



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

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COVERED BRIDGES: SPANNING THE AMERICAN LANDSCAPE *TRAVELING EXHIBIT DEBUTS IN HARRISBURG*

The Historic American Engineering Record (HAER) has opened a traveling exhibit developed in partnership with the Smithsonian Institution Traveling Exhibition Services (SITES). The exhibit is part of HAER's National Covered Bridges Recording Project, which from 2002 to 2006 produced documentation on 75 of the most significant covered bridges in the country. This project, begun under former Chief Eric DeLony [SIA], was a key element of the Federal Highway Administration's National Historic Covered Bridge Preservation Program, which provided funding for preservation of over 100 covered bridges. HAER was co-host to the 2003 Covered Bridge Best Practices Conference in Burlington, VT, which produced the Burlington Charter for Covered Bridges that established goals for the long-term preservation and stewardship of these endangered structures (www.uvm.edu/covered-bridges/charter.html).

HAER historian Lola Bennett researched and wrote histories on a large number of the covered bridges, and was

uniquely qualified to serve as the curator for the exhibit. Christopher Marston [SIA] served as associate curator, with assistance from HAER staff members Jet Lowe [SIA], Larry Lee, Thomas Behrens, Dana Lockett, Justine Christianson, Kristen O'Connell, James Stein, acting Chief Richard O'Connor, and numerous HAER summer interns and advisors. Katherine Krile served as project leader for the SITES team, and Mary Wolff, of Studio M Design, designed the exhibit panels. Covered bridge experts Joseph Conwill, editor of *Covered Bridge Topics*, historian Richard Sanders Allen [SIA], Arnold Graton Associates, and the National Society for the Preservation of Covered Bridges played major roles in providing information, images, and advice and encouragement to the HAER team.

The exhibition, which is divided into five sections, is displayed in a free-standing kiosk system of interlocking panels, known as the Scenario Display System. The curators incorporated high resolution scans of Lowe's photographs and HAER AutoCAD measured drawings, with a mixture

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Jet Lowe, HAER

Vermont's Taftsville Bridge, completed 1836, reflects the influence of Swiss heavy-timbered bridges.

In This Issue:

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- Erie's Threatened Industrial Heritage
- Oregon's Award-Winning Historic Bridge Program
- Historic Bridge Projects—Hale Bridge (IA), Catoctin Aqueduct (MD)
- Evolution of American Street-Sweeping Machines

Lola Bennett Collection



In 1953, Chesterfield Cigarettes put a rendering of Sawyer's Crossing Bridge in Swanzey, NH, on a Christmas promotional carton and followed it up with a pop song called "Kissing Bridge," sung by the Fontaine Sisters and Perry Como.

of historical images, portraits, models, and artifacts to help bring covered bridges to life. The first section, entitled "The Rise of the Covered Bridge in America," opens with a replica of a covered bridge portal, painted "covered bridge red." It takes the visitor from the historical origins of covered bridges in Europe precedents to the American development of the typology, manifested in the nation's first covered bridge, Timothy

Palmer's Permanent Bridge (1805) over the Schuylkill River at Philadelphia. The exhibit continues by focusing on the pioneers who developed the four major truss types in American covered bridge design: Theodore Burr, Ithiel Town, Stephen Long, and William Howe, whose trusses

represent 75% of extant covered bridges. "How Truss Bridges Work" introduces typical elements found in a covered bridge, diagrams engineering concepts of trusses, and illustrates tools and historic photos to show how bridges were built in the 19th century.

The next section, "Birth of a Cultural Icon," delves into the cultural phenomenon of the covered bridge as an American icon embodying nostalgia, mystery, and romance. Covered bridges have been a subject for both vernacular artists (including industrial archeologists) and advertisers. Sometimes used as billboards themselves, they have evolved as a symbol of small town pastoral America and wholesome values. While the bestseller *The Bridges of Madison County* may be the most famous pop-culture example of this phenomenon, the site of the book, Roseman Bridge in Iowa, is a destination where visitors leave their own romantic graffiti. While much of this section may seem superficial to the ardent scholar of industrial archeology, there appears to be a strong correlation between people's feelings about covered bridges and their desire to preserve them.

The exhibit concludes with "Saving America's Covered

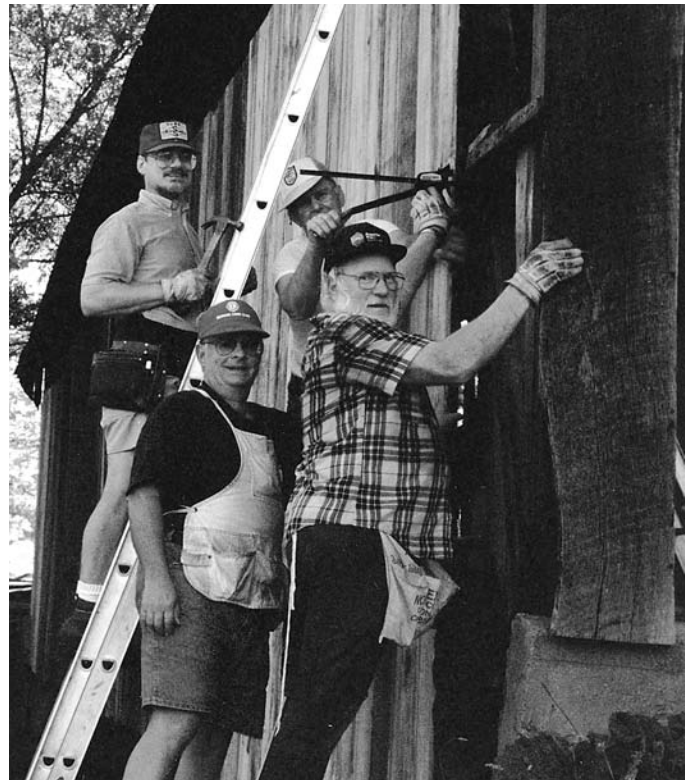
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The *SIA Newsletter* is published quarterly by the Society for Industrial Archeology. It is sent to SIA members, who also receive the Society's journal, *IA*, published biannually. The SIA through its publications, conferences, tours, and projects encourages the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts, and technology. By providing a forum for the discussion and exchange of information, the Society advances an awareness and appreciation of the value of preserving our industrial heritage. Annual membership: individual \$35; couple \$40; full-time student \$20; institutional \$50; contributing \$75; sustaining \$125; corporate \$500. For members outside of North America, add \$10 surface-mailing fee. Send check or money order payable in U.S. funds to the Society for Industrial Archeology to SIA-HQ, Dept. of Social Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931-1295; (906) 487-1889; e-mail: SIA@mtu.edu; Website: www.sia-web.org.

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The *SIA Newsletter* welcomes material and correspondence from members, especially in the form of copy already digested and written! The usefulness and timeliness of the newsletter depends on you, the reader, as an important source of information and opinion.

TO CONTACT THE EDITOR: Patrick Harshbarger, Editor, *SIA Newsletter*, 305 Rodman Road, Wilmington, DE 19809; (302) 764-7464; e-mail: phsianews@aol.com.



Ohio Historic Bridge Association

Ohio has been at the forefront of covered bridge preservation efforts since 1960, when the Southern Ohio Covered Bridge Society was formed to purchase and restore the dilapidated Salt Creek Bridge in Muskingum County. The society, now known as the Ohio Historic Bridge Association, [including David Simmons [SIA], upper left] has expanded in recent years to promote the understanding, appreciation, and preservation of historic bridges of all types across the nation.

SIA Grant Helps Unlock Local Industrial History Millville, Montague Twp., New Jersey

In relating an area's history, the impact of its prior industry is often skimmed over by the local community. This came to light while researching the expansion to the Millville Historic & Archaeological District (NR), located within Montague Twp., Sussex County, near the northern tip of New Jersey. Clustered ruins of early saw- and gristmills were all that remained visible into the 20th century and hinted of the origin of a neighborhood called Millville, settled in the early 18th century. Only scant mention of these sites was ever recorded in local histories.

Local historians benefit from reports of what landowners or hunters find as they walk the landscape. This was the case when, as historian for our local historical society, the Montague Association For Restoration of Community History (MARCH), I initially heard of a seemingly impressive and relatively intact 27-ft.-high stone dam. It sat hidden away, deep within private holdings on a ravine on Shimer's Brook, also known as Chamber's Mill Brook. Through a fortuitous change in the ownership of the property and subsequent discovery during restoration that its non-descript shingled farmhouse also hid early clapboarding and a beehive-oven, I felt compelled to inquire about the dam and to discover what connection it held to the known mill sites downstream.

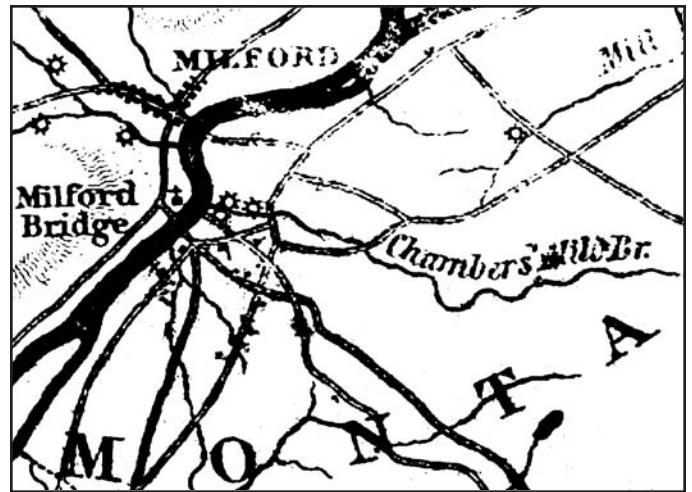
MARCH decided to facilitate the process of learning more about the site and including it within an expansion to the existing Millville historic district by hiring Dennis Bertrand Assoc., historic preservation consultants, and Richard Veit [SIA], archeologist. This led to our applying for the Industrial Heritage Grant offered by SIA. The grant greatly facilitated the project by freeing up time for in-depth local research, time that I would otherwise have given over to fundraising. Consequently, the grant resulted in uncovering a much broader overview and a wider expansion of the historic district boundary than we originally sought.

Throughout the initial title-chain search and while delving into varied records, it seemed that written data continually overlooked the dam. A succession of gristmills had indeed begun here by 1722, within a 2,000-acre tract. Only through persistent follow up on all of the names connected

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SIA INDUSTRIAL HERITAGE PRESERVATION GRANTS

The SIA Industrial Heritage Preservation Grants support the research, documentation, and preservation of industrial sites and practices. Grant guidelines are available at www.sia-web.org. Grants are awarded annually. Deadline for applications is March 31. Info: Lynn Rakos, SIA Grants Committee, lrakos@hotmail.com, 917-790-8629.



Detail, A Map of the State of New Jersey: with part of the adjoining states / compiled under the patronage of the Legislature of said state by Thomas Gordon; engraved by H. S. Tanner, assisted by E. B. Dawson & W. Allen. 1828. The 'waterwheels' on Chamber's Mill Brook, above its confluence with the Delaware River, show the location of the Millville millseats. Courtesy of the Lionel Pincus and Princess Firyal Map Division, The NY Public Library, Astor, Lenox, and Tilden Foundations.



Postcard view (ca. 1900) of the Millville sawmill.



Postcard view (ca. 1900) of the Millville gristmill.

Collection of P. Fratto

The Long Journey

Hale Bridge Finds New Home and Community Pride

The c. 1878 Hale Bridge is a nationally significant, patented, bowstring-truss bridge, one of the oldest and longest of its type surviving, a testimonial to the innovative iron bridges of the 19th century. Rose Rohr, the county historic preservation commissioner who had the vision and leadership to save the bridge, offers her viewpoint on what it meant to her and her community to save the bridge. Hale Bridge made national headlines when Chinook helicopters airlifted it on Mar. 9.

The Hale Bridge project started with a plea: "Rose, we need you to save a 296-ft.-long bridge." I laughed, but noticed that Cynthia from the State Historical Society of Iowa was not joining in the laughter. Instead, she broke in and said she was serious. That is how the adventure began. The c. 1878 Hale Bridge (NR), near the town of Hale in northeastern Iowa, had spanned the Wapsipinnicon River for nearly 125 years. A tubular bowstring truss fabricated by the King Bridge Co. of Cleveland, OH, it is among the oldest and longest of its design surviving in the U.S. The journey to find the bridge a new home was an adventure starting in late Feb. 2002 when I first received the call. The adventure would end with the Hale Bridge literally taking flight to its new home in a state park.

Through a programmatic agreement among the Iowa Dept. of Transportation (IDOT), the State Historical Office, and a few counties, any bridge that is up for demolition has to go through a preservation review process to see if other alternative uses exist before it is destroyed. As a commissioner on the Jones County historic preservation commission, I was being asked to step up to the plate.

Saving the historic bridge was a political and a community process. I started this process with only one of five county supervisors in solid favor of preservation; it took four years of lobbying, raising grants, education, and constant effort to bring the other four into unanimous but cautious consent; some of their reservations were only set at ease

when the bridge finally reached its new location and was no longer their problem. Meanwhile, we had a county engineer who could not see the value of this old bridge, and an auditor who did not see the cultural value, just the expense of it. As it turned out, local official opposition or indifference was the hardest obstacle to overcome.

One of the first steps was finding a place to relocate the bowstring-truss bridge. This turned out to be the easy part as we soon had seven possible locations. We formed a committee and visited each, finally choosing Wapsipinnicon State Park, about 15 miles downriver from the bridge's original location.

In the meantime the deadline to either relocate or



Paul Rohrbacher

A Chinook helicopter places the Hale Bridge's center span on its new stone-faced concrete piers in Wapsipinnicon State Park.



The Hale Bridge as it appeared in its first location over the Wapsipinnicon River near Hale, Iowa. HAER IA-58.



Paul Rohrbacher

One of the bowstring trusses in transit.

demolish the bridge moved closer. In Feb. 2003, the bridge was taken off its substructure by crane, with the spans temporarily stored in neighboring farm fields. We soon found out that even this was a first for IDOT, actually having a bridge relocated as part of an agreement, rather than demolished. It turned out to be a winding road but our partnership with IDOT was phenomenal. In the end, the project cost nearly \$450,000. IDOT's investment was \$84,000 and the county's was \$75,000; the State Historical Society of Iowa contributed \$100,000, and the rest was raised through grants, including one from the Allan King Sloan Family Fund, a foundation established by the descendants of the founder of the King Bridge Co.

The Iowa Department of Natural Resources became our strong partner as well. They brokered a deal with a landowner on the opposite bank of the river from the park, purchasing 10 acres so the bridge could serve a new park trail. And as the project grew, so did community involvement. Weber Stone Co. donated stone for the substructure, Bard Concrete donated tinting for the concrete so it would be a compatible match, Alliant Energy took down electric wires and donated lift trucks for the day of the airlift, Americorps workers grubbed and cleared the new bridge site, and consultant engineers and contractors donated time and labor. Even the local penitentiary got into the act with prisoners helping to build a fence.

Finally, the day was set to lift the bridge to its new site. On Mar. 8, Boeing Chinook helicopters of the Iowa Air National Guard lifted the three spans. The state park ranger was the point person in charge of law enforcement and emergency preparedness. We had meetings with representatives of ten agencies to discuss and anticipate possible emergencies. While flying a bridge this large and heavy (about 50,000 lbs. per span), it was important to have safety measures in place, but, fortunately, it went off without a hitch.

Local banks and the chamber of commerce served coffee and meals to the volunteers who directed traffic and controlled crowds. More than 25 video crews showed up. We had over 700 students from local school districts. This day was history, not just because we saved a historic bridge but, unexpectedly, because it brought people together, made them part of the project, and gave them pride in their community.

The bridge looks majestic once again spanning the water. It is truly a site to behold. I feel secure in the knowledge that this bridge was so well constructed that it will be used for at least another 125 years. The impossible is possible. It is amazing the lack of vision that many people possess when it comes to historic preservation. It was a struggle to raise awareness of the treasure we had here in Jones County, but everyone now believes it was worthwhile.

Rose Rohr

MILLVILLE, MONTAGUE TWP. *(continued from page 3)*

with the nearby mill properties did we uncover both the date and the dam contractor's name. We learned by way of a deed that in 1862 bridge builder Solon Chapin of Easton,

PA, had been hired to construct the feeder dam. Its purpose was to provide a consistent water supply to the mills. The 1862 deed documented that Jacob Hornbeck and Jacob Shimer had "contracted with Solon Chapin to build a stone dam on the brook for the purpose of retaining the surplus water when there shall be a surplus and of retaining the whole stream during nights and Sundays when the water is low for the use, benefit and accommodations of the mills now owned by the parties to this agreement."

What became evident to us through in-depth research was the impact industry historically had on the our neighborhood, as well as the adjoining tri-state area of NY and PA. For instance, we discovered that Shimer Fort had been constructed for the purpose of protecting the gristmills from the Indians. We learned that the ferries over the Delaware River, and the succeeding bridge crossings to Milford, PA, along with our proximity to neighboring Port Jervis, NY, and to the Delaware & Hudson Canal and the Erie RR, had each affected and helped to facilitate a local hub of industry and the wealth related to it.

Unfortunately, Millville's industry would subsequently decline as the new industrial age took hold in neighboring areas of urban development. The early hub of Montague Township's industrial commerce, which had kept the area's residents sustained for nearly 200 years, declined as our township devolved to an agricultural base, leaving industry to become a forgotten part of our past. Now, as the result of the research, we can better appreciate what once transpired here. Our town continues to evolve and now is affected by increasing residential development. The data gathered with the assistance of the SIA Preservation Grant can help to protect this remnant dam feature and its surrounding cultural and historic landscape, and help to interpret a more complete story of our past and the role our community played in the larger region.

Alicia Batko



Richard Veit

The stone dam on Shimer's Brook, Montague Twp., NJ, that inspired local historians to learn more about the area's industrial past.

Erie Today

Erie Malleable Iron Threatened Jackson Koehler Eagle Brewery Demolished

Lisa Austin, Stephen Sonnenberg, and Laurel Swartz of Erie, PA, are local preservation and community activists. They report on the city's struggles to come to terms with and preserve its industrial heritage. A day-long guided IA tour of Erie is scheduled tentatively for Sept. 27 to precede the 2006 SIA Fall Tour, Youngstown, OH. The announcement will be sent with registration materials in late summer.

Three generations ago, in Pennsylvania and elsewhere, when anything was torn down, something architecturally "better" usually replaced the previous structure. In the middle of the last century, we reversed this tradition and started trading down. The changing aspirations of Erie may be found in two firehouses a half-block apart. A 1931 fire-station survives on the 200 block of W. 12th St. Currently home to a sign company, the building has been stripped of its elaborate sconces and adorned with lime-green alligator signs. Still, the station stands ready with a formal, muscular pride. Four stone medallions, marked with relief illustrations

of fire-fighting equipment, still enrich the upper facade. Carved stone borders surround three entrance bays once creating dramatic frames for shining fire-trucks. In 1996, Erie built a modern fire-station a stone's throw west. Pinkish cast-stone blocks serve as the foundation for a gigantic pediment covered with vertical white siding. Set at an odd diagonal to the street grid, this placeless structure lacks the optimism and gravitas of its vital, old uncle down the street.

Many in Erie remember with regret the demolition of the Reed Mansion. Built in 1868 as one of a series of grand, stately homes lining 6th St., its replacement in 1970 with an uninspiring AAA building continues to haunt us. Last year when AAA withdrew to the suburbs, there was a renewed public outcry over the loss of the mansion. Despite the gnashing of teeth, our built environment remains vulnerable. In the 1970s, blocks of downtown civic and business buildings were cleared in wrong-headed urban development. Today, planners know that the remaining historic commercial structures help define Erie's downtown. But, there is little appreciation for industrial architecture and these buildings are often condemned as eyesores.

The city's most threatened industrial architecture is **Erie Malleable Iron (EMI)**. A massive complex dominating West 12th and Cherry streets, EMI is composed of 13 acres of late-19th and early-20th-century masonry buildings in the heart of a potential industrial historic district. Through the production of a shock-resistant iron that supported innovations in the manufacture of cars, trucks, and trains, EMI products helped win two world wars. The EMI buildings along the corridor sport a rich facade of archways, stone lintels, and brand-new windows. An active foundry for 126 years, EMI was closed in 2001. The current owner,



Koehler Brewery (1890), view from c. 1940. Erie Brewing Co., Inc., Collection, Erie County Historical Society.



Erie City Fire-station (1931), once a symbol of civic pride, is now little appreciated.

Lisa Austin

Accuride, offered the entire site to the city and the county, but was rebuffed. Potential buyers were concerned about environmental issues. Rather than dealing with the complexities of subdividing the property, with the support of our region's economic development teams, Accuride is demolishing the buildings to lower its tax burden.

From 1855 to 1978, Erie's **Jackson Koehler Eagle Brewery** provided the drink of choice for those of German heritage. The first brewery survived just two years and was destroyed by an 1857 fire. Rebuilt in 1863, the establishment was renamed the Eagle Brewery. Twenty years later the brewery was purchased by Jackson Koehler. In 1890 Koehler hired architect Louis Lehle to design a new brew-house that was an idiosyncratic "mixture of Romanesque Revival and Bavarian castle with its towers, decorative brickwork and varied arched window and doorway openings." In the 1993 Preservation PA listing of endangered structures, the Koehler complex is further described: "Walls are over two feet thick to allow the structure to support heavy loads; and the height of the building accommodates the gravity system of beer brewing, as the grain was transported to the roof level where it began its descent through the various steps in the brewing process." At the close of the 19th century, Koehler and other breweries merged to form the Erie Brewing Co.

After closing Erie Brewing in 1978, the new owners brutally tore into the historic masonry, extracted equipment, and abandoned the buildings. Snow and rain assaulted the interior while the citizens of Erie looked the other way. Though preservation efforts resulted in Koehler's inclusion on the National Register, this status afforded no protection.

After receiving historic tax credits, the new owners of Kohler Brewery determined the buildings were too expensive to renovate and announced plans to clear the site and build a new complex. After rescuing architectural details, including a huge stone eagle, the brewery's 155-ft. smoke-

stack was blown up. The explosion, on Feb. 9, 2006, was followed by the demolition of the entire complex at 21st and State streets. While it will be helpful to have active businesses at the Koehler site, it is unlikely that the new structures will be impressive, or that they will even survive more than a decade or two. These days we build in Erie with an eye towards the next quarterly report, not the next quarter century.

In 2004, several speakers gathered to discuss "The Role of Historic Industrial Architecture in Erie." Youngstown State University Professor Tom Leary [SIA], who has studied Erie extensively, outlined the international importance of our buildings. A National Trust officer, Adrian Fine, offered examples of redevelopment strategies. In June 2006, architectural historian William Lebovich will visit Erie to photograph the remaining buildings on 12th Street. Members of the SIA have been invited to tour Erie in September. While outsiders appreciate Erie's industrial buildings, most residents are insensitive to the architecture's history, power, or potential.

This disregard of Erie's industrial buildings can be attributed, in part, to the public derision of these structures by our politicians and media. Here in Erie the notion that *new is better* persists, and we do not apprehend the long-term economic development advantages of adaptively reusing our inherited structures. No one in authority seems to be aware of the economically viable adaptive reuse examples that have transformed industrial sites, including MASS MOCA in North Adams, MA, or the Ruhr District in Germany.

Until Feb. 2006, one of the Koehler Brewery's huge walls was covered with a hand-painted sign advertising "Koehler Beer, Known for the Collar it Keeps." May the hundreds who gathered to witness the demolition vow to make the city of Erie "known for the buildings it keeps."

Lisa Austin, Stephen Sonnenberg, Laurel Swartz



Lisa Austin

The 13-acre Erie Malleable Iron complex is threatened with demolition.



Lisa Austin

The rear of the Koehler Brewery brewhouse (1890), prior to demolition in early 2006.

Catoctin Creek Aqueduct Restoration

An audacious plan to rebuild the Chesapeake & Ohio Canal's fallen Catoctin Creek Aqueduct (Lander, MD) at almost no cost to the National Park Service has won preliminary approval from key park service officials. The three-span, stone-arch aqueduct, completed in 1834, collapsed more than 30 years ago after decades of neglect. Proponents of the reconstruction estimate the cost at about \$2.3 million, half of which they would have to raise privately, in cash and in-kind donations. The other half would be paid using federal transportation money funneled to the State of Maryland for projects approved by the state.

The plan's backers, who have formed a nonprofit organization called the Catoctin Aqueduct Restoration Fund, say they have been encouraged by both state and Frederick County officials. Kevin Brandt, superintendent of the

C&O Canal National Historical Park, has worked closely with proponents of the reconstruction plan, which he says is "feasible and reasonable" and which was approved in March by a park service panel that oversees projects sponsored by other organizations. The plan's timetable calls for fundraising to take place this year and next, for construction to begin in 2008, and for a ribbon-cutting ceremony in March of the following year.

The 130-ft.-long aqueduct was designed with matching semi-circular arches on either side of a much larger elliptical arch. By the 1920s, the elliptical arch had begun to sag, apparently because of movement in the west pier. After the canal closed in 1924, the aqueduct's berm wall collapsed, and subsequent floods began eating away at the arches themselves, seemingly stone by stone. Photographs taken in the 1960s for the Historic American Engineering Record (HAER) show the center arch missing nearly half its width. Then, on October 31, 1973, the center and west arches collapsed in a freshet. Roughly three-quarters of the east arch remains, along with the aqueduct's abutments and wing walls. Since 1978, a World War II-vintage Bailey bridge has carried the towpath's hikers and bikers across the creek, which is littered with cut stones.

The reconstruction plan is the brainchild of George Lewis, a semi-retired U.S. Army veterinarian and biological-warfare expert who for the past 10 years has lived on a farm overlooking the canal just east of the aqueduct's ruins. After leading a group of local volunteers who restored a nearby lockkeeper's house—and after watching as the park service completed a long-awaited renovation of the canal's Monocacy Aqueduct last year (SIAN, Fall 2005)—Lewis began discussing the possibility that the Catoctin Aqueduct could be rebuilt. He and others have been studying the aqueduct's history, he says, and "all the stuff we've dug up has made the Catoctin tastier and tastier" as a site at which people could learn about a fledgling nation's westward expansion.

Following the success of the Erie Canal, construction of the C&O Canal began on the Potomac's Maryland shore in 1828, but the canal company soon found itself competing with the brand-new Baltimore & Ohio Railroad for a right-of-way between the river and the ridges through which it had carved passes. A court eventually forced the two companies to find room for each other along a difficult stretch that begins east of Catoctin Creek and runs west to Harper's Ferry. Subsequently, Lewis says, both the railroad and the canal struggled with labor shortages and cholera as they worked their way westward. A stone-arch railroad bridge, constructed about the



George Lewis is leading the effort to reconstruct the C&O Canal's Catoctin Creek Aqueduct.



The remaining stone arch and abutments of the Catoctin Creek Aqueduct. The center span collapsed in 1973 to be replaced by the Bailey truss bridge.

Lawrence Biemiller photos

Of Masonry and Bridges

Preservation Workshop—Weisel Bridge, Sept. 10-23

Have you ever gone past a deteriorated structure and thought it was a shame that it had not been maintained or preserved? Stonemason Andrew deGruchy had just that reaction when he came upon Weisel Bridge, and, fortunately, he has the skills and initiative to tackle the project. He contacted Heritage Conservation Network (HCN) to see if they'd be interested in using the bridge as the site of one of their hands-on building conservation workshops, pledging the material and his time to lead a workshop there this fall.

The bridge is located on the grounds of the Weisel International Hostel, in Quakerstown in rural Bucks County, PA. The stone-arch Weisel Bridge spans a mill race off of Tohickon Creek. The arch, constructed of local rock, probably was built in the 19th century. Previous repairs using incompatible, modern materials have contributed to the deterioration. Sections of the original lime-and-sand mortar are completely missing. During the HCN workshop, those joints will be repointed with a mixture having properties similar to those of the original, including sand dredged from the creek. Workshop participants will attempt to determine the original joint profile, enabling them to recreate it in the new work.

One of the first tasks to be undertaken at the workshop will be to divert the creek around the bridge with sand-bags and pump the water out to create a dry work area. Doing so will also enable participants to search for the original stones at the bottom of the creek. They will build a form and re-set the missing section of the arch.

Participants will be staying at the hostel, which is a 100-year old country estate situated within a state park. DeGruchy anticipates that a motivated group of eight to ten participants will be able to complete restoration of the bridge during the two week-long sessions.

The cost of attending the Weisel Bridge workshops is \$285 for one week, \$500 for two weeks. The fee includes lodging, lunches, materials, and insurance, with special rates for participants not needing lodging. Registration, info, or to make a donation: www.heritageconservation.net or Judith Broeker (303) 444-0128.

Jamie Donahoe

Note: HCN offers workshops throughout the year, many of IA interest. HCN and Francis Mill in Waynesville, NC, were recipients of an SIA Preservation Grant in 2005 (SIAN, Winter 2005).

same time as the aqueduct, spans Catoctin Creek barely a stone's throw from the aqueduct's ruins. The railroad bridge is still in use.

One of the restoration fund's first moves, after it received a \$25,000 grant from the Carlson Family Foundation, was to retain McMullan & Associates, the engineering firm responsible for the Monacacy Aqueduct renovation. Denis J. McMullan, the firm's president, says the project's engineers are considering two alternatives. The more costly would be to rebuild the missing arches in stone, reusing original stones where possible. The elliptical arch, he says, would be a challenge, because the original design "doesn't calculate out." "The stresses are too high," he says. "We cannot safely rely on the stone arch to do the job itself." A concrete saddle within the aqueduct would supplement the stonework, along with reinforcing rods similar to those installed on the Monacacy Aqueduct. The less expensive approach would be to construct reinforced-concrete arches faced with stone. In either case, McMullan says, the aqueduct "will be stronger when we're finished than it ever was, by a large factor." The additional strength will be important, says Brandt, the park superintendent. The railroad bridge, which is upstream, is on an alignment that aims racing floodwaters directly at the aqueduct's western abutment and wing wall, which the canal company repeatedly extended in

an effort to protect the structure. And as the area that the creek drains has been developed, Brandt says, the amount of runoff the creek carries has increased significantly, raising questions about how quickly water can pass through the two structures. The railroad bridge is higher than the aqueduct, and presents less impediment to floodwaters.

Lewis, the project's spearhead, says that raising money will also be a challenge, although he has mapped out a timeline, brought marketing experts onto the restoration fund's board, sought advice from people who recently have undertaken fundraising efforts in Frederick County, and led countless tours to the aqueduct site, half a mile from the nearest parking area. His experience helping to manage large-scale Army undertakings seems likely to serve the Catoctin project well; he recently invited state and park service officials to a workshop to identify issues that could become obstacles if not dealt with early. But keeping to his timetable, he says, means that "between now and February"—when the application for the Maryland funds is due—"I gotta raise between \$1.2 million and \$1.5 million." He is currently seeking a lead donor for the project. The restoration fund's Web site is <http://catocquinaqueduct.org/>

Lawrence Biemiller

PRECEDENT FOUND FOR ROCK RIVER BRIDGE

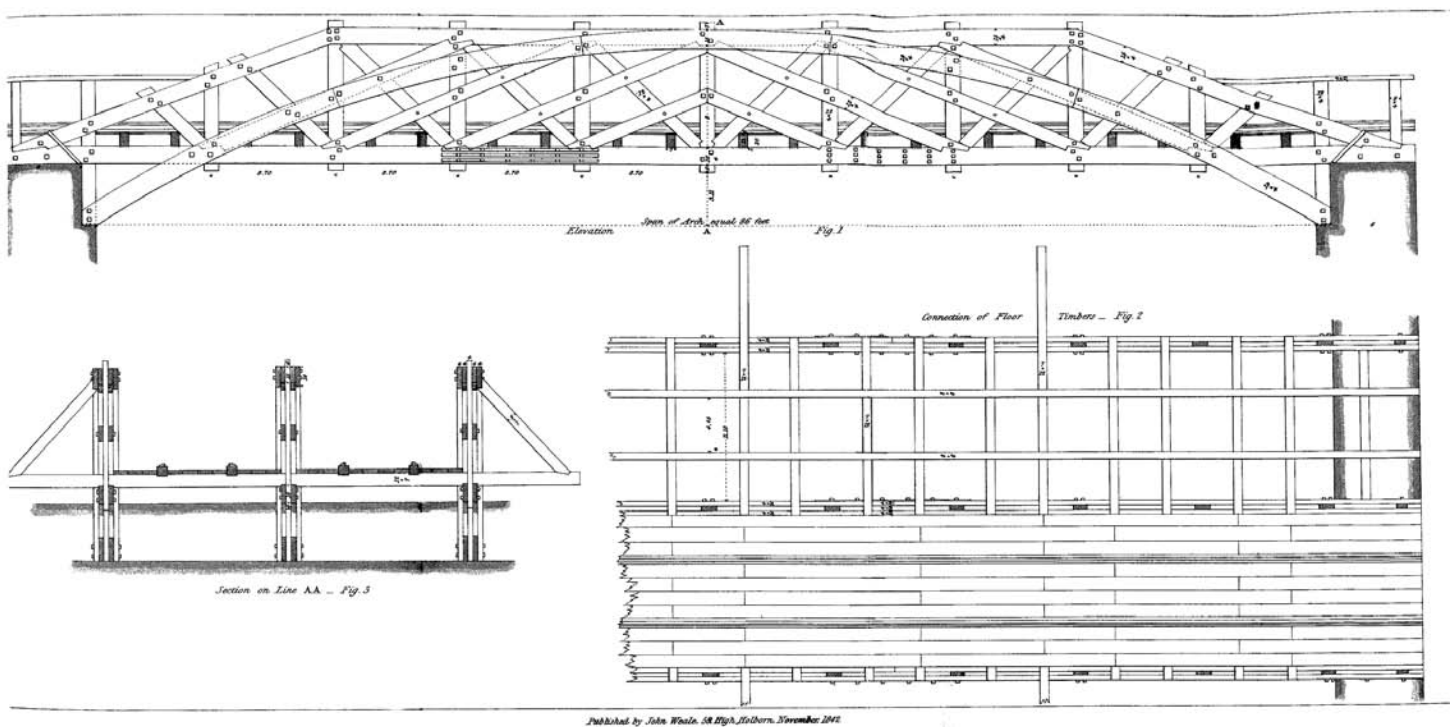
The *SIAN* (Summer 2005) reported on an all-timber bridge erected in 1853 over the Rock River in Rockford, IL. The author, David Guise [SIA], concluded that the design was a rational configuration for an all-timber truss. He speculated that although no documentation of other similar bridges had been found, other examples of this design might have been built, owing to the common sense underlying its design.

Kyle Wyatt [SIA], Curator of History & Technology at the California State Railroad Museum, noticed a drawing in Bianculli's *The American Railroad in the Nineteenth Century* (Univ. of Delaware, 2003) of an 1834 all-timber bridge built by the **Syracuse & Utica RR** that was based on a drawing in *Ensamples of Railway Making* (Weale, 1843). This drawing shows that the Illinois crossing was not unique, but an

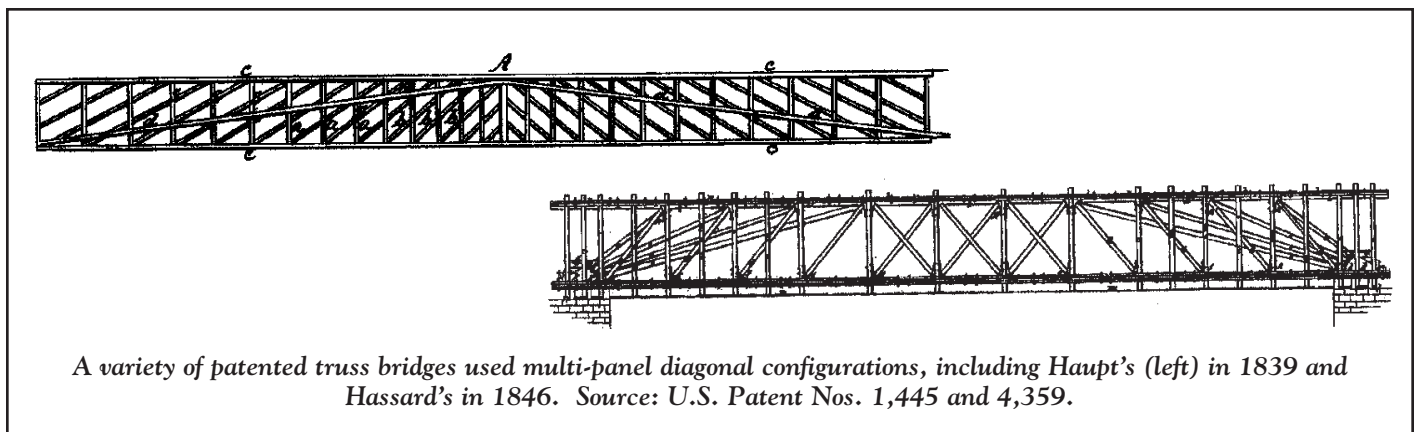
almost exact replica of an earlier bridge built "back East." The S&U constructed several variations of this configuration, each slightly modified based on span length.

The use of multi-panel diagonal struts to reinforce an all-timber bridge was common practice. A variety of patents were issued, including Hassard's in 1846 and Haupt's in 1839. Even Pratt's famous 1844 design showed a multi-panel brace. Burr's 1817 timber truss included an arch brace. The S&U design included both. At a time when the ability to calculate complex truss configurations was still in its infancy, a "belt and suspender" approach made a great deal of sense.

David Guise



Drawing of all-timber, braced-arch truss bridge, similar to those built by the Syracuse & Utica RR in the mid-1830s. From John Weale, *Ensamples of Railway Making* (London, 1843).



A variety of patented truss bridges used multi-panel diagonal configurations, including Haupt's (left) in 1839 and Hassard's in 1846. Source: U.S. Patent Nos. 1,445 and 4,359.



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

PUBLICATIONS OF INTEREST

Vol. 35, No. 2

Spring 2006

COMPILED BY

Mary Habstritt, New York, NY; and Patrick Harshbarger, SIAN editor.

GENERAL INTEREST

- ◆ David Fowkes, Mark Sissons, and Ian Mitchell. **A Guide to the Industrial Archaeology of Derbyshire.** Assn. for Industrial Archaeology (School of Archaeological Studies, Univ. of Leicester, Leicester, LE1 7RH, UK), 2005. 60 pp., illus., maps. Most recent of the AIA's handsome gazetteers covers Derbyshire County, including the Derwent Valley, best known as the birthplace of the cotton textile industry where Arkwright first successfully applied waterpower to cotton spinning machinery. Extensive coverage also of collieries, canals, railways, and public utilities.
- ◆ **IndustrieArchäologie** is the German-language quarterly magazine produced by Oskar Baldinger in Switzerland. There are usually four or five articles with a geographical scope extending across Europe and covering a range of industrial building types and sites. The Summer 2005 issue has articles on the quartet of Viennese gasholders and compares eight Baroque theaters in France, Germany, Finland, Russia, and the Czech Republic, and analyzes the technical means that were developed in the 18th century to create complex scenery and effect rapid changes from one act to the next. It can be ordered from the publisher at editor@dplanet.ch.
- ◆ Lance Metz [SIA], ed. **Canal History and Technology Proceedings, Volume XXV.** National Canal Museum (30 Centre Sq., Easton, PA 18042), 2006. 248 pp., illus. \$24.50 ppd. Papers presented at the Canal History and Technology Symposium, Lafayette College, Mar. 2006. Includes: Michael Knies, *Voting for a Strike? The Shamokin Convention and the 1902 Anthracite Strike* (turning point in the consolidation of the United Mine Workers in the PA anthracite fields); Emory L. Kemp [SIA], *Building the Tennessee-Tombigee Waterway* (234-mile waterway connecting the Tennessee River with the Gulf of Mexico via the Black Warrior and Tombigee rivers, completed in 1985 after decades of interest and planning); Eric Nystrom, *Mapping Underground Drifton: The Evolution of Anthracite Mine Maps* (case study of how maps were used to accumulate, store, retrieve, and update knowledge about underground spaces, and what they tell and don't tell historians); Robert Kapsch [SIA], *Twenty-Five Years of Canal History in the National Canal Museum's Canal History and Technology Proceedings: A Review*; (canal history papers in geographic and thematic contexts); John Thompson, *American Contractors and Excavators of the de Lesseps Isthmian Canal, 1881-1889* (American-fabricated or -operated steam shovels, dredges, and other power equipment during the French-controlled first phase of building the Panama Canal); Lee R. Maddex [SIA], *History of the Principio Iron Works: A New Look* (1837 charcoal furnace in Cecil County, MD, perhaps sole survivor of its type, remains largely intact but largely forgotten and underappreciated); Joe Keating and Bob Wolensky, *Some New Insights into the Avondale Disaster of 1869: Accident or Arson?* (Disaster at Nanticoke Coal & Iron resulted in loss of hundreds of miners' lives when fire spread from underground to the breaker and engine house); Bob Stewart [SIA], *Francis Benjamin Johnston: Photorecording Shipboard Life Aboard the USS Olympia* (remarkable collection of photos of life aboard an American warship in 1889).
- ◆ Akira Oita, ed. **Transactions of the TICCIH Intermediate Conference 2005 & International Forum for Industrial Tourism in Nagoya/Aichi. Industrial Tourism and Community Building. New Development in Industrial Tourism.** TICCIH Japan Committee, 2005. Avail.: Prof. A. Oita, Shizuoka University of Arts & Culture, Noguchi-cho, Hamamatsu-shi, 430-8533, Shizuoka, Japan. Compiles in English a selection of papers on industrial tourism with perspectives from Finland, Denmark, Brazil, Hungary, Taiwan, Estonia, Mexico, UK, and Japan. Also includes several papers on the history of technology transfer from the West to East (especially Japan) and its impact on the industrial heritage.
- ◆ Kate Burns Ottavino. **The Preservation Arts and Technology Curriculum at Brooklyn High School of the Arts.** *CRM Journal* (Winter 2006), pp. 84-8. High school teaches preservation and restoration skills. One of the projects involves study of the Brooklyn Bridge.
- ◆ Bruce E. Seely and Patrick E. Martin [both SIA]. **A Doctoral Program in Industrial Heritage and Archeology at Michigan Tech.** *CRM Journal* (Winter 2006), pp. 24-35. Overview of U.S.'s only graduate program in industrial archeology. MTU also serves as the headquarters of the SIA.
- ◆ **Vestiges of Industry, Architectural Conversion of Industrial Heritage in the Czech Republic.** Research Centre for Industrial Heritage (Prague), 2005. Published in Czech and English, contains lengthy essay on the re-use of former industrial buildings, also an attractive bi-lingual guide for planning an IA trip to the Czech Republic, *Industrial Trails through the Bohemian Mid-West*.

POWER GENERATION

- ◆ Steve Chambers. **Sparking Interest to Transform a Powerhouse.** *The (Newark) Star-Ledger* (Jan. 23, 2006). With a Trump residential towers project going in next door, preservationists are gaining momentum with their effort to revitalize the 1908 Hudson & Manhattan RR Powerhouse (*SIAN*, Fall 2000).
- ◆ **Dangerous Electricity!** Lindsay Publications (Box 538, Bradley, IL 60901; 815-935-5353; www.lindsaybks.com), 2005.

64 pp., illus. \$6.95. Collection of articles on early high-voltage apparatus. Reprinted from *Mechanics & Electricity Magazine* and *Modern Electrics Magazine* from before 1914. Details on how to make a Tesla coil, high-frequency resonator, X-ray set, induction coil, and a small carbon-arc furnace. Zaaap!

- ◆ George M. Davies. **Laying Out for Boiler Makers and Plate Fabricators.** Lindsay Publications (Box 538, Bradley, IL 60901; 815-935-5353; www.lindsaybks.com), 5th ed., 1944; reprint ed. 2005. 522 pp., illus. \$44.95. Plans, drawings, and descriptions of the construction of tubular boilers, locomotive boilers, stacks, tanks, and a variety of pipe connections. Classic textbook (first ed. in 1907, revised through 1944) is a compilation of the science and art of boilermaking.
- ◆ **Essential Steam Power Library.** Reprint of the International Correspondence Schools illustrated series, 1906. 6 vols.: *Entropy and Steam.* 56 pp. \$5.95; *Heat.* 80 pp. \$8.95; *Valve Gears.* 82 pp. \$8.95; *Steam-Engine Indicators & Mechanics of the Steam Engine.* 74 pp. \$7.95; *Simple and Compound Steam Engines.* 112 pp. \$9.95; *Steam-Engine Governors.* 64 pp. \$7.95. These were textbooks aimed at training workers in the basics of steam power. Avail.: Lindsay Publications, Box 538, Bradley, IL 60901; 815-935-5353; www.lindsaybks.com.
- ◆ George Watkins and A. P. Woolrich. **Stationary Steam Engine Makers.** 2 vols. Landmark Publishing, 2006. The English Heritage's National Monuments Record at Swindon, Wilts (UK) holds 375 files of illustrations and other material relating to engine builders worldwide compiled by George Watkins, an assiduous collector of trade literature from European and North American makers, and catalogued by A. P. Woolrich. A primary source of new information for steam-engine historians. A major feature is the inclusion of engravings from engineering journals dating back to the 1860s.
- ◆ **Windmillers' Gazette** is a quarterly journal for the preservation of America's wind power history and heritage. Vol. 25, No. 1 (Winter 2006) includes: T. Lindsay Baker, *The Story Behind the Adjustable Stroke on Oil-Bath Aermotor Windmills* (detailed drawings and diagrams of patented devices for lubricating windmill mechanisms) and *A Close Look at the Beatty Pumper: Canada's Welded Steel Windmill* (an 8-ft.dia. windmill introduced in the 1930s). Avail.: Box 507, Rio Vista, TX. \$20/yr.

CONTRIBUTORS TO THIS ISSUE

Richard K. Anderson, Jr., Sumter, SC; Susan Appel, Champaign, IL; Lisa Austin, Erie, PA; Donald Ball, Louisville, KY; Alicia Batko, Montague, NJ; Lawrence Biemiller, Dickerson, MD; Kenneth Borg, Dearborn, MI; Amanda Ciampolillo, Burlington, VT; Robert Chidester, Ann Arbor, MI; Arlene Collins, Houghton, MI; Eric DeLony, Santa Fe, NM; Jamie Donahoe, Boulder, CO; Don Durfee, Houghton, MI; Bob Frame, St. Paul, MN; John Gomez, Jersey City, NJ; Mary Habstritt, New York, NY; Robert Hadlow, Eugene, OR; Shawn Haley, Red Deer, AB; Raymond Hammond, Brooklyn, NY; Neill Herring, Jesup, GA; Nick Kocsis, St. Catharines, ON; Carol Lockman, Wilmington, DE; Christopher Marston, Washington, DC; Pat Martin, Houghton, MI; David Poirier, East Granby, CT; Lynn Rakos, Brooklyn, NY; Judith Reiter, Milford, MI; Rose Rohr, Monticello, IA; Joe Saldibar, Denver, CO; Bruce Seely, Houghton, MI; Allan King Sloan, Lexington, MA; Stephen Sonnenberg, Erie, PA; David R. Starbuck, Chestertown, NY; Laurel Swartz, Erie, PA; John Teichmoeller, Ellicott City, MD; Robert Vogel, Washington, DC; Suzanne Wray, New York, NY.

With Thanks.

MINES & MINING

- ◆ Donald D. Ball and Charles D. Hockensmith [both SIA]. **Early 19th Century Millstone Production in Tennessee,** and Donald D. Ball, **Notes on 19th Century Grindstone Manufacture in Tennessee; Late 19th Century Views of Limestone Quarrying in South-Central Indiana; Source Materials Related to 19th Century Sandstone Quarrying in Northern Ohio; Sources Relevant to Tennessee Marble Quarrying in the Late 19th Century; Notes on Late 19th Century Marble Quarrying in Georgia;** and, **Mica Uses and Mining in the Late 19th Century.** *OHVA*, Vol. 20 (2005), pp. 1-66.
- ◆ Leonard C. Cooke and Audrey S. Lawson. **True Stories from Mine Hole.** Historical Society of Rockland County [NY], 2003. 73 pp. \$10. History of the racially diverse working-class community of Mine Hole in the village of Piermont, NY. Using anecdotal stories of town personalities as chapter openers, looks at such issues as labor struggles, police brutality, and racism.
- ◆ Joe Flanagan. **Mining Majesty.** *CG* (Spring 2005), pp. 26-37. Mining silver in the San Juan Mts., CO. History of the Shenandoah-Dives Mill (HAER, NHL) in Silverton. Photos by Jet Lowe [SIA].
- ◆ Charles E. Herdendorf, C. Patrick Labadie, and W. Kevin Pape. **Maritime and Industrial Archaeology of the Kelleys Island Limestone Industry.** *OHVA*, Vol. 18 (2003), pp. 152-74.
- ◆ Charles D. Hockensmith [SIA]. **Archaeological Investigations at the Cowherd Lime Kiln near Bengal, Green County, Kentucky.** *OHVA*, Vol. 19 (2004), pp. 52-61.
- ◆ Thomas R. Huffman. **Enemies of the People: Asbestos and the Reserve Mining Trial.** *Minnesota History*, v. 59, 7 (Fall 2005), pp. 293-305. How one of America's largest iron-mining enterprises was shut down by the U.S. District Court in 1974 to prevent asbestos (or asbestos-like) fibers in tailings from being dumped into Lake Superior and contaminating the drinking water of Duluth.
- ◆ Marvin G. Lamppa. **Minnesota's Iron Country: Rich Ore, Rich Lives.** Duluth: Lake Superior Port Cities, Inc. (www.lakesuperior.com; 1-888-244-5253), 2004. 277 pp. \$19.95. Written by an Iron Ranger for Iron Rangers, this history looks at the Cayuna and Vermilion Iron Ranges, which have been less frequently examined by historians than the Mesabi Iron Range. Tells the stories of people who settled and worked the ranges and places each community in its proper context. Companion to PBS series, *Iron Country*.
- ◆ William B. Meyer. **Why Did Syracuse Manufacture Solar Salt?** *New York History*, v. 86, 2 (Spring 2005), pp.195-209. Onondaga brine was evaporated by wood or coal fires beginning in the 1780s. Solar evaporation was introduced in 1822 and by the mid-1890s was the sole method of salt production even though the area is noted for its cloudy skies. Reasons for the dominance of solar production are more complex than they would seem.
- ◆ **25 Years: Alaska National Interest Lands Conservation Act.** *CG* (Winter 2005), pp. 30-41. Challenges of preserving heritage sites in Alaska's ten national parks established in 1980. Extensive coverage of the Kennecott Copper Mine.

AGRICULTURE & FOOD PROCESSING

- ◆ Connie Fairfield Ganz. **The Man Behind the Plow: Robert N. Tate, Early Partner of John Deere.** Newburg, OR: Vineyard Graphics, 2004. 250 pp. \$9.95. Biography of the man who built the first plow factory in Moline, IL, but who

was also an artist, gardener, and surveyor. Based on diaries in the Deere Archives.

- ◆ Chad Moffett. **Making Rooms: Wisconsin Cheese Factories.** VAN 106 (Winter 2005), pp. 14-21. From rudimentary wooden frame structures of the 1860s and 1870s, factories evolved into larger, specialized structures.
- ◆ Paul Smith. **The Royal Tobacco Factory at Morlaix.** TICCIH *Bulletin*, No. 31 (Winter 2005), p. 3. Situated in the small port of Morlaix on the north coast of Brittany, the Royal Tobacco Factory is recognized as one of France's major industrial monuments.

MISC. INDUSTRIES

- ◆ Carriage Museum of America and Don Peloubet. **Carriage and Wagon Axles for Horse-Drawn Vehicles.** Astragal Press (1-866-543-3045), 2002. 250 pp., illus. \$20. Axle-making saw tremendous changes in the second half of the 19th c., moving from individual handmade wooden axles made by wheelwrights to iron axles forged by blacksmiths, and finally to the lathe-turned iron and steel axle arms fabricated in factories. General chapter on axle making is followed by sections on axle setting, axle manufacturers, patent axles, ball and roller-bearing axles, axle types, lubrication, repair, and tools and equipment.
- ◆ Susan Green. **Horse-Drawn Funeral Vehicles and 19th Century Funerals.** Astragal Press (1-866-543-3045), 2004. 414 pp., illus. \$37. Hearses, undertakers' wagons, embalmers' wagons, pall-bearers' coaches, and florists' wagons. Includes engineering drawings for the different vehicles and specifications. Also, **Horse-Drawn Cabs**, 2004. 168 pp., illus. \$27. Chapters on 2-wheeled and 4-wheeled cabs, as well as info on hack fares and history and development of street cabs.
- ◆ Charles D. Hockensmith [SIA] and William R. Black, Jr. **The Katterjohn Brick Company and Their Two Brick Yards in Paducah, McCracken County, Kentucky.** OHVA, Vol. 19 (2004), pp. 62-84.
- ◆ **Rifles & Knives, 1911.** Lindsay Publications (Box 538, Bradley, IL 60901; 815-935-5353; www.lindsaybks.com), 2006. 64 pp., illus. \$7.95. Reprinted articles from *Machinery Magazine* describe in detail the operations and machinery of the Ross rifle factory in Quebec and of the Press Button Knife Co. in Walden, NY.
- ◆ Howard Stanger. **Welfare Capitalism in the Larkin Company, 1900-1925.** *New York History*, v. 86, 2 (Spring 2005), pp. 210-258. Examines the family-based corporate culture of Buffalo's Larkin Soap Co. from its emergence in 1900 to its peak in 1925, paying close attention to the interrelationships among employee welfare practices, management, business methods, and the Frank Lloyd Wright-designed administration building that physically represented the culture.
- ◆ **The City That Lit the World: Rekindling a Legacy at New Bedford Whaling National Historical Park.** CG (Winter 2005), pp. 14-27. One of the newest national parks celebrates its upcoming 10th anniversary. Recalls the efforts to preserve the waterfront and its whaling heritage.
- ◆ **Watch Movement Manufacture, South Bend Watch Company, 1912.** Lindsay Publications (Box 538, Bradley, IL 60901; 815-935-5353; www.lindsaybks.com), 2005. 64 pp., illus. \$8.95. Reprints a series of articles from *Machinery Magazine* on how watch movements and cases were mass produced in the company's 3-story, 55,000-sq.-ft. factory.
- ◆ Curt Wohleber. **The Toaster.** *I&T* (Fall 2005), pp. 6-8. Development of the electric toaster from the 1890s to the 1950s. Also, **The Mattress.** *I&T* (Winter 2006), pp. 4-5. Development of the mass-produced woven-wire mattress beginning in the 1870s.

RAILROADS

- ◆ Gordon Hamilton. **The Norfolk & Western Tugs.** *The Arrow: The N&W Historical Society Magazine* (Jan./Feb. 2005), pp. 10-15. The N&W had tugboats at various times and locations, including two tugs that transported coal on the Chesapeake Bay (1890-1902), a Detroit River tug (inherited from the Wabash RR) that transported car ferries between Detroit and Windsor (1912-69), and at Wheelersburg on the Ohio River (operated by Norfolk Southern since 1990, purchased from the Island Creek Coal Co.).
- ◆ Don L. Hofsommer. **Steel Trails of Hawkeyeland: Iowa's Railroad Experience.** Indiana Univ. Pr., 2005. 496 pp., illus. \$75. Comprehensive history of Iowa's railroads from the 1850s to present. Railroad landscape shaped by its proximity to Chicago, and the need to move grain and beef to market. Rev.: *RH* (Fall-Summer 2005), pp. 82-3.
- ◆ Allan Martin. **Steel Car Preservation.** *RMQ* (Fall 2005), pp. 13-6. Lays out a philosophy for restoration consistent with the Secretary of the Interior's Standards, including research, approaches to disassembly and reassembly, documentation, and replacement of deteriorated or missing features.
- ◆ William D. Middleton [SIA]. **From Russia with Love.** *RH* (Fall-Winter 2005), pp. 8-26. After WWI, the Soviets built more than 3,000 FD-class 2-10-2 locomotives, patterned after American prototypes. Many found their way to China in the 1950s.
- ◆ Mark Reutter and J. Parker Lamb. **Crescent City Bound.** *RH* (Fall-Winter 2005), pp. 8-26. Illustrated, concise history of the railroads that, in concert with the port, made New Orleans into a transportation hub.
- ◆ Leah Rosenow and Don Ginter. **Great Northern A-22: The Enduring Legacy of Louis W. Hill.** *Mid-Continent Railway Gazette*, v. 38, 4 (December 2005). Detailed history and analysis with photos and scale drawings of the luxurious car built in 1905 for the son of the founder of the Great Northern RR. The Mid-Continent Railway Museum is seeking funding to restore the car.
- ◆ **The St. Louis Municipal Bridge Railway.** Summer 2005, Issue 65, Terminal Railroad Assn. of St. Louis Historical & Technical Society (Box 1688, St. Louis, MO, 63188-1688). 105 pp., illus., maps. \$33 ppd. Principal material in this annual magazine covers the history of the bridge and associated railroad, with chapters by several authors. Also a chapter on the St. Louis & O'Fallon Ry. Great background reading for the SIA Annual Meeting—St. Louis.
- ◆ John Schaeerli and Don Arends. **The Evolution of Early Draft Gear Designs.** *Railroad Heritage*, No. 15 (2005), pp. 14-15. Patents for draft gears—the coupling mechanisms used to link cars together. The patent drawings of William H. Miner (Miner Enterprises) are examined as historic documents and artwork that also made possible a series of fine-art calendars.
- ◆ Joe Welsh and Bill Howes. **Travel by Pullman: A Century of Service.** MBI Publishing, 2004. 156 pp., illus. \$34.95. Pullman's sleeping car operations, with occasional mention of its car-building enterprise. Rev.: *RH* (Fall-Summer 2005), pp. 85-6.

- ◆ David M. Young. **The Iron Horse and the Windy City: How Railroads Shaped Chicago.** Northern Illinois Univ. Pr., 2005. 272 pp., illus. \$39.95. Railroads as the driving force behind Chicago's industrial growth.

AIR TRANSPORT

- ◆ Don Bedwell. **Going Nowhere Fast.** *I&T* (Winter 2006), pp. 8-18. The race to build supersonic passenger jetplanes (SSTs) in the 1960s, driven by political and military considerations to maintain America's aviation superiority in the Cold War; the economics were a financial disaster.

Publications of Interest is compiled from books and articles brought to our attention by you, the reader. SIA members are encouraged to send citations of new and recent books and articles, especially those in their own areas of interest and those obscure titles that may not be known to other SIA members. Publications of Interest, c/o SIA Newsletter, 305 Rodman Road, Wilmington, DE 19809; pbsianews@aol.com.

ABBREVIATIONS:

- CBT = *Covered Bridge Topics*, published by the National Society for the Preservation of Covered Bridges
- CG = *Common Ground: Preserving Our Nation's Heritage*, published by the National Park Service (www.cr.nps.gov/commonground)
- CRM = *CRM: The Journal of Heritage Stewardship*, published by the National Park Service (www.cr.nps.gov/crm).
- I&T* = *American Heritage of Invention & Technology*
- OHVA = *Ohio Valley Historical Archaeology* (Back issues: Kit W. Wesler, Dept. of Geosciences, 104 Wilson Hall, Murray State Univ., Murray, KY 42071).
- RH = *Railroad History*, published by the Railway & Locomotive Historical Society
- RMQ = *Railway Museum Quarterly*, published by the Assn. of Railway Museums.
- TICCIH = The International Committee for the Conservation of the Industrial Heritage
- VAN = *Vernacular Architecture News*, published by Vernacular Architecture Forum (www.vernaculararchitectureforum.org).

Rev. Thomas W. Phelan—1925-2006

The Reverend Thomas W. Phelan passed away in Troy, NY, on March 31, at the age of 80. More than any other person, "Tom" fought for the past, present, and future of the city of Troy, one of the great birthplaces of American industry. He was a powerful advocate for that graying city, and Tom was the founding president (1972) of the Hudson Mohawk Industrial Gateway, dedicated to the historic preservation and adaptive reuse of the industrial heritage of the Troy area. Tom Phelan was a long-time SIA member. Above all, we should remember him as the priest who loved industrial archeology.

Raised nearby in Rensselaer, NY, Tom Phelan received an A.B. in English from the College of the Holy Cross, the S.T.L. in Theology from the Catholic University of America (1951), and he later pursued his Doctorate of Philosophy at Campion Hall, Oxford, England. Tom was named the Resident Catholic Chaplain at Rensselaer Polytechnic Institute (RPI) in 1959, and he later served as Dean of the School of Humanities and Social Sciences from 1972 until 1994, after which he became the Institute Dean, Institute Historian, and Senior Advisor to the President. Industrial archeologists will remember Tom as a key supporter of the first HAER project, The Mohawk-Hudson Area Survey, in the summer of 1969, and he was also a crucial supporter of the M.S. Program in Industrial Archeology that existed at RPI in the 1980s. For many years Tom taught "Troy, a 19th-Century Industrial City" at Rensselaer, exposing countless numbers of RPI students to the industrial history of his favorite city. Partially as an outgrowth of that course, he published *The Hudson-Mohawk Gateway* (Windsor Publications) in 1985, describing in elegant terms his

love for the city where the Mohawk River flows east into the Hudson.

In the early 1980s Tom Phelan, in his capacity as an RPI dean, hired P. Thomas Carroll to teach history of technology at RPI, and then he hired me into the first full-time industrial archeology position at the institute. (Tom Carroll subsequently became the Executive Director of the Hudson Mohawk Industrial Gateway in 1997.) In a job interview in which we chiefly discussed Troy's industrial history, I asked my future dean whether he remembered my brother—who had gone on weekend retreats with Father Phelan in the 1960s—and he in turn asked me whether I knew that one of the islands in the Hudson River (now covered with oil tanks) used to be called "Starbuck Island" in the 19th century (when it was then covered with my family's machine shops). As we discussed his beloved city, I knew that he would be the greatest supporter that an industrial archeologist could ever hope to have.

For Tom Phelan, there was no other city like Troy, no other place where any industrial archeologist would ever want to work. Once when I mentioned to him that I was planning to conduct an archeological dig outside the city, Tom gave me the most puzzled look and asked, "Why on earth would you want to dig any place else?" And he meant it! Tom Phelan loved his city, and he was Troy's mightiest champion. Industrial archeologists need many more supporters like him, a compassionate scholar and clergyman who was a most inspirational leader and humanitarian.

David R. Starbuck

Lola Bennett Collection



Parke County, IN, hosted the first covered bridge festival in 1957, and today it remains the largest of over 17 regional covered bridge festivals across the country.

Jet Lowe, HAER



Sunday River Bridge, an 1872 Paddleford truss in Maine, is also known as Artist's Bridge because it has become a popular artistic subject.

Bridges," examining the dramatic loss of covered bridges in the last century, due to both natural and man-made causes and improvements in automobiles and highways, as well as neglect and arson. It highlights the mixed results of the preservation movement, from the Parke County (IN) Covered Bridge Festival to local efforts such as the Ohio Historic Bridge Association. It concludes with a feature on



Chauncey Buck, HAES

HABS captured the plight of neglected covered bridges in 1934, taken only one month after the Salt Fork River Bridge had been measured in Homer, IL.

Milton and Arnold Graton, father-son New England craftsmen who have restored numerous covered bridges using time-honored construction techniques and compatible materials.

In addition to the panels, HAER intern Joe Dahmen of MIT developed models to illustrate how trusses work and Lola Bennett produced docent notes, bibliographies, and other materials designed to assist venues in developing their own educational programs, which is incorporated into a traveling trunk for school groups and visitors.

The exhibition opened at the State Museum of Pennsylvania in Harrisburg on March 12, and is scheduled to run through July 16, 2006 (www.statemuseumpa.org/home.html). The exhibit is scheduled to travel to Vermont, California, and other covered-bridge states including West Virginia, Ohio, Iowa, Indiana, and Washington through 2009. A tentative itinerary is listed below; please check the SITES website for confirmation of dates and venues (www.sites.si.edu/exhibitions/exhibits/bridges/main.htm).

Christopher H. Marston

Mar. 12-July 16, 2006
 Aug. 5-Oct 15, 2006
 Nov. 4, 2006-Jan. 7, 2007
 Jan. 27-Mar. 25, 2007
 Apr. 14-June 10, 2007
 June 30-Aug. 26, 2007
 Sept. 15-Nov. 11, 2007
 Feb. 16-Apr. 13, 2008
 May 3-June 29, 2008
 July 19-Sept. 14, 2008
 Oct 4.-Nov. 30, 2008
 Dec. 20, 2008-Feb. 15, 2009

Pennsylvania State Museum, Harrisburg
 Montshire Museum of Science, Windsor, VT (booked)
 WV Div. of Culture & History, Charleston (tentative)
 Chico Museum, Chico, CA (booked)
 Bennington Museum, Bennington, VT (booked)
 Preble County Historical Society, Eaton, OH (tentative)
 Madison County Chamber, Winterset, IA (tentative)
 Parke County Covered Bridge Festival, Rockville IN (tentative)
 Hayner Cultural Center, Troy, OH (tentative)
 Call SITES for availability
 River Life Interpretive Center, Skamokawa, WA (tentative)
 Altoona Heritage Discovery Center, Altoona, PA (tentative)

Oregon DOT Receives National Honor for Historic Bridge Program

The National Trust for Historic Preservation (NTHP) has presented a prestigious National Preservation Honor Award to the Oregon Department of Transportation (ODOT) for its Historic Bridge Preservation Program. The agency was one of 22 national award winners honored by the NTHP during its week-long 2005 National Preservation Conference held in Portland, OR.

The National Preservation Awards are bestowed upon distinguished individuals, nonprofit organizations, public agencies, and corporations whose skill and determination have given new meaning to their communities through historic preservation. These efforts include citizen attempts to save and maintain important landmarks; companies and craftsmen whose work restores the richness of the past; the vision of public officials who support preservation projects and legislation in their communities; and educators and journalists who help Americans understand the value of place.

In 1997, the Vermont Agency for Transportation (VTRANS) won a similar award for its stewardship of the Green Mountain state's historic bridges. It was time to recognize the other state transportation agency that has demonstrated exemplary, sustained, national leadership in protecting historic bridges and, by extension, the scenic roads and highways of which bridges are the most visible icon.

SIA members will remember the loss of the Alsea Bay Bridge at Waldport, OR, in the early 1990s to chloride-induced corrosion of its steel reinforcement. This was the catalyst causing Oregonians and ODOT to develop methods of preserving the remaining spans that state bridge engineer Conde B. McCullough designed for the Oregon Coast Highway (US 101) in the 1930s. These were not discrete individual spans, but massive bridge systems spanning Oregon's navigable coastal estuaries on well-engineered structures unprecedented in their classical, Gothic, Art Deco, and Moderne-style architectural designs.

Turning adversity to advantage, ODOT has made significant progress over the last two decades in instilling a sense of awareness, appreciation, and responsibility within the transportation community and the public that historic bridges offer significant value to the built environment. Bridges not only are the most visible expression of the engineer's art, often serving as monumental gateways to cities as well as symbols of engineering prowess, but the more modest spans provide a harmonious scale and tranquility to country roads.

ODOT has stimulated efforts to preserve bridges not only on the Oregon Coast Highway, but also on the Historic Columbia River Highway, the Willamette River bridges in Portland, and the state's venerable covered bridges. Since the demise of Alsea Bay, protecting the state's legacy of historic bridges has become imbedded within the culture of the highway department. Frank J. Nelson, PE, ODOT's Bridge Preservation Engineering Manager, established the ODOT Bridge Preservation Unit, a team that developed bridge rehabilitation technologies and pioneered cathodic protection of the larger McCullough coastal bridges. The program has moved inland where ODOT continues to evolve practical solutions, often accomplished at less cost than new construction. The unit recently completed a restoration of the St. Johns Bridge, a 1931 Gothic revival, David B. Steinman-designed suspension bridge that soars above the Willamette River.

Dwight Smith, James Norman, and Peter Dykman wrote *Historic Highway Bridges of Oregon* (1985) that first identified and articulated McCullough's bridge engineering legacy. In the 1980s, ODOT recognized that many historic bridges were deteriorating in ways that conventional methods could not control. Eventually, the spectacular beauty of the McCullough bridges and the fear that they would be lost to corrosion damage compelled ODOT to make a fundamental change in its approach to historic bridges. ODOT identified nearly 200 historic bridges eligible for listing in the National Register of Historic Places.



The loss of the magnificent Alsea Bay Bridge in the early 1990s was a wake-up call to Oregonians that their historic bridge legacy was in jeopardy. The reinforced-concrete tied thru-arch bridge at Waldport was designed by engineer Conde B. McCullough and opened in 1936. HAER OR-14.

Jim Norman followed up with his study of Oregon's covered bridges (1988), and ODOT invited the Historic American Engineering Record (HAER) to document the state's bridges through a series of projects conducted throughout the 1990s. Continuing this tradition is Robert W. Hadlow, who started his career while a student working on HAER documentation teams. Upon graduation he was hired by ODOT and wrote the National Historic Landmark (NHL) nomination for the Historic Columbia River Highway. His nomination for 11 of McCullough's Coast Highway bridges was entered into the National Register in 2005. Of this group, he is working on NHL designation for the five largest structures. Hadlow will carry the legacy forward to the next generation.

The legacy extends beyond the highway department. Lewis L. McArthur worked for a decade as a private citizen to preserve the Columbia River Gorge Highway. Portland's bridge lady, Sharon Wood Wortman, has shown the wonder of the Willamette's movable spans to visiting dignitaries, local citizens, bridge scholars, and school students with her "bridge walks" and publication, *The Portland Bridge Book*. Her husband, Multnomah County bridge engineer Ed Wortman, was the engineer of record for restoration of the Hawthorne Bridge (1910), designed by J. A. L. Waddell, inventor of the modern vertical-lift bridge type and one of the foremost consulting engineers in the world at the turn of the century.

Two additional individuals worth recognizing include Chris Leedham, an ODOT structural design engineer, and Michael Beard of Errol Graphics. Leedham has overseen the rehabilitation of Oregon's covered bridges, several benefiting from FHWA's National Historic Covered Bridge Program funding. Beard, a graphic designer based in Portland, created the brilliant poster series of city bridges. Starting with the collection of movable spans over the Willamette River at Portland, he has continued the series, promoting other bridge cities such as New York, Chicago, Pittsburgh, and London.

In summary, Oregon has been restoring, rather than replacing, its historic bridges. ODOT took a dramatic step forward in historic bridge preservation by developing and employing state-of-the-art methods to halt damage to these



Eric DeLony

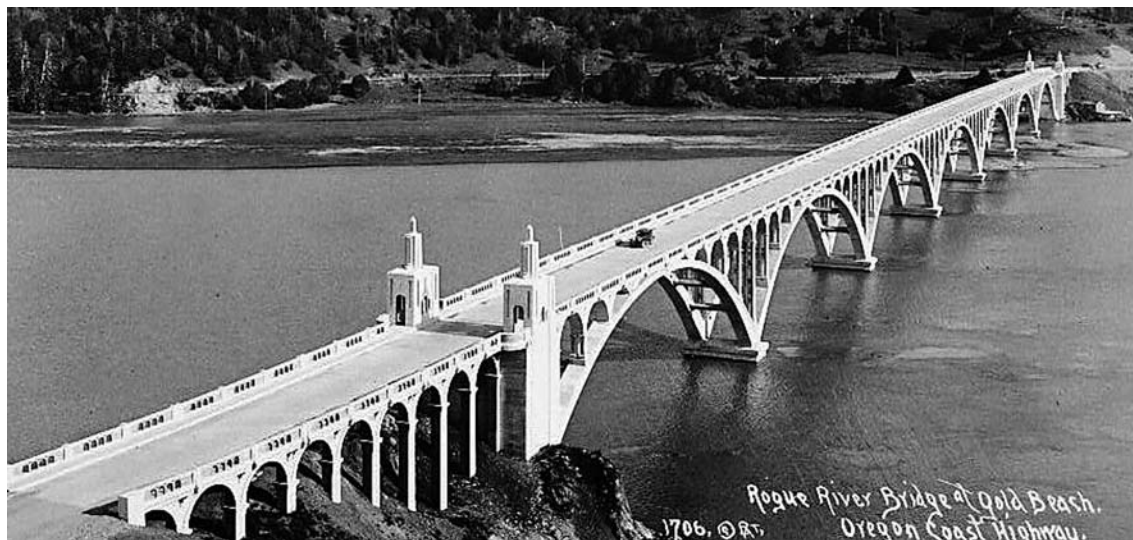
ODOT crews at work on the historic St. Johns Bridge over the Willamette River in Portland. Engineer David B. Steinman designed the suspension bridge with its handsome Gothic-arch towers. It opened in 1931.

structures, restoring them to their original condition, and defending them from future corrosion. "The Oregon coast would not be the same without these incredible bridges. Oregon's Historic Bridge Preservation Program has received widespread attention for its accomplishments in keeping an important part of the state's transportation history alive for everyone to appreciate. ODOT's methods and ideas serve as a model for all states to consider," said Richard Moe, president of the NTHP.

It is important that we in the industrial archeology and preservation community recognize outstanding efforts like ODOT and VTRANS. Other states are beginning to see the light regarding the value of old bridges and the roads they serve, but these two states are unique. Oregon and Vermont, sitting in the eastern and western corners of this great nation, are arguably two of the most progressive states in valuing the environment, both cultural and natural, and to promoting quality of life issues with equal zest. By recognizing ODOT with a national preservation award, we send the message that engineering and transportation need not necessarily be at odds with protecting and enhancing the historic built environment.

Eric DeLony

ODOT's Historic Bridge Program has ensured the long-term preservation of bridges on Oregon's Coastal Highway, including the 1932 Rogue River Bridge at Gold Beach, another McCullough masterpiece. HAER OR-38.



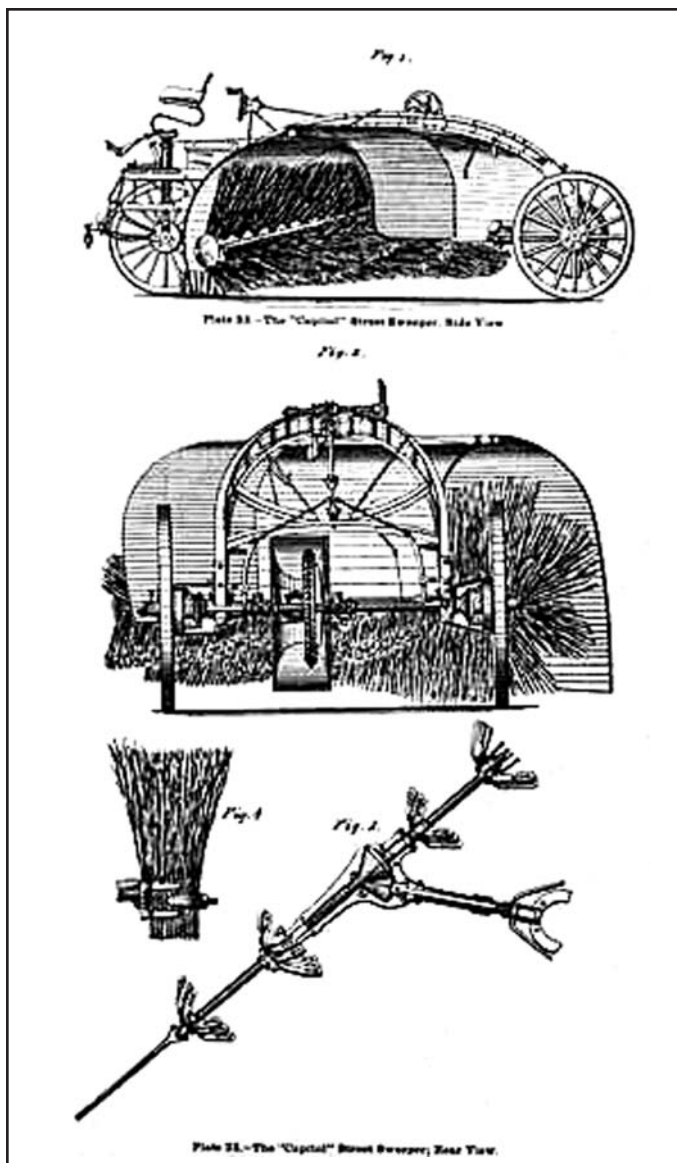
The Evolution of the American Street Sweeper

The University of Vermont's historic preservation program offers a course taught by Robert McCullough [SIA] that requires students to examine old engineering journals. The students select a topic then evaluate how the journals cover it over time. The street sweeper article by graduate Amanda Ciampolillo was an outgrowth of that exercise and illustrates a teaching method for developing an appreciation for the material culture of American industrialization and the use of primary sources, like engineering journals.

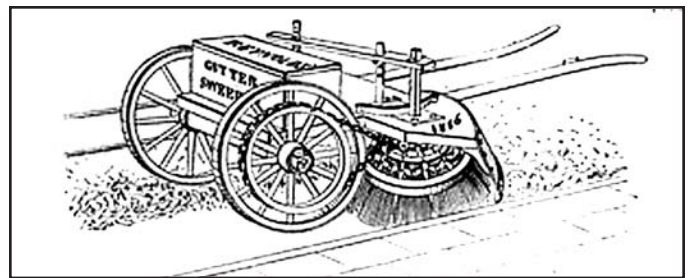
An investigation of street cleaning techniques employed in the U.S. from the 1880s through the present reveals the influence of industrialization. The basic design and operation of street-sweeping machinery emerged in the late-19th century, to be refined during the early automobile age, and

is still found in use today.

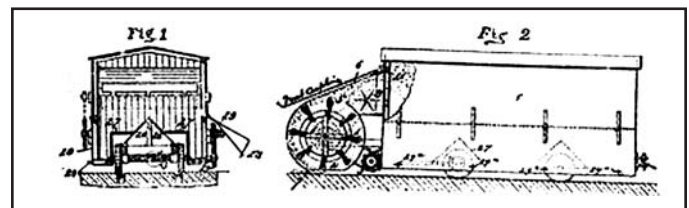
In the 1880s, municipalities began to examine the cost effectiveness of mechanizing their street-cleaning operations in comparison with traditional systems of manual labor, i.e., men pushing brooms and shovels. In Washington, DC, the "advanced" system in place in 1886 used two machines—the Monitor Sprinkler and the Capitol Street Sweeper. The sprinkler went in advance of the sweeper to dampen the dirt and debris, and keep down the dust. The sweeper, powered by four horses, measured 12 x 9 ft., weighed 650 lbs. (it was largely of iron), and featured 96 small brooms made of white-birch twigs mounted on a horizontal shaft angled to the roadway. The system relied on manual labor for its final step; the sweeper merely swept the



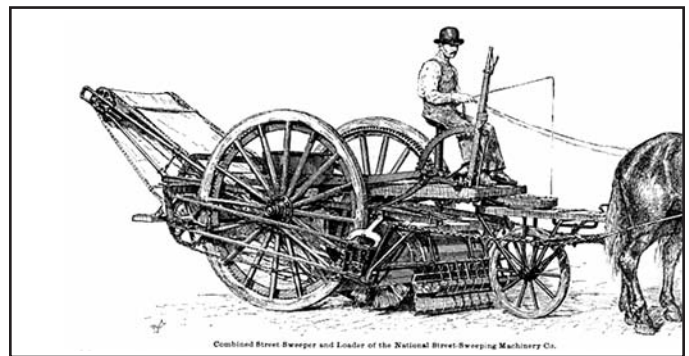
The Capitol Street Sweeper (1886) was representative of the first phase of street sweeper development and had no method of collecting debris. Courtesy Engineering News, Oct. 9, 1886, p. 230.



Used before other machines, the Gutter Sweeper (1886) swept material from the gutter to the middle of the street. Courtesy Engineering News, Apr. 24, 1886, p. 261.



Running on streetcar tracks meant that the Self-Loading Sweeper Car (1886) made getting refuse to the dump easier, and also kept rail lines clear. Courtesy Engineering News, Apr. 24, 1886, p. 261.



The Combo Street-Sweeper Loader (1887), developed by the National Street Sweeping Co. of Philadelphia, removed manual labor from street cleaning with a conveyor that dumped debris into a following cart (not shown). Courtesy Engineering News, Sept. 17, 1887, p. 210.

debris, including a large volume of horse manure, into the gutters, where men shoveled the waste into bins or wagons.

Interestingly, A.J. Reynolds of Chicago devised a street-cleaning system in 1886 that worked a direction opposite to Washington's, beginning in the gutters and working toward the middle of the street. First, a gutter sweeper, basically a two-wheel cart with circular brooms on vertical shafts mounted in front of the main axle, swept the debris out of the gutter. The driver, sitting on a small box above the axle, controlled the downward force of the brooms with a lever. A self-loading sweeper car followed the gutter sweeper, and this was the most innovative part of the process. The car ran on the streetcar rails, and consisted of a large bin attached to a circular drum. Inside the drum, eight brooms operated rapidly to sweep the waste into the bin. The bin itself was shaped like a boxcar, except that the bottom was V-shaped, allowing easy emptying from either side of the car. This system offered a major advantage by the simple fact that it used the existing streetcar system to expedite transportation of the waste to dumps.

Many cities throughout the country were testing systems that would eliminate manual labor. Another variation, and one of the more successful, was devised by the National Street Sweeping Co. of Philadelphia. Introduced in 1887, National's Combined Street-Sweeper and Loader was a sweeping machine pulled by two horses, followed by a cart fed by a conveyor belt. This train of equipment was designed to follow behind a gutter sweeper, similar to the one developed by Reynolds in Chicago. The sweeper had a cylindrical-shaped broom on a horizontal axis, encased in a tight-fitting steel drum. The speed of rotation of the brooms in the drum created a suction that aided in collection and also reduced the drag for the horses. One advantage to this system was complete elimination of hand labor in connection with street cleaning. In Philadelphia, this method lowered costs to less than 12 cents per 1,000 sq. yds. of cleaned street surface, saving 63% over previous systems.

A saying among sanitation engineers was that "preparedness is as necessary in sanitation as it is in war." The continued growth of American cities during the first part of the 20th century

brought about an increased strain on the maintenance of urban infrastructure, including street cleaning. The length of streets to be cleaned increased exponentially, even though one of the major sources of pollution the horse—was replaced by the motor vehicle. Street sweepers during this period

exhibited design changes in attempts to increase efficiency in the new motorized age.

In 1923, the Foamite-Childs Corp. designed a Pick-Up Motor Street Sweeper. This one-man device combined a sprinkler machine, a sweeper, and a disposal hopper mounted on a motor vehicle chassis. The water sprinkling system used gravity to feed water from a 150-gal. tank to a rotary gear pump located at the front of the machine. A gutter broom with steel fiber filling was located at the side of the sweeper. It was built in segments to make replacement easy. The broom brushed the dirt out from the gutter to the underside of the sweeper where a rotary broom kicked up the debris onto a conveyor belt that then deposited it into a storage hopper. This system was stated as being most effective when operated at nine mph. The Pick-Up sweeper, or a model very similar to it, was the machine employed by the city of Rockford, IL. Previously, the city used manual labor; the annual cost in 1921 was \$35,724. After acquiring a sweeper for \$6,500, annual cost for cleaning the streets plummeted to \$16,009 in 1924.

In the late 1930s, smaller, more compact designs were promulgated for street cleaners. The Patrol Sweeper, developed by Austin-Western Road Machinery Co., was able to clean 66-in. of pavement per pass. This small sweeper, powered by a 29-hp internal-combustion engine, could be used to pick up litter, leaves, broken glass, and even bricks. The Patrol Sweeper was also available with an enclosed cab, which protected the operator from the elements and dust without impeding visibility.

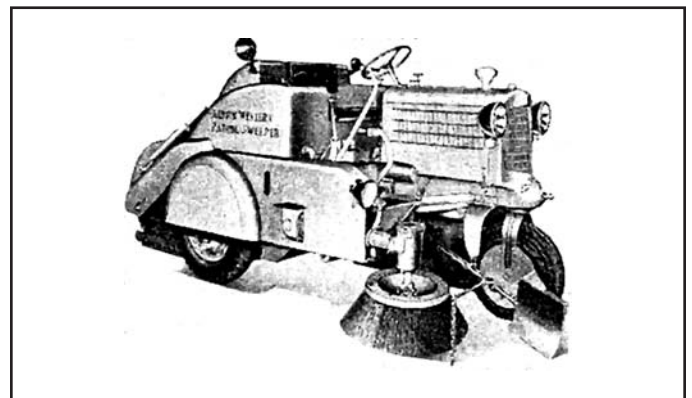
The motorized systems perfected in the 1920s and 1930s very much resemble present-day systems. In 2006, the Burlington (VT) Public Works Department uses a Johnston MX450 street sweeper. It has a tripod design, allowing greater maneuverability. There is a sprinkler system directly in front of the side gutter brooms, which in turn move debris towards the center of the undercarriage. Then, a large broom moves the dirt onto a conveyor belt, and from there the waste is stored in a hopper. The brooms last an average of 40 hrs. These machines normally move at a maximum pace of five mph. Approximately nine miles of street

(continued on page 21)



Amanda Ciampolillo

Burlington, VT, utilizes the Johnson MX450, which can be viewed as a culmination of street-sweeper technology in development since the 1880s.

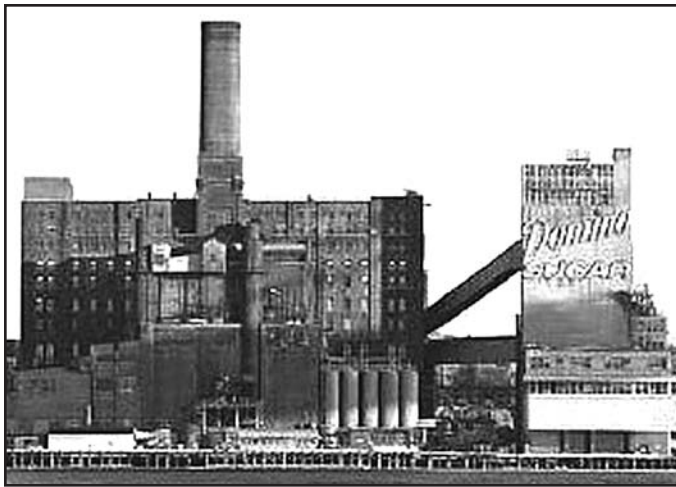


The Patrol Sweeper (1939), a tri-wheeled design on a tractor chassis, combined the sweeping and collecting functions into a compact, automated design. Courtesy Roads and Streets, April 1939.

SITES & STRUCTURES

The Preservation League of New York State recently named the **Industrial Heritage of Greenpoint & Williamsburg** to its “7 to Save” list of threatened historic resources. Among the significant industries located in the Brooklyn industrial neighborhoods were the **Domino Sugar Factory** (1884, closed in 2004), the **Old Dutch Mustard** factory (1902, closed in 1980), the **Pacific Beef Co. Building** (1897), and the **Eberhard Faber** pencil factory (1887) with its yellow terra-cotta pencils decorating the facade. SIA members toured Greenpoint-Williamsburg during the 2002 Annual Conference—Brooklyn. The Waterfront Preservation Alliance and the SIA Roebling Chapter have also been working to bring attention to Brooklyn’s rapidly disappearing industrial waterfront. Info: www.waterfrontalliance.org. Brooklyn’s Greenpoint, Williamsburg, and Red Hook neighborhoods are also featured prominently in an essay by Lisa Kersavage, *Erasing a Historic Past: What Went Wrong with the Brooklyn Waterfront Plans* in the *Stamford Review* (Spring/Summer 2006), pp. 33-8 (Free for download, www.stamfordreview.com).

Waterfront Preservation Alliance



Originally constructed in 1884 as the Havermeyers & Elder Sugar factory, and expanded in 1927 and 1960, the Domino Sugar factory was once the largest refinery in the U.S. American Sugar Refining sold the refinery to a developer in 2004. Its future remains uncertain, as does the future of many of the industrial buildings and workers’ houses in Brooklyn’s Greenpoint and Williamsburg neighborhoods.

The Cornell Steamboat Factory in Kingston, NY, will be preserved as a maritime and transportation museum under a plan recently unveiled by a local developer. Cornell Steamboat, which was established in the mid-19th century, was an important builder of Hudson River steam tugs and other small commercial craft. The brick factory was built in 1902 and closed in 1958.—*Preservation Online* (www.preservationonline.org), Mar. 15, 2006

Historic Las Vegas Railroad Cottages Preserved. Before it was a gambling mecca, Las Vegas was a railroad stop in the

desert. Four 700-sq.-ft. cottages, built in 1909-11 for employees of the San Pedro, Los Angeles & Salt Lake RR, are among the last vestiges of the city’s dusty and dry railroad past. They will be relocated to the Springs Preserve, an open-space and historic preservation center, operated in cooperation with the Nevada State Museum. Info: www.springspreserve.org.

Buffalo Preservationists Fight to Save H-O Oats Grain Elevator. In Dec., wrecking crews began taking down the 1913 grain elevator complex (tour site—1992 Annual Conference, Buffalo) to make way for a new casino. The demolition was stopped, at least temporarily, by a law suit charging that a federal environmental-review process should have been required for the site, which has been purchased as tribal land. The 130-ft.-tall, reinforced-concrete grain elevators, along with 15 others, are a signature of the Buffalo waterfront and eligible for listing on the National Register.—*Preservation Online* (www.preservationonline.org), Dec. 28, 2005

St. Paul Votes to Protect Schmidt Brewery. City Council voted in March to prohibit the demolition and piecemeal destruction of the 150-yr.-old Schmidt Brewery complex. The brewery is in the process of being designated a local historic landmark, for features from its castle-like architecture to its Prohibition-era Rathskeller. The brewery closed in 1995 and in recent years was operated as an ethanol distillery. Unauthorized scrap-metal operations have recently endangered it.—*Pioneer Press*, Mar. 9, 2006. ■



THREATENED: The Fruita (CO) Bridge over the Colorado River was built in 1907. It is among the oldest pin-connected, through-truss, highway bridges remaining in the Rocky Mountain region. Closed to traffic for over 25 years, it has been neglected and is near collapse because of undermining of one of the piers. The city and state are weighing their options: spending \$200,000 to demolish it or \$2 million to rehabilitate it as a pedestrian bridge.—Grand Junction Sentinel/Joe Saldibar. Courtesy Preservation Colorado.

CHAPTER NEWS

Oliver Evans (Philadelphia) held its annual dinner in Feb. at the **John Grass Wood Turning Shop**. Founded by a German immigrant and in operation since 1863, this small industrial shop, with many of its belt-driven machines still in use, now provides accurate wooden details for old houses. John R. Bowie [SIA] gave an overview of the history and operations of the shop, as well as options for its future as a small, operating industrial museum.

Roebling (Greater NJ-NY) is helping to bring attention to Red Hook's last working shipyard by co-sponsoring an exhibit, *Big Box on the Basin*, with the Metropolitan Waterfront Alliance and the Municipal Art Society. The exhibit at the Urban Center Galleries (457 Madison Ave. at 51st St.) runs through May 26. It explores the past, present, and future of the **Todd Shipyard** and offers a close-up view of what goes on inside a graving dock. The shipyard is threatened by plans for a new IKEA store that would fill in the 730-ft. dock for a parking lot. In January, the chapter held its annual meeting at Drew University with presentations on the canals of Wales and a rail-to-trails project on the Erie RR main line by Tom Flagg [SIA] and on plans for a state park in Paterson, NJ, by Gianfranco Archimede [SIA]. In April, the chapter toured the **Ralston Mill** (1848) a grist and cider mill in Mendham, NJ. Millwrights are currently restoring the cider mill, including two 1890s cider presses and a rail-mounted transfer table system for moving the apples to and from the presses. In May, chapter members explored the former site of the **NY Central 60th St. Railyard** guided by Tom Flagg. ■

SUPPORT YOUR LOCAL CHAPTER

For info on a chapter near you or to start one, contact: Lynn Rakos, SIA Director, Local Chapter Chair (917) 790-8629; lrakos@hotmail.com

American Street Sweeper (continued from page 19)

per day are swept in this manner, as the sweepers need to stop every two blocks or so to be emptied.

An examination of the street-cleaning apparatus in use since the 1880s sheds light on one aspect of the historical and technological development of sanitary engineering. Mechanization of the street-cleaning industry was in its infancy in the late 1880s, and sweepers that were being introduced still relied on horsepower, manual labor, or both. By the 1920s and 1930s, the development of motorized vehicles completely marginalized the need for manual street cleaning in American cities. As sweepers became motorized, they became more efficient; they could cover more ground, collect more debris, and work longer. Also, the specialized vehicles of the 19th century disappeared as newer combination machines could do all the work of a sprinkler,

Ford Powerhouse Restoration



Pettibone Creek Hydroelectric Station, built in 1939, restored in 2006. Design by Albert Kahn.

Funding is from the Village of Milford, the Milford Historical Society, the Milford Downtown Development Authority, federal and state grants, and donations from local businesses and citizens.

The powerhouse is a distinctive reminder of Henry Ford's village industry. The building still has its two, 48-in.-dia. Leffel turbines that powered the generators for a Ford carburetor factory. It is now the focal point in Milford's Central Park and offers the opportunity to tell the little-known story about automotive history in a rural community.

"The project will be complete when the building is ready for a tenant, including interior work," explains volunteer project engineer and village resident Glenn Rittenger. "The icing on the cake," adds Judith Reiter, chair of the restoration committee, "will be historic interpretation of the building and the mill pond site."

Judith Reiter

sweeper, loader, and hopper.

However, the basic problem of street cleaning has in many ways remained the same for more than a century. The designs of the 1880s are still recognizable in the later examples. Before a street can be swept, it is normally sprayed with water to keep dust particles from becoming airborne. The separate machine for this task disappeared, yet there is still an integrated sprinkler on modern sweepers. The circular brushes on the sides of sweepers today address the same need gutter cleaners did 120 years ago. Dirt and debris are still transported up into a hopper for storage and disposal through the use of wide, powerful brooms. The problem of dirty, cluttered streets has not disappeared.

Amanda Ciampolillo

IA EXHIBITS

Ebb & Flow: New Jersey and Its Rivers will be on display through 2008 at the New Jersey Historical Society in Newark. The exhibit concentrates on the history of the Maurice, Delaware, Raritan, and Passaic rivers, with sections arranged thematically around the topics of industry, transportation, food, and settlement. Shipyards, tanneries, hat factories, textile mills, and breweries are featured in the industrial history section of the exhibit. The transportation section focuses on canals, and oyster harvesting is the highlight of the food section. Info: NJHS (973) 596-8500; contactNJHS@jerseyhistory.org.

175 Years of Railroading—Norfolk Southern Museum Opens. On Dec. 5, the new Norfolk Southern Museum opened in downtown Norfolk, VA. Early tools, locomotive parts, signage, photographs, and advertisements are on display and mark the 175th anniversary of the founding of the oldest of the modern-day Norfolk Southern's corporate ancestors, the South Carolina RR. The 1,600-sq.-ft. museum includes artifacts contributed by employees, customers, and suppliers, as well as historical associations and muse-

ums. The railroad's impact on American culture, and the diversity of the people who built it, are highlighted. The exhibit brings visitors up to the present, explaining the railroad's role in modern-day logistics. The museum is located on the ground floor of Norfolk Southern's office building and is open weekdays, 10-4. Info: www.nscorp.com.

Samuel Colt: Arms, Art, and Invention is a show running at the Wadsworth Atheneum in Hartford, CT, through Jan. 21, 2007. Arms designed by Colt are immediately identifiable by their artistic design—simplicity of form, elegant line, and eye-catching finishes meant to reflect light and attract customers. The exhibit offers a complete picture of the inventor's manufacturing triumphs, drawing upon Colt's personal collection of arms that was in his office at his death in 1862. Colt amassed not only his own prototypes and models, but also examples of earlier arms, copy infringements, and counterfeits. It also includes examples from the collection assembled by his widow of all the Colt models in production at his death. Info: www.wadsworthatheneum.org. ■

IA ON THE WEB

French IA (<http://perso.wanadoo.fr/derelicta>) INFOCILAC is the electronic newsletter of the French IA association. It brings together photographs and commentaries on a remarkable collection of ruined and abandoned industrial, military, and underground sites throughout France.

H. L. Hunley (www.hunley.org). Keep up-to-date on the examination and restoration of the *Hunley*, the Confederate submarine that sank in 1864. Interesting details on iron fabrication and interior lighting systems emerge as the packed mud is slowly removed from the sub after more than 135 years in the ocean.

Iron Furnaces "Wiki" (www.ironfurnaces.com). Raymond Hammond [SIA] has designed this Website as a "wiki," an online encyclopedia that relies on contributions from its users to quickly compile and correct information. The object is to catalogue iron furnace sites, nationally and internationally, and direct traffic to existing IA Websites or provide space for users to collect the information on specific iron furnaces. An attractive and easy-to-use design. SIA members are invited to make contributions on their favorite iron furnaces.

Keefer Mansion (www.keefermansion.com). Some members will remember Keefer Mansion (1887) from the 1985 Fall Tour—Niagara Region, Ontario. Located in Thorwold, the mansion is operated as an inn and gallery. The Keefer family played a significant role in the engineering of Canada's railways, bridges, and the Welland Canal.

Sears Catalogue Homes (www.searsarchives.com/homes/

[1908-14.htm](#)). Manufactured-home kits that could be bought from Sears Roebuck & Co., 1908-14.

Steam Train Sounds (www.buffalohistoryworks.com/steam/introduction.html). Downloadable collection of the recorded whistles and sounds of passing steam trains from the 1950s.

Traffic Signals (www.trafficsignals.net). Old highway and railroad signals and lights, as well as links to related sites.

Typewriter Museum (www.typewritermuseum.org). "Virtual" museum offers a history of the typewriter, its development and manufacture, and a collection of photos that is searchable by brand and model.

Women Working, 1800-1930 (ocp.hul.harvard.edu/ww). One-half million digitized pages and images of selected rare historical books, institutional papers, personal papers, diaries, and photographs from Harvard's libraries, archives, and museums. Documents women's roles in the economy, including working conditions, conditions in the home, costs of living, recreation, health and hygiene, conduct of life, policies and regulations governing the workplace, and social issues. This is the first of Harvard's "Open Collections," completely free and available to anyone with access to the Internet. A second collection on *Emigration and Immigration, 1789-1930* will become available in mid-2006.

"IA on the Web" is compiled from sites brought to the editor's attention by members, who are encouraged to submit their IA Web finds by e-mail: phsianews@aol.com. ■

NOTES & QUERIES

Roebing's 200th Birthday. John A. Roebing was born in Mülhausen, Germany in 1806. Several events are planned to celebrate his contributions to suspension bridge engineering. **John A. Roebing: His Life and Legacy** is an exhibit that will run at the **Trenton (NJ) City Museum** from June 17 to Sept. 10. Artifacts pertaining to Roebing's early life, industrial pursuits, and his involvement in the city of Trenton will be on display. The museum is in the historic Ellarslie Mansion near a statue of Roebing in Cadwalader Park that was erected by employees of the John A. Roebing's Sons Co. wire works. Info: www.ellarslie.org. The American Society of Civil Engineers (ASCE) will hold a symposium, Oct. 27-29, including presentations on Roebing's works and their impact on the field of civil engineering. Appropriately, the symposium will be held at the Brooklyn Marriott near the Brooklyn Bridge. There will also be a full-day bus tour of Roebing projects, including the Delaware Aqueduct. Info: www.asce.org/history/roebing_06.cfm.

Entrepreneurial Communities is the theme of the Business History Conference Annual Meeting, Case Western Reserve Univ., Cleveland, June 1-2, 2007. **Paper proposals requested.** The theme will explore the question of whether entrepreneurs can truly act alone. How and when does entrepreneurial activity rely on the input of other inventors, venture capitalists, lawyers, accountants, marketing specialists, governments, laborers, and others? The organizers are interested in papers that explore the roles of these actors and the broader social context in which entrepreneurial activities take place. Proposals should include a one-page abstract and a one-page cv. Deadline: Oct. 15, 2006. Info: Roger Horowitz, BHC, Box 3630, Wilmington, DE 19807; (302) 658-2400; rh@udel.edu.

IA in Philately & Numismatics. The Royal Mail (U.K.) recently issued a set of six stamps honoring engineer Isambard Kingdom Brunel (1806-59). The stamps depict some of his greatest works, including the Royal Albert Bridge, Paddington Station, *PSS Great Eastern*, Clifton Suspension Bridge, Maidenhead Bridge, and Box Tunnel. The West Virginia quarter, recently released by the U.S. Mint, features the New River Gorge Bridge, the 1,700-ft.-long steel arch that opened in 1977 and was the world's longest steel arch until surpassed by China's Lupu Bridge in 2003.

The **National Canal Museum** in Easton, PA, has acquired artifacts, documents, films, photographs, videotapes, and ephemera from the former **Bethlehem Steel Homer Research Laboratories**. For over 25 years, the NCM has taken a leading role in preserving and interpreting the history of the late, great Bethlehem Steel Corp., and in the process its staff has compiled the largest collection of materials related to it. Among the highlights acquired from the Homer is a small rolling mill that will shape plasticene and thus give visitors an opportunity to experience forming steel shapes in a safe manner. Another gem from the files is a copy of a manuscript history of all Bethlehem research activities. Finally, the collection contains paintings, prints, sculptures, and commemorative pieces related to the history of steel making in general, and Bethlehem in particular.

Aerospace Archeologists Wanted. William McAlexander is seeking archeologists who are interested in the evolving theory and practice of examining sites that deal with the study, experimentation, construction, and operation of objects designed to move through the air. It is his hope to organize a meeting or session at the Society for Historical Archeology conference, Jan. 9-14, 2007, at Williamsburg, VA. So far, papers proposed include European influence on early U.S. Army airfield design, condition and state of Japanese airfields on Tinian and Saipan, and restoration and long-term curation problems with aircraft. This subfield of archeology has been emerging over the past 15 years, and it was the subject of a paper session at the SIA 1999 Annual Conference—Savannah. Contact: William McAlexander, Environmental Div., Arkansas State Hwy. and Transportation Dept., 10324 Interstate 30, Box 2261, Little Rock, AR 72209; (501) 569-2078; William.McAlexander@arkansashighways.com.

IA Contributions Welcome to New On-line Magazine. The Rocky Mountain Institute of Anthropology (Red Deer, Alberta) invites archeologists and anthropologists to submit short articles, photos, video clips, etc. to a magazine dedicated to bridging the gap between the professions and the general public. The editor has contacted the SIA seeking contributions from members. The voluntary effort will result in a monthly on-line magazine. Info: Shawn Haley, EVR Canada, 275 Glendale Blvd., Red Deer, AB T4P 3L3; shaley@evrcanada.com. ■

MEMBER NEWS

Abba Lichtenstein, former SIA director and distinguished historic bridge engineer, was recipient of the Transportation Research Board's Thomas B. Deen Distinguished Lectureship for 2006. The award recognizes the career contributions and achievements of an individual in the technical fields covered by the TRB, an independent advisor to the federal government and a branch of the National Academies. Abba's presentation, given at the annual meeting in Jan., was on Preservation of Historic Transportation Facilities.

Conrad Milster, curator at the Pratt Institute Power Plant (tour site—2002 Annual Conference, Brooklyn), appeared on National Public Radio's *All Things Considered* on Dec. 30 to talk about steam engines just before the annual New Year's Eve steam-whistle blow. The story can be accessed through the show's archives on-line at www.npr.org/templates/story/story.php?storyID=5076759. ■

CALENDAR

2006

July 18-23: National Railway Historical Society Annual Convention, New Philadelphia, OH. Seminars, tours, and rail excursions. Info: Buckeye Rails 2006, 2025 Zumbuhl Rd., PMB 80, St. Charles, MO 63303.

Sept. 8-14: Assn. for Industrial Archaeology Annual Conference, Isle of Man, UK. Tours of mines, lighthouses, and steam railway. Paper sessions. Info: www.industrial-archaeology.org.uk.

Sept. 12-14: World Canals Conference, National Canal Museum, Easton, PA. Theme: Industry to Recreation: Greening the Coal Canals. Info: NCM, 30 Centre Sq., Easton, PA 18042-7743; www.canals.org.

Sept. 13-16: Assn. for Preservation Technology Annual Conference, Atlanta, GA. Theme: When Modern Becomes Historic. Info: www.apti.org.

Sept. 13-17: Frank Lloyd Wright in Southeast Michigan, FLW Building Conservancy, Southfield, MI. Craft and industry in Wright's architecture and his shared vision with Henry Ford for decentralized village factories and automobile-based living. Info: www.savewright.org.

Sept. 14-23: XIII Congress of The International Committee for the Conservation of Industrial Heritage (TICCIH), Terni, Italy. Paper sessions and tours to industrial centers and museums. Info: Congress Secretary TICCIH 2006, ICSIM - via I Maggio, 23-5100 Terni, Italy; fax 0039 0744 407187; www.ticcihcongress2006.net.

Sept. 28-Oct. 1: SIA FALL TOUR, YOUNGSTOWN, OH. Info: events@siahq.org; www.sia-web.org.

Oct. 5-7: Pioneer America Society Annual Conference, Springfield, OH. Theme: On the Rebound: Landscape Revitalization in a Historic, Industrial Midwestern Town. Paper proposals requested. Info: www.pioneeramerica.org.

Oct. 12-16: Society for the History of Technology (SHOT) Annual Meeting, Las Vegas, NV. Info: www.shot.jhu.edu.

Oct. 19-21: 28th Annual North American Labor History Conference, Wayne State Univ., Detroit, MI. Theme: Technology, Environment & Work. Info: Janine Lanza, Dept. of History, 3094 Faculty Admin. Bldg., WSU, Detroit, MI 48202; (313) 577-2525; jmlanza@wayne.edu.

Oct. 31-Nov. 5: National Trust for Historic Preservation Annual Conference, Pittsburgh, PA. Theme: Making Preservation Work! Info: www.nthpconference.org.

Nov. 3-4: Food Chains: Provisioning, Technology, and Science Conference, Hagley Museum & Library, Wilmington, DE. Info: Carol Lockman, (302) 658-2400; clockman@hagley.org.

2007

Jan. 9-14: Society for Historical Archaeology Annual Conference, Williamsburg, VA. Info: www.sha.org.

June 1-2: Business History Conference Annual Meeting, Case Western Reserve University, Cleveland, OH. Theme: Entrepreneurial Communities. See article in this issue. Info: Carol Lockman, Box 3630, Wilmington, DE 19807; (302) 658-2400; clockman@hagley.org.

Department of Social Sciences
Michigan Technological University
1400 Townsend Drive
Houghton MI 49931-1295

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