



Society for Industrial Archeology · New England Chapters

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CALL FOR PAPERS

The Eighteenth Annual Conference on New England Industrial Archaeology

Hosted by the Southern New England Chapter

Sponsored by the Southern and Northern New
England Chapters of
The Society for Industrial Archeology

Location: Higgins Armory - 100 Barber Avenue -
Worcester, Massachusetts

Date: Saturday, February 19, 2005 - 10:00 AM -
4:00 PM

Organizers: SNEC-SIA Board of Directors

Important Date: Last Day of Submission of Paper
Abstracts is January 15, 2005

Details: The Higgins Armory is a museum, central-
ly located for the majority of our members. It
houses one of the finest collections of medieval
and Renaissance armor and arms in the world.
Conference attendees will have ample time to
explore the museum after the paper sessions. The
entry fee for the museum and lunch are included in
the conference cost of \$15.00. A pre-registration
form will be sent to members.

Call for Papers: The chapters are inviting mem-
bers, scholars and independent researchers to sub-
mit abstracts of papers or oral presentations to the
conference committee for review and possible
inclusion in the program. The goal of the con-
ference is to provide an opportunity for members,
the general public, academicians and professionals
interested in the field of industrial archeology to
meet. The object of the conference is to illuminate

current work in studies of the material culture of our industrial past. An additional goal is to encourage field investigation, research and the exchange of information about all aspects of our industrial heritage. While all studies in Industrial Archeology are invited, work pertaining to the New England area will be preferred. Past presentations have included papers on:

Crib Dam Construction
Industrial Heritage Sites and Museum Topics
Railroad Power Systems
Early Fire Alarm Systems
Bridge Studies
Roundhouses
Fireproof Construction
Power Stations
Rope Manufacture
Mining and the Metals Industries
Preservation Projects
Archaeology of a distillery site
Coastal Defense Forts
Industrial Heritage Sites and Museum Topics
The Timber Industry

Abstract Specifications: Abstracts should be generally limited in length to 500 to 750 words. Each abstract should have a title page and text page(s). Submission of abstracts may be made via e-mail, fax or mail. e-mail is preferred. There is a limit of two contributed papers per author.

Short, informal "Show and Tell" presentations on work in progress, local preservation projects, artifacts and topics of general interest to industrial archeologists and members are also invited.

Each submission should include the following information on the title page:

Title of submission
Two or three keywords that describe the submission
Name(s) of the author(s)
Affiliation or Firm
Mailing address(es)
E-mail address(es)
Phone or fax number(s)
List of Audio-visual equipment required for presentation

Submission/Contact Address:

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2003 NNEC-SNEC Conference
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SNEC President's Report

On Sunday, September 26, SNEC elected a new panel of officers at its annual meeting held at the Saugus Iron Works. After initial nominations by Bob Stewart, attendees unanimously welcomed Bill Goodwin as treasurer, Martha Mayer as secretary, and me, Jonathan Kranz, as president. We are all simultaneously flattered, and eager to serve. As of this writing, the vice president's post remains unfilled.

The Iron Works meeting represented a new kind of event for SNEC, a combined potluck picnic and official business meeting at which children and grandchildren were encouraged to attend. Approximately 30 people participated, and by all anecdotal reports, the food was very good and the company lively. (You may see pictures of the event at <http://www.fotoamigo.com/JonKranz/>) In addition, and in honor of the special "Trails and Sails" weekend, National Park Service Ranger Curtis White led a special walking tour tracing the archeological evidence of the Iron Works' water source. We hope we can build on this successful outing by making the "SIA family picnic" an annual event.

Moving forward, the officers' first obligation is to continue the extraordinarily organized, diligent work of former treasurer Rick Greenwood and past president Bob Stewart. I cannot say enough about their dedication and hard work, and I'm grateful that we'll enjoy their support as we transfer the reins.

Current projects include an October 8 tour of Hope Global/Global Webbing and Grants Mills in Cumberland, RI. I'm in discussions with Alan Lutenegger, head of Civil and Environmental Engineering at UMass Amherst, regarding his col-

lection of historic iron and steel truss bridges; we plan on arranging a SIA tour/presentation sometime in the spring of 2005. SNEC member Sara Wermiel is helping us put together a Chelsea tour that may include the Tobin Bridge, an Andrew Parris gunpowder magazine, and perhaps Chelsea Clock. As always, we encourage members to contribute tour suggestions/ideas; they may write to me at jonkranz@kranzcom.com.

Most importantly, we ask members to plan ahead for the Annual SNEC Conference at Higgins Armory, Worcester, MA on February 19, 2005. Please watch the mail for the "call-for-papers" and remember that we encourage members to contribute any IA activity/report/artifact/what-have-you that could be included in an informal "Show and Tell."

Looking beyond the conference, 2005's big goal will be recruitment. We welcome more members in general; in particular, we need to cultivate new talent eager and able to become future SIA officers and leaders. Please help us in our efforts by encouraging like-minded friends and acquaintances to sign up for membership and actively participate in SIA events.

Finally, we all look forward to our continued collaborations with our colleagues to the north, and to further IA tours and activities ahead.

Jonathan Kranz

NNEC President's Report

We are grateful to David Coughlin for planning and organizing the Chapter's 2004 Fall Tour in Henniker, New Hampshire. We also thank James Garvin, State of New Hampshire Architectural Historian, for his informative presentation and guidance at the West Henniker historic district, and Donald Goss for the impressive tour of his sawmill complex. Prior to the tour, the Annual Meeting was held in the Henniker Historical Society museum. The meeting was brief, the only business being the reelection of the Chapter Officers. The officers are

listed in page 1 of this Newsletter. Please note that Betty Hall, the 1st Vice President, is now also the President of the New Hampshire Archeological Society, which consumes much of her time, and would like to step down from her NNEC position as soon as a replacement steps forward.

I encourage our members who have been doing IA research to submit a proposal for a paper to the Annual Conference on New England Industrial Archeology to be held February 19, in Worcester, MA. Please see the Call For Papers on page 1. Except for the Newsletter, the Annual Conference is the only way in which the New England Chapters present research.

If you have suggestions for a Spring Tour site please communicate them to me by email at early-how@verizon.net. If you have not yet paid chapter dues please do so by sending your check in the amount of \$10.00 to Carolyn Weatherwax, Treasurer, 305 Heritage Way, Gansevoort, NY 12831.

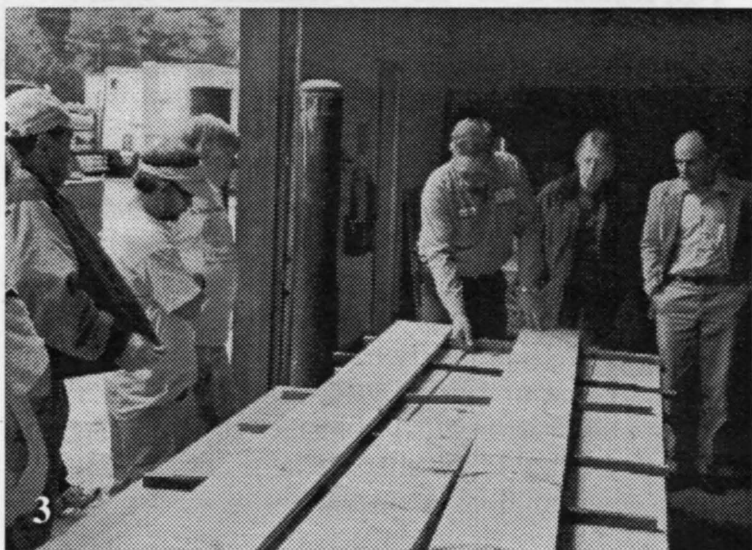
Dennis Howe

Northern NE Chapter Meeting and Fall Tour

The fall 2004 meeting and tour focusing on the woods products industry was held in Henniker, NH, reputed to be "the only Henniker on earth". We met at the local historical society museum and had an opportunity to view some of the tools, toys, and assorted items made from local wood. A very short meeting was held and all officers agreed to continue their positions for another year. However, members should consider the possibility of assisting the chapter in these positions in the future.

Our first morning stop was the Goss sawmill in Henniker, a small family-owned business. Donald Goss showed us the log yard, sawmill, dry kiln, and planer/finisher shop. His father began sawing logs in the late 1930s after the hurricane of 1938 blew down millions of board feet of timber. He

Four views of the NNEC tour of the Goss Sawmill in Henniker, NH. The photos were taken in (1) the log yard, (2) the saw mill, (3) the planer/finisher shop, and (4) the lumber yard adjacent to the kiln.



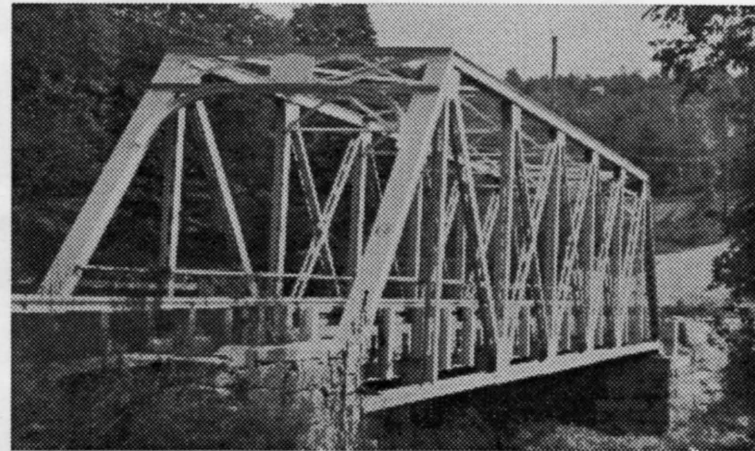
gave us an example of how the volume (in board feet) of a log is determined using a scale stick, and we looked at the machinery to debark the logs before sawing. Then we went into the sawmill and were shown the circular saw, vertical edger, and the log carriage. Of special interest was the dipping tank, where loads of fresh cut lumber are dipped in a solution to prevent the growth of blue stain fungus that would otherwise discolor the lumber. We then went to the dry kiln that will hold up to 30,000 board feet of lumber while drying to about 12% moisture. Sensors are placed into the lumber and the moisture content is monitored while drying. Approximately 70% of the lumber cut is white pine, with about 25% hemlock and the remainder hardwoods, with a yearly output of two million board feet. Lumber from the mill is shipped to retail outlets across the eastern U.S., and is sold locally at the mill.

We traveled to the village of West Henniker for a tour led by James Garvin. He discussed the history of the two riveted iron Pratt truss bridges across the Contoocook River. The smaller of the two was installed in Henniker in 1915 and slated for removal. Once the town residents were informed of the historical significance of the bridge, they chose to strengthen and reinforce the bridge rather than remove it. The larger bridge was originally across the Merrimack River in Concord at Manchester Street. This bridge was also built in 1915 and was moved to Henniker in 1933, in order to save the cost of building a new bridge.



Next was a walk along the power canal that was first dug in the late 1700's and lined with cut granite in the mid- 1800's. The canal provided water power to a 1850's paper mill which was operating until around 1980, and the mill was taken down less than ten years ago. There was a millpond on the site. James Garvin spoke about the very recently removed dam on the Contoocook River and how a coalition of kayakers, fisherman, environmentalists, and scientists pressed for the dam's removal. Federal funds were available to tear out the dam, but not available for its maintenance. The unfortunate result of the dam removal will be water stagnation and vegetative growth in the canal. It is hoped that a spring flush out of the canal may lessen this effect.

After lunch we had a short tour of Merrimac Log Homes, which is located at the Granite State Forest Products sawmill in Henniker. Beginning in the late 1970's, the sawmill started cutting logs for log homes and selling wholesale to log homebuilders. In 2001 Merrimac Log Homes was established to sell the logs directly to customers who will build their own log homes. White pine logs are cut to a standard 6" X 8" size with other sizes available. Numerous log shapes can be selected, in order to customize your home. There are also a variety of home designs to choose from. We went into the mill where the rough cut square logs are finished, Depending upon the desired fished log, the mill shapes each log, planes it, and cuts a double tongue and groove pattern for seating one log atop another. Gaskets and metal rods are used to hold the logs together as the home goes up. Log siding is available so that garages and outbuilding can have the log home look. We then went into the shop where logs are pre-cut to the required lengths. A customer can either purchase the necessary volume of logs for his house, or have them precut and numbered with openings for doors and windows once the house is built. At this time, about fifty log homes are sold each year and business is increasing yearly. Merrimac Log Homes are sold in the northeastern and southeastern U.S. and in European countries such as Spain, France, and Germany. They are preparing a shipment that will soon go to the island of Martinique.



One of two riveted Pratt truss bridges crossing the Contoocook River in West Henniker near the industrial complex remains visited during the NNEC Fall tour. Erected in 1915, the bridge was designed by New Hampshire's first State Engineer, John Storrs. It rests on dry laid stone abutments, which have recently been strengthened with concrete pads.



This two-span riveted Pratt truss bridge, also attributed to John Storrs, was erected in 1933.

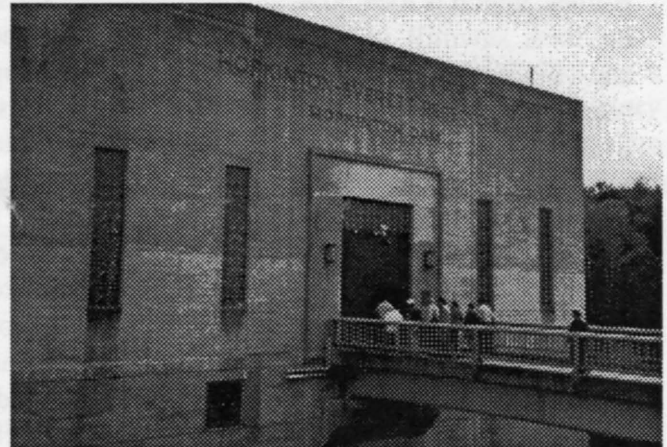
The trusses were salvaged from a bridge originally carrying Manchester Street across the Merrimack River in Concord to save money during The Great Depression. The Pratt truss was first introduced in 1844 by Thomas and Caleb Pratt and was originally constructed in timber. It is the only truss form to be erected in wood, iron and steel according to David Plowden, Bridges: The Spans of North America (New York, Viking Press, 1974:65).



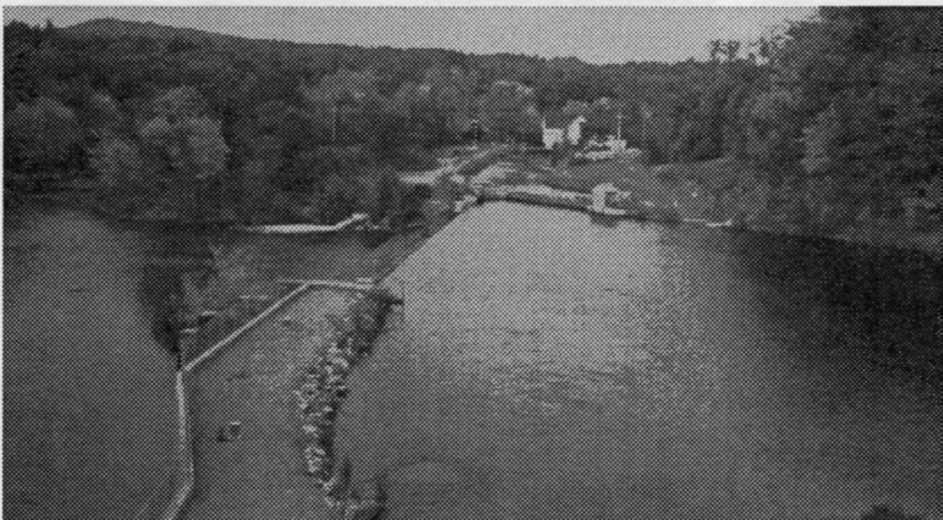
The remains of the power canal that once supplied the Contoocook Valley Paper Company. The dam that created the impoundment was removed in August of 2004. The canal and other remains of the paper company are planned to be adapted to a recreation/ educational area by the Town of Henniker.

Our final stop was the nearby Hopkinton Dam at the Hopkinton-Everett Reservoir. There are two flood control dams that control the volume of spring runoff from the Contoocook and Piscataquog rivers going into the Merrimack River. The project was completed in 1962 with a land area of 10,000 acres, most of which can be used for water storage in the spring, and then released during the summer. We entered and looked around the gatehouse, which contains six gates, two of which were open at the eight-foot level. By this time it was 4 pm and the tour was officially over. However from the dam we could see a covered bridge, so ten individuals went down, took pictures, and walked through it on such a nice fall day.

David Coughlin



Participants in the NNEC Fall tour enter the gatehouse of the Hopkinton flood-control dam.



A view downstream from the top of the Hopkinton flood-control dam where a second, hydropower dam is seen. A canal supplying the hydroelectric generation station is in the distance, beyond the spillway.

The "Old Drum Factory," Noble & Cooley

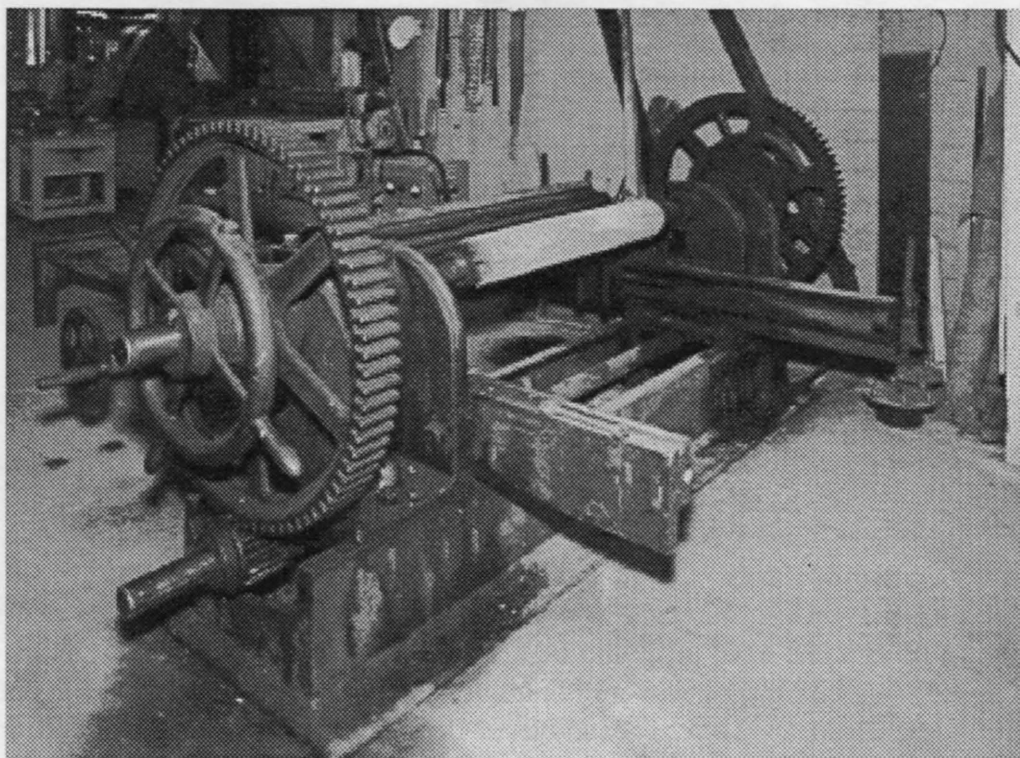
Noble and Cooley, founded in 1854 as a manufacturer of toy drums, has continued to produce toys, professional drum sets and drum related furniture for 150 years. They produced marching drums for the Union Army during the Civil War. The "Old Drum Factory" as it is known in its home town of Granville Massachusetts was one of the highlights of SIA's 1998 fall tour of the Connecticut Valley. The historic enterprise is finding it increasingly difficult to manufacture drums at a competitive price. Intense foreign competition, changing marketing systems and competition from electronic

and a wider variety of toys for children have decimated the toy drum market.

The drums are made with a fascinating group of historic vernacular machinery; much of it invented and built by the owners around 1900. The "new" mill building, dating c. 1870, is a well maintained example of "country factory" of the period and preserves some overhead pulley and leather belt drive systems and artifacts of the original water power system.



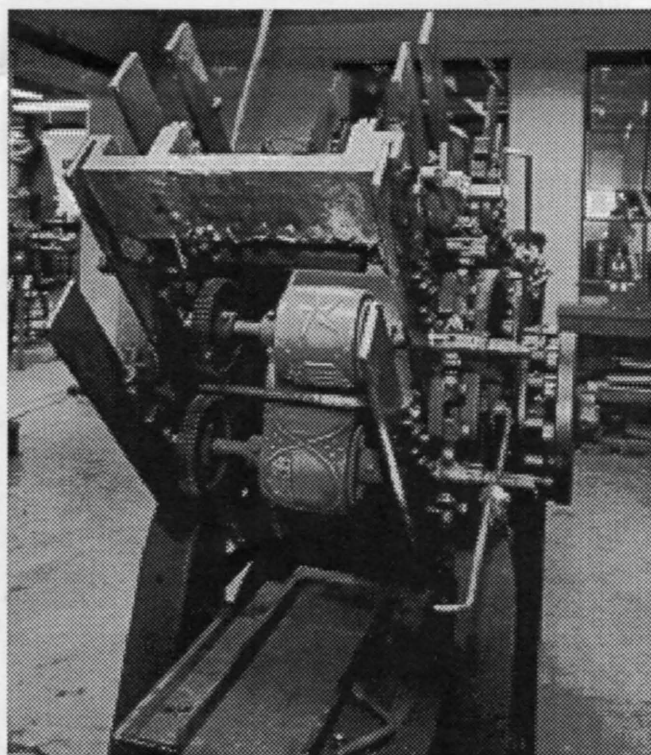
View of the Noble and Cooley "Old Drum Factory" in Granville, Massachusetts. The original mill, built in 1854 burned down and was replaced with this building c. 1870.



Veneer lathe at Noble & Cooley. It was used to shave maple veneer to be formed into boxes, drum furniture and professional drums.

The firm is now engaged in selling off the existing inventory and is considering alternative uses for the manufacturing space in their plant. A committee of volunteers is developing a plan to examine possibilities for preservation or reuse. One idea under consideration visualizes establishing a museum dedicated to "Yankee Ingenuity" with a mission of preserving the manufacturing technology of small, late-19th century establishments. The old mill would also be a good location for setting up a period toy museum. The committee welcomes suggestions from SIA members and the general public. Contact Bob Stewart at <robert.stewart13@att.net>.

Robert Stewart



Lithographic printing machine at Noble & Cooley. The machine was made in the factory c. 1900. It was capable of printing up to eight colors sequentially on flat metal sheets which were then formed into toy drum bodies.

Rehabilitation of the Ferry Street Bridge, New Haven, Connecticut

Submitted by Historical Perspectives, Inc.

The Ferry Street Bridge crosses the Quinnipiac River, the eastern boundary of the original city of New Haven, at the river's narrowest point north of New Haven Harbor. (A different "Ferry Street" Bridge crosses the railroad right-of-way in New Haven, Connecticut. See Historic American Engineering Record titled "Ferry Street Railroad Bridge" (Old HAER No. CT-54; New HAER CONN 5-NEWHA, 52-)). The bridge connects Fairmont Avenue, at Fair Haven East, with Ferry Street in the southeastern part of Fair Haven. Closed for the past few years because it lacks structural integrity, the City of New Haven is planning to rehabilitate the bridge. The Connecticut State Historic Preservation Office requested documentation of the bridge before rehabilitation began. Tim Mancl of Historical Perspectives, Inc. carried out the documentation with the assistance of Marty Cobbs.

The first bridge at Ferry Street, called the Quinnipiac River Bridge, was a 450-foot long swing truss design that cost \$115,000. It was erected in 1876 by C.W. Blakeslee & Sons, Inc., which had built more bridges and viaducts in Connecticut than any other firm¹. Noted engineer Clemens Herschel designed the bridge. Hailed as a great public convenience, the bridge provided a direct link between New Haven and East Haven.²

By the early twentieth century, industrial plants flanked the Quinnipiac above the Tomlinson Bridge, which sits to the south. The Quinnipiac

Brewing Company sat near the southeast side of the Quinnipiac River Bridge. On the north side of the bridge were the Connecticut Adamant Company, the Yale Brewing Corporation, and Lancraft Brothers. The large facility of the American Steel and Wire Corporation sat further south.³

The manufacturers required a deeper channel to access the harbor. In 1902, Congress authorized dredging a channel 200-foot wide and 12-foot deep up to Grand Street. Oystermen halted the work because of injury to the oyster beds that constituted the economic base for Fair Haven during the nineteenth century.⁴ Two smaller channels were agreed upon north of the Ferry Street Bridge. However, there were no protests from the oystermen when the Act of July 3, 1930 reiterated the channel width of 200 feet and specified a depth of 18 feet up to the bridge. The depth between the Ferry and Grand Street Bridges was dredged to 16 feet.⁵

Dredging of the Quinnipiac River, and an increase in road and river traffic encouraged replacement of the first bridge. The City Year Book of 1937 reported that New Haven Mayor Murphy had requested that the Board of Aldermen authorize a bond issue of \$353,250 for the construction of a new Ferry Street Bridge, estimated to cost \$750,000 for the span and its approaches. A grant from the federal government through the Federal Works Agency enabled the city to reduce the level of the bond issue.

Completed in 1940, the Ferry Street Bridge was designed by the New Haven Bureau of Engineering in 1938, at which time W. Vincent Barry headed the bureau. Ash, Howard, Needles & Tammen consulted on the bascule span. The cover page of the original engineering plans also recognize H. O. Christiani as "special bridge engineer," and W. R. Julianelle as "architectural designer."

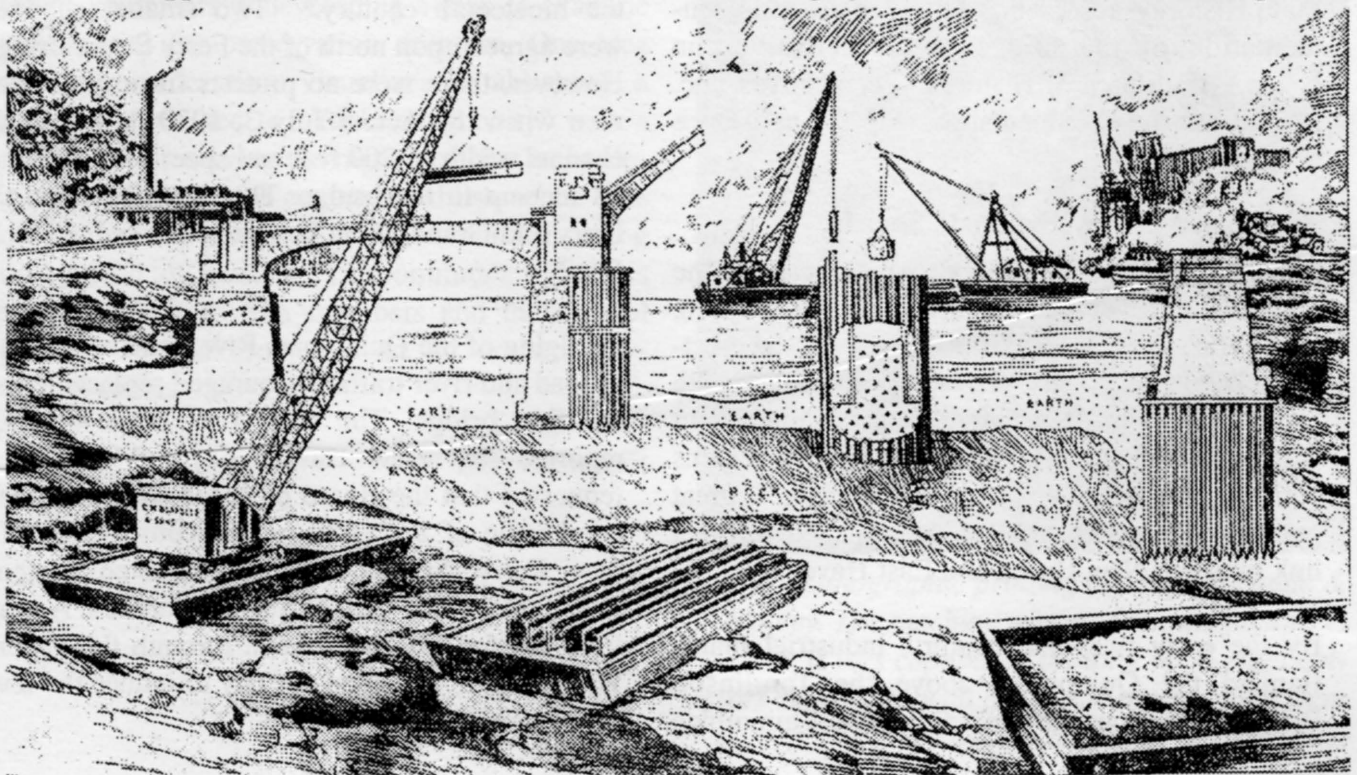
The Ferry Street Bridge has two 133-foot long closed-spandrel rigid steel arches and a 105-foot long double-leaf bascule span. With the piers and the approaches, the bridge has an overall length of 840 feet. The roadway is 43 feet wide, and is flanked on both sides by 6-foot 8-inch sidewalks. The steel and concrete curbs bring the total width of the bridge to 60 feet.

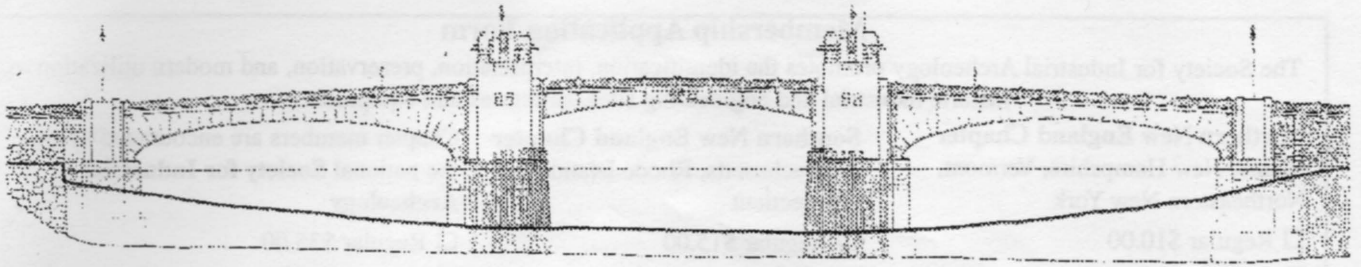
The closed-spandrel elliptical arches consist of two parallel ribs, each constructed from ten steel sections joined by rivets. The ribs are tied together with riveted stringers stiffened by trussed wind braces. I-beams running between the stringers support the concrete-slab deck. The roadway sits between the arches, while the cantilevered sidewalks are supported by coved brackets.

The double-leaf bascule span provides a 101-foot channel, and is constructed in the same manner as the other two spans. The roadway is made of steel grating, which is filled with concrete at the sidewalks. The undergrade-counterweights are concrete and steel masses fixed to the heels of the leaves. The bascule leaves are operated by electrical motors that power a herringbone speed reducer, and a series of gearing and shafts connected to a pinion that drives curved racks attached to the leaves. A gas engine serves as back-up power for the electrical motor.

Reinforced concrete piers and abutments have an art-deco style. From just above the water line to bedrock, they are faced with ashlar. The deck houses, sitting on the east side of the bridge, are incorporated into the piers. Reinforced concrete fenders surrounded by wood pilings protect the piers. The northern tower contains the control system, while the southern tower, other than providing access to the machinery, largely serves to give symmetry to the design.

The north tower also holds bathroom facilities and a heating system for the comfort of the operator.





Rehabilitation plans indicate that the original coal-fired furnace had been replaced at some time with an oil-fired furnace. The oil-fired furnace was removed some time recently, and replaced with electrical heaters.

The original traffic signals and roadway lighting, designed to match the art-deco style of the bridge, were replaced in the 1970s.

Rehabilitation plans call for restoration of the bridge to follow the original design. Signaling, lighting, and heating and plumbing will be upgraded. While bolts will be used in place of rivets for most connections, the current form of structural elements will be retained. The drive system is to be refurbished rather than replaced.

Notes

1. Arnold Gruyot Dana, *Scrapbook Collection*, New Haven 1862-1974, Vol. 123 1/2: 90. On Microfilm at the New Haven Colony Historical Society, New Haven.

2. Doris B. Townshend. *Fair Haven: A Journey through Time*. New Haven: New Haven Colony Historical Society, 1976: 73.

3. C. M. Hopkins. *Atlas of the City of New Haven, Connecticut*. Philadelphia: C. M. Hopkins, 1888; Streuli and Puckhafer, Engineers. *Atlas of New Haven, Connecticut*. Walker Lithograph and Publishing Company, 1911.

4. Townshend 1976: 118.

5. Historical Perspectives, Inc. *Connecticut Department of Transportation: Tomlinson Bridge Replacement. New Haven, Connecticut. State Project #92-435*. Westport, CT: HPI, 1993.

Timothy J. Mancil
and Marty Cobbs

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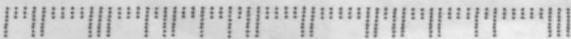
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