Society for Industrial Archeology · New England Chapters

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CALL FOR PAPERS

24TH ANNUAL
CONFERENCE ON NEW ENGLAND INDUSTRIAL ARCHEOLOGY

FEBRUARY 25, 2012
AT PLYMOUTH STATE UNIVERSITY
Plymouth, N.H.

Proposals must be received by January 15, 2012.
E-MAIL Proposals to Dave Coughlin
<ykforestry@yahoo.com>

See Page 3 for Details

NNEC-SIA President's Report

This is my last report as NNEC president and I enjoyed serving the chapter in this position. One advantage of being president is you can often schedule meetings/tours for dates when you can attend!

I'd like to review a few of the goals during the past five years as president, most of which have met with partial success. First, was to have a chapter website and that was accomplished a couple years ago with help from our National organization. This website can be accessed through the national website at www.sia-web.org. It has a listing of past meetings and tours going back to 1980 when the NNEC was founded. The website includes a membership form and the chapter has added a few members who have used this form. However, it would be great to have our own independent website with a webmaster who could put up photos of recent tours, related events, etc. and serve as an active website for the membership. But that takes both time and money, two factors that are always in short supply. We could use the assistance of any member with the knowledge and time to set this up.

Another project was to have email addresses of our members so we can inform them of upcoming non-chapter events and eventually chapter events supplemental to the yearly meetings/tours. This was accomplished last year but we're still lacking some email addresses and members without email will be unable to receive this information. To keep dues as low as possible, we are now sending yearly renewal notices by email to those who have given us their email address. Many members are now sending in their renewals prompted by the email reminder, saving our treasurer many hours of mailing out the notices and reducing mailing costs incurred by our chapter.

One of my first changes as president was to eliminate the "voluntary" tour contributions of $5. There were advantages of eliminating this contribution as I could now focus on the day's events rather than collecting money, while reducing the day's expense for chapter members. The voluntary aspect sometimes worked well but wasn't a fair system to all. We are running a yearly deficit and this will need to be reviewed in the future.

The chapter once did a fair amount of research and recording of significant industrial archeology sites. As the years passed this has faded away, maybe due to lack of interest, time, members, and other reasons. But today due to email, it's easier than ever to let members know when a project is taking place. Maybe we can revive this important former aspect of our chapter. Time permitting, next spring I hope to start documentation of the most intact remaining sleigh mill located in Snowville, N.H. If you have documentation experience and would like to help out, please let me know.

With email addresses of most members, it opens up new possibilities both for future projects and site tours at no cost to the chapter. There are many interesting industries, mills, manufacturers, etc. that are not open for visits during the weekend when we hold our twice yearly events. Planning and arranging the weekday trips could be a good role for our 2nd vice-president. This position was originally slated as a meeting/tour planner but generally that has not been the case. Until then, I'll be looking into an occasional weekday tour, informing members by email. If a modest fee was charged, this would help reduce the yearly chapter deficit.

In conclusion, I would like to welcome David Dunning as our new chapter president effective Oct. 29th at our Fall meeting and tour. We are fortunate to have such a knowledgeable and enthusiastic chapter member in this position.

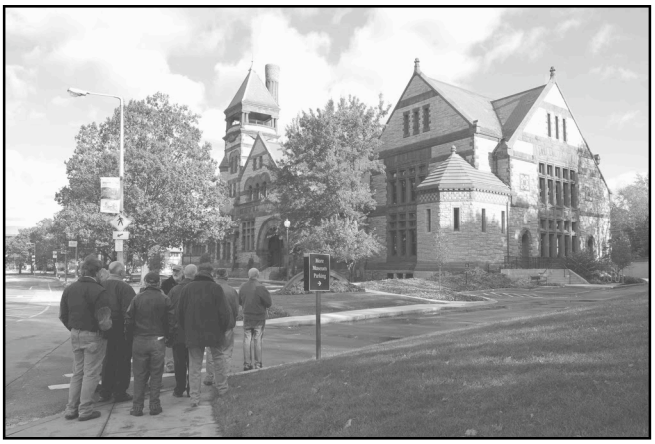
Dave Coughlin
(outgoing) NNEC President

Fall 2011 SNEC Tour

On October 30, 2011, about a dozen Southern New England Chapter members gathered at the Chestnut Hill Reservoir in Boston for a tour of the recently opened Metropolitan Waterworks Museum. The Museum is located in the former High Service Pumping Station of the Massachusetts Water Resources Authority (MWRA). It was a sunny but blustery Sunday afternoon - the day after the "freak" October snowstorm that buried much of the region and unfortunately left so many without power for several days. The tour was organized by SNEC Treasurer Sara Wermiel and led by MWRA engineer Marcis Kempe and museum board member Dennis De Witt.

The tour began with a presentation by Mr. Kempe in the museum's second floor meeting room, overlooking the Great Engine Hall. The presentation included a short history of Boston's water system through the years and details of the various reservoirs and features of the pumping systems, including the three remaining pumping engines, which now form the focal point of the museum.

After the presentation, the tour proceeded across



SNEC-SIA members outside the historic High Service Pumping Station, which now contains the Waterworks Museum, Boston, Massachusetts, October 30, 2011.

Beacon Street to Gate House #2, completed in 1901 to control the flow of water between Chestnut Hill Reservoir's Bradlee Basin and the High and Low Service Pumping Stations.

Next, the group walked along the shore of the reservoir to the 1868 Intermediate Gate House, originally built to control the flow of water between the Lawrence and Bradlee Basins of the Chestnut Hill Reservoir. Boston College filled in the Lawrence Basin during the 1950s for their athletic fields. Although it is no longer in active service, the Intermediate Gate House still contains the original gearing that allowed an operator to control the flow of water in vari-

Continued on Page 4

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Society for Industrial Archeology · New England Chapters

Call for Papers

24th Annual Conference on New England Industrial Archeology

February 25, 2012

at Plymouth State University

Plymouth, New Hampshire

Deadline for paper proposals: January 15, 2012

The Northern New England Chapter of the Society for Industrial Archeology invites proposals for papers to be presented at the 24th Annual Conference on New England Industrial Archeology. The conference is alternately hosted by the Southern New England and Northern New England Chapters as a forum for presenting research of America's industrial past. This year's conference is to be held at Plymouth State University in Plymouth, NH, on February 25, 2012. Papers are welcomed on all topics related to industrial history, architecture, manufacturing, archeology, etc. Proposals may be submitted for individual papers, team papers, or reports on works-in-progress. As in past conferences, it is anticipated that the time limit for each presenter will be 30 minutes.

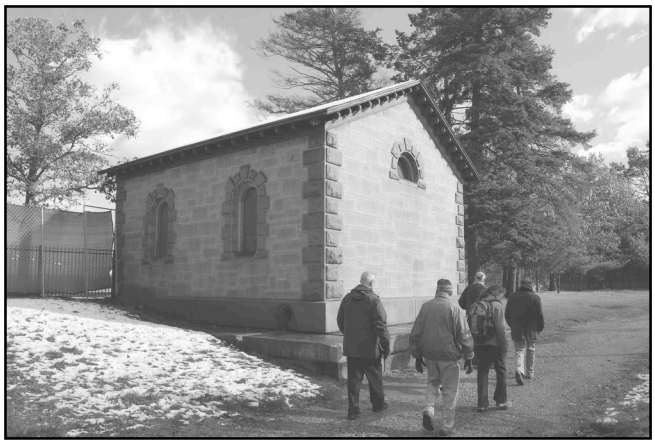
Student Papers are welcomed.

Format: Each presentation proposal must include: 1) title; 2) an abstract of not more than 300 words; 3) a brief (half-page) resume of the author(s), including postal address, telephone/fax, and e-mail; and, 4) a list of the presenter's audio-visual requirements.

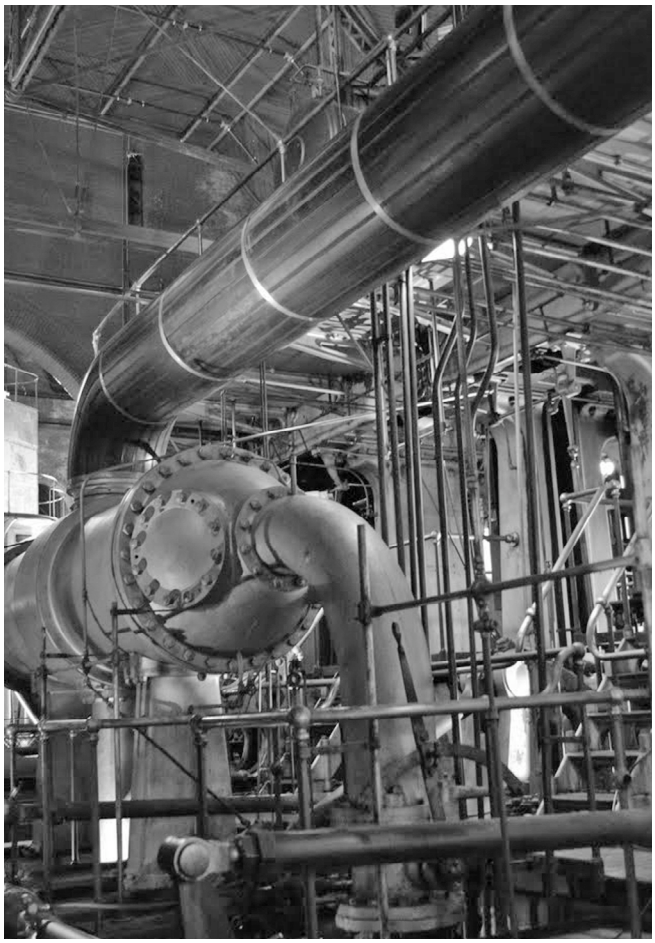
Deadline: Proposals must be received by January 15, 2012.

E-mail proposals in *MS Word* format to: ykforestry@yahoo.com

USPS to: Dave Coughlin, 276 Back River Road, Bedford NH 03110



SNEC-SIA members tour the Intermediate Gate House (built 1868), Chestnut Hill Reservoir, Boston, Massachusetts, October 30, 2011. This structure once controlled the flow of water between Lawrence Basin and Bradlee Basin. The gate house is accessed via the Boston College athletic fields, located on the filled-in Lawrence Basin.



Inside the Waterworks Museum, Boston, Massachusetts. Part of a tour with the SNEC-SIA, October 30, 2011. View of the Leavitt-Reidler Engine.

ous directions. It is a very well-preserved building, and even has its original wooden roof frame.

The group next stopped at the 1878 Sudbury Terminal Chamber. Located at the end of the Sudbury Aqueduct, this handsome stone structure contains five control gates at the west end of the Bradlee Basin. The building's windows contain iron bars and are open to the air outside for ventilation since it is always dark and damp on the inside.

The tour concluded with a close-up view of the museum's displays including the ASME Landmark 1894 Leavitt-Riedler pumping engine, the 1916 Worthington-Snow and the three-story-tall Allis Engine located under the 1897 addition to the High Service Pumping Station.

SNEC members held a short meeting after the tour to discuss ways of improving communication amongst the group and encourage more participation, for example, in planning future elections and tour events. During the meeting, it was agreed that the chapter website should be updated more frequently with upcoming events and information, and that the bylaws be posted on it for the benefit of all members. Ideas for increasing membership were also discussed, including creating a new informational flyer and networking with local colleges, museums, and similar groups to increase awareness about the SNEC and SIA in general. Carol Auer and Michael Green volunteered to take on the task of collecting information on upcoming SNEC events and other events that might interest members, and sending this out in emails periodically to members. Michael Green also volunteered to work on planning tours. Anyone who would like to work with Mike on planning tours or programs, or has an event announcement to send to members, please contact Mike at slash2bmw@gmailcom.

Marc N. Belanger
SNEC Member

Inside the Waterworks Museum, Boston, Massachusetts. Part of a tour with the SNEC-SIA, October 30, 2011. Closeup of the Allis Engine.

SNEC SIA Bylaws – Time for Revision?

In 1988, a committee of SNEC members wrote Bylaws for the Chapter, which were then approved by a vote of members. They were distributed at that time. This information was provided to me, along with a copy of the Bylaws, by former SNEC Treasurer Bill Goodwin. It does not seem that the Bylaws have made an appearance since then.

The time has come to republish them (see below) and to ask if it's also time to revise them. As you will see when you read them, the Chapter is not complying with many provisions. For example, there is no vice-president/program coordinator; the SNEC does not hold two meetings per year; and it seems unlikely that there will be an Annual Meeting, at which officers are to be elected.

Do we need a new Bylaws committee to update the Bylaws? Wouldn't it make sense to have mail-in elections, like the SIA national does, rather than trying to elect officers at an Annual Meeting? Please read the Bylaws and think about this.

Sara Wermiel,
SNEC Treasurer

Article I. Name.

The name of the local chapter of the Society for Industrial Archeology representing Connecticut, Massachusetts, and Rhode Island shall be the "Southern New England Chapter."

Article II. Purpose.

The purposes of said local chapter are in accord with those of the parent Society, to wit: to encourage scholarly study of, and to provide the dissemination of information about, industrial archeology; to foster the documentation, preservation, and interpretation of industrial artifacts, structures, sites, and their contexts in the region; and to obtain the cooperation and support of interested organizations and groups in order to further the goals of the national and local organizations.

Article III. Membership.

Section 1. Membership in the Chapter is open to all persons who wish to participate with other members in achieving the purposes of the Chapter and the Society, in accordance with its bylaws.

Section 2. There shall be three classes of chapter membership: life, regular, and student. Chapter dues shall be established by majority vote of the Chapter membership attending an annual meeting.

Section 3. Members delinquent in paying dues for one year shall be dropped from the rolls of the Chapter.

Section 4. Chapter members are encouraged to become members of the Society for Industrial Archeology.

Article IV. Meetings.

In accordance with the national bylaws, the Chapter shall hold a minimum of two (2) meetings a year, one of which shall be held during the Fall and shall be the Annual Meeting of the Chapter. Minutes of the Annual Meeting shall be sent to the Chairperson of the Local Chapter Committee of the national organization within 45 days of the meeting. An annual report and financial statement shall be forwarded to the Chairperson of the Local Chapter Committee during the month of January.

Article V. Officers.

Section 1. There shall be four officers of the Southern New England Chapter, namely, the president, the vice-president/program coordinator, the secretary, and the treasurer. The offices of secretary and treasurer may be combined or separated at the discretion of the Chapter membership.

Section 2. The officers shall constitute an executive board which may meet as determined by, and as called by, the president to conduct the business of the Chapter as authorized by the membership. The executive board may appoint committees to assist the board in furthering the purposes of the Chapter.

Section 3. The president shall preside over all meetings of the membership and shall bear responsibility for the preparation and presentation of the annual report of the Chapter at the annual meeting of the national society. The president shall also have check-signing powers relative to the authorized conduct of the Chapter's financial affairs.

Section 4. The vice-president/program coordinator shall be responsible for the organization of all field trips, recording parties, or other scholarly activities undertaken by the Chapter, and shall keep a record thereof. He/she may appoint project coordinators. In the absence of the president, the vice-president shall preside over the affairs of the Chapter.

Section 5. The secretary shall keep and maintain the minutes of all meetings of the Chapter; shall attend to any necessary correspondence; and shall notify the membership of meetings and projects. In the absence of the president and vice-president, the secretary shall preside over the affairs of the Chapter.

Section 6. The treasurer shall have custody of all Chapter funds; shall be responsible for maintaining accounts; and shall annually submit a written financial report and bank statements to the membership. In January the treasurer shall

submit a written report to the President for submission to the Chairperson of the Local Chapter Committee of the national organization. The treasurer shall maintain an official list of the Chapter's membership. He/she shall also have check-signing powers relative to the authorized conduct of the Chapter's financial affairs.

Article VI. Authority.

Section 1. The Chapter may undertake any activities consistent with the purposes of the Chapter set forth in Article I. The Chapter shall not take any action in the name of the national organization without the prior approval of the Board of Directors of the national society.

Section 2. These bylaws may be amended by a majority vote of those present and voting at the Annual Meeting.

Experience Attending Events During Massachusetts Archaeology Month

Every October for several years, the Commonwealth of Massachusetts has held Archaeology Month. Events were promoted on their web site (http://www.sec.state.ma.us /mhc/mhcarch/archmonthintro.htm) and in their booklet published for the event. The calendar was very full this year, with events held on every weekend and on many weekdays throughout the state. I went to four of these events (accompanied by my wife on three of them): Haywardville in Stoneham, Wheeler Farm in Acton; Newcomb Snow Factory/Museum of our Industrial Heritage in Greenfield, and the South Shore Nature Center in Norwell.

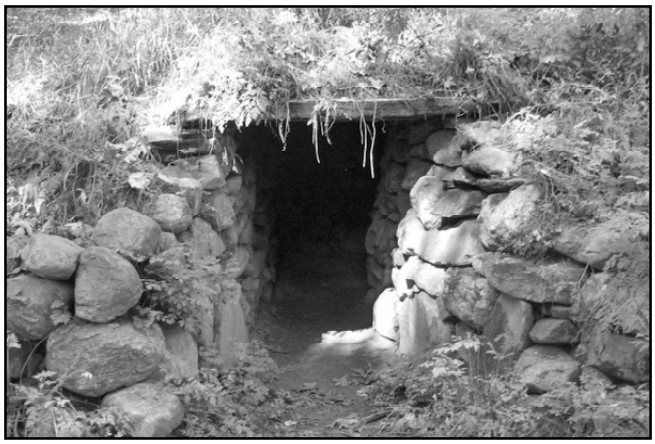
Haywardville, now totally within the Middlesex Fells Reservation in a section called Virginia Wood, was once a series of mills along Spot Pond Brook that are now ruins and mill ponds. The state's archaeologist for the Mass. Department of Conservation and Recreation (MassDCR) guided us on a tour in Virginia Wood that started on the west side, then progressed eastward to a point near where Pond Street meets the Lynnway. The archaeologist started by talking about American Indian artifacts at sites along Spot Pond, then she talked about the grist mills, ponds and CCC (Civilian Conservation Corps) projects along Spot Pond Brook, then about the ruins of an old dye mill, then a rubber factory run by Nathaniel Hayward, one-time partner with Charles Goodyear. Access is free; however, the trails are varied, and I recommend getting a detailed map or the booklet published by Friends of the Middlesex Fells before you go. To finish the day I located an historical plaque at the Goodyear Elementary School that marked the site of Charles Goodyear's house, where it is claimed he discovered the vulcanization process.

Foundation of the old red mill/Hayward rubber factory.

Mordecai Lincoln Mill, at the border of Scituate and Cohasset. The mill building, which straddles the brook, is still standing.

Channel to Robbins Mill site. The channel is still complete and carries water from the millpond to the site.

Robbins Mill site. There are likely two mills at this location: a saw mill and a grist mill. The sawmill foundation is ahead, beyond the opening, while the gristmill is left, just out of the picture.



Nashoba Brook Stone Chamber. Little is known who originally built this chamber, or how it was used. It is likely that it was NOT used to store potatoes, as its other name implies.

At the end of Wheeler Lane are structures associated with the Wheeler Farm and Robbins Mill, all within Acton's Nashoba Brook Conservation Area (see http://www.acton-trails.org/DescNashobaBrook.htm). The Wheeler farmhouse foundation is located by the parking lot. Our guide, an amateur archaeologist, talked about her research and restoration efforts, and led us to the key sites. About 100 feet from the foundation, by the stream, are the stone foundations being rebuilt of a gristmill, a sawmill, and two other structures that may have been blacksmith shops. The raceway still holds water from the earthen dam upstream. The site is along Acton's "Time Travel Trail," or TTT, where there are Native American cairns, an artifact called the Nashoba Brook Stone Chamber (also known by the less accurate name, "Potato Cave") and a breached dam and pencil factory ruins. See the web site http://www.actonmemoriallibrary.org/pine-hawk for details.

The Newcomb Snow Factory and Museum of Our Industrial Heritage is a complex by the Greenfield River that has a standing structure, a dam, and the foundations of a gristmill (SNEC went to this location in the Fall 2010 tour). The museum staff led groups all day to the back of the building to point out the scrap piles left by the previous companies, foundations of a gristmill and hydroelectric power station, and the basement of the mill. Inside, the staff guided us through the exhibits about the industry of the area, including cutlery and machinery manufacturers, then showed computer-generated videos of how the site likely looked about 100 years ago. See the web site, http://industrialhistory.org/, for details about and hours for the museum.

The South Shore Nature Center in Norwell is a conservation area. The archaeological event was a family-oriented exercise, mainly to dig up things in a sandbox. However, after visiting this location, we decided to continue on to Scituate where we visited two gristmills. The first gristmill was built around 1650 and was featured in the poem "The Old Oaken Bucket." The Scituate Historical Society web site (http://www.scituatehistoricalsociety.org/sites_mill.html) states that this mill is currently not in working order, and there were no regular hours stated. The second gristmill at the Cohasset line was built by Mordecai Lincoln, an ancestor to President Abraham Lincoln. There is a building but it was not determined whether there was working machinery.

As in the case of many of my road trips, I usually ended up doing more than the original plan, and I came away having learned more about archaeological activities in Massachusetts.

Craig Austin,
SNEC Secretary

Sayles Mill 1882-2011 RIP

Every year that passes sees the loss of a few more textile mills in Southern New England. The historic Sayles Mill in Dayville, CT, is in the process of being demolished. The roof collapsed during one of last winter's snowstorms, and the owner is now tearing down the entire structure.

In 1858 Sabin L. Sayles and Harris C. Sayles of Pascoag, RI, built a textile mill building in Dayville along the Five-Mile River. The old firm of S. & H. Sayles was dissolved in 1879, by the retirement of H. C. Sayles, and in 1882 took the name of the Sabin L. Sayles Company. In 1883 a 50 foot by 200 foot 4-1/2 story brick structure was erected by the Sabin L. Sayles Co, which is the mill that is being demolished. This woolen goods manufactory became the principal industrial institution in the village of Dayville. The water power for this mill was supplied from a reservoir of 1,300 acres, with a fall of seventeen feet, and a Risdon water wheel of 190 horse power. A Wheelock engine of 175 horse power was kept in reserve for use in emergencies.

In 1924 a new powerhouse was constructed. The hydropower facilities consisted of a powerhouse, generator, turbine, and gateworks which were all retired from service circa 1962.

William Prym, Inc. moved into the building in 1939 and manufactured bobby pins, paper clips, thumb tacks and wire hangers through the 1980's before production moved to South Carolina. The structure is known to locals as the Prym Mill.

Sources:

HAER CT-145

Bayles, Richard M.
1889 *History of Windham County,Connecticut.* New York: W.W. Preston.

Michael D. Green
SNEC Member

The Sayles Mill Demolition

The Sayles Mill Today

INTERNATIONAL SILVER COMPANY

FACTORY H, MERIDEN, CONNECTICUT

The City of Meriden will redevelop parts of the former International Silver Company Factory H as part of a neighborhood revitalization effort, using state and federal funds. Proposed redevelopment will include demolition of former factory buildings at 77 Cooper Street including numbers 7, 15, and 29, and re-use of boiler house facilities at 104 Butler Street. The Connecticut State Historic Preservation Office requested historical documentation to mitigate project effects on these historic industrial resources, which appeared eligible for the National Register of Historic Places. The city retained Raber Associates to complete these tasks in 2007, results of which are summarized here.

The International Silver Company

By the late 19th century, central Connecticut's nationally-significant concentration of silver-plated cutlery and tableware manufacturers was some fifty years old. The industry developed from 18th- and early 19th-century makers of utilitarian and ornamental products using malleable metal alloys including pewter (85 to 99 percent tin, plus copper, antimony, bismuth and lead) and Brittania (approximately 93 percent tin, with the remainder consisting of antimony and copper). Industrial production of silver-plated wares with electroplating began in 1838 in Birmingham, England, and the process was patented in the United States in 1840. At about the same time, J. O. Mead in Philadelphia began experiments with the electroplating technique that he later used as the basis of a partnership with William and Asa Rogers of Hartford in 1845. Within a year Reed & Barton in Taunton, Massachusetts, were also producing silver-plated Britannia ware. Although Brittania remained a base metal for plated wares into the early 20th century, it was gradually supplanted after the Civil War by more durable German silver, also known as nickel silver, an alloy of copper with, typically, 20 percent each of nickel and zinc.

The Meriden Brittania Company, established in 1852 as an amalgamation of several Meriden and Wallingford manufacturers led by the silverware-marketing brothers Horace and Dennis Wilcox, grew dramatically into the late 1890s with additional acquisitions of local manufacturers including the original Rogers Bros. operations, a plant in Hamilton, Ontario, and sales offices in New York, Chicago, San Francisco, and London. The well-known Rogers Bros. 1847 line of silver-plated ware was a prominent part of Meriden Brittania's marketing efforts. Despite its name, this largest of Meriden's silverware makers used German silver for most of its products long before 1898, when the owners launched a much larger organization with a name more appropriate to their principal wares. The International Silver Company, incorporated in New Jersey, initially merged Meriden Brittania with twelve other firms in Connecticut, Lyons, NY, and Toronto, and by 1905 had acquired fifteen other cutlery and tableware manufacturers in Connecticut, New York City, and Niagara Falls, Canada. The new company was organized to facilitate sales through consolidation of advertising, and profits through control of competition. International Silver continued to use the different factories it acquired in Meriden and elsewhere, and never consolidated operations to achieve greater manufacturing efficiency. As discussed below, many of the Meriden plants operated in 19th-century loft buildings through most or all of their histories under International Silver. Although original company names at the factories were replaced by alphabetic designations, International Silver retained some of these names to market successful older silverware lines, as Meriden Britannia had done with Rogers Bros. wares. The basic technique for making plated flatware, described below for the last generation of production at International Silver Company Factory H, remained unchanged for over a century but was refined by much larger plating tanks using greater electrical current, use of better chemicals and quality control to enhance the application of silverplate to German silver blanks, increased mechanization of steam- or electric-powered finishing processes, and improved ventilation systems.

The second round of International Silver acquisitions c1899-1905 included the 1903 purchase of C. Rogers & Bros., a firm established by brothers Cephas, Gilbert, and Wilbur Rogers in 1866. Younger relatives of the original silver-plating Rogers brothers, they had some experience with plated flatware through pre-1866 work with other firms, and initially made plated casket hardware before expanding into flatware production c1870 using designs based on those of the Roger Bros. 1847 line. They built a factory between Cook Avenue and Harbor Brook, north of Cooper Street, c1868-75. By 1901, C. Rogers & Bros. made cutlery and tinned iron spoons in addition to electroplated silverware. Their silverware lines, considered imitative of more prominent models, were not continued by International Silver. By c1920, the

former C. Rogers & Bros. factory had been designated International Silver Company Factory H, one of five factory complexes run by the company in Meriden.

Following significant sales growth in the early 1920s, International Silver acquired three more Canadian factories in 1924 and additional American silverware businesses into the mid 1930s. To control its supply of flatware blanks, in 1924 the company established an electric-powered casting and rolling mill with expanded laboratory facilities to create plates of German silver, Brittania metal, and sterling silver at its Factory R in Meriden, a capability claimed as unique among American silverware manufacturers. Based on conversion to wartime production evidently planned by early 1939, the conglomerate became heavily involved in making military hardware during World War II, as discussed below for Factory H. International Silver incorporated in Connecticut in 1946, and expanded its manufacture of plated as well as sterling silver flatware to meet the demand created by a spike in marriages immediately after the war. Expanded operations included some new facilities at older plants such as Factory H, and construction of an entirely new flatware plant in southern Meriden. By 1948, the company was the largest silverware manufacturer in the world.

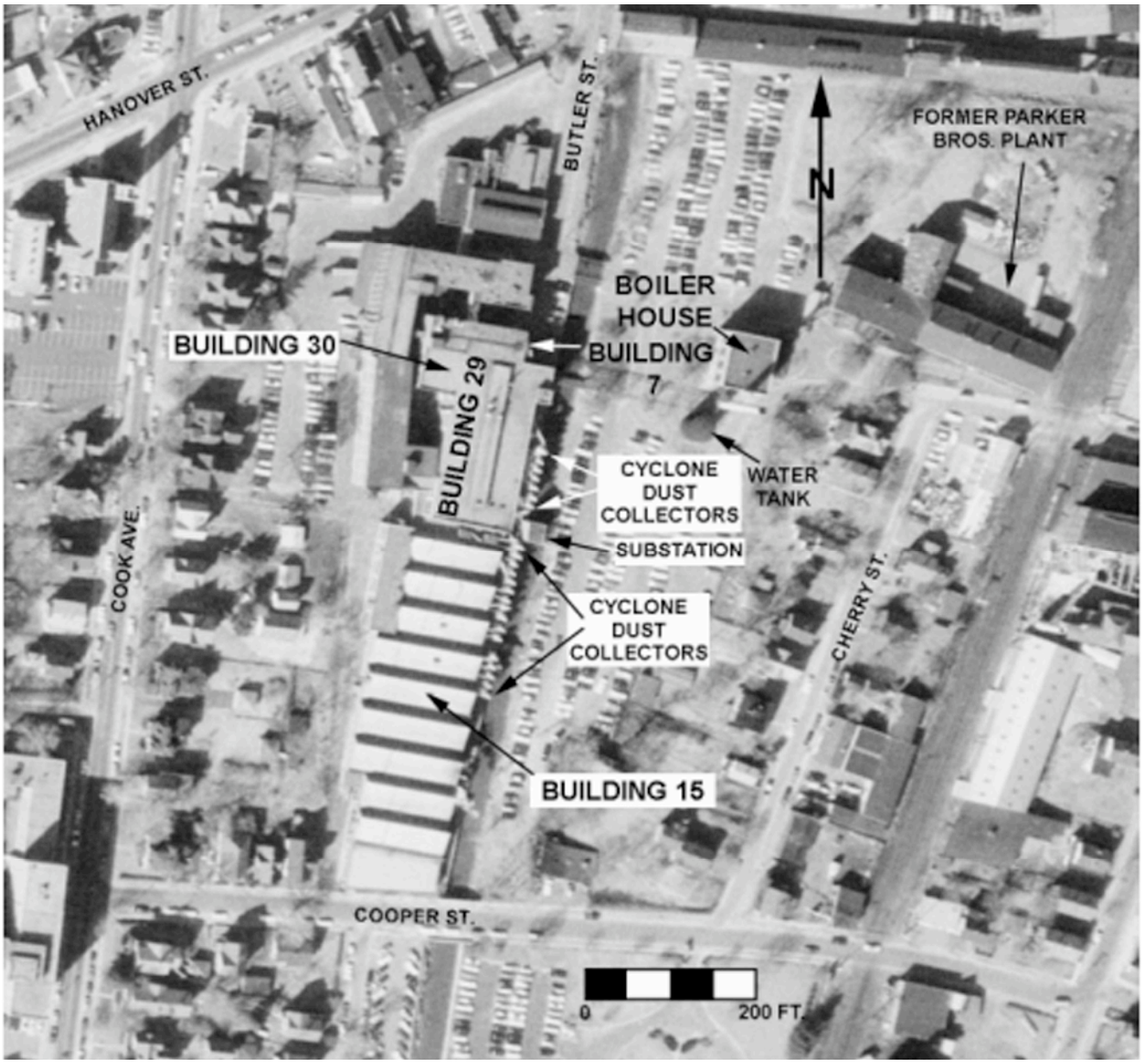
Despite International Silver's prominent role in local industry for several generations, and the importance of senior company executives in other local financial and civic institutions, there is little compiled information on plant operations or employee relations. There was limited union activity in the Meriden and Wallingford plants. By the mid-1920s, International Silver was known informally as Insilco. In 1925, a voluntary social and athletic employee organization called the Insilco Club was established, which with some company support fielded plant-specific teams in several sports and organized many social events. The club's self-published monthly newsletters covered activities in all the American and Canadian plants.

International Silver continued to construct some new local facilities in the 1950s and 1960s, but beginning in 1955 the company began to diversify in response to competition from Japanese makers of steel tableware. Until 1967, acquisitions of new firms and re-use of some older facilities continued to focus on metalworking products, and by 1965 non-silverware products accounted for half the company's sales. Under chief executive officer Durand Blatz, the company subsequently moved into electronics and communications, automotive components, office products and specialty publishing, and renamed itself Insilco Corporation in 1969 with International Silver Company as an increasingly small subsidiary. Silverware manufacture continued to decline as a component of Insilco business, hobbled by low-priced tableware imports, inflated silver prices, and changing American lifestyles. Some departments in the silverware factories were moved to a new facility on Research Parkway in Meriden, and the tool-and-die making operations were converted to produce precision engine parts for airplanes and helicopters. The local silverware plants were gradually closed beginning in the early 1970s, with Factory H among the earliest to shut down c1972. After International Silver began to lose money in 1982, Insilco quickly sold the subsidiary, and by 1984 all silverware manufacture in Meriden ended.

History and Significance of Factory H and the Documented Structures

Insurance maps, historical photographs and bird's-eye views indicate that the C. Rogers & Bros. factory and other local silverware plants built in the late 19th century typically had 1-story brick buildings for plating, annealing, and storage, and 3-to-4-story, gable-roofed, wood-framed brick loft buildings for pressing of rolled plates into product blanks, and trimming, polishing, and buffing operations which followed the annealing and plating of blanks. Blanking or forming presses would likely have been confined to the ground floor. Finishing operations moved from lower to upper floors, assisted by interior or exterior hoists and elevators – a pattern which persisted at Factory H and many other International Silver plants into the late 20th century, even in newer multi-story structures such as Building 29 built in 1947 at Factory H. In most cases, the brick loft buildings had three to five transverse window bays, with relatively narrow windows, and appear to have been adaptations of early 19th-century slow-burning mill construction to relatively small urban lots, with somewhat lighter framing enhanced by sprinkler systems in place by the 1890s. The typical absence in the silverware factories of brick pier or pilaster construction with larger windows, common in many contemporary American industrial plants with wider footprints and heavier equipment, may reflect the relatively lightweight finishing machinery and materials deployed by firms like C. Rogers & Bros. Steam plants supplied heat, and power for operating equipment as well as fire pumps.

The earliest 4-story buildings at the former C. Rogers & Bros. complex, built c1870, remain in modified form as now-vacant medical spaces which will survive the current redevelopment efforts. Most of the other 19th-century components vanished during International Silver construction episodes, but the principal 4-story C. Rogers & Bros manufacturing building, built c1881-84, survives near the original southeast corner of the plant as part of International Silver Company Building 7 at Factory H. By approximately the end of World War I, International Silver extended 75-by-



Factory H and Vicinity in 1965

34.5-foot Building 7 to the west by 33 feet, with a larger elevator at the new southwest corner, perhaps to consolidate all the finishing operations into a single floorplan with an older but still-effective mid-19th-century wood-framed mill design. In this period, International Silver also built one or more multi-story buildings at the west side of the plant, removing the original plating shop. An undocumented high 1-story, flat-roofed building approximately 45 by 145 feet, built to the south of Building 7 beyond a narrow row of buildings including a boiler plant and annealing furnaces, may have housed replaced and enlarged plating facilities.

Factory H history prior to International Silver's conversion to wartime production beginning in 1939 is not well documented. Production of cutlery, which had been expanded by C. Rogers & Bros. c1900, was moved in 1923 to the former Meriden Malleable Iron plant then recently acquired by International Silver. Factory H was then dedicated entirely to silver-plated flatware production. By 1934, a 3-story steel-framed brick addition (Building 30) to Building 7 was in place at the older building's southwest corner. Factory H property was expanded considerably c1938, with previously unavailable rail frontage, when International Silver acquired the nearby Parker Brothers shotgun factory between Harbor Brook and the New York, New Haven, and Hartford Railroad. These sporting guns, among the best of their kind in the United States, were made at this plant from c1867 to 1938, when Remington Arms Company – which purchased

Parker Brothers in 1934 – moved production to Ilion, NY. International Silver probably used the shotgun factory only for storage and transshipment. Harbor Brook between the two complexes was channelized in this period, and bridged for pedestrian traffic to facilitate the travel of employees living on nearby streets.

Factory H production facilities were greatly expanded for wartime production of military hardware in 1939-1940, perhaps initially as part of private American industrial response to British and French demands. The most important new production facility was Building 15, a 400-foot-long, 100-to-130- foot-wide 1-story steel-framed sawtooth-roof structure erected between Cooper Street and the 1-story structure south of Building 7. For the best lighting of wide industrial space, the framing, flashing, and gutter requirements for sawtooth roof construction made this style far more expensive than flat roofs without skylights or roofs with central monitors. At least in Meriden, Building 15 appears to be the only sawtooth-roof structure built by International Silver. During the war, it is assumed that Building 15 housed many or all of the stamping presses, small chemical tanks, and die-drawing or milling machines used to make forceps and other steel surgical instruments, brass 20mm Oerlikon anti-aircraft cartridge cases, bearings for tanks, Parkerized steel clips for Garand rifles. Parkerizing provides surface corrosion and wear protection to steel surfaces through electrochemical application of an iron-phosphate coating in a solution. Some of the earlier Factory H facilities such as Building 7 may have been used for machining operations. Post-war resumption of flatware production removed all confirmed visible traces of wartime production in Building 15 and the other structures covered in this documentation, although some low machine bases could date to World War II.

Most manufacturing operations here were, by 1940, probably powered with purchased electricity, except perhaps some in older parts of the plant with steam-powered line-shaft-driven equipment. There is no evidence of line shafting in surviving plant buildings. The 1939-1940 plant expansion also included construction of the extant steel-framed, concrete-and-brick 64-by-54-foot boiler house immediately southwest

View southwest of buildings 7 (right, c1881-4 with c1903-18 addition) and 29 (left, 1947)

View southwest of Building 15 (c1940) east façade, with circu - lar openings for former pipes ventilating dust into now-removed cyclone dust collectors

of the Parker Brothers plant, built to provide heat to this plant and at least the expanded parts of Factory H production facilities. The boiler house has two abandoned oil-fired drum-and-tube-type boilers made by the Bigelow Company of New Haven, CT, equipped with burners made by the Houston, TX plant of Todd Shipyards Corporation. By c1950 if not earlier, there was a 1-story approximately 32-by-41-foot oil storage building along the east side of the boiler house, with an 8-foot-high concrete base which survives around depressions for removed oil tanks. The oil storage superstructure has been removed, along with a round tapered radial-fire-brick stack with a 14-foot-diameter base. Oil was fed to the boilers via a manifold pressurized by a Dean Brothers (of Indianapolis, IN) steam duplex outside-packed plunger pump. Feed water was supplied to the boiler by two steam duplex piston pumps, one made by the Warren Steam Pump Company (Warren, MA) and the other made by Dean Brothers. Small steel towers carried elevated steam pipes from the boiler house to the Parker Brothers plant, and to the building south of Building 7.

The final major stage in Factory H development, associated with the immediate post-war increase in International Silver tableware output, was the 1947 replacement of the 1-story c1903-18 structure south of Building 7 with a 200-by-90-to-105-foot-wide, 3-story steel-framed brick factory loft building with a large clerestory monitor, designated Building 29. An extant electric substation, also built in 1947, stepped down high-voltage alternating current power for use in the plant. Building 7 was at this time, if not before, converted to storage use, with some office and employee bathroom and shower space. All interior traces of manufacturing such as line shafting were removed, probably at about this time. Factory H tableware manufacture was concentrated in Buildings 15 and 29 until the plant closed, and these structures were equipped with extensive ventilation and dust-collection systems at about the time Building 29 was completed.

Although most remains of equipment and other infrastructure have been removed from Factory H, some reconstruction of c1947-1970 plated flatware manufacture procedures was possible based on a detailed published description of work in this plant, contemporary metallurgical literature, and 2011 plant conditions. The starting material for plated flatware was sheets of nickel silver, prepared at International Silver Factory R in Meriden by melting the component metals and rolling the resulting ingots into plate, which was then trucked to Factory H. Once the rolled nickel silver plate was received at Factory H, it was passed to blanking presses that punched the plates into individual pieces that had the outline of the product to be made, but slightly oversize. The press used steel dies, and the metal was cut cold. The press was driven by an electric motor, and would have had a massive flywheel to smooth out the load placed on the driving motor. The next shaping steps were done by roller dies rather than stamping. In the case of a spoon, feeding the blank crosswise into one set of roller dies formed the bowl and handle, and lengthwise grade rolling then formed the required thickness of the different parts of the spoon. The roller die machines would have been lighter than the blanking presses, but would be heavy enough that they would be placed on the ground floor of the factory building.

View west of building 15 interior at loading dock entrance

After the initial blanking and forming, the work pieces were annealed at about 720°C to soften them for subsequent operations. The annealing furnaces may have been gas fired, in which case flues would have been needed, but the apparent absence of flues suggests that by 1947 electric furnaces were used. No traces of these furnaces were found in the documented buildings. The annealed pieces were then stamped in closed dies to final shape. Next their edges were smoothed on abrasive belts, and finally they were polished with pumice. This was followed by close inspection. These operations were done entirely by hand work, with each item handled individually. At this stage the completed blanks were racked, placed in cleaning solution, and then transferred to electroplating tanks.

Silver plating was carried out in an electrolyte composed of silver and potassium cyanide at a concentration of about 40 to 50 grams per liter, with about 35 grams per liter of potassium carbonate added to make the solution a good conductor of electricity. Small amounts of brighteners such as sodium hyposulfate were added together with ammonia. International Silver used tanks that held 3,000 gallons of electrolyte. If these tanks were 3 feet high they would have been 13 feet in diameter; if 6 feet high (unlikely), 3.6 feet in diameter. (If in the shape of a ring, they would have been even larger.) The direct-current generating capacity (3,000 amperes) and current density used (up to 20 amperes per square foot) suggest that as many as 4,000 tea spoons, or a lesser number of larger items, could have been in the plating baths at one time. No traces of features of the reported size of the plating tanks were found in the surviving plant. The plating tanks may have been placed on top of the smaller tanks seen in a large recess in the floor of Building 15. After plating the workpieces were passed through a series of cleaning processes and inspections that were probably carried out in Building 29.

Physical evidence of workflow in Buildings 15 and 29 was largely limited in 2011 to a dense array of tanks and tank/machinery foundations near the south end of Building 15, ventilation equipment in both buildings, and lightweight overhead tracks in Building 29. Since there is a loading dock at the south end of building 15, the nickel-silver stock may have been delivered here and passed through the successive steps of manufacture to the north end of the building, where an elevator could take them to the upper floors of building 29 for finishing. In this case the stamping and rolling machines would have been in the first four bays at the south end of building 15, where there are several low concrete bases. Arguing against this interpretation is the absence of the ventilation equipment needed for the abrasive belt and pumice polishers used to prepare the nickel silver blanks for plating. No remains of ventilation equipment were present in the south end of building 15. North of the plating tanks building 15 was equipped with lateral vents exiting through the east wall to dust-collecting cyclones ranged outside the building, to remove dust produced by the belt grinding and buffing operations that prepared the work pieces for plating. Three large in-roof ventilation ducts remain in place in the three bays north of the plating facility. Alternatively, the nickel silver plate stock may have been delivered to the loading dock at the north end of building 29, moved to presses and rolls on the first floor of this building, and progressed to the south end of Building 15 after plating.

The plated flatware passed through a sequence of inspections, polishing, and buffing operations, and thence on to wrapping and shipping. Surviving features indicate that these operations were carried out on the second and third floors of Building 29. Most bays in the second floor are fitted with transverse ducts which once vented to large cyclone dust collectors on the east side of the building. Additional ducts vented to the west side. Numerous heavy duty switch boxes scattered about the second floor in 2011 suggest the

View east of Boiler House (c1940), with opening for former breeching to demolished stack on south wall (right center)

View southwest of two Bigelow boilers on Boiler House main floor

use of many motor-driven machines. Lightweight overhead tracks apparently intended for the transport of work in progress traverse the second-floor Building 29 work spaces, sometimes with steep dips. Large windows provided good light in this workspace. These features suggest that silver-plated products were passed between cleaning, polishing, and buffing operation coupled with frequent inspections on this floor. Tile wainscoting beneath the windows on the third floor of Building 29 suggests that this was a clean area where the final stages of preparation of the plated ware for shipping were conducted, including final cleaning, inspection, wrapping, and boxing. Windows in the east and west walls as well as in the monitor roof provided excellent light. There are fewer electrical switch boxes scattered about, and fewer overhead tracks for moving products than on the floor below. Large overhead ducts in the room and in the monitor above were probably part of the equipment of the air-conditioned final inspection department.

Aside from their association with approximately 100 years of tableware manufacture by C. Rogers & Bros. and International Silver, and the limited physical evidence of silver-plated tableware production in Buildings 15 and 29, the principal components of Factory H documented here are significant as distinct styles of industrial architecture reflecting International Silver's approach to factory space prior to the 1950s. The combination of wood-framed brick loft, steel-framed sawtooth-roof mill, and steel-framed brick loft may have been unique among International Silver's plants in central Connecticut, with the two later structures part of major episodes in company history: World War II production of military hardware, and response to a surge in post-war demand for plated tableware. While International Silver made significant improvements to manufacturing during the early 20th century, including controlling production of its nickel silver plate and increasing the scale and quality of the electroplating process, the company's dispersed older plants retained 19th-century architecture and multi-story operations for as long as possible. The c1903-18 addition to Building 7 was made with no fundamental changes to the older structure. Building 15, wider than most International Silver factories, was built for unusual purposes and drew on an effective but expensive roof form which had been common in single-story American textile mills and metalworking shops since the 1890s. Building 29 adapted riveted steel-girder framing, also common in factory loft design since the 1890s, to a traditional multi-floor design with a wide central monitor.

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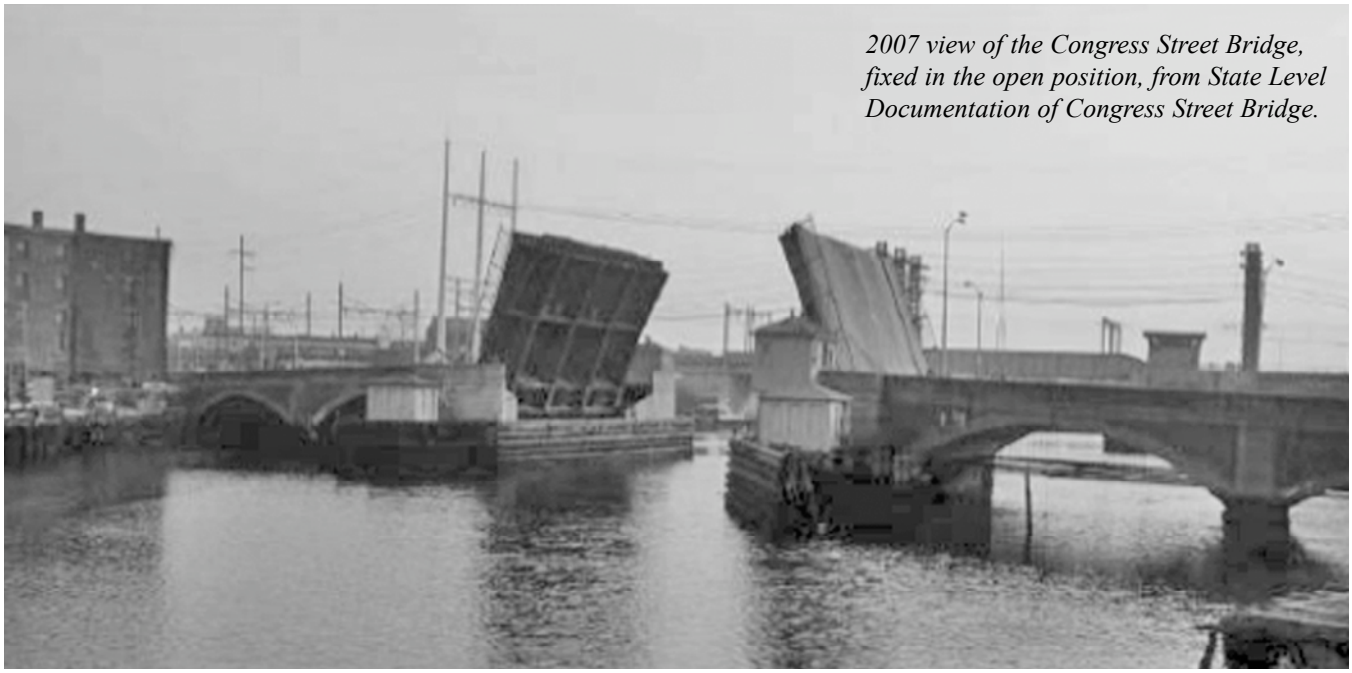
The Congress Street Bridge:

The Earliest 20th Century Moveable Bridge in Bridgeport, Connecticut



2007 view of the Congress Street Bridge, fixed in the open position, from State Level Documentation of Congress Street Bridge.

The Congress Street Bridge in Bridgeport, Connecticut, a technically innovative Scherzer rolling lift bascule bridge, was demolished in March of 2010 after being closed for 13 years. This 1911 drawbridge that connected industrial East Bridgeport to downtown Bridgeport was the most recent in a long history of river crossings at this site, where three previous bridges created a vital transportation and economic link across the Pequonnock River. Design of a fourth river crossing in this location is currently underway to restore this connection.

A city whose historic strength, even its very name, was based on its bridges and ports on the Pequonnock River and inlets of Long Island Sound, 19th century Bridgeport was in the process of transforming from a small agricultural community into one of Connecticut's principal commercial and transportation centers. Though central Bridgeport boomed in the 1850s, the eastern side of Bridgeport remained less developed and cut off from the central business district until shortly before the Civil War. Two major East Bridgeport landowners, General William H. Noble and circus showman, entrepreneur and civic leader of Bridgeport, P.T. Barnum, had ambitious plans to develop East Bridgeport to rival the central business area. In 1852 the first bridge in the Congress Street vicinity, a pedestrian bridge that passed over the tracks of the Housatonic Railroad, was constructed. As Barnum and Noble had envisioned, connections with surrounding communities and neighborhoods attracted major new industries to East Bridgeport. Immigrant workers filled these factories, and residential neighborhoods arose in East Bridgeport to house them. By 1870, Barnum and Noble's footbridge was replaced by a substantial new bridge in this location, initially known as the Center Street Bridge, later renamed the Congress Street Bridge.

In the early 20th century, Bridgeport was the state's most heavily industrialized city and had more movable bridges than any other Connecticut municipality. In 1908, Bridgeport's Director of Public Works, Charles F. A. Blitz, stated that Congress Street's two-track swing bridge "is in good condition and for ordinary traffic is not dangerous, although I believe that we are to have a new bridge there in the near future and it would be a great improvement." Blitz's words were prophetic, because the construction of a new Congress Street Bridge on that site was eminent. A special city commission was appointed in 1908 by Mayor Marcus Reynolds – the Congress Street Bridge Commission. Plans for a new Congress Street Bridge were completed by

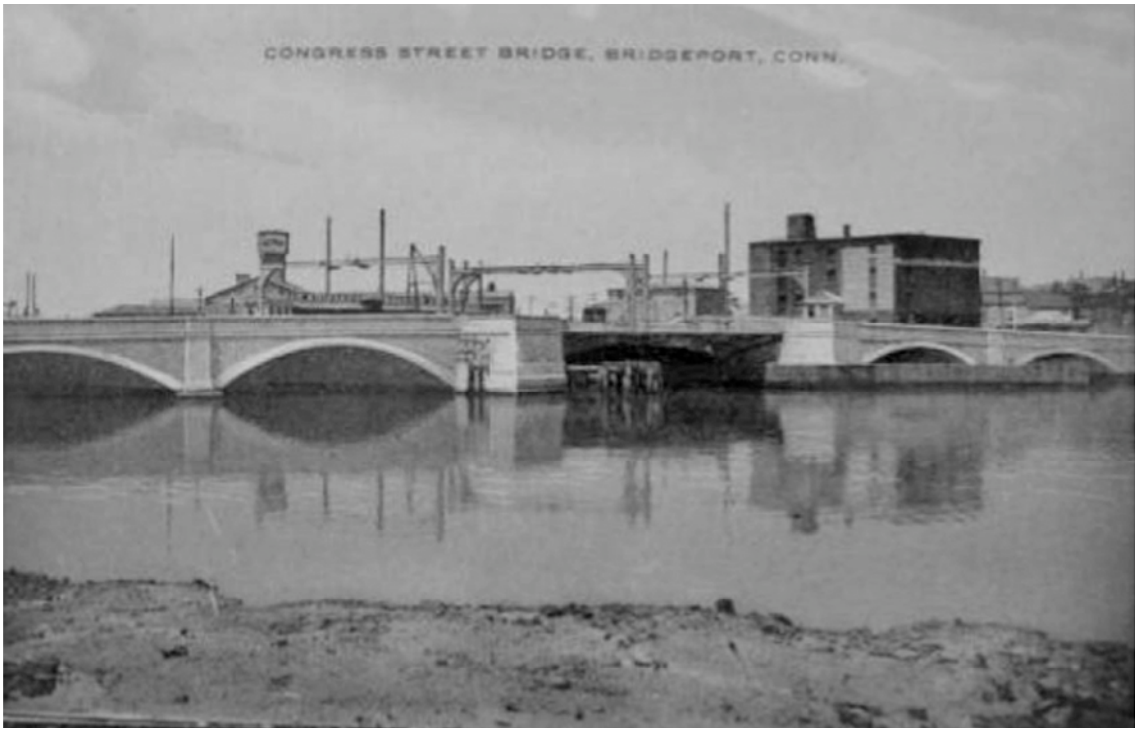
November of 1908 by the Scherzer Rolling Lift Company of Chicago, Illinois. Construction of the bridge began in 1909 under the direction of Bridgeport City Engineer Raymond F. Stoddard, and completed in 1911.

The double leaf Scherzer rolling lift bascule bridge built at Congress Street was invented and patented by civil engineer William Scherzer (1858-1893) in 1883. Over the next few decades, Scherzer's form of rolling lift bridge grew to be used widely for rail crossings, and was the primary type of moveable bridge used by the New York, New Haven, & Hartford Railroad, which ran through Bridgeport. Though the Congress Street Bridge crossed over the Pequonnock River, it needed to function in a manner similar to a railroad bridge, since it would carry streetcar traffic and would need to open frequently to accommodate a heavily traveled waterway. There were a number of features, in addition to the relative simplicity of the lift mechanism and the minimal power required to lift the bridge, which made the Scherzer rolling lift bridge attractive to railroads. Because its lift span rolled away from the navigation channel as it was raised, it did not have to rise as far as other types of lift bridges, thus reducing the arc of swing and the amount of time the bridge had to remain open.

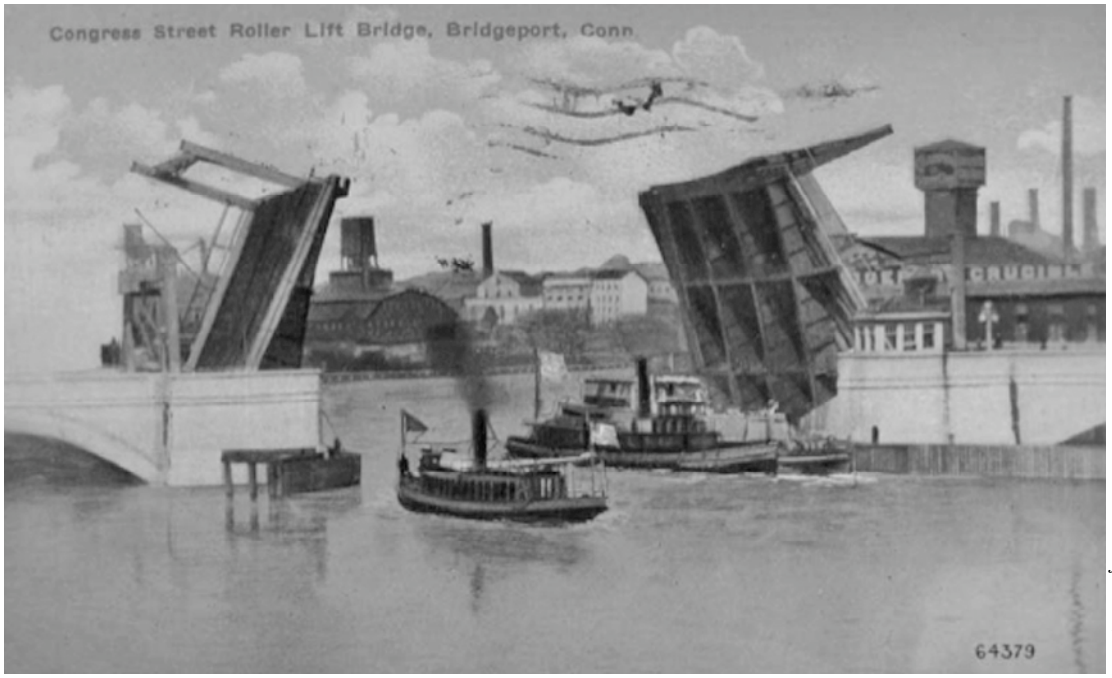
The moveable span of the Congress Street Bridge was a double leaf Scherzer rolling lift type bascule. Each leaf was operated by a set of machinery located on the leaf under the roadway. Each leaf had four main girders which were set and operated perpendicularly to bascule piers which were skewed 25 degrees. Due to the skewed opening, the required framing for this bridge was unusual and resulted in the bridge operating (opening) skewed to the centerline of the road but perpendicular to the pier. Each leaf was individually cross-braced, horizontally and vertically, in an X-shaped pattern or an alternating diagonal pattern. The cross bracing was made up of rolled L-sections that were riveted to large gusset plates on the deck girders. The bascule span's deck was a steel grate deck surface filled with concrete, concrete sidewalks, a steel curb, and a steel balustrade.

The approach spans of the Congress Street Bridge were designed by J. R. Worcester and Company Engineers of Boston, Massachusetts. The general contractor on the project, Snare and Triest, Inc., was incorporated in 1902 in Greensburgh, New York. The company was started by Frederick Snare and operated out of New York, Havana, Cuba and Buenos Aires, Argentina. The company later became known as the Frederick Snare Corporation and was responsible for the construction of the Bronx-Whitestone Bridge and the Verrazano-Narrows Bridge. The steel for the Congress Street Bridge was supplied by the Fort Pitt Bridge Works of Pittsburgh, Pennsylvania.

When newly constructed, the 1911 Congress Street Bridge provided a trolley link between downtown and East Bridgeport, which fostered economic and social links among the people that lived and worked on both sides of the Pequonnock. Over the following 100 years, continued survival of the bridge sometimes appeared doubtful, as the



Postcard of the Congress Street Bridge produced shortly after the bridge opened in 1910, from the collection of the Connecticut State Library.



Circa 1910 postcard showing ships pass - ing under the Congress Street Bridge, from the collection of the Connecticut State Library.

structure was the subject of a number of repairs, rehabilitations, and lengthy closures.

In 1926, the structure began to visibly shift due to movement of the approach spans on the timber footings. Tie rods were retrofitted horizontally through the base of the approach spans to try to stabilize it. In 1933, the Bridgeport Post reported that Bernard Houriham, superintendent of bridges, confirmed in his annual report that the bridge was in such poor condition that the lifts may open "precipitating whatever traffic and pedestrians that happened to be on the bridge into the river below." At the time, the Hourihan report called for a complete rehabilitation of the structure including new steel brakes, deck, and sidewalks. The article also said that the bridge leaves did not meet when closed and left a 1 to 1.5 inch gap that would close only by the weight of vehicular traffic.

The Bridge was closed to traffic on March 2, 1934 by the Board of Bridge Commissioners, who condemned the bridge as "a menace to life and safety". The steel understructure was so corroded, that the Bridgeport Post article declared that bridge "may fall into the Pequannock River at any moment." At this time, the trolley was rerouted, the lifts were set in the upright position and the bridge underwent rehabilitation. After much debate amongst city officials and a report from the State Bridge Engineer C. L. Nord, the bridge was reopened on March 24, 1934. Nord felt the greatest menace to safety came from the 25-ton electric trolley cars, so trolley traffic was thereafter suspended, but the bridge was reopened to light traffic and pedestrians. By this time, the importance of this connection between East Bridgeport and downtown was well established. City bridge operations were publicly debated as fiery political issues, so the speedy reopening of the bridge was insisted upon by Mayor Jasper McLevy. To facilitate this, police were placed at the bridge opening to ensure that only two lanes of light traffic would pass along the north side of the bridge.

In spite of ongoing repairs over the following decades, the bridge remained open to vehicular traffic for 40 years before it was struck by a barge and damaged in November of 1977. It was reopened shortly after and served Bridgeport until 1999, when the extent of structural deterioration caused it to be permanently removed from service, and set in the upright, "open" position.

The oldest of Bridgeport's remaining historic movable bridges; the Congress Street Bridge remained a vital link between East Bridgeport and the downtown. Perhaps equal or greater to its undeniable social and economic significance, the Congress Street Bridge has a significant place in the history of engineering and industry. It is the earliest example of 20th century movable bridge engineering in Bridgeport, and is one of three movable bridges crossing the Pequonnock River that were both an integral part of Bridgeport's historic industrial landscape and tangible evidence of turn-of-the-century engineering creativity and innovation.

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