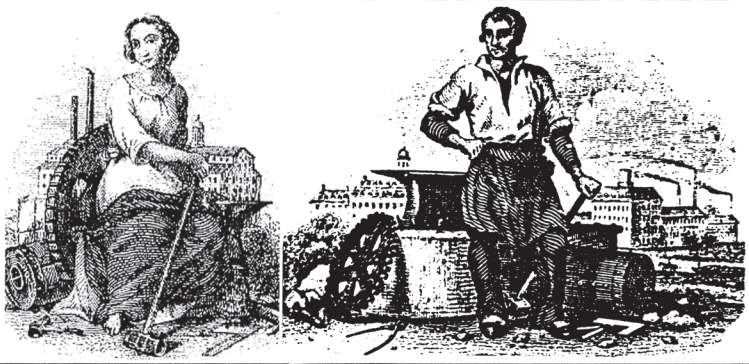

Society for Industrial Archeology · New England Chapters

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This Newsletter is mailed as a membership benefit to Northern and Southern NE Chapters, SIA, members. For information on the Web go to: http://nec-sia.org/membership.htm

Concord, New Hampshire Gasholder Faces Uncertain Future

After more than two years of apparent inaction, owner Liberty Utilities has recently announced that it will soon decide whether to repair or demolish the well-known but damaged gasholder house in Concord, N. H. The 1888 brick structure is the last gasholder house in the United States to retain its interior floating tank. The building serves as the logo of the Northern New England Chapter of the SIA.

Built for the Concord Gas Light Company (founded 1850) to supplant smaller gasholders with lesser capacities, the 1888 structure is 86 feet in diameter and 28 feet high to the top of its brick walls, and had a maximum storage capacity of 120,000 cubic feet. The riveted gasholder tank weighs 80,000 pounds and floated in a subterranean cistern holding 800,000 gallons of water. W. C. Whyte of New York City built the structure, and Laurel Iron Works of Philadelphia fabricated its enclosed wrought iron tank. Both companies were specialists in gasholder design and construction.

The Concord gasholder house was the site of the inaugural meeting of the Northern New England Chapter of the SIA

The NNEC-SIA meeting at the Concord Gasholder House on July 26, 1980, courtesy of James Garvin.

on July 26, 1980. Two years later, the chapter recorded the building for the Historic American Engineering Record (HAER) with a 25-member team assembled by the late William L. Taylor of Plymouth State College. Chief of HAER Eric DeLony and Smithsonian curator Robert M. Vogel advised the crew, and a survey and planning grant from the New Hampshire State Historic Preservation Office provided financial support. Taylor published a summary history of the gas company and the gasholder in IA 10:1 (1984): 1-16.

The gasholder stored coal gas until 1894, followed by carbureted water gas until 1952, when the then-owners switched from manufactured gas to natural gas. Although unused, the building remained in excellent condition until 2013, when a storm-toppled tree crushed a section of its conical wood-framed and slated roof. The impact damaged the wooden thrust ring at the base of the roof and the supporting masonry wall below. The owners left the roof unrepaired as winter approached, prompting the New Hampshire Preservation Alliance to declare the gasholder house one of the seven most endangered historic properties in the state in October 2013.

Liberty Utilities hired a contractor to place a temporary patch on the roof in September 2014, but a year later has announced that the temporary work is at the end of its effective life and that the company must soon decide whether to restore the building or to demolish it and clean up the site. Local officials regard the building as an icon of the New Hampshire state capital and are hoping to meet with Liberty Utilities representatives to seek a way to preserve the structure.

James L. Garvin
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SNEC President's Report
Fall 2015

On October 17, SNEC members met under the bright blue sky of a perfect fall day at the New England Steam & Wireless Museum in East Greenwich, Rhode Island, for the annual chapter business meeting. The event coincided with the museum's popular "Yankee Steam-Up" show. Members had a chance to view the museum's impressive ASME-landmark collection of restored steam engines, operating under "live steam," as well as its extensive collection of early wireless equipment, including the Massie Wireless System station, PJ, relocated to its current site in 1893. The show also included numerous exhibitors, with model steam engines, machinery and vehicles, including the menacing-looking Chase Shingle Mill from the Potterville Museum. The chapter meeting took place in the museum's restored 1822 meeting hall. After a few announcements of upcoming events of interest, there was a discussion on ideas for SNEC chapter tours in 2016. Potential locations include a visit to the iron works region of northwest Connecticut, and a few other places. My goal is to have at least two spring events planned by February or March. Another idea discussed was the possibility of preparing an "SNEC road show" in order to get the word out about the SNEC and SIA. This would include the creation of a banner with a logo that could be used for a table display (with flyers, posters, etc.) at various events of interest (such as the Yankee Steam-up). 2016 also marks the 40th anniversary of the chapter's founding in October 1976 at Slater Mill in Pawtucket. We are hoping to return there in October 2016 with some sort of special event to mark the occasion. Lastly, the meeting concluded with the annual election of chapter officers. There is one change to report: Leonard Henkin will be replacing Mike Green as secretary. However, Mike has agreed to continue with the periodic e-mail blasts. Please make sure we have your current e-mail address to avoid missing out on the news. Of course, if you have items of interest to share, please pass them along to us.

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NNEC President's Report
Fall 2015

The NNEC presently has 76 members, down 3 from last year. Of those, 38 are life members. No new people have joined yet this year despite our having placed 15 brochure racks in historical and other libraries. Ten racks are still available to be placed. The fall tour (past tense by this reading) will have a lot of publicity in Nashua, which might help. Most of our tours have been in smaller towns or remote areas. The SNEC has a recruiting advantage with more of their cities (and tours) near larger population areas. Perhaps we need some gerrymandering.

The savings account has $4,805.95 as of September 30. The 38 annual memberships, at $20.00 per year, bring in $760.00. The newsletter costs are about $1000 per year. So, just the newsletter costs are $240 more than the annual dues. It would take 12 new members at $20 each to be in the black. So far, our recruiting has failed.

The display racks for the brochures were $69.08 (a recruiting investment). The spring tour cost $223.31; that is a lot but those who attended got a great deal of industrial history out of it. Most of the cost of the spring tour was the three long slide presentations which are now on our website to be viewed repeatedly by anyone, so that was an investment for us as well.

In conclusion, we still need more new members for the chapter to stop depreciating its funds. Alternatively, we need another source of operating funds.

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Call for Papers

for the 29th Annual
New England Industrial Archeology Conference
March 5, 2016
at Plymouth State University
Plymouth, New Hampshire

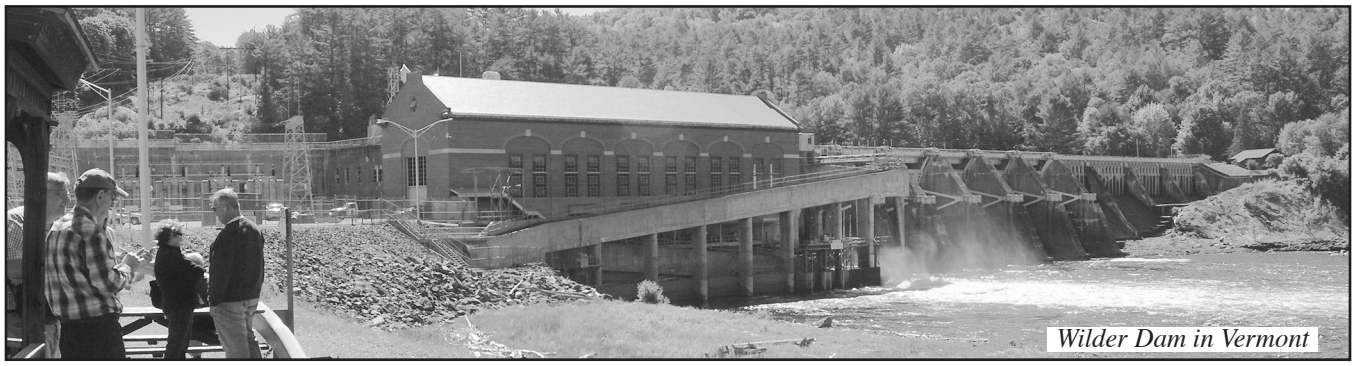
Deadline for paper proposals: January 24, 2016

The Northern New England Chapter of the Society for Industrial Archeology invites proposals for papers to be presented at the 29th Annual Conference on New England Industrial Archeology.

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.

E-mail proposals in PDF format should go to:
ykforestry@yahoo.com
and USPS to: Dave Coughlin
276 Back River Road
Bedford, NH 03110



Wilder Dam in Vermont

2015 NNEC Spring Tour

Meeting at Wilder Dam in Vermont on June 20th, SIA members enjoyed a beautiful day. The story of the old mills and dams was explained in displayed pictures and read historical accounts. The new TransCanada dam/hydroelectric station was viewed and the fish ladder was seen up close. The details follow in "The Industrial History of Wilder, VT" later in this newsletter.

From Wilder we motored down to White River Junction, VT, and explored Old Engine #454 which was built in Manchester, NH. After having lunch at the historic Coolidge Hotel, for the remainder of the day we saw and heard a presentation by local historian Jay Barrett. Details follow. The presentation was so good, and so long, that we never did get to Quechee Gorge. Some members went there on their own afterwards.

Attendees can review the (over 150) labeled slides on the website; those who couldn't make the trip can see what they missed. Go to www.nec-sia.org and click on Events at the top. Drop down and click on Past Events; then down to June 20 NNEC Spring Tour Parts 1, 2, 3. (Each will take quite a few minutes to download.)

Part 1: The White River Falls on the Connecticut River, Olcott, and Wilder

Part 2: The opening of the railroads and the creation of White River Junction.

Part 3: The Woodstock Railway, Dewey's Mills, and Quechee.

This will always be on our site to review; thanks to SNEC President Marc Belanger.

David Dunning
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SNEC MILL RIVER VALLEY TOUR

On September 26, 2015, SNEC members met in Williamsburg, Massachusetts, for a tour of the Mill River Valley that began in the historic 1841 Old Town Hall, now home to the Williamsburg Historical Society (WHS). Local historian Ralmon Jon Black began with a discussion of the early history of the town, which was originally part of Hatfield before it was split off in 1775. The first industry occurred during this period when the new settlers cleared the vast hardwood forests for the production of potash, a valuable commodity which provided the cash poor farmers with hard currency to pay taxes and buy other items not easily obtained through bartering. During this period the first saw and grist mills appeared along the Mill River and its tributary streams. In 1795, Rufus Hyde built a triphammer shop in the village of Searsville, establishing a successful axe-making business which soon gained a regional reputation for producing high quality blades. The edge tool industry in Searsville peaked in 1832, with several shops producing over $11,000 worth of goods that year. The woolen industry also played an important role in the early development of Williamsburg, and by 1832 accounted for nearly half of the town's economic output. A notable button industry also developed during this time.

The first cotton mill was built at Haydenville in 1809, but only lasted about nine years. This mill was later acquired by Joel Hayden and James Congdon for the manufacture of power looms for woolen goods. In 1831, Joel and Josiah Hayden began manufacturing various types of buttons at this site. The mill was destroyed by fire in 1832. It was rebuilt with brick in 1833. The production of buttons became their main product until this business was sold to Samuel Williston in 1848, who moved to Easthampton, becoming one of the most successful manufacturers in the area. By this time, Joel Hayden had also partnered with A.D. Sanders (aka Saunders) to construct a new cotton mill with 4,000 spindles just downstream of the button factory. Hayden and Sanders also began the production of brass plumbing goods in 1851, in the then-vacant button factory. Hayden also built a new dam near the headwaters of the Mill River in Goshen in 1852. The brass industry would soon grow to dominate the economy of Haydenville. The village also included its own gas works.

No history of Williamsburg would be complete without mention of William Skinner, a talented silk-dyer from London, England, who arrived in Northampton in 1843. About ten years later, Skinner purchased an old woolen mill just upstream from Haydenville, and established the Unquomonk Silk Mill. Skinner's silks soon developed an excellent reputation and the business thrived. The village became known as Skinnerville. The rail line from Northampton was later extended here, with a depot built at the upper end of the village.

The discussion then focused on the one event that changed the history of Williamsburg forever: the dam break and flood that occurred on May 16, 1874. The dam was built by a group of local mill owners who established the Williamsburg Reservoir Company in 1865. Completed in 1866, it was located on the East Branch of the Mill River in the northeast part of the town, to supplement power capacity from the West Branch. The earthen dam was about 600 feet long and 43 feet high, and impounded an area of about 100 acres. One of the key features of the dam was a stone masonry core wall, intended to minimize seepage through the embankment. The core wall was supposed to be "keyed" into the native soil in a trench, excavated down to hard pan or bedrock. The masonry was to be of cut stone, carefully mortared to provide a solid, impermeable barrier. However, in an era before State regulation and oversight, the owners managed to reduce the initial $100,000 cost estimate for the dam to $24,000 by cutting every possible corner that could be cut. The dam began to leak and slump almost as soon as it was filled. Repairs were often made, but for years, many residents lived in fear. Even Joel Hayden, Sr. lost sleep on rainy nights, and ordered the gatekeeper to maintain the reservoir at a moderate level. However, after his father's death in November 1873, Joel Hayden, Jr. allowed the pond to fill with the spring rains of 1874, ultimately resulting in a tragedy that killed 139 people and wiped out much of the town's economic base. Over 700 people were left homeless. News of the disaster spread quickly, becoming a national media frenzy. Aid to the valley poured in from around the country. A coroner's inquest investigated the disaster's cause, but ultimately nobody was held accountable. The tragedy did provide impetus for the Massachusetts Legislature to enact new laws in 1875 on reservoir dam design, construction, and liability (real enforcement would take far longer, however).

The day continued with a short walk of a couple blocks to the circa-1881 Hiram Hill Grist Mill. This small water-powered mill was built to replace an earlier one that was destroyed in the 1874 flood. It operated as a grist mill until 1925 and is now home to the Historical Society's Farm Equipment Museum, containing a wide array of antique farming machinery, vehicles and tools mostly from the local area. The grist mill is located along the East Branch of the Mill River, but was also powered with water from the West Branch via a short feeder canal (which has since been filled in). The upper two floors of the 2-1/2 story wooden structure are suspended from the roof trusses by iron rods, providing a wide open space on the first floor. The basement of the mill still contains the original turbines and shafting, but was off-limits during the tour, since a large section of the wooden floor has collapsed.

Side note: the author has seen the basement, and feels it would be a good candidate for a recording project, and/

Circa-1880 Hiram Hill Grist Mill (now home to the Williamsburg Historical Society's Farm Equipment Museum).

or perhaps a grant to stabilize / restore the floor and power system, since the rest of the wooden structure is dry and in excellent condition.

After lunch at Brewmaster's Tavern in the center of town, the group was joined by the Historical Society's Eric Weber, and Elizabeth (Betty) Sharpe (author of In the Shadow of the Dam) for a visit to the site of the failed dam. Since there is no public access to the ruins, special permission was obtained for us by our knowledgeable guides. The path to the dam follows the original construction road. We first approached the wide spillway on the west bank, left high and dry after the break. Only small sections of the stone core wall at the west and east ends of the dam remain today. The breach in between is over 200 feet wide. Close observation of the stonework reveals large gaps between the hastily applied mortar – which somehow were expected to hold water! Also visible is a long horizontal row of stones near the bottom of the valley that once covered the 18-inch iron outlet pipe (since removed). Weber explained how the stone wall was intended to protect the pipe, but actually created an easy path for water to flow through the embankment – a recipe for disaster. The scale of the site, now covered in forest, is difficult to capture by camera. It is mind-boggling to think of the massive amount of earth and debris that was so quickly washed downriver on that fateful Saturday 141 years ago.

The tour later continued with brief stops in Skinnerville and Haydenville. With excellent photos and commentary provided by Ralmon Black, it was possible to imagine what was lost in the disaster. Unlike the devastated villages of Williamsburg, Haydenville and Leeds, Skinnerville was entirely wiped out by the flood, except for Skinner's heavily-damaged mansion. Faced with a huge financial loss, Wil-

Attic framing detail inside Hill Grist Mill. The weight of the two upper floors is supported by iron rods and transferred to the outer walls, providing a clear open space on the first floor.

View of western remnants of the failed dam's masonry core wall.

Detail of the gaps and shoddy mortar of the core wall, intended to provide an impermeable barrier.

Ralmon Jon Black of the Williamsburg Historical Society discusses the brass works site in Haydenville. The former pattern shop for the brass works is in the distance.

liam Skinner accepted an offer to rebuild in nearby Holyoke, starting over again with nothing but his good reputation, hence the moniker "American Phoenix." He even had his mansion, Wistariahurst, disassembled and rebuilt there. (The Skinner factory burned in 1980 and the site is now Holyoke Heritage State Park.)

After a stop at the former brass works of Hayden, Gere and Company (rebuilt in high style soon after the flood), several SNEC members continued on to Leeds, for a walking tour aided by an excellent brochure provided by the Leeds Civic Association. Today, the village still contains the former Nonotuck Silk Mill (now apartments), the Northampton Emery Wheel Works and the 1880 Hotel Bridge (see accompanying article on the bridge).

Marc N. Belanger
Taunton, MA

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Historic Mill River Walks – Leeds Center to Hotel Bridge; pamphlet by Mill River Greenway Initiative

I
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View of the Hayden, Gere and Company brass works, Haydenville. Rebuilt shortly after the 1874 flood. Restored into commercial use in the 1980s. (Now mostly vacant, in need of tenants).

Obituary: Frank M. Stieger

Frank Stieger on the Middlesex Canal tour in 2014.

Frank M. Stieger died on September 7, 2015 at Newton Wellesley Hospital at age 91. He was born in Rochester New York, the son of Franz and Marie Stieger. He was predeceased by his wife of 53 years, Mary (Garin) Stieger and daughter Elaine Stieger of Newton, MA. He leaves behind his loving daughters Anne Gould of Cranston, RI, and Marcia Stieger of Fairfax, CA; grandchildren Ralph Kelliher of Daly City, CA, Elaine Gould of Milford, CT, and Oona Lyons Kumataka of Fairfax, CA; and one great-grandson Cal Kumataka. He is also survived by a niece Ann Hagen and nephew William Shanley, both of Stuart, FL, and several grand-nieces and nephews. During World War II he served as a staff sergeant aerial gunner on B-24s in 1943-45. After his military service he worked for Bausch and Lomb in Rochester and attended Clarkson College of Technology in Potsdam, NY, graduating in 1952 with a degree in Chemical Engineering. Later he received a Master of Business Administration attending night school at American International College in Springfield, MA. His professional positions included Monsanto Co. in Springfield, MA, General Electric Co. in Pittsfield, MA, and Polaroid Corp. in Cambridge, MA, where he worked 22 years before retiring in 1987. During his working years he obtained 3 patents. He was also a member of the American Chemical Society, Society of Plastics Engineers and Appalachian Mountain Club. He lived in Newton for 50 years and enjoyed reading non-fiction, travelling, photography, hiking, geology, and a home workshop. During his retirement years he was able to care with his wife Mary for their daughter Elaine with Multiple Sclerosis and then later for Mary when her health deteriorated. After those years, he became a member of many organizations, including World Boston, Walk Boston, Mass Bay Railroad Enthusiasts, Newton Genealogy Club, and the Society of Industrial Archeology, to name a few, and travelled extensively, including a trip to Europe. He remained an active member in some of the organizations and a frequent patron of the Newton library until his death. He was well-known and liked in his neighborhood, often offering his help with home maintenance projects. He is fondly remembered by family, friends and neighbors. Services to be arranged at a future date.

Leonard Henkin

Help Sought for Historic Hotel Bridge

The historic Hotel Bridge, once called Old Shepherds Road Bridge, spans the Mill River in Leeds, Massachusetts, a small village located in the northwest part of the City of Northampton. It is the oldest bridge of its type in the state. The 1880 iron Pratt through truss bridge was built by the Wrought Iron Bridge Company of Canton, Ohio, two years after the 1878 winter freshet washed out a roadway connecting millworkers on the west side of the river to the mills along Main Street on the east side. Five or so years after the bridge was erected, Leeds Hotel was built on the northwest side and the new bridge soon became known as Hotel Bridge. The height of the uniquely turned hand guards suggests the structure was originally designed to be a pedestrian bridge. The bridge has lattice rails with handsome iron rosettes at intersection points, and iron scroll work surrounds the maker's name plate above each portal.

The Hotel Bridge has been closed to vehicles since 2004. In mid-2014, chain-link fencing was installed at each end to block pedestrian access as well. This has been difficult for many folks who were used to walking and bicycling across the span. The decision to fence off the bridge was made after an engineering study had found deteriorating floor beams, a missing U-bolt, and holes in the asphalt decking. This $35,000 study, begun in 2012 and completed in 2014 by Stantec Consulting Service Inc. of Northampton, was financed by a Community Preservation Act grant awarded to the DPW at the behest of the Leeds Civic Association. After the fences went up, the LCA requested that the balance of the CPA grant ($5,292) be used to fund an alternative engineering study by Workin' Bridges (WB), a team that specializes in restoring iron bridges. The intense cold of this past winter

Hotel Bridge Spring 2015 (photo by Heidi Stevens).

kept the Mill River frozen into late March, offering the WB engineering crew easy under-bridge access during their site visit. Workin' Bridges' submitted their scope of work report to the Northampton DPW, and on June 1, 2015 they presented their findings at a well-attended community meeting. Their recommendations included a plan for full in-place restoration and projected costs. In addition, a low budget plan to open the bridge to foot traffic and bicycles while restoration funding is sought was described. During the meeting the option of opening the bridge to foot traffic by making the minor repairs was rejected by the DPW due to liability concerns.

A full restoration is now being sought. The cost of painting the bridge in an environmentally correct way adds significant cost to the project. Painting and repairing in place is costly due to the complicated procedures needed to protect the river. Workin' Bridges posed the possibility of lifting the bridge to land for repairs and painting. WB project manager, Julie Bowers is in communication with the electric company, gas company (the bridge carries a gas line), crane companies, and owners of the lot across Main Street to find out what is possible. WB engineers are working up costs for a lift and repair. Even with a land repair, the cost will be close to a million dollars - a heavy lift for sure!

In April 2015 the Northampton Department of Public Works submitted the Leeds Civic Association's nomination for the Hotel Bridge to be placed on the National Register of Historic Places. It has an excellent chance of being listed on the register, although the process takes close to two years.

To see more photos of Hotel Bridge, find out more about the restoration effort, offer ideas and/or donations, please visit, http://www.leedscivic.org/hotelbridge/.

Heidi Stevens
Leeds Civic Association

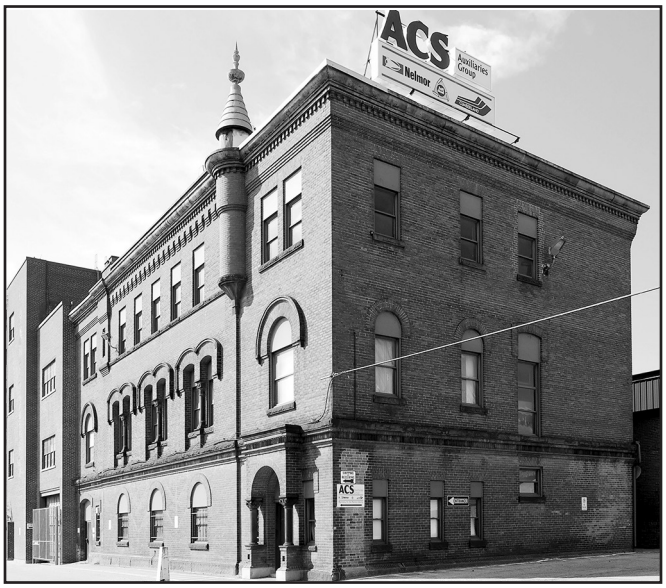
View of Hotel Bridge (Pennington Geis photo).

Textile Machinery Plant Demolition in Attleboro

Demolition of the former Howard & Bullough (H&B) American Machine Company factory in Attleboro, Massachusetts, began in June 2015, a year after it was condemned as "unsafe" by city officials. The large complex was most recently occupied by about twenty various businesses who were abruptly forced to relocate. Before that it was, for many years, the home of Cumberland Engineering, a maker of machinery for the plastics industry, founded by Fred M. Roddy in Kingsport, Tennessee, in 1939.

The H&B plant, situated on a 25-acre site, located just over the Rhode Island state line in South Attleboro, was built in 1894 by Howard & Bullough of Accrington, England. The company was established in 1856 by John Howard and James Bullough, and soon became one of the largest textile machinery producers in the United Kingdom. In the early 1890s, H&B decided to build a plant in the United States to manufacture machinery stateside, in order to overcome the disadvantages of high tariffs on imported textile machinery. After a search for suitable sites that included Lowell, Fall River, Providence and Pawtucket, the company was enticed to build in Attleboro with the help of a 10-year tax break. However, the company would continue to list its location as "Pawtucket, R.I." on company documents. Scottish-born inventor James C. Potter served as the first president of the American branch of the company.

Work began on the new $80,000 factory in April 1894, and the foundation of the main 350' x 65' machine shop was completed in June of that year. It was designed by Henry A. Herrick of Manchester, N.H. The complex eventually grew to include about 500,000 square feet of floor space, and included a rail siding from the adjacent New Haven Railroad main line. In 1911, the company was incorporated as H&B



2009 photo of office building.

2015 photo of main machine shop. Windows are being removed, and crews are picking through items.

American Machine Company in the State of Maine, with Charles E. Riley as president. At its peak, the company employed about 1,000 workers, producing a full line of cotton textile machinery.

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Taunton, MA

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The Industrial History of Wilder, Vermont, and Wilder Dam

The town of White River Falls, Vermont, was chartered in 1761. It was later changed to Olcott Falls and eventually became Wilder. The falls dropped 37 feet over 3 rock bars that stretched over a mile on the Connecticut River. The falls were the site of early industry, including a grist mill and fulling mill (an early textile process) as early as 1779. Timber was already the major commodity of the Connecticut River Valley. The falls were an impediment to river transportation until Miles Olcott built the first locks in the early 1800s allowing boats to travel around the falls. The locks were profitable until 1848 when the railroads came and made them obsolete. They were later washed away in a series of floods.

The village known as Olcott is a unique planned community developed in part by Charles Wilder, owner of a local paper

mill in the 1880s. In 1887, the village was renamed Wilder. The Wilder Brothers paper company was first located in Boston, where their father started in 1840. They later developed another plant in Ashland, NH. It was 1880 when Charles and Herbert Wilder purchased the development rights to build a paper mill in Olcott. By this time, river water power was used to generate electricity to power machinery, not for direct mechanical power. The complete illustrated story of the birth, growth and ending of the Wilder Paper Company in this town is in Part 1 on the website.

Charles Wilder died in 1897; his brother Herbert sold out to International Paper Co. in 1899. They ran the mill until 1927, then closed it down. By the 20th century, the town (now Wilder) boasted a railroad station, a post office, several retail stores, and electric street lighting. An iron bridge contributed by Charles Wilder spanned the Connecticut River at Wilder. The bridge, the paper mill, and the dam that supplied the power to the mill were all demolished in 1950 for the construction of the new Wilder Dam. The slides and labels on the website (Part 1) show and tell the complete history.

The New England Power Company began operating the new Wilder Dam, downstream from the old one, in 1951. The pond created behind this new modern dam is 46 miles long. It receives drainage from a 3,375-square-mile watershed in Vermont and New Hampshire. Wilder's three turbines have a combined generating capacity of 42 megawatts. One turbine is in Vermont and the other two in New Hampshire, as the dam's powerhouse sits on the border, the west bank. It is what is termed a daily-peaking generating plant; the pond level behind the dam is allowed to fluctuate up five feet without getting permission. The company uses vegetable oils to lubricate its machinery, to avoid any possible pollution.

Unlike power plants using non-renewable energy sources, hydro dams can provide a "cold or black start" to the electric grid, as Wilder Dam and others on the Connecticut River did during the historic widespread blackout of the Northeast in 1965. A small generator provides enough power to open the gates, allowing water flowing through them to produce power first to re-start the other power plants throughout New England, and then for consumers.

David Dunning
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Hillary Clinton in Claremont, NH

Northern Heritage Mills

Hillary Clinton encourages Next Generation of Creative Preservation Engineers

Northern Heritage Mills is an educational organization that uses historic industrial buildings and technologies as educational tools and workshops whose mission is to encourage young people to consider engineering (STEM) educational pathways as well as the preservation of early industrial technologies.

In August, 2015, Heritage Mills was invited by Secretary Hillary Clinton to showcase the results of an historic civil engineering workshop, Young Women in Engineering, during her visit in Claremont, New Hampshire.

Gerry DeMuro, President of Heritage Mills, along with Engineering Professor James McDonald, developed the plans for the Historic Grist Mill Truss Bridge that was built as part of the event of the day at the 2014 Young Women in Engineering Conference. The Historic Grist Mill Bridge represents the engineering necessary for the transportation systems that were important spanning the Sugar River – both of which made Claremont's Historic Mill District a center of innovation, communication and an industrial powerhouse from the 1780's to the 1960's. The Tyler Family developed seven mill dams and received more than 20 US patents for industrial innovations. The Mill District had grist mills, railroads, cotton and woolen mills, saw mills, machine shops, paper mills, a granite shed, a gas plant for mill illumination and six water-powered dams. The bridges were their connecting links to the outside world.

Several young women who participated in the 2014 Young Women in Engineering Conference were also present for Secretary Clinton's stop in Claremont, NH. In addition to hearing her speak, they were able to meet with her briefly to share their bridge project which was constructed during the 2014 Young Women in Engineering conference. Secretary Clinton praised their work as well as their interest and enthusiasm for both engineering and the preservation of industrial structures. She also shared that when she was First Lady, she was an ardent preservationist and wrote the forward to a book called Saving America's Treasures. Secretary Clinton also autographed a copy of that book for Northern Heritage Mills. Clinton congratulated these young women and encouraged their interest in STEM pathways and preservation. These young women will also be participating in this year's engineering workshops which include Historic Waterwheels and Power Systems being offered at the 2015 Young Women in Engineering Conference. Each workshop is designed to increase their understanding and interest in engineering, industrial archeology and preservation.

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Sanford Mill Site, Newtown, CT

The Louis Berger Group, under contract to the Connecticut Department of Transportation, recently documented the remnants of a mid-19th century hat factory in Newtown, CT*. Prior to the relocation of Edmond Road, a cultural resources survey was required in compliance with various state and federal laws. Limited archeological resources were recovered; however, remains of a mill race, dam, foundations, and a well were identified. The mill complex is located within the new road alignment and could not be avoided. Because of the adverse impact to the mill complex, the State Historic Preservation Office asked that the site be documented and the history of the mill and site information be made available to the public.

Archival research revealed that the mill was operated by the Sanford family in the 1850s and 1860s. The first mention of the mill complex is a lease from Josiah Sanford to Charles Walker dated March 13, 1845, in which Walker agreed to pay a yearly rent of $40 for a "piece of land situated at said Newtown on the North side of the road leading from said Sanford's Dwelling House to the Newtown Rail Road Depot Except what is heareafter reserved, for the purpose of Erecting an Iron foundry, commencing on the North Bank of Ford Brook… (Newtown Land Records [NLR] 37:92)." It is uncertain if Ford Brook was an earlier name for Tom (Foundry Pond) Brook, but the description of the location corresponds to the project area location. In the lease Josiah agrees that he will "build a Dam… & dig a ditch to bring the Water to a building to be Erected, by said Walker, to put in a Water Wheel from ten to twelve feet in diameter & put the Water on said Wheel & Keep said Dam, Ditch & Water Wheel in Repair during said time…" (NLR 37:93). Also stipulated in the agreement is "the said Walker further agrees to Erect on Said land a building suitable for a new Iron Foundry & other buildings for his convenience & attach to said Water Wheel his own Gearing…for running a Bellows for blowing the furnace for melting Iron…(NLR 37: 93)." This reference may indicate the origin of the name Foundry Pond, but it is uncertain from deed references if the foundry was ever built.

Josiah died in July 1851, and the property passed to his sons Henry and Frederick, certified in a court probate dated February 5, 1853 (NLR 39:817-819). This document mentions the "present dam" along with "a factory and other buildings there on & to the water wheel shafting, gearing, steam engine bodies, and all other fixed machinery connected with said factory…" (NLR 39:818). It appears from other sources that Frederick and Henry were engaged in the manufacture of hatting felts by the early 1850s, joined for a time by their other brother Julius (Hurd 1881:477). Several historical maps from the period depict the factory and the associated pond. Frederick later leased the factory to Hon & Mitchell, a Boston-based wool hat manufacturer, who operated the factory until it was destroyed by fire in 1867 (Hurd 1881:477).

Following the destruction of the factory the mill pond was used for commercial ice harvesting into the early 20th century. An 1881 report by the Connecticut Board of Finance and Control, State Board of Health refers to a dam and mill pond near the railway station "once used for the purpose of a

Photo 1. Cutting Ice on Foundry Pond 1904, Cruson.

Photo 2. Approximate Site Boundaries on 1934 Aerial Photo, CT State Library.

hat factory, but now serving merely for an ice pond" (Public Documents of the Legislature of Connecticut 1882:234). A series of photographs dated 1904 show workers harvesting and storing ice on Foundry Pond (Cruson 2000:51-52) (Photo 1). In the background is a large barn or "ice house" adjacent to the pond. Aerial images from 1934 also clearly depict the pond, adjacent ice house, a building near the brook in the south end of the site, as well as a house at the end of a gravel driveway (Photo 2). The structure in the south end of the site appears to correspond with the location of Structure 2, identified during the survey. An aerial photo from 1949 no longer shows the pond, ice house and Structure 2, indicating they were no longer in use or standing by the late 1940s.

The Sanford Mill Site is located along Tom (Foundry Pond) Brook. The Sanford Mill complex includes a stone dam, a mill race along the north bank of Tom Brook, two foundations, and a well (Map 1). The dam measures 19 meters east-west by 3 meters wide (Photo 3). The mill race is a ditch that runs from the northeast end of the dam southeast for approximately 85 meters to a foundation (Structure 1) (Photo 4). Structure 1 is an L-shaped masonry foundation capped with concrete measuring approximately 10 x 4 meters (Photo 5). Structure 1 is likely a mill house. A shovel test pit excavated within the foundation revealed remnants of a concrete shelf that lined a portion of its interior. The test pit also uncovered a 13cm diameter concrete pipe above the concrete shelf

Map 1. Site Plan and Testing Locations, Louis Berger, USGS, 2013.

(Photo 6). This pipe is located below a depressed step in the concrete cap on the foundation and likely served as drainage for a catch basin or wheelhouse. Structure 2 is located about 15 meters south of Structure 1. Remnants of Structure 2 include two concrete footings and a stone wall measuring 5 meters long and 50 centimeters wide (Photo 7). North of Structure 2's wall is a slate-capped well with a concrete capstone (Photo 8).

Archeological testing around the Sanford Mill Site largely revealed modern trash deposited by colluvium runoff. Two shovel test pits excavated in proximity to the well yielded mid- to late-19th century artifacts (whiteware, cut nails, and 8 porcelain Prosser buttons) that could be associated with the mill complex. However, a substantial portion of the site had been previously disturbed and contains very limited archeological integrity.

The Sanford Mill Site is considered eligible for the National Register of Historic Places under Criterion A (association

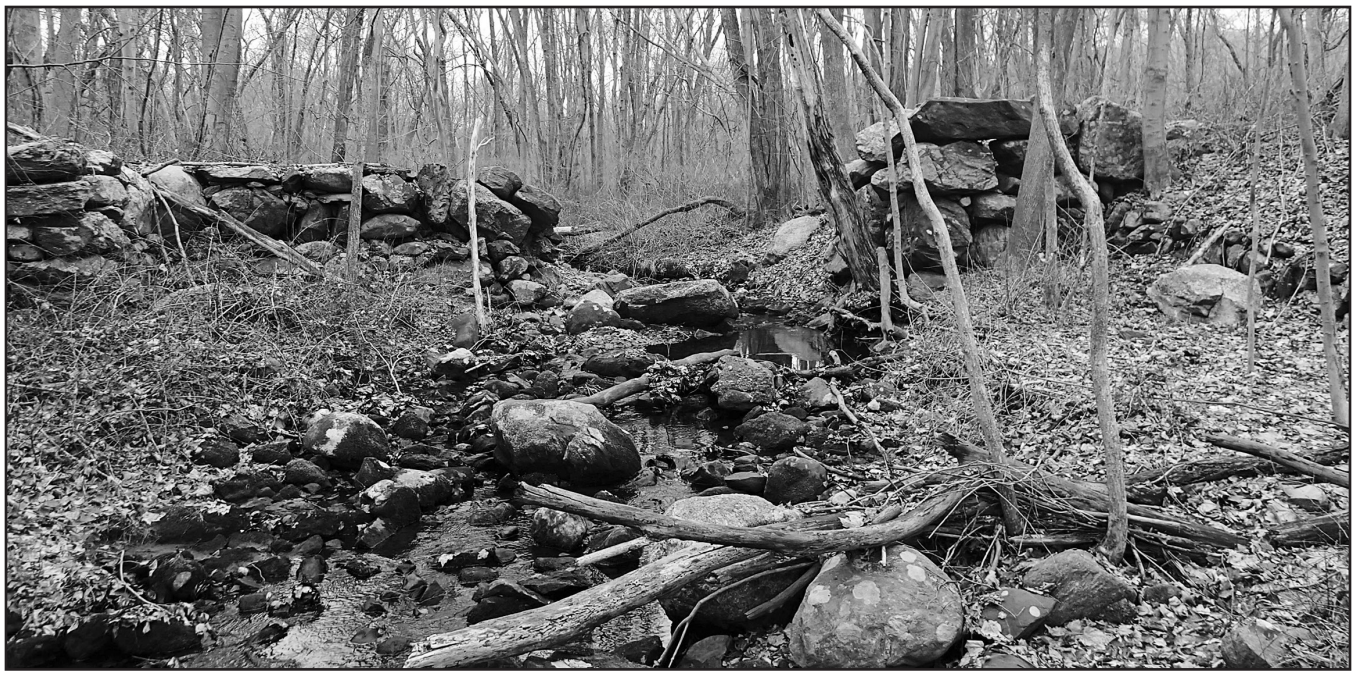

Photo 3. Dam, Louis Berger.

Photo 4. Mill Race, Louis Berger.

Photo 5. Structure 1, Louis Berger.

Photo 6. Concrete Pipe in Structure 1, Louis Berger.

Photo 7. Structure 2, Louis Berger.

Photo 8. Well, Louis Berger.

with events that have made a significant contribution to the broad patterns of history) for its association with Newtown's 19th century hatting industry. The National Register-listed Hattertown Historic District is located approximately seven miles to the south of the Sanford Mill Site. This historic district consists of more than 30 contributing resources, including houses, barns, and a blacksmith shop, which all developed almost exclusively around Newtown's hatting trade (Cunningham 1996). The Sanford Mill site has the potential to provide a better understanding of the hat manufacturing history of the region. This site dates to the latter part of the hatting industry in Newtown, which began declining in the 1840s. It may be unique in that it represents a larger-scale of hat manufacturing in what was traditionally a local cottage industry.

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Connecticut Department of Transportation
Wesley Willoughby,
The Louis Berger Group, Inc.

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*The full report, Phase I Archaeological Reconnaissance Survey and Phase II Intensive Survey and Site Documentation, Proposed Relocation of Edmond Road and Improvements to Route 6, Newtown, Fairfield County Connecticut, by Wesley Willoughby (Louis Berger) is available upon request to mandy.ranslow@ct.gov.

COLONIAL ASHERIES: The History of an 18th Century Industry, and the Exploitation of the Virgin Hardwood Forests of North America.

A monograph by Ralmon Jon Black, Researched & Edited for Presentation to the Williamsburgh Historical Society in Massachusetts, 2008, 50 pages, 8.5 X 5.5 inches or a PDF, illustrated with images of relics of the potash harvest, found by the author, and his perceptions and conclusions, supported with many citations.

The eighteenth-century settling of the upland woodlands was to penetrate a dense virgin stand of forest; cutting travel ways, opening up the best spots for homes and clear-cutting suitable lands for crops and pasture. That, a matter of necessity, all makes sense, but records and early photos reveal a landscape completely devoid of trees; steep hillsides and rocky tracts, not suited to agriculture, all completely cleared. This monograph tells the unrecorded story, faded from memory, of why and how those first yeomen on the land were to harvest the standing forest, the first cash crop when there was none other, and then, in the 1800s, move the industry with a ripple effect, westward as far as Michigan by 1860.
Proceeds of sales to benefit the Williamsburg Historical Society.
Price: Booklet – $12.00, shipping included;
Illustrated PDF – $5.00 transmitted by email.
Order from: Williamsburg Historical Society
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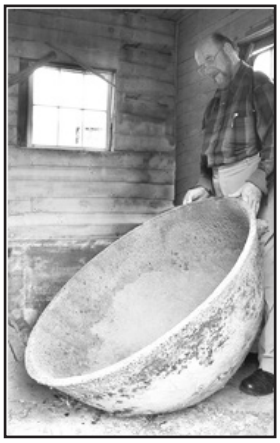

The Author with the Merritt Potash Kettle in Goshen