Society for Industrial Archeology · New England Chapters

Volume 3 Numbers 1/2 1982

Site Plan of the Larkin-Morrill Snuff Mill in Byfield, Massachusetts. This site was recorded by SNEC-SIA members on October 24, 1981. See "Larkin-Morrill Snuff Mill ..." on page 2. Courtesy of Patrick Malone and Ronald Laffley.

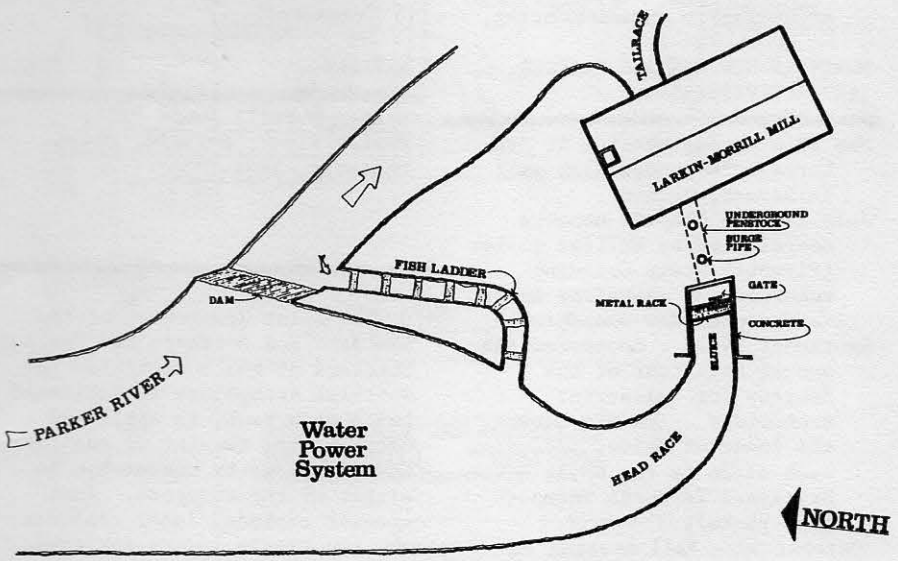
EDITORIAL

This double issue of the Newsletter for 1982 reflects a trend toward longer submissions that present more substantive research results than in the past. Among these are a report (Betsy Woodman) on the SNEC-SIA recording project at the Larkin-Morrill Snuff Mill in Byfield, Massachusetts, an article on the iron and steel industry in New England (Robert Gordon), and a survey of charcoal kilns in Vermont (Vic Rolando).

In order to save space, the "SECRETARY'S REPORT" and "PRESIDENT'S REPORT" for each SIA Chapter are not included here, and they have been replaced by a short listing of each Chapter's primary 1982 activities.

The late appearance of this issue is completely the fault of the Editor, and I wish to offer my apologies for its tardiness. I moved to a new position in Troy, New York during the latter part of the year, and my schedule has yet to return to normal!

David Starbuck
Rensselaer Polytechnic Institute



SITE PLAN
not to scale —

NEW MEMBERS SOUGHT

Both the Southern and Northern New England Chapters are eager to accept new members! If you would like to join and receive the Newsletter, please fill out the membership application on the back page and send it in.

SOUTHERN NEW ENGLAND CHAPTER, 1982 ACTIVITIES

April 24 - Spring meeting at the Charlestown Navy Yard in Charlestown, MA. The tour included visits to Building 105 (where anchors and anchor chain had been forged) and to the quarter-mile-long ropewalk designed by Alexander Parris.

November 13 - Fall meeting at the Ledyard Grange Hall in Connecticut and tour of the town-owned Saw Mill Park, site of an up-and-down sawmill. The group also toured the B.F. Clyde Cider Mill in the nearby town of Stonington. New Chapter officers were elected: Sandy Norman (President), Charles Parrott (Program Coordinator), Herbert Darbee (Secretary), Frederick Roe (Treasurer).

Chapter members have also been extremely active in preparing for the June 1984 conference of the International Committee for the Conservation of the Industrial Heritage, to be held in Boston just prior to the Society for Industrial Archeology's annual meeting.

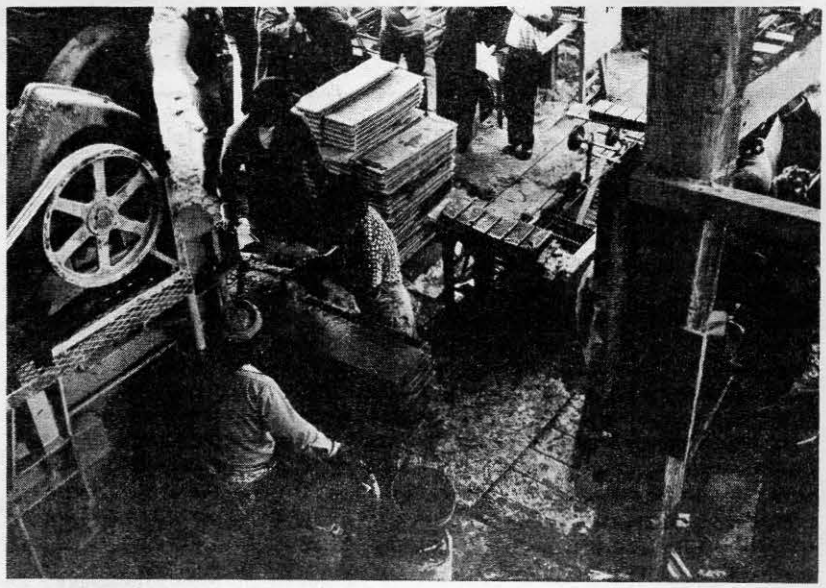
NORTHERN NEW ENGLAND CHAPTER, 1982 ACTIVITIES

May 22 - Spring meeting at Ben Thresher's woodworking mill in Barnet, Vermont.

July 24-25 - Chapter members coordinated by William Taylor (Plymouth State College) recorded the gasholder house in Concord, New Hampshire.

September 24-26 - Sponsored the annual fall tour of the Society for Industrial Archeology. The SIA toured the coast of Maine, including such sites as the Royal River Brickyard in North Yarmouth (see photo).

October 30 - Fall meeting at Frye's Measure Mill in Wilton, New Hampshire. New Chapter officers were elected: William Taylor (President), Vic Rolando (Program Coordinator), Robert and Winifred Talbot (Secretary and Treasurer).



Making Bricks "The Old Way" at the Royal River Brickyard in North Yarmouth, Maine. Courtesy of David Starbuck.

ARTICLE

Larkin-Morrill Snuff Mill, Parker River, Byfield, Massachusetts, 1804-1951:

The Recording Process:

On Saturday, 24 October, 1981, a small group of SNEC-SIA members met under cold but clear skies in Byfield, Massachusetts to record the Larkin-Morrill Snuff Mill, out of operation for 30 years. Sponcored by Benjamin Pearson, Jr., mill owner, and working in teams from 9:30 to 5 p.m., SNEC members succeeded in gathering enough field data to describe the machinery, water power system, archi-

The joint Newsletter of the Southern and Northern New England Chapters of the Society for Industrial Archeology is published twice each year, in April and October, and receipt of the Newsletter is by membership in either of the Chapters. This special expanded issue replaces the two single issues for 1982.

The design of the Newsletter is the creation of Albert Gregory, Graphic Designer.

Editor
David R. Starbuck

Southern Chapter Officers
Sandy Norman, President
Charles Parrott, Program Coordinator
Herbert Darbee, Secretary
Frederick Roe, Treasurer

Northern Chapter Officers
William Taylor, President
Vic Rolando, Program Coordinator
Robert & Winifred Talbot, Secretary/Treasurer

The Newsletter is jointly sponsored by the Southern and Northern New England Chapters of the Society for Industrial Archeology. This issue was printed by "Sir Speedy Instant Printing Center" in Concord, New Hampshire.

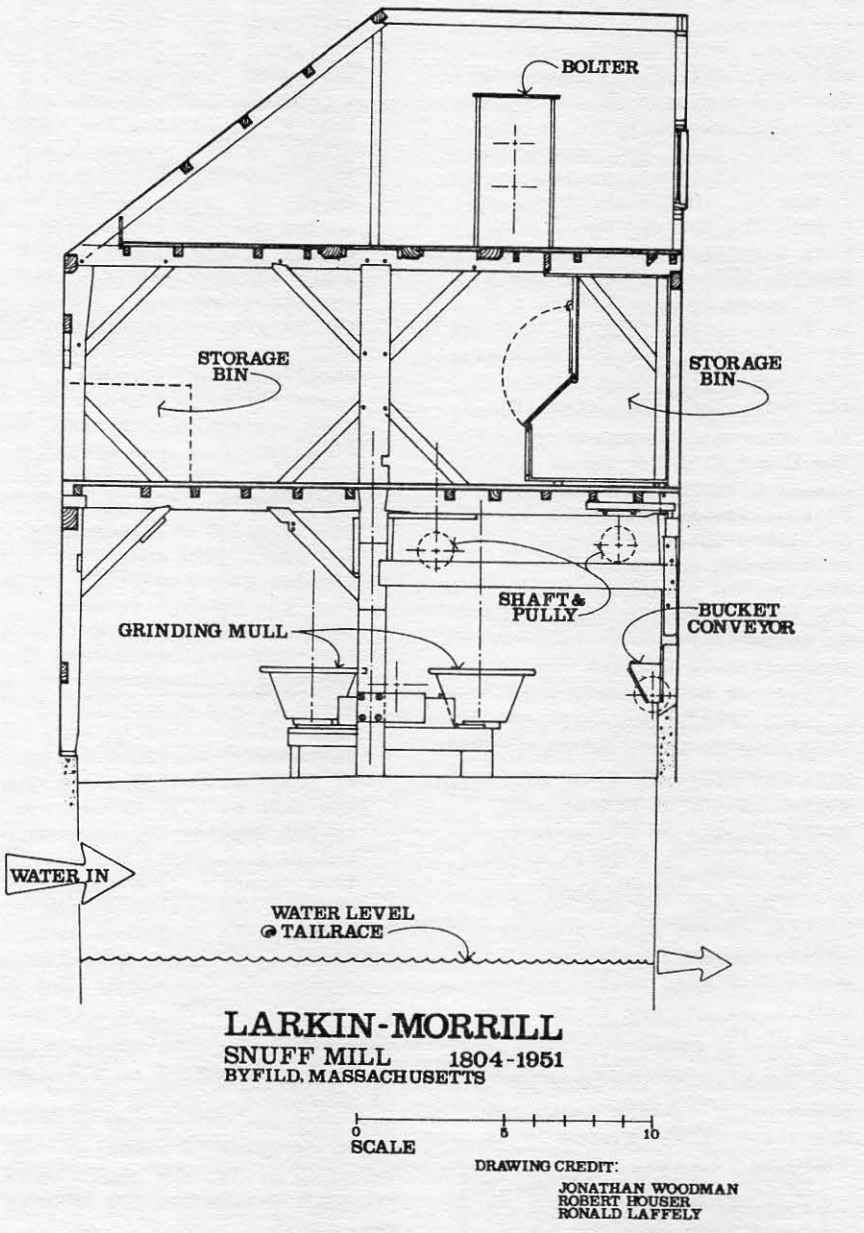
tecture and mill records. Charles Parrott and April Wolf inventoried machinery and the location of the gear and pulley transmission system. Patrick Malone photographed the mill and its machinery, and together with Herb Darbee completed an illustrated review of the water power transmission system. Jonathan Woodman and Robert Hauser completed an architectural section of the mill showing the location of machinery to correct scale. Helena Wright led Steve Lubar and Betsy Woodman on a journey through 110 lineal feet of mill records.[1] Data collected on this recording project will be housed in The Essex Institute (key repository for Essex County Records), Salem, Massachusetts, and the Old Newbury Historical Society, Newburyport, Massachusetts.

Historical Review: Larkin-Morrill Snuff Mill:

Located on the Parker River in Byfield, Massachusetts, the Larkin-Morrill (L & M) Snuff Mill first operated in the 18th century as a sawmill.[2] It was converted to snuff manufacturing by 1804, if not before, when it was bought by Dr. Samuel Tenny who milled snuff until 1811. Between the years 1822 and 1837 Thomas R. Larkin, tobacconist, purchased the mill. His partner in the business was Orlando W. Morrill, hence the name "Larkin-Morrill Snuff." After Larkin's death his heirs sold the major interest in the mill, property and mill rights to Gorham D. Tenny and Daniel Bailey in the decade of the 1870s. In 1899 the mill was sold to the newly incorporated Byfield Snuff Company by Tenny & Bailey who maintained an interest in the company as stockholders.

Major interest, however, and the daily operation of the L & M Mill passed to the Pearson family. The Pearsons were already grinding snuff in a second mill located one and one-half miles up the Parker River.[3] Known prior to 1899 as the "Pearson Mill," this operation is thought to have been started by the family in the post-Civil War era when they converted a sawmill into a snuff grinding operation.

An Architectural Section through the Larkin-Morrill Snuff Mill. Courtesy of Jonathan Woodman, Robert Houser, and Ronald Laffley.



Consolidation in 1899 gave the Pearsons control of the two snuff mills and the water rights on the Parker River, and they continued to operate both mills until the mid-twentieth century. By that time a large part of the major snuff market, textile mill operatives, had relocated to the southern states along with the textile mills themselves. Northern snuff suppliers were adversely affected by shipping costs, a decrease in the demand for snuff in the third decade of the century, and increasing competition by bigger tobacco companies. Under these pressures, the Byfield Snuff Company managed to keep the former Pearson Mill in operation but was forced to close the L & M in 1951. After nearly 150 years of production, the mill building was used for storage. Due to its geographic isolation from the other mill located upriver, the L & M Mill became an increasing target for vandalism. That it survives with its machinery intact is a testament to the continuing maintenance and watchful eye of the Pearson family. The mill is up for sale, and plans tentatively call for its conversion to private housing.

The Power System at the L & M:

The power train at the L & M Mill was originally one of wooden gears. A set of wooden spur gears located on the second floor of the mill serve as mute testament to the original drive system. In the early history of the mill, a water wheel, probably undershot, would have been used. Either before, or perhaps at the same time as the installation of the cast iron grinding mulls, the power train was updated and a water turbine installed. Operation of the system is as follows:

> "Water is drawn from a pond formed by a concrete dam in the Parker River. A concrete sluice (12'-10" wide), built in 1914, leads to a trash rack which leads to a single gate set on the south side of the sluice. There is room for another gate to the north. The gate is an inoperable (single) rack and pinion form with a roller. The pinion, ratchet, and pawl are missing. There is an underground penstock from the gate to the mill. Two cast-iron surge pipes have different heights and different heads. Approximately 60 yards upstream, a concrete dam provides the head of 10-12 feet for the mill. As water enters the mill from the inclined penstock, it is confined by a wooden penstock (approximately square) leading to a scroll-case turbine. The turbine is controlled from the first floor (grinding area) by a horizontal handwheel engaging through a reduction gear train. The gear train slides a rack sideways under the grinding platform. This results in the rotation of a pinion gear engaged with the rack and positioned above the turbine gate reduction gears. Thus the message is sent longitudinally with a rack and then vertically down to the final reduction gears which rotate a paddle (butterfly valve) at the entrance to the scroll-case of the turbine. The turbine was made by C.T. Manufacturing Company, Orange, MA, and is probably a mixed flow runner. It discharges through the bottom of the scroll-case, below tailwater level. An arched opening leads back to the lower river."[4]

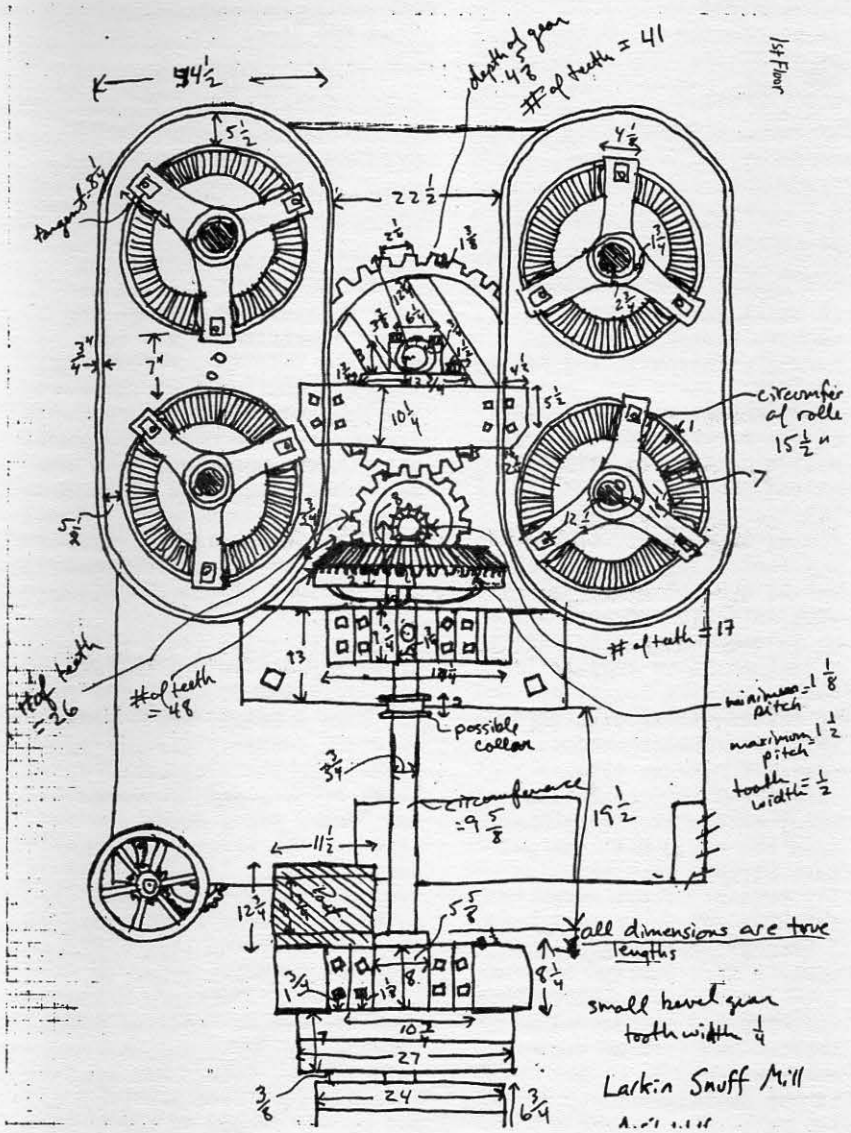
From the turbine, a vertical shaft was connected to a series of gears and shafting that operated the pulley and belt drive to transmit power to the grinding mulls, the three-story conveyor system and the bolting machine.

The Process: Grinding and Scenting:

Incoming tobacco, shipped from the South in hogsheads weighing between 600/700 and 2000 pounds, was brought into the first floor of the mill building.[5] Here it was unbaled and allowed to begin to cure before grinding. Sealed jars of hot water were buried in the tobacco to speed up fermentation. The partially cured but still "uncut" tobacco was then ground. This operation took place on the first floor where four grinding mulls are located. Cast iron, with a profile akin to an inverted coffee cup, these mulls are lined with removable cast iron plates that provide the grinding action.

> "Near the ceiling on the turbine shaft is a metal lantern gear 17" in diameter and 24" tall. This engages with four spur gears 64" in diameter. Each spur gear drives a shaft leading into a grinding tub (mull). A cast iron spider on each shaft holds three inclined rollers (cast iron) which run within each (mull)."[6]

When operating, the tobacco was hand fed a little at a time into each mull. After it was ground to a fine consistency, the tobacco was removed through a slide at the bottom of each mull. It was then hand carried to a trough also located on the first floor. Here an archimedian worm gear rotated the ground tobacco into small buckets located on a continuous 3-story elevator belt. Tobacco was hereby conveyed to the top story of the mill to a single bolting machine. The bolter, a long hexagonal wood frame structure, sheathed on the interior with a fine, 65-gauge, silk mesh rotated on a central axle. This action forced the ground tobacco through the mesh. The finely sifted tobacco then fell into a bin located below the bolter. Tobacco not fine enough to pass through the mesh was removed and reground. From the bin, the ground and sifted tobacco dropped down a chute to the second floor of the



Example of a Field Drawing at the Larkin-Morrill Snuff Mill. This shows gearing and 4 grinding mulls on the first floor of the Mill. Courtesy of April Wolf.

mill. Here it was shoveled into bins for curing.[7]

The final steps in the process were scenting the tobacco and packaging it for market. During the 19th century and well into the 20th, much of the snuff was shipped unflavored in bulk to drug stores and tobacco shops where flavoring was then added to suit the taste of the individual customer. When flavoring was done at the mill, the aromatic oils were added, and the snuff vibrated on a "whizzer" to ensure that the scent would permeate throughout. This was done in 100-pound lots before it was packaged. The Byfield Snuff Company is still best known for "Pearson's Red Top Snuff," a brand patented in 1897 and flavored with wintergreen, or oil of birch from the Carolina mountains. The old L & M name is still in use, however, on several varieties of Byfield Snuff: Larkin-Morrill Fine Scotch Snuff and Larkin-Morrill Fine Rappee.

Conclusion:

Snuff is ground today at the Byfield Mill in much the same manner (but in larger mulls) as it was at the L & M. During peak production in the late 1920s and early 1930s, one quarter of a million pounds of snuff were ground by the Byfield Snuff Company.[8] In 1981 production had decreased to 23-2400 pounds. Snuff milling is a craft dependent upon the operator's understanding of the various tobaccos and the blending operation. He must have a distinct feel for the cut and quality of the finished product. Only one man was required to operate the L & M Mill, and the same is true today in the Byfield Mill. Additional grinding and handling labor was needed, however, when the mills were operating at top capacity. Workers responsible for packaging, clerical work, marketing, repair and maintenance have always been necessary for the total operation. In the heyday of the company, grinding was done throughout most of the year when there was enough water in the river to supply power. During the latter part of June, July and August, when water is seasonally low, the mills historically have been shut down for repairs

Label from a "Pearson's Red Top Snuff" container. Courtesy of Betsy Woodman.

and improvements. In the last years of operation, grinding has been done only during the period of the spring freshets in April and May. The Parker River has become overgrown, and the flow of water has decreased. Snuff, however, is still being ground on this river, a milling process that emerged with grinding at the L & M in 1804. Soon to be a vanishing industry, for nearly 180 years power from the Parker River has been harnessed to grind snuff in Byfield, Massachusetts.

1. Most of the records are 20th century ledgers and journals that begin 1899-1900. Earlier records, mainly incoming orders for snuff and some machinery repair slips, were unfortunately vandalized. These, left unsorted, were put into 2 boxes for storage. An attempt is underway to find a permanent home for the Byfield Snuff Company Records
2. "In 1691, David Wheeler of Rowley conveyed to his son, Nathan, '30 acres in Newbury'... In 1734, Nathan conveyed to Nathan junior 'one and a quarter acres' on the northeast part of the 30 acres 'at a falls on the river, with conveniences for erecting a mill' and by his will, proved in 1741, gave him his homestead of 35 acres. A saw mill was built and in use until a date later than 1771. This mill and 70 acres adjoining reverted to Samuel and Rebecca Noyes and Sarah Sawyer, children of Nathan Wheeler, who sold it to Joseph Pearson in 1796." An untitled typed sheet. This and other information, including deeds from which much historic information was obtained, is located in the office, along with current company records, of the Byfield Snuff Company, Byfield, Massachusetts.
3. In 1705 the first Benjamin Pearson bought land on the Parker River, and in 1709 he acquired an additional 24 acres with a fulling and sawmill. In "Homestead of Benjamin Pearson," John Currier gives an account of the early Pearson's landholding, the homestead, and its famous elm tree. John A.S. Currier, Ould Newbury: Historical and Biographical Sketches. Boston: Damrell and Upham. 1896. 301-304. (A small group of SNEC members toured this mill during grinding in the spring of 1978.)
4. Patrick Malone, "Recording of the Power System, L & M Mill," October 24, 1981.
5. After the Byfield Company takeover in 1899, all incoming tobacco was stored and the curing process begun in the upriver mill. In 1904 an early concrete warehouse was constructed and a second one in 1909 to house incoming hogsheads of tobacco along with barrels of ground tobacco.
6. Patrick Malone, ibid.
7. After the 1899 consolidation, excess ground tobacco from the L & M Mill was put into barrels each weighing 140 pounds. These were taken to the upper mill, and 5 barrels full of ground tobacco were emptied here into large storage boxes each weighing 700 pounds. The tobacco was left to cure for one year, and in recent times it has sometimes cured for two years.
8. A sawmill on the property was partially converted to grind snuff during this period. One grinding machine was installed, and this was shut down around 1945 when demand no longer necessitated grinding in three mill locations.

Betsy H. Woodman
Woodman Associates Architects

ARTICLE

Iron and Steel for New England Industry:

Archeological recording of the sites of iron and steel works that supplied 19th century manufacturers in New England would help answer several questions in the history of American technology.

Many questions about the history of manufacturing can only be answered through the study of artifacts and work places. This is particularly true of metallurgical industries of the 19th century. Ironmasters did not write much about their work, and even professional scientists (such as Benjamin Silliman, who visited many ironworks) did not have the means to write technical descriptions of the processes they saw.

Manufacturing could not have grown rapidly in New England in the early 19th century had there not been a local, heavy metallurgical industry already in place. In the 17th century, local New England ironworks had served local needs. (Attempts at larger scale production, as at Saugus, were financial failures in the Colonial economy.) But, by the middle of the 18th century the iron industry began to concentrate in western Massachusetts and Connecticut where water power, ore, and charcoal were all abundant. War time demands stimulated its growth, and by the decade of the 1790s blast furnaces, fineries, forge hammers, and slitting mills were in place and in production, ready to supply all kinds of heavy metal goods. The New England makers of arms, edge tools, nuts and bolts, textile machinery, and other metal products turned to this source for materials, forgins and castings. Eli Whitney, for example, ordered his forge hammers, the ironwork for his water power system, and his initial stock of barrel iron from the works of Forbes & Adams in Canaan, Connecticut.

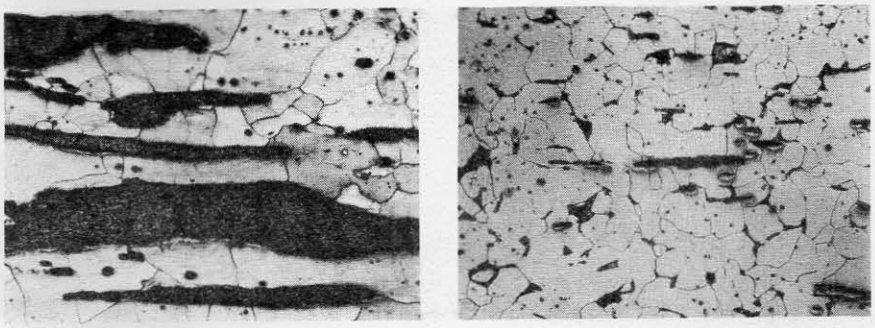


Figure 1. Photographs at the same magnification of the structure of a sample of bar iron made (left) in Litchfield County (Connecticut) and (right) at Marshall's works, Wednesbury, England. The English iron has much finer and more uniformly distributed slag particles. Courtesy of Robert Gordon.

By the early decades of the 19th century, the ironmasters of western New England had established dor themselves a reputation as suppliers of the finest bar iron available in America; their iron, for example, was shipped to the armory at Harpers Ferry for use in preference to that available from Pennsylvania and Maryland.

Yet these ironmakers were soon unable to meet the requirements of their customers. Deliveries of iron became unreliable, and bad quality iron was supplied with the good. Eli Whitney, Jr. complained in 1843 that "it is the most troublesome affair of my business to get suitable Iron for Barrels." The Springfield Armory resorted to sending inspectors to the ironworks to try to improve the quality of the metal supplied for arms-making, but, by the time the Civil War broke out, the Armory had abandoned American suppliers and was entirely dependent on imported English iron, a cause for concern to the government in Washington. In a few decades the New England iron industry had fallen from an established position as suppliers of an essential and superior industrial product to that of a lingering industrial relic.

Why did this take place? It was not due to any shortage of resources; pig iron production continued in western New England until well into the 20th century. Nor was it due to the introduction of the Bessemer process; Bessemer steel did not supplant iron and crucible steel for quality industrial products of the type made in New England until the last decades of the 19th century. The quotation above suggests that the problem was with the quality of the bar iron supplied from about 1830 onwards. The aim of most manufacturers in New England was to increase production through the use of power-driven, self-acting machinery. The operation of this machinery required regular delivery of feedstock of uniform dimensions and properties. Thus, when the Collins Company installed E.K. Root's automated ax-forming machines in 1846, Samuel Collins observed "Root's punching machine requires a better quality of iron." A better quality of iron was in demand, but poorer quality was being supplied. Evidence from archeology can be used to explain why.

The quality of wrought iron can be easily assessed by examination under the microscope. Fortunately, only a small sample is needed, and this can often be removed from an artifact without damaging its appearance. The first indicator of the quality of a sample of bar iron is the form and distribution of the slag particles it contains. Hammering and rolling at the forge where it is made is intended to work as much slag out of the iron as possible and to disperse the rest uniformly as small particles. The second most important factor influencing the quality of wrought iron is the phosphorous content; the presence of more than a trace of phosphorous makes the iron brittle. Phosphorous content can be judged from the appearance of the slag inclusions under the microscope, and it can be measured on the sample with the electron microprobe. Figure 1 shows for comparison the microstructure of gun iron being produced in England and of a sample of Litchfield County (Connecticut) bar iron presented to the Metallurgical Museum of Yale College (and therefore presumably the maker's best), both made about 1855-60. The difference in the slag distribution is clear; microprobe analysis also shows that the phosphorous content of the Salisbury iron is much higher than that of the English iron. Although only a limited number of samples of New England bar iron have been presented for examination so far, the results frequently show variable slag distributions and high phosphorous contents. Such iron would not be suitable for use in sophisticated production equipment such as the barrel rolling mill introduced at the Springfield Armory in 1858. In this machine, shown in Figure 2, a weld must form continuously as the barrel skelp passes through rolls. Inhomogeneities in the metal will result in bad welds.

The laboratory evidence, though still limited, shows that the New England makers of bar iron lost their industrial customers because of inability to make a reliable, uniform material that could be used in production by machinery. To

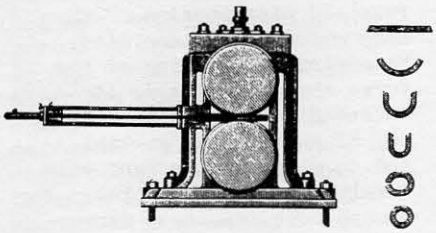
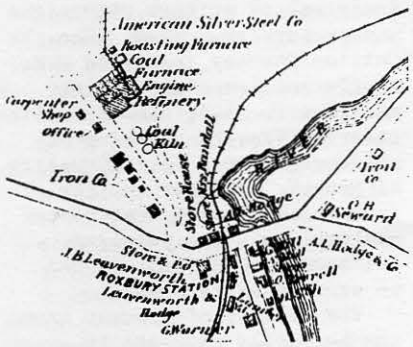


Figure 2. The barrel rolling and welding mill as used at Springfield and other New England Armories in the mid-19th century. The skelp of bar iron is bent up by successive passes through grooved rolls as above on the right and then welded between rolls and a stationary mandrel, as shown on the left. Courtesy of Robert Gordon.

find out why they were unable to do this while English and Scandinavian makers were able, we need to know what sort of physical plant they were using. Census data suggest that by 1830 most of the bar iron manufactured in Connecticut and Massachusetts was made at forges by fining pig. However, no New England forge of the 18th or 19th centuries has been carefully documented yet. Plenty of forge sites are marked on maps of early and mid-19th century New England, but technical details are lacking on maps and in local histories. Three different types of plant were in use at various places and times, the bloomery, the finery, and the wood-fired puddling furnace. To interpret the technology that was in use, we need to know the dimensions and layout of a plant of each of these types and to have samples of the slags left behind from their operation.

Much of what has been said about bar iron is also true of steel. Ironmasters in America found production of quality steel a most difficult problem throughout the first two-thirds of the 19th century. Manufacturers (like the Collins Company or the Springfield Armory), who required high quality steel, had to use imports throughout this period, though they frequently experimented with samples of the domestic article. Samuel Collins, reflecting on the history of his company, remarked that "If we could have been supplied regularly with a uniform quality of superior steel we could have beat the world on Edge Tools ... ." One of the most interesting archeological sites in New England is that of the American Silver Steel Company in Roxbury, Connecticut. It was probably the first integrated steelworks built in North America. As shown by the map in Figure 3, it had a mine, ore preparation facilities, a blast furnace, and a refinery. Examination of samples presented by the Company to the Metallurgical Museum of Yale College in 1867

Figure 3. Map of the site of the American Silver Steel Company plant in Roxbury, Connecticut. Ore was received on the railway shown at the top of the map from adits driven into Mine Hill, roasted, smelted in the blast furnace, and converted to steel in the "Refinery." Courtesy of Robert Gordon.



suggests that the proprietors of this works were attempting to make puddled steel, a technically difficult task but one that was successfully done in Great Britain until the end of the 19th century. The attempt was not successful; the derelict appearance of the works in 1890 and 1970 is shown in Figures 4 and 5. Documentation of this site, which is now under the care of the Roxbury Land Trust, would be a most fascinating contribution to the history of American metallurgical technology.

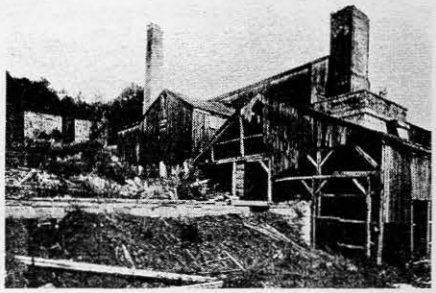


Figure 4. The steel works at Roxbury in the 1890s. The roasting furnaces may be seen in the background. The blast furnace with its brick stack is at the right. Courtesy of Robert Gordon.

Figure 5. The site of the Silver Steel Company in 1970, showing the remains of the blast furnace. Courtesy of Robert Gordon.

It is remarkable that we know more about the technology for making bar iron and steel in the Roman age of Europe than we know of that used in 19th century New England. One reason is that the blast fur-

naces, because of their size and durability, receive a disproportionate share of attention. Though large, they are by no means the most important part of the equipment required to produce bar iron; conversion of pig to bar iron or steel is technically more demanding but as yet poorly documented in New England.
Robert B. Gordon
Yale University

CURRENT RESEARCH IN NEW ENGLAND

CONNECTICUT

Metallurgical Archeology at the Whitney Armory Crucible Dump:
In autumn 1979 a Yale University class in archeological field methods partially excavated a dump of used graphite foundry crucibles that is located just outside the Whitney Armory site in Hamden, Connecticut. Makers' marks on some of the crucibles, plus the probable dates of other objects found in the dump, indicate that the dump was used during the 1842-1888 period in which Eli Whitney, Jr. was in charge of the Armory. More recently, metallographic and microprobe analysis has been carried out on some artifacts from the dump and from other places at the Whitney site. These analyses have shown that Whitney, Jr. used his foundry to make pistol frames of malleable iron castings instead of forging them, although forging is the only method described for this in the literature of 19th century small arms technology. They have also corroborated written allusions to Whitney, Jr.'s early shift in materials from wrought iron to steel for the barrels of his guns. A report on this research was given by Carolyn Cooper at the 1982 SIA Annual Conference in Harrisburg.
Carolyn Cooper
Yale University

Phoenixville:
This past spring and summer a volunteer crew under the direction of John Worrell (Old Sturbridge Village) and David Simmons (U. of Pennsylvania) conducted excavations at several sites relating to the early 19th century mill village of Phoenixville, CT. Preliminary and intensive excavations were undertaken at 3 sites which front on what was then the turnpike from Hartford to Providence: the Latham house, built as company housing by the Sprague Manufacturing Co. in the early 1820s; the Gurley/Taylor house, a non-company house, also built in the 1820s; and a blacksmith shop, in operation from about 1822 to 1836. A portion of the front yard and the front foundations of the Latham house were excavated, yielding considerable information on the construction sequence, landscaping, and early use of the house. Data from this site, a mill official's house, will be compared with that obtained from two nearby company tenements, excavated by the OSV Field School in Historical Archaeology in 1980. These sites, in turn, will offer comparison with the Gurley/Taylor house, built by a blacksmith as part of an expansion of a craft neighborhood near the mills. The house was sold to a fellow blacksmith and then to a poor, single woman, both of whom were attracted to Phoenixville from other towns. A number of areas in and about the Gurley/Taylor house were excavated, revealing several significant changes to the structure early in its use, including the filling in of an unusual stone feature -- possibly a spring house or root cellar -- underneath a portion of what is now the front terrace. Entered from the lower floor of the house, the chamber was capped with cut stones, one of which measures 14 ½ feet in length. The blacksmith shop, which has yielded numerous artifacts relating to the craft, continues to be dug this fall. In addition to these sites, preliminary excavations were undertaken at the Adams house, an 1820s-1830s dwelling which later housed a millinery shop, and the Phoenix mill, a stone textile mill built by the Phoenix Manufacturing Co. in 1823. Artifactual analysis of the domestic sites has begun and is continuing this winter, as is further documentary research. The excavations at Phoenixville will serve as the basis of a dissertation by Simmons on the community and its neighborhoods during the early 19th century.
David Simmons
University of Pennsylvania

MASSACHUSETTS

Salt Marsh Haying in Newbury, Massachusetts: Site of a one time thriving and profitable salt marsh haying industry, the Newbury marshes in Newbury, Massachusetts are once again returning to their natural state.[1] The drainage ditches, originally cut into their surfaces to drain off excess water so that the hay could be more readily harvested, are fast becoming overgrown.[2] These ditches, when in use, also served to delineate the various plots within a tract of the marsh land. In late August, or early September, depending on the Farmer's Almanac, the tides and weather, the hay was cut and gathered in. Some was taken by wagon directly to the barn. Hay, in outlying regions or on islands located near the salt marsh rivers, was taken by gundelow to a loading dock or loading site. These flat bottomed boats, indigenous to the area, were designed specifically for hauling the loose and heavy hay. From a loading dock, the hay could either be sold or taken by wagon to the barn. Much of it was left on the marsh and was ingeniously

stacked on top of wooden staddles to keep it dry. Built up into great bowed mounds, the hay was thus stored outside for the winter. When the marsh froze over, sleds were used to retrieve the hay from the staddles and to haul it into the barn.

Although the haying process itself has not been immortalized in quite the same fashion as the marshes themselves, the great 19th century landscape painter, Martin J. Heade, painted scenes of the Newbury marshes in the 1860s. These paintings reveal a quieter time when small sailing craft plied the marsh rivers, and haycocks dotted the "marshscape."

What little hay is still cut is now used for mulch. Highly desired by gardeners, it contains few seeds that will grow in a nonsaline environment; thus, it is "weed proof." Present day salt hay is harvested by tractor. A modern piece of machinery, the tractor has not been adapted to marsh conditions as were horse teams when they were outfitted with bog shoes to keep them from sinking into the spongy marsh terrain. The last relics of such teams, and their crews, disappeared from the marshes in the 1950s. The haycocks and the craft of building them have also disappeared. Many barns in the Newbury area have been converted to other uses, and few have preserved old equipment. The tools of the salt marsh haying industry are fast disappearing, and long gone are the Newbury gundelows, none of which is known to have survived.

Among the last remaining relics that still exist, but are in immediate need of permanent housing, are a hay wagon and a sled. These objects (which have been housed in the Noyes barn since retirement 40 or so years ago) have recently been acquired by Michael Roy of Little's Lane and High Road, Newbury. Formerly, they belonged to the Noyes family of Little's Lane, and both the wagon and sled were used by that family for salt marsh haying in Newbury. The wagon is in fair to poor shape, and the sled in fair to good condition. Both have their original blue paint. Richard Knight, retired Newbury farmer, believes that this sled may be the last survivor of its kind in the area. At present both are in a field, out of doors, open to the weather and to vandalism. In order that they not go the way of the gundelow, these vehicles must be properly housed. If the sled and wagon are to be preserved, a barn or storage facility is needed.

1. In the past several years, I have been collecting data on salt marsh haying in the Newburyport and Salisbury, Massachusetts area. Three farmers who were at one time active in salt haying have been extremely helpful: William S. "Sherb" Eaton of Salisbury, and Martin Burns and Richard Knight of Newbury. I have photographed equipment used in the haying industry, and I have the information necessary to complete a measured drawing of a local gundelow that was made by Sherb Eaton's father. The Newbury gundelows, unlike the Piscataqua River gundelows designed to carry granite (such as the one being built at Strawbery Banke in Portsmouth, N.H.), were smaller, and many did not have sails. They were made specifically for the haying industry.
2. The rich residue collected from the ditching operation was utilized in onion growing. The saline mulch kept natural pests from invading the onion plants. At the turn of the century and before World War I, onions were an extensive cash crop on Newbury farms. Richard Knight, of the High Road, Newbury, who has recently retired from farming, reported that his father was one of the largest onion growers in Newbury. Indeed, in these parts, the saying goes that Mr. Knight was the unrefuted "Onion King" of Newbury!

Betsy H. Woodman
Woodman Associates Architects

NEW HAMPSHIRE

NNEC Sponsors Recording of Concord Gasholder:

In the 1980s the term "gasworks" is one that has virtually no meaning to most individuals under 30 years of age. But until the 1950s many urban areas had their gasworks where coal and oil were converted to gas for use in cooking, heating, and, before electricity, illumination. Few such complexes survive in anything like their operating condition.

Fortunately at least one such complex of buildings has survived more or less in the form that it existed in in 1952 when gas manufacturing ceased. It can be found in Concord, N.H. which is where about 25 members of the Northern New England Chapter and others assembled on July 24-25, 1982, at the site of the only remaining gasholder house in the United States which still contains its iron tank. Now owned by the Concord Natural Gas Corp., the holder and other equipment once housed in the retort house and purifier house supplied the City of Concord with gas.

The primary focus of the recording was the gasholder house constructed in 1888 by the Concord Gas Light Company in order to increase its storage capacity. As demand for gas had risen, the Company found itself frequently on the brink of running out of gas during times of heavy demand. The new holder would end that "brinkmanship."

The Company signed a contract with W.C. Whyte of New York City to build the circular building and the pit (tank)

for the holder. The holder and all iron work was done by Laurel Iron Works of Philadelphia. Total cost of the project came to over $35,000. Work began in April and was completed in early December 1888. The building measures 86 feet in diameter, and the riveted iron holder has a capacity of 120,000 cubic feet of gas. This project appears to have solved the storage problems of the company since it did not construct another holder until 1921. That steel holder still stands adjacent to the 1888 holder.

The 1888 facility is considered a highly significant example of 19th-century technology because it still contains its iron holder. Other gasholder houses survive, but all have had their gasholders removed. This one has been out of service since 1952 when the natural gas pipeline reached Concord. Most of the other buildings associated with manufactured gas remain, although none has any of the gas-making equipment or machinery.

Cedric Dustin, president of Concord Natural Gas Corp., was most cooperative in this recording project. He gave us complete access to the site and made available historical data from the company files. The recording project was coordinated by William L. Taylor of the Institute for New Hampshire Studies (Plymouth State College) with funds from the New Hampshire State Historic Preservation Office. The Chapter cosponsored the project with the Institute. Eric DeLony of HAER and Robert Vogel from the Smithsonian Institution led individual recording teams. Their expertise was essential, and the date of the recording was tied into their scheduled visit to the Historic Preservation Summer Institute in Vermont. Gary Samson of the University of New Hampshire took the documentary photographs of the complex, and James Whiteside did the photography to accompany the field notes.

Still to be completed is the historical documentation of the facility, which Taylor and Quentin Blaine of the Institute will complete this winter. Once all corrections have been made on the measured drawings by Brian Lombard, the documentary photographs, drawings, and historical narrative will be submitted to HAER for final deposit in the Library of Congress.

The Northern New England Chapter should feel pleased about its role in making this project possible. As project coordinator, I want to express my appreciation to those who came to Concord on July 24-25 to record this unique industrial site.

William L. Taylor, Institute for New Hampshire Studies

Harrisville:

Controversy continues to surround the proposed construction of a highway corridor through the mill community of Harrisville. The New Hampshire Department of Public Works and Highways has prepared a draft environmental impact statement for the relocation of Route 101 and concludes that there would be no significant adverse impact from its "B-3 Corridor" which would run through rural areas of Harrisville. Comments are being solicited from interested parties, and a final environmental impact statement will soon be prepared.

The national board of the Society for Industrial Archeology is one out of many groups that have gone on record as opposing any possible threat to the town of Harrisville and does not consider the "B-3 Corridor" to be a realistic option.

David R. Starbuck
Rensselaer Polytechnic Institute

Bellows Falls Arch Bridge:

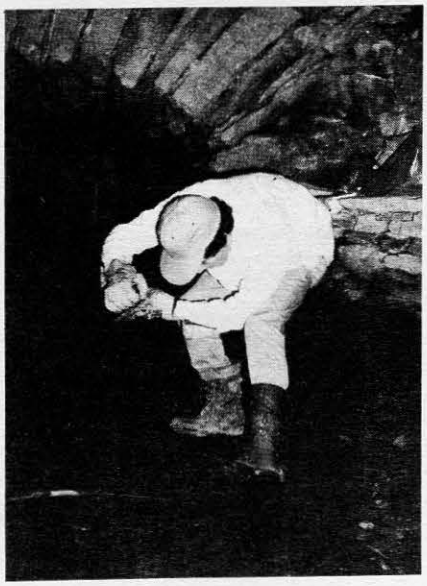
On December 6, 1982 the 1905 Arch Bridge between Bellows Falls, VT and Walpole, NH was collapsed into the Connecticut River. It had been closed 11 years ago because the New Hampshire Department of Public Works and Highways considered it to be unsafe. The 486-foot bridge survived one explosive charge after another -- 4 in all -- before an acetylene torch was used to sever the steel connections on the New Hampshire side of the river. While this sorry affair was watched by thousands of bystanders at the site, millions of others watched the final collapse on national television. Newsmen and public alike deplored the event, noting with derision how the Highways Department had mishandled the bridge until the bitter end. One of New Hampshire's finest industrial sites is now lost, ravished by those who do not respect our industrial heritage.

David R. Starbuck
Rensselaer Polytechnic Institute

RHODE ISLAND

Archeology at Slater Mill Historic Site: The Wilkinson Mill water power system went into full operation when it formally opened on June 19, 1982. Prior to this, in May 1981, work moved outside the Mill to the exterior raceways, where Rick Greenwood of the American Civilization Program, Brown University, took up a series of archeological investigations in anticipation of the restoration and reconstruction of the raceways' stone walls. Dr. Patrick Malone provided general supervision.

The primary goal of the archeological work was to locate the Mill's subterranean tailrace in its route from the Mill to the riverwall and to assess its condition and the nature of its construction. In an earlier excavation (1975), Albert Bartovics exposed the 1810 and 1826 tailraces as they exited from the Mill on its south side; historical photographs of the



The Excavation in the Wilkinson Mill Wheelpit, at the Mouth of the 1810 Tailrace. Courtesy of Patrick Malone.

site revealed only a single tailrace aperture in the riverwall (which had since been obliterated by a reconstruction of the riverwall). Equipped with this information on the termini of the tailrace, the archeological team plotted a probable route and excavated two exploratory trenches, one just inside the riverwall and the other to the north, at the possible junction of the 1810 and 1826 raceways. These excavations were greatly facilitated by the assistance of a backhoe operated by Bob Fernandes, whose services were generously donated by the Ferland Corporation of Pawtucket. In both trenches the archeologists encountered immense oblong slabs of granite, laid horizontally over a cavity or cavities, at a depth of approximately seven feet below the present grade. The belief that these slabs were the capstones covering the Wilkinson Mill tailrace was confirmed by their similarity to the capstones on the short section of the 1810 tailrace which had been excavated in 1975.

In an effort to obtain a clearer view of the tunnel and to clarify the transition from the two tailraces to the one, the archeologists called on Bob Fernandes to dig a third trench along the projected route of the tunnel from the 1975 excavation to the northern trench of the current dig. After the backhoe excavation and a considerable amount of shovelling and trowelling through 20th century fill, it became clear that this intermediate section of the raceway was no longer intact but had been removed when the Great Flume extension to Sargent's Trench was built across its path some time after the sale of the Wilkinson Mill's water wheel in 1829. It also became apparent that the tailraces to the north of this section had been filled in to prevent floodwaters from entering the Mill, while the remainder of the tailrace to the south had been converted into a spillway that carried off overflow from the flume. Through the opening made in the tailrace for this spillway it was possible to gain an interior view of the tunnel and the mode of construction. The rectangular passage was approximately five feet wide and four feet deep, with dry laid rubblestone sidewalls supporting the granite capstones. This simple but massive style of masonry is identical to that of the 1810 tailrace segment to the north, and it seems likely that the underground tailrace also dates from 1810. It seems apparent that the 1826 tailrace must have fed into this tunnel, but the exact way in which it did remains unknown.

The archeologists also took this opportunity to study the Great Flume extension, which, as part of the Sargent's Trench power canal, has had an important though physically obscure role in Pawtucket's industrial history. This waterway was essentially a wooden trunk, fifteen feet wide, with low masonry sidewalls. While this portion of the power canal was in operation by the late 18th century, it was undoubtedly rebuilt. Most likely this particular structure was the product of a late 19th century rebuilding, perhaps after the destructive freshet of 1886.

Using the data gleaned from the excavations, Charles Parrott, architect for the restoration project, produced the final design for the exterior waterways. MF Construction of Portsmouth, R.I. did the masonry work, and Joseph Pulawski and Sons of Pawtucket restored the exterior carpentry, including the gates and rack for the headrace. In addition to monitoring the construction work, the archeologists, who were frequently assisted by volunteers from Brown University, completed the excavation of the 1810 tailrace as it passes under the south wall of the Wilkinson Mill (see photo).

Rick Greenwood
Brown University

VERMONT

Charcoal Kilns:

From May to November 1982, Vic Rolando (SIA) and Grace Germanowski hiked the Green Mountains for charcoal kiln remains, resulting in the location of over 50 ruins at dozens of sites. The purpose of this survey was to locate, describe, and document the remains in the context of accepted charcoal kiln design in Vermont to support ongoing research of the ironmaking industry of the state. Sites were located through research of town and county histories, old maps, and oral information, followed by much exploratory back road driving and backpacking hikes into suspected areas.

Most ruins were found only a few feet off existing trails and old logging roads, but during high-grass summer months, detection proved the most difficult. Camping during July at

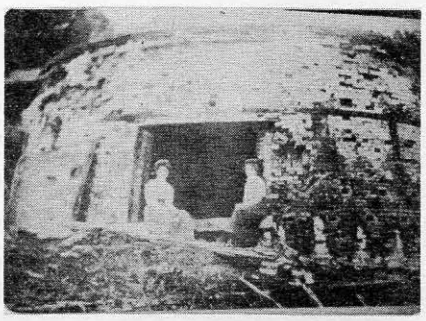
Mount Tabor, for instance, we discovered our tent had been pitched the day before straddling a kiln foundation.

In order to expedite access to data and sites in the Green Mountain National Forest (where most sites were found to be), "volunteer" status was applied for and granted by the Forest Service, and we were assigned to work independently under the informal direction of the Forest Archeologist, Billee Hoornbeek. Field reports were filed with Hoornbeek and also with Vermont State Archeologist Giovanna Peebles.

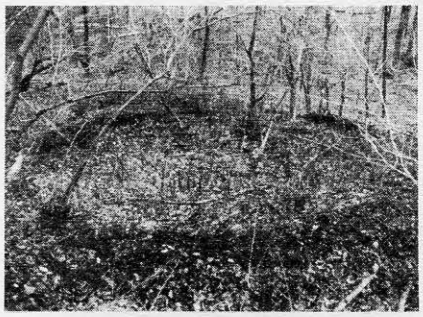
In an 1880 publication of the AIME, Thomas Egleston described the charcoal kilns of the 1870s as generally being 25 to 30 feet in diameter at the base, 20 to 25 feet high, and designed for 25 to 45 cords of wood. An efficient kiln could yield 50 bushels of charcoal per cord. Most kilns were built into hillsides so as to facilitate loading through a top hole. Others had scaffolding and ramps to the top, while some used only bottom doors. About 300 brick-size vent holes in 3 rows of 100 vents each circled the base of the kiln, venting being controlled by insertion or removal of a brick in the vent hole. Some vents were lined with cast iron. Walls were a nominal 12 inches thick, and it took up to 40,000 bricks to construct each kiln, depending upon whether they were round, circular, or conical in design. Various iron parts included 6- by 6-foot doors, stabilizing rods and bands that looped the outside wall of the kiln, and 5-foot diameter heavy cast iron rings around the top hole to protect the brick lining there from attack by acid in the exhaust smoke.

Remains were found at Mount Tabor (29 kilns at 5 sites), Woodford (13 kilns at 3 sites), Winhall (4 kilns at 1 site), and Ripton (with the assistance of Forest Ranger Dick DeBonis: 6 kilns at 2 sites). Other towns checked with negative (but not yet final) results to date include sites in Peru, Stamford, Readsboro, Glastenbury, and Landgrove, plus unsuccessful searches for additional sites in Mount Tabor, Winhall and Woodford. These finds far exceeded our early 1982 expectations at finding anything at all but now reflect what is estimated as only the "tip of the iceberg" of what is yet to be located in 1983 and 1984. At this writing, about 150 more kilns in dozens of places await field checking. Additionally, a number of "charcoal pits" of the earthen-covered mound type (meillers), which preceded the brick-constructed kilns, await further research along the western slopes of the Green Mountains.

Not charcoal kiln tenders, these, but vacationers from nearby camps up Bolles Brook in northern Woodford, VT (probably ca. 1910, after the kilns had been abandoned). Note vent holes at lower right, kiln loading door at left, and iron band around kiln at middle. Doors, bands, rods, etc. were found at this site, which also had three other kiln remains. Courtesy of Vic Rolando.

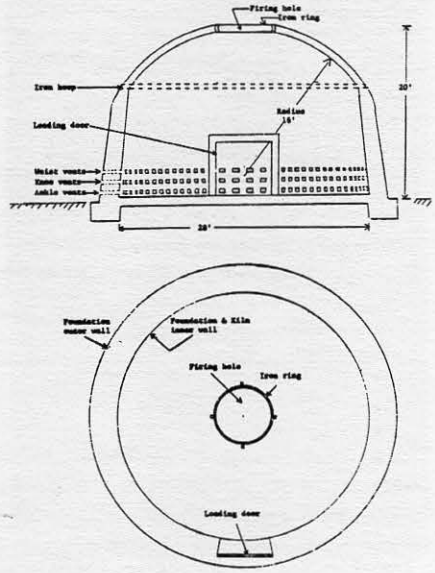


In spite of all the advance study of histories and maps plus verbal advice of "where the kilns are," it took many fruitless hikes that could have been frustrating except for the enjoyment of exploring the Green Mountains. Eventually we developed an eye for what the signs were and how to use the terrain to our advantage. The first day we found a kiln we found 9 ruins. The next hike 11 ruins; next 13; and there the interesting progression stopped. But the finds did not.



One of four typical charcoal kiln remains at a site in northern Winhall, VT. This photo, taken in late fall, 1982, is in sharp contrast to what little can be seen in summer, when leaves and ground vegetation obscure the site. Note the Long Trail passes immediately by at upper right. Courtesy of Vic Rolando.

Physical remains of the kilns are meager in contrast to the kilns' operational dimensions. No standing kilns have yet been found, and none are expected to be found. At best, the remains are 28 to 30 feet in diameter, with 3- to 4-foot high brick walls. Most kilns have collapsed of their own neglect; and some were dynamited in the 1930s as safety hazards in the process of laying out hiking trails in the vicinity. Much brick is missing from many of the sites, and some were used as nearby trail and road base fill. Most iron remains were collected during the 1940s for World War II scrap iron drives. But sufficient evidence remains at the more remote sites to determine kiln dimensions, vent spacings and lining (if any), size of stabilizing rods and bands, disposition of individual kilns at a site (7 in a row lie in dense underbrush at a site in Mount



Circular charcoal kilns are the most common type found in Vermont, built with battered brick walls and iron stabilizing hoops. This battered wall design was more stable than the straight wall kiln and permitted the construction of a slightly larger capacity kiln. Courtesy of Vic Rolando.

Tabor), and wall and foundation design, etc.

A limited excavation of facing sides of a 3-foot section of kiln wall was made at Mount Tabor. Vent holes that are normally a few inches above ground level ("ankle vents") were found over a foot beneath the debris of collapsed brick. Additionally, brick-laying patterns and foundation material and design were determined. Much supporting material and data were also located in the immediate area of some sites, such as cellar holes of tenant houses and sawmills, dams, railroad sidings, sections of small gauge track, numerous ax heads, kiln doors, cast iron vent linings, chunks of charcoal and burnt pitch, miscellaneous rods, straps, U-bolts, rivets, etc., and domestic debris. Some sites near much traveled trails (e.g., the "Long Trail") show evidence of potholing.

Although charcoal was generally used as blast furnace fuel, the period of peak charcoal production in Vermont (ca. 1880s-1900s) was well past the end of major ironmaking in this state. Charcoal making operations were either locally owned and operated, such as the Silas Griffith operations at Mount Tabor; or leased by out-of-state interests, such as the Richmond Ironworks in Massachusetts or Barnum-Richardson in Connecticut, for consumption by glass and iron foundries and smelting furnaces in Massachusetts, Connecticut or New York State. By 1910 most available forests in Vermont had been harvested for lumber or charcoal, and the kilns were closed. Still-operating charcoal furnaces in New York and New England were now importing charcoal from as far away as North Carolina. Also, about this time the process of coking bituminous coal gained the economic and technical advantage over charcoal. The last two blast furnaces of this type in New England (Richmond, MA and Canaan, CT) shut down in 1923.

Connected as it is with the Vermont ironmaking story, the charcoal industry here was of such magnitude to qualify as a story unto itself. With the continued cooperation of the Green Mountain National Forest and Vermont Division for Historic Preservation personnel, research continues although a formal report is still many years away.

Vic Rolando
Pittsfield, Massachusetts

HELP WANTED

Slater Mill Historic Site is preparing a publication on David Wilkinson's early screw-cutting lathes. References or illustrative materials pertaining to 19th century usage of the terms "fluting engine" and "gauge lathe" would be appreciated. Contact Tom Leary, Slater Mill Historic Site, PO Box 727, Roosevelt Ave., Pawtucket, RI 02860, (401) 725-8638.

MEETINGS AND ANNOUNCEMENTS

Fourth Annual Lowell Conference on Industrial History to be Held at University of Lowell:

"The Industrial City" is the theme of the fourth annual Lowell Conference on Industrial History, which will be held at the University of Lowell on April 29-30, 1983. Individual sessions will address the teaching of urban history, the preservation of urban-industrial areas, the impact of technology on urban culture, and the urban-industrial community. This conference is sponsored by Lowell National Historical Park, Lowell Historical Preservation Commission and the University of Lowell. For further information, contact Robert Weible, Chairman, Lowell Conference on Industrial History, Lowell, MA 01852, (617) 459-1000.

SIA National Meeting: The 12th Annual Conference of the Society for Industrial Archeology will meet in St. Paul - Minneapolis, Minnesota from May 12-15, 1983. For general information on events and tours contact John M. Wickre, Minnesota Historical Society, 1500 Mississippi St., St. Paul, MN 55101.

NNEC Spring Meeting: May 7, 1983. The Chapter will tour charcoal kilns in Vermont.

Old Sturbridge Village Field School in Historical Archaeology:

Old Sturbridge Village will conduct a Field School in Historical Archaeology this summer at the early 19th century mill village of Phoenixville, CT. For several years, Old Sturbridge Village archaeologists and researchers have been investigating this northeastern Connecticut community to understand the changes that took

place as it developed from an agrarian crossroads into a small, industrial village. A number of sites within the mill area have been excavated, including two dams, an early cotton mill and its headrace, mill workers' houseing, and a mill official's house. More recently, interest has focused on a craft neighborhood near the mills, where a blacksmith's house and his shop have been excavated.

During July and August, Old Sturbridge Village archaeologists will return for a third season of excavations at Phoenixville, where a Field School in Historical Archaeology will be held at several sites within the craft neighborhood. Participants in this educational program will work individually with our professional staff learning archaeological field, recording, laboratory, and conservation techniques and will participate in workshops, lectures, demonstrations, seminars, and special interest projects relating to early 19th century historical and material culture. The Field School will be oriented towards elementary and high school teachers considering developing classroom archaeological experiences for their students, although the program will be open to others interested in learning about problem-oriented archaeology.

The Field School will be offered in two 2-week sessions: July 10-22 and July 24-August 5. Participation per session will be limited. A program fee of $200 covers all materials and fees and includes an OSV pass, museum benefits, and academic credit (optional) from Worcester State College. Participants interested in developing special projects or in refining particular abilities may register for all four weeks at $300. Room and board will be available at the nearby Pomfret School.

For application forms and further information, contact David Simmons, Archaeology Field School, Old Sturbridge Village, Sturbridge, MA 01566. Applications will be due no later than June 1.

Archaeology Field School at Hancock Shaker Village:

Rensselaer Polytechnic Institute and Hancock Shaker Village will jointly sponsor an industrial archaeology field school during the summer of 1983, to be held at Hancock Shaker Village in western Massachusetts. The course will be taught by David Starbuck (Rensselaer) and staff from Hancock, and the class will study the Village's mills, dams, and other components of the water power system.

The course may be taken for either 3 or 6 credits (undergraduate or graduate), and room and board will be provided in the vicinity of the Village. For information about costs and course content, please contact David R. Starbuck, Division of Science and Technology Studies, Rensselaer Polytechnic Institute, Troy, New York 12181, (518) 270-6411. The field school is for 6 weeks, running from May 23-July 1, 1983.

Proceedings of the Vernacular Architecture Forum 1980-1981:

The Vernacular Architecture Forum has just issued a volume of proceedings from its last two annual meetings. This includes articles of interest to industrial archeologists and may be obtained for $10 by writing to Ellen Coxe, 406 Second Street, Annapolis, Maryland 21403.

RECENT PUBLICATIONS

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BEN THRESHER'S MILL

Old Ben Thresher charged his mill
And ran it and ran it
And runs it still

Was '41 he bent the stream
To the mill, to do his will,
To spin the shafts
That would shoulder the wheels
And grasp the tasks,
To work his craft.

The penstock rumbled,
The turbine gasped, and tumbled,
Slowly, making time
And time again, spin faster,
As belted wheels slapped,
Laboring in country ways.

"The cost of the water isn't much,"
He says, unable to bring himself
To charge enough. But the value's there,
In everything his hands have made,
As they move the wood
And love the lathes.

He fired the forge,
Blew up the coals
Toward goals, that tripped
His hammer blows onto shapes,
Into bends of iron; links
That matter, between time
And forgotten ways. As sparks
And chinks of sound, go up
The chimney like old joys,
Out onto the country round.

Old Ben Thresher with well-lined face
And all his amiable grace.
Host to the knowledge
That is part of the place,
To the tools and will
That is history in a man,
A mill in a mind.

The knowledge is masked
By gears and tools and time,
But lights the smiles
Of his townsmen 'round.

Soon the ways of years
Will fade, the sounds of effort cease,
Memories, his face no longer crease.
Wheels will slow, their belts,
Tap, tapping softer
In the bow of time.

As the whirrings ease,
Skills, like the stream
Will leak away, out the mill race
To the end of day.

Thus we hurry before the loss
To grasp the tools, learn their acts,
Preserve, protect, memorize
The tasks, but let's beware,
Those who chase artifacts,
The craftsman--is the meaning
And the mask.

James Whiteside
Ridgefield, Connecticut

CONTRIBUTORS TO THIS ISSUE

Carolyn Cooper, Robert Gordon, Rick Greenwood, Vic Rolando, David Simmons, David Starbuck, William Taylor, James Whiteside, Betsy Woodman

MEMBERSHIP APPLICATION

To apply for 1983 membership in either the Southern or Northern New England Chapter of the Society for Industrial Archeology please fill out the following form. (Members must also belong to the national Society for Industrial Archeology.) Membership in either Chapter automatically includes a subscription to the Newsletter.

Southern New England:

___ Regular $5.00 U.S.
___ Student $3.00 U.S.
___ Institution $25.00 U.S.

Northern New England:

___ All Memberships $5.00 U.S.

Name: _____

Address: _____

Make checks payable to:
Southern New England Chapter,
Society for Industrial Archeology
and mail to: Fred Roe
Treasurer, SNEC-SIA
837 Winter Street
Holliston, MA 01746

OR

Northern New England Chapter,
Society for Industrial Archeology
and mail to: Robert & Winfred Talbot
Treasurer, NNEC-SIA
R.F.D. 2, Box 147
Laconia, N.H. 03246