machine development for the industrialization of knitting in 19th century New England for a projected book on the subject. Identifying the location of handframe shops (the ancient "stocking loom" continued up to WWI in areas of British workers) as well as the power knitting factories (see map 1833-1852) is hampered because the U.S. Manufacturing Census did not separate the "Hosiery" industry from other kinds of woolen mills until 1870. Patent records and their assignments (see map 1813-1860) suggest some of the places innovation first took place, as well as key actors in this process.

Business records of the Aiken Knitting Machine Co. (1856-1867) have yielded much new information about the growth of powered knitting mills, especially the boost given by government contracts during the Civil War (see Aiken maps). Until about 1900, stocking mills needed hundreds of female outworkers to seam and finish goods at home. In 1870 there were more than 13,00 women in this trade in New Hampshire alone. J.B. Aiken also developed the first of many "family" knitting machines in 1860, designed for plantation use in the South, domestic use and cottage industry in the Northeast and Midwest.

The best information about this first half century of factory knit-goods manufacture is highly local and scattered. Does anyone know anything of John





Pepper of NH, Rufus French of Northampton, MA, or Edward Kilborn of Norwalk, CT? Have company papers for the Lamb Knitting Machine Company in Chicopee Falls, MA, survived anywhere? Anyone aware of business records or correspondence (especially documenting female out work), newspaper accounts, maps, photographs, or any surviving knitting machines of any sort is encouraged to write Richard M. Candee, 6 Scituate Road, York, ME 03909-5724 or call 1-207-363-6635.

Larkin-Morrill Snuff Mill, Byfield, MA

On October 24, 1981, a small group of SNEC-SIA members carried out a recording project at the Larkin-Morrill Snuff Mill located in Byfield, MA. At the time, the mill had been out of operation for 30 years. Built as a sawmill in the eighteenth century and located on the Parker River, snuff grinding was begun in the mill before 1804. A report of the recording, complete with a section of the building, a field drawing of the gearing of the grinding mills, and a plan of the waterpower system was published in the *SIA, New England Chapters Newsletter,* Vol. 1, No. 1/2, 1982.

Along with this mill, a later and larger mill was constructed on the Parker River in the mid-nineteenth century, specifically for the grinding of snuff. For generations, both mills were owned by the Pearson family. Ben Pearson, the last miller on the river, closed the larger of the two mills in the 1980s. Recently, this mill sold out of the family, and it remains in private hands. The mill building and its snuff machinery are still intact, but the office building is being renovated for living space.

In 1995, when Ben Pearson liquidated has Byfield holdings, the Larkin-Morrill Mill was acquired by the town. Vandalism and liability issues have caused the town fathers to threaten to raze this structure. However, there has been a recent reprieve while a group of concerned members of the community are attempting to save the mill and its machinery. Fortunately, the records of both mills were given by the Pearson family to the Peabody-Essex Museum in Salem where they are now housed.

Betsy H. Woodman
Newburyport, MA

Great Bowdoin Mill Faces Demolition

The Great Bowdoin Mill which is featured on the the cover of Serge Hambourg's *Mills and Factories of New England* faces demolition in 3 to 5 years unless money is spent to stop decay.

The massive wood and stone structure, located in Topsham, Maine, on a bluff above the Androscoggin River, has not been occupied for ten years. It tops the list of the state's most endangered landmarks according to the Maine Citizens for Historic Preservation.

The Times Record (February 14, 1996) reported that Edward Hadded, president of Boulos Advisory Services, a real estate development firm, said that the property could only be developed if there is a substantial public investment. The town of Topsham voted recently to spend $5,000 to hire the firm, Governmental Services, Inc., to examine what money might be available through grants and tax breaks to aid in development.

The mill dates to the last century and was the birthplace of the wood-pulp paper industry in Maine. The last occupant was the Pejepscot Paper Company which failed in the early 1980s.

Town Planner Frank Fiori has submitted a grant application to the state to photograph and document the mill's architecture. It is listed on the National Register of Historic Places. The mill complex of 11 buildings is in a deteriorated condition and will probably be torn down if restoration does not soon occur. For further information and to see the mill, call Ed Galvin at 207-442-2196 (days) or 207-729-9314 (nights).

New Milford, CT, Bridge Saved

(Ed. Note: The following article by Pat Greenspan is reprinted from The *New Milford Trust for Historic Preservation Newsletter,* Vol. XI, No. 1, Summer 1995.)

This past spring, the New Milford Trust for Historic Preservation joined forces with many residents in opposing the demolition of Veterans Bridge.

Originally, the State Department of Transportation (DOT) has considered replacing the forty year old truss bridge with a modern four lane span, stating that the trusses were difficult to maintain and that major repairs were needed.

Our president, Robert Burkhart, voiced the Trust's strong disapproval to this proposal saying that anything other than rehabilitation of the bridge would be a travesty. Former president, John Byrne added that four lanes coming through our village center would be the worst thing we could do. Other residents insisted in no uncertain terms that they opposed the demolition of this graceful, arching structure and voted instead for rehabilitation and maintenance.

By the end of the evening, it was clear that residents of New Milford wanted DOT to spare the aging bridge and to our delight, DOT listened.

William Stark, Principal Engineer for DOT, notified Mayor Furhman the following week that DOT had decided not to proceed with replacement of the bridge, opting instead in favor of the rehabilitation alternative. This was a clear victory for preservation and a major step towards protecting our historic town center.

1832 Stone Arch Bridge Discovered

Exposing buried artifacts during road improvements is not that unusual, but how about unearthing an entire bridge? That is exactly what happened in Durham, Connecticut, when contractors began work on a replacement for the 1927 concrete box culvert that carries Allyn's Brook under Route 17. Unsuccessful attempts to drive sheet piling through what they thought was fill led the workers to explore what lay below grade, and to their astonishment, they began to expose brownstone rubble walls, then an arch. Further investigation revealed the complete arch ring and spandrels of Mill Bridge, an 1823 stone arch, measuring 30 feet long by 25 feet wide. What had happened in 1927, and became lost to memory, was that the culvert was run through the arch for a considerable distance up and downstream, then the entire 1823 structure was covered with fill in order to raise the level of the roadway.

Mill Bridge emerges from the mud in the summer of 1994. Historic Resources Consultants photo.

The new bridge, completed in the fall of 1995, leaves visible both sides of the historic stone arch. Historic Resource Consultants photo.

Following the discovery, the Connecticut Department of Transportation, in consultation with the SHPO, redesigned the new bridge so as to leave the sides of the historic stone arch exposed. The concrete culvert was removed, and a viewing platform was built on one side to allow pedestrians to inspect the arch at close range.

The bridge was built by the Town of Durham and served what was even then a busy road between Hartford and New Haven, part of the Middletown, Durham and New Haven Turnpike. The bridge is one of the oldest stone bridges known in the state. Its predecessor had been a wooden bridge that failed during a flood in February, 1822. Two travellers from Boston died when the bridge collapsed, just as the stage from Hartford was being driven over it. The disaster was undoubtedly on the minds of town officials when they opted to build such a substantial bridge, which, at $1,000, was relatively expensive for its day. The stonemason who built the bridge was Silas Brainerd, better known today as the carver of distinctive stone grave markers found throughout eastern Connecticut.

Bruce Clouette
Hartford, CT

Early Connecticut Highway Trusses

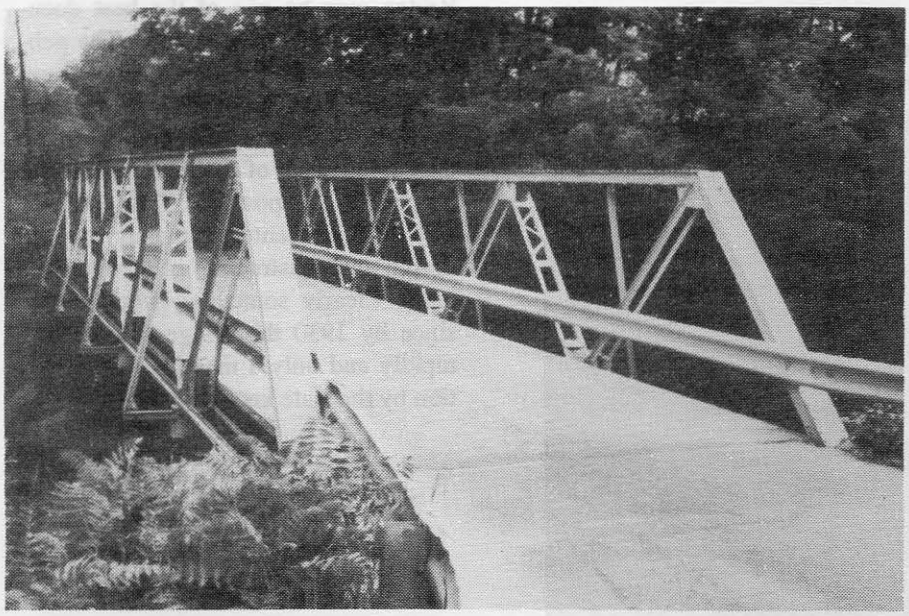
The number of early 20th-century highway trusses in Connecticut continues to dwindle, as towns seek to replace these light-load, often deteriorated structures with modern bridges. Three such spans, recently recorded to HAER standards by Historic Resource Consultants, illustrate the evolution of small-town highway bridges in the first decades of this century.

All three are representative of the standardization in bridge engineering that had occurred by 1900: they have steel members rather than wrought iron, their connections are riveted, and they employ the Warren truss pattern that, along with the Pratt truss and its variants, had all but eliminated the myriad truss types of the 19th century.

The Mount Hope Road Bridge, built in 1901, spans the Mount Hope River in Mansfield. It is a single-span pony truss measuring 70 feet long and carries a one-lane roadway 13 feet wide. The five-panel Warren trusses have light diagonal members consisting of paired 3" angles. Perhaps reflecting the difficulty of field riveting, at least one side of each connection is secured by bolts instead of rivets. Prior to 1970, the bridge had a wood-plank deck.

Black Bridge (1936), New Hartford, CT. Wayne Fleming photo.

The Mount Hope Road Bridge is the earliest known example of the work of the Berlin Construction Company, Connecticut's only large-scale 20th-century bridge fabricator. The company was created in 1900 by former officials of the Berlin Iron Bridge Company, which had been acquired by the American Bridge Company. During the next four decades, the Berlin Construction Company (still in business today as Berlin Steel Construction) enjoyed a brisk business providing trusses for local roads and state highways throughout the Northeast.



Mt. Hope Road Bridge (1901), Mansfield, CT.

Another example of early 20th-century bridge engineering is the Perkins Corner Bridge, spanning the Willimantic River between the towns of Coventry and Mansfield. Built in 1914, it is a two-span pony truss measuring 78 feet long overall; it too carries a single-lane roadway 13 feet wide. It was built by the American Bridge Company, one of the Berlin Construction Company's main competitors for the local bridge market. The American Bridge Company was formed in 1900 by the same interests that controlled the United States Steel Corporation, in an attempt to monopolize the nation's bridge-fabrication industry. Within a few years, it had acquired 28 other bridge-building companies. Despite becoming a formidable force in the business, it never achieved complete control of the market.

In the 1920s and 1930s, the use of motor vehicles increased dramatically, resulting in changes in bridge engineering. Both the Mount Hope Road and

Perkins Corner bridges were surrounded by open fields when they were built, and they were primarily intended to carry the slow-moving, horse-drawn wagons of area farmers. In contrast, the 1936 Black Bridge in New Hartford clearly was designed with the demands of motor-vehicle traffic in mind. A two-span pony-truss stretching across the Farmington River, the bridge carries a two-lane concrete-slab roadway 18 feet wide. Although similar in length to the Mount Hope Road Bridge, and also built by the Berlin Construction Company, the five-panel Warren trusses of Black Bridge are made up of much heavier components. The upper-chord box girder, for example, measures 10" by 18" in section, compared with the older bridge's 5-1/2" by 12" upper chord. Black Bridge replaced a covered bridge that had been destroyed during the flood of March 1936, a disaster that created much business throughout New England for the Berlin Construction Company and its rivals.

All three bridges are scheduled for replacement. The Connecticut Department of Transportation is currently exploring opportunities to re-use the Mount Hope Road Bridge on a hiking or bicycle trail.

Hoang Tinh
Hartford, CT

Grand Street Bridge, Bridgeport, CT

Joseph B. Strauss (1870-1938) is best known today as chief engineer for one of the 20th-century's aesthetic and engineering masterpieces, San Francisco's Golden Gate Bridge. But earlier, he had made a reputation as an innovative designer of bascule bridges. Based in Chicago, Strauss was among the first to use concrete counterweights, and he patented a series of bascules incorporating pivoting counterweights and linkage arms. The advantage of the Strauss designs was greater flexibility in positioning the counterweight. Otis Hovey (*Movable Bridges*, 1926) stated that more bascules had been built in America to Strauss designs than any other type.

Bridgeport, Connecticut, ordered three Strauss bascules as part of an infrastructure improvement program undertaken during World War I. One of those bridges, a 96'-span double-leaf bascule carrying Grand Street over the Pequonnock River, has deteriorated to the point that it is no longer operable. Historic Resource Consultants recently completed HAER documentation for the structure, which is scheduled for demolition.

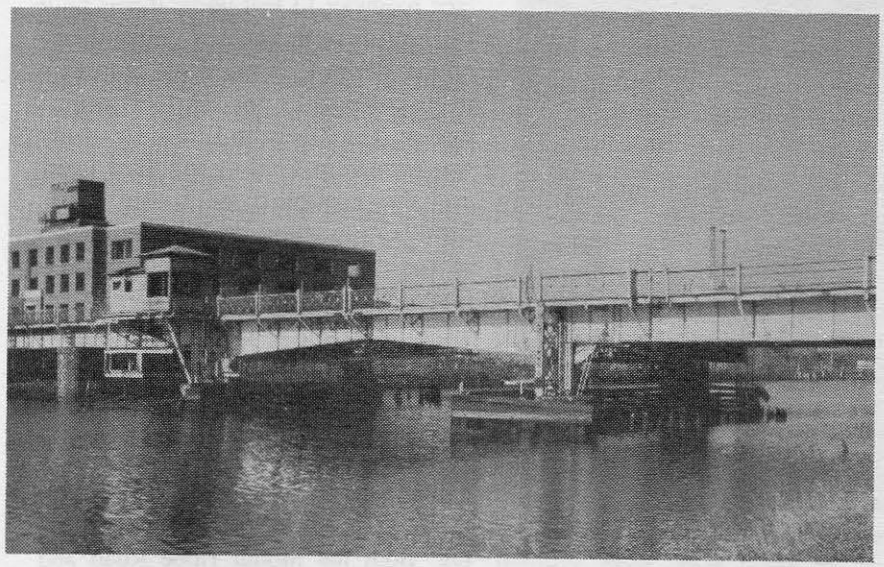
Grand Street Bridge is typical of the Strauss Bascule Bridge Company's bread-and-butter work. It is an example of the firm's Underneath Counterweight type, in which the pivoting concrete counterweights slide forward as the leaves are raised. Although the roadway is only about 15' above the water, no pits were needed for the counterweights.

Bridgeport at the time was undergoing a tremendous industrial expansion fueled by munitions production. The Grand Street Bridge would have made the huge (and now defunct) Bridgeport Brass Company mill on the west side of the river more accessible to the city's industrial work force, much of which was concentrated in east-side neighborhoods. Moreover, it would have provided the mill with a direct link to Bridgeport's largest customer for brass, the Remington-Union Metallic Cartridge Company, located less than a mile to the east.

However, the City became embroiled in a dispute with the contractor and hired another firm, delaying the completion of the bridge until 1919, by which time the war was over. The original contractor sued the City and won the full value of the contract as damages. As a result, funds were unavailable to finish one of Bridgeport's other Strauss bascules until 1925.

The construction of Grand Street Bridge may be one of the best documented projects of the period. The published records of the Connecticut Supreme Court (*Edward DeV. Tompkins vs. City of Bridgeport*) contain more than 1,400 pages of correspondence, testimony, and depositions from experts. The dispute centered mostly on the design and construction of the concrete piers. Clearly something went wrong, since by 1930 the bridge was sinking rapidly and only a massive reconstruction by the state kept it in operation.

Bruce Clouette
Hartford, CT



Grand Street Bridge (1919), Bridgeport, Connecticut.

White Rock Bridge, Westerly, Rhode Island.

White Rock Bridge, Westerly, RI

White Rock Bridge in Westerly, Rhode Island, is typical of the standardized American bridge engineering that had evolved by the early 20th-century: steel members, riveted connections, and use of Warren and Pratt truss designs. In one way, however, it is highly unusual, if not unique: White Rock Bridge was built as a combined highway and electric-railway bridge, with separate parallel rights-of-way sharing a common middle truss. The electric-railway part is more heavily built, with a through truss crossing the Pawcatuck River (which separates Westerly from Stonington, Connecticut) and a large pony truss crossing an adjacent mill race. Because the middle river truss is part of both the railway and highway structures, its panels are subdivided with additional diagonals and verticals. In all, the bridge combines two sizes of Pratt pony trusses, a Warren pony truss, and a 126' half-Pratt, half-Baltimore through truss.

The bridge was built in 1906 for the Norwich and Westerly Railway Company, which operated a 22-mile interurban line between Norwich, Connecticut and Westerly, Rhode Island. Reportedly, the highway bridge was a condition imposed by the town of Westerly as the price of the railway's using some town-owned land for its tracks. In addition to serving residents in the immediate area, the crossing expanded Westerly merchants' access to the Connecticut side of the river. The line was engineered and built as a turnkey operation, including the right-of-way, a power plant, and rolling stock, by the National Construction and Equipment Corporation of New York City.

The Norwich to Westerly line was part of a larger historical development that saw the mill towns and small commercial cities of New England interconnected by electric railways in the early years of the 20th century. Many, like this one, served millions of passengers annually and were virtually the only form of long-distance travel available for routes not served by the steam railroads. The heavy interurban cars that traveled this line could run in multiple-unit operation and reached speeds of 48 mph. Although the line was well-patronized, the company lost money nearly every year because of heavy payments on its construction loans. The last cars on the Norwich to Westerly route ran on December 31, 1922.

With work currently underway, the electric-railway portion of the structure will be rehabilitated as a pedestrian bridge, while the highway portion will be replaced. The outside highway trusses have been stockpiled by the Rhode Island Department of Transportation for re-use on one of the state's bicycle trails. Prior to the start of construction, Historic Resource Consultants completed HAER documentation of this important survivor from the age of electric railways.

Hoang Tinh
Hartford, CT

Help Wanted: State Coordinator for Vermont Archeology Week 1997

The Vermont Archaeological Society is seeking an energetic individual for a part-time, 13 month duration, contract position to start May 10, 1996. Applicants must have excellent and proven fund-raising abilities, demonstrated ability to organize and coordinate similar events or products, effective public relations capabilities, experience inspiring grass-roots volunteerism, ability to work well with government agencies, private businesses, non-profit organizations, and volunteers, and be interested in archaeology.

The Vermont Archeology Week '97 Coordinator will raise funds, organize, and produce Vermont Archeology Week (VAW), a public outreach, co-sponsored by the non-profit Vermont Archaeological Society, Inc., and the Vermont Division for Historic Preservation. A packet of materials describing past archeology week events and responsibilities of the State Coordinator is available upon request.

The Coordinator is responsible for raising funds to reimburse his/her own services as well as for the organization and production of VAW. Some funds have already been pledged. A fund-rais-

ing bonus and partial reimbursement of expenses is also available. Preliminary tasks from May through September 1996 will consist of working closely with the VAW '96 Coordinator in training for VAW '97. Most activity occurs between October 1996 and May 1997.

Please send cover letter, Vita, and supporting materials, including successful grant applications, fund raising budgets, or products by April 15,1996 to: VAW '97 Coordinator Search, Division for Historic Preservation, 135 State Street, Drawer 33, Montpelier VT 05633- 1201.

Vermont Archeology on the Internet

Vermont Archaeology Week calender of events, theme poster "Windows of the Past" and much more will soon be on the Internet at http://www.uvm .edu/~uvmcap/vaw96.htm as soon as the home page is through its construction phase. Check back again if you don't find it the first time -- lots of guided tours (some IA by Vic Rolando), exhibits and presentations. Vermont Archeology Week is May 5 to 11, 1996. For more information, contact Rob Florentin of Contract Archeology Program at rflorent@moose.uvm.edu or (802) 655-5480, or Vic Rolando at 103714.3134@compuserve.com or (802) 362-4382.

Guided Tours of Vermont IA Sites

I will be doing a number of guided tours of IA sites in Vermont during Vermont Archeology Week. My tentative schedule is:

Saturday, May 4, 1-3 pm. Early and late 19th-century lime kiln ruins (7 kilns; 2 sites) near New Haven Junction, Vt (about mid-way between Vergennes and Middlebury; where RR tracks cross highway). Meet at New Haven Post Office on Route 17, about 100 yards east of Route 7. Mostly easy walking with a tad of bushwhacking.

Sunday, May 5, 2-4 pm. Restored blast furnace stack and furnace grounds at Forestdale (about 5 miles east of Brandon on Route 73). Meet at State Highway Dept. sheds just uphill (1/2 mile east) from Route 53/73 intersection. A leisurely walk.

Saturday, May 11, 1—3 pm. Remains of Freedley marble mill and lower end of inclined plane tramway up side of mountain to the quarry. Then tour of ca. 1840s blast furnace at East Dorset. Meet at Maryville Campground (west side of Route 7) about 3 miles south of Emerald Lake State Park entrance or about 7 miles north of Manchester Center. Mostly easy walking; a tad of bushwhacking.

Sunday, May 12 (Mothers Day), 2-4 pm. Charcoal kiln remains (5 ruins at 2 sites), cellar holes, and old associated roadways along the Long Trail in Winhall. Meet at the Long Trail parking lot on north side of Route 11/30, about 5 miles east of downtown Manchester Center (1-l/2 miles west of Bromley ski area). Mostly an easy 2-mile hike with a tad of bushwhacking.

The tours are open to the public (no fees), rain or shine. If you are not on distribution for Vermont Archeology Week programs, contact me for the latest information. Dates and meeting places might change between now and then. Bring your bug spray (and mud boots?).

Vic Rolando
Manchester Center, VT
(802) 362-4382

Book Review

Industrial Archaeology: Techniques. Edited by Emory L. Kemp, Krieger Publishing Company, Malabar, Fla., 1996. ISBN 0-89464-649-4. xviii+212, illus., endnotes, index. $29.95 + $5 S&H.

I ordered my copy of this book when a quarter-page advertisement for it appeared in the back pages of the volume 21, number 1, 1995 issue of *IA: The Journal of the Society for Industrial Archeology*. The advertisement said "the purpose of this book is to provide information for historians, archeologists, architects, engineers, and other professionals." Not being a professional of any of the above I wondered if this book might be over my head, but for $35 and change, I figured that something might rub off on me.

As it turned out it wasn't over my head—actually, just about level with it. The book is a collection of 12 easily read papers by some authors I know (or heard of); others not. Half of the authors are affiliated with West Virginia University (WVU), Morgantown. Emory L. Kemp (Director, Institute for the History of Technology and Industrial Archaeology, WVU) opens with chapters 1 and 2, which introduce the reader to industrial archeology: "The Dioscuri: Industrial Archaeology and the History of Technology" and "The Shepardstown Cement Mill: A Case Study." The next 10 chapters follow in a very practical order, starting with chapter 3: "Federal Records/Federal Repositories" by Ruth Ann Overbeck (Washington, D.C. Historic Records Advisory Commission), and chapter 4: "Research in State and Local Archives for Preparing Histories of Specific Sites" by Barbara J. Howe (Assoc. Professor of History, WVU) .

We then switch to map work with chapter 5: "Quadrangular Treasure: The Cartographic Route to Industrial Archeology" by Robert M. Vogel (Curator Emeritus of Mechanical and Civil Engineering, NMAH), and chapter 6: "The UTM Grid Reference System" by Peter H. Stott (formerly Industrial and Architectural Historian, Mass. Historical Comm.).

Sites are documented in chapter 7, "Photogrammetric Recording of Historic Transportation Sites" by Paula A. C. Spero (P.A.C. Spero & Co., Baltimore), chapter 8: "Remote Sensing Technology Applied to Site Documentation" by Ronald W. Eck

(Professor of Civil Engineering, WW), chapter 9: "Field Work and Measured Drawings" by Richard K. Anderson, Jr. (Historic Preservation Program, Savannah College of Art and Design), and chapter 10: "Large Format Photography" by Robert J. Hughes (Professional Photographer).

We locate the site exactly in chapter 11: "Land Surveying Methods Employed by Industrial Archaeologists" by Edward H. Winant (PhD candidate, Institute of Science and Technology, WW), and finally pull it all together in chapter 12: "Integrating Geographic Information Systems and Industrial Archaeology: Exploring the Potential and the Limitations" by Trevor M. Harris (Assoc. Professor and Geography Program Director, Dept. of Geology and Geography, WVU) and Gregory A. Elmes (Assoc. Professor of Geography, WVU).

In the Foreword, Billy Joe Peyton (Assoc. Director, Institute for the History of Technology and Industrial Archaeology, WVU) hopes "your copy gets marked-up, torn, tattered and dog-eared" from using it in the field, although I can't see myself hauling this 8-5/8 by 11-l/8-inch hard cover book around the brush in my backpack. Rather, I will learn from it but leave it home on my bookshelf, thank you.

I've been a sort of self-taught industrial archeologist, having learned my techniques by hit-and-miss at first, but improving through the articles in the *IA Journal* and experience from working with others in the field. It assures me, therefore, to find out that I've been "doing it right" most of the time. Unfortunately, much of the IA being done today is by volunteer, para-professional, amateur, or whatever non-paid effort, and many of the tools suggested in the book are financially out of reach for some of us. The "list of common hand tools and accessories used in the field for hand measurement work" is a daunting 1+ page full of items. And while it's nice to know what records can be accessed at the Library of Congress or the National Archives, with cyber-space communications now all the rage, I couldn't find how I can access any of this via www, for example. None of the articles addresses the internet in any form. I'd like to have read an article that addresses how we industrial archeologists can do some productive on-line networking.

The sample case study, the Shepardstown Cement Mill, included photos and drawings of lime kilns, which, of course, are central to my IA interests. Included are measured drawings by our own Brian Coffey and Matt Kierstead. The chapter closes with 21 pages of filled-in draft version forms for National Register nomination. Robert Vogel's and Peter Stott's articles formerly appeared in the *IA Journal* in 1989 but dovetail nicely with the material that precedes and follows it. I thought my discovery and use of "photogrammetric recording" years ago was cheating until I read in chapter 7 that it's an accepted technique. I'm going back over that chapter a number of times now. And the "water-level" measurement technique in chapter 9 was alone worth the price of the book. I can finally establish accurate level datum points on opposite sides of furnace and kiln ruins with a cheap and simple tool.

If you're a state-of-the-art professional industrial archeologist, I'm not sure you will learn anything new from this book. But if you are like me, hunt-and-peck on the keyboard and measure everything ten times (and get ten different measurements) in the field, then this book is an absolute must for you. If you want to look at my copy, then come on over; I might even treat you to lunch. But I'm not parting with the book for anyone.

Victor R. Rolando
Manchester Center, VT

Conference on New England Archaeology

The Conference on New england Archaeology will hold its annual meeting at Old Sturbridge Village on May 11, 1996. The year's theme is "Construction and Reconstruction of Identity." A session of papers in the morning will focus on interpreting prehistoric Native American ceramics, and the afternoon session will consist of several papers dealing with historic topics. Contact Ed Hood at Old Sturbridge Village for further details (508-347-3362), or join the CNEA (and receive our annual newsletter which will be sent out this spring) by sending $10.00 to Paul Robinson, Rhode Island Historic Preservation Commission, 150 Benefit St., Providence, RI 02903.

Historic Ironmaking Conference

Announcement and Call For Papers for the Second Annual Highlands Historical Conference on Historic Ironmaking, October 19 & 20, 1996, sponsored by The North Jersey Highlands Historical Society and The Friends of Long Pond Ironworks. The conference will be at the Skylands Manor Annex, Ringwood State Park, NJ (on the NJ-NY state line, between Hudson and Delaware Rivers).

Papers are solicited addressing any aspect of historic ironmaking or any particular site: furnace, forge, mine, etc. Submissions from both professionals and non professionals are encouraged. Presentations should not exceed 20 minutes in length; a Kodak slide projector and screen will be provided; presenters are urged to use illustrative material. Abstracts must be received by August 1, 1996, for consideration and program listing.

Contact person is Edward J. Lenik, c/o Sheffield Archaeological Consultants, P.O. Box 437, 24 High Street, Butler, NJ, 07405-0437. Phone 201/492-8525 (days).

Rolando's boiler door plate.

Yours for the Taking

A large iron casting is yours for the taking (see photo). It was salvaged in 1992 from the Batten Kill in Manchester Depot, Vermont, and given to me by the adjoining property owner. It probably came from a nearby factory building that was renovated into a clothing outlet in 1991. The factory is said to have been a woodworking shop that also made gunpowder during WWII.

The casting measures 74-1/2" long, 42" wide, and weights about 150 pounds. The basic iron plate is about 3/8-inches thick and is identified BYERS & SMITH 1898 BOSTON MASS near the top. It was broken into three pieces when found but could be assembled and mounted on 2 by 4s via holes alongside the edges. It looks like the coal and ash (draft?) door plate for an immense boiler. The doors are missing.

If you want this, come and get it. Otherwise, I'll have to dispose of it somehow. The local historical society has no interest in it.

Vic Rolando
Manchester Center, VT
802-362-4382

New England Archivists Spring Meeting

The semiannual meeting of New England Archivists (NEA) will be held, in conjunction with the New England Chapter of the Museum Computer Network (NEC/MCN), on April 26-27 at Babson College in Babson Park, Massachusetts.

The theme of the meeting will be automation in archives and museums. More and more, archivists and curators, from the largest university archives and museums to the smallest historical societies, are finding themselves drawn into an electronic environment. As new and emerging technologies such as digital imaging, electronic records and multimedia find their way into traditional repositories of historical documents and artifacts, archivists and curators must face a new array of possibilities and problems inherent in living in an electronic age.

The meeting will include four sessions directly relating to automation issues. A session on electronic records will examine the partnerships archivists must develop, including those with organization personnel outside the archive's traditional sphere, such as university business administrators and municipal governments, in order to address effectively electronic records issues. A session on automated finding aids will present two different approaches to electronic access, one using the MARC AMC Format and the other using Standard Generalized Mark-up Language (SGML), and will also present an overview of what SGML is and how it works. A roundtable session on the ethics of electronic access will allow archivists and curators a forum to discuss the different ways in which professional ethics are called into play when dealing with the worlds of electronic access and the internet. A session on archives, museums and multimedia will present a primer for archivists and curators who would like to involve their institutions in educational multimedia applications, with a specific focus on the cooperative effort and interdisciplinary teamwork that goes into making a successful application.

The meeting will offer two sessions dealing with the management of photographic collections which, while presenting information for a general audience, will also touch on the effects of automation issues. A session on legal issues will focus on the area of copyright, providing a general overview on the topic from the point of view of a librarian, lawyer and library school instructor, as well as a discussion of legal issues encountered in creating a world wide web home page and putting digitized images on the internet. A session on the establishment and maintenance of reproduction policies and procedures for visual collections in archives and museums will discuss photographic reproduction policies at a museum and an archive, provide general suggestions for how policies can be developed, and present an overview of the Getty Art History Information Project/MUSE Museum Education Site Licensing Program.

In addition to the sessions, the program will also feature two technology showcases: one of commercial vendors specializing in automation and digital imaging systems and the other of archival and museum project demonstrations. Meeting attendees will have the opportunity to get up-to-date information on automation-related software and other products, and also see what automation projects their colleagues have been working on.

Finally, the program will offer three introductory mini-workshops on the internet. Designed to provide basic information for archivists and curators with little or no experience in cyberspace, these hands-on, limited enrollment sessions will get participants acquainted with navigating the "information superhighway."

Members of NEA should receive registration materials in the mail. For more information on meeting registration, contact Andy Martinez, NEA Registrar, Babson College Archives, Babson Park, Massachusetts 02157; telephone 617/239-4570, fax 617/239-5226, email martinez@vaxvmsx.babson.edu. For more information on the program, contact Kara Schneiderman, Program Committee Chair, The MIT Museum, 265 Massachusetts Avenue, Cambridge, Massachusetts 02139; telephone 617/253-4266, fax 617/258-9107, email kara@mit.edu.