

# SOCIETY FOR INDUSTRIAL ARCHEOLOGY

## NEWSLETTER

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### OVERDUE RECOGNITION

Two of the US's most important 19thC engineering structures have at long last been given their rightful due: The Reading RR's great 509-ft-long Reading Terminal Train-shed on Market St, Philadelphia, has been placed on the Natl Register. The shed, with a 259-ft single span accommodating 13 tracks, was the work of Joseph M Wilson, and was, until construction of the Pennsylvania's late Broad St Station, Philadelphia (SIAN July, *Publs*) world's largest. Built 1891-93, it is one of the last American balloon-type train sheds without intermediate supports. Its 3-hinged segmental arches are 88 ft high. *Danny A Morris, Smithsonian Instn.*



*Philadelphia Historical Comm photo by M C Means*

Although the entire length of the Delaware & Hudson Canal (NY & PA) was declared a Natl Historic Landmark in 1970, its most important structure, the Delaware Aqueduct, was not singled out as deserved. The ASCE (SIAN July) happily has rectified this slight by designating it a Natl Historic Civil Engineering Landmark. The 4-span wire-cable suspension aqueduct, designed and built for the Canal in 1847-48 by John A Roebling, is the earliest of his bridges extant and the oldest suspension structure in the W Hemisphere. Today it carries highway traffic across the Delaware at Lackawaxen, PA.



*HAER photo by Jack Boucher*

### AN ANCIENT HYDRAULIC SYSTEM

What can hardly be doubted are the earliest remains of an American hydraulic system have been unearthed under Albany's State St by NY State Board for Historic Preservation Sr Scientist-Archeologist Paul R Huey, on a salvage project



36-inch scale

*NYSBHP photo by Paul Huey*

during a utility excavation. Beneath early-20thC concrete and crushed stone; late-18th-early-19thC sand fill; 18thC sand fill; and 18thC Colonial fill, Huey's party discovered a series of conduits or troughs made of logs hollowed-out on top, with a plank nailed over the channel thus formed, that conducted water underground from a hill spring to supply the town. The system, described in contemporary accounts, *was installed in 1678.*

### IA CALAMITY

The legendary Hoosac Tunnel near N Adams in the NW corner of Mass in early Aug was blocked by 75 tons of rock that collapsed a section of the brick lining, stopping Boston & Maine RR E-W traffic for a week. Begun in 1853 using the hand drilling and black-powder blasting that had been traditional in mining and tunneling for centuries, it was not until 1865, when machine drilling and nitroglycerin were introduced, that there was real hope of completion. The bore has been in full service since opening in 1875. Repairs took the form of extensive concrete grouting with corrugated-steel reinforcement.

### THE WORK OF IA

**Hands Across the Water.** Eric N DeLony has returned to the Historic American Engineering Record after a year's leave under the Fulbright-Hays Exchange Program to study the practice of IA in Britain, having ended his term at the Ironbridge Gorge Open Air Museum. He was the first foreign student to participate in the Museum's program of encouraging research into both the area's rich industrial and engineering heritage and the practical problems of industrial preservation in a museum setting. DeLony found the latter to range from the arresting of oxidation deterioration in the original iron lintels (1638 & 1777) of Darby's Coalbrookdale iron furnace to determining the degree of tidiness appropriate in a public museum that is to represent an essentially filthy and disordered operation. A fuller report on his tour will be forthcoming.

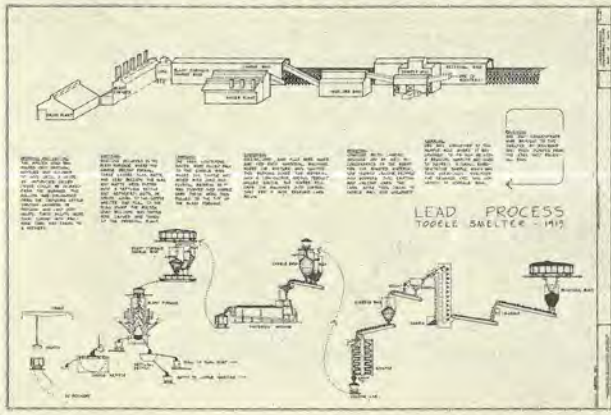
### Utah

September will conclude the 2nd and final summer of the HAER Utah Survey. In 1971 the survey team prepared



measured drawings of the Mormon Tabernacle roof truss, Salt Lake City; the Southern Pacific RR trestle across the Great Salt Lake; The Olmstead station power plant and Telluride Institute built by the Nunn brothers (see *Publs*); the Hurricane Canal; and 5 other sites. (Drawings available: HAER, 1100 L St NW, Washington, DC 20005.)

The 1972 team of 4 architects and 3 engineers prepared drawings of Tooele Smelter, 1915, the last custom lead smelter in Utah, now being dismantled; the (US) Highway 40 crossing of the salt flats; Garland Sugar Mill, 1903, the oldest surviving beet-sugar refinery in the Mountain West; and Kennecott (open-pit) Copper Mine, the country's largest. In addition to the usual structural drawings, the survey also prepared flow



sheets recording the original processes at Tooele and Garland. As did all HAER teams this year, the team included a historian, charged with documenting both the 1971 and 1972 sites. *T Allan Comp, HAER; drawings by Margaret Hill*

renovation is to be carried out with "concern for historical accuracy," and preservation of "all historical features." It will include dining and lodging facilities aboard period RR cars, a theater, a main dining room beneath the great central dome, and a large model RR depicting the city's RR history. *It is called The Chattanooga Choo-Choo complex!*

**Mill Restoration.** The County of Fairfax, VA this summer completed a painstaking 6-year restoration of the Colvin Run Mill, on Rt 7 about 20 miles W of Washington. The brick mill was built c1800. The project included a new timber overshot wheel, reconstruction of part of the headrace, major structural work, and restoration of a portion of the milling machinery with more to follow. The mill is presently grinding, open to the public on a limited schedule.

As is Lowell (SIAN July), Paterson, NJ, is immersed in planning for the preservation of elements of its IA. If Lowell can be described as America's first *successful* planned industrial city, Paterson, on the Falls of the Passaic, can be called the *first*, utilization of the Falls having been proposed and begun by Alexander Hamilton in the final decade of the 18thC. Never achieving the consistent commercial success of Lowell, Paterson nevertheless was the site of major textile, locomotive and machine industries at various times, and the first seat of Samuel Colt's operations. Remains of all, and an elaborate system of hydraulic raceways survive, which it is hoped will all be incorporated into a national park that in conjunction with a general urban rehabilitation scheme will preserve and interpret this important complex. Largely responsible for the project's existence is Mary Ellen Kramer, wife of the city's former mayor, and John Young (SIA) of Urban Deadline Achts, NYC.

### Phoenix Mill



### Vermont



The HAER in cooperation with the Vermont Div of Historic Sites has just measured and photographed the brick Twing Grist Mill (1844) in Barre. The structure was added to the nation's IA inventory this spring when it was discovered that its wood interior posts took the form of tapered Greek columns surmounted by cast-iron Ionic capitals. Further investigation revealed a second floor showroom (?) with much of the original detailing intact, including wainscoting, elaborate moldings, and fragments of original wall paper. The second-floor columns were even marbled. The mill's builder, Joshua Twing, also owned a sawmill and iron foundry on the site. Only the grist mill remains. The unique structure has been threatened with demolition by its owners, Barre's Hill-Martin Corp, but as a result of the HAER survey, consultation with VDHS, and visits by several historians, H-M has expressed willingness to consider some adaptive use for the building. *Chester H Liebs, VDHS.*

## PROJECTS, SITES & STRUCTURES

### Restoration & Preservation.

**Another Major RR Station Preservation Scheme.** Nearly everything about the plan to rehabilitate the Southern Ry's Chattanooga, Tenn, Terminal Station appears reasonably well advised except the name. The great domed monument of 1909, based on the winning entry in a 1900 *Ecole des Beaux Arts* competition, has been obtained by a consortium that includes the Southern, Hilton hotels, and local interests. The

In 1830 The Sprague Mfg Co, Ashford, Conn, consisted of 5 double tenement houses, a single dwelling, a company store, a grist mill, a sawmill, a blacksmith shop and 2 cotton mills—one of wood built in the boom of 1814 and the other a larger stone mill erected in 1823. Reorganized as the Phoenix Mfg Co in 1831, the small mill village continued an increasingly marginal production until the last decades of the 19thC. Today only the stone "Phoenix Mill" survives.

In 1971 Old Sturbridge Village purchased the Phoenix Mill, as the keystone of an industrial museum village, to be recreated on a site adjoining its present agricultural village, representing the period 1790-1840. The Phoenix Mill, to be rebuilt on its new site in 1975, will inform a broader popular audience on the region's industrial history.

In 1969 Theodore Penn, OSV researcher in technology, had acquired the remnants of its industrial contents, which will serve as a basis for the reproduction of the complete working machinery to operate in the mill.

The Phoenix Mill is essentially unaltered, demanding little or no conjectural "restoration" except the original power system. Even here, subsequent research has shown that the original wheel was 14½-ft diam with 12-ft floats. It is hoped that archeological investigation of the whole site after the mill is removed will corroborate this and expand the specifics of both its architectural and technological history.



Equally important to the selection of this major building for Sturbridge was the fact that its deteriorated condition effectively defied on-site preservation. Structural deterioration demanded immediate action until the museum prepared a relocation site. The building has been measured and drawn [photo], and its walls have been temporarily strengthened while hydraulic systems at its future location are being studied.

Moving and restoration should begin in the mid-70s. When opened to the public Phoenix Mill will once more be a fully operational cotton factory with machine and carpentry shops typical of rural industry of the 1830s. *Richard M Candee, OSV.*

#### Lesser-Known Sites of Interest

**THE AMERICAN PRECISION MUSEUM**, Windsor, VT contains an extensive, important collection of early machine tools, examples of their products, and related artifacts, housed in a fine brick building erected in 1846 by Robbins, Kendall & Lawrence for the mfg of army rifles (on the true interchangeable system), machine tools, and other machinery. It was Robbins & Lawrence Mexican-War rifles exhibited in 1851 at the Crystal Palace in London that so impressed the British gov't that they ordered the famed set of over 150 machines to outfit the Enfield Armory on the "American System" of interchangeability. After the Civil War the building was converted into a cotton mill and later a generating station. It was declared a Nat'l Historic Landmark in 1968. Open Memorial Day to Columbus Day. (Also in Windsor: the early masonry Ascutney Mill Dam, 1834 and the Cornish-Windsor timber bridge over the Connecticut, 1866; both Nat'l Hist Civil Eng Landmarks.)

#### CHESAPEAKE & DELAWARE CANAL PUMPHOUSE,



*Michael Robbins (SIA)*

Chesapeake City, MD, housing 2 large 175-HP (36" x 84") beam engines by Merrick & Sons (Phila): one of 1852; the other 1854, the earliest American steam engines *in situ*. These drove a 40-ft diam x 10-ft wide scoop or lift wheel that raised water 14 ft to make up that lost in lockage. When the Canal, which connects the head of Chesapeake Bay and the Delaware R, was widened and deepened in 1926-27, the locks at each end were removed, but the pumping station, then obsolete, was preserved by the Army Corps of Engineers, custodian of the Canal. House, engines and wheel are intact, a recent superb museum of the Canal's and the Pumphouse's history now occupying the boiler house. Generally open daylight hours, 7 days. Best to phone. (10 miles S, Exit 9, Kennedy Expy, through Elkton.)

#### SIA AFFAIRS

On the assumption that next month's SIA bus tour of New England IA sites will be a smashing success, a similar tour of sites in Ontario, the main focus of which will be the Rideau Canal, 1825-32, running between Ottawa and Kingston, is being planned by Dianne Newell Macdougall, Nat'l Historic Sites, Rm 1120, 400 Laurier Ave W, Ottawa K1A 0H4, Canada, member of the Conferences & Tours Committee.

At the 28 Aug SIA Board meeting in Albany, two changes were made to the Standing Committees: **Fund Raising** is now chaired by Richard M Candee and **Conferences & Tours** by John G Waite, who advises that being planned for the 1973 Annual Conference at Troy (May) is a Saturday session: papers on actual site work; and a half-day Sunday session: examples of rehabilitation of industrial buildings. Abstracts should be submitted to him, NY State Board for Historic Preservation, Office of Parks & Recn, S Swan St Bldg, South Mall, Albany 12210, by 1 Nov; complete papers by 1 Feby.

At the Conference the membership will elect a **President** and **Vice President** for the 1973-74 electoral year, as well as 2 **Directors** for 3-year terms. I would be pleased to have suggestions for candidates for these offices, including oneself. Names should be submitted to me prior to the next Board meeting, 20 Oct. R L Deily, Chairman, Nominating Committee, 1103 N Washington Ave, Green Brook, NJ 08812.

The Preservation Committee is proposing to compile a **guidebook to industrial preservation** if funding can be obtained. Although tentative, a paid compiler/editor is being sought, estimated term: 6 months. Names to Chester H Liebs, Vermont Div of Historic Sites, Pavilion Bldg, Montpelier, VT 05602. The Committee is also assembling a slide presentation on IA and Historic Preservation for use by concerned organizations.

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#### TO THE EDITOR:

It seems to me, since the SIA is still in its formative period, that a firm distinction should be drawn and maintained between "Industrial Archeology" and "Historic Preservation". Although many persons who are concerned with one are also concerned with the other, *these are two discrete and different disciplines* differing just as science and engineering differ. One is a form of research and the other a form of action. Strictly speaking, an industrial archeologist need concern himself no more with historic preservation than a classical archeologist concerns himself with preserving the pyramids. It may be noted, too, that "restoration" is even more remote from the legitimate concerns of IA. Careful preservation of samples or elements for future study is one thing but wholesale resurrection of major complexes for sentimental reasons is quite another. Unless this distinction is drawn soon, hard and fast, the work of the SIA is likely to become increasingly tangential, redundant and inexact.

Archeology is the study of the material evidence of the precedents of contemporary social life and industrial archeology is, by definition, a subordinate area stressing the emergence and development of industrial manifestations. Against the background of this kind of a definition, historic preservation, restoration and replication may be admirable activities but they are not IA per se.

A further caveat may be appropriate which alerts IA enthusiasts to the distinction between "industrial" and "economic" factors. Agricultural and commercial residues of a cultural kind, for example, should not be freely tossed into the realm of industrial archeological investigation. Hanseatic trading ships, port facilities and guild halls, as particular examples, may be important as economic features or as precursors to a subsequent industrial age, but any study of them would be misplaced if it were to be classed as *industrial archeology*. For further illustration, consider the craft-like enterprises of the American colonial period which were also pre-industrial.

The alternative to accepting these distinctions is relegation to informality and imprecision. The role of the talented amateur has much to commend it and perhaps serious consideration should be given to the adoption of a new title—The Society for Amateur Industrial Archeology. However, that did not seem to be the sense of the April meeting at Cooper Union.

Finally, we may observe that it is commonly and understandably true that persons interested in IA might have a parallel interest in historic preservation and would like to be kept informed of such related matters. If there is no other publication now doing that job or doing it well, then a portion of the SIA Newsletter, separately and clearly identified, might reasonably be allocated for pertinent items concerning preservation of historic industrial artifacts and sites. The primary commitment of SIA publications should, all the while, remain directed to the identification and support of systematic efforts at serious archeological inquiry.

71 Martin St,  
Cambridge, Mass 02138

James E Lee

*The responses that it is hoped Mr Lee's thoughtful letter will evoke, will appear in the next issue.*



## ENQUIRIES & RESEARCH

**Queens architectural survey.** Through a recent NY Council on the Arts grant, the Queens (NYC) Historical Society has started an architectural survey of Queens County, to be executed by students of the Graduate Program for Restoration and Preservation of Historic Architecture, School of Arch, Columbia Univ, under the direction of Prof James M Fitch and Theodore H M Prudon. Although this year's funds are limited and Queens County is extensive, as many industrial structures as possible will be included in the survey. Information/suggestions regarding same are welcome: Theodore H M Prudon, Avery Hall, Columbia Univ, New York, NY 10027. (212) 280-3518.

**Bristol's Early Industries.** A P Woolrich seeks MS & published travel journals and diaries of Americans who might have visited the Port in the 18thC and described its many manufacturing industries, to aid in a history of the subject based on documentary evidence. Archivists & librarians especially, please note. 25 Bath Hill, Keynsham, Bristol BS18 1HJ, England.

## MISC NOTES

**IA Lecture.** Neil Cossons, Director of the Ironbridge Gorge Museum Trust (SIAN May), will speak on the Trust in Washington, 17 Oct, sponsored by the Smithsonian, the National Trust, and the Latrobe (Wash) Chapter of the Society of Architectural Historians. Renwick Gallery, Penna Ave & 17th NW, 8:00.

Prof Edward S Rutsch (SIA), Fairleigh Dickinson U, has received a NJ Hist Comm Grant-in-Aid to study "Agrarian & Industrial Plantations in Colonial NJ: An Old World Settlement Pattern Exploitation of New World Resources."

Chester H Liebs (SIA), VDHS, is conducting a graduate course this fall at U of VT: **An Environmental Approach to Historic Preservation**, planning a full range of projects and lectures in IA-related disciplines including Industrial, Commercial & Historical Archeology.

**Preservation Perversions Dept.** Maryland's Senator J Glenn Beall, Jr (R) made a stunning contribution to The Cause in presenting to the Republican Natl Chairman for use at the Republican Convention, a specially-made 5-pound gavel imbued with "100 years of Maryland history," produced of wood taken during its demolition last winter from the late-lamented **Queen City Hotel** in Cumberland (SIAN Jan), last of the B&O RR's great station-hotels and next-to-last in the nation.

Perhaps you have observed how often the adversary in preservation campaigns is a highway agency in rut. Sympathy, at the very least; usually more substantial help, may be found at the **Highway Action Coalition**, Rm 731, Dupont Circle Bldg, Wash, DC 20036.

**The Society for the Preservation of Old Mills** has been formed, with plans for a quarterly newsletter: *Old Mills News*, to contain lists and other information on flour mills and allied subjects. Donald W Martin, President & Editor, PO Box 435, Wiscasset, ME 04578.

**Official Steam Train Sponsorship.** Ottawa's unusually enlightened Natl Capital Commission is studying a scheme to operate, on a regular basis, runs between the Capital and Wakefield, PQ, 20 miles NW, using **steam motive power** from the large and fine collections of the Natl Museum of Science & Technology (under care of SIA Vice President Corby). If it goes, the plan should be underway by summer 1973.

**CORRECTION:** the July SIAN note on the collection of American Locomotive Co glass negatives at Union College contained several errors (in the original source). The collection is housed at Union; is on permanent loan to the Mohawk & Hudson Chap, Natl Ry Historical Society; and is not yet listed

and capable of use. Contact: ALCO Historic Photos, Box 655, Schenectady, NY 12301.

**Recording Needed.** The relatively complete works of the late **Drury Brick Co**, Essex Jct, VT, abandoned about a year, should be recorded promptly while still intact. Present are a coal-fired beehive kiln; mixing house complete; brickmaking shed (less machinery); and a set of rare air drying racks. A good school project.



## PUBLICATIONS OF INTEREST

Edwin P Alexander, *Down at the Depot*. Anything but a scholarly work, but invaluable in its immense number of illustrations, of varying quality, of stations, including many obscure and interesting ones.

Pierre Berton, *The Last Spike—the Great Railway 1881-1885*. Toronto: McClelland & Stewart, 1971. 478 pp. \$10 (US edn by Knopf as *The Impossible Railway*, \$12.50) The 2nd volume (ff *The National Dream*) unfurling the final history of construction of the Canadian Pacific. (Complete review in *The Beaver* [Hudson's Bay Co, Winnipeg] summer 1972).

Charles C Britton, "An Early Electric Power Facility in Colorado," in *The Colorado Magazine*, vol 49 No 3, 1972, pp 185-95. The first Amer long-distance transmission of AC for industrial use: 100 Hp over 3 miles at Telluride.

Stephen R Burgess, *Flemington Junction: A History of Railroad Stations*. 1971. 33 pp, illus, maps. \$2.25 from Hunterdon Co Hist Soc, 114 Main St, Flemington, NJ 08822.

Michael Chitty, *A Guide to IA in Exeter*. Exeter IA Group, 1971. 24 mimeo pp; illus covers with map. \$.50. Avail: Dartington Amenity Research Trust, Dartington, Totnes, Devon, Engl.

Theo Crosby, *The Necessary Monument*. London: Studio Vista, Ltd, 1970. \$2.75. With excellent illus, develops the theory suggested in the title, citing centrally London's Tower Bridge, the Paris Opera, and Pennsylvania Station (RIP).

Harry S Drago, *Canal Days in America*. NY: Crown Publ. \$10.

Edward C Kirkland, *Men, Cities & Transportation*, NY: Russell & Russell, 1948. An Excellent study of the development of New England's transportation systems, emphasizing the RRs.

Walter Minchinton (SIA) & John Perkins, *Tidemills of Devon & Cornwall*, Exeter (Univ) Papers in IA, 1971, 45 pp. \$1.00. Avail: as Chitty, above. Nicely illus treatment with maps, appendices & chronology dating the 32 cited examples from 1250 (!) to 1960.

Gerald Nabarro, *Steam Nostalgia—Locomotive & Ry Preservation in Great Britain*. Boston: Routledge & Kegan Paul. \$21.75.

Oswald S Nock, *The Dawn of World Railways, 1800-1850*. NY: Macmillan, 1972 (1st Amer edn). 179 pp, col illus. \$4.95.

*The Society is undertaking compilation of an extensive IA Bibliography, for which entries are invited, especially the obscure & regional. Recent titles only will be listed—but including reprints—say post-1950 (unless bearing directly upon the theory and practice of IA itself, in 3 categories: T&P of IA; history of technology both general, and specific where directly related to IA; and specialized and regional studies. Short articles and limited-edition reports are to be included, and it is there that the assistance of all will be most needed.*