Society for Industrial Archeology · New England Chapters

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President's Report, SNEC

The chapter held a Board of Officers election at the Belcher Foundry/North Easton tour in November 1999, at which the incumbent officers were reelected for another term. The Board has been assisting in the planning for upcoming conferences including Ironmasters 2000, to be held at the Saugus Ironworks National Historic Site in May (see elsewhere in this issue). The Boar intends to hold the 2001 Conference on New England Industrial Archeology in Connecticut, and has approached the Central Connecticut College's Institute for Industrial Engineering Technology in New Britain regarding hosting the event. If anyone familiar with that area knows of any good tour sites or would like to help with conference logistics, look for more information in the next issue. The Chapter continued its reinvigorated industrial tour itinerary, with sold out weekday tours of New England Ropes in Fall River, MA, the Brayton Point power plant in Somerset, MA, and the Belcher Foundry and the architectural and industrial legacy of the Ames family at North Easton, MA. Future tours include a trip to Grafton, MA, to visit Washington Abrasives and Wyman Gordon, home of the world's most powerful hydraulic press. As always we are looking for more tours and would like to host events in Connecticut, Rhode Island, or western Massachusetts. We are particularly interested in holding an event in conjunction with the Northern New England Chapter, and some sort of fun summer event as well. Please let us know if you have any ideas.

Matthew A. Kierstead

President's Report, NNEC

The New England Chapters held the Thirteenth Annual Conference on New England Industrial Archeology at Plymouth State College in Plymouth, New Hampshire, on Saturday, February 5th. Several excellent presentations were given. The NNEC would like to thank all who attended, especially those who gave the presentations, Plymouth State for hosting the event, and last but not least, Kate Donahue for qrganizing the conference.

Our Spring Meeting this year is already arranged and set for June 3-

4 in Pembroke, Maine, thanks to the enthusiastic efforts of Chapter member Fred Gralenski. Because of the distance involved (Pembroke is a stone's throw from the Canadian border) as well as the rich industrial heritage of the area and numerous sites to be seen, plan on a two-day trip for this meeting. A flyer has been mailed to NNEC members with directions, a list of lodging establishments in the area, and numbers to call for more information. In an earlier correspondence to me Fred wrote: "I especially would like some SIA experts to view the site of the Pembroke Iron Works (ca. 1828-1884). This was a rolling mill utilizing pig iron from places along the east coast, wood from local areas and coal from the Maritimes. Much of the information that we have is anecdotal... Some interesting stonework remains and I would like some opinions on its purpose."

Other areas of interest include Raye's Mustard Mill, a sardine museum, the Quoddy Maritime Museum, Roosevelt's cottage on Campobello, the Reversing Falls in Pembroke, and other historic structures.

Suggestions for future meeting sites, recording projects, and other topics of interest are always welcomed. If you have suggestions for meeting/tour sites in northern New England and eastern New York, you may contact me directly at the following e-mail address: richandkrista@landmarknet.net.

Krista Butterfield
Brownfield, ME

Conference on New England Industrial Archeology Held

The Thirteenth Annual Conference on New England Industrial Archeology was held at Plymouth (New Hampshire) State College on February 5, 2000. The following are abstracts of the papers that were presented:

The Machine Tool Industry in Windsor and Springfield, Vermont

The early history of manufacturing in Windsor and Springfield, Vermont, began with the making of interchangeable parts for rifles. After the company of Jones & Lamson was moved to Springfield, Vermont, several significant machine tools were developed and produced in the area dubbed the Precision Valley. Jones & Lamson made a high turret lathe, Fellows made a gear shaper, Bryant made an internal grinding machine, and Cone Automatic made a multiple-spindled screw machine.

An oral history was undertaken to enhance the already existing history of facts and figures. The personal realities of the people who spent their lives working for these companies casts a new light onto the world of the machine tool industry. Several poems also draw from and were inspired by this industrial heritage.

Suzanne Nothnagle
Pootatuck Corporation
Windsor, VT

The Ruins of Our Time

My concerns as a painter have been with the ruins of our time-remains of the twentieth century at its close. Artists have a long history of painting ruins- those of Greece and Rome come to mind quite readily. People in the eighteenth and nineteenth centuries were fascinated by gothic ruins, sometimes to the point of creating new ones. My works (which include images from such places as Davis Monthan Air Force Base, Winchester Arms Co.{see below}, the abandoned launch sites at Cape Canaveral, The Seymour Specialty Wire Co. and the Naval Reserve Fleet in Suisun Bay) record the passing of our industrial landscapes- casualties of our accelerating technological evolution. They have been called "the antique cities of tomorrow". The land is rich in these remnants but, for the most part, they lie unnoticed, mute reminders of where we were not so long ago. My presentation consists of slides of my paintings and short commentaries on the places that inspired them.

Anna Held Audette

Fire Exits 100 Years Ago: The Rise and Demise of the Iron Fire Escape

Iron fire escapes can be found on the walls of older buildings in city centers and factory yards throughout New England. These skeletal structures are so familiar we scarcely see them, although they still serve as emergency exits.

When and why did fire escapes first appear? Why aren't they

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installed on the walls of new buildings? In this presentation, the origins, spread, and demise of the American fire escape are traced.

The fire escape was a social creation in that absent laws mandating them, they would not have existed. By 1900, the outside, iron fire escape had become the standard means of emergency exit in America, and remarkably, few people at the time questioned their efficacy. But a decade later, a notorious factory fire exposed the inadequacy of egress measures in the building laws of the day, as well as the shortcomings of the sort of fire escape that building inspectors everywhere allowed. A movement began to find an objective basis for the design and dimensions of proper building exits, which led to the phase-out of fire escapes on new buildings.

In this paper, the events and laws that created fire escapes are briefly covered; the varieties of fire escapes erected in the nineteenth century (illustrated with overhead transparencies); and the developments in the twentieth century that resulted in the abandonment of fire escapes as emergency exits.

Sara Wermiel
MIT

An Iron Works Down East

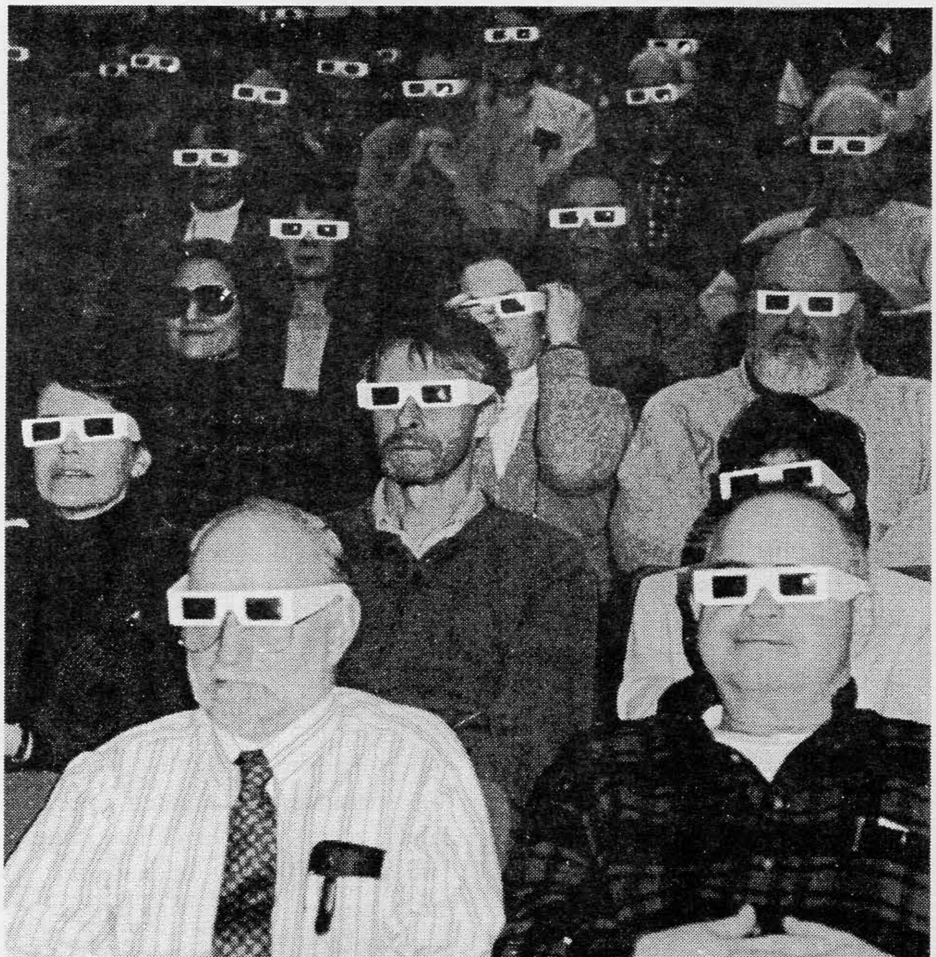
In an area more suited to fishing and lumbering an iron works was started in Pembroke, Maine in 1828. A question still remains as to why. Far from markets and raw materials except for wood and water power, the little industry, probably plagued by mismanagement and under capitalization, failed repeatedly under several owners. Finally, around 1850 a group of men headed by William Coffin bought the iron works and a good combination of luck, management and capital resulted in a period of prosperity. By 1864 about 300 workers were employed and production of wrought iron bar stock and manufactured goods totaled over 7000 tons annually. In 1883 the owners, now getting on in years probably recognized that the future of iron works was not in Maine, leased the property to a businessman from Wareham, MA. A year later production ceased and all machinery and property was subsequently sold.

Frederick Gralenski

Place in Time: 3 D Photography and the Industrial Sublime

This paper concerns the use of stereopticon photography in the fields of Industrial Archeology and Historic Preservation.

Jon Golden of 3 D Concepts (Wayland, MA) demonstrates historical and modern stereopticon views transferred to transparency and projected for audience viewing. Pairs of polarized glasses are provided for conference participants. This 3D presentation of historic and current images show how stereoscopy has been used to record and document



SIA Winter Conference attendees experience a new dimension to IA watching Jon Golden's and Ned Connors' presentation on stereo photography of historic industrial sites.

industrial design and art from the smallest objects to the largest architectural and infrastructure developments. With views covering the period from the invention of photography to the present, the program includes several "then and now" comparisons of New England buildings, railways, mills, factories, dams, diners, roadside attractions, cars, planes, trains, and more. Close up stereo studies of industrial mechanics, electronics, and details are also included. Golden shows how stereoscopy can be used today to capture industrial subjects large and small from simple, easy and cost-effective methods to more elaborate computer based processes.

Ned Connors presents the history of stereo photography and its unique ability to give the viewer a heightened sense of a place in time. While most public archives have stereo collections, private enthusiasts and collectors have amassed remarkable collections of commercially produced views from the mid-19th century to the present. These collections cover many aspects of American life and offer great opportunities for those interested in education and interpretation of our changing/vanishing cultural and physical environments. We should ask, How do we get at these collections and put them to use?

Jon Golden
Ned Connors

Whitman Roundhouse Park: Interpreting an Industrial Archaeological Landscape

During the early 1990s archaeologists from the Public Archaeology Laboratory, Inc. (PAL) located the foundations of an 1880s Old Colony Railroad steam locomotive facility at the site of the proposed Whitman, MA, commu8ter rail passenger station during the environmental review process associated with the Old Colony Railroad Rehabilitation Project on Massachusetts Bay Transportation Authority (MBTA) rail lines south of Boston. As part of the site's historic preservation program, the MBTA agreed to completely excavate the site and develop it as an interpretive archaeological park. PAL created a team including a landscape architect, materials conservator, stonemasons, and other contractors to design and build Whitman Roundhouse Park. This paper tells the story of the park project, and the development of the interpretive program which uses a combination of landscaping and signage to explain how the site functioned to commuters and visitors. It begins with a history of the site and the excavation of the steam locomotive maintenance features, which include the track layout, engine house, turntable pit, and water tank foundations, and includes a discussion of the features and artifacts uncovered. The paper then follows the park design process from the archaeological site plan, to the development of the interpretive philosophy, to its expression through the landscaping plan and signage, and the final construction phase. It discusses the numerous challenges and limitations encountered, including wetlands, endangered species, safety, access and vandalism issues. The park officially opened during the October 1999 Massachusetts Archaeology Week, and the ongoing interpretive programming includes special tours by arrangement. Whitman Roundhouse Park, which was recently donated by the MBTA to the Town of Whitman, is a successful example of how industrial history can be interpreted through public archaeology.

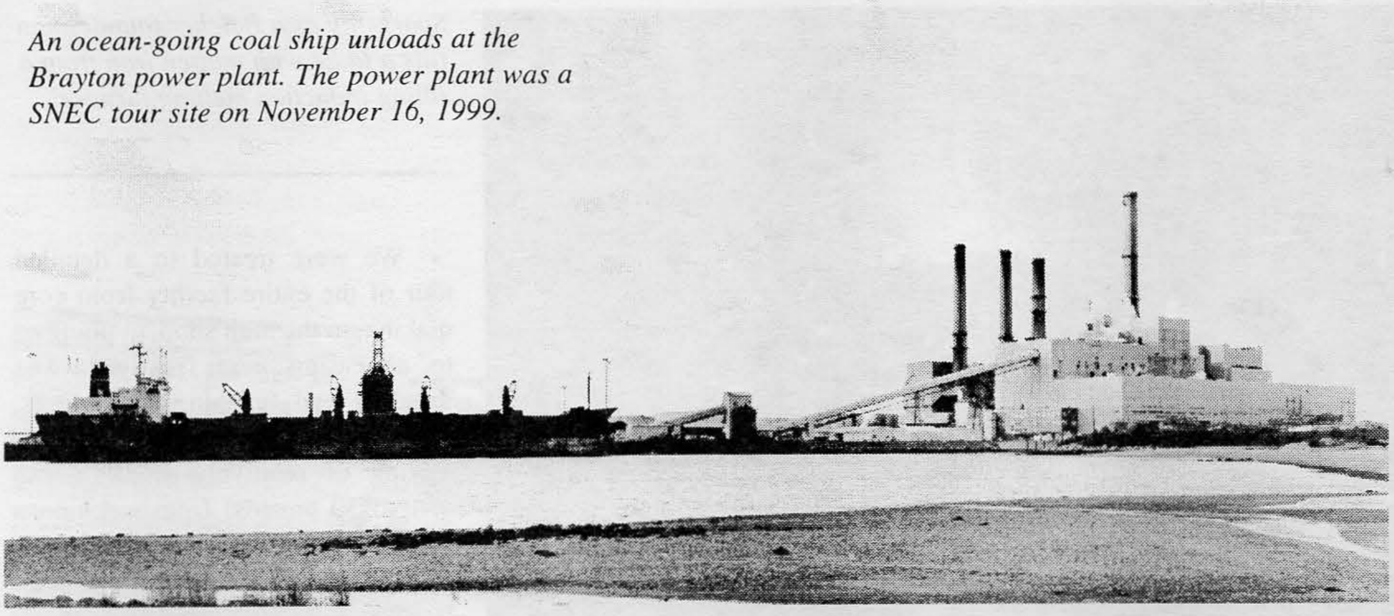
Matthew A. Kierstead
Public Archaeology Laboratory, Inc.

New Hampshire's Railroads: What Remains and What Matters?

From 1832 to the present, over 175 railroads were incorporated or at least given permission to operate in New Hampshire. Some of the railroads never materialized; others became essential to the economic survival of communities and the state in general. In all, New Hampshire's railroads developed over 1500 miles of rights-of-way—corridors that included bridges, culverts, trestles, and "cuts," not to mention an off-track infrastructure consisting of passenger and freight depots, engine and car shops, housing for workers, water tanks, coal and sand sheds, and whole yards needed for the operation and repair of rolling stock. Although the state's railroads have been in decline since the 1920s, a surprising amount of railroad infrastructure remains, and much of what remains has integrity and historical significance. This presentation stems from a two-year study conducted for the NH Dept. of Transportation, the NH Division of Historical Resources, and the Federal Highway Administration.

R. Stuart Wallace
Plymouth State College

An ocean-going coal ship unloads at the Brayton power plant. The power plant was a SNEC tour site on November 16, 1999.



SNEC Tour Update

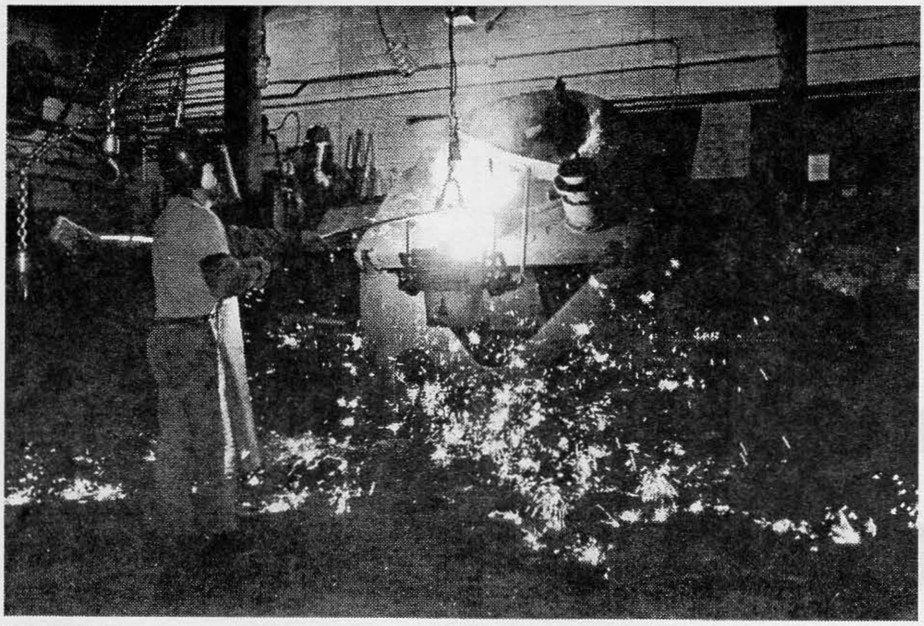
The Southern New England chapter of the SIA has been actively touring industrial sites. If you have not joined us for a tour recently please consider attending a future event. Tours have generally been limited to about 25 due to restrictions imposed by the various facilities, and turnout has been good, so reserve your spot as soon as possible once you get information. After membership approval last year we began expanding beyond Saturday tours which had severely limited the possible sites to visit. Weekday tours have revealed that industry is alive and well in the region. Unfortunately, though, few plants run weekend shifts. We are continuing to pursue weekend venues with active production, but they are limited.

On Tuesday, November 16th, we toured two facilities. In the morning we visited New England Ropes in Fall River, Mass. This tour demonstrated once again that even a modern building in an industrial park could provide an interesting and informative event for the SIA. Well-informed guides, including company President Jay Repass led the tour. We saw the full range of rope-making operations including braided and spun ropes. For those who have seen textile mills, it was amazing to see similarities between the production of braided ropes and yarns.

New England Ropes focuses on specialty ropes for arborists, rock climbers, rescuers, the military, marine ropes, lariat ropes for cowboys, etc. In fact, they are one of the few manufacturers who successfully make the lariat rope, thanks to a machine they acquired from the Plymouth Cordage Company, to which the current company, which was founded in 1967, traces its roots.

After lunch we shifted gears and headed to the Brayton Point Power Plant in Somerset, Mass. The power plant is the largest fired by fossil fuel in New England, producing 1,586 megawatts. It has historically produced 8% of New England's power and 17% of the power used in Massachusetts, and is one of the lowest cost producers in the region. The plant runs on various combinations of coal, oil and natural gas, and we got an extensive tour and description of the operation of the coal yard. The messiness of the coal yard contrasted sharply with the control room inside the plant. There, a few men monitor and control nearly every aspect of the plant's operation with touch screens. These men were very willing to answer any and all questions and explained all the detailed questions the SIAers threw at them.

On a snowy Thursday in January (the 20th) we met in Easton, Mass., for a morning tour of the Belcher Malleable Iron Foundry. Belcher claims to be the oldest malleable iron foundry in the US, and it is quite a facility, producing about one million pieces per year. Who would have suspected such a production in the middle of a residential area in the suburbs south of Boston?



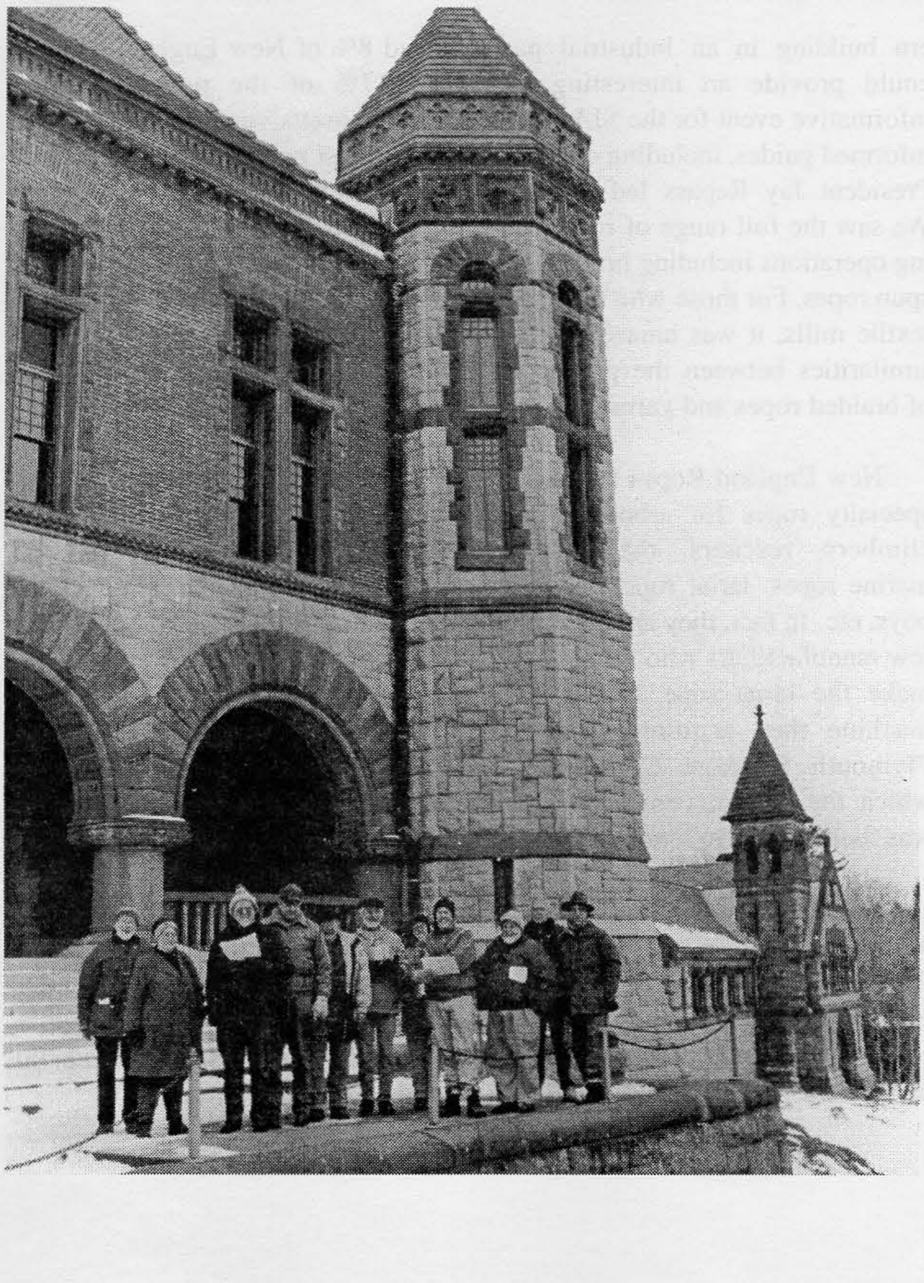
Sparks fly as a Belcher foundryman fills a ladle with molten iron from a tilting induction melting furnace.

We were treated to a detailed tour of the entire facility from core making, to the melt shop, to pouring, to annealing, and finally to the grinding and finishing of castings. Belcher specializes in production casting of relatively small pieces (0.1 to 30 pounds) from machinery and automobile components to electrical conduit fittings. Seeing such large-scale production was dramatically different from the Perkins Foundry, a job shop, which were toured last year.

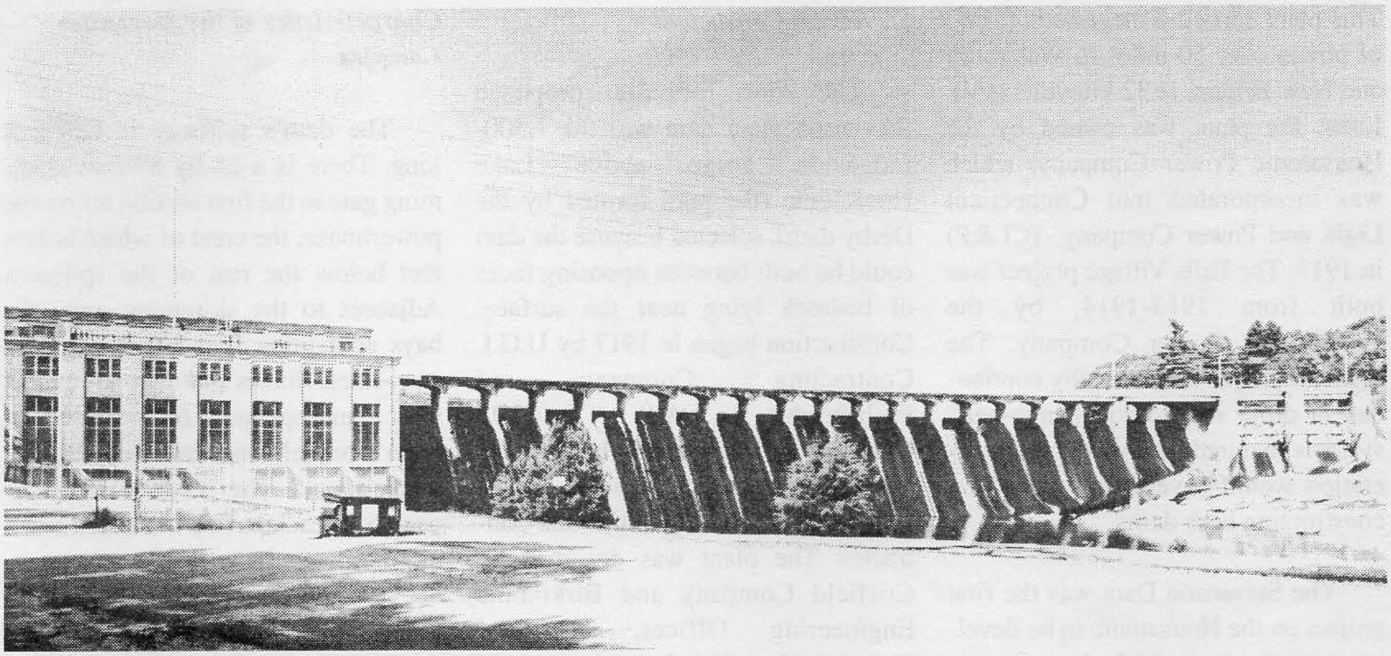
After lunch, the hardy souls who wished to continue to brave the snow were led on a walking tour of the North Easton National Register District/H. H. Richardson National Landmark District. This was the home of New England's prominent Ames family. We saw the former Ames Shovel Shops and several Richarson-designed buildings built by the family, including the former Old Colony Railroad Station, a Richardson masterpiece.

Stay tuned for future tours.

Greg Galer



The SNEC tour group in front of two H. H. Richardson gems; North Easton's Ames Memorial Hall and Ames Free Public Library.



The Stevenson Hydroelectric Complex, Housatonic River, Connecticut

Travelers on Connecticut route 34 will soon no longer be able to drive across the Stevenson Dam on their way across the Housatonic River. The Connecticut Department of Transportation plans to build a new bridge for route 34 just upstream of the dam. The bridge is an integral component of the Stevenson hydroelectric complex, eligible for listing on the national Register of Historic Places due to its historic and engineering integrity as an early generating station with significance in the political and public utility history of Connecticut. The concrete dam, bridge and bulkhead, the concrete and brick powerhouse, and the operating characteristics of the powerhouse embody the typical and distinctive characteristics of the early, post-World War I hydroelectric generating station.

The Stevenson hydroelectric complex will be covered in detail by Historic American Engineering Record (HAER) documentation, to be prepared by Steven M.Bedford of Fitzgerald & Halliday, Inc. HAER documentation was one of several measures required to mitigate the adverse effect on the historic property, pursuant to the National Historic Preservation Act of 1966.

Early Housatonic River Hydropower

Until the development o high-voltage alternating current power transmission, much of the waterpower of the Housatonic River was not exploited. The only substantial dam by the Mid-1880s was used by the Bridgeport Wood Finishing Company, in Lanesville, which ran two 25-HP turbines to power its abrasives mill (Raber Associates 1999). Other than the Lanesville dam, there were a few timber dams to divert some of the river's flow to local forges, furnaces, and mills, but the 54-mile stretch between Derby and Falls Village was largely untapped.

In 1889, high-voltage power transmission from the Farmington River was being used to run Hartford's streetlights 11 miles away, and, in 1897, the General Electric plant in Schenectady, New York, was receiving power from Machanicsville, New York, 17 miles away. These developments, utilizing step-up and step-down transformers, made the harnessing of the Housatonic River more attractive, since electricity could be transmitted from the river valley, where there was little demand for electricity, to urban centers, where electricity was in high demand for street lighting and trolleys.

The first large-scale hydropower developments on the Housatonic were the Bulls Bridge and the Falls Villages sites. These were sites where great water pressure (high heads) was possible from low dams, making them the most economical to develop. Bills Bridge was completed by the New Milford Power Company in 1903.

This plant carried 6 megawatts (MW) of power over 50 miles to Waterbury and New Britain, at 32 kilovolts (kV). Later, the plant was owned by the Housatonic Power Company, which was incorporated into Connecticut Light and Power Company (CL&P) in 1917. The Falls Village project was built from 1913-1914, by the Connecticut Power Company. The rest of the river was basically continuous in drop, so additional high-head systems required for hydropower generation would have to be created by constructing high dams.

The Stevenson Dam was the first project on the Housatonic to be developed employing a high dam. Project planning and site selection began in 1912, and was probably initiated by the Rocky River Power Company, a corporation formed in 1905 b J. Henry Roraback. Roraback, who was the state Republican chairman from 1912 to 1937, aided in building the firm by generous franchises awarded by the legislature. In 1909 Roraback's firm had acquired the right to use all the water in the Housatonic for generating purposes as well as a franchise to distribute power anywhere in the state, an unprecedented and open-ended franchise. Later, the company was merged into CL&P, and Stevenson became the first CL&P Housatonic hydropower development. Roraback was initially a vice president, director and major stockholder in the company. He later served as president. Roraback's Rocky River franchises not only precluded competition, but eventually (in 1919) resulted in the Rocky River pumped storage facility, where Housatonic water was pumped up to a newly created reservoir (Lake Candlewood) for use during periods of low water or high electrical demand.

Stevenson Construction

The site for the proposed Stevenson plant dam was the 1,500-foot-wide gorge above Lake Housatonic (the pool formed by the Derby dam), selected because the dam could be built between opposing faces of bedrock lying near the surface. Construction began in 1917 by U.G.I. Contracting Company of Philadelphia. J.A.P. Crisfield Company of Philadelphia became the project contractor, with C.W. Blakeslee of New Haven as sub-contractor. The plant was designed by Crisfield Company and Birkinbine Engineering Offices, also of Philadelphia. Chief engineer and assistant chief of construction were Crisfield's H.J. Hoard, and E.H. Burroughs, respectively.

Construction of the dam and hydroelectric complex was carried out by 750 men; Gravel aggregate for the dam was obtained from the north bank of the river just upstream. Dam sections were constructed from the banks toward the middle. When construction reached the river, a cofferdam was installed to divert the river to one side through the dam's completed sluice gates while the central section was poured. This section became the highest part of the dam, 125 feet high. Construction was completed in 1919, and the plant was operational in 1920.

The flooding buried a hamlet, churches, roads, and the previous river crossing, 1.5 miles upstream. The dam itself, 300 m (986 ft) long, was one of the most sophisticated structures of its kind and the only dam east of the Mississippi River in 1919 with a bridge crowing its top.

Characteristics of the Stevenson Complex

The dam's spillway is 630 feet long. There is a 28 by 87-foot skimming gate in the first section above the powerhouse, the crest of which is five feet below the rest of the spillway. Adjacent to the skimming gate, the bays containing five 5-foot diameter steel-lined sluices that can be opened with hand-operated 60-inch valves, from a tunnel connected to the dam's intake deck. The 12-foot diameter penstocks each have a trash rack and a motor-operated gate.

Although originally planned for the Oxford shoreline, the powerhouse was built on the Monroe bank. Located on the south end of the dam, it is a steel-framed brick structure on a concrete foundation. It is 160 feet long, 80 feet wide, 131 feet high, in two stepped sections. Steel sash defines seven bays on the long sides and, on the short sides, four bays. Windows were mounted in the monitor roof over the generator room. The powerhouse was originally designed to be equipped with four vertical-shaft turbines, each with its own concrete penstock and scroll case, alternators, control room, workshops, switch gear, and transformers. In 1919, three S. Morgan Smith 8,000 HP Frances-type turbines with 82-inch diameter runners were installed, each operating with a 70-foot effective head. Each turbine drove a Westinghouse 6.24 MW synchronous generator at 150 rpm, producing a 6.6 kV, 60-Hertz electromotive force. This original installation had a capacity of 19 MW and a continuous capacity of approximately 4 MW, based on 55 hours/week of operation with average river flow. In 1936, an additional S. Morgan Smith Frances-type vertical-shaft turbine was installed, this one 11,000 HP, with 86-inch diameter runner and synchronous generator. This complement of turbines had a plant capacity of 31 MW.

During 1950-51, CL&P increased the output of the three original 6.24 MW generators to 7.5 MW each be rebuilding them. In addition, a substation was built on the south side of the powerhouse to replace the original rooftop transmission terminals and transformers.

The dam has had a variety of modifications since its construction. Within 20 years of its completion, improved underdrainage was installed to address seepage through the dam's vertical construction joints, and the five flood gate openings in the lower face of the dam were lined with gunite. In 1958, modern Taintor gates were installed at the north end of the dam to release floodwaters that formerly went over the dam. In 1988-89, to improve the dam's stability, CL&P installed tensioned steel cable anchors into the foundation bedrock.

Various modifications to the hydroelectric plant have also been made over the years. In the east section of the powerhouse, windows have been filled in on the second level, opposite the substation, and most windows facing the dam have been covered with Plexiglas of filled in with cinderblock and brisk. The plant has been modernized with a remote operated system controlled by the telephone signals from a central dispatching center at Rocky River. Circa 1995, the steel skimming gate was rebuilt with a motorized worm-gear operator.

The Stevenson Dam Bridge

The Stevenson Dam Bridge, a reinforced concrete arch bridge, was built at the same time as the dam. The bridge is supported by piers with 30-foot centers on the dam crest, and accommodates a two-lane roadway (Connecticut Route 34). Of the bridge's 32 spans, 24 have fascia beams that create 8-meter (26-foot) archways between piers. The bridge was opened to traffic in 1919. In 1958, when the Taintor gates were installed, the northern two bridge spans were rebuilt as steel girder structures, in part to provide greater clearance under the roadway. At the south end of the bridge, the roadway is carried on a concrete bulkhead that contains the intake openings for the water that drives the turbines. Currently, the roadway has a granite curb and a recent concrete parapet with a rail of galvanized pipe. The traffic barrier is modern W-rail.

Before the formation of Lake Zoar by the Stevenson Dam bridge in 1919, the closest bridge crossing the Housatonic River was located approximately 2.4 km (1.5 miles) upstream of the existing dam. The bridge was established as a toll bridge in 1800 and was known as Zoar Bridge. It linked a community named Zoar on the west side of the river to a community named Punkups on the east side. The bridge was reportedly carried away by an ice freshet in 1835. In 1837, Elisha Hubbell built a big covered bridge in the same location, which was carried away by a flood on November 13, 1853. The bridge was rebuilt by Philo Smith and operated until 1875 when it was carried off by a freshet. Despite the ravages of annual freshets, the bridge crossing remained a critical connection to the Monroe and Zoar Bridge Turnpike. This roadway, established in 1826, traveled southwest from Zoar Bridge to the Bridgeport and Newtown Turnpike. The 1876 opening of the Zoar Suspension Bridge, a wrought iron and wood suspension bridge, marked the beginning of a stabilized river crossing. The bridge provided a useful crossing until removed in 1918, prior to the opening of the downstream Stevenson Dam Bridge.

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Steven M. Bedford
Linda Perelli Wright

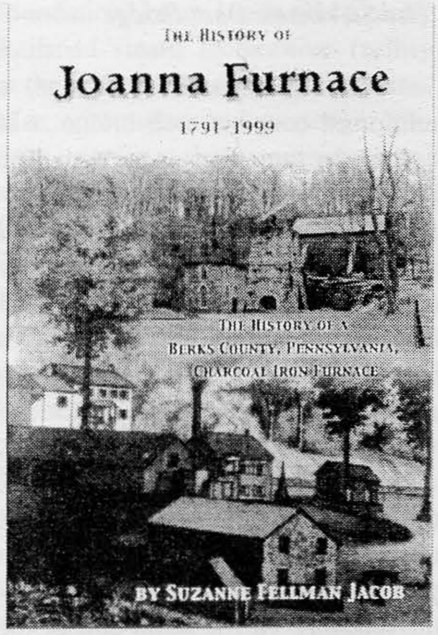
Book Review

The History of Joanna Furnace, 1791-1999: The History of a Berks County, Pennsylvania, Charcoal Iron Furnace
By Suzanne Fellman Jacob
1999
Hay Creek Valley Historical Association, P.O. Box 36, Geigertown, PA
ISBN 1-883294-4
xiv+360pp, 6 by 9 inches, illus., maps, biblio., index.
$35.00 includes S&H

Joanna Furnace, about 35 miles west of Philadelphia, Pa., was built in 1791 and is more than a mere remnant of America's 19th-century industrial power. The site, owned by the nonprofit Hay Creek Valley Historical Association, is testimony to the people involved with the furnace, past and present. Many individuals have been interested in preserving the furnace, from the ironmaster Smith family, to Bethlehem Steel Corporation, and the Hay Valley Creek Historical Association.

The furnace's name – Joanna – has been traditionally attributed to Joanna Holland Potts, the wife of Samuel Potts, one of the company's co-founders. This was a natural, as many furnaces in the area were named after wives or daughters of furnace owners (e.g., Elizabeth Furnace, Lancaster County; Maria Forge, Carbon County; Rebecca Furnace, Chester County, plus at least six others).

Ironmaking was a secret process known only to the ironmaster. The mix of iron ore, limestone, and charcoal had to be correct or the iron pro-



duced was of poor quality. Quality, more than quality, was what made an iron furnace's products sought beyond the limits of its immediate locale. But the history of Joanna Furnace is not dull facts, figures, and dates. It is about the people that owned, operated, worked, and lived (and died) around the furnace. It is about a community of kindred souls that were farmers and furnace people, religious and hard working. It's a story of Americans – as defined by those individuals who came here (whether by choice or not) – and their impact on one small area of one county of one state.

I like a number of things about Suzanne's book, for example, its 6- by 9-inch bookshelf size. The text is amply illustrated (many photos by Suzanne's husband, Walter). I also appreciate the clear, readable type. Terms are defined when introduced, not assuming the reader is well-versed in ironmaking terminology. The book starts by describing ironmaking technology, then presents the history of Joanna Furnace in chronological "bite-size" increments. Chapters 1 to 12 commence with thumbnail overviews of world, national, local, and technological history contemporary with time-frame of that chapter (I wish I'd thought of that). The book was a joy to read, and I highly recommend it.

Not just an ironworks relic standing amidst a tangle of brush and trees, Joanna Furnace is alive with activities, sponsored by the Hay Creek Valley Historical Association. The site includes the standing furnace ruin, along with a number of associated buildings. It is located 3 miles north of the I-73 Morgantown, PA, exit, very obvious as you drive by on Route 10. The grounds are open year-round; but contact the Association at 610-286-0388 for dates of special events, museum openings, and tours. Don't forget to bring along your copy of the book.

Victor Rolando
Bennington, VT

Early Iron Smelting

For those who might have missed this small article by Harald Veldhuijzen and Eveline Van der Steen tucked into a corner of *Archaeology* magazine:

Excavations at Tell Hammeh, on the north bank of Jordan's Zarqa River, have revealed evidence of what may be the oldest known iron smelting. In one area, a heavy layer of smelting debris – ash, charcoal, slag and pieces of possible tuyeres (nozzles through which air is forced into a furnace) – was found lying against a mid-brick wall associated with what may be the collapsing remains of two furnaces. Elsewhere at the site three more furnace structures were identified, one of which was excavated. It was round, built of large mud bricks, and contained ash, slag, and burnt brick. No stratigraphic connection has been established between this structure and the debris layers, but the pottery shows that both date generally to the eight century B. C. Analysis showed that the furnaces were used for iron smelting, and that the remains cover most of the technical steps one would expect to find in that process. The mineralogical structure of the slag points to high furnace temperatures, in excess of 1,200 degrees Celsius, which suggest bellows were used. Elements present in the samples indicate that the ore used was probably from nearby Mugharet al-Warda, Jordan's only source of iron ore. The excavations, part of Deir `Alla Regional Project, a joint effort of Yarmouk University and Leiden University, will resume this spring. [*Archaeology,* Jan/Feb 2000, p. 21.]

Victor Rolando
Bennington, VT

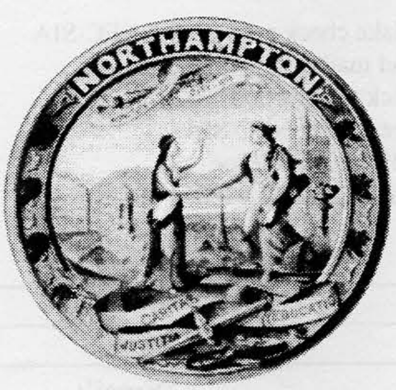
Why is the city of Northampton's seal ringed by moths and mulberries?

The Northampton, MA, Silk Project

The Northampton Silk Project began in 1996 when a city resident searching the Forbes Library for information on the industry that gave Florence its name transformed the city, discovered… nothing at all! Yet the story of silk in Northampton is a thrilling and important one. Beginning in the mulberry craze of the 1830s, reincarnated first as the industry of the utopian Northampton Association of Education and Industry and later as the symbolic partner of the newly invented sewing machine, the Northampton/ Florence silk industry became the city's largest employer and the nation's leading manufacturer of "machine twist," only to collapse in the throes of the Great Depression. Through silk, Northampton grew, thrived and diversified. The Northampton Silk Project is a community-wide effort to discover this history and understand it impact on our time.

The silk project working group has grown to include

- interested residents from many walks of life
- area school teachers
- Smith College faculty, students and staff
- local silk artists
- the directors of the Florence Civic Center and Historic Northampton.



A reproduction of an 1830s silk reeling machine, constructed by Smith College students Beth Caton, Vanassa Larson and Alena Shumway. Here Greg Young, director of Smith's Science Center machine shop, talks with Beth and Vanessa.

Supported in part by the Massachusetts Foundation for the Humanities, our "discovery process" includes study groups and workshops, a monthly brown-bag lunch series during the school year, and an annual planning conference each spring. All events are open to the public. For more information, visit the Web site: www.smith.edu/hsc/silk/silkproject.

The Northampton Silk Project will culminate in 2002 with displays of artifacts produced in local mills and working models of machinery used, walking/bicycle tours of Northampton/Florence silk sites and curriculum materials for middle schools. There will be an exhibition, "Silk in New England Society, 1730-1930'" at the Smith College Museum of Art. In addition, there will be a symposium on the history of silk throughout the world, from antiquity to the present, and a silk fashion show featuring the work of local silk artists.

The project is guided by a steering committee (Alan Bloomgarden, Kerry Buckley, Suzannah Fabing, Paul Gaffney, Al Rudnitsky, Marjorie Senechal, Catherine Smith and Greg Young) and a panel of expert advisors including Christopher Clark, Madelyn Shaw and Aleksander Xhoxhi.

Do you have personal memories of silk life? Letters, diaries, or photographs of family members who worked in the mills? Silk-making machinery or locally-produced silk artifacts? Please call the Silk Project Coordinator or the project's director, Marjorie Senechal) at 413-585-4292.

David Engman
Warwick, MA

Conferences and Tours

May 5-7
Ironmasters 2000 Conference and Tour
Saugus, MA
"Massachusetts: Roots of Iron"
Contact Curtis White at Saugus Iron Works national Historic site, 244 Central Street, Saugus, MA 01906.
E-mail curtis_white@nps.gov.

June 1-4
SIA 2000, Annual Conference and Tour
Duluth, MN
Iron ore, Great Lakes shipping, wood and more.
Includes 17th Annual Historic Bridge Symposium.
Contact Dept. of Social Sciences, Michigan Technological University, 1400 Townsend Dr., Houghton, MI 49931-1295

New Members Sought

The Society for Industrial Archeology promotes the identification, interpretation, preservation, and re-use of historic industrial and engineering sites, structures and equipment.

Northern New England Chapter
(Vermont, New Hampshire, Maine.) Does not include membership to national SIA.

❒ Regular $10.00

❒ Student $ 3.00

Make checks payable to NNEC-SIA and mail to:
Herman C. Brown
Treasurer, NNEC-SIA
250 West Shore Road
Grand Isle, VT 05458-2104

Southern New England Chapter
(Massachusetts, Rhode Island, Connecticut.) Does not include membership to national SIA.

❒ Regular $10.00

❒ Student $ 5.00

❒ Life $100.00

Make check payable to SNEC-SIA and mail to:
Rick Greenwood
Treasurer SNEC-SIA
549 Maple Avenue
Barrington, RI 02806

Chapter members are encouraged to also join the national Society for Industrial Archeology (although it is not mandatory for chapter membership).

❒ Regular $35.00

❒ Student $20.00

Make Check payable to Society for Industrial Archeology and mail to:
SIA-HQ
Dept. Social Sciences
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931-1295

Name: ______________________________

Address: ______________________________

Phone: ____________________ Email: ____________________