

Society for Industrial Archeology · New England Chapters

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Overshot Water Wheel Formerly Located Inside the 1905 Pump Mill at Canterbury Shaker Village. Courtesy of Shaker Village, Inc.

See "PRESIDENT'S REPORT, NNEC" on page 7.

EDITORIAL

The volume and quality of submissions to this issue of the <u>Newsletter</u> is continued testimony to the vitality and excitement of industrial archeology as practiced throughout New England. The rate at which the field is growing in our region of the country presents an important challenge to all of us -- a challenge to not only do more but to do better quality recording and more intensive research and analysis.

In keeping with the necessity to promulgate new and more rewarding approaches to the discipline, one of the primary functions of this <u>Newsletter</u> should be to publish in every issue at

least one article that is innovative and forces members to consider new approaches to their individual projects. In accordance with this theme, a computer study has been included in this issue by Richard Borges (University of New Hampshire) to demonstrate how graphic displays of data can lead to the better understanding of industrial archeological sites. While the technique is not new, it nevertheless has almost never been employed by industrial archeologists. Hopefully exemplary techniques and analytical models will appear with ever-greater frequency in successive issues of the Newsletter. David Starbuck



SIA ANNUAL CONFERENCE

Editor's Note: The following article was written just before the Conference and has been modified slightly to bring it up to date.

Over the winter Steve Victor, Herb Darbee, Marlene Nicoll, Matt Roth and others were hard at work planning the SIA's 10th Annual Conference which was held in Hartford, Connecticut on May 7-10, 1981. Innumerable maddening details presented themselves ("What do you mean I can't take these buses within 2 miles of your factory"), but the major events all took shape. The Process Tour on Friday demonstrated the diversity of Connecticut industry, and featured tour stops included the production of velvet, structural steel, buttons and machine tools. On Sunday we took a day-long look at the Naugatuck Valley, the cradle of the American brass industry, Steve Victor and his committee assembled an admirable program for the Saturday paper sessions. A majority of the speakers belonged to the New England Chapters, and their wide-ranging topics and approaches served to emphasize the crucial role played by our region in the growth and refinement of industrial archeology. The Plenary Session on Saturday morning ("Hardware and Hard Work: IA and Labor History") considered the applicability of IA research to the concerns of the labor historian. This session represented a pioneering attempt by the SIA to establish its convergence with a closelyrelated field. In an effort to introduce IA to as wide an audience as possible, the conference planners invited all students, faculty, museum personnel, preservation planners and other interested people to attend the Saturday sessions at no charge.

The selection of Connecticut as the site for this Conference depended largely upon the anticipated completion of the HAER

Connecticut Inventory, which formed the basis for the tours on Friday and Sunday. The SIA acted as publisher of the volume, providing an administrative means through which HAER could bring out the publication in time for the Conference. Marion Hall of the Merrimack Valley Textile Museum typed the manuscript, and Librarian Helena Wright and Curator Laurence Gross edited it, along with T.E. Leary of Slater Mill Historic Site and Gary Kulik, author of the Rhode Island Inventory. Matt Roth

SPECIAL FEATURE

Computer Analysis of an Industrial Site: Editor's Note: The following article represents one of the first computer studies undertaken in industrial archeology. The site that was the focus of this study is the New England Glassworks, excavated between 1975 and 1978. While industrial sites usually possess so many features or artifacts that they demand analysis by computer, few industrial archeologists have taken this logical final step in their analysis.

This short article by Richard Borges describes some of the methods he has used in approaching this complex site, but final conclusions and interpretations must wait until 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 <u>Newsletter</u>, please fill out the membership application on the back page and send it in.

the appearance of the final project monograph.

The New England Glassworks, located in Temple, New Hampshire, was in operation from 1780 to 1782. An archeological investigation of the site commenced in 1975 under the co-direction of David Starbuck and Frederick Gorman. The digging proceeded for four seasons, and the analysis has continued to the present. A final monograph will be published later this year, providing an in-depth analysis and interpretation of the site.

Much of this analysis and interpretation will be accomplished by the author of this article through the use of the University of New Hampshire computer. In addition to statistical examination, computer graphics will be used to visually present artifactual distribution and density. This article presents preliminary results of the graphics aspect of the project, while refinement continues.

The program used to create the accompanying drawings was produced by Harvard's Laboratory for Computer Graphics. The program is named ASPEX for Automated Surface Perspectives and is a program for producing maps in spatial perspectives. In order to make use of the program, the data on the artifacts had to be converted to a form which would be compati-

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The design of the <u>Newsletter</u> is the creation of Albert Gregory, Graphic Designer.

This issue of the <u>Newsletter</u> is indebted to Al Daloz for his financial assistance.

Editor

David R. Starbuck

Southern Chapter Officers Betsy Woodman, President Helena Wright, Program Coordinator Herbert Darbee, Secretary William Goodwin, Treasurer

Northern Chapter Officers David Starbuck, President John Colony III, Program Coordinator John Jordan, Secretary Christine Fonda, Treasurer

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caveat should be mentioned. In the early stages of the dig, a decision was made to divide the site into 440 threemeter squares. These are much too large to provide the kind of discrimination of foundation sites that exact horizontal locations (or even onemeter squares) might provide. Although this policy was changed

Figure 3. New England Glassworks. This plot represents all fauna dug at the site, viewed from the northeast corner.

Figure 1. The New England Glassworks Site, Temple, New Hampshire.

ble with ASPEX. This required the writing of a program, in Fortran language, which would total all of a particular type of artifact from each square, and place these totals into a matrix, each cell of the matrix representing a particular pit and oriented to the grid system of the site.

The artifacts were initially divided into four main classifications: glass, ceramics, metal, and fauna. Each of these was further subdivided. For example, metals were coded according to: a) 1 of 4 possible types; b) 1 of 63 functions; c) 1 of 13 possible materials; d) its degree of intactness; e) distinguishing marks; and f) its geographical location in terms of the horizontal and vertical. Therefore, once the coding and matrices have been completed, graphics can be produced easily to show the distribution of all or any subdivision of artifacts. For

example, all of the complete, architectural, iron hinges found in layer three of the glasshouse could be represented as a single plot. For the purpose of this article, all of the artifacts dug on the entire site (except glass) are used as the source of the plots, i.e., ceramics, fauna, metals. Before proceeding, one



Figure 2. New England Glassworks. This plot represents all ceramics dug on the site, viewed from the northeast corner.



part-way through the project, all data had to be treated as coming from three-meter squares in order to maintain values that are relatively comparable. In addition, the entire site was not dug, so that the flat areas in the computer graphics usually represent undug portions, rather than parts of the site that were dug but did not contain any of that particular type of artifact. To produce a more meaningful picture, the entire site should be excavated, with a uniform grid system, keeping the squares as small as possible. (See Figure 1 as a guide to which areas were actually excavated.)

Figures 2, 3, and 4 represent the same area as that shown in the map (Fig. 1). They are, however, presented



Figure 4. New England Glassworks. This plot represents all metals dug at the site, viewed from the northeast corner.

as viewed from the northeast corner of the site. Figure 2 illustrates the distribution of all ceramics throughout the site, the size of the various peaks giving approximate visual representation of quantities

Figure 5. New England Glassworks. This plot represents all metals dug at the site. It is oriented the same as the map in Figure 1 and is viewed in the perspective. of material. Figure 3 does the same for all fauna on the site, while Figure 4 shows the location and density of all metals. Figure 5 is based on the same data as Figure 4 but is oriented the same as the map (Fig. 1) and is viewed in perspective, one of the many options offered by ASPEX. These options are too numerous to mention here, but the program offers a great deal of flexibility and a wide variety of presentation possibilities.

The computer analysis of the New England Glassworks is continuing, and refinement of the graphics is progressing. Computer-graphics are useful in the visual interpretation of an archeological site, but the decision to use them should be made prior to excavating so that the data from the dig will be in the most advantageous form.

Richard C. Borges

SECRETARY'S REPORT, SNEC

The fall meeting was held on November 1, 1980 at Slater Mill Historic Site in Pawtucket, Rhode Island, this being the site of the beginning of the American cotton textile industry and the Industrial Revolution. About fifty-five members and guests assembled on the



second floor of the Wilkinson Mill, and the meeting was called to order at 10:35 A.M. by President Mike Folsom, who explained the agenda for the day: a) a tour of the great reconstructed breast water wheel in the basement of this building; b) at 11:30 an hour's discussion of the National Architectural and Engineering Record/Historic American Engineering Record regionalization led by Matt Roth; c) lunch; and then d) the business meeting at 1:30 P.M.

When the group reassembled in the basement to view the water wheel, Pat Malone, Director, noted that it was not operating at its proper speed of seven revolutions per minute since a pump was supplying only a small quantity of water from the wheel pit. The wood in the wheel was still swelling. Within a year it is hoped to clear the headrace to obtain water from the Blackstone River. John Bowditch of the Henry Ford Museum is fabricating a governor to control the volume of water and the speed, a necessary adjunct when the River is tapped. Pat gave detailed information on the archeology, design, and construction, there being many present this day who have had a part in the project. The fit of the wheel in the pit is tight, with very little clearance. It is of the midbreast type, taking water at the height of the axle shaft and operating by gravity (the weight of the water turning the wheel). The breast planking behind it functions to keep water in the buckets for 1/4 of a revolution. A series of bevel gears in the transmission will increase the slow wheel rotation to the necessary line shaft speed. More than a foot of backwater is now offering a resistance that slows the wheel speed.

Reconstruction of this impressive machine is based upon

extensive research. Archeological research began in the early 1970s, at which time many artifacts such as eating utensils were found which had been discarded in the wheel pit after it was abandoned. Here also the wooden floor was discovered intact and parts of the breast, which indicated the 12-foot diameter of the original wheel, 12 feet 2 inches in length. Also found were two major timbers of the bearing support. Little documentary evidence could be identified, but it is clear that the reconstruction represents the second water wheel at this site. Court records of about 1820 reveal an initial installation 8 feet 9 inches in length. The present wheel pit dates from about 1826. The base bearing for a vertical drive shaft was also discovered. Lintels in some of the building wall openings are parts of a shaft of cast iron. David Wilkinson declared bankruptcy in 1829. In designing the present wheel, therefore, not a great deal was known of the original, but the remains of the Gillette Mill in Connecticut were helpful in determining the large internal segmental gear and the type of bolt to be used, and drawings of the 1820s from Lowell on shafting and the form of buckets have been most helpful. What was finally chosen was the best design of a breast water wheel in the 1820s.

After further examination of the machinery in the light of Pat's detailed exposition and appreciation of the extraordinary precision observed in fabricating a wooden construction weighing some 8 tons, the group returned upstairs for a discussion led by Matt Roth of the possible effects of regionalization upon industrial archeology in New England. The question is, "what is federal policy in relation to the kinds of work assisted?" The Historic American Engineering Record has been an agency

within the US Department of the Interior assisting the field of industrial archeology in recording projects, surveys, and inventories. Recently the Record was merged with the Historic American Building Survey to form the National Architectural and Engineering Record.* The Heritage Conservation and Recreation Service administers N.A.E.R. under its historic preservation function, which specifies no requirement to use any percentage of available funds for industrial archeology projects. The Northeast Region designated for this part of the nation extends from Virginia through Pennsylvania and New York to include New England. The Regional Director, Myra Harrison, should be addressed in proposing such projects, but she is not required to employ a staff person with interest in this field. An inventory of eastern Massachusetts is in progress under Peter Stott, which could provide the basis for a 1983 national meeting of the SIA in the Boston area. Our group should place its interests on record in the regional office before its staff becomes solidified. The support of State Historic Preservation Officers would be vital to any regional preservation program. Comments from the audience supported the position that it is time to make our concerns felt in terms of staffing the regional office. N.A.E.R. will have an advisory office in the Department of the Interior, performing a quality control function in the several regions, which will have to pay for services rendered. The types of program will depend largely upon who is providing funds for what purpose. The gathering of information and primary research may be put back into any programs. The Friends of H.A.B.S. organization, made up of persons formerly in the Historic American Building Survey, is a group vocal in the effort to promote continuation of survey

and recording in N.A.E.R. Matt would like to see a letter addressed to Myra Harrison incorporating some kind of statement of the importance of industrial archeology and of its representation in her office. Ted Penn stated that the local chapters should join with our national organization in pressing for our interests. Ms. Harrison has offered to attend the national meeting next spring. In the regional office there will be seven fulltime staff positions, including the director, all of whom must come from within the federal government since there is a freeze on outside hiring. Matt then reviewed the points that should be covered in a recommendation to Ms. Harrison, emphasizing that there should be at least one staff member with competence in industrial archeology.

After a generous lunch provided by Slater Mill staff, Mike Folsom recalled the meeting to order at 1:40 P.M., stating that contributions had about equalled the cost of food and that if more beer were desired another dollar per person would be needed. The agenda, he noted, was fluid, to permit offering his ideas on various topics and entertaining suggestions on matters such as the Boston area survey; the next meeting date for the Northern New England Chapter which is on May 16, 1981; and the spring meeting date of the Southern New England Chapter. The minutes for the summer tour in Vermont and the spring meeting at Mansfield, Connecticut were read by the Secretary and, after one correction in the latter, voted accepted. A question was raised as to whether the minutes should be printed for general circulation. Mike posed the query of just who is or is not a member of this Chapter. A mailing list has been issued, and the distribution of notices for this meeting was based on this. A number of these notices had been returned as undeliverable, an advantage in

using non-bulk mailing. These were handed out to those present who knew the persons whose notices had not reached them. Those represented by the remaining notices must be considered no longer members of the Chapter. Mike noted that current dues stand at \$3 and that Bill Goodwin, Treasurer, would welcome receipt of those currently owed. Bill then reported a balance as of the fall meeting (Nov. 10, 1979) of \$1350.96. Income since then from dues, interest, and gifts amounted to \$402.73, for a total of \$1753.69. Expenses from a transfer of \$1000 to a 30month savings certificate, a contribution of \$250 to the national SIA, the Newsletter expense of \$200, the cost of a plaque honoring Robert W. Lovett (\$41.42), and postage and copying (\$80.89), came to a total of \$1572.31, leaving a balance on Nov. 1. 1980 of \$181.38. Our yearly income approximates \$110. On Mike's casting one vote, this report was accepted.

Ted Penn moved that the Chapter establish a membership fee schedule of \$5 regular, \$3 student, and \$25 institutional; this last would be nonvoting, but any individual belonging to an institution may vote if he joins the Chapter as an individual. This was seconded and voted. It should assist in paying the \$1 per member assessment for each of two Newsletter issues per year.

Nominations for new officers being entertained, Larry Gross proposed Betsy Woodman for President, and she was duly voted in. For Program Chairperson to succeed this year's Matt Roth, Pat Malone nominated Bob Gordan, but he found it necessary to decline for the present. Helena Wright being proposed, she was voted into office. Bill Goodwin, Treasurer, and Herb Darbee, Secretary, having agreed to stand again, they were voted by acclamation.

Adjournment of the meeting was voted at 3:14 P.M. Herbert C. Darbee *Editor's Note: N.A.E.R. has now been shifted from the Heritage Conservation and Recreation Service back to the National Park Service. For more information see the PRESIDENT'S REPORT, SNEC.

SECRETARY'S REPORT, NNEC

Minutes: The fall meeting of the Northern New England Chapter was called to order at 11 A.M. on October 25, 1980 in Canterbury, New Hampshire. Richard Kathmann, Director of Shaker Village, Inc., welcomed the group to Shaker Village and briefly described its history and programs.

Acting Chapter President David Starbuck opened the business meeting with background information on the founding of the Northern New England Chapter and then called for the Secretary/Treasurer's report.

Christine Fonda referred to the written financial report which had been distributed indicating that the Chapter treasury, as of October 25, stands at \$342.24. She indicated that about \$150 of that amount would be needed to pay for the day's lunches. She also reported that an IRS employer identification number has been applied for.

Election of Chapter officers followed. David Starbuck noted that although candidates for the various offices might be suggested in the interest of efficiency, nominations from the floor were encouraged.

Richard Kathmann, serving as nominations coordinator, nominated individuals to fill the various Chapter offices. Christine Fonda was nominated for Treasurer; John Jordan was nominated for Secretary; John Colony, III was nominated for Program Coordinator, and David Starbuck was nominated for President. Each of these nominations was individually seconded and voted.

Afterward, Michael Folsom moved that Chapter officers serve one-year terms. This was seconded and voted.

A discussion of plans for the spring meeting followed. It was agreed that the meeting be held in Harrisville, New Hampshire on May 16, 1981.

The next topic brought before the meeting was the Newsletter, previously supported solely by the Southern New England Chapter. The cost of producing the Newsletter was discussed as well as whether its present format should be continued. It was agreed that the present format and schedule of the Newsletter be continued at two times per year with each Chapter supporting its cost to the extent of \$1 per member per issue with the minimum contribution fixed at \$50 per Chapter. This policy will be reviewed at the next annual meeting.

The status of endangered industrial sites was reviewed. with John Colony, III reporting on Harrisville and Roger Brevoort on the Arch Bridge. A discussion followed as to whether the Chapter should take a position in situations where industrial sites are in jeopardy. Peter Stott suggested that an Advocacy Subcommittee be formed to consider what, if any, advocacy role should be taken in these situations. Michael Folsom, Peter Stott, Christine Fonda, Peer Kraft-Lund, David Warden, John Colony, Jr., John Colony, III, and David Starbuck were named to the Subcommittee.

The subject of Chapter dues was raised. Michael Folsom moved that dues be fixed at \$5. It was seconded and voted. The meeting was adjourned at 12:25 P.M.

After lunch, tours were given of the industrial sites and of the laundry at Canterbury Shaker Village. (See PRESIDENT'S REPORT, NNEC.) Advocacy Subcommittee Meeting of February 21, 1981: The Advocacy Subcommittee met on February 21, 1981 at the home of John Colony, III in Harrisville, N.H. Subcommittee members present were: John Colony, Jr., John Colony, III, Christine Fonda, Peer Kraft-Lund, David Starbuck, and David Warden.

After much discussion, the following points were agreed to:

- The normal role of the Chapter concerning industrial sites affected either positively or negatively by development will be to disseminate pertinent information to the members to allow them to act as individuals.
- In special cases where the Chapter might take a more active role, the following procedures are recommended:

 a) A fact-finding team would be appointed to investigate the details of the situation.
 b) That team would make a report to the membership and suggest possible roles for the Chapter. c) The membership would then vote on what action, if any, to take.

In response to the interest expressed by the members at the October 25, 1980 meeting concerning the effect on Harrisville of a planned state-federal highway project, and in light of the immediacy of that decision, the Subcommittee felt that a fact-finding team should be formed to report to the membership on the Harrisville situation at the Chapter meeting scheduled for May 16, 1981. Accordingly, Dave Warden and Peer Kraft-Lund agreed to act as such a team and will commence compiling information for the May meeting. Christine E. Fonda

PRESIDENT'S REPORT, SNEC

"Reagonomics" and IA: Under current Secretary of the Interior James Watt, NAER (HABS & HAER) and all other departments of the fledgling Heritage Conservation and Recreation Service have been returned to the National Park Service. Emphasis under the Reagan Administration will be on upgrading and improving the National Parks with proposed funding at \$105 million dollars. Money for the allocation of new land/sites (including Urban Cultural Parks) has been eliminated. Matching grant money for State Historic Preservation Programs, cut from \$47 million dollars in 1979 to \$25 million dollars in 1981, has been bludgeoned to \$5 million dollars for 1982.

These organizational changes are seen as positive ones for NAER as stated in a letter I recently received from: Robert Kapsch, Chief of NAER; Eric DeLony, Acting Chief, HAER; and Kenneth Anderson, Acting Chief, HABS. The action of Mr. Watt "should benefit the documentation programs of NAER since many of the nationally significant historic sites are located in the national park system." Three of the five sites being considered for recording by HAER teams this summer are located in the New England area: the Concord Gas Works, Concord, N.H.; Brown & Sharp Machine Tools, Providence, R.I.; and Portsmouth Naval Shipyard, Portsmouth, N.H.

What will the new "Reagonomics" budget policy mean for IA projects? Peter Stott, industrial historian on the Massachusetts Reconnaissance Survey, reported in the October 1980 Newsletter on the emergence of industrial patterns that appear as a result of broad industrial survey methodology as utilized and developed in the Eastern Massachusetts inventory. The continuation of such work will have no chance of survival with the drastic cuts in preservation funding.

A "grassroots" fight ("Preserve America") to push for the reinstatement of state preservation funding is underway. Together with the Massachusetts Historical Commission, the Bay State League, NNEC-SIA, and other groups, I feel that we in the SNEC-SIA must address this critical issue. We would not deny that the likes of the black or grizzly bear, wildflowers, waterfalls, canals, etc., contained within established National-Cultural Parks need protection/restoration.

But the very necessary work of industrial inventory projects must not be overlooked, indeed <u>deleted</u>, within a NATIONAL POLICY. I urge all of the SNEC-SIA membership to write to their state senators and congressmen stating the need for the restoration of these important state preservation funds.

Lawton Mill Dig: On the weekend of April 4-5, Geoff Moran (Rhode Island Historical Preservation Commission) called for the aid of experienced SNEC-SIA members to carry out an excavation at the Lawton Mill in Exeter, R.I. (published in Steve Dunwell's book, Run of the Mill, and in Gary Kulik's Rhode Island Inventory). The owner of the mill site, Bill Warner, is giving a donation to the SNEC-SIA for membership participation in the dig. This archeological work was done prior to proposed new construction on the site. Byfield Snuff Mill: An inquiry from Ben Pearson, owner of the still-operating water-powered Byfield Snuff Mill in Byfield, Massachusetts, a site toured by several SNEC members during its operation in March 1978 (see SIA Newsletter, Vol. 7, No. 3, May 1978), may lead to another SNEC project. Before selling the site to the earliest mill (with building) in his complex, Ben is looking to SNEC expertise to ascertain the historic value of the early mill building and its machinery. Comment: Bravo to Helena Wright, program chairperson, and orchestrator for the April 11 Holyoke canal/paper mill tour! From announcement to tour set-up and lunch (and provision for beer), Helena persevered.

Our fall meeting is scheduled for Saturday, November 7 at Charles River Historic Industries in Waltham, under the guidance of Mike Folsom and Steve Lubar. Betsy H. Woodman

PRESIDENT'S REPORT, NNEC

Tour of Canterbury Shaker Village:

After its business meeting on October 25, 1980, the Northern New England Chapter toured the Shaker steam-powered laundry and then the extensive Shaker mill and pond system in Canterbury, New Hampshire. Shaker Village has been the site of an interdisciplinary recording project since the summer of 1978 (see the SNEC-SIA Newsletter, Vol. 1, No. 1, pp. 8-9; Vol. 1, No. 2, p. 10), funded by a series of Grants in Aid from the New Hampshire State Historic Preservation Office.

Chapter members and others toured the mill sites located alongside three of the man-made Shaker ponds, these being known as Factory Pond, Turning Mill Pond, and Saw Mill Pond. Sites viewed by the group included dams, trash racks, overflows, and mill foundations. Although there was not sufficient time to view the remainder of the system, all together the Shakers had created a series of 8 ponds, all linked by ditching, and spanning several miles from north to south. The ditching that supplied water to the system was dug between 1802 and 1816; and later expansions, to secure more-assured sources of water, were undertaken in 1840 and 1885. Each of the man-made ponds furnished very low head, but this system enabled the Shakers to successfully power up to a dozen mills throughout the 19th century.



Wheel Pit and Dam at the South End of Factory Pond, Canterbury, New Hampshire. Courtesy of David Starbuck.

The 20th century has seen the sale or destruction of all of the mills, but historical research, surface mapping, photography, and archeological excavations are helping to describe how the system was constructed and maintained. All mill areas are being mapped at a scale of 1:500, and some 20-30 selected industrial features (wheel pits, dam profiles, racks,

Stone-lined Overflow Located on the South Side of Turning Mill Pond, Canterbury, New Hampshire. Courtesy of David Starbuck.



and overflows) have also been mapped at 1:20. One such feature mapped in 1980, a pond overflow, is presented here, as is a picture of one of the wheel pits that was viewed by the Chapter. Two monographs on the project have appeared to date, and one of the project's final books will be devoted exclusively to Shaker Village's mill system and archeology. David Starbuck CURRENT RESEARCH IN NEW ENGLAND

MASSACHUSETTS

The Gardner Machine Shop Auction: The Gardner Machine Shop auction has, alas, come to pass, the combined efforts of the Harvard Institute for Conservation Archaeology, the Smithsonian and other concerned groups and individuals having failed to raise the money necessary for the purchase of the shop's contents. As reported in the last issues of both the National and New England newsletters, the shop, an incredibly wellpreserved early twentiethcentury machine shop, was the subject of a last-minute fundraising campaign.

The auction finally occurred on March 12. About fifty people attended, almost without exception machinists and scrap dealers. Industrial archeologists were little in evidence. (The Hagley Museum had previously purchased a good bit of the earliest machinery for their recreation of the Dupont Company's machine shop.) The auction started with the auctioneer's apology for the delay, but also his expression of regret that the money could not be raised for the shop's preservation, a feeling apparently shared by many of those in attendance. The auction proceeded with much humor expressed about the age of the equipment, and thus its general worthlessness. "This stuff belongs in a museum" was heard more than once. Prices for most of the equipment were very low. The proceeds of the entire sale were probably less than \$20,000, and most of that was for the more recent material. Most of the large machines -lathes and planers -- were sold to scrap dealers at \$50 or \$75; most of the blacksmithing equipment was bought by Kaviar Forge, of Harvard, Massachusetts, and thus kept intact; the tools were distributed widely.

The Gardner sale was one of the first emergency rescues attempted by the New England IA community. It was by no means a complete failure: Hagley saved much, information about the shop was recorded, and we all gained a sense of the importance of concerted and timely action. Just wait until next time! Steven Lubar

Roxbury: The Museum of Afro American History conducted an archeological survey of the Southwest Corridor Project Area in 1979 and 1980 for the Massachusetts Bay Transportation Authority. The project area followed the route of historic Stoney Brook from Ruggles Street in Roxbury to Green Street in Jamaica Plain. This section of Roxbury was industrialized in the 1830s and 1840s and included breweries. tanneries, foundries, a silk factory, a chemical factory, a rubber factory and a carpet factory. All but three standing structures in the project area had been demolished before the survey began. During the survey, remains were found of the Metropolitan Horse Railway carhouse and workshop, the Highland Foundry, the Guild Tannery, the Elmwood Street Pumping House, two working class housing sites, a 19th century business and two colonial period homesteads. All of these sites (except one housing site) were excavated before project construction reached them. The following sites were industrial:

The Metropolitan Horse Railway Carhouse (1858-1929), Roxbury Crossing: The Metropolitan Horse Railway Company started service from Boston to Roxbury in 1858. At Roxbury Crossing was a maintenance and storage area for both the horsecars and horses. The Metropolitan Horse Railway Company was taken over by the West End Street Railway in the late 1880s. In the 1890s the railways were converted to electricity.

The carhouse, workshop, and courtyard of the maintenance area were excavated. Structural remains were found and mapped. A great deal of leather harness was found from the horsecar days. The presence of scraps and offcuts indicates that the harness-making process was conducted on the site. Wrought iron items and slag were found in the workshop area, suggesting it was used for blacksmithing. The Highland Foundry (1876-1915); Pratt & Wentworth Foundry (1863-1873); Bowers and Pratt Iron Foundry (1847-1863), 1361 Columbus Ave.: The Highland Foundry was one of a small number of foundries in Boston which produced cast iron stoves and ranges. The foundry also made holloware and sewing machine parts. Structural remains of the foundry buildings were excavated and mapped, including the location of the cupola furnace and moulding room. A culvert (c. 1865) built to route Stoney Brook

through the foundry was discovered. Remains of flasks, foundry tools, stove parts, and waste products were found throughout the site, reflecting foundry operations.

The Guild Tannery (1845c. 1885), 1353 Columbus Ave.: The Guild Tannery was one of several tanneries owned and operated by the Guild family of Roxbury. Animal skins were treated and processed at this location, although pieces of leather found on the site suggest that cutting and hole punching may also have taken place.

Remains of tannery buildings were found and mapped. Leather remains were also uncovered. A later bottle warehouse was also part of the site, and bottle caches were found.

The Elmwood Street Pumping

Station (c. 1869-), Elmwood Street: The Roxbury Standpipe was constructed at the top of Fort Hill in Roxbury in 1869 to serve the water needs of the city of Roxbury. The system was obsolete within fifteen years of when it was constructed. The Roxbury Standpipe is now on the National Register of Historic Places.

The Phase I Archaeological Reconnaissance Report of the Southwest Corridor Project is available from Kaiser Engineers/ Fay, Spofford & Thorndike, 6 St. James Street, Boston, MA. The Phase II Subsurface Testing Report will be available June 1981. Final reports for individual sites are in preparation. The Museum would welcome additional information on these types of sites and remains. Contact Beth Bower, Museum of Afro American History, Dudley Station, Box 5, Roxbury, MA 02119. Beth Anne Bower

Oral History Project of Jewish Community in Haverhill Looks at One-Time Flourishing Shoe Industry: In researching the history of the Jewish Community of Haverhill, MA on their Centennial Year, 1980, I was able to interview one of the three remaining shoe manufacturers and other people formally involved in the shoe industry. Before the turn of the 19th century, Haverhill was called the "Queen Shoe City," and until about 1950 the shoe factories were one of the largest

employers of people in the area. From about 1890 until the restrictive immigration laws of 1921, immigrants were recruited by agents in port cities of Europe (Bremen, Antwerp, London) to come to Haverhill to work in the shoe factories. In many cases the agents paid the fares of the immigrants to New York or Boston. Passage rates were \$15 to \$20 a head in the pre-World War I era. One of the largest Haverhill employers to use this method was the Chick

Shoe Company. I have correspondence telling that one of the recruiting agencies, the Industrial Removal Office of 104 Rivington Street, New York City, would send a man to Haverhill, where his brother was already located and a job was waiting. Workers were paid by the piece work pricing method, and salaries were \$3 per week before the Great Strike of 1895.

Haverhill, unlike the larger textile mill cities of the upper Merrimack Valley, was made up of smaller-scaled shoe factories that enabled people with limited amounts of capital to become manufacturers. Many of them started by collecting "offal," which was the waste from the cuttings of the shoes. They were able to salvage these pieces to use for making children's shoes, handbags, and other products that could be made from scrap pieces. The men and their families started this as a home industry, and when they were able to accumulate a small amount of capital, rented space and, with the help of relatives and one or two employees, developed their businesses.

Many small operations were highly specialized: some did only stitching, some only "making," and some only cutting. The manufacturers would then bring the fabricated components of these contractors back to a small plant for finishing, packing, and shipping to the customers.

As time went on and some of these manufacturers developed greater capital and credit ratings with the banks, they were able to rent more space or buy a building and complete all of the operations themselves. Some of the larger shoe manufacturers employed as many as 500 to 1000 people. The women did stitching, cementing, and packing, and the men completed other operations.

Credit was not readily available to foreigners from established banks. In 1923 my father, Louis Shapiro, and about ten other men started a Credit Union to extend credit at a low rate of interest to help Jewish manufacturers get started. This was one of the first accredited Credit Unions in the Commonwealth of Massachusetts, and it is still in existence.

After World War II, labor representatives and management personnel were sent to Italy through the Marshall Plan to help develop the shoe industry in the war-torn areas. I remember speaking to some of these people that were sent from the Haverhill area. How proud they were to teach their skills to people in foreign countries, never realizing that this would strike the death knell to the shoe industry in Haverhill, which not long afterward moved from Massachusetts. In Haverhill there once were close to 300 shoe factories and allied industries. In 1981 only three remain.

Haverhill's Washington Street Shoe District is undergoing a current renaissance. One of the former shoe factories, the "Phoenix," has been rehabilitated for 97 units of subsidized housing for the elderly, thanks to architect Jonathan Woodman of Woodman Associates. Other building facades are being restored to their original splendor, and new uses are being found for former shoe factory spaces.

Bertha S. Woodman

Middlesex Canal Feasibility Study: The cartographic survey of the Middlesex Canal conducted by Industrial Archaeology Associates and reported on in the SNEC-SIA Newsletter (Vol. 1, No. 1) has been used as the basis of a comprehensive planning document recently prepared for the Middlesex Canal Commission by the Metropolitan and Northern Middlesex Area Planning Councils. This Middlesex Canal Historic Park Feasibility Study proposes to the Massachusetts State Government a series of measures, town by town, along the entire length of the Canal, to enhance

public awareness of and benefit from this historic engineering resource. These measures range from signage and bikepaths to a major interpretive center at Talbot Mills in North Billerica where the Canal crosses the Concord River. Copies of the study can be obtained from Mr. Russell Burke, Metropolitan Area Planning Council, 44 School Street, Boston, MA 02108. Michael Folsom

Boston Edison Hopkinton Substation Closed, Will be Demolished: The Boston Edison substation near downtown Hopkinton has been decommissioned and will shortly be demolished. The station, built in the 1880s as a street railway substation, was bought by Boston Edison sometime before 1920, and all new equipment was installed at that time. A second major renovation took place in the late '40s or early '50s. Most of the equipment in the station dates from this last renovation, although several of the control panels and much of the building's detail remains intact from the earlier period.

Boston Edison has graciously allowed Charles River Historic Industries to scavenge historical material from the building before demolition. The early control panels (inchthick marble mounted with switches and meters), some workplace miscellany (firebuckets and metal grate doors with "KEEP OUT" signs, for example), and a set of wiring blueprints were saved and will be used in an exhibit at the Charles River Industrial Museum. Steven Lubar

NEW HAMPSHIRE

<u>Metal Truss Bridges</u>: There are encouraging signs that the outlook for New Hampshire's metal truss bridges may be taking a turn for the better. Current local and state efforts will save at least three historic spans from the tragedy of demolition.

An 1889 pony truss in Lang-



The Meadow Bridge in Shelburne, N.H. is an 1897 Pratt truss that makes a major contribution to the aesthetics of its location. Courtesy of Roger Brevoort.

don, built by the East Berlin (CT) Iron Bridge Company, will be moved by the town and opened for pedestrian use, and possibly incorporated into a recreational trail system. In its new location near a bypassed covered bridge, it will enjoy equal status with its more traditionally-appreciated neighbor.

In the North Country town of Shelburne, a majestic triple-span Pratt through truss erected by the Groton (NY) Bridge and Manufacturing Company in 1897 will be retained by the New Hampshire Department of Public Works and Highways (NHDPWH). A new structure. able to accommodate such necessities as the town fire truck and school bus, will be constructed downstream. (Hopefully far enough to preserve the dramatic environmental context of the existing bridge which gracefully traverses a broad inter-mountain floodplain.) Remarkably, repainting and stabilization of the present span is part of the overall package.

A similar project is underway in Chichester where a c. 1887 East Berlin Iron Bridge Company lenticular truss is also being bypassed and again will be retained for pedestrian use. While neither of these efforts addresses rehabilitation possibilities, at least for light vehicles, they are certainly preferable to demolition.

Meanwhile, in Dover, the future of one of New England's few extant double-intersection Warren truss bridges remains uncertain. Erected in 1896 by the Boston Bridge Works, it may indeed be New Hampshire's only example of its type. Presently closed, and with the deck in sadly deteriorated condition, it is not integrated into existing traffic patterns and would not necessarily need to accommodate heavy-load vehicles, factors which suggest that rehabilitation may present a viable alternative to demolition. City planners are amenable to the rehab concept, although the NHDPWH characteristically favors replacement. Pending the outcome of an expected NHDPWH request for a determination of National Register Eligibility, the case appears headed for the Advisory Council.

Of equal importance, the NHDPWH has recently begun a preliminary historic bridge inventory. The first complete look at the number and type of significant historic bridges surviving within the state, this survey will be of great value to future preservation efforts. Roger Brevoort



Built in 1896 by the Boston Bridge Works, the City Farm Bridge in Dover, N.H. is among New England's few extant doubleintersection Warren trusses. Courtesy of Roger Brevoort. The excavation of the Lawton Mill. Courtesy of Beth Bower and Geoffrey Moran.



RHODE ISLAND

Exeter: The Lawton Mill is featured on page 87 of the Rhode Island Inventory (Gary Kulik) and is a rare surviving example of the small, multi-purpose framemills which were ubiquitous in rural Rhode Island during the mid-nineteenth century. The owner, Bill Warner, decided to rehabilitate the structure with the help of a substantial grant-in-aid from the Rhode Island Historical Preservation Commission. Staff archeologist Geoffrey Moran recommended a program of excavations to identify and record evidence of earlier power systems or structural alterations which might be affected by the proposed rehabilitation program. He also orchestrated a day of testing at the mill site on April 4, to which over a dozen members of SNEC responded with the by-now-predictable combination of high spirits and scientific inquiry. Beth Bower and Myron Stachiw assisted Moran in the awesome role of supervising and directing the shovels and trowels of the enthusiastic volunteers. The owner, Bill Warner, was a gracious and helpful host throughout the day, providing coffee and donuts at the start and rewarding the Chapter with a handsome donation for its

David R. Starbuck Editor, SNEC/NNEC-SIA Newsletter Archaeological Research Services University of New Hampshire Horton Social Science Center Durham, N.H. 03824



efforts.

Excavation concentrated on the dirt floor of the interior of the structure where a retaining wall and depression had indicated the possible 10cation of a power system which predated the 1915 steel overshot wheel on the exterior northern end. The northern half of the interior contained a large amount of rubble from the early 20th century demolition and wheel-pit reconstruction which slowed excavation and confused the visibility of interior masonry walls and piers. Extensive fill in the northwest quadrant contained numerous artifacts dating from the early 20th century alterations, but no clear evidence of power systems or wheel pit.

Beneath an interior wall a two-foot-wide drain was located, probably too small to function as the interior tailrace for the turbine remembered by an 84-year-old neighbor and informant. The wall may well represent the smaller 24-foot-square mill which originally existed on the site. It now appears likely that the 20-foot-diameter wheel referenced in a document of 1830 was probably located in the existing, exterior wheel pit.

Concerning the surviving mill structure itself, Ted Penn feels more comfortable with a construction date of c. 1840 because of the joistless, "vernacular slow-burn" floor construction, although Ellen Rosebrock felt the window muntins were rather "retarditaire" for the Greek Revival period. A more detailed report of test excavations will be prepared, and its availability will be announced in a future Newsletter. Geoffrey P. Moran

HELP WANTED

The Plantation Spinner and "Negro Cloth": Myron Stachiw of Boston University's American and New England Studies Program is currently doing research at the Merrimack Valley Textile Museum on the Plantation Spinner, a hand-operated machine that ginned, carded, and spun coarse cotton yarn for slave clothing in the ante-bellum South. If anyone has information concerning the use of this or similar machinery for the Northern manufacture of "Negro Cloth," please contact him at the MVTM, 800 Massachusetts Ave., North Andover, MA 01845. (617 686-0191)

Equipment Available to a Suitable Home: Available is a 2-Post Planer manufactured by H.C. Pease in Worcester, MA. The approximate size is 20" wide by 10' long by 7½' high. Also available is a heavy duty drill press manufactured by J.E. Snyder in Worcester, MA. The approximate size is 6' by 2' by 10' high. Contact Philip L. Platt, Norton Company, Engineering Dept., 1 New Bond Street, Worcester, MA 01606. (617 853-1000, Ext. 2904)

MEMBERSHIP APPLICATION

To apply for annual 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 <u>Newsletter</u>.

Southern New England:

 Regular	\$5.00	U.S.
 Student	\$3.00	ΰ.s.
Institution	\$25.00	U.S.

Northern New England:

All Memberships \$5.00 U.S.

Address: _

Simplex Wire and Cable Company: Thanks to urging by SIA member Charles Emmerich, the Simplex Wire and Cable Company of Newington, New Hampshire is willing and interested in having historical research conducted at their plant. Originally housed in Boston, the firm has been in its present location for about 30 years, and much of their machinery has been uniquely modified to do particular jobs. (They also might be amenable to an SIA tour at a future date!) This is an exciting opportunity for IA research, and anyone who is seriously interested should contact Harry Brinser at Simplex (603 436-6100) or David Starbuck at UNH (603 862-1547).

CONTRIBUTORS TO THIS ISSUE

Richard C. Borges, Beth Anne Bower, Roger Brevoort, Herbert C. Darbee, Michael Folsom, Christine Fonda, Steven Lubar, Geoffrey P. Moran, Philip Platt, Matthew Roth, Myron Stachiw, David Starbuck, Bertha Woodman, and Betsy Woodman

Make checks payable to: Southern New England Chapter, Society for Industrial Archeology and mail to: William Goodwin Treasurer, SNEC-SIA 8 Wolcott Terrace Winchester, MA 01890

OR

Northern New England Chapter, Society for Industrial Archeology and mail to: Christine Fonda Treasurer, NNEC-SIA NH Historic Preservation Office P.O. Box 856 Concord, N.H. 03301

Name: -