

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

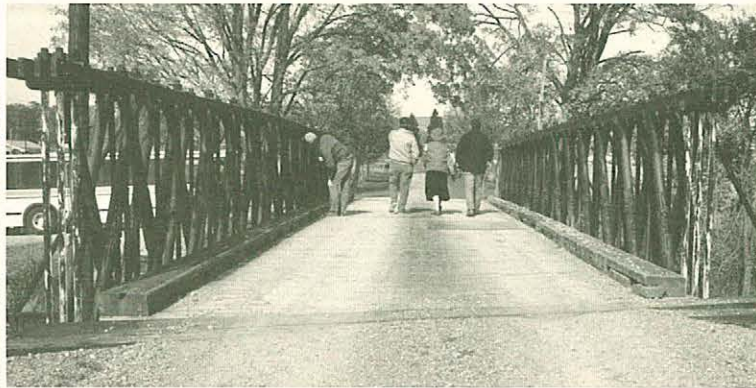
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Fall Tour, Oct. 25-28, 1990

Williamsport tour reveals lumbering's IA legacy



READING-HALLS STATION BRIDGE. This important all-metal Howe truss, fabricated c1846 and now located near Muncy, Pa., was one of the Fall Tour highlights. *Left:* The Egyptian Revival lotus motif on diagonal members; note RR-rail floorbeams. *Right:* Shortened end of upper chord where panels were removed. *R. Frame photos.*



Unlike many who made their way to this central Pennsylvania city of 40,000, anticipating the area's hunting and fishing, or a visit to the national Little League Museum, or even Clyde Peeling's Reptiland ("don't missss it," hisses the brochure), the SIA had older fish to fry. We were after the Williamsport spawned by the spectacular white-pine industry that, between the 1850s and 1880s, pushed the sawed-and-planed-lumber statistics off the chart and put "Billtown" on the map. The business was so lucrative that, in 1870, while the state's iron and steel production was valued at \$20 million, its cut lumber was worth over \$35 million.

Situated on the West Branch of the Susquehanna River, the city's location was ideal for mills to process logs floated downstream from vast stands of trees reaching 175 ft. high and 4 to 6 ft. in diam. This resource was first captured in 1850 when local entrepreneurs, organized as the Susquehanna Boom Co., built a \$1.5-million, six-mile-long boom of cribbed-log piers linked by chained logs.

The lumbering saga was explained in a slide lecture during Thursday evening's reception at the Lycoming County

Historical Museum. After a screening of "The Last Raft," a film of the last lumbering-raft's downriver voyage in 1938, we browsed through the exhibits on local industry and transportation. Then it was back to headquarters, the Genetti Hotel, a refurbished early-20th-C Williamsport landmark, whose rooms provided a vintage, high-ceilinged, city hotel atmosphere.

Friday was an incredibly busy tour-day, including a wood-working-machinery manufacturer, wire-rope works, foundry, wood-veneer plant, truck factory, and a mammoth publisher, topped off by a Susquehanna cruise.

Keystone Veneers, Inc. provided a milltown experience, albeit today's hardwood version instead of the original pine. We followed the process from debarking through custom

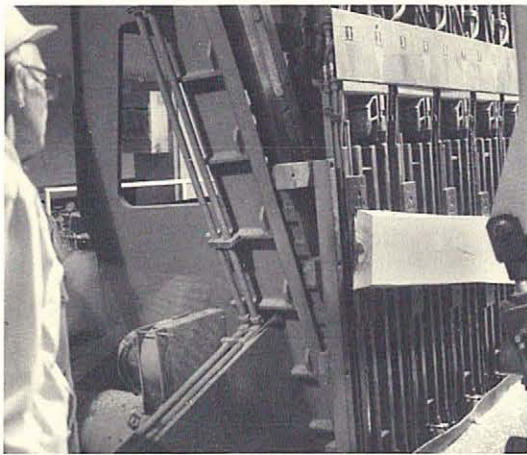


WILLIAMSPORT INDUSTRIES.

Left: Hermance Machine Co., manufacturer of industrial woodworking machines.

Right: Williamsport Wire-rope Works, Inc., founded in 1887 and once owned by Bethlehem Steel. *R. Frame photos.*





KEYSTONE VENEERS, INC.

Left: Each log is sliced vertically.

Right: A flawed "slice" is removed.

Below left: The paper-thin slices are collected into bundles.

Below right: The slices of veneer are conveyed to a cutter for trimming before shipment. R. Frame photos.



slicing, where large guillotine blades reduce each log to a bundle of paper-thin slices of veneer, each displaying the sought-after grain detail. The veneer equipment is Italian. The red oak batch we watched was headed for a casket factory in Ireland.

Another aspect of the timber legacy was **Hermance Machine Co.**, once the maker of over 40 models of industrial woodworking machines. Established in 1902, it now produces the Model 300 gang rip saw, but also reconditions and sells the machines it built decades ago, including heavy-duty, belt-driven examples that would be at home in a museum collection. The Hermance tour was complemented by a trip to **Williamsport Foundry Co.**, a real gritty-city operation founded in 1958 that does custom hand-casting of brass, aluminum, and gray iron.

At **Grumman Allied Industries, Inc.**, a wholly owned subsidiary of Grumman Corp., Long Island, N.Y., we viewed the assembly line and its sole product, the distinctively profiled "LLV" (long-life mail delivery vehicle), which comes off the line at the rate of one every five mins. The high-tech

Inside Grumman Allied Industries, Inc., manufacturer of mail delivery vehicles. R. Frame photo.



experience of Grumman's state-of-the-art operation, opened in 1972, was more than matched by **Grit Publishing Co.**, known to many for its long-lived, weekly family tabloid of the same name. In the industry, however, Grit is recognized as operator of one of the largest four-color presses on the East Coast. This three-story, block-long machine has a 100,000/hr. capacity. Grit prints huge quantities of major national advertising pieces.

The day's highlight definitely was **Williamsport Wire Rope Works, Inc.**, which began a few blocks away as Morrison Wire Rope Co. in 1887. It was Williamsport Wire Rope Co. from 1900 to 1937, when it was bought by Bethlehem Steel and expanded into one of two top national producers. Closed in 1989, it was soon reopened under independent ownership and now supplies markets in mining, drilling, elevator, construction, and commercial wire-product applications. At the works, we followed the process through the Wire Mill and the Rope Mill. In the former, wire-drawing machines with tungsten-carbide dies reduce rolled rod to wire of the desired diameters. The wire is heat-treated by being drawn through molten lead. The finished wire either is sold outright or moves on to the adjacent Rope Mill, where some 800 varieties are produced, ranging up to 7-in.-diam., with orders for 5-in. relatively common. Some of the equipment, including stranding and rope-closing machines, came from Roebling's celebrated Trenton works in the 1970s.

Friday's meals were themselves special events. A homemade lunch at the 1910ish **Hotel Kast**, with its wonderfully unrestored workmen's bar, also meant some time exploring the owner's cellarful of RR models and memorabilia, collected over a lifetime. The evening banquet was served in the main hall of the restored 1868 **city prison**, amidst the iron stairs, balconies, and cell doors. Designed by John Haviland, whose father Edward had planned Northeast State Prison in Phila., the Williamsport jail was used, incredibly, until 1986. Now under private ownership, it is the **Old**



At the Koppers tie-treating plant, a Koppers locomotive (left) moves loads of RR ties on special cars (below) in and out of the creosote pressure chambers (right). R. Frame photos.



Jail Center, housing boutiques specializing in the arts.

Saturday offered two tour options: the Muncy-Montoursville area tour of agricultural sites, a world-famous bridge, a processing-equipment manufacturer, and a RR-tie-treating plant; or the Clinton County tour of paper and grist mills, canal remnants, and an iron furnace.

The **Koppers Susquehanna Plant** of the Forest Products Div. was built in 1971 to supply pressure-creosoted materials to several eastern RRs that now comprise Conrail. The Koppers connection is logical, since creosote—technically a pesticide—is a byproduct of coking production, Koppers' main operation. [The 1985 SIA Fall Tour in Birmingham, Ala., included a Koppers coke plant.] The modest RR tie is one of those taken-for-granted products upon which vast empires are built. Ties are not a small budget item, however. Koppers pays about \$13 per untreated tie and sells the finished item for about \$22; it will last some 30 years. About 3,000 are needed for each mainline mile, which means that every year a RR will spend about \$2,200 per mile on replacement ties. Some 80% of all ties are oak, with the rest of mixed hardwoods. The plant's annual capacity is 1.5 million crossties. In an associated operation, used ties are burned, powering the plant's steam turbo-generator, with excess power sold to Pa. Power & Light.

The Williamsport region raises more than trees, so we visited **Wentzler's Fruit Farm** and **Fry's Dairy Farm**. Like all industries, agriculture involves processes, such as fruit culti-



vation, harvesting, cleaning, and shipping. Dairy operations employ technology to milk the cows and process the milk. The IA of agriculture is complex and even these relatively small operations are very different from popular conceptions of farming—even milking cows, for example. Inside the "milking parlor," the milking staff stand in a chest-deep concrete pit surrounded by cows whose operative gear is now at an efficient height. No stooping, and the cows come to you. The fresh milk goes directly into storage.

A farm is where we found the famous 1846 **Reading-Halls Station Bridge** [NR], one of the oldest extant all-iron, Howe-truss bridges, and likely the oldest U.S. iron RR bridge still in use. The bridge, with its Egyptianate diagonal compression members, was moved here from an unknown site on the Phila. & Reading mainline. Its present location on private property limits visits to rarely granted tours such as this. The bridge now carries the farm road from the main highway across still-active, ex-Reading (now Conrail) tracks to the main house, an 18th-C residence that we toured.

Sprout-Bauer, Inc., in Muncy, began as an agricultural machinery manufacturer in 1866, but is known to milling historians for its grain-grinding equipment under the name of Sprout Waldron. That business has evolved into a wide product range of processing equipment for the pulp and paper, feed and grain, and industrial and chemical processing industries. It is the area's largest employer.

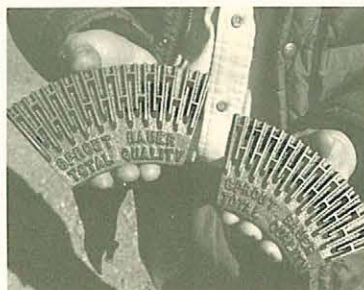
Meanwhile, those of us on the Clinton County tour visited other descendants of the region's lumbering and agricultural beginnings. The **Hammermill Paper mill** was originally the New York & Pa. Pulp & Paper Mill Co., with construction on the present plant begun in 1882. In 1986, the company was purchased by International Paper Co. The mill's main



Left: Inside the milking parlor at Fry's Dairy Farm.

Right: Hotel Kast, site of Friday's lunch, amidst the owner's collection of railroadiana.

Below: Segments (here cast as souvenir paperweights) of the working face inside a Sprout-Bauer attrition mill. R. Frame photos.



Susquehanna Chapter President Jon Inners at the remnants of the black-powder storage house at the mining community of McIntyre. D. Perry photo.



product is copy paper.

Two water-powered grist mills were toured: the c1840 **Logan Mills** and the c1827 **John McGhee's Grist Mill**. Both still house original equipment. McGhee's mill is the only operating mill remaining in the county, producing some four million pounds of flour per month. At the Logan mill we also viewed the county's only surviving covered bridge, a 55-ft. queenpost truss.

On Saturday evening busses from both tours converged on the **Lycova Grange Hall** in Hepburnville, where the entire assemblage was treated to a real downhome dinner of turkey, dressing, and all the fixins' served in seemingly endless quantities by the men and women of the grange. If you wanted the recipe, grange cookbooks were on sale.

The SIA Fall Tour officially concluded with the grange feed, but informally extended into Sunday with two optional guided tours. One featured the lumber towns of the Pine Creek area. The other, sponsored by the Susquehanna Chapter SIA, included 19th-C iron furnaces at Ralston and the coal-mining ghost town of McIntyre. Those *still* hardy and able took *another* optional tour to study the IA of the Ralston-McIntyre area of Lycoming County. Sites visited included: Astonville ("Lycoming") Anthracite Furnace site; Cartersville Furnace; coal-mining in the McIntyre village area; and the overlook at Band Rock on McIntyre Mountain. This tour has been described in detail in Susquehanna Chapter (the Society's newest) "Guidebook No. 1" (1990), prepared by Jon Inners, Daniel Perry, and Mary Ann Landis, under whose highly able guidance the tour was organized and conducted, with help from Alice Tremonte at the Lycoming County Tourist Commission. (For info. on guide availability, contact chapter president John Inners, 1915 Columbia Ave., Camp Hill PA 17011.)

We left Williamsport for home, having enjoyed an extraordinarily well-planned tour weekend, including sites and process tours the equal of any previous SIA excursion. An old axiom was confirmed: significant and engaging IA is everywhere; all you need is the right guide. The big cities, as we all know, have spectacular riches; but there is important IA to be studied in rural areas and in small cities like Williamsport.

CONTRIBUTORS TO THIS ISSUE

John Bowditch, Curator of Industry, Henry Ford Museum, Dearborn, Mich.; Jeffrey T. Darbee, Columbus, Oh.; Victor C. Darnell, Kensington, Conn.; Peter L. Moore, New York City; Charles Mott, Seattle, Wash.; Theodore Z. Penn, Oak Bluffs, Mass.; Daniel K. Perry, Pa. Anthracite Museum Complex; Tom Rick, Manitou Machine Works, Cold Spring, N.Y.; Matthew W. Roth, Portland, Conn.; Stewart Thompson, Toronto, Ont.; Bruce Weillepp, Astoria, Ore.; Ian Wheal, OSIA, Toronto, Ont.; David Weitzman, Inverness, Calif.; Robert M. Vogel, Washington, D.C.; Roger D. Woodworth, WWP, Spokane, Wash.; and Helena E. Wright, Smithsonian Institution. **With thanks.**

NOTES & QUERIES

"MORRIS CANAL: NJ's Mountain Climbing Waterway," is an exhibit scheduled to run from Sept. 15 through Nov. 17, 1991, at Macculloch Hall Historical Museum, 45 Macculloch Ave., Morristown NJ 07960 (201-538-2404). It will trace the engineering story from its conception in the 1820s to its demise in the 20th C, using documents, prints, maps, photographs, and artifacts. Conceived by George Macculloch, founder of Macculloch Hall, the canal climbed over 900 ft. in connecting the Hudson and Delaware rivers. The Hall is open Thurs. & Sun., 2-4:30 p.m., other weekday times by appointment for group tours.

JOB OPENING. Assistant Curator. Decorative & Industrial Arts Collection, Chicago Historical Society. Responsibilities include cataloging, answering research inquiries, handling photographic requests, and assisting in collections management. Familiarity with historical objects and MA degree in American history or museum studies required. Museum experience and computer literacy helpful. Position available immediately and will end June 30, 1993. Salary is competitive and includes a generous benefits package. Send letter of application, resume, and names of three references to Margery Melgaard, V.P. of Admin., CHS, 1601 N. Clark St., Chicago IL 60614-6099. EEO/M/F/V/H

JOB OPENING. Director, Museum of American Textile History, North Andover, Mass. Ideal applicant should have at least 10 years of museum-related experience, and be a strong, hands-on administrative manager, team-builder, and good oral and written communicator, able to provide leadership to the staff and the board, during this most exciting period of the museum's history involving a \$7.5-million national fundraising effort, physical relocation, expansion of programming and educational services, and national membership development. Capital fundraising experience is necessary. Must be knowledgeable about the history of technology and industry. Will be responsible for all aspects of the museum's operations, reporting to the board of trustees. Will be responsible for maintaining the museum's reputation and the integrity of its collections, and must command the respect of the professional and academic community, while having proven ability to oversee the museum's business affairs in terms of effective budgeting and short- and long-range planning. Salary negotiable in the \$60s range, depending on experience. Benefits include health and life insurance, retirement, car, four weeks vacation, and sabbatical. Send resume to Search Committee, MATH, POB 1483, Manchester-by-the-Sea MA 01944. Equal opportunity employer.

CRM TRAINING DIRECTORY AVAIL. A 40-page directory of cultural resource management training workshops and other classes offered nationwide from Oct. 1990 through Dec. 1991 has been compiled by National Park Service offices and published by *CRM Bulletin*. Over 700 offices and agencies were queried for offerings. The directory includes both descriptive information listed by vendor and indexes by location, time periods, and course topics. The Oct. 1991-Dec. 1992 edition will be available in Sept. For copies of the current edition or suggestions for the next edition, contact Amy Federman [SIA] or Emogene Bevitt, NPS-413/424, POB 37127, Wash. DC 20013-7127 (202-343-9536).

TOXIC IA QUERY. Richard A. Orson, of Rutgers Univ., seeks help from SIA members regarding industrial history in the Delaware River Valley:

"Specifically, I am seeking information on the discharge of cadmium, lead, chromium, nickel, copper, and zinc in the river during the last 50 years. I am a paleoecologist who has been looking at the development of freshwater tidal wetlands along the Delaware between Trenton and Swedesboro during the last few millennia. Recently, my work has included the long-term accumulation of heavy metals in the substrate, particularly for the last half century. By applying sediment accumulation studies to concentrations of metals in marsh sediments, I have been attempting to reconstruct and model the accumulation of metals in the estuarine environment. I would like information like: 'between 19xx and 19xx more lead was discharged into the Delaware River than any other time in history,' or 'beginning in 19xx nickel was the most common metal used in industry in the Phila. region.' The data need not be complete with numbers (unless available), but must allow me to assess whether the wetlands are 'monitoring' the levels of pollution in the past or at least reflecting dominant trends."

Contact Orson at the Center for Coastal & Environmental Studies, Doolittle Hall, Rutgers, New Brunswick NJ 08903 (201-932-4881, FAX 201-932-5811).

J.J. HILL RESEARCH GRANTS. The James Jerome Hill Reference Library will award a number of grants of up to \$2,000 to support research in the papers of James J. Hill (1838-1916) and Louis W. Hill (1872-1948). James J. organized and headed the St. Paul, Minneapolis & Manitoba RR (after 1890 the Gt. Northern Ry.); son Louis succeeded his father as RR president and board chairman. These two large collections of correspondence, financial records, photographs, and ephemera complement the mammoth archival collections of the Gt. Northern and Northern Pacific at the Minnesota Historical Society in St. Paul. The Hill papers go far beyond RR matters to include myriad personal and business interests, including Minn. iron mining, Iowa coal mining, western timber and oil interests, publishing, agriculture, and art collecting. The deadline for applications is Oct. 1, 1991; awards will be announced in early 1992. Info.: W. Thomas White, Curator, JJHRL, 80 W. 4th St., St. Paul MN 55102 (612-227-9531).

OLD STURBRIDGE VILLAGE will conduct its 2nd Field School in Architectural History from June 3 to July 3. Participants will receive intensive instruction in the theory and methods of documenting and recording historic structures and landscapes. Through a lecture program, workshops, field trips, and fieldwork, students will be encouraged to develop an integrated approach to the study of architectural history combining social, cultural, and economic history with the study of material culture. Learn and practice the skills required to thoroughly document historic buildings: documentary research, photography, production of measured drawings, and strategies for selecting the most appropriate illustration/drafting techniques. The school is open to students, professionals, and those with an avocational interest in historic architecture. Academic credit equal to one undergraduate or graduate course is available through the Geography Dept. at Clark Univ., Worcester, Mass. Info.: Myron O. Stachiw [SIA], Director, Field School in Arch. Hist., OSV, 1 Old Sturbridge Village Rd., Sturbridge MA 01566 (508-347-3362, FAX 508-347-5383).

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Jan. 5, 1929 construction photo of RR overpass (Bay St. subway) in Toronto Rwy. Lands. In background, CP's Royal York Hotel nears completion. R. Arliss Flint Photograph Collection, OSIA.

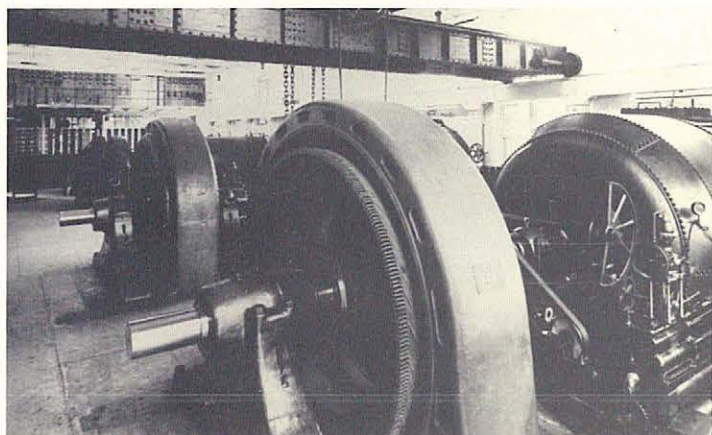
FLINT RR PHOTOS GO TO OSIA. The R. Arliss Flint Photograph Collection, 1921-1935, is an outstanding collection of construction photos of Toronto's "Railway Lands" (from Cherry St. to Bathurst St.). It was donated in Sept. 1990 to the Ontario Society for IA by Marjorie Flint of Toronto. The collection documents much of Toronto's railway landscape during its heyday in the Age of Steam, including the erection of landmarks such as Toronto's Union Station (1927), the Royal York Hotel (1929, see above), and Toronto Terminal Railways Central Heating Plant (1929), recently demolished. The photographs are being researched and cataloged, preparatory to exhibition. Info.: Ian Wheal [SIA], OSIA, 567 Jones Ave., Toronto, Ont. M4J 3H2.

EDWARD F. GAY COLLECTION. The Canal Museum, Easton, Pa., has accessioned the 260-item collection of civil engineer Edward F. Gay. Gay was born in Hampton Village, Oneida County, N.Y., in 1803, and worked on many transportation projects. He received initial training under Canvas White on the Eastern Div., Erie Canal, and worked on projects in Pa., N.J., and New England. He lived until the 1870s. The papers span his career from the mid-1830s to the 1870s, and include material on his major projects:

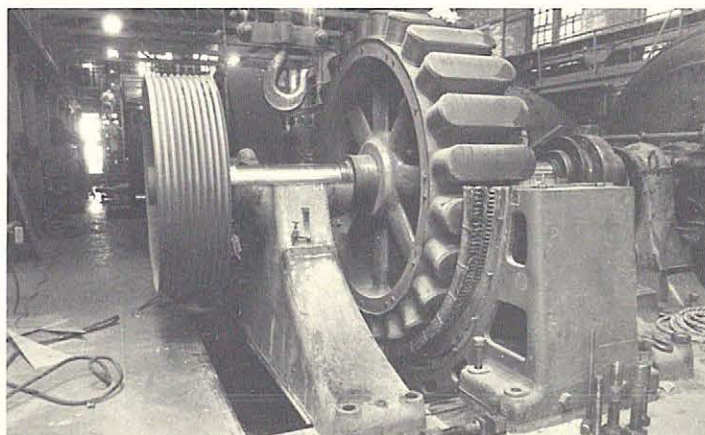
In 1833, Gay became chief engineer of the Columbia & Phila. RR, and was associated with the C&P through the 1840s. During the same period he was chief engineer for both the privately built Susquehanna & Tidewater Canal and the 1839 enlargement of the Union Canal. In 1852 he faced the most challenging project of his career: construction of a gravity RR system for the Mine Hill & Schuylkill Haven RR. His papers include proposals for the project and letters from John Roebling providing suggestions for the line. The papers also document his work on the Delaware and the Lehigh canals and the Allegheny Portage RR. Gay was appointed chief engineer for the Pa. canal system in 1858. There is substantial correspondence from family members concerning the oil business in western Pa. during the 1860s.

SURPLUS PA. TOPO MAPS. Thanks to an ongoing program to revise and update Pa.'s topographic maps, the Pa. Bureau of Topographic & Geologic Survey announced in *Pennsylvania Geology* that it has a number of outdated quadrangles and surplus orthophotomaps. The Survey also has duplicate geologic maps. All are available free while supplies last. Info.: Library, Dept. of Environmental Resources, BTGS, POB 2357, Harrisburg PA 17105-2357.

WWP's mammoth turbine-generator goes to Henry Ford Museum



Above: The Washington Water Power Co.'s Monroe Street turbine-generator units, then and now. At left is a c1920s view of the Spokane powerhouse interior, with the 1903 GE units Nos. 4 and 5 [NR, HAER] in the foreground. At right, No. 5 is partially disassembled for shipment to the Henry Ford Museum.



Below: Part of the disassembled generator is moved to the powerhouse door. Photos courtesy WWP.



I got home from work at the Henry Ford Museum one day last June and picked up my Spring, 1990 *SIA Newsletter* and thumbed through it looking for interesting articles. When I flipped the issue over, I noticed on the back a photo of two large, 1,250-KW General Electric generators involved in a powerhouse redevelopment project, and thought, "How sad. Another set of important large-scale electrical equipment that is about to be lost because it's too big for anyone to save."

I read the accompanying article and learned that these machines had been in service since their original 1903 installation in downtown Spokane's Monroe Street Powerhouse. The associated hydraulic turbines were horizontal, double-Francis type, and were manufactured by Stillwell-Bierce & Smith Vaile Co. The owner, Washington Water Power Co. (WWP), was pursuing plans to rebuild the Spokane River installation. The State Historic Preservation Officer had determined that units No. 4 and No. 5 were eligible for the National Register of Historic Places, and therefore their disposition was critical in any powerhouse upgrade. In addition to documenting the units for the Historic American Engineering Record, they were being offered *free* to any worthy museum. I put the newsletter aside and commented later to a friend that it was too bad that this type of machinery never seemed to be preserved. She asked, "Isn't the museum doing a new exhibit on power? Could they be used there?"

The Henry Ford Museum has long been recognized as having a great collection of power machinery and machine tools. However, this material has been displayed in such a way that the average person could not really appreciate it. Early in 1989, the museum began to plan a new exhibit on manufacturing and power generation, scheduled to open in Dec. 1992. Entitled "Made in America," the exhibit would cover 50,000 sq. ft. Its goal would be to make the collections accessible to the average visitor and to illustrate how manufacturing and power generation have shaped American society since colonial times. Hydroelectric power certainly has played a significant role in that story, but the museum had no artifacts that really conveyed this importance.

I first thought "No, they're too big and located too far away." But I soon began to consider their use; maybe they really weren't as big as they looked in the photo. After all, we did want to have a section of the exhibit deal with hydro-

electric power, especially in the West. The machines would fit the plan perfectly.

By the next morning I was absolutely convinced that we needed one of these stellar artifacts. I still had to persuade others in the project that it wasn't totally insane to drag something this large (I didn't yet realize *how* large) back to Michigan from Spokane, Wash. The project's other curator, Bill Pretzer, was enthusiastic, but wanted more information. He grew up in Calif. and knew the importance of hydroelectric power in the West.

I contacted Roger Woodworth, license administrator at Washington Water Power (WWP), and within a day had important additional data on the equipment. It was better than we had thought. The museum's Collection Committee unanimously voted to explore the matter further.

I flew to Spokane and toured the Monroe Street Powerhouse. I saw the machines. They were perfect and they were huge! A quick measurement showed that they were 40 ft. long and over 12 ft. in diameter. But they were fundamentally *right*, having about them that intangible feeling that would interest and move museum visitors, leading them to further inquiry. They would be the correct artifact, intellectually and emotionally, for the exhibit.

The Committee voted for acquisition. The move was accomplished over several months, with the generator arriving almost immediately. It alone weighed over 50 tons. Later came the double horizontal mixed-flow turbine, along with the control panels and one of the original main disconnect switches. It had taken five flatbed trucks, two of which were oversized. Museum staff were impressed—perhaps overwhelmed—at the sheer size and weight of it all.

Exhibit design and planning has continued since then. Albert Woods Design Associates designed the exhibit and the machine's setting. Visitors will be able to look into the turbine through an access hole cut in the side. A video presentation and other materials will provide context.

This is a story of institutional cooperation with a very happy ending. WWP donated not only the turbine, but also covered all of the costs associated with the removal from the powerhouse and placing the parts on the museum's trucks, saving the museum thousands of dollars and making the project feasible. For its part, the museum was in the rare position of being able to provide exhibit space for a significant but



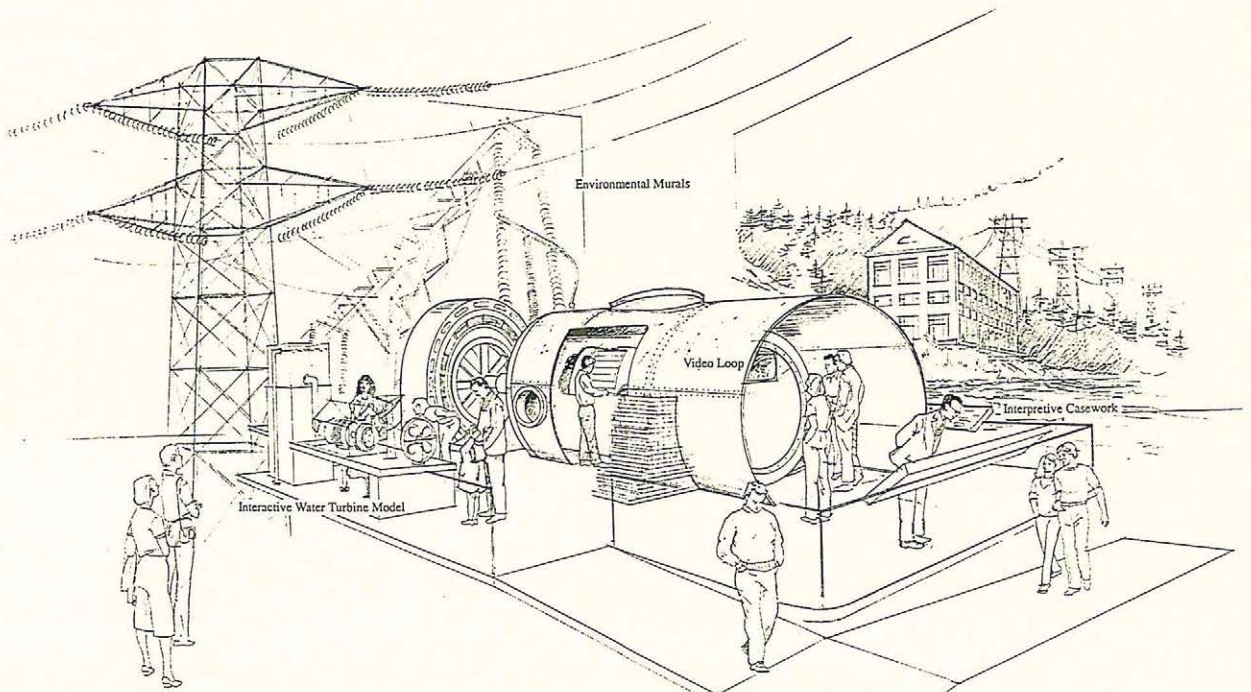
A crane lowers part of the generator shipment on a truck outside the Monroe Street powerhouse. Photo courtesy WWP.

enormous and very heavy artifact. This long-distance, cooperative effort might never have happened had it not been for the SIA and its *Newsletter*. Without SIA's artifact "marriage column," the happy parties would never have met and an important IA piece lost forever. J.B.

EDITOR'S NOTE: Roger D. Woodworth, WWP's License Administrator, reports that the company has been delighted to contribute so significantly to the Museum's project and is excited by the recognition this important piece of corporate and city history will receive. Representatives of the key regulating agencies, including the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, SHPO, and National Park Service, also have been pleasantly surprised by the success of this extra effort to preserve an industrial and engineering artifact.

The other historic Monroe Street unit, No. 4, is in temporary storage. Pending other disposition, it remains available for sale or donation to those interested in using or otherwise maintaining its historic integrity. Those interested should contact Roger D. Woodworth, License Administrator, WWP, POB 3727, Spokane WA 99220 (509-482-4138). For information about the museum exhibit and installation, contact John Bowditch [SIA], Curator of Industry, Henry Ford Museum & Greenfield Village, POB 1970, Dearborn MI 48121-1970.

"The Electrical Network," the exhibit designed for the Henry Ford Museum to display and interpret turbine-generator Unit No. 5. Courtesy Albert Woods Design Associates.



SITES & STRUCTURES

OHIO LIGHT STATIONS. The Ohio Historic Preservation Office has contracted to have National Register nominations prepared for four historic light stations, rounding out a comprehensive study of the history of the state's 19th- and early-20th-C light stations. Included in the group are the Conneaut Harbor West Breakwater Light, the Keeper's Dwelling at the Conneaut Harbor Light, the Cleveland East Pierhead Light, the Huron Harbor Light, and the Fairport Harbor West Breakwater Light. The work will be done by Carol Poh Miller [SIA], who prepared a historic context for Ohio light stations in 1989. Ohio's oldest light, Marblehead (1821), has been listed on the NR since 1969. The project is financed by a federal appropriation to Ohio from the Lighthouse Fund, established by Congress in recognition of the bicentennial of the federal lighthouse program.

OOPS, SORRY, DEPT. Workers under contract to the Public Works Dept. were using explosives in an attempt to blast out a rock mass in New Brunswick's Fundy National Park in December when "something went wrong." Instead of rock, they blew up the last historic covered bridge in Canada's national park system, sending the 1909 structure to the bottom of Point Wolfe River gorge as a heap of splintered lumber. The federal government reportedly will construct a replacement.

SEATTLE STIRRINGS. Restoration possibilities for the large and ornate 1906 King Street Station [NR] will be enhanced if proposals to make it a transportation center succeed. Originally built for James J. Hill's Great Northern Ry. and owned by its successor, Burlington Northern, the clock-towered station continues to provide RR service, with four Amtrak trains in and four out daily. The new proposal, promoted by the Washington Assn. of Railroad Passengers (WashARP), envisions the station as a hub for buses and intercity and commuter passenger trains. The city is pursuing a \$50,000 grant to study the proposal. Info.: Charles Mott, President, WashARP, POB 70381, Seattle WA 98107 (206-542-8541).

TERRY WATER-WHEEL REBUILT. A \$32,000 project to reconstruct the 160-year-old Eli Terry Jr. water wheel in Plymouth, Conn., has been completed, according to the president of the Plymouth Historical Society, owners of the wheel. The wheel is 7 ft. wide and 24 ft. in diam. It was used in the Eli Terry Jr. clock shop and, later, in the Eagle Lock shop. It is among the oldest extant water wheels, and was purchased by the society for \$10,000 in 1985. The work included replacing wood, and refitting a pinion wheel, bucket restraints, cross-shafting, and other metal fixtures. Eventually the society plans to have trunnions built.

The society also signed a lease on a building to house its Maurice Minor steam engine, built in Hartford in 1852.

V.C.D.

PA. BREWERY TOURS. Two tours of breweries in Pennsylvania are scheduled for spring/summer 1991. On May 4, "Brewery Tour I" will visit the standing breweries that made Wilkes Barre and Scranton a brewing center for Luzerne and Lackawanna counties. The tour includes the only active brewery in the region. \$15. Info.: Wyoming Hist.

& Geog. Soc., c/o Mary Ruth Kelly, 49 S. Franklin St., Wilkes Barre PA 18701, or Lackawanna Hist. Soc., c/o Mary Ellen Calemme, 232 Monroe Ave., Scranton PA 18701. On July 11, "Brewery Tour II" will visit the standing breweries of Pittsburgh and "Allegheny City," including two that are still operating. \$20. Info.: Rich Wagner, POB 22, Lock Haven PA 17745.

Pipeline analog is ASME Landmark

The Southern Gas Assn./Pipeline & Compressor Research Council (SGA/PCRC) Analog Facility has been designated a national historic mechanical engineering landmark by the American Society of Mechanical Engineers (ASME). Operated by Southwest Research Institute (SwRI) in San Antonio, Tex. since its origin in 1955, the analog was the first device of its kind applied to natural gas pipeline systems and has been used to create or modify more than 10,000 installations worldwide in the natural gas, petroleum, chemical, and nuclear industries. The most recent configuration of the analog is in daily use and is open to the public. The original analog consoles are now in a permanent exhibit at SwRI, adjacent to the modern facility.

Analog computers predict physical behavior by simulating it in analogous processes instead of solving equations. This analog uses electricity flowing through coils, capacitors, and resistors to model the fluctuating flow of compressed fluids, and is remarkable for being used long after other analogs were replaced by digital computers.

In the late 1940s and early 1950s, the natural gas industry was faced with growing demands for energy. To meet these demands, many pipeline companies had plans for adding hundreds of thousands of horsepower between existing compressor stations on their pipelines.

Many of the facilities built in this period experienced such severe piping vibration that the surrounding area literally rumbled. The culprits were the high pulses generated by reciprocating compressors. These acoustic waves built up in the piping like resonating organ pipes, having as they do varying lengths, each with its own pitch. When the wave frequencies coincided with the pipes' mechanical resonance, the result was vibration potentially harmful to machinery, piping, and personnel.

SwRI developed an electrical analog model as an analytical tool that could predict the problem before it occurred in the field. The analog relied on the direct analogy between the equations governing transient flow in gas piping systems and current flow in electrical transmission lines. Lengths of pipe were simulated by wire coils, and fluid properties within the pipes by electrical capacitors. The actions of reciprocating compressor cylinders were duplicated with capacitor pumps. By combining capacitor pumps with the other electro-acoustic analogies, a prototype compressor station simulator was created. Pressure was represented by the voltage in the electrical circuits, and current represented mass flow. The capacitor pumps injected voltage pulses into the model just as pressure pulsations at different points in the piping could be measured, and the effects of piping changes could be rapidly evaluated. It was now possible to design piping systems free of damaging pulsations and vibrations. The system continues to provide an innovative way to design piping systems in accelerated real time with an analogy easily understood by piping designers.



SOCIETY FOR INDUSTRIAL ARCHEOLOGY NEWSLETTER

PUBLICATIONS OF INTEREST

A SUPPLEMENT TO VOL. 19, NO. 4

WINTER 1990

Compiled by John M. Wickre

GENERAL

Judith A. Adams, **The American Amusement Park Industry: A History of Technology and Thrills.** Twayne (Boston), 1991. 225p, illus., list of industry assns. and publications, chronology, bibliog., index. \$28/12 pap. Incl. early mechanized amusement apparatus, World's Columbian Exposition, engineering and environmental systems of Walt Disney World.

B. L. Anderson & P. W. Pilling, **"Spanish Entrepreneurs and British Technology in Early XIXth Century Andalucia."** In *The Journal of European Economic History* 19, Spring 1990, p35-72.

Scott P. Dulman, **"The Development of Discounted Cash Flow Techniques in U.S. Industry."** In *BHR* 63, Autumn 1989, p555-87.

Robert I. Goler, Susan Hirsch, and Sam Bass Warner, Jr., **A City Comes of Age: Chicago in the 1890s.** Chicago Historical Soc. (Chicago IL), 1990. 176p, illus. \$18 pap. Growth of city; labor.

Magazine of History for Teachers of History 5, Winter 1991, incl. lesson plan on tractor vs. automobile purchase (p36-8) & article discussing photographs as historical documents (p7-12, with 2 IA examples: Florida convict labor leased for phosphate mining & pine forest industries [turpentine], & farmers bringing grain to Red River Valley [MN/ND] grain elevator).

David Nicholas, **"Of Poverty and Primacy: Demand, Liquidity, and the Flemish Economic Miracle, 1050-1200."** In *AHR* 96, Feb. 1991, p17-41. Incl. wood textile mfg.; canals.

TRANSPORT

Gordon Boyce, **"The Development of the Cargo Fleet Iron Co., 1900-1914: Entrepreneurship, Costs and Structural Rigidity in the Northeast Coast Steel Industry."** In *BHR* 63, Winter 1989, p839-75. Gt. Britain.

George H. Foster and Peter C. Weiglin, **Splendor Sailed the Sound: The New Haven Railroad and the Fall River Line.** Potentials Group, Inc. (San Mateo CA), 1990. 384p, maps, charts, illus., appendixes, index. \$55.

John Gruber, **"Car Ferry Finale: Badger Departure Sinks Kewaunee Gateway, GBW's Lake Route."** In *Mid-Continent Railway Gazette* 24, Mar. 1991, p6-11. Railroad car ferry service across Lake Michigan begun 1892; last trip Nov. 16, 1990. Painting of 1930s-era scene with locomotive switching cars into car ferry (shown on p10-11) avail. for \$35 donation (\$100 for signed print) to Mid-Continent Ry. Historical Soc. (POB 55, North Freedom WI 53951).

Stephanie Jones, **Trade and Shipping: Lord Inchcape, 1852-1932.** Manchester Univ. Pr. (NY), 1989. 230p, illus., appendixes, sources, index. \$60. Biog. of James Lyle Mackay, later Lord I; British shipping; India, 1874-1893; Britain after 1893. Rev.: *BHR* 63, Autumn 1989, p696-8.

Max C. "Mickey" King, **"Fireman's Friend."** In *The Mainstreeter* 10, Winter 1991, p5-19. Wonderful account of trying to fire an NP W-3 by hand on the NP Sumas line, Washington state. Biog. of King, p20-21; operation of duplex stoker, p22. [Avail.: Northern Pacific Rwy. Historical Assn., 11232 Washington St. NE, Blaine MN 55434.]

Paul J. Miranti, Jr., **"The Mind's Eye of Reform: The ICC's Bureau of Statistics and Accounts and a Vision of Regulation, 1887-1940."** In *BHR* 63, Autumn 1989, p469-509.

Roger Olmsted, **Scow Schooners of San Francisco Bay.** Calif. History Center Foundation (21250 Stevens Creek Blvd., Cupertino CA 95014), 1988. 112p, illus. \$15 (\$18 ppd.)

Philip Ross Hastings, **The Boston & Maine.** Locomotive & Railway Preservation (POB 95, Richmond VT 05477), 1991. 208p, illus. \$49. Over 200 photos. The first of a multi-vol. series.

Carolyn V. Platt, **"Columbiana Corridor."** In *Timeline* 7, Apr.-May 1990, p16-27. Sandy & Beaver Canal, Bolivar, Ohio - Glasgow, Pa., active c.1846-1854.

Richard Saunders, **"Pedal Power: The Kiddie Car."** In *Timeline* 6, Dec. 1989 / Jan. 1990, p16-25. Toy metal pedal-car mfrs., esp. Toledo and Cleveland, Oh.; illus., some color, incl. back cover; b&w factory scenes.

Gregory L. Thompson, **"Misused Product Costing in the American Railroad Industry: Southern Pacific Passenger Service Between the Wars."** In *BHR* 63, Autumn 1989, p510-54.

William H. Thompson, **Transportation in Iowa: A Historical Summary.** Iowa Dept. of Transportation (Ames IA), 1989. 315p, illus., maps, charts, index, plus loose folded map of registered highway routes, with colored table of related signs [e.g., "Tall Corn Trail"] 1914-1935. \$25. Railroad, road, river, & air transport, 1840s-1980s. Avail.: IDOT Office of Accounting, 800 Lincoln Way, Ames IA 50010.

John H. White, Jr., **"Party-Time Trolleys."** In *Timeline* 6, Dec. 1989 / Jan. 1990, p44-53. Special cars for street rwy. excursions, esp. 1890s.

MATERIALS

Ross F. Allen, James C. Dawson, Morris F. Glenn, Robert B. Gordon, David J. Killick, and Richard W. Ward, **"An Archeological Survey of Bloomery Forges in the Adirondacks."** In *IA* 16, 1990, p3-20. Wrought iron, Lake Champlain area, NY, 19th C.: "the highest technological development of the ancient bloomery method used for direct reduction of iron ore to metal."

Business History 32, July 1990, is special issue on **mining and metallurgy**:

- Charles Harvey & Jon Press, **"Issues in the History of Mining and Metallurgy."**
- Derek Matthews, **"Serendipity or Economics? Tin and the Theory of Mineral Discovery, 1800-1920."**
- Roger Burt, **"Mineral Production, Organization and Technological Change: The Coeur D'Alene District of Idaho, 1890-1933."**
- Edmund Newell, **"Copperopolis: The Rise and Fall of the Copper Industry in the Swansea District, 1826-1931."**
- Charles Harvey & Jon Press, **"The City and International Mining, 1870-1914."**
- Simon Katzenellenbogen, **"Southern African Mining Interests in Australia before 1939."**
- Trevor Boyns, **"Strategic Responses to Foreign Competition: The British Coal Industry and the 1930 Coal Mines Act."**

— Alexander C. Dow, **"Metal Mining and Canadian Economic Development before 1939."**
[British, subscriptions avail. from Frank Cass, c/o Allen Press, POB 368, Lawrence KS 66044]

John Fahey, **Hecla: A Century of Western Mining.** Univ. of Wash. Pr. (Seattle), 1991. 256p, illus., maps, notes, bibliog., index. \$25. N. ID mining co., Coeur d'Alene dist., 1885-present.

Thomas E. Leary, **"The Work of Rolling Rails in the 32" Mill at Bethlehem Steel's Lackawanna Plant: Industrial Archeology and Labor History."** In *IA* 16, 1990, p39-54. Change and continuity at NY mill, c.1903-1977; suggests previous interpretations of steel industry may have overemphasized "deskilling."

MISCELLANEOUS INDUSTRIES

Scott Anfinson, **"Archaeology of the Central Minneapolis Riverfront. Part 1: Historical Overview and Archaeological Potentials."** In *The Minnesota Archaeologist* 48, No. 1-2, 1989. 16Op, illus., maps, site inventory, chronology. \$12. Avail.: Minnesota Archaeological Society, Fort Snelling History Center, St. Paul, MN 55111. **"Part 2: [Archaeological Explorations and Interpretive Potentials]"** forthcoming ca. June 1991.

Business History 32, Oct. 1990, is special issue on **textile industries** since 1870:

- Mary B. Rose, **"International Competition and Strategic Response in the Textile Industries since 1870."**
- William Mass & William Lazonick, **"The British Cotton Industry and International Competitive Advantage: The State of the Debates."**
- D. T. Jenkins & J. C. Malin, **"European Competition in Woollen Cloth, 1870-1914."**
- Alex J. Robertson, **"Lancashire and the Rise of Japan, 1910-1937."**
- Marguerite W. Dupree, **"Struggling with Destiny: The Cotton Industry, Overseas Trade Policy & the Cotton Board, 1940-1959."**
- John Singleton, **"Showing the White Flag: The Lancashire Cotton Industry, 1945-1965."**
- D. A. Farnie, **"The Textile Machine-Making Industry and the World Market, 1870-1960."**
- Stanley Chapman, **"The Decline and Rise of Textile Merchanting, 1880-1990."**

[British, subscriptions avail. from Frank Cass, c/o Allen Press, POB 368, Lawrence KS 66044]

R. S. Fitton, **The Arkwrights: Spinners of Fortune.** Manchester Univ. Pr. (NY), 1989. 336p, maps, illus., charts, bibliog., index. \$70. Richard Arkwright and Richard II; English cotton textiles; "masterful" analysis of the work organization, according to rev. in *BHR* 63, Autumn 1989, p693-5.

Danny Fulks, **"Moonshine Reflections."** In *Timeline* 7, June-July 1990, p42-54. Illegal whisky, Appalachia, 18th-C to present; incl. process, recipe.

J. H. Galloway, **The Sugarcane Industry: An Historical Geography from its Origins to 1914.** Cambridge Univ. Pr. (NY), 1989. 279p, maps, illus., tables, appendixes, references, index. Rev.: *BHR* 63, Autumn 1989, p706-7.

Steve C. Gordon, **"From Slaughterhouse to Soap-Boiler: Cincinnati's Meat Packing Industry, Changing Technologies, and the Rise of Mass Production, 1825-1870."** In *IA* 16, 1990, p55-67.

Edmund Herzig, **"The Iranian Raw Silk Trade and European Manufacture in the 17th and 18th Centuries."** In *The Journal of European Economic History* 19, Spring 1990, p73-89.

Connecting the North Star State: A Century of Telephony in Minnesota. Minnesota Telephone Assn. & North Star Chapter, Independent Telephone Pioneer Assn., 1988. 242p. \$30. A-Z list of individual companies; plus history of MTA, 1909-1959, p219-42. (Avail.: MTA, 386 N. Wabasha St., Suite 770, St. Paul MN 55102)

William Mass, **"Mechanical and Organizational Innovation: The Drapers and the Automatic Loom."** In *BHR* 63, Winter 1989, p876-929. The Draper Co., mfr. of cotton textile machinery, mostly 1816-1920; incl. effect of R&D.

Angelo Rulli (ed.), **Musical Boxes and Other Musical Marvels — A Decade of Enjoyment.** Music Box Society Intl. (887 Orange Ave. E., St. Paul MN 55106), 1987. 484p, illus., bibliog. \$20. Selected articles from the *MBSI Technical Bulletin*, 1975-1985. Mechanical music from miniatures to orchestrations, incl. preservation and repair. [For earlier anthology see William Edgerton, ed., **The Silver Anniversary Collection** (MBSI, 1974), 1000p, containing articles from 1949-1974.]

David A. Simmons, **"The Miller's Tale: Staley Farm."** *Timeline* 7, Oct.-Nov. 1990, p42-54. Miami County, Ohio; incl. gristmill, sawmill, distillery buildings and stone bridges; one of few surviving examples of basically unaltered pre-Civil War technology. Illus., some color.

James C. Williams, **"Otherwise a Mere Clod: Calif. Rural Electrification."** In *IEEE Technology & Society Magazine* 7, Dec. 1988, p13-19.

STRUCTURE

Susan K. Appel, **"Artificial Refrigeration and the Architecture of 19th-Century American Breweries."** In *IA* 16, 1990, p21-38. Increase in popularity of lager beer leading to large-scale mfg. with complex breweries designed by architects & engineers; refrigeration changing from underground cellars (esp. to 1860s), to above-ground icehouses (mostly 1860s-70s), to artificial refrigeration (from 1880s).

Susan K. Appel, **"Brewery Architecture in America from the Civil War to Prohibition."** Ch. 7 in John S. Garner (ed.), **The Midwest in American Architecture** (Univ. of Ill. Pr., Urbana & Chicago, 1991, \$28).

Susan K. Appel, **"Buildings & Beer: Brewery Architecture of Cincinnati."** In *Queen City Heritage* (Journal of the Cincinnati Historical Society) XLIV, Summer 1986, p2-20. Reprinted in *American Breweriana Journal* 28, July-Aug. 1987, p15-32.

Susan K. Appel, **"The German Impact on 19th-C Brewery Architecture in Cincinnati & St. Louis."** Ch. 15 (p243-256) in Charlotte Long Brancaforte (ed.), **The German Forty-Eighters in the U.S.** (Peter Lang Pub., NY, 1989, \$39).

Susan K. Appel, **The Mid-Western Brewery Before Prohibition: Development of an American Industrial Building Type.** Ph.D. thesis, Univ. of Ill. at Urbana-Champaign, 1990.

Eric DeLony, **"Bibliography of State Historic Bridge Inventories."** In *IA* 16, 1990, p68. c.32 entries.

Francis E. Griggs, Jr. (ed.), **A Biographical Dictionary of American Civil Engineers. Vol. II.** Amer. Soc. of Civil Engineers (POB 831, Somerset NJ 08875-0831), 1990. \$17 (\$12.75 members) Engineers born before 1900; 218 entries.

W. Ray Luce, **"Squaring the Circle: Octagonal Architecture."** In *Timeline* 6, Dec. 1989 / Jan. 1990, p2-15. Orson Squire Fowler, the octagonal house, gravel walls, in Ohio and other states; color photos, incl. cover.

Susan E. Maycock and the staff of the Cambridge Historical Commission, **East Cambridge.** MIT Pr. (Cambridge MA), 1989. 256p, illus., bibliog., index. \$17 pap. Rev.: *IA* 16, 1990, p77-78.

Lee H. Nelson, **The Colossus of 1812: An American Engineering Superlative.** Amer. Soc. of Civil Engineers (NY), 1990. 68p, illus., notes, index. \$25 pap. Rev.: *IA* 16, 1990, p76-7.

Graeme Outerbridge (photos) and David Outerbridge (text), **Bridges.** Amer. Soc. of Civil Engineers (POB 831, Somerset NJ 08875-0831), 1989. \$45. Photos of 45 bridges in U.S. and Europe, incl. details; 375 illus., 264 color.

Roland Paxton (ed.), **100 Years of the Forth Bridge.** Amer. Soc. of Civil Engineers (POB 831, Somerset NJ 08875-0831), 1990. Illus. \$29. Scotland.

Ronald Tobey, et al, **"Moving Out and Settling In: Residential Mobility, Home Owning, and the Public Enframing of Citizenship, 1921-1950."**

In *AHR* 95, Dec. 1990, p1395-1422. Riverside, CA; 19th-C levels of mobility continuing until 1945; drop after war attributed to long-term mortgages. See related **color cover** with bridge ("Mission Bridge" brand orange crate label).

Abbreviations used in this PoFI:

- **AHR:** American Historical Review
- **BHR:** Business History Review
- **IA:** *IA*; Journal of the SIA

Readers are urged to send all notices of pertinent publications to John M. Wickre, Compiler, Publications of Interest, SIA Newsletter, P.O. Box 65158, St. Paul, MN 55165-0158 (612-222-5628 or 224-0028).

Saving the big mill

The following reports one of the most interesting IA projects in many years. The rolling mill described unquestionably will be the largest to be preserved anywhere in the world, and among the most massive of (non-vehicular) industrial artifacts preserved off its own foundations. Tom Rick [SIA], the writer, is one of the nation's few professional dismantlers and movers of historic machinery.

R.M.V.

Homestead, Pa., Jan. 6, 1991

Since Dec. 5 I have been here on an interesting project of salvaging, for proposed later erection in a museum setting, a 48-in. universal plate rolling mill, portions of the roll tables, the pinion stand, and the steam-engine prime mover. All was installed by Carnegie Steel Co. (later US Steel) in 1898-99 and operated until Dec. 29, 1979 when the equipment was abandoned—for economical, not mechanical, reasons. (Note: we discovered later in the project that the roll stand had been replaced c1930 by one very similar to the original, as determined from the drawings.)

The mill was far surpassed in capacity by subsequent machines, but when built it was among the largest in service. Though listed as a 48-in. mill, plates up to 52 in. wide could, in fact, be rolled. Thickness capability ranged from 5/16 in. to 20 ins., and the narrowest plate the mill could roll was 5.31 ins. Maximum length of a rolled plate was 150 ft., necessitating a total table length (front and back tables) of 340 ft. These maximum capacities could not all be achieved at the same time, obviously. For example, when rolling a 20-in.-thick ingot, the width would be much less than the maximum, and the total length might not exceed 15 ft.

The rolling mill was direct-connected to the engine through the pinion stand, whose function was to take power from the engine, through gearing, to drive the vertical edging rolls at a speed synchronized with the main (horizontal) rolls. The mill was "universal" because of its ability to roll plate to a determined width as well as thickness, obviating the need for later trimming to width. Reversing of the rolling process was accomplished by reversing the steam engine—a two-cylinder, horizontal, non-condensing, double-acting machine of approximately 5,820 HP by test. Cylinders 50 in. by 60-in. stroke.; piston valves; Stephenson link reverse. All massive; the crankshaft, bare, weighs 24 tons!

My involvement with the project is to oversee the dismantling, moving, and storage of the machinery for the Steel Industry Heritage Task Force, an amalgam of many organizations and individuals dedicated to the preservation of a number of artifacts of what was, for a century, virtually the

entire economy of the region, until the early 1980s.

The machinery was built by Mackintosh, Hemphill & Co., Pittsburgh. Original correspondence indicates that the roll stand and pinion stand, with some spare parts, weighed 523 tons and was made for \$55,500, a per-pound cost of about 5.3 cents, some 1/100th of what the present-day cost would be. The weight of the engine is unknown, but all parts are weighed as they go to storage so we will know that by the end of the project. I am guessing that the total weight of the items being moved will aggregate 800 to 1,000 tons.

Beside my responsibility for seeing that the machinery is not damaged by the riggers during dismantling, I keep full records so the hundreds of loose pieces may later be reassembled with fidelity, quite possibly by someone who had no previous contact with the machinery. Where it is necessary that items be identified, several systems are used, as appropriate: paint, paint stick, tagging, or steel die stamps. I am very fortunate in having the volunteer services of Robert Craig, a retired mechanical engineer, who has undertaken the large task of identifying, marking, and cross referencing the 320 "E" size drawings of the machinery. He is making a numerical list of every pattern number used (about 1,500 to date), with cross referencing to the drawings on which the piece is shown, so when I come across a loose piece I don't recognize, of which there are a great number, I will be able immediately to identify the piece by reference to the drawing. Storage of the parts is in the the former Westinghouse main plant in East Pittsburgh.

The project has received a fair amount of press coverage, though, as always, it is terribly distressing to read the abysmal stories of the reporters, who have no idea what they are witnessing, and not the sense to listen and repeat what they are told. So much for the press. I have never had much respect for them as purveyors of *fact*. A "human interest angle" always seems to have to be incorporated, and drivel results. I wonder why a story cannot stand on its own merits?

The Homestead mill was one of Carnegie's first, and was the site of the famous labor battle in 1892, when Pinkerton guards were brought in by Henry Clay Frick, general manager of the mill, and a dozen mill workers were shot dead. The Pinkertons arrived by barge on the Monongahela River, and the brick pump house and water tower where they landed are still standing. It is the hope of the Task Force that these structures may be preserved as part of the museum complex.

When it closed in the mid-1980s, the Homestead mill employed 13,000 workers. Approximately 12 other mills closed between 1982 and 1986, depressing the whole region, which is still reeling. Homestead is a very poor community, with high unemployment, closed shops, and a generally dismal aspect. Prices reflect the times: coffee and a doughnut for \$.65, two frankfurters, \$.95. The house I am staying in, a substantial three-story brick row house, remains unsold at an asking price of \$18,000.

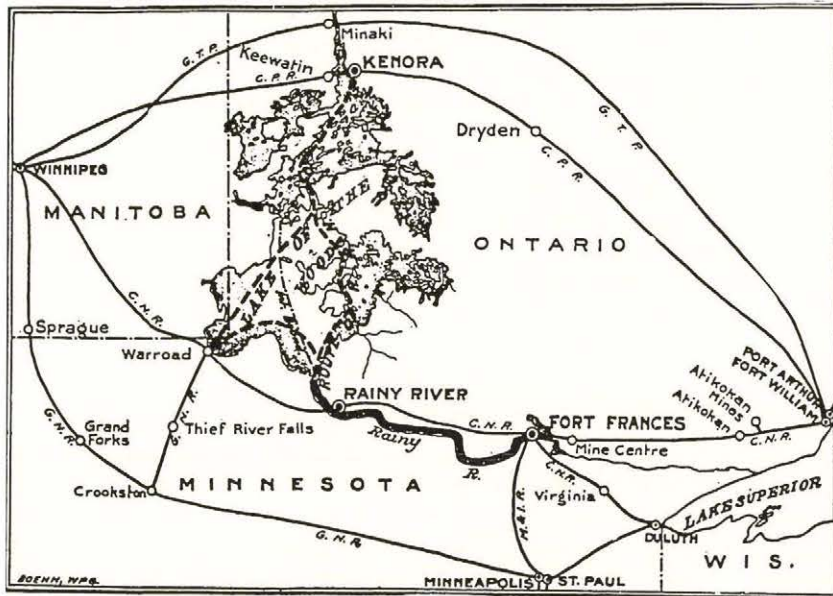
T.R.

Left: Overall view of the 48-in. mill: roll stand and roll tables in the foreground, pinion stand in the center, and the steam engine beyond.

Right: Output (east) end of the mill with parts of the pinion stand, awaiting transport to storage. Photos courtesy Randolph Harris, Steel Industry Heritage Task Force.



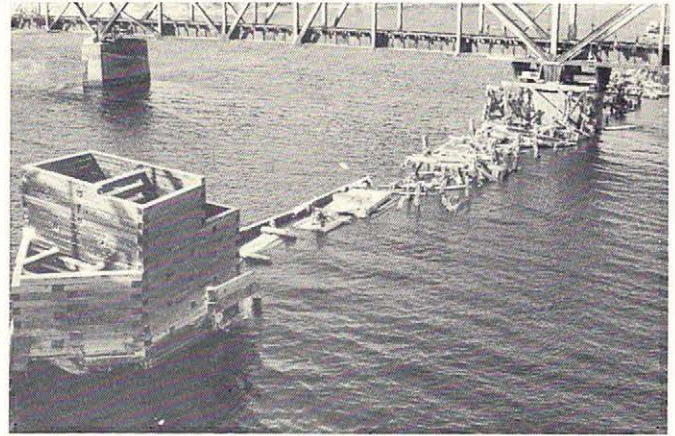
IA of a Canada-U.S. RR link is lost, saved



Above: 1913 map showing RR and steamboat lines in the Lake of the Woods-Rainy River area, where Manitoba, Ontario, and Minnesota meet. *Courtesy Rainy River Record.*

Right top: Wooden cribbing and pilings, following the 1988 removal of the international CN swing bridge at Rainy River, Ont. *Courtesy Rainy River Record.*

Right bottom: Minnesota's Canadian depot: the c1914 Canadian Northern (later Canadian National) station at Warroad, Minn. *Thomas Harvey photo (1981) for Minnesota Historical Society.*



Inland lake and river steamers and steam locomotives were an important part of the Rainy River-Lake of the Woods region where Minnesota, Ontario, and Manitoba meet. Over the last decade or so, a good part of the IA of that heritage has been removed. In 1988 an era ended in Rainy River, Ont., when wooden cribbing and pilings originally used to hold open the Canadian National RR swing bridge were removed. Until the late 1940s, that international bridge linking Ontario with Minn. was opened to provide passage for large boats that plied the waters of Lake of the Woods and Rainy River, calling at Fort Francis, Kenora, Rainy River, Warroad, and other points.

Two notable structures, however, have survived and have been restored by their local communities: brick stations built by the Canadian Northern Ry. (AKA the "McKenzie & Mann" after its promoters) in Warroad, Minn. (c1914; NR) and 58 kilometers east in Rainy River (1918). Both were designed along similar lines by Winnipeg architect John Schofield, who planned many CN stations. The CN's Winnipeg-Rainy River line on which both were located was built in 1902.

Restoration of the Warroad station was completed in 1985 at a cost of \$375,000. It now houses the city council chambers in the former waiting room and the city library in the baggage room. Upstairs is a museum. Ironically, the only complaint has been that council meetings occasionally have been disturbed by the noise of passing trains. In spring 1990, the Rainy River station (also the former CN Rail divisional office) was opened as a multi-use community facility. Although passenger service ended in July 1977, the rail line maintains a good business with grain freights.

I.W.

Buffalo's Natl. Landmark tug faces uncertain future

Few tugboats built in 1943 would seem eligible for the National Register, no less National Historic Landmark status. But this is the famous ocean-going tug *Major Henson*, which crossed the Atlantic in a convoy to England in 1944 and towed two barges across the Channel as part of the Normandy invasion. It anchored off the French coast for three days, and on June 9th a gunner on the tug shot down a Luftwaffe fighter. The following weeks were spent making Channel supply runs. In 1946 the tug was assigned to the Buffalo Dist., U.S. Army Corps of Engineers, and the *Henson* became the *John F. Nash*, in honor of the district's senior engineer and chief civilian assistant from 1932 to 1941.

The *Nash* remains in operating order today and is the only surviving, intact tugboat from the Normandy invasion whose active participation in the battle has been documented. The Corps has designated the vessel as surplus property, in a cost-cutting effort, and thus its future is unclear. The national level of significance is being documented by the National Maritime Initiative of the National Park Service, and it is hoped that the potential for landmark designation will encourage the Corps to find an appropriate home for the tug.

Preservation Report, Buffalo

SIA Newsletter, Vol. 19, No. 4, Winter 1990

SIA AFFAIRS

ROYALTIES TO SIA. The Society is pleased to announce receipt of the 13th royalty check for \$107.72 from sales of *Historical Archaeology: A Guide to Substantive and Theoretical Contributions*, edited by Robert L. Schuyler [SIA] (\$27.50 ppd. from Baywood Pub. Co., Inc., Amityville NY 11701).

LOCAL CHAPTER COORDINATOR. Fred Quivik is now the SIA Board's Chapter Coordinator. Anyone interested in forming an SIA chapter should contact Fred at 7301 Germantown Ave., Phila. PA 19119 (215-242-3106).

HERBERT C. DARBEE

Herbert C. Darbee, 80, died Jan. 29, 1991 in Columbus, Ohio. He had moved there to be near his son, Jeff, following a stroke in 1985. Born in Baltimore and raised in Brooklyn and western Conn., Herb received a B.A. in English from Williams College in 1933 and an M.A. in English from Yale in 1942. He taught at Northwestern Univ. and other schools in Ill. and Conn. until 1954, when he was appointed curator at Old Sturbridge Village. In 1965 he became the first staff member of the Conn. Historical Commission, working there until 1976, when he retired as associate director.



Herb was a charter member of the SIA and attended the first annual conference at Cooper Union. According to Jeffrey, "SIA was one of the organizations he valued and enjoyed the most, and his years of association with SIA and the New England chapters brought him great joy."

Contributions may be made to the Southern New England Chapter SIA, 81 Chapman St., Wollaston MA 02107.

Remembering Herb

No one ever took on a task more cheerfully or performed it more thoroughly than Herb Darbee did. Luckily for the SIA, and for all who care about objects of the industrial past, it was often his job, and always his passion, to know and to preserve the tangible reminders of production.

At Herb's memorial service in Woodstock, Conn., John Curtis of Old Sturbridge Village recalled travelling to western Maine with Herb, during a snowstorm, to recover an early turbine. Far from deterring Herb, the snow amused him. Deep snowdrifts over the wheelpit? What a lark. Three feet of ice to chip away to get to the turbine? "Lucky us," was Herb's opinion. He did not rush through the job to get out of the cold, nor consider postponement and the possible loss of the turbine. All of us know something of that thrill of discovery that Herb so exulted in, but few can claim as much tenacity in the less thrilling but more rewarding work that follows—the work that forges knowledge from discovery.

Herb was one of industrial archeology's pioneers. When I

came to Connecticut in 1978 to conduct the HAER inventory, the state Historical Commission's existing survey included some 200 entries for factories, dams, lighthouses, bridges, canal locks—the full panoply of IA concerns. At the bottom of every one of those entries was the name "H.C. Darbee." Half in gratitude, half in shock, I asked him why he accorded such care to these places. The answer: "I never thought that history had to leave out what most people did." Herb recorded those sites in 1966, a full five years before those welcome *pronunciamenti* on the state of IA art began to issue forth from Room 5020 at the (then) Museum of History & Technology. And Herb took that snowbound trip to Maine almost a decade before the founding of SIA.

Herb was a man of many parts. If you knew him through his work or the SIA, you could not help but be astounded by the range of his other commitments and service. Herb had a hand in every community organization in northeastern Connecticut. One evening, rushing between meetings, Herb arrived at a posh tea in his Scoutmaster's uniform. Perhaps an eyebrow or two arched skyward, but it was Herb's gift to make all grateful for his sincere attention, even if that attention included the gentle puncturing of pretension.

Herb was one of the first to practice industrial archeology, and he is now among the first to leave. We are much the richer for his time among us. He showed the way with humor, with dignity, and with relentless purpose. We are all in his debt, and we will not forget.

Matthew W. Roth

MICHAEL B. FOLSOM

Michael Brewster Folsom, 52, died suddenly from a cerebral hemorrhage on Dec. 12, 1990. He was a longtime SIA member, serving as secretary from 1980 to 1983 and as president of the Southern New England Chapter. A native of New



York, Michael graduated from Antioch College, Ohio, in 1961, and received a doctorate in English at the Univ. of Calif. at Berkeley in 1972. He moved to Boston in the late 1960s to teach in the humanities department of MIT.

In 1980 Michael founded and became the first executive director of the Charles River Museum, Waltham, Mass. The museum is now an important center for the collection and interpretation of the

history and archeology of the Charles River Basin. Michael's study of the industries and the people of the Waltham area led him to a research position at Brandeis Univ. during the middle 1980s. From the late 1980s on, he worked as a free-lance exhibit developer and public historian. At the time of his death he was coordinator of education programs at the Tsongas Industrial History Center, Lowell National Historical Park.

Teaching children about the interaction between machines and people was one of Michael's special interests. At the time of his death he was helping the Tsongas Industrial

History Center in Lowell, Mass., to develop ways to help children understand water power and its role in the industrialization of early New England. He was active in the development of curriculum materials while at the Charles River Museum, and was a major impetus behind the SIA's curriculum project, *People, Places, Power*, funded by the NEH.

In addition to his scholarly writings and presentations, Michael also was active in survey work. He was project director for a Middlesex Canal survey in 1979, for the HAER survey of the Boston Manufacturing Co. mills in Waltham, 1978-80, and for the Waltham Historical Resources Inventory by the Mass. Historical Commission, 1984-85.

He leaves his wife, Marcia, and two sons. Donations in Michael's name may be made to the Charles River Museum of Industry, 154 Moody St., Waltham, MA 02154.

Theodore Z. Penn

Remembering Mike

I

Mike Folsom delighted in the exploration that marks a true disciple of IA. He and his wife Marcia once encouraged SNEC members to camp on the lawn of their Vermont summer house so that we could make an expedition to visit the traditional local industry, a wooden bowl and fence-post mill, that Mike had found just over the mountain from Bethel. The next summer Mike led a party up through the brush to track a derelict copper mine and smelter at Ely, Vt. he had discovered in his "spare" time.

Mike was an idea man, a probing and provocative scholar who inspired colleagues and students alike to consider the human as well as the material aspects of industrial history. Brimming over with intellect and curiosity, he constantly sought new insights, and he shared the enthusiasm of his discoveries with us all. He shall be greatly missed.

Helena E. Wright

II

When I joined SIA twelve years ago one of my new friends turned out to be Mike Folsom. We had been brought together at the National Museum of American History to plan and implement the SIA education program. It took only a few minutes with Mike to realize how close were our visions of a children's museum of work history. We talked of a lively curriculum, of giving tools to kids, interviewing workers, and exploring working places. We dreamed of somehow introducing into children's lives an appreciation of craft. We dreamed of reconnecting youngsters and elders, as it once had been, through work. We dreamed a lot, Mike and I.

I can still see him in his museum, in the engine and boiler rooms of the Boston Manufacturing Company that were now the home of the Charles River Museum of Industry. We talked and planned among the immense boilers, the old fire engine, steeple clocks and watchmaking lathes, among the books, wooden patterns, bulging file folders, old tools, and gears, and a fly-ball governor, and hundreds of yellow boxes of slides and bags of rice cakes. He loved the fact that his desk was right under the red brick smokestack that towers above the museum and marks its place from almost anywhere you stand in Waltham. He envisioned the steam engines that might run there again someday, and joked about commuting back and forth between Waltham and Boston on the little

0-6-0 Mike wanted to buy for the museum to run on the track alongside the parking lot. We would take turns being engineer and fireman.

Mike loved his work with the teachers who came to us those two summers. He spent every day with them and it was clear that what Mike wanted to be doing more than anything else was teaching. He enlivened our days with history, and literature and the workings of machinery (and, yes, a little utopian socialism). He made ideas on museum education programs come to life.

I was new to industrial archeology, and Mike became not only a collaborator in the museum and curriculum work, but a mentor. Our trips around Boston, to Lowell, Saugus, and the old shoe factories of Lynn were like having an SIA tour every day. I went to my first SIA meeting with Mike, in Harrisburg, and we met at others after that. He was one of the reasons I went.

I will find it strange visiting Boston now without Mike being there. And when I arrive at SIA meetings from now on, I'll still search the crowd for those intense dark eyes and smiling, bearded face. I'm sure many of us will.

David Weitzman



"WORKPLACES: A Conf. on Reusing Industrial Sites Cleanly" will be held June 14 in Chicago's Bismarck Hotel, simultaneously with the SIA annual conf., and SIA conferees may be interested in attending. "Workplaces" will explore problems involved in returning factories, mills, and machine shops to productive use. The route to economic, social, environmental, and esthetic benefits through such reuse can be blocked by site contamination. Uncertainties about the costs of cleanup, liability, and the means to identify and remove contamination, coupled with declining federal support for development programs and changes in the tax code, dissuade many from participating in cleanup and renovation.

The goal of the Workplaces conf. is to alert businesses and communities that the problems of reuse can be dealt with in an economically viable manner, bringing long-term benefits to communities and the environment. By convening diverse interests, the conf. organizer, Northeast-Midwest Institute, hopes to draw attention to the links among economic development, environmental restoration, and historic preservation.

Topics for discussion include "Workplace Cleanup: Common Environmental Problems"; "Documenting & Preserving Historical Resources"; "Financing for Reuse: Reducing Lender Risks"; "Defining Environmental Risks: The Impact of Property Transfer Laws"; "Federal/Local Partnerships"; "State Incentives to Encourage Site Cleanup & Reuse"; "Community Action: Strategic Planning & Site Reuse"; and "Combining Public & Private Resources."

The Northeast-Midwest Institute, the Center for Regional Policy, is a nonprofit research and public education organization dedicated to the long-term economic vitality of the Northeastern and Midwestern states. It conducts research, develops public policies, and provides technical assistance, sponsors regional conferences, and distributes publications.

For Workplace Conf. info., contact Carol L. Andress or Jocelyn Sietzman, NMI, 218 D St. SE, Wash. DC 20003 (202-544-5200).

June 13-16

Chicago: World Class IA



*Hog Butcher for the World
Tool Maker, Stacker of Wheat,
Player with Railroads and the Nation's Freight Handler;
Stormy, husky, brawling,
City of the Big Shoulders.*

Carl Sandburg, Chicago

Chicago, legendary industrial city of the Midwest, will be the site for the SIA 20th Annual Conf., June 13-16, 1991. This will be the first time members have had the opportunity to view and tour the incredible IA of this great urban center. The conference theme is "Industrial Heartland," and it will be reflected in tours of Chicago's historic industrial facilities and districts and in the presentations and papers. The Public Works Historical Society, an affiliate of the American Public Works Assn., is the host and co-sponsor.

The conference officially opens Thursday evening, June 13, with a reception at the Chicago Historical Society, including a private viewing of the highly acclaimed exhibit, "Chicago in the 1890s." The next day, Friday, will follow the SIA's longstanding tradition of industrial process tours, and will include: Brad Foote Gear Works (1924); R.R. Donnelly Publishing Co.; the *Chicago Tribune* newspaper company; Mainstream Pumping Station and 31-mile tunnel system; and the Stickney, Ill. sewage treatment plant, the world's largest wastewater treatment facility. Friday's events will be topped off with dinner at Chicago's oldest restaurant, Berghoff's, famous for its German food and dark beer.

Saturday, June 15, will be devoted to paper presentations on the "Industrial Heartland" theme, and also will include the Society's Annual Business Meeting and an evening reception and dinner.

Sunday, June 16, will be divided between bus and boat tours. The bus tours, which include some options, will visit: the Central Manufacturing District, Chicago's late-19th-C, river-RR-warehouse industrial center, where the mammoth Spiegel catalog warehouse stands (the great Sears warehouse is not in this district); Pullman, once home to Pullman Palace Car Co. and its employees; the mid-19th-C Illinois & Michigan Canal, an early industrial corridor; and the archeological remains of the c1900 Joliet Steel Mill coke ovens and blast furnaces.

Sunday's other tour, on the Chicago River and the Sanitary & Ship Canal, will be aboard the area's finest river tour boat (which has the unlikely name *Jamaica*). Constructed largely in the 1890s, the S&S Canal was one of the largest and most significant engineering achievements in the nation. It led directly to work on the Panama Canal. The canal cruise will

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The incredible variety of bridges and industry along the Calumet River that will be viewed on tours during the SIA Annual Conference in Chicago. *K. Breitenbach photos.*



be a chance to view many of the city's celebrated bascule bridges and fine examples of Chicago architecture. This tour will be narrated by Loyola Univ.'s Harold Platt and Ted Karamanski, noted historians of the urban process and the Chicago area.

For those wishing to stay over, an optional Monday tour will include a more-in-depth look at the historic Pullman district, Chicago Heights Steel, and US Steel (c1906-08) in Gary, Ind. Lunch will be at the Hotel Florence [NR] in Pullman.

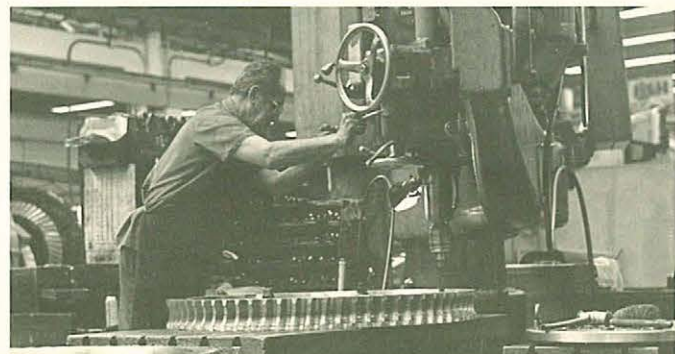
Conf. HQ is the Bismarck Hotel, conveniently located downtown and within walking distance of many Chicago landmark attractions, the financial district, shopping, and theaters. Registrants receive the special rate of \$69 single, \$82 double. Valet parking is available at the hotel, with special weekend rates.

Conf. info.: Howard Rosen, PWHS, 1313 E. 60th St., Chicago IL 60637 (312-667-2200).

TOUR SITES.

Inside the Anderson Shumaker Co., an open die forging shop founded in 1902 that uses stainless, tool steel, and high temp. metals to hammer-forg, anneal, and rough machine components, such as rings, discs, blocks, bars, and special shapes, from 5 to 2,500 lbs.

Below: Inside Brad Foote Gear Works, Cicero, Ill., the world leader in bevel gears over 30-in. diam., with capability to 100-in. diam. K. Breitenbach photos.



CHINESE LABOR WILL BE SCARCE
CONTRACT PRICES WILL BE RAISED



Three readers have identified the "mystery machine" in the historic photo featured on the back cover of the Fall 1990 *Newsletter*: Bruce Weilepp [SIA], Astoria, Ore.; Peter Moore, New York, N.Y.; and Richard A. Kaufman [SIA], Portland, Ore.

Writes Mr. Weilepp: "I was very surprised to hear that the curators at NMAH, Smithsonian Institution, could not recognize an 'Iron Chink' when they saw one. These machines were used to butcher fish in salmon canneries, beginning in the early 20th C. The machine's name derives from the crews of Chinese formerly used to butcher salmon on the Pacific Coast. The name is also a perfect example of the unselfconscious racism of this period in our history. There are several of these machines preserved in Pacific Northwest museums. If you are interested in acquiring one, I know of a Puget Sound area museum that is bringing several down from Alaska soon."

Mr. Weilepp enclosed an article from *National Fisherman Yearbook* 56 (1976), which includes reproductions of ads for the "Iron Chink," c1909.

Mr. Moore sent along a chapter entitled "The Iron Chink" from Ralph W. Andrews & A.K. Larssen, *Fish & Ships* (Bonanza Books & Superior Pub. Co., 1959), and commented that the authors were "explicit about the social conditions that led to the very intentional racial insult in the name by which it was called. Note that in the picture taken at the 1909 Alaska-Yukon-Pacific Exposition, the name 'Iron Chink' is prominently displayed on the wall."

Both histories of the machine agree that it was invented by E.A. Smith of Seattle in 1903. It was put in commercial use in 1904 and patented in 1905. According to Smith Canning Machines, the Iron Chink was "an apparatus to do away with Chinamen." It was not the first or only fish-cleaning machine, however. Others were patented in 1899 and 1901. Reportedly, Smith's machine was the best of the lot. It had a rated capacity of 60 to 75 fish per minute, but probably was closer to 3,000 fish per hour or 50 per minute. It was operated by three men and replaced butchering gangs of about 30 men, each of whom processed about 1,500 to 2,000 fish in a 10-hr. day.

The cleaning machines replaced scarce Chinese labor, who worked for low wages but were subjected to a high "head tax" designed to discourage Chinese immigration. At the same time, their introduction eliminated a hand-labor obstacle to speeding up and mechanizing the whole canning line. The upgrading of the process was complete with the introduction of the solderless can in 1912.

CALENDAR

JUNE 13-15: SIA 20th ANNUAL CONF., BISMARCK HOTEL, CHICAGO, in cooperation with Public Works Historical Society. Info.: Howard Rosen, PWHS, 1313 E. 60th St., Chicago IL 60637 (312-667-2200).

June 13-16: CANCELLED: RR Conf., Penn State Altoona Campus. Scheduling info.: Margaret C. Hopfl, Dir. of Continuing Ed., Penn State Altoona, 3000 Ivyside Park, Altoona PA 16601 (814-949-5000).

June 14: "Workplaces: A Conf. on Reusing Industrial Sites Cleanly," Bismarck Hotel, Chicago. Info.: Carol L. Andress or Jocelyn Sietzman, NMI, 218 D St. SE, Wash. DC 20003 (202-544-5200).

Sept. 22-28: Annual Conf., Assn. for Preservation Technology, New Orleans, La. Info.: APT 1991 Program Chair, Dean's Office, School of Architecture, Tulane Univ., New Orleans LA 70118.

Oct. 17-19: 13th Annual N. American Labor Hist. Conf., "Men, Women, & Labor: Perspectives on Gender & Labor Hist.," Walter P. Reuther Library & Dept. of Hist., Wayne State Univ., Detroit. Info.: Elizabeth Faue, Dept. of Hist., 3094 Faculty Admin. Bldg., WSU, Detroit MI 48202.

Oct. 31-Nov. 3: Annual Conf., Society for the History of Technology, Univ. of Wis., Madison. Info.: Bruce Seely [SIA], SHOT Newsletter, Dept. of Social Sciences, Michigan Tech. Univ., Houghton MI 49931.

The *SIA Newsletter* is published quarterly by the Society for Industrial Archeology. It is sent to SIA members, who also receive the Society's journal, *IA*, published annually. SIA promotes the identification, interpretation, preservation, and re-use of historic industrial and engineering sites, structures, and equipment. Annual membership: individual \$25; couple, \$30; institutions, \$30; contributing, \$50; sustaining, \$100; corporate, \$250; student, \$20. Send check payable to SIA to Treasurer, Room 5020, National Museum of American History, Smithsonian Institution, Washington, D.C. 20560; all business correspondence should be sent to that office.

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