



## *Society for Industrial Archeology · New England Chapters*

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### Report on the Eleventh Annual Conference on New England Industrial Archeology February 7, 1998.

The eleventh annual winter Conference on New England Industrial Archeology was hosted by Plymouth State College on Saturday, February 7. The conference opened with welcoming statements from Plymouth State College President Donald Wharton and Associate Professor of Anthropology Kate Donahue. The speakers were introduced by Conference Program Chair and SIA Southern New England Chapter Vice-President Matthew Kierstead.

David C. Switzer discussed the project to salvage of the bow section of the clippership *Snow Squall*, the remains of the only existing American clippership, and efforts to conserve, display and share this unusual artifact.

Gray Fitzsimons discussed the 20th-century failure of the Crompton and Knowles Loom Works, a Worcester, MA, company that once dominated U.S. textile machine production and technology, but which fell victim to many familiar patterns of deindustrialization.

Nelson H. Lawry discussed the history and current disposition of timber boxed pony truss bridges, a once-common, simple engineering solution for light-duty bridges, only seven of which now remain in the U.S. due to replacement and lack of preservation recognition.

Victor R. Rolando reviewed the May 1997 excavations at the former U.S. Pottery site at Bennington, VT, where 10,827 examples of a variety of kiln furniture giving insight into 19th century Bennington pottery manufacturing were unearthed.

Members have been mailed two copies of this issue of the newsletter so that one may be given to a friend or associate to encourage him or her to join a chapter. A membership application form is on the last page.

Richard M. Candee discussed invention, patents, and machine making for New England knitting mills, using images of patent drawings and models, and maps of machine manufacture and distribution to show how patent controls affected the region's knit goods industry.

Carl E. Walter demonstrated his Electronic Atlas of the New Haven and Northampton Canal, which contains almost 3,000 images and documents relating to the construction and operation of this 100 mile long transportation engineering feat.

Darlene G. Young showed "The Brick Kingdom", a short educational video presentation introducing the industrial history of Barton, VT, a center for the water-powered manufacture of various products including womens' undergarments and piano actions.

Cassandra Michaud discussed results of preliminary investigations at the Rowley Village (Boxford), MA, ironworks, an intact possible bloomery forge site operated 1668-1681 and originally operated by Henry Leonard, a former Saugus Ironworks worker. For paper abstracts or speaker contact information, please write to the conference program chair Matthew Kierstead, 22 Rosewood Street, #3F, Pawtucket, RI, 02860.

Matthew A. Kierstead  
Pawtucket, RI

## President's Report, SNEC

The spring and fall of '98 offer the prospect of several important IA events in southern New England, detailed elsewhere in the Newsletter. The national Ironmasters Conference comes to north-western Connecticut May 17th and 18th, with Saturday papers, many focused on the region, and a Sunday tour of several significant furnace sites. This is the first visit of the Ironmasters to New England and I hope to see many of you there!

Come September 30, the National SIA arrives in Connecticut for their Fall Tour, being organized by Bob Stewart. For chapter members who don't get to the national meetings, here is an opportunity to rub elbows with your fellow enthusiasts from around the country, and a chance to see a number of process tours not available to the chapter for its Saturday tours.

In November the National SIA will again come to New England, this time to Lowell for a retrospective/ prospective special conference, "Wither IA?" Here will be a chance to discuss directions that our field has taken and might follow in the future. Look for some dynamite speakers to be there.

Work also continues on the William Smith Bridge Symposium. At this time the organizing committee has not set a date, but the response by interested speakers and participants has been enthusiastic.

Look ahead also to several tours, including a weekday tour of the largest public works project in the country, the Central Artery Project in Boston - This will be reservations only for a limited group. We'll try for one in June and another in the Fall if demand is there. Keep us posted with new program ideas and contacts!

Michael Steinitz  
Somerville, MA

## President's Report, NNEC

The mid-winter Conference on New England Industrial Archeology was held on February 7 at Plymouth State College. Please see Matt Kierstead's summary on page 1. Matt was the organizer and the chair of the meeting, and did a fine job. Plymouth State College President Donald Wharton welcomed the group to Plymouth, and David Switzer, Chair of the Social Science Department, gave the opening remarks. The meeting was well-attended (especially given the fact the Plymouth is in the foothills of the White Mountains and the weather can change quickly).

The Spring meeting will be held on May 9, 1998, at Canterbury Shaker Village and at Sanborn Farm in Loudon. Details appear elsewhere in this newsletter.

Summer plans are being made jointly with the New Hampshire Archeological Society to hold an outing at an interesting industrial archeological site in central New Hampshire. It will be a chance to enjoy the outdoors while exploring the site (to be announced), have a picnic, and converse with others who share an enthusiasm for IA.

Elections were held at the mid-winter meeting. Christa Butterfield was elected President; Herman Brown, 1st Vice President; Carolyn Weatherwax, 2nd Vice-President; Walt Ryan, Treasurer; and Gloria Miller, Secretary. Congratulations to all of you. We look forward to fine meetings and stimulating tours.

Katherine Donahue  
Windsor, VT

## Commentary

I have been a member of both New England SIA chapters for more than ten years, and a Southern New England Chapter officer for about four. In that time I have attended many events and conferences, and I recently had the opportunity to chair the Winter

Conference papers session. Chapter events have fallen into patterns in recent years, creating a situation that is not as conducive to growth as it could be. I would like to take this opportunity to share some of my observations about our organization, and offer some comments and suggestions about participation, growth, and education. It is my hope that my comments will encourage dialogue, and I encourage readers to respond.

We have always had our paper conferences in the winter. Through planning the recent papers session, I heard many comments that this situation discourages conference attendance of the alternating guest chapter due to winter travel. I think that we might consider moving the annual papers conference to the spring or fall. This would increase attendance, and also allow us to include the attraction of an optional site visit, process tour, or group picnic lunch.

We always have our papers conferences in the same places. Plymouth is reasonably centrally-located for northern New England, unless you live east of Portland, Maine. Boston and Lowell are convenient for Northern New England Chapter attendees of Southern New England Chapter-hosted conferences, but are not at all centrally-located for Southern New England Chapter members. I suggest that next year's papers conference be held in Providence or Hartford in order to attract our many Connecticut and Rhode Island members, and that the following year's conference be held in Portland, Maine. Publicizing these events for local historical groups and schools will likely result in new SIA members.

Finding and organizing industrial process tours is a difficult task, and finding them for Saturdays is even more difficult. I encourage New England chapter members to provide chapter officers with leads, ideas, and information on local industries, those of friends and associates, or even their own businesses. What is familiar to you may be of interest to us.

We need to continue to encourage



coordination between the Northern and Southern New England chapters. Chapter tours could be advertised to members of both chapters, with non-members paying a fee to attend. Combined chapter events such as process tours or recording events are important. It has been a long time since a more social—and physically active—event such as an industrially-related canoe trip, rail trail walk or bike ride, or picnic has been held. I encourage chapter members to be more active in suggesting or even planning these sorts of events. Our chapter officers need good suggestions.

We need to continue to increase our membership. You are probably wondering why you received two copies of this issue of the Newsletter. The extra copy is for you to give to someone you think might be interested in the SIA—your engineering buddy, a student, your uncle—anyone who has ever expressed an interest in what we do. Additional copies of the Newsletter should be made easy to obtain for distribution to interested parties.

Young members are conspicuously absent in the New England SIA chapters. We need to encourage an interest in history in our students, nieces and nephews, children, and grandchildren if we want to perpetuate our organization. Recording projects and outdoor events are key in this regard—because they are fun. We should plan a publicity campaign for all colleges and universities in New England. Any volunteers?

Increased membership means more dues payments in our chapter accounts, which means we can afford more mailings and coffee and doughnuts for more events to have fun and attract more new members without raising our current bargain membership rates!

Although we live in a region that can reasonably lay claim to being a birthplace of the Industrial Revolution, the only institutions of higher learning offering programs in industrial archeology are in West Virginia or in the Michigan Upper Peninsula. This is really odd. New England needs to offer a

graduate program in Industrial Archaeology, and we are the people who can put it together...

I encourage New England SIA members to respond, and I look forward to hearing any additional ideas for events, membership drives, or educational opportunities you may have. I plan to share your thoughts in this space in the next *Newsletter*.

Matt Kierstead  
VP and Program Chair  
SNEC-SIA

### **NNEC Plans Rural Water-Powered Mill Tour**

On Saturday, May 9, the Northern New England Chapter will focus its spring meeting on rural water-powered mills in Canterbury and Loudon New Hampshire. Beginning at 9:30 am, the Canterbury Shaker Village's mill remains which were first recorded archeologically some years ago by David Starbuck (see *IA* Vol. 12, No. 1, 1986, pp. 11-38) will be investigated. Since the original recording by Starbuck much has been accomplished by the village's management with an eye toward better interpreting this famous historic site's industrial past. The water system and mill ruins are well worth a reexamination by industrial archeologists. Recently, fill and debris have been excavated from the large sawmill wheel pit and foundation, preservation work has been accomplished on the unique pump mill and other components of the mill system, and during the summer of 1996 Starbuck directed excavations of two previously unexplored sites: a possible hog slaughterhouse and the Second Family blacksmith shop remains (see Ryan, *NE Chapters Newsletter* Vol. 16, No. 2:10-13), which exposed interesting features and turned up hundreds of artifacts. Dr. Starbuck will lead chapter members and guests on an interpretive tour of mill and archeological sites.

After a box lunch prepared by the Creamery Restaurant, attendees will

travel the short distance to the Sanborn Farm in Loudon for a tour of the excellently preserved structures and mill systems there. The Sanborn Farm was recently purchased by Colin and Paula Cabot who are impressed with its historic structures and plan to continue important preservation work. Included at the site are the expected farm structures such as a large dwelling, a massive cow barn, a horse barn and a blacksmith shop. Of most interest to IA enthusiasts, there are two well-preserved water-powered mills. The first is a grist mill originally built for Edmund Sanborn by Theodore Farnum Elliott in 1830, and the other is a sawmill, also originally constructed by Elliott in 1829. The Cabots will lead a tour of the property, and open discussion concerning preservation and operation of water-powered mills is invited.

The grist mill building is 53 feet by 30 feet with a gable-roofed extension which covers the penstock. The mill presently contains a single set of stones but probably originally had two sets. The mill was in production until 1990, and still retains its elevators, bolters, and other machinery, all powered by a wooden turbine. (James L. Garvin, unpublished monograph, 1993) Its machinery and features will be open to thorough inspection during the tour.

The sawmill is 21 feet wide by 76 feet long, presently equipped with a turbine-powered circular saw with a 29-foot carriage. The sawmill also contains two planers and a shingle machine driven from shafting with belts. The original sawmill had been equipped with an up-and-down saw which was replaced by a circular saw about 1870. Remnants of the original saw frame are thought to be stored on the property (Garvin, 1993). The sawmill may also be thoroughly inspected during the tour.

The fee for the tour is \$7.00 per person which includes a box lunch. While preregistration is not required, persons who are not Northern New England Chapter members are asked to call Dennis Howe (603/225-6649 weekdays) to acknowledge their attendance.

All participants must assemble at Canterbury Shaker Village in the morning. Upon arrival at the Village everyone must check in at the visitor's registration center in the Trustees' Shop. There is adequate signage on NH Route 106 to direct motorists to Canterbury Shaker Village, which is located about 3.5 miles west of Route 106 in Loudon, NH.

Dennis Howe  
Concord, NH

### **1998 Ironmasters Conference to be held in the Salisbury, CT, Iron District**

The 1998 Ironmasters Conference will be held May 16-17 in the Salisbury Iron District of Northwestern Connecticut. The Ironmasters Conferences are an annual series of SIA-affiliated events devoted to the archeology, history, and technology of the American iron industry. This year's conference will be the first held in New England. The focus of the conference will be on the rich heritage of Salisbury District ironmaking, which dates from 1735 to 1923. A day of papers is planned for Saturday, including a morning symposium devoted to the Salisbury District and other Connecticut ironmaking sites, and an open afternoon session on general historic U.S. iron-related topics. A tour of several historic iron industry sites in Northwestern Connecticut and adjacent areas of Massachusetts and New York is planned for Sunday. If you would like to be placed on the information mailing list for this conference and other Ironmasters events, please send a self-addressed, stamped envelope to: Matthew Kierstead, 22 Rosewood Street #3F, Pawtucket, RI 02860. If you would like to present a paper on a historic ironmaking topic at this conference, please include a paper title, abstract, and biography with your conference information request.

Matthew A. Kierstead

### **Restoration Planned for Spaulding Grist Mill in Townsend, MA**

Years back, the SIA/SNEC toured the Spaulding Grist Mill in Townsend MA, which dates to ca. 1865, remained in operation until the 1920s, and retains much of its water-power driven machinery. The Townsend Historical Society is currently seeking to stabilize this building and restore the mill to full operation. We are seeking any and all advice that chapter members might be willing to provide regarding project analysis, cost estimates, fundraising, engineering and plan preparation, contractor selection, work supervision or museum operation. Have I left anything out?

The current priority is to repair and stabilize the foundation which has a serious lean caused by soil pressure and vibration from nearby road traffic. This has a rather urgent priority since the State has planned to repair the adjacent bridge and abutments this year. Their work will be within 35 feet of the Mill. The projects should probably be done simultaneously. We are working with our State Representatives and State Engineers on this.

The Mill, the only building left of what was a much larger structure, has an iron enclosed, vertical shaft water wheel that transmits power through pulleys and wide leather belts to the grinding stones and conveyor system. Grain was delivered into a wooden hopper just inside a first floor loading door and was carried up from there, by regularly spaced tin cups attached to a moving leather belt, to storage bins in the attic. The grain was then selected from the appropriate attic bin and gravity fed to the stones. The finished grindings then went into another lift where they were raised and fed into a rotating drum-sieve for final grading and bagging. Retail flour sales were probably conducted from a series of built-in bins along the front wall of the building. There is also a water powered corn shelling machine in the building.

The restored Mill would be a valu-

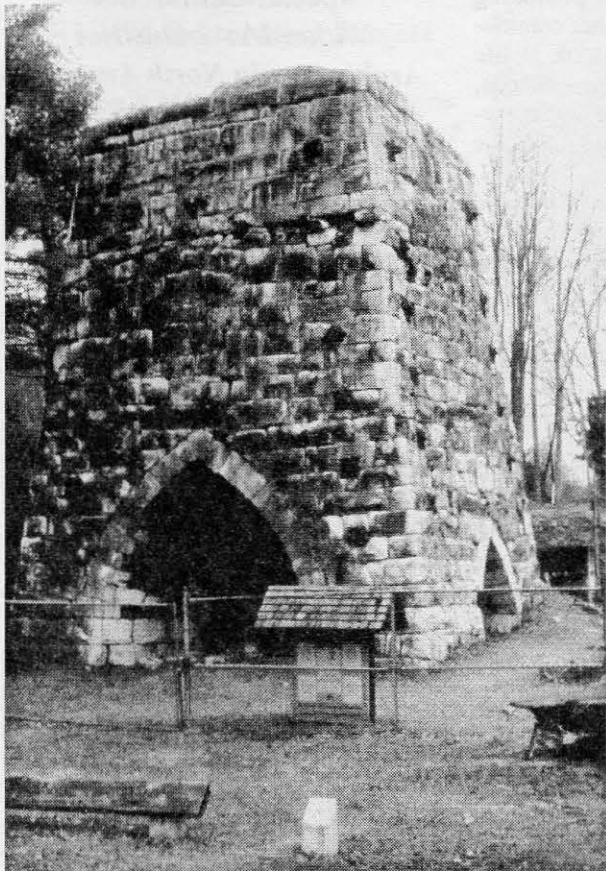
able added attraction to the other adjacent historic buildings owned and run by the T.H.S. It would give visitors a view of a step-up in the evolution of industrial technology not seen in the restorations of earlier Mills. Getting in touch with some of SIA members would no doubt help us a lot with our homework. For more information contact: Bob Johnson, 4 Gilchrist Rd., Townsend, MA 01469-8025, (978) 597-8025. e-mail: rnj@bicnet.net

Bob Johnson  
Townsend, MA

### **SNEC 1997 Fall Tour: Riverdale Mills, Northbridge, Massachusetts**

On Saturday morning, November 15, a small group of Southern New England Chapter members braved central Massachusetts' first fall snow to visit Riverdale Mills Corporation's wire mesh manufacturing operation in Northbridge, MA, a remarkable New England industrial success story. Riverdale Mills is a world-class producer of plastic-coated, galvanized wire mesh for the agricultural, marine, security, and other industries. Riverdale Mills President, CEO, and founder, James M. Knott, Sr., greeted the group in the mill office, where he explained the history of Riverdale Mills. Knott began producing wire mesh in the late 1950s, and later sold his company, Coatings Engineering Corp. of Sudbury, MA, and concentrated on the development of improved plastic coatings for wire. In 1976 he saw a niche market for plastic-coated wire mesh for lobster traps. After searching for a suitable manufacturing facility, Knott purchased the abandoned, 145,000 sq. ft. Northbridge Cloth Manufacturing Company mill complex on the Blackstone River in Northbridge, MA, in 1979. Knott first rescued enough of the deteriorated plant to set up Riverdale Mills' first wire coating line, which





## Connecticut Commission Approves \$.25M for Blast Furnace Preservation

Southern New England S.I.A. member Ed Kirby has announced state approval of \$250,000 to fund the preservation of the John Adam Beckley Furnace in East Canaan, Connecticut.

The Committee for the Preservation of the Beckley Furnace (CPBF), a local nonprofit group, of which Kirby is a member, has been working for more than eighteen months to raise funds and save the furnace.

The Beckley Blast Furnace was built in 1847 and operated until the winter of 1918-1919. It is Connecticut's only designated industrial monument and will become the centerpiece of the planned Iron Heritage Trail through the seven towns of the northwest corner of the state.

Currently, the Connecticut Department of Public Works is reviewing plans for the restoration developed for the CPBF by Kirby and S.I.A. members Matt Kierstead, Victor Rolando, Bill Edwards, Karl Danneil and Carla Cielo.

The Beckley Furnace, which stands 40 feet in height, was one of eight operated by the Barnum Richardson Company in the latter half of the nineteenth century. Most of the iron from this furnace and the others was transported to the company foundry in Lime Rock for the production of railroad car wheels for both national and international markets.

Through the efforts of Charles Rufus Harte, the property was purchased by the state in 1946 and is on the National Register of Historic Places.

Ed Kirby, Sharon, CT

included salvaged equipment that had been left in the mill by the prior owners.

As Riverdale Mills grew, Knott overcame numerous challenges through resourceful investment in both new and old technologies. Unable to obtain quality wire mesh on an international open market subject to price fluctuations and shipment delays, Knott decided to make his own wire mesh. High-capacity welders were not available, and Knott convinced Morgan Construction of Worcester, MA, to engage in a joint venture with an Austrian company to build and install the fastest and widest wire mesh welder in the U.S. in the Northbridge plant. The process tour included an opportunity to watch this welder in action. Riverdale still buys custom-alloy raw wire stock on the open market, and now draws it to required diameter on their own comput-

er-controlled, high-speed wire drawing machine, another highlight of the tour. A wire annealing oven is planned for future installation. After welding, the wire mesh is hot-dip galvanized and plastic coated using a proprietary process that makes it highly resistant to weathering. During the tour, Austrian technicians were in the process of installing a second welding line in one of the newer warehouse buildings. This project will require increasing the already vast warehouse space, which can be filled with only eighteen days' worth of production.

Another challenge was supplying the mill with adequate electricity. The public electrical utilities could not provide Riverdale Mills with sufficient power for the welders, and Riverdale Mills had to install its own diesel generators. Jim Knott then restored the dam

that Riverdale Mills sits on, reflooded the mill pond, and installed a restored, 54-inch, 1910 Holyoke turbine in a restored raceway under the mill. With the addition of this unit, Riverdale Mills generates 150 kilowatt per hour of electricity, and saves \$30,000 on electricity annually. Riverdale actually produces twice the electricity it needs, and sells the surplus. A highlight of the tour was a descent into the temporarily-drained turbine headrace with flashlights for a unique look at the water-power engineering beneath the mill.

Jim Knott paid attention to the historic fabric of the mill during its revival. Bricks from small buildings that were torn down were used to extend the main block of the mill in a manner identical to the original structure. In 1987 the mill tower, which had blown down in the tornado of 1953, was restored with a new

copper-clad roof. In 1989 the Massachusetts Historical Commission presented Riverdale Mills with a Preservation Award for the mill rehabilitation.

Today Riverdale Mills covers more than 215,000 sq. ft., employs more than 150 workers, and enjoys domestic and international sales of over \$20 million. The product line that began with lobster traps now includes wire mesh for additional aquaculture applications, and agricultural applications for fencing and flooring. Riverdale's wire mesh is also used for gabions, or rock cages used for earthen embankment stabilization. An unclimbable wire fencing manufactured by Riverdale is used at high-security prisons, and even saw action in the Gulf War. The Southern New England Chapter thanks Jim Knott and the staff at Riverdale Mills for this exciting tour!

The tour was followed by an informal chapter meeting over lunch.

Matthew A. Kierstead

### **Milltown Heritage will be the Focus of NH Preservation Group's Annual Meeting**

Inherit New Hampshire (INH) celebrates New Hampshire's rich milltown heritage at its 1998 Annual Meeting Friday, June 12 at the Rochester Opera House in Rochester, N.H. The day's events kick off at 2:30 p.m. with a walking tour of the historic Salmon Falls mills and mill village in Rollinsford, N.H. Following the tour will be a reception at the opera house, the annual meeting with keynote speaker Patryc Wiggins, and presentation of the 1998 Inherit New Hampshire Preservation Awards.

Wiggins is the daughter and granddaughter of Newport, N.H., millworkers who began her adult life right from high school as a worker in those same mills. She ultimately earned undergraduate and graduate degrees in fine arts and is currently a tapestry artist living and working in her native home town.

Newport's working class roots is the frequent focus of Wiggins' work.

She is deeply committed to provoking discussion of the history of her community. "You can choose to look at life with no history to it, or no connections, or you can open it up and see that everything is connected to everything," she has said.

Salmon Falls is a gem of early and middle 19th century mill and mill village architecture. The original mills were of frame construction and dated from the 1820s. When they were destroyed by fire, the existing brick buildings were begun in the 1840s. The mill agent's house at Salmon Falls is a large mansard-roofed structure set high on a hill overlooking the mills, and the worker housing shows a clear progression of standing and position within the company as one moves farther up the hill and away from the mills.

The mill and village complex is remarkably intact. It is a site well worth the time it takes to visit and tour it.

The Rochester Opera House was designed as the top two stories of city hall by Boston Architect (and N.H. native) George Gilman Adams. It contains a unique mechanical floor that inclines for stage performances and lowers to a level surface for dances and sports events. The Opera House opened in 1908 and was in use until 1973. Its renaissance is an excellent example of a community-based restoration of an important local landmark.

The theater retains its original lighting fixtures, all of which have been restored, rewired and reinstalled. Craftsmen are currently in the process of uncovering original murals and stenciling. Where other detail work cannot be preserved it is being copied from fragments for replication. Inherit New Hampshire's annual meeting will be one of the first major events in the Opera House following its refurbishment.

For more information about INH's annual meeting, call (603) 224-2281.

### **Special Conference Wither IA: Industrial Archeology in North America**

A special conference on the current state of industrial archeology and on future directions for IA as a discipline will be held in Lowell, Massachusetts, November 12-14, 1998. Jointly sponsored by the Society for Industrial Archeology, Lowell National Historical Park, and the Historic American Engineering Record, this conference will feature a series of commissioned presentations by some of the foremost practitioners of IA in the United States, Canada, and Europe. Topics to be covered include Reflections on the Discipline of IA; Public Agencies and IA; Theory and Interpretation in IA; Education and IA; and New Directions in IA. Those attending the conference will be asked to participate in "break-out" sessions to evaluate various issues stemming from the formal presentation. A publication of the papers and commentary from the "break-out" sessions is anticipated after the conference. This conference promises to provoke serious discussion about the value of IA as a field of study as well as its future prospects. Unlike annual SIA conferences, this special conference will not offer a package of tours. However, Lowell National Historical Park will accommodate the conference attendees and a banquet will be held Saturday night, November 14, at the new American Textile History Museum in Lowell. An update with additional information on the special conference will be published in the upcoming SIA National Newsletter.

Gray Fitzsimons, Historian  
Lowell National Heritage Park

### **The Society for Industrial Archeology Twenty-Seventh Annual Conference will be held in Indianapolis, Indiana, June 4-7, 1998**

For registration information contact Harriet Rodenberg, Conference Planning Manager, 317-274-5053.

hrodenbe@wpo.iupui.edu

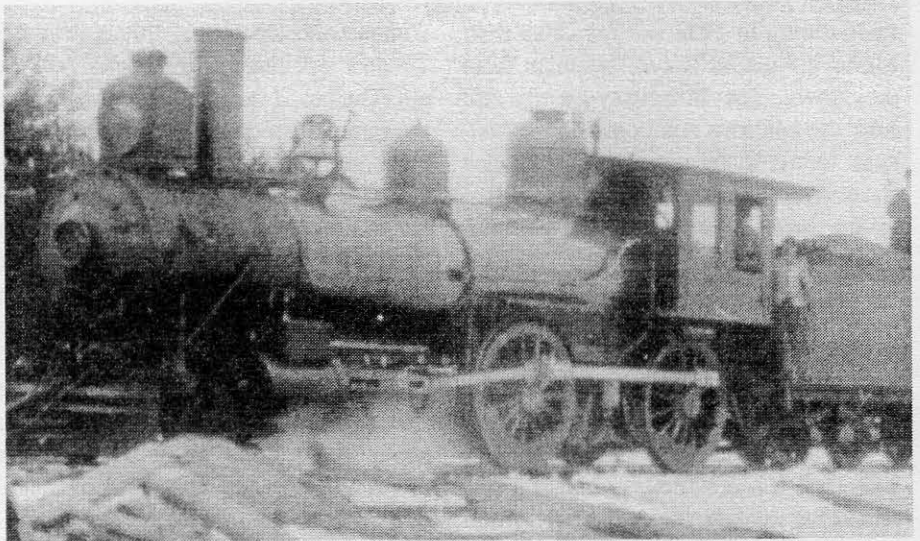


## Boston & Maine Locomotive No. 494 Restoration Project

A Boston & Maine Railroad steam locomotive has been brought to the center of attention by a group of railroad buffs. A restoration group was formed in collaboration with The Town of Hartford, Vermont, Hartford Parks & Recreation Department. On May 23, 1997, the 494 Restoration Committee officially became the White River Junction Chapter of the National Railway Historical Society. The goal of this group is to document the history of the B&M 494 steam locomotive and restore this engine as closely as possible to its original condition.

Engine 494, an American type 4-4-0 locomotive, steamed out of the builder's yard at the Manchester Locomotive Works in Manchester, New Hampshire in July 1892. The 494 was originally built for use on the Eastern Line of the Boston & Maine Railroad. In 1911 No. 494 was renumbered as the 905. This historic engine had served the Eastern and B&M lines, hauling passenger cars and light freight. Toward the end, the 494/905 was used to haul coal from Fabyan Station, at steep grade, to Marshfield Station at the 2700 foot level of Mount Washington, New Hampshire. This coal was used by the Mount Washington Cog Railway for its climb to the 6,288 foot summit. Engine No. 494/905 was finally retired in 1938.

Through the years, the locomotive was modernized. The wooden cab was replaced by one made of steel. The oil head lamp was replaced with an electric headlight, along with other improvements. All of this modernization, however, was reversed when the 494 was cosmetically restored for the 1939 New York World's Fair. Each part of the train that had been modernized was backdated with original-type equipment. The steam-powered electric generator was removed. The electric headlight was replaced with the original design oil light and the cab was rebuilt with wood. The 1939 restoration was done at the



*Ca. 1894 photograph of a Manchester Locomotive Works engine at Sewall's Falls in Concord New Hampshire. The Concord Electric Company Collection, New Hampshire Historical Society.*

Boston & Maine shops in Billerica, Massachusetts. No attempt was made at that time to restore the engine to full steam.

Following the '39 World's Fair, No. 494 was stored at the Fitchburg and Lowell yards for several years. There was talk of scrapping this engine. Finally, a Boston-based group, later incorporated as "The Railroad Enthusiasts, Inc.," acquired No. 494 from the Boston & Maine Railroad, saving the engine from the scrap yard. The Railroad Enthusiasts sought a permanent home for this historic steam locomotive. Finding interest to the north, ownership of the locomotive was transferred to the Town of Hartford, Vermont in 1957. The engine remains on display today at this historic hub of railroad activity. During its heyday, as many as 50 trains a day arrived and disembarked from White River Junction, in Hartford, Vermont.

Specifications of the locomotive and tender are as listed below:  
Engine Weight: 52 tons  
Tractive Effort: 14,800 lbs.  
Weight on Drivers: 39.5 tons  
Cylinders: 18" x 24"  
Wheelbase of Engine: 23' 7"  
Driver Wheelbase: 108 inches

Driver Centers: 60-3/8 inches  
Boiler Diameter: 58 inches  
Tubes in Boiler: 234 @ 11' 9"  
Heating Surface in Boiler: 1,568 sq. ft.  
Firebox Size: 78" x 35"  
Grate Area: 19 sq. ft.  
Tender Weight: 31 tons  
Tender Tank Length: 18'  
Tender Tank Capacity: 3100 gallons  
Tender Capacity (soft coal): 6 tons

Wilfred E. Smith  
White River Junction, VT

## Meriden, CT, Building Added to HABS

A building complex located at 381 East Main Street, Meriden, CT, composed of a manufacturing building and several additions has been added to the Historic American Building Survey (HABS). The original building was completed in 1911 for the Handel Company as indicated on the building cornerstone located on the northwest corner of the building. The Handel Company was a maker of table and floor lamps and lighting fixtures. William Handel closed the company in September of 1936 and all contents of the building were sold at auction. The Bichunsky family purchased

the building in 1938 and relocated their Meriden Auction Rooms business from downtown. The Bichunsky family still runs the Meriden Auction Rooms business today, a furniture and appliance showroom. The interior has been gutted to the primary structure and partition walls installed throughout the structure for the purpose of showrooms. All windows have been blocked except for the windows for the ground level on the East Main Street.

The date of construction of the first group of additions is unknown. Therefore it is not known whether it was added for manufacturing or display and storage. The date of the second group of buildings is also unknown but are thought to have been constructed between 1938 and 1968, and was built for the purpose of shipping/receiving/and storage.

The original building, which is typical of others constructed in the early 20th century for industrial manufacturing, is a 4-story load bearing brick structure. The plan is an "L" shape with the north leg running along East Main Street at 146 feet in length and 40 feet in depth, the west leg of the building parallel with Broad Street is 185 feet in length and 32.25 feet in depth. The interior structure is wooden post and beam. The following interior dimensions were all taken on the third floor: The north leg consists of a double bay structural grid, both bays equal in size, 17 feet from column center line to interior surface of exterior wall. The 5.25- by 7.25-inch wood posts are 8.125 feet on center. The center wood beam is 7 inches wide and 9 inches high. The west leg has a triple bay structural grid with the outside bays being equal in size, 9.125 feet from column centerline lines to interior surface of exterior walls. The wood posts, same size as in the north leg are 8.125 feet apart and are 7.25 feet on center. The floors above the ground floor are maple. The ceilings are beaded 5/4 x 8 board. The exterior brick facade employs the running bond brick pattern. The east face of the north leg and south face of the west leg are flush surfaces with hor-

izontal concealed metal lintels over the window openings with single rowlock sill. The broad facades are expressive of the internal structural layout. The outermost surfaces of the facades are the structural piers aligned with the post and beam structure. The facade steps in on both sides of the piers to the surface of the fenestration's. All of the fenestration openings have segmental brick arches with 3 rowlock courses. The sills are all cut stone. The East Main street adjacent sidewalk is approximately 3.5 feet above the ground floor. The roof is mono-pitched, sloping from the outside of the "L" to the interior.

The first group of additions is located on the east side of the west leg and is masonry block with a smooth stucco finish. The additions as a group measure 145 feet in length, vary in depth from 40 to 61 feet, and is 1 to 3 stories in height with attic.

The second group of additions is located off of the southeast corner of the west leg and is parallel to the north leg of the original building. This addition is referred to by the current owners as the "barns," and the plan is in the shape of an "L". This addition is built from a variety of materials ranging from masonry block walls to wood framing. The exterior sheathing is vinyl siding on the interior or courtyard sides, wood and composite shingles on the remaining sides. It is 184 feet in length and 28 feet in depth on the south leg, and 94 feet in length on and 33 feet in depth on the east leg running along Parker Avenue.

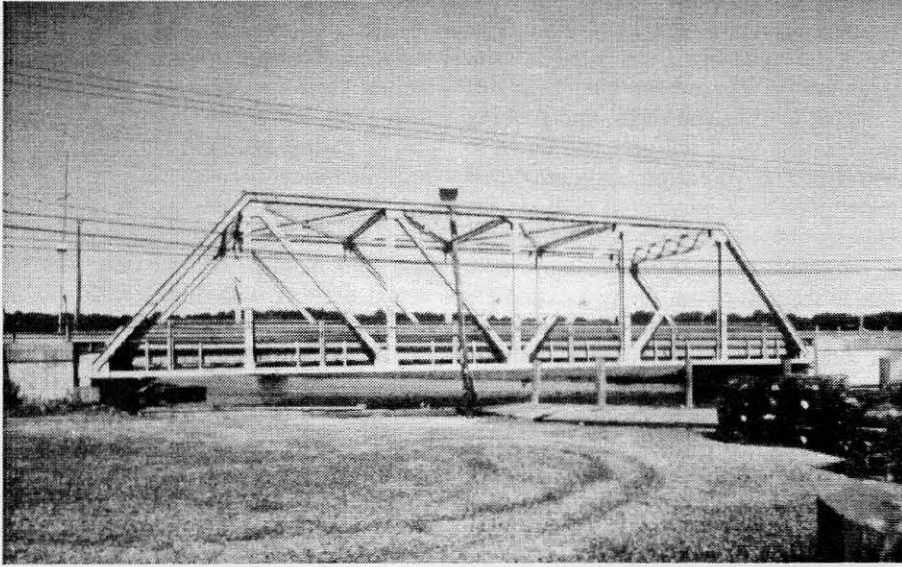
The last addition is located on the south side of the "barns" south leg, 196 feet in length east to west and 90 feet in width. The structure is masonry block with a translucent fiberglass panel running around the top of the building. The last addition was completed in 1968 and built as a warehouse.

## **Historic American Engineering Record Documentation: Westbrook, Connecticut**

In October, 1997, The Public Archaeology Laboratory, Inc., of Pawtucket Rhode Island undertook Historic American engineering Record (HAER) documentation of "Singing Bridge," (Connecticut Department of Transportation Bridge No. 00349) which carries U.S. Route 1A over the Patchogue River in Westbrook, Connecticut. Archival large format photography was performed by Robert Brewster of Warren Jagger Photography, a Providence, Rhode Island firm. The bridge had been previously determined eligible for listing in the National Register of Historic Places by the Connecticut State Historic Preservation Office (SHPO). It was documented to HAER standards as part of a memorandum of agreement between the Federal Highway Works Administration, the Advisory Council on Historic Preservation, the Connecticut Department of Transportation (ConnDot) and the Connecticut Historical Commission, because the bridge will be demolished and replaced as part of Route 1A improvements.

Singing Bridge is a 120 ft. long, 29 ft. wide riveted steel, 117 ft. long Pratt through truss. The structure carries a two-lane, 770 sq. ft. open-grid steel roadway deck. The top and bottom chords and the end posts are of box-girder construction with both solid and lattice bar sides. The diagonals and verticals are built up with L-angle sides joined by lace bars. The top chords are connected by intersecting diagonal lattice bar bracing, and transverse lattice bar braces at the panel points. The portal braces are deep, with prominent single intersection lattice and curved, solid-gusset plates. The floor is of floor-beam-and-stringer construction, with eleven longitudinal stringers supported by seven transverse floor beams, strengthened by diagonal lateral bracing. Interlocking toothed expansion joints





*Singing Bridge, Westbrook, CT, which got its local nickname from the sound generated by motor vehicle tires passing over its open deck at varying speeds, has been documented to Historic American Engineering Record specifications by Public Archaeology Laboratory, Inc. of Pawtucket, RI. Interestingly, the documentation included a tape recording of the sounds.*

are located where the deck meets the approach spans. There are no sidewalks on the steel grid deck; however, narrow walking lanes with concrete-filled grid strips are located on either side of the open grid deck roadway. The truss rests on pinned bearings on the west end, and sliding lenticular rocker bearings on the east end to allow for expansion, contraction, and flexion of the span. The truss is supported by cast-in-place, reinforced concrete frame approach structures, with the deck integrally poured with supporting T-beams to create a monolithic structure support by a combination of transverse beams and longitudinal beams on piers.

Singing Bridge is significant for its association with growth of the State of Connecticut's involvement with bridge construction and design. The bridge was the largest project in a phase of small bridge constructions undertaken along the Boston Post Road/U.S. Route 1A during the 1920s. Singing Bridge was erected in 1925 to replace a timber trestle installed in 1880. The bridge superstructure was designed by the Connecticut State highway Commission, and built by the Holbrook Company, a general contractor. The bridge was fabricated by the American Bridge Company of Pittsburgh, Pennsylvania. American Bridge, a subsidiary of the United States Steel

Corporation, was founded in 1900 and rapidly became a dominant steel fabrication concern, absorbing more than half of the nation's steel fabrication capacity.

Singing Bridge is also significant as a local landmark. It was originally constructed with a solid concrete roadway, which was replaced with the current open grid deck in 1952. Singing Bridge got its local nickname from the sound generated by motor vehicle tires passing over its open deck at varying speeds, and the documentation requirements actually included production of a tape recording of the bridge "singing."

A companion structure, the nearby Route 1 moveable-span, bascule lift bridge over the Menunketesuck River, goes by the local nickname "Dancing Bridge."

Singing Bridge is a well preserved, typical example of early twentieth century steel truss highway bridge designs, which typically settled on a variation of the Pratt and Warren trusses that emerged as the dominant types from a variety of proprietary nineteenth century iron and steel bridge designs. In the Pratt type truss, the vertical members are in compression and the diagonal members are in tension. The bridge is not particularly significant for its engineering, however many simple, late steel trusses have been taken for granted by bridge historians are now facing demolition.

These more prosaic structures are nevertheless an important part of the industrial landscape, and hopefully will be considered eligible for similar documentation projects by state historical commissions and departments of transportation. (Publication of this article in the *New England Chapters of the Society for Industrial Archeology Newsletter* was also a requirement of the Connecticut State Historic Preservation Office.)

Matthew A. Kierstead

### **The Bancroft Dig aka Betty's Big Dig**

Early in the spring of 1997 I noted a very small newspaper article advertising an archeological dig for beginners in the Rindge, New Hampshire, area. Thinking that it must be somebody involved with IA or at least familiar with it, I made a phone call and found that the owner of this particular piece of property, Betty Gardner, who has an extensive background from foreign digs, and a very close friend, Professor Joy Contois, also has extensive knowledge in touring and guiding through foreign dig sites, were getting together in hopes of having a group of young people or amateurs start exploration on a cellar hole on Betty's property.

They did extensive research on deeds to this site and found that originally one Nathan Hale was the owner and in subsequent deeds found that a room in the house, the barn, the hay within and the dung pile without were to be used by a gentleman in the blacksmith trade. This property apparently was on the main road at that time. No one has lived on the site in the 1900s.

The site consists of a main cellar hole approximately 10' X 15' that appears to be about 7' deep, though it has extensive large tree growth in it, one dated to 1938, and a lot of heavy logs that will eventually have to be excavated. The stone foundation has collapsed in a couple of areas. Outside this cellar hole are granite lintels that indicate the house was bigger than the actual cellar hole, probably as much as 10' or 12' on the westerly end and 5' or 6' on the easterly end. There are extensive brick deposits on the surface on the northeast and northwest corners of this building, and two different stove legs and fire brick similar to the old Glenwood range or Franklin stove have been found.

Behind this main structure to the north and east is a well that has partially collapsed, but a probe extends some 10' down around these collapsed stones that would indicate the well is probably deeper than that. Stone outlines on the ground seem to indicate that this well was enclosed in a building attached to the rear of the main dwelling. A very large flat doorstep-type stone is located on the west end of this small structure that might indicate this was the rear entrance door.

Going back north in a straight line with these buildings are what appears to be a series of stone foundation bases indicating that a number of small sheds or small barns may have been in line with the house and well extension.

Still further north and east and apparently not connected in any way to the other buildings is a large foundation with tapered walls on one side that could have been a fairly large barn open on the east basement side. There is also a well some 40' from this foundation. A douser heard about the dig and indicated a point adjacent to the assumed barn foundation that he said should definitely be explored. After the removal of surface

brush, it was found that approximately a 10' X 10' area had been filled in with large stones. These have very little dirt between and around them, and probing even with a solid rod gets you down to about 8'. Exploration indicates that there may be a weathered wall on the easterly side of this once sufficient stone is removed. It's also interesting to note that to the east of this are two extremely large granite lintels that seem to sit on the side of an entrance roadway with no apparent reason for their being there. The granite used on this property is from a different quarry than the extensive granite and stonework done in adjacent areas. The adjacent stonework appears to come from a small mountain area to the southeast, but granite similar to that on the dig definitely comes from another site.

The initial grid was started on the north end of the line of buildings. A 5-meter square was divided into four sections, allowing the first students to work a section each. Surface finds of pottery, nails, hardware, glassware, lamp parts, etc. were extensive enough that one might believe you simply had found a dump site. There is no indication and no knowledge of this being a dump site over the last 90 years anyway, and it's believed that some semblance of the buildings might have existed in the very early 1900s. The nails are cut and common in almost every size that has been made.

As the summer progressed the initial site was divided into 16 units with ten additional 1-meter squares added to the east and west sides. As the students learned clearing techniques, the site was expanded to the south towards the road and an additional 20-odd 1-meter squares laid out. Surface finds of buttons, Indian-head pennies, a brooch and identifiable and unidentifiable pottery and glassware continued to be found in this area.

By the end of the season approximately 20 centimeters of depth had been gained in most of the first site and 5 centimeters in the second area. In addition, brush and trees were cut from the barn cellar hole and areas adjacent to the main sites. No exploration of the well or building situated beside it or the main cellar hole has been undertaken.

The students also participated in the lab work of cleaning the finds and identifying their location for future documentation. It's hoped that sufficient data can be gained to create a display for the local historical society.

Betty did the laboratory work with the students, Joy did the site explanation and Phil handled the clearing and the actual digging with Joy. It was a great summer and fall experience.

It is expected that work will resume this coming season. Anyone interested in this type of site is urged to contact Phil for further data at 978-342-1350.

Phil Whitney  
Fitchburg, MA

## Connecticut DOT Upgrades Historic Railroad Station

As part of its program to upgrade key railroad stations for compatibility with the Americans with Disabilities Act (ADA), The Connecticut Department of Transportation (ConnDOT) has undertaken the historic rehabilitation of the New Canaan Railroad Station. The station building, originally constructed in 1868, is listed on the State Register of Historic Places and retains most of the visual aspects which give the structure its architectural character. Located in the heart of New Canaan's business district, the New Canaan Railroad Station is historically significant as one of the early components of Connecticut's transportation history and is an important local landmark.

The New Canaan branch began as a separate railroad that was originally envisioned as a means of improving the prosperity and manufacturing base of New Canaan. Fearing that their city was at a disadvantage because it lacked modern transportation to major markets, the citizens of New Canaan, in 1866, began to plan for a direct railroad connection to Stamford. Work on the railroad progressed quickly and the first trains ran with great fanfare on July 4, 1868.

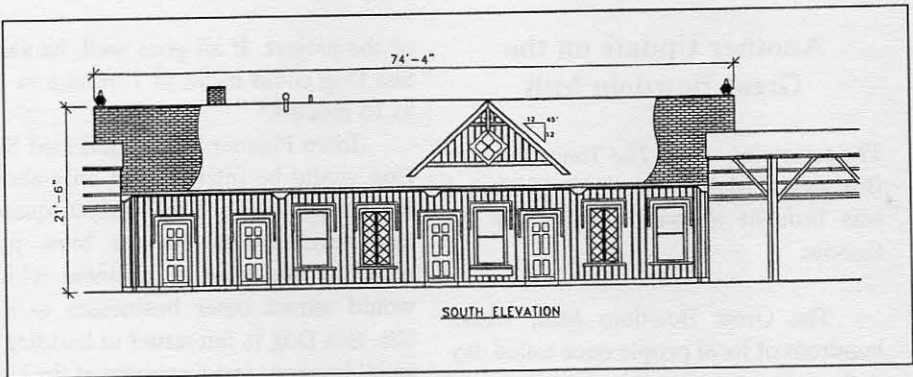
The station building, as originally constructed, was a symmetrical cross-section Gothic-Revival style structure. The station was faced with board and batten siding while crickets, trefoils and



finials were placed in the eave ends. The deep eaves were supported by brackets with trefoil decoration, and the roof was shingled with wood. Diamond-shaped windows adorned the gable. A slightly raised wood platform ran around the entire station. The interior of the building consisted of three sections. The central section housed the waiting room, while the northern portion contained ticket offices and the southern section was used as a baggage area. The northern canopy appears to have been built as a separate structure, not attached to the building until sometime in the 1890's. As the New Canaan Branch began to use longer cars, just after World War 1, the southern canopy was built.

In 1890, the railroad was merged into the New Haven Railroad and was later transferred to the State of Connecticut. The railroad was electrified in the late 1890's and a heavy catenary system was installed in 1906. Metro-North Railroad now operates commuter service on the line under contract with State of Connecticut Department of Transportation.

Upgrading the station to make it compatible with ADA presented ConnDOT with three engineering problems. First, the majority of the platform is at the same grade as the track. Access to the trains is via steel stairs spaced along the length of the station and via a mini-high platform that provides access to only one car. Neither of these is compatible with ADA. Secondly, the existing heavy-timber canopy now connects to the building and is considered historically significant. Raising the platform and



not the building would misalign the canopy with the station and significantly change the architecture of the building. Finally, the drainage conditions at the site causes water to collect around the station building and was contributing to rot along the building sills.

TAMS Consultants, Inc. of Stamford, CT was retained by ConnDOT as the design consultant for the project. Their solution to the problems at the station is to remove the building from its foundation temporarily, raise the entire site four feet and construct a retaining wall system along the track to form the high-level train platform. The building will then be reset on a newly formed foundation that matches the grade of the new high level platform. The advantage of this design is that passengers can travel from the parking lot, into and out of the station building, and onto the train without having to traverse ramps or stairs. Also, the existing canopy can be temporarily removed and replaced with the station building so that its connection to the station building would match its

existing condition. This approach has the least effect on the historic architectural elements of the station and best replicates the original early 20th century setting for the station. In fact, someone looking at the station from the parking lot side will not be aware that the site has been raised.

Work at the station will include the repair of deteriorated wood elements, restoration of the existing windows, reconfiguration of the heating and cooling systems, and painting of the structure to match its original color, as determined through paint chip analysis. All work will comply with the Secretary of the Interior's Standards for Rehabilitation. ConnDOT is coordinating with the State Historic Preservation Office to insure that those standards are met.

As of this writing, construction has begun at the station. Banton Construction Co., Inc. of North Haven, CT was awarded the construction contract. The temporary relocation of the building will be done by Nicholas Brothers, Inc. of Hopewell Junction, NY. Nicholas Brothers has experience with historic building projects throughout the New England area. Work is progressing smoothly and Banton Construction plans to finish work well ahead of the summer 1999 scheduled completion date.

The Connecticut Department of Transportation is pleased to be contributing to the preservation of one of the last vestiges of the early rail transportation system in the state. After over 100 years of operation, this station will now be capable of continuing to provide rail service for the community well into the 21st Century.



## Another Update on the Great Bowdoin Mill

The following from *The Times Record*, Brunswick, Maine, March 12, 1998, and was brought to our attention by Ed Galvin:

The Great Bowdoin Mill, where hundreds of local people once toiled day and night making paper, soon could become a place where they eat, drink beer and admire the river. Pete Camp- lin, the president of Sea Dog Brewing of Bangor said that he is looking into remodeling the 130-year-old wooden building on an island on the Androscoggin River, and turning it into his third restaurant and brewery in Maine.

Camp- lin said the next step will be receiving a firm estimate from Topsham Development Inc., the town's non-profit development company, on the total cost

of the project. If all goes well, he said, Sea Dog could move to Topsham in 12 to 16 months.

Town Planner Frank Fiori said Sea Dog would be interested in only about 6,000 square feet of the 40,000-square-foot development, but the brew pub could be the type of business which would attract other businesses to the site. Sea Dog is interested in building a small brewery and restaurant at the site, with an outdoor dining deck that would extend over the river.

According to a survey conducted last year it will cost \$4.5 million to tear down many of the smaller buildings on the mill site and renovate the remaining ones, including the historic yellow building.

The selectmen gave tentative approval last fall to a \$1 million tax increment financing arrangement to developers Paul and Kevin Kelley. But the Kelleys may no longer be involved

in the mill project.

Jane Morse, whose family owns the Great Bowdoin Mill, said there might be a change in developers, adding she would have nothing to announce for several weeks. She refused to say if the Kelley brothers, whose RE Management Company is responsible for much of Freeport's downtown development, are still involved in the deal.

Sea Dog Brewing was founded in an old mill building in Camden almost five years ago. I opened with a 240-seat restaurant and kegging brewery over looking a waterfall at Knox Mill. Two years later the company opened a larger restaurant, brewery and bottling plant on the banks of the Penobscot River in downtown Bangor.

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