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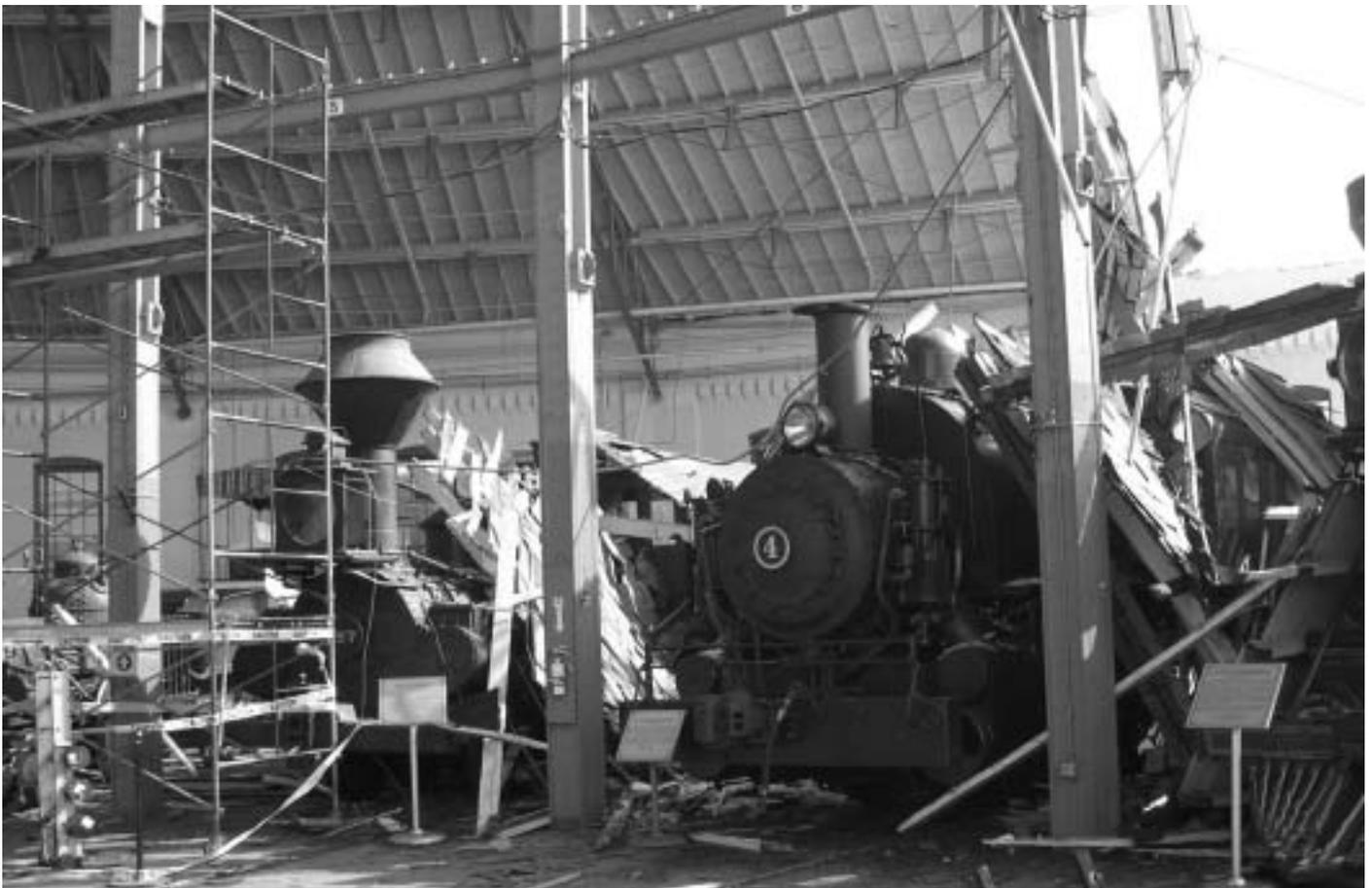
Disaster at the B&O Railroad Museum

President's Day 2003 in Baltimore was a date that will live in preservation infamy. In the midst of what turned out to be an all-time record snowfall for the city, over one-half of the roof of the B&O Railroad Museum's landmark "roundhouse" collapsed, sending metal trusses and slate smashing down onto the museum's priceless collection of 19th-century rolling stock and then covering the mess with snow. Present speculation is that the shifting weight of the snow caused one of the radial trusses supporting the roof to buckle, which then caused neighboring trusses to fail in succession. About one-quarter of the roof initially collapsed slightly after midnight February 17; this was followed by another quarter early in the morning.

It was a double disaster. First, the core of the museum's collection was heavily damaged—locomotives and cars ranging from

the late 1840s to the early 1900s. The 1848 0-8-0 "Memnon" (a particularly rare example of an early heavy freight loco), the 1863 4-6-0 "Thatcher Perkins," the 1869 Hayes Camel No. 217, the 1875 2-6-0 "J. C. Davis," the 1888 2-8-0 "A. J. Cromwell," and a pair of post-Civil War wood passenger cars were among those damaged.

Then there was the building itself, a structure that is both spectacular and historically unique. Built in 1884 as a passenger-car shop (and serving that purpose until 1953), the "roundhouse"—actually a 22-sided polygon—was aptly advertised as a "cathedral of railroading." Its breathtaking 123-ft. height and 235-ft. diameter made it, in the words of some nameless retired Smithsonian engineering curator, "the largest circular industrial structure in the world." (Maybe not surprisingly, *(continued on page 3)*)



Beams and debris litter the B&O Museum's locomotives, Feb. 2003.

IA in the Lehigh Valley

2002 Fall Tour Review

More than 120 SIA members gathered in Allentown, PA, from Oct. 16 to 19, 2002, to explore the industrial history of the Lehigh Valley. The tour was hosted by the National Canal Museum in Easton, and the conference coordinator was the museum's curator and SIA stalwart, Lance Metz. The itinerary featured a mix of process tours and visits to historic sites and museums. For those of us who had been on the 1988 Fall Tour, it was an opportunity to revisit some sites, but there was plenty new, and also a chance to see much progress, especially in the expanded facilities, activities, and exhibits at the National Canal Museum. There were four full days of touring; each bus followed a slightly different schedule to the same sites on Thursday, Friday, and Saturday. Sunday offered two optional tours—coal or canals.

Although Thursday's tour originally was to have included the Mack Trucks factory, the company (now owned by Volvo) had recently introduced a new environmentally compliant engine, sold its stock of old engines, and closed the assembly plant while making the transition. We contented ourselves with a tour of the **Mack Trucks Historical Museum** commemorating the oldest heavy-truck manufacturer in the U.S.—though its first product was a bus. Jack Mack and his brothers bought out the owner of a carriage and wagon business in Brooklyn in 1900 and moved the factory to Allentown in 1905. The Mack reputation was made by the heavy-duty, dual-wheel, chain-drive "AC" truck built for WWI and nicknamed "the bulldog" for its toughness by British soldiers. (This is the source of the company's logo.) Mack is now the third-largest truck builder behind Freightliner and Peterbilt. These facts and detailed overviews of several vintage Mack trucks and engines on display were shared by retired plant workers now acting as museum guides.

A tour of the closed **Bethlehem Steel Plant** was led by Don Young [SIA], a former supervisor. Bethlehem had a reputation for its innovative practices, especially in its early years, and was once the second-largest steelmaker in the country. Founded as the Bethlehem Rolling Mill and Iron Co. in 1860, it was producing the highest-quality railroad rails in the country by 1863. The company was

using the Bessemer process to make steel and had constructed a unique building to combine steelmaking and railrolling by 1873. A revolutionary rolling mill invented by Henry Grey was installed in 1907-08, allowing the company to produce continuously rolled wide-flange structural steel beams and columns. Like all American steelmakers, Bethlehem has faced increased overseas competition in the last several decades, and management decided to close

the aging plant in 1995. We were not disappointed as we walked amid empty buildings, silent machines, and land overgrown with butterfly bush and asters where over 35,000 workers had once toiled.

We visited the steel foundry where steel ingots were poured for the nuclear industry; the machine shop where naval guns once were turned and bored; and the powerhouse where blowing engines once were powered by top gas from the blast furnaces.

There have been ambitious plans to develop a section of the Bethlehem Plant as a National Museum of Industrial History, but Bethlehem Corp.'s filing for bankruptcy in 2001 and approval of purchase by International Steel Group (ISG) in Jan. 2003, have thrown these plans into doubt. At press, the new owners have not announced a decision about the disposition of the Bethlehem Plant. In fact, our SIA group was dismayed to discover that the scrappers had already been a bit overzealous in their removal of items designated to become part of the planned National Museum of Industrial History. Some artifacts that have been safely stored in anticipation of the museum include a gun and piece of armor plate from the U.S.S. *Mississippi*, and a hydraulic press. The city-backed preservation plan would set aside 330,000 sq. ft. for a Smithsonian-affiliated museum, plus 250,000 sq. ft. for a simulation of the steelmaking process. Other portions of the site would be used for entertainment,

(continued on page 4)



Michael Hoyt

A fire engine was among many fine specimens examined at the Mack Trucks Museum.



John Reap

The blast furnaces at Bethlehem Steel. The wide-gauge "Hoover-Mason Line" material-supply railway is in the middle ground.

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; Web site: 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.

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B&O RAILROAD (continued from page 1)

its architect, the versatile and prolific E. Francis Baldwin, did design churches and a cathedral—along with houses, commercial structures, schools, streetcar barns and shops, and numerous large and small B&O stations.) The roundhouse, along with other buildings in the museum complex, was designated a National Historic Landmark in 1961.

Fortunately, the central supporting structure with its double tier of cupolas remained intact, and hasty stabilization work prevented any further collapse. Those smaller exhibits which were unharmed were removed for storage in other buildings, but the larger locomotives and cars—both damaged and undamaged—will most probably remain in place until the building restoration is completed.

At this point it appears that all the damaged locomotives and some cars can be repaired, although it will be a long, grueling, and costly job. Original iron castings may be difficult or impossible to duplicate. (In truth, many of these antiques already had been rebuilt or at least given new fittings during their 110 years as display pieces.) The worst casualties were an 1868 wooden coach and early 1870s baggage car, which were wrecked beyond repair. These may be replicated, using salvaged materials.

In addition, the museum was forced to cancel its heavily advertised and much-anticipated summer celebration of the B&O's 175th anniversary. The event was to culminate in a re-staging of the famous "Fair of the Iron Horse," originally staged for the railroad's centennial in 1927. Two major railroad historical organizations had also planned their annual conventions around the fair. (The meetings will be held as scheduled, with other events planned to fill in for the missing fair.)

As of mid-March, much was still unknown. Stabilization and debris removal work was still under way and the extent of damage to the locomotives and cars had not been fully assessed. The museum hopes that restoration of the roundhouse itself can be completed by the year's end, with the damaged equipment to follow on some yet-undetermined schedule.

(Museum officials promised that the building's original structural design will be duplicated, including the roof trusses.) The museum is closed until further notice, and that notice may be a long way off. Its management is optimistic, however, and thus far no employees have been laid off.

Obviously, much will depend on money. Fortunately the museum had adequate insurance coverage, but even so, there will be some large gaps—particularly in restoration of the equipment and possibly the recovery of lost revenues. Needless to say, both money (lots of it) and volunteer help are needed. Tax-deductible contributions should be made payable and sent to: The Roundhouse Restoration Fund, c/o Mercantile Bank & Trust Co., 409 Washington Ave., Towson, MD 21204. (At present they can accept checks only, not credit cards.) Any likely volunteers should e-mail Stefanie Fay at sfay@borail.org.

Herbert H. Harwood, Jr.

Editor's Note—The B&O Roundhouse at Martinsburg, West Virginia (tour site—SIA Annual Conference, Washington, D.C.—2001) reported some nervous moments following the collapse of the roundhouse in Baltimore, but passed through the winter storms unscathed.



Herb Harwood



The B&O Roundhouse before and after the roof collapsed.

Lehigh Valley

(continued from page 2)

retail, and recreation, including a hotel and conference center, multiplex cinema, and swimming and diving facility.

Martin & Co. was established in 1833 in New York City near the present-day Holland Tunnel by German immigrant Christian Frederick Martin. In 1839, he moved his business to the more Germanic Lehigh Valley and in 1857 his son moved it to Nazareth. The company has been at its present location since 1963 and employs 700 workers, making about 250 guitars per day as well as mandolins and other handcrafted wooden instruments. The company also owns its own sawmill and a factory in Mexico. Computer-controlled cutting machines shape wood components which are then further shaped and sanded by hand. Hot presses are used to curve laminates used in guitar sides, though for some of the finer models these are bent by hand. The company currently is experimenting with high pressure laminates (HPL) as the base for various printed surfaces, some in imitation of rare endangered woods and others with painted scenes designed by artists.

We crossed the border into New Jersey to visit the former **Phillipsburg water pumping plant**. The 1913 vertical triple-expansion steam pumping engine manufactured by Allis-Chalmers once pumped six million gallons per day for the Peoples Water Co. The plant was in continuous use until 1969 when it was replaced by a new well system with electric pumps. The steam pumping engine remained on standby and was test-run once a year until it was shut down for good in 1983. The site is now owned by Warren County and other buildings on it are leased for storage by the New Jersey Transportation Heritage Center, whose volunteers served as our hosts. They are looking for assistance to place the pumping station on the National Register.

Unfortunately, due to lack of time, only one of our buses stopped to pay homage to **The Free Bridge** (so called for its lack of toll) which carries Northampton St. over the Delaware River between Easton, PA, and Phillipsburg, NJ. Built in 1895-96, the Free Bridge is a graceful steel and wrought iron cantilever truss designed to look like a suspension bridge. Hurricane Diane caused major damage to the central span in 1955. Some members were replaced while several cantilever eyebars which had stretched were cut, shortened, and welded. This has left a noticeable kink in the center span. The bridge is an American Society of Civil Engineers (ASCE) historic landmark.

Before returning to the hotel, we visited the museum of the **Phillipsburg Railroad Historians**. We saw the very charming Centerville & Southwestern miniature (2 ft.) railroad, a trolley sweeper from the Newark subway system, and, appropriately enough given our earlier stop of the day, a rare 1924 Mack railbus.

After dinner, the group reconvened for a slide-lecture by Lance Metz, who offered an overview of the Lehigh Valley's industrial development with a focus on coal, canals, railroads, iron and steel, silk, and cement. Lance, well known for the depth of his knowledge and passion for history, set the stage and provided a context for the next several days of touring.

During our ride to Friday's first stop, the **Hercules Cement** mill in Stockertown, we passed within sight of a half-dozen other mills, attesting that this region, underlaid by limestone, has been a center of the industry since the 1870s. Although the Hercules oper-



The group receives an explanation of the blowing engines at the Bethlehem Steel Works.

Brian Callagher



ation started in 1917, most of the buildings date from the 1950s or later. The company currently operates a dry-process line installed in 1983. Rock is mined in an adjacent pit, crushed, and conveyed to the apex of a teepee-shaped storage building at the rim of the pit. A radial bulkhead, equipped with shakers and a conveyor at its base, continually moves the material, working its way around the center point on a circumferential rail. Sand is added to the rock, which is next conveyed to a secondary crusher where it is pulverized by three armor-steel wheels that rotate in a circular track held against a table under hydraulic pressure. Ground material is screened and recycled until it has the consistency of fine flour. Iron-ore dust is generally added, and the pulverized "meal" is sent through a preheating tower to be finally introduced into the elevated end of a tubular rotary kiln, where it is roasted by natural gas flame. Under the 2,700°F temperature, the ingredients liquify, with limestone breaking down into lime and carbon dioxide. The mixture then fuses into "clinker," slag-like lumps of uniform composition. The refractory-block-lined kiln shell is about 18 ft. in diameter and nearly 200-ft. long. The clinker slowly moves to the cooler end by gravity and rotation. After exiting, the clinker is cooled in an air-blast chamber, which acts as a pre-heater for the kiln's combustion air. A small amount of gypsum is added and the mixture and the lumps are pulverized by tumbling in ball-mills, then moved to storage silos prior to bagging or loading into dry-bulk semi-trailers. Hercules's customer base is regional, generally within 300 miles.

Geology has played a determining role in the Lehigh Valley's industrial development in many ways. The valley is perhaps best known for anthracite coal and limestone, but one of the valley's lesser-known geologic resources is slate. The **Penn Big Bed Slate Quarry** in Slatedale, 15 miles north-

(continued on page 6)

SIA Fall Tour, Sept. 25-28, 2003

Northeast Montana

Co-coordinators Fred Quivik and Brian Shovers are putting the final touches on this year's SIA Fall Tour to Northeast Montana, Sept. 25-28, to visit sites previously explored and highly recommended by members of the local Klepetko Chapter. This is one of the most out-of-the-way parts of the lower 48, but it has a wonderful array of engineering and industrial sites that will help members understand industrial culture on the high plains. It is also fitting for SIA to visit at the time of the bicentennial of the Lewis & Clark expedition. Traveling from Williston to Fort Peck, we will be retracing the route followed by the Corps of Discovery in 1804.

Among the scheduled sites will be **Fort Peck Dam**, built during the 1930s as a WPA project. It was then the world's largest earthen dam of any kind, and it's still the world's largest earthen dam built by hydraulic means. It has an impressive array of powerhouses, gatehouses, and spillway structures. And the permanent portions of the Corps of Engineers town site are still intact and occupied. The nearby **Snowden Bridge**, built in 1913 by the Great Northern RR, is a Waddell vertical-lift bridge across the Missouri River. When built, and for several decades after, it was the world's longest vertical-lift span.

NE Montana is in the midst of the **Williston Basin**, a relatively small but long-producing oil field. We'll get a tour from Bruce Crain, who has worked in the oil field for years and who is very good at describing what's going on beneath the surface at an oil well. NE Montana & North Dakota are on the high plains, known as the "buffalo commons" in some folks' minds, but nevertheless an important grain and livestock producing region. In addition to grain, many farmers grow seeds, such as sunflower, safflower, and canola, for the production of edible oils. **The Montola oil-seed pressing plant** in Culbertson is a small industrial operation that presses oil seeds for the national market. We will also tour the **sugar-beet refinery** in Sidney, recently bought by Crystal Sugar from Holly Sugar. The 2003-04 refining season will just be getting underway as the plant makes granulated sugar by processing beets produced in field irrigated by the Bureau of Reclamation's Lower Yellowstone Irrigation Project.

At the **USDA's Froid Research Station**, members will get to see how the government conducts research on the high plains, and learn something about how farmers in that part of the world grow grain

using dry-land farming methods. **Culbertson's annual threshing bee**, featuring steam-powered threshing and related demonstrations, is always on the fourth weekend of September, which is why we've scheduled the tour at this time rather than in October as is customary. The Culbertson club also displays its excellent collection of early internal-combustion farm tractors.

Fort Union, a National Historical Park operated by the NPS and located on the Missouri River just above the mouth of the Yellowstone, interprets the fur-trading industry of the first half of the 19th century. One could call this the beginning of the region's industrial history. Fort Union today is a reconstruction based on archeological evidence. We'll get tours of the fort from the rangers and a tour of the archeological collections from the park's curator. **A&S Enterprises** and **West Electronics** are two tribal enterprises on the Fort Peck Indian Reservation in Poplar. Both make components for the military and the automotive industry. Dana Strandlund will be our guide. A former Boeing engineer, he used to work at A&S and now works at West. He will be able to show us the technical stuff, as well as talk about the challenges of running the businesses given the cultural differences between the Indian reservation and the military/industrial complex.

The travel logistics for this year's fall tour are somewhat more complex than is typical. The tour will begin Thursday evening, Sept. 25, with participants gathering in Williston, ND, just across the border from Montana. Members can fly to either Williston or Sydney on commuter airlines, or they can fly to Minot, ND, which is the closest airport served by jet airliners (Northwest and United). It's a two-hour drive from Minot to Williston. The westbound Amtrak from Chicago and the Twin Cities is scheduled to arrive at Williston daily just before noon. Tours will go all day Friday and Saturday by bus with Friday night in Fort Peck, so members will need to pack overnight bags aboard the buses. Many meals will be included in the tour price. The tour will return to Williston on Saturday night. More information specific to making your travel plans will be sent out with registration materials. You can also check the SIA Web site (www.sia-web.org) for updates or contact Fred Quivik (quivik@usfamily.net) or Brian Shovers (bshovers@state.mt.us), but you are encouraged to wait for your registration materials for specific instructions. ■



Fred Quivik

Powerhouse at the Fort Peck Dam, showing the housing for the giant surge tank.



Fred Quivik

Klepetko Chapter members have previously scouted out many of the sites on this year's fall tour. Here they are in front of one of the pumping units at the West Raymond oil field in 1995.



Fred Quivik

The Snowden Bridge, another scheduled stop in the NE Montana.



Jim Owens

Clamping side pieces to form with clothes pins, Martin & Co.

west of Allentown, was our next stop. There, workers use diamond-bladed pavement saws to score slabs, which then are pried or popped loose by small explosive charges and hauled by cableway to sheds along the quarry rim, roughly 150 ft. above the floor of the pit. Lines from several towers are gathered into a small corrugated steel shelter built around an electric drum hoist. We arrived shortly before noon, just in time to see two or three workers riding up to lunch on the pulley block used for raising the slabs. Our SIA group was allowed to walk through the buildings where the slabs of slate are split and to observe large horizontal disc grinders used to polish pieces for such purposes as window sills, thresholds, countertops, and billiard tables. Softer pieces are hand-split into roofing shingles, then the nail-holes are hand-punched with a jig.

We took lunch at **Walnut Canal Park** where a lock of the Lehigh Canal has been reconstructed, then headed south for Allentown and our final stop, **Fuller Mfg.**, where much of the machinery seen earlier at Hercules Cement is made. Fuller began in 1903 as the Traylor Engineering & Mfg. Co., a maker of mining equipment. During WW I, the company manufactured artillery shells, but eventually came to specialize in large roller and gyratory crushers, ball-mill pulverizers, cement kilns, and their driving machinery. Traylor was acquired in 1959 by Fuller, which since 1990 has been held by the F. L. Smidth Group, based in Denmark, a worldwide manufacturer of cement mills.



Perry Green

Rotary kilns, Hercules Cement.



Michael Hoyt

A worker puts the finishing touches on a guitar body.

A reinforced-concrete building dating to the 1910s houses most of Fuller's Allentown operations. Generally, the building is arranged with one very large machine tool per station on either side of a long aisle. The term "very large" refers to such items as a planing machine with a 30-ft. table, a lathe with a 31-ft. center-to-center distance by 60-in. swing, and a 22-ft. vertical boring mill. Some of the machines bear familiar names—Giddings & Lewis, LeBlond, and Cincinnati—but many were made in Germany or eastern Europe. Perhaps the most sophisticated is a Swiss-made MAAG gear cutting machine, capable of generating gears up to 40 ft. in diameter. Adjustments for tool wear are made automatically, the largest projects typically requiring one tool change on a six-week job. Castings larger than 24 ft. in diameter must be assembled prior to machining. Fuller has relied on outside sources for castings since closing its foundry in 1959. We also saw used drive gears salvaged by welding additional material onto the teeth prior to re-cutting. At the conclusion of the tour, our guides escorted us for refreshments in the offices, where a display of historical photos and documents had been arranged for us. After Fuller, we returned to the hotel for a brief respite, then went on to Friday night's reception at the Raymond E. Holland Art Museum, housed in a Queen Anne-style mansion in downtown Allentown.



Michael Hoyt

Inside the storage building at Hercules Cement, a system of conveyors continually deliver crushed limestone from the quarry. A slowly rotating radial bulkhead (left) delivers it to secondary crushers and mixers prior to processing in the rotary kilns.

Lehigh Valley

Perry Green



At the Penn Big Bed Slate Quarry, a worker rides the cableway up from the pit.

Saturday's tours featured several of the Lehigh Valley's industrial museums and historic sites. The **Haines Flour Mill** in Cetronia, PA, is a complete water-powered roller mill. The three-story stone building with gambrel roof traces its origins to the mid-18th-century, but most of the machinery dates to 1909, when the Haines family modernized the operations. Guides were on hand to turn on the turbine and to explain the operation of the steel rollers for grinding grain and the other machinery for sifting the meal and flour. Wilbur Haines, in his 90s, had us gather around him on the first floor to hear reminiscences of the mill, which ceased commercial operations in 1956. It is now maintained by the Lehigh County Historical Society.

The next two stops—**Historic Bethlehem** and the **Moravian Historical Society**—provided an introduction to the Lehigh's earliest settlers and their industrial accomplishments. A pre-Lutheran Protestant church originating in Bohemia, the Moravians came to the British colonies, settled in the Lehigh Valley, which was then a frontier, and emphasized a communal economy, including many industrial pursuits, designed to support the church's far-flung missions. In Bethlehem, they operated an

Patrick Harshbarger



Fall Tour participants stop in front of the massive MAAG gear cutter at Fuller Manufacturing in Allentown. Fuller builds machinery for the cement industry.



Patrick Harshbarger

IA members observe the process of splitting roof slates.

impressive industrial quarter with a large tannery, grist mill, oil mill, dye works, bell foundry, and in 1754-61, America's first mechanically powered, pumped, municipal water system. Many of the industrial buildings have been restored and offer strikingly rich opportunities for interpretation because the Moravians left such detailed records. Guides were on hand to show us around. The restored pumphouse's waterwheel and iron pumps inspired the awe of many, while still others found their way to the grist mill and the exhibit "History Works!," which, although designed with many hands-on activities for children (hammering out a nail, grinding corn in a quern, and putting on clothes), captured the rapt interest of some in our group.

The Moravian Historical Society, established in 1857, is one of the nation's oldest historical societies. Located in Nazareth, PA, in the Whitefield House (1740), the society has a research library and rooms full of exhibits documenting the cultural accomplishments of the Moravians. The staff graciously allowed our large group to crowd into the house and view the exhibits, which ranged in content from Asian and Native American artifacts collected by missionaries to precious musical instruments—even a lock of George Washington's hair. Our departure was delayed by the town's traditional Halloween Parade, with many of us gathering along the main street to view the children in costume, fire and rescue equip-

(continued on page 8)



Perry Green

Tour participants gather outside the Haines Flour Mill for an explanation of its history.

ment, antique cars, and to collect candy tossed out by the paraders.

Saturday afternoon, we all settled into a slower pace of travel by mule-drawn canal boat on the Lehigh Navigation. The ride is a regular attraction at Easton's Hugh Moore Park, named in recognition of the founder of the Dixie Cup Co. Both the National Canal Museum and Hugh Moore Park are operated by The Hugh Moore Historical Park & Museum, Inc. A costumed crew was on hand to guide our boat, the steel-hulled *Josiah White II*,

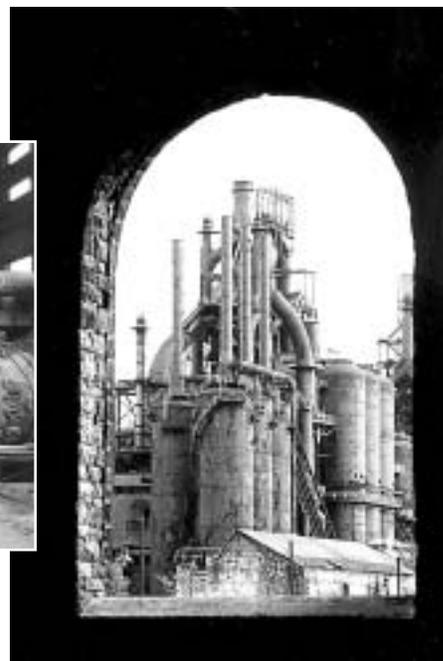
and to provide a historical narrative of our 35-40 minute ride. There was also folk music to get us singing and tapping our feet on a damp autumn afternoon. Those who desired had time to walk the tow path to a restored lock and tender's house.

Saturday's dinner (a buffet of home-cooked, Pennsylvania-German dishes) was at the **National Canal Museum**, with free time after the meal to view the exhibits, including the permanent exhibit on canals and a temporary exhibit on the silk industry. The canal museum shares space with the Crayola Museum in a former department-store building, now dubbed Two Rivers Landing. The facility is a big improvement over the small building on the opposite side of the Lehigh River that the museum used to call home.

More than 45 members chose to stay on Sunday for the tour of the southern Anthracite region. It doesn't take long on the journey north from Allentown on Interstate 476 to begin seeing the telltale evidence of mining—open pits, piles of rock (gangue), and derelict excavating equipment. After passing through the 1950s Lehigh Tunnel into the upper Lehigh Valley, we left the interstate and followed US Route 209, hugging the western slopes of the river and enjoying views of the former main lines of the Lehigh Valley RR and the Central RR of New Jersey. After passing through Jim Thorpe, once a center of transportation and commerce for the coal fields and now a successful tourist destination with trendy boutiques and galleries, we arrived at the **Lehigh Coal Co. Number 9 Mine & Wash House Museum** near Lansford. The museum has an impressive collection of photographs, geological maps, and mining gear and tools, much of it donated by the community. Typical of mining industry practice, the Wash House is a large open space serving as a place for miners to change clothes and wash up; rather than using lockers, the miners hung or placed their clothes and other belongings in baskets, then hoisted them out of reach by means of chains. Each miner padlocked his chain to a shackle until the end of the shift. Operations at Number 9 ceased in 1972 after Hurricane Agnes flooded the mines. Almost 35 years later, volunteers patiently reopened the shaft and began taking visitors back to the workings using a battery-powered locomotive and a set of mine cars that they had equipped with roofs and benches. By the end of our journey, almost 2,000 ft. down a slight incline, the air had taken a noticeable chill, and water constantly dripped from the roof imparting an added dimension of dampness. Our guides described mining and miners' work, along with the obligatory lighting of the drift with only the two battery-



The photogenic Bethlehem Works offered SIA photographers many opportunities to practice their skill and dexterity.



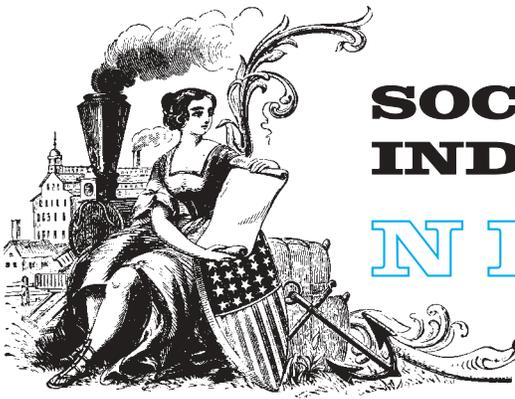
Michael Hoyt

powered lamps on their hardhats, and then, of course, turning the lights out to amplify the feeling of helplessness to those unaccustomed to being underground.

After lunch at Number 9, we took a roundabout route through Hazleton for a very brief view of coal-stripping operations near Freeland, then stepped back in time at **Eckley Miners' Village**, operated as part of the state's Anthracite Museum. Eckley was established in 1854 by Sharpe, Leisenring & Co. as company housing for the Council Ridge Colliery. The colliery closed in 1875 and the village declined over the next several decades. A number of buildings burned or collapsed and very few improvements were made. In 1968, the movie "The Molly McGuires" was filmed at Eckley and in the process the film company restored several of the buildings and recreated a breaker. By 1971, when Eckley was turned over to the state, it had come to be regarded as the region's most authentic example of a 19th-century coal patch. The state added a visitor center, and the houses and churches were stabilized, furnished, and opened to the public as part of guided and self-guided tours that interpret the lives of the mostly immigrant miners' families.

Sunday's canal tour drew about 20 participants who enjoyed a beautiful autumn day taking in sites along the routes of the **Morris Canal** and **Delaware & Raritan Canal Feeder** in New Jersey, and of the **Delaware Canal** in Pennsylvania. A number of very knowledgeable members of the Canal Society of New Jersey were on hand to be our guides, and they had produced a handbook for each of us, chock full of diagrams, maps, facts, and figures. The day began at the home of Morris Canal historian Jim Lee, which is in a former tender's house at the **Inclined Plane 9 West**. The Lee family showed us around the site, which they are in the process of turning over to the county for a park. The Morris Canal, connecting Philipsburg on the Delaware River with Jersey City on the Hudson River, went through elevation changes that total over 1,600 ft. in its 102-mile length. Locks were not sufficient for the job, so most of the elevation change was overcome by 23 inclined planes, a number that made the canal unique in America. The boats were cradled in rail cars that were moved up or down by a system of iron chains and hemp ropes, and later steel cables, with the power supplied by water turbines from the upper level of the canal. Inclined Plane 9 West is among the most complete of the surviving planes, made all the more significant by its intact turbine pit, complete with its cast-iron Scotch turbine, installed between 1847 and 1860. We were able to enter the turbine pit through

(continued on page 18)



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PUBLICATIONS OF INTEREST

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COMPILED BY

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

GENERAL INTEREST

- ▶ John Crompton. **Forth and Clyde: A Guide to the Industrial Heritage of Central Scotland.** Assn. for Industrial Archaeology (Liaison Officer, AIA Office, c/o School of Archaeological Studies, University of Leicester, Leicester LE1 7RH, U.K.), 2002. 64 pp. illus. Produced to coincide with the 2002 AIA annual conference in Edinburgh. The latest in a series of fine and succinct guidebooks published by the SIA's counterpart in the U.K. Many sites will be familiar to those who participated in the SIA's 1998 Scotland Study Tour.
- ▶ Bruno Giberti. **Designing the Centennial: A History of the 1876 International Exhibition in Philadelphia.** Univ. Pr. of Kentucky (1-800-839-6855), 2002. 328 pp., photos. \$40. Exhibition is explored as a turning point in the nature of design and display of industrial and consumer products. Some exhibitors, instead of displaying objects in isolated glass boxes displayed their products in context—such as a necklace on a mannequin or furnishings in a model room—heralding changes in design and advertising.
- ▶ Dean Herrin. **America Transformed: Engineering and Technology in the Nineteenth Century.** American Society of Civil Engineers (1-800-548-2723, www.pubs.asce.org), 2003. 208 pp., illus. \$49. Features almost 200 photos and drawings from the Historic American Engineering Record (HAER) to create a “visual sampler” telling the story of America's industrial growth.
- ▶ **Industrial Tourism. Just A Stone's Throw From Barcelona: Finding Out How Things Work.** Agencia de Promoció Turística (Mallorca 244, 08008 Barcelona, Spain; www.turismeindustrial.org), 2001. 19 pp., illus. Details and location maps of 49 industrial sites in the province of Barcelona. Factories, museums, mines, model factory villages, warehouses, kilns, mills, canals, and wine cellars. Rev: *IA News* (Autumn 2002), p. 14.
- ▶ John A. Jakle. **City Lights: Illuminating the American Night.** Johns Hopkins Univ. Pr., 2002. 312 pp., photos, drawings. \$45. Survey of the way lighting technologies have transformed the appearance and activities of the city since the early 19th c.
- ▶ Steven King and Geoffrey Timmins. **Making Sense of the Industrial Revolution: English Economy and Society, 1700-1850.** Manchester Univ. Pr., 2001. \$32 paper. Survey of the vast scholarship interpreting the Industrial Revolution, presenting a clear summary of the academic debates. Rev: *T&C* (July 2002), pp. 595-96.
- ▶ John W. W. Mann. **Reins, Trains, and Automobiles: Spokane's Historic Transportation Corridor.** *SCA Journal* (Fall 2001), pp. 15-24. West First Ave. in Spokane, WA, a seven-block stretch that paralleled the Northern Pacific Ry. and US Route 10. Warehouse and commercial (particularly auto dealership) architecture.
- ▶ Lance Metz, ed. **Canal History and Technology Proceedings. Vol. 23.** Canal History and Technology Press (30 Centre Sq., Easton, PA 18042-7743; (610) 559-6617), 2003. 224 pp., illus. \$23.25 ppd. Proceedings of the annual symposium co-sponsored by the National Canal Museum and Lafayette College. Incl.: Robert W. Passfield, *Construction of the St. Lawrence Seaway*; Emory L. Kemp and Edward Winant, *John Jervis and the Hydraulic Design of the Old Croton Aqueduct*; Michael Knies, *The Pennsylvania Coal Company: New Insights from the James Archibald Papers, 1850-51*; Neal Hitch, *The Charcoal Furnaces of the Hanging Rock Iron Region of Southern Ohio, 1818-1916*; Joan Campion, *Sickness and Health on the South Side* (doctors, hospitals, and public health in Bethlehem, PA); Stephen A. Marder, *Unraveling the Myth* (most likely the *Pride of New Castle*, not the *Stourbridge Lion*—both of the Delaware & Hudson Canal Co.—was the first locomotive operated on a commercial railroad in the Western Hemisphere); Lance E. Metz and Michael Workman, *St. Nicholas Central Breaker* (Reading Anthracite Co. coal breaker, built in 1932).
- ▶ David R. Meyer. **The Roots of American Industrialization.** Johns Hopkins Univ. Pr., 2003. 272 pp., illus. \$45. East Coast in the antebellum period, from the point of view of historical geography and economic history.
- ▶ Wendy Moonan. **A Perfect Toy for a Nation of Inventors.** *NY Times* (Dec. 13, 2002). The erector set as a window on America's industrial age. The toy retains its fascination, but now as high-priced antique.
- ▶ **Old Kensington** is a theme issue of *Pennsylvania Legacies*, v. 2,2 (Nov. 2002) the magazine of the Historical Society of Pennsylvania. Kensington [tour site—SIA 1990 Annual Conference] in north Philadelphia was a center of late-18th and 19th-c. industry, especially textiles. Articles on glass, brass, iron works, ethnic neighborhoods, Hewson's calico works, and shad fisheries. HSP, 1300 Locust St., Philadelphia 19107; (215) 732-6200; www.hsp.org.
- ▶ Barry Trinder. **18th- & 19th-Century Market Town Industry: An Analytical Model.** *IA Review* 24,2 (Nov. 2002), pp. 75-90. One of Britain's leading IA practitioners discusses ways of understanding communities and their trading patterns using IA as a tool for investigation.
- ▶ Edwin Tunis, illustrator and muralist, has produced a series of richly illustrated picture books with technological themes.

Oars, Sails and Steam: A Picture Books of Ships (2002) presents important types of boats and ships in chronological order from the dugout to the aircraft carrier; **Colonial Craftsmen and the Beginnings of the American Industrial Revolution** (1999) portrays a wide variety of traditional industries; **Wheels, A Pictorial History** (2002) traces the development of the wheel for over 5,000 years; also, **Weapons, A Pictorial History** (1999), **Colonial Living** (1999), and **The Tavern and the Ferry** (2002). Published by Johns Hopkins Univ. Pr. \$19.95 each.

- Claudia L. Watson. **Teaching Through the Eye: John H. Patterson's Industrial Photography.** *Timeline* (Nov./Dec. 2002), pp. 2-21. Business executive who founded Dayton's National Cash Register found many uses for photography—training employees, developing sales (illustrating cash registers in use in a wide range of commercial establishments), and supporting the Progressive social agenda of the company's founder. NCR's photography department played a pioneering role in industrial photography; archives include 100,000 glass-plate negatives and 68,000 lantern slides dating back to the mid-1890s. *Timeline* is a publication of the Ohio Historical Society. \$30/yr. Back issues avail. \$7 ppd., 1982 Velma Ave., Columbus, OH 43211.

MINES & MINING

- Tony Brooks and John Watton. **King Edward Mine: An Illustrated Account of Underground and Surface Operations, 1897-2001.** Cornish Hillside Pub. (ISBN 1900147262), 2002. 132 pp., £17.99. Illustrated account of the surface and underground training mine for the Camborne School of Mines [tour site—SIA 2001 Cornwall Study Tour]. Rev: *IA News* (Winter 2002), p. 14. Also, Alan Stoyel and Peter Williams, **Images of Cornish Tin.** Landmark Publishing & English Heritage, 2001. 192 pp. photos. £29.50. Color photos of the Cornish mining landscape and tin industry, with a focus on the later 20th c. Rev: *IA Review* 24,2 (2002), pp. 137-38.
- **Discovering Washington's Historic Mines.** 2 vols. Oso Publishing Co., (www.osorail.com), c. 2002. History, geology, and location of mines, includes photos, maps, and hiking difficulty and distance. Vol. 1 (230 pp., \$24.95) covers the West Central Cascade Mts. and Vol. 2 (440 pp., \$34.95) covers the East Central Cascade Mts. and the Wenatchee Mts.
- Jeff Goodell. **Blasts from the Past: Thanks to the Bush Administration, Big Coal Is Back. But Can It Be Taught to Behave?** *NY Times Magazine* (July 22, 2002), pp. 30-37, 44, 62-63. Current political state of affairs in the coal industry, from pollution to aging power plants.
- **"The Great Strike": Perspectives on the 1902 Anthracite Coal Strike.** Canal History & Technology Press (30 Centre Sq., Easton, PA 18042; (610) 559-6617; store@canals.org), 2002. 140 pp., photos, tables, maps. \$10. Six essays presented on the centenary of the strike that almost caused a national fuel crisis, brought to prominence the United Mine Workers, and focused national attention on working conditions in the mines and coal patches. Incl.: Robert Janosov, *Beyond "The Great Coal Strike": The Anthracite Coal Region in 1902*; Joseph P. McKerns, *The "Faces" of John Mitchell: News Coverage of the Great Anthracite Strike of 1902 in the Regional and National Press*; Lance E. Metz, *The Role of Intimidation and Violence in the Great Anthracite Strike of 1902*; Robert P. Wolensky, *The Subcontracting System and Industrial Conflict in the Northern Anthracite Coal Field*; Richard G. Healey, *Disturbance of the*

Peace: The Operators' View of the 1902 Anthracite Coal Strike; Joseph M. Gowaskie, *John Mitchell and the Anthracite Coal Strike of 1902: A Century Later.*

- Martin Lynch. **Mining in World History.** Reaktion Books Ltd. (79 Farringdon Rd., London EC1M 3JU; www.reaktion-books.co.uk), 2002. Sweeping history of mining from the Renaissance to the present, looking at the personalities, politics, and technology that have shaped the metallurgical industries.
- Ron Morgan. **Echoes from the Mines.** 2 vols., c. 2000-02. 94 pp., illus. About \$15 each. Mines, miners, and communities of the Broad Top Coal Field (PA). Avail: Friends of the East Broad Top, Company Store, 211 Hampton Rd., Hatboro, PA 19040; www.febt.org.
- David W. Pearson and Ron Bommarito. **Antique Mining Equipment and Collectibles.** Astragal Press (1-866-543-3045, www.astragalpress.com), c. 2002. 172 pp., photos. \$29.95. Hundreds of specialized tools are illustrated and evaluated. Hand tools, lunch pails, safety lamps, prospecting gear, communications equipment, and scales.
- Tomasz Szymanski. **The Preservation of the Industrial Heritage of the Wieliczka Salt-Works in Poland.** *TICCIH Bulletin* 17 (2002), pp. 3,7. Brief description of the Cracow Salt-Works Museum, located in the original underground, 700-yr.-old salt mine.
- Kenneth Warren. **Wealth, Waste, and Alienation: Growth and Decline in the Connellsville Coke Industry.** Univ. of Pittsburgh Pr., 2001. 297 pp. \$32. Physical qualities of coal and coke and changes in coke-making technology that eventually led to the development of the Connellsville region of Pennsylvania. Critical evaluation of the short- and long-term impact of pollution on the environment and workers' living conditions. Rev: *T&C* (Jan. 2003), pp. 220-21.

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With Thanks.

TEXTILES

- ▶ Clara Haru Crowston. **Fabricating Women: The Seamstresses of Old Regime France, 1675-1791.** Duke Univ. Pr., 2001. 508 pp. \$21.95 paper. French seamstresses seek legitimacy through the formation of guilds, often in opposition to tailors. Rev: *T&C* (July 2002), pp. 593-95.
- ▶ Randall L. Patton. **Shaw Industries: A History.** Univ. of Georgia Pr., 2002. Illus. \$29.95. Shaw Industries in Dalton, GA, the world's biggest carpet manufacturer, from its days as a family-owned operation through its growth into a multinational corporation. Also, **Carpet Capital: The Rise of a New South Industry.** Univ. of Georgia Pr., 1999. 341 pp., \$35. How entrepreneurs in northwest Georgia hit upon the new technology of tufting to take control of an industry previously dominated by woven-wool carpet makers in the Northeast.
- ▶ Catherine Watson. **Listening to History: Lowell National Historical Park.** *AAA World* (Sept./Oct. 2002), pp. 34-39. Feature article promotes the history of Lowell and the textile industry to a general audience.

WATER CONTROL & RECLAMATION

- ▶ Deanne R. Blackman and A. Trevor Hodge. **Frontinus' Legacy: Essays on Frontinus' "De aquis urbis Romae."** Univ. of Mich. Pr., 2001. 170 pp. \$19.95 paper. Scholars discuss the meaning of an ancient Latin text on Roman water supply, exploring such questions as "How large a workforce was required to build an aqueduct, and how did they go about doing it?" Rev: *T&C* (July 2002), pp. 585-87.
- ▶ Daniel E. Capano. **Chicago's War with Water.** *I&T* (Spring 2003), pp. 50-58. Development of Chicago's sewer system, including the Sanitary & Ship Canal.
- ▶ Roberta J. Magnusson. **Water Technology in the Middle Ages: Cities, Monasteries, and Waterworks after the Roman Empire.** Johns Hopkins Univ. Pr., 2002. 240 pp., illus. \$38. Builders and users of Medieval water systems.
- ▶ Charles F. Outland. **Man-Made Disaster: The Story of St. Francis Dam.** Arthur H. Clark Co. (Box 14707, Spokane, WA 99214) c. 1978, reprint ed. 2003. Illus., maps, index. \$75 hardback, \$24 paper. Limited reprint of classic account of the dam collapse outside Los Angeles that cost 450 lives in 1928. Also avail. **The St. Francis Dam Disaster Revisited,** *Southern California Quarterly* (1995) with modern computer modeling that confirmed how the disaster happened. \$18.
- ▶ Frederic D. Schwarz. **Dams in Distress: Across America Citizens Reassess a Potent Symbol of Progress and Florida Calls the Plumber.** *I&T* (Fall 2002), pp. 10-11. Efforts across the U.S. to remove dams, many associated with long-gone factories, and other water-control features, such as the canals in the Everglades, to restore the environment. Articles are based on books by Elizabeth Grossman. **Watershed: The Undamming of America.** Counterpoint Press. 248 pp., \$27; and, Susan Cerulean. **The Book of the Everglades.** Milkweed Editions. 264 pp. \$18.95.
- ▶ Diane Raines Ward. **Water Wars: Drought, Flood, Folly, and the Politics of Thirst.** Riverhead Books, 2002. \$24.95. Various solutions to water control around the world, from Holland's successful system of dikes and pumps to India's damming of rivers carrying rainwater from the Himalayas, robbing desperately needed water from Pakistan. The Tennessee Valley Authority receives praise for civil and social engineering that brought a large agricultural region up out of poverty. Rev: *NY Times Book Review*, Oct. 27, 2002, p. 21.
- ▶ **Water Technology in the Netherlands** is a special issue of *T&C* 43,3 (July 2002). Articles cover a range of water-control features—dams, reservoirs, aqueducts, canals, levees and dikes, irrigation systems, sewers, tanks, pumps, water pipes, jetties and breakwaters, bank revetment, and locks—over more than seven centuries. Incl. Martin Reuss, *Learning from the Dutch: Technology, Management, and Water Resources Development*; William H. Tebrake, *Taming the Waterwolf: Hydraulic Engineering and Water Management in the Netherlands during the Middle Ages*; Petra J. E. M. Van Dam, *Ecological Challenges, Technological Innovations: The Modernization of Sluice Building in Holland, 1300-1600*; Arne Kaijser, *System Building from Below: Institutional Change in Dutch Water Control Systems*; Harry Lintsen, *Two Centuries of Central Water Management in the Netherlands*; Wiebe Bijker, *The Oosterschelde Storm Surge Barrier: A Test Case for Dutch Water Technology, Management, and Politics.*

POWER GENERATION

- ▶ T. Lindsay Baker, ed. **Windmillers' Gazette.** Quarterly. Avail: Box 507, Rio Vista, TX 76093; www.windmillersgazette.com. \$20/yr. Dedicated to the preservation of America's windpower history and heritage. Vol. 21, 4 (Autumn 2002)—*The Windmills of Boston: Boston, Massachusetts, as a Windmill Distributing Center and A Windmill that "Pumps" by the Bucketful: The Lowell Bucket Windmill* (Lowell, MA-based manufacturer made unique windmill that automatically raised and lowered buckets rather than pumped water). Vol. 22,1 (Winter 2003) includes *Windmills and Towers of the Temple Pump Co.* (Chicago-based manufacturer, ca. 1890-1915) and *Harley Stroven (1921-2002), Patriarch of American Windmill Preservation.*
- ▶ Fred Brown. **Ocoee Flume Still Functioning Just Fine After 90 Years of Faithful Service.** *Knoxville (TN) News-Sentinel* (Dec. 29, 2002), www.knoxnews.com. Five-mile-long wood flume built in 1913 carries water to the East Tennessee Power Co. (now TVA) powerhouse, the first hydroelectric facility in Tennessee.
- ▶ Winnie Hu. **For the Love of a Power Plant.** *NY Times* (Nov. 20, 2002). Efforts to preserve the Mechanicsville Hydroelectric Station on the Hudson River north of Albany, NY. Built in 1897 and closed in 1997. Robert Vogel [SIA] was interviewed and is quoted.
- ▶ Christopher Payne. **New York's Forgotten Substations: The Power Behind the Subways.** Princeton Architectural Press, 2002. Photos, maps. Picture book about old transit substations which are owned by the Power Dept. of the NYC Transit Authority, includes numerous interior photos, with a focus on those that came on line in the early 20th c. Substation 21 was toured during the SIA 2002 Annual Conference—Brooklyn.
- ▶ Ian Wyper. **Conservation of the Smethwick and Hull Engines.** *IA News* 122 (Autumn 2002), pp. 6-7. Two very important British steam engines produced by Boulton & Watt have been conserved, relocated, and animated.

RAILROADS

- ▶ Anthony J. Bianculli. **Trains and Technology: The American Railroad in the Nineteenth Century. Volume 3: Track and Structures.** University of Del. Press, 2003. 234 pp., illus.

- \$65. Rail and track systems, location surveys, construction methods and machines, track gauges, rail manufacturing and development, stations, engine houses, coaling stations, water tanks, watchmen's shanties, and signal towers.
- Mike Danneman. **Rio Grande Through the Rockies.** Kalmbach Books (1-800-533-6644), 2002. 128 pp., photos. \$21.95 paper. Photos and route maps show the Denver & Rio Grande at work on one of the most scenic stretches of North American railroading ever engineered.
 - Peter Derrick. **Tunneling to the Future: The Story of the Great Subway Expansion that Saved New York.** NY Univ. Pr., 2001. 442 pp., illus., maps. Colorful and detailed examination of the political and financial wrangling behind the NYC subway system in the early 20th c. Rev: *T&C* (Oct. 2002), pp. 805-7.
 - George H. Douglas. **The Amiable New York & Greenwood Lake.** *RH* 187 (Fall-Winter 2002), pp. 96-108. History of northern NJ commuter line that ran from Jersey City to Greenwood Lake.
 - M. C. Duffy. **Electric Railways, 1880-1990.** IEE (1-800-230-7286, www.iee.org/publish/), 2003. 320 pp., illus. \$84. Electric railways in Britain from the earliest days of the London Underground to modern electrified main line trains.
 - Ute Georgeacopol. **Salzburg Railway Station Hall Threatened.** *TICCIH Bulletin* 19 (Winter 2002), p. 1. Landmark 1860 train shed with arched iron roof in Austria.
 - **A Glimpse into 19th Century Railroad Photography: Dozens Show Pacific Railroad.** *Railroad Heritage* 6 (2002), pp. 4-7. Photographers, well-known and obscure, traveled up and down the first transcontinental railroad. Samples of their work and legacy. *Railroad Heritage* is a magazine devoted to the photography and art of railroads. Published by the Center for Railroad Photography and Art, included with a \$40/yr. membership. Info: www.railphoto-art.org.
 - John Goodnough. **Railroad Lamps and Lanterns Light the Way.** *NRB* 67,1 (2002), pp. 30-39. Illustrated overview of the development and uses of hand-held lamps and lanterns.
 - Bill Gove. **Logging Railroads of the Saco River Valley.** Bondcliff Books (Box 385, Littleton, NH 03561), 2001. 68 pp., illus., maps. \$24.95. Short-length (the longest was 26 miles) and usually short-lived, railroads served sawmills and logging camps in New Hampshire and Maine. Many photos of locomotives, stations, sawmills, and logging operations. Rev: *NRB* 67,1 (2002), p. 44.
 - Vincent Hydro, Jr. **The Mauch Chunk Switchback: America's Pioneer Railroad.** Canal History & Technology Press (30 Centre Sq., Easton, PA 18042; (610) 559-6617; store@canals.org), 2002. 358 pp., illus. \$39.95. Heavily illustrated history of the world-famous gravity railroad, completed in 1827, constructed to carry coal from the mines near Mauch Chunk, PA (now Jim Thorpe) and later adapted as a tourist attraction. One chapter, "A Trip Around the Switchback", is written and illustrated in the late-19th-c.-style, as if it were a narrative sent home by a summer visitor.
 - Aaron Isaacs. **Preservation in Ohio.** *Railway Museum Quarterly* 25 (Fall 2002), pp. 4-12. Comprehensive review of the state of railway museums and tourist lines in Ohio, including the Ohio Central, Carrollton-Oneida-Minerva, Steam Museum (Minerva), Hocking Valley Scenic Ry., Marion Union Station, Ohio Ry. Museum, Northern Ohio Ry. Museum. *RMQ* is the Journal of the Assn. of Railway Museums. Info: www.railwaymuseums.org.
 - Mel McFarland. **Opening the Southwest: The D&RG Squares Off with the AT&SF.** *NRB* 67,1 (2002), pp. 14-28. illus., map. Rival railroads and their backers survey routes and build lines in northern New Mexico and southern Colorado from the late 1860s to 1880s.
 - William D. Middleton. **The Pennsylvania Railroad Under Wire.** Kalmbach Books (1-800-533-6644), 2002. 128 pp., photos. \$21.95 paper. Glossy photo album of mostly locomotives in action on the electrified main line between New York and Washington, as well as suburban routes. Succinct overview of the history and significance of the Pennsy electrification by one of American railroading's top scholars.
 - **National Railway Bulletin**, v. 67,2 (2002) is an "all traction" issue, incl. Charles Bogart, *Kentucky Traction Interlude* (history of streetcar and interurban service in the state); Edward Randolph, *Brill's Last Run: The Brillners* (J. G. Brill & Co.'s last product line of streamlined streetcars); and *Traction U.S.A.: From the Collection of Harold J. Ahlstrom* (impressive collection of streetcar photos donated to the NRHS Library in Philadelphia). The bulletin is published 6 times/yr. by the National Railway Historical Society and is a benefit of membership. \$21/yr. NRHS, Box 58547, Philadelphia, PA 19102-8547.

ABBREVIATIONS:

CRM	= Cultural Resource Management, Published by the National Park Service (www.cr.nps.gov/crm)
I&T	= American Heritage of Invention & Technology
IA News	= Industrial Archaeology News, Assn. for Industrial Archaeology (UK) (www.industrial-archaeology.org.uk)
IA Review	= Industrial Archaeology Review, Assn. for Industrial Archaeology (UK)
NRB	= National Railway Bulletin, National Railway Historical Society (www.nrhs.com)
RH	= Railroad History, Journal of the Railway & Locomotive Historical Society (R&LHS)
SCA	= Society for Commercial Archeology
T&C	= Technology & Culture, Quarterly of the Society for the History of Technology
TICCIH Bulletin	= The International Committee for the Conservation of the Industrial Heritage Bulletin (www.mnactec.com/ticcih)
VAN	= Vernacular Architecture News, Published by Vernacular Architecture Forum (www.vernaculararchitectureforum.org)

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New Industrial History Center Opens in Texas

The W. K. Gordon Center for Industrial History of Texas, located in Thurber between Fort Worth and Abilene, opened in Nov. A joint venture by the Texas Dept. of Transportation, Tarleton State University, Earth County, the Tarleton State Univ. Foundation, and Mrs. W. K. Gordon, Jr., the 10,000-sq.-ft. Gordon Center seeks to honor the special place Thurber holds in the state's industrial past. It will serve as a museum and visitor center, as well as a research facility for Tarleton State with its main campus in nearby Stephenville.

The Center's exhibits interpret Thurber's industrial past with the theme, "Explore a Town Fueled by Coal, Built by Brick, and Drowned by Oil." In the 1880s, Thurber became an industrial metropolis in the flat, brushy ranch country west of Fort Worth. Wholly owned by the Texas & Pacific Coal Co., Thurber was the state's major mine site for three decades due to the vast amounts of high-grade bituminous coal. At its peak,



W. K. Gordon, Sr., general manager of the Texas Pacific Coal & Oil Co.

Courtesy of the Gordon Family.

Thurber produced 3,000 tons of coal every day, mostly sold to the railroads in Texas and surrounding states.

In 1897, the company added a brick factory, claimed to be the best-equipped west of the Mississippi. The plant was a big success, and Thurber brick paved hundreds of miles of highways and streets in Texas. Thurber also had an impact on the labor movement in the Southwest. After a strike in 1903, the United Mine Workers organized the miners, and Thurber became one of the few totally unionized towns in the country.

In 1917, William Knox Gordon, company manager at Thurber, brought in the McCleskey Discovery oil well at nearby Ranger. This event had an enormous impact on Thurber and Texas. Soon railroads were running on the plentiful oil, reducing the need for coal. The mines and the brick kilns closed between 1926 and 1931. The company changed its name to the Texas Pacific Coal and Oil Co. and moved its base of oper-

(continued on page 15)



Visitors to Thurber stand beside a special railway excursion coach, adjacent to Mine No. 8., ca. 1900.

Courtesy Dick Smith Library, Tarleton State Univ.

MANAGING HISTORIC BRIDGES IN ARKANSAS

State highway departments across the U.S. use a patchwork of different approaches to manage their historic bridges. To date, few states have begun using Geographic Information System (GIS) to consolidate their historic bridge data. The Arkansas State Highway and Transportation Department (AHTD) reports below on the success of its GIS system.

The Historic Bridge Management System (HBMS) developed by Arkansas consolidates all the state highway department's historic bridge data into a central repository using GIS to evaluate and manage historic bridge inventories, develop preservation plans, enhance marketing of historic bridges, and aid in mitigation when a bridge needs to be altered or replaced.

Previously, information on historic bridges was contained in various filing cabinets of the department's environmental and bridge divisions and the Arkansas Historic Preservation Program. Monitoring and evaluating historic bridges was time-consuming and cumbersome because the information was housed in so many different locations. To streamline the process, AHTD decided to create the HBMS using GIS in 1999. Development of the system has been an ongoing process ever since. The HBMS contains bridge data from the state bridge division (including location, bridge type, the number of spans, span length and width, and span height), newspaper articles, digital photographs, digital video, and scanned historic documents, such as Historic American

Engineering Record (HAER) documentation and National Register of Historic Places nominations.

AHTD is committed to undertake a historic bridge inventory every five years. Currently, all bridges built before 1950 in the state have been evaluated for inclusion in the National Register. When an inventory is initiated, all bridges in the database for a five-year period (1940-1945, 1946-1950, etc.) are reviewed according to type (310—metal truss, 811—concrete arch, etc.). Then all bridges constructed during the five-year period contained in the types selected for evaluation for inclusion to the National Register are added to the HBMS. These bridges are digitally photographed and the photos are attached to the database. Queries based on bridge type are generated in the HBMS and evaluated by spatial distribution across the state, number of bridges, length/width of a bridge, and physical condition of a bridge. The results are then compared with existing numbers and types of historic bridges to determine their eligibility for the National Register.

Currently, AHTD is involved in a re-evaluation of all metal-truss bridges in the state. Metal-truss bridges not currently on the National Register were added to the HBMS as "Evaluation Bridges." Then queries are run in the HBMS to determine the location, condition, type, and number of evaluation bridges, as compared to the existing historic metal truss bridges. The HBMS is then used to generate maps

(continued on page 15)

HISTORIC BRIDGE NEWS

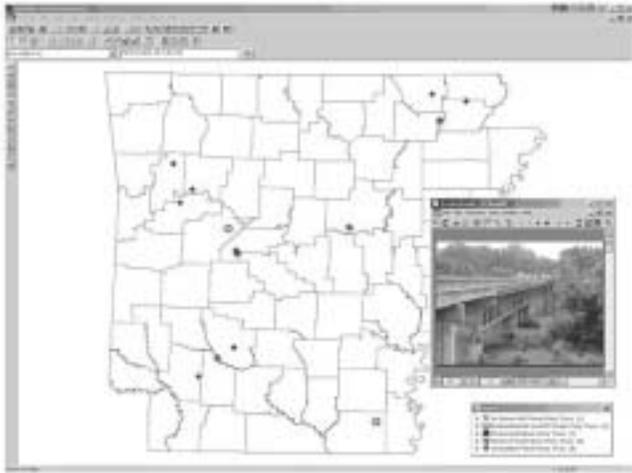
The Railroad Museum of Pennsylvania (Strasburg) has acquired a **Haupt truss bridge**. The rare and important cast- and wrought-iron bridge was built in 1851 and designed by Herman Haupt, the Pennsylvania RR's chief bridge engineer. He was a pioneer in the development of truss bridge technology and wrote one of the 19th-century's most highly regarded treatises on the subject. It is still considered one of the seminal works on structural theory by an American engineer. This example, one of three known to survive, had been located over the Amtrak line west of Ronks, Lancaster County. It will be restored and displayed at the museum. Info: www.rrmuseumpa.org.

The effort to preserve the **Hojack Swing Bridge**, constructed in 1905 over the Green River in the Charlotte Harbor of Rochester, NY, has reached a period of intense activity on many fronts (see *SIAN* Summer-Fall 2002). The SIA Board has passed a resolution in support of preserving the bridge, one of three known surviving examples of movable bridges fabricated by the King Bridge Co. of Cleveland. The current owner of the bridge, CSX Transportation, issued a request for proposals in January for demolition of the bridge after being ordered to remove it by the U.S. Coast Guard. The bridge is considered National Register-eligible and the NY State Historic Preservation Office requested in February that CSX and the Coast Guard comply with the provisions of the National Historic Preservation Act before proceeding further with any demolition plans. A period of review was subsequently granted and members of the local save-the-bridge committee have been participating with the local governments and individuals to develop an alternative to demolition. Several plans have been offered, including repairing the bridge and then lighting it as an attraction in the harbor, as well as schemes to put it back in operation and use it as part of a trail. New developments are regularly posted at

www.TheBridgeProject.com. The group is looking for help and advice from those who have participated in similar save-the-bridge efforts. Individuals or groups that would like to get involved are encouraged to contact the committee through its Web site.—*Richard Margolis*

Bridge Builder Honored in Georgia. Horace King, born a slave in 1807, was honored by a tribute at the capitol in Atlanta on Feb. 3 as part of the state's Black History Month program. King, a skilled carpenter and bridgeworker, built the state's first covered bridge—a Town lattice truss—over the Chattahoochee River at Columbus in 1832-33. He was freed by his master in 1848 and established a bridge-building business, constructing at least a dozen bridges in Georgia and Alabama. After the Civil War, he was elected a representative to the state house of representatives. Interest in King has even motivated underwater archeologists to explore the remains of bridge piers in the Chattahoochee River. More information on Horace King can be found in an article published in *Reflections*, v. 3,2 (March 2003), the newsletter of the Georgia African American Historic Preservation Network, available online at www.gashpo.org.—*Columbus Ledger-Enquirer (Feb. 6, 2003)*.

Bridges Find New Home in Amherst. The University of Massachusetts has joined a growing list of campuses where historic metal truss highway bridges are finding new lives as pedestrian bridges (see *SIAN*, Winter 2003). Students from the civil and environmental engineering department are restoring and re-erecting a 1906 riveted, pony truss from Vermont. Prof. Alan Lutenegeger is using the project to teach engineering history and structural theory. Plans are underway to accept five additional truss bridges from the Massachusetts Highway Dept., including two lenticular truss bridges fabricated by Berlin Iron Bridge and originally located in Lee and North Adams.—*Greenfield Recorder* ■



This sample computer screen from the Department's Historic Bridge Management System shows how users can access location maps to study the spatial distribution of specific historic bridge types within the state, as well as reference associated digitized data, such as photos and reports, for specific bridges.

(electronic or paper) that include the location and category (In-Service Historic Bridge, Preserved Historic Bridge, Demolished Historic Bridge, Reserve Pool Bridge, and Evaluation Bridge) for each metal truss-type (Pratt Pony, Parker Thru, Warren Pony, etc.). These maps will allow the state preservation office to evaluate each type for inclusion to the National Register on the county or statewide level. Once the re-evaluation is complete, AHTD

and AHPP will have a complete survey and evaluation for all metal-truss bridges in Arkansas and will be able to monitor the disposition of each over the long term.

AHTD uses web-based software to make the historic bridge database accessible to all employees via the departmental intranet. By next year, AHTD expects to use this web-based GIS to provide public access to the database on the Internet for historic research and tourism purposes.

The HBMS has proven to be a versatile tool. It has allowed AHTD to centralize all historic bridge data, given the state the ability to easily analyze spatial distribution of historic bridges, and to evaluate bridges for nomination to the National Register. The HBMS allows the state highway department to continually monitor historic bridge replacements. It also aids in determining the most appropriate geographic area to market a bridge that is slated for replacement. This insures that all federal and state agencies and the public are aware of their option to assume ownership of that bridge for reuse in either its existing or a different location. It also allows AHTD to decrease the time a historic bridge replacement project takes, by improving the information available for review by the state preservation officer and the Federal Highway Administration.

Info: Robert Scoggin, Historic Resources Coordinator, Environmental Div., AHTD, Box 2261, Little Rock, AR 72203-2261; (501) 569-2077; Robert.Scoggin@ahtd.state.ar.us.

Editor's Note—GIS may sound intimidating to those who rarely go beyond using computers for e-mail and word processing. Don't be intimidated! GIS is just shorthand for a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e., data identified according to their locations. ■

New Center Opens in Texas (continued from page 13)

ations to Fort Worth. By the late 1930s, Thurber was a ghost town. The opening of the Center coincides with the appointment of Dr. T. Lindsay Baker to Tarleton's first endowed chair. The chair is also made possible by a gift of Mrs. W. K. Gordon, Jr. As far as the SIA is aware, this is also the first endowed chair in industrial history in the U.S. Baker is known to many members for his

scholarship and passion for windmills. He is the publisher and editor of the *Windmillers' Gazette* and past director of the Texas Heritage Museum in Hillsboro.

Info: W. K. Gordon Center, Box 218, Mingus, TX 76463; (254) 968-1886; tbaker@tarleton.edu. ■



W. K. Gordon Center for Industrial History of Texas—architectural rendering.



IA in the Arctic



The two 120-ft. high troposcanners of FOX-M can be seen for miles around the desolate yet beautiful arctic landscape at Hall Beach. Relics of the Cold War, they continue to serve as navigational landmarks for Inuit traveling on land or sea.



One of the 'smaller' 60-ft. troposcanners.

ARMCO's—prefabricated metal buildings on timber foundations—provided the primary shelter for soldiers and workers at FOX-M.

A relic of the Cold War may be one of the northernmost IA sites in North America, and officials in Canada are exploring its potential as a tourist destination. The Distant Early Warning (DEW) Line began in Feb. 1954 when President Eisenhower signed the bill approving the construction. It was designed and built to be the primary line of air defense warning in the event of an "Over the Pole" invasion of North America by the Soviets.

Construction of the 58 DEW sites took place between 1955 and 1957. Many tons of supplies and equipment were moved to the Arctic by air, sea, and river barge. One such carrier, the US Air Force 62nd Airlift Wing, moved over 13 million pounds of material in this monumental effort. The DEW Line was declared fully operational on July 31, 1957, and remained in operation for more than 30 years.

With the signing of North American Air Defense Modernization agreement at the "Shamrock Summit" between Prime Minister Mulroney and President Reagan in Quebec City on Mar. 18, 1985, the DEW Line began its eventual upgrading and transition to become the North Warning System

(NWS) of today.

Hall Beach is located on the eastern side of the Melville Peninsula north of the Arctic Circle. The most unique feature at Hall Beach is the DEW Line Site FOX-M (Main). Although there are other DEW Line sites across the Arctic, FOX-M was one of the five original main sites and is the most complete. Original buildings at the other sites have been dismantled, but the FOX-M site still retains significant original facilities, and currently operates as part of the NWS.

(continued on page 17)

SITES & STRUCTURES

Railroad stations in northeast Georgia have undergone something of a revival. Numerous communities have received preservation grants under the federally funded transportation enhancement program. The stations' central location in the communities, as well as their typical layout with one or two large rooms, has made them ideal for adaptive reuse as centers for senior programs, dinners, dances, craft classes, and other activities. Although the re-use of stations is by no means new, what is new is the availability of funds to these small towns to preserve their stations, and they are taking advantage of it.—*Athens Banner-Herald* (Feb. 26, 2003)

The **Starr Skate Plant** in Dartmouth, Nova Scotia (SIA 1995 Fall Tour) is being nominated as a National Historic Site by the city council. Founded in 1861, Starr had become one of the leading producers of ice skates in the world by the end of the 19th century. The plant closed in 1996. The Starr property is also the site of huge granite locks of the **Shubenacadie Canal**, which linked Halifax to the Bay of Fundy and operated from 1861 to 1870 before closing due to competition from railroads.—*Halifax Herald Limited* (Mar. 19, 2003)

Straightening Chicago's Loop. The Chicago Transit Authority (CTA) has begun a \$20 million project to straighten the quarter-mile stretch of elevated track known as the Harrison Curve in the South Loop. This section of steel viaduct is more than 100 years old and will be replaced by a reinforced-concrete structure. The "S" curve at Harrison St. and Wabash Ave. limited trains to speeds of about 10 mph and created conditions conducive to the rail and wheel noise for which Chicago's El is known—*Chicago Tribune* (Oct. 19, 2002).

A Final Goodbye to American-Made Shirts. C. F. Hathaway closed the nation's last major shirt manufacturing plant in Waterville, ME, in Oct., according to an AP Wire report. Hathaway began production in 1837 and became known for its man-with-an-eyepatch logo. It was a pioneer in setting the standard for quality dress shirts sold off the rack. Hathaway will continue to produce shirts, but only from overseas plants where labor costs are lower. The closing put 235 people out of work. The current management was working with the Made in the USA Foundation to try to secure contracts for shirts, and even suggested it was willing to donate the equipment to anyone with the financial backing to keep the plant going, but there were no takers. ■

The Canadian Federal Heritage Building Review Office has inventoried the original buildings at FOX-M and has registered key buildings as Federal Heritage Buildings, and there is growing interest in a National Historic Site designation.

The most striking structures at FOX-M are two 120-ft. troposcatter antennas used to communicate with Thule, Greenland. Troposcatter relied on relatively high-powered transmitters and large high-gain billboard antennas to “bounce” signals off particles in the troposphere, which is the lowest layer of the atmosphere. The antennas are important to the current 615 residents (mostly Inuit) of Hall Beach on a practical level as landmarks for navigation. In addition, there are two pair of 60-ft. troposcatter antenna, two 25-ft. UHF towers, various geodesic domes, the old air-terminal building complete with Cold War-period notices, three warehouses, a vast aircraft hanger, Atwell and ARMCO steel-clad dormitories, garages, and two large structures referred to as Module Train A and B.

Where once up to 200 people worked at the site, today less than 20 people work there. Most of the buildings and antennas are in remarkably good condition owing to the cold and relatively dry arctic climate. Hall Beach was chosen as a DEW line site because of its location, level terrain, and relative isolation. At 68°45'43"N, 81°14'42"W, the geoposition of Hall Beach fit as one node in the multi-nodal system of regularly spaced radar sites that comprised the DEW Line. Additionally, the flat gravelly terrain offered an unobstructed view to the horizon and facilitated the development of a 5,000-ft. runway to service the facility. Further, the relative isolation of the site minimized the potential for atmospheric and radio-wave interference.

As DEW Line sites across Canada's arctic are dismantled, the

Hall Beach site is becoming increasingly unusual. While the equipment inside has been removed (apart from the active NWS part of the site), there remain extensive collections of photographs and other material from which interpretation of the site can be prepared. The Territorial Government of Nunavut's Department of Sustainable Development—Parks, Conservation Areas, and Tourism Division is currently conducting a study to determine the feasibility of interpretive and educational exploring the interaction of Inuit and Euro-Canadian/American cultures, as well as the technologies and world politics of the Cold War as they mixed together in this isolated part of the world. The initial conclusion is that these programs are a possibility. The community enjoys regular air service, and there are traditional country stores together with a hotel. It is hoped that local tourism programs focused on the FOX-M site would have the potential to attract visitors.

This article was prepared for SIAN by Jeremy Webb, RRL Recreation Resources Ltd. with the Department of Sustainable Development—Parks, Conservation Areas and Tourism Division, Government of Nunavut. ■

Web Links:

Nunavut Territorial Parks. www.nunavutparks.ca

Dedicated site on history of air defense radar including information on the DEW Line. www.radomes.org/museum

Web site dedicated to Arctic DEW Line site history. www.lswilson.ca/dewline.htm

CHAPTER NEWS

New England Chapters. The Southern New England Chapter toured Stiles & Hart Brick Works, the last remaining brick manufacturer in Massachusetts in Dec. The 110 yr.-old company makes both water-struck and sand-molded bricks. The chapter traveled to East Windsor, CT, in Feb. to tour Thrall Hall, a rural dance hall, designed and built by farmer and square-dance enthusiast Ed Thrall. The building is assembled from parts he scavenged from demolished buildings and even has a dance floor “sprung” on recycled truck tires. (Info: www.takelifeback.com/oto/otoh150.htm). The chapter filled out the afternoon with a tour of the Berlin Steel Co., the successor to Berlin Bridge. Carl Johnson led a tour of the headquarters and shop lot.

On Mar. 22, the Southern and Northern chapters co-sponsored the 16th Annual SNEC-NNEC Conference on New England IA, held this year at Stonehill College, Easton, MA. A full slate of paper presentations was followed by a tour of the Stonehill Industrial History Center, led by Greg Galer. The Northern New England Chapter had a spring meeting and field tour along the lower Piscataqua River of Maine and New Hampshire in May. Participants visited three railroad bridges, the remnants of a turntable and locomotive house, a woolen mill, and a granite quarry.

Oliver Evans (Philadelphia) held its annual dinner in Jan. Thomas Winpenny spoke on the topic of 19th-c. textile mills in Manayunk, comparing the Philadelphia system with that of Lowell. At the Feb. meeting, Ed Grusheski presented an illustrated talk on the rise and fall of the *Commercial Museum, 1894-1991*. The Philadelphia museum was established to introduce American

businesses to world products and opportunities in international trade. In Apr. the chapter toured a new microbrewery (Yards Brewing), which is housed in the former Weisbrod & Hess Brewery (operational 1880-1939). Local brewing history expert Rich Wagner gave a presentation on the *History of Brewing in Kensington and Beyond*. In May, the chapter took a cruise on the Delaware River from Philadelphia north to Bristol, viewing dozens of historic industrial sites along the way.

Roebling (Greater NY-NJ) gathered for its annual meeting at Drew Univ. in Jan. The chapter elected Mary Habstritt president and heard presentations from Bierce Riley on extended trips made on the *John J. Harvey* fireboat and from Fred Heide on the restoration of the 20th Century Limited's “Hickory Tree” salon car.

Samuel Knight (Northern California) held its annual meeting at the Knight Foundry in Oct. The chapter elected officers and inspected the foundry's machine and pattern shops. Members toured the Shell Oil refinery in Martinez in Jan. The chapter has moved its Web site to the SIA headquarters site at www.sia-web.org/chapters/knight/knight.html. Chapter newsletters may be accessed via the Web including Issue No. 13 (Dec. 2002), which features articles on *Oil Exploration at Squaw Flat* (1910s-50s oil field in California) and *Floating IA—The S.S. Jeremiah O'Brien* (WW II Liberty Ship). No. 14 (Apr. 2003) features *Memories of Holyoke* (a chapter member remembers growing up in the Massachusetts industrial town) and *The Carquinez Bridges*. In May the chapter sponsored a 2-day tour to the oil fields in and around Kern County in Southern California. ■

Confederate Paper Mills. I am researching the paper mills that operated in the South during the Civil War. To my knowledge, with limited exception (e.g., the use of processed reeds along the North Carolina coast), these facilities utilized predominately rag-based pulp technology. Although the 1860 federal manufacturers census lists only 24 paper mills in the states that formed the Confederacy, I have found references to a total of 43, though it is likely that not all of these were operational or in a state of completion by the end of the conflict. Most of the southern paper mills were burned during the war and others burned or were subsequently dismantled after the conflict. Any and all references to these mills would be both useful and appreciated. It appears that the William S. Whiteman mill (a 30 x 80 ft., two-story brick building) near Nashville is the last standing Confederate paper mill. The stone foundation of a second mill, also associated with Whiteman, are extant within the Old Stone Fort State Park near Manchester, TN. I am well into a book-length study of these facilities but plan on continuing research over at least the next two years. Any assistance in this undertaking would be warmly and gratefully received. Donald B. Ball, 312 Iowa Ave., Louisville, KY 40208-1427; DBall39539@aol.com.

Have you stumbled upon *Hands-on History* on the History Channel? The show's host, Ron Hazelton, tours one factory in each 30-minute episode. A recent episode featured the Mack Trucks factory, which we were unable to tour during the Lehigh Valley Fall Tour 2002 because the plant was idle at the time. For local listings, www.historychannel.com.

Factory tours are also showing on the Food Channel. The series *Unwrapped* provides behind-the-scenes looks at how America's food is made. An episode entitled, "Sugary Treats," which premiered in Dec. 2002, included a segment on sugar cubes made at the Domino Refinery in Brooklyn (tour site—SIA 2002 Annual Conference).

Correction—Which Is the Longest Canal Tunnel in Britain? *SIA Publications of Interest* (Winter 2002, p. 11) apparently perpetuated an error in its listing of *The [London] Times* (Mar. 23, 2002) article on the revival of British canals. Geoffrey Finton, Secretary of the Somerset (UK) Industrial Archaeology Society writes: "The item on canal restoration states that the Sapperton Tunnel was the longest in Britain at 2.25 miles. Not true! The

data I have derived from my book collection is as follows: (1) Standedge Tunnel, Huddersfield Narrow Canal, 5,456 yds., lengthened to 5,698 yds. at west end for a narrow-gauge railway line; (2) Strood Tunnel, Thames & Medway Canal, 3,946 yds., still in use as a railway tunnel; (3) Sapperton Tunnel, Thames & Severn Canal, 3,817 yds., always an unsatisfactory tunnel because of leakages and collapses; (4) Lapal Tunnel, Dudley Canal, 3,795 yds, a troublesome tunnel, closed after it collapsed in 1917. The Huddersfield Narrow Canal has been recently re-opened and quite a lot of work done on the Standedge Tunnel. Ventilation problems prevent use of engines, so boats are towed through by an electric tug. Standedge Tunnel is on the highest summit level in Britain at 656 ft. above sea level."

Future IA in a Box. The newest trend in helping developing countries acquire industrial technology is the "mini-plant." The mini-plant is a 40-ft.-long shipping container designed in such a way that all machinery is fixed to a platform in the container, with all wiring, piping, and parts ready for production. More than 700 mini-plant systems have been developed, including those for making steel nails, retreading tires, bending reinforcing bars, producing aluminum buckets, and manufacturing injected polypropylene housewares, to name but a few. A novel feature is that each mini-plant is connected via the Internet with suppliers worldwide of raw materials and services. Will the next generation of SIA members study historic mini-plants?—*Tech News* (Mar. 2003)

Flour Milling Collection Donated to Kansas State. Richard and Wendy Ferrell of Leawood, KS, have made an initial gift of \$48,000 to Kansas State University to establish the Richard Ferrell Flour Milling Industry History Collection. The collection features a variety of historical items relating to the milling industry—facility photos and postcards; production and pricing documentation, packaging materials including barrels, cotton sacks, and paper bags; sales and marketing premiums and ads; industry correspondence and vintage equipment catalogues. Kansas State's Hale Library will house the collection in its special collections department. Richard Ferrell recently retired from the milling industry, having worked 34 years in engineering and production for Pillsbury and Cereal Food Processors.—*KSU Foundation* (Aug. 2002) ■

Lehigh Valley (continued from page 8)

the brick-lined tail race tunnel (an eerie experience) and examine the turbine, approximately 12.5 ft. in diameter and resembling a large pinwheel.

After heading south along the east (NJ) side of the Delaware River to view several locks and waste weirs of the Delaware & Raritan Canal Feeder, built in 1834 to supply water to the canal's main trunk in Trenton, we stopped for lunch in a park in Lambertville and then walked across the Delaware River bridge to New Hope, PA, where a guide from the Friends of the Delaware Canal waited to interpret a watered section of the canal, built in 1831-32. In its busiest years before the Civil War, the canal carried more than a million tons of coal per year, headed south, mostly to Philadelphia or for transfer east to the Delaware & Raritan Canal to New York City. As compared to the Morris Canal, the Delaware Canal dropped a meager 165 ft. in 60 miles and had 23

locks. Canal boat rides are offered at New Hope, but we boarded our bus to head back to Allentown and took in several sites along the way, including a restored timber-truss aqueduct and the Lehigh Power Co. powerhouse at Raubsville, built in 1901.

The SIA's thanks to the National Canal Museum and Lance Metz for organizing our 2002 Fall Tour. We also want to thank dedicated volunteers Tom Smith (co-chair), Craig and Ann Bartholomew, Carol Front, Raymond Holland, Roberta Longenbaugh, and Donald Young. Our sincerest best wishes also go to the factories, museums, and historic sites—their many managers, workers, staff and volunteers—who welcomed our group.

Mary Habstritt, Patrick Harshbarger, & John Reap

IA ON THE WEB

Big Brutus (www.bigbrutus.org) features information about a massive dragline (stripping shovel) preserved and open to the public near West Mineral, KS. The 160-ft.-tall shovel is a Bucyrus Erie Model 1850B. The museum also has exhibits on Kansas coal-mining history.

Bridgeport Working: Voices from the 20th Century (www.bridgeporthistory.org), a site developed by the Bridgeport (CT) Public Library, tells the story of the city's industrial and labor heritage through oral histories with workers, photos of industrial scenes, and corporate histories of dozens of firms.

Chicago Tunnel Co. (www.ameritech.net/users/chicagotunnel/tunnel1.html). Web site devoted to the history and operations of the company (est. 1906) that operated a narrow-gauge freight railroad in 60 miles of tunnels. Small, four-wheel electric locomotives hauled pony cars among downtown businesses and industries.

Connecticut's Historic Bridges (www.past-inc.org/main-right.html) is based on the Conn. DOT historic bridge inventory by Bruce Clouette and Matthew Roth [SIA]. History of bridge building in the state, list of bridges on the National Register, preservation case studies. A related site, www.past-inc.org/bibco offers a history of the **Berlin Iron Bridge Co.**, a 'virtual' tour of the bridge fabricating plant, lenticular truss patents, and list and map of extant bridges in the state.

Gas Burners (www.stoveburner.com) depicts 162 gas burners from various appliances such as kitchen stoves, space heaters, hot-water heaters, and many types of specialty appliances.

IA EXHIBITS

On the Road to Paradise: A History of the Strasburg RR, an exhibit at the Railroad Museum of Pennsylvania (Apr. 26-Dec. 7), features the museum's collection of photographs and memorabilia, artifacts, and archival material borrowed from the Strasburg RR and private collectors. The exhibit tells the story of "America's oldest short line," established in 1832, to connect Strasburg with the Pennsylvania RR at Paradise. It is still operating under its original charter. Situated in the heart of Lancaster County's Amish country, the Strasburg RR was bought in 1958 by a group that turned it into one of the oldest and most successful steam-powered tourist railroads in North America. The exhibit tells the story of the economic and social factors that have sustained the line. The Strasburg RR station is located across the street from the state-operated Railroad Museum. Both institutions enjoy a long-standing tradition of cooperation and support. Info: www.rrmuseum.pa.org.

The Tubes: Rails Under the Hudson 1874 to the Present-day PATH is an educational exhibit at the Hoboken Historical Museum (in cooperation with the Jersey City Landmarks Conservancy) detailing the construction and history of the commuter lines running between Jersey City and Manhattan. Terry Kennedy, a longtime private collector, loaned much of his collection, including original tokens, ticket stubs, the ceremonial switch used in 1909 to launch the first train from Jersey City to lower Manhattan, original blueprints and drawings, and a train signal. Also on display are several photos by SIA members John Bartlestone and Gerry Weinstein. Info: www.hobokenmuseum.org and www.jclandmarks.org. ■

Lost Labor: Images of Vanished American Workers, 1900-1980 (www.lostlabor.com) is a selection of 160 photographs excerpted from a collection of more than 1,100 company histories, pamphlets, and technical brochures. Web site developed by Raymon Elozua [SIA].

Montreal's Industrial Architecture (www.mcgill.ca/blackader/digital/). McGill University's Blackader-Lauterman Library of Architecture and Art offers an online database of approximately 130 of the city's industrial buildings.

New York Bridge Inventory (www.dot.state.ny.us/eab/hbridge.html). Information on the recently completed NY State Historic Bridge Inventory. Study reports, historic contexts, National Register-eligibility evaluations, and preservation plan are available for downloading.

Northampton Silk Industry Project (www.smith.edu/hsc/silk). Activities and exhibits exploring the history of the Massachusetts silk industry as part of a year-long silk celebration in Northampton. Smith College students have restored silk winding and weaving machines, the college art museum has opened an exhibit on the history of the silk industry, and more than 3,000 school children have been raising silkworms. Demonstrations of unraveling cocoons, dyeing and weaving silk.

Rock Island Bridge (www.del-jen.com/services/bridge.htm). Photos showing the mechanism and operation of the movable bridge over the Mississippi at Rock Island Arsenal.

Somerset (UK) Industrial Archaeology Society (<http://mysite.freeseerve.com/sias>). Activities of IA group in England analogous to SIA local chapters. An impressive sales list of pocket-size booklets on Somerset County industrial sites.

Philipsburg Tannery (www.philipsburgtannery.com). Archeology of central Pennsylvania tannery, ca. 1870-1903.

Wabash & Erie Canal (www.wabashandieriecanal.org). Learn about the history of this Indiana canal and the new canal museum in Delphi.

Readers are cordially reminded to visit the SIA's own Web site at www.sia-web.org. On-line membership applications, gift memberships, and renewals now are available through the SIA's secure Web server.

The SIAN's Web column 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. ■

NEWS OF MEMBERS

Ed Kutsch, a longtime SIA member and a regular at tours and conferences, passed away at the age of 76 on Jan. 2 following a heart attack. Ed worked as a draftsman for the Dana Corp. for 37 years, retiring in 1986. Known for his passion and expertise in the area of historic canals, he was a founding member of the Pennsylvania Canal Society. Additionally, he was very active in a number of local history organizations in eastern Pennsylvania, including the National Canal Museum and the Oliver Evans Chapter of the SIA. ■

CALENDAR

2003

May 29-31: Agriculture and Rural Life in the American Southwest and Northern Mexico Symposium, Las Cruces, NM. Hosted by NM Farm & Ranch Heritage Museum. Paper sessions on farm technology, irrigation, and food processing; tours of pecan processing, chile pepper canning, cotton gin research facility, and ranches. Info: NMF&RHM, 4100 Dripping Springs Road, Las Cruces, NM 88011; www.frhm.org.

May 29-31: Early American Industries Assn. Annual Conference, Burlington, VT. Tool show, papers, tour of Shelburne Museum. Info: Bill and Judy McMillen, (718) 987-3418; JudyTB@aol.com.

May 29-June 1: SIA 32nd Annual Conference, Montreal, Quebec. Paper sessions and tours of IA in the city and province. Info: James Bouchard, (514) 251-5148; fax 251-5126; jamesb@aei.ca; www.sia-web.org.

June 5-7: Historic Covered Bridge Best Practices Conference, Burlington, VT. Paper sessions and tours. Info: Preservation Education Inst., Box 1777, Windsor, VT 05089; (802) 674-6752; fax 674-6179; www.uvm.edu/coveredbridges.

June 5-8: Vernacular Architecture Forum Annual Conference, St.-Pierre et Miquelon. St.-Pierre and Miquelon are French territorial islands off the coast of Newfoundland. Tours and papers related to maritime and provincial architecture. Info: www.vernaculararchitectureforum.org.

July 10-14: TICCIH 12th International Congress, Moscow, Russia. Theme: Preservation of industrial heritage and rehabilitation of old industrial centers. Post-conference tours to mining and metallurgical sites in the Urals. Info: Eugene Logunov, Inst. of Material Culture, Box 65, Ekaterinburg, B-109, Russia; logunov@online.ural.ru; www.ticcih2003.ur.ru.

Aug. 18-22: Norberg-Nora 700 Years of Iron Production, International Conference, Norberg, Sweden. Papers on and demonstrations of early iron making celebrate the 700th anniversary of the first written account of ironworking in Sweden. Info: Anna-Karin Collin, Framtidshyttan, Norbergs Kommun, Box 25,

SE-738 21 Norberg, Sweden; +46 223 290 00, fax +46 223 219 38; anna-karin@framtidshyttan.com.

Sept. 5-11: Assn. for Industrial Archaeology Annual Conference, Cardiff, Wales. Full program of lectures and field visits in Southeast Wales. Info: Liaison Officer, AIA Office, School of Archaeological Studies, Univ. of Leicester, Leicester LE1 7RH, U.K.; phone, 0116 252 5337; aia@le.ac.uk; www.industrial-archaeology.org.uk.

Sept. 17-21: Assn. of Railway Museums Annual Meeting, St. Louis, MO. Hosted by the Museum of Transportation. Seminars and local tours. Info: www.museumoftransport.org.

Sept. 25-28: SIA Fall Tour, Northeast Montana. See article in this issue. Registration materials will be sent to members during the summer.

Sept. 26-29: 6th International Mining History Congress, Akabira, Hokkaido, Japan. Paper sessions and tours. Info: www.imhc2003.com.

Oct. 12-19: Pioneer America Society Annual Conference, Bridgetown, Barbados. Caribbean material culture. Of IA interest, tours of sugar plantations and mills. Papers requested (deadline Aug. 1). Info: W. Frank Ainsley, ERS Dept., 601 S. College Road, Univ. of NC, Wilmington, NC 28403; (910) 962-3493; fax 962-7077; ainsleyf@uncw.edu.

Oct. 16-18: 25th Annual North American Labor History Conference, Wayne State Univ., Detroit, MI. Conference theme is "Labor, War, and Imperialism." Info: Elizabeth Faue, Dept. of History, 3094 Faculty Admin. Bldg., Wayne State Univ., Detroit, MI 48202; (313) 577-6987; ad5247@wayne.edu.

Oct. 16-19: Society for the History of Technology (SHOT) Annual Conference, Atlanta, GA. Info: www.shot.press.jhu.edu/annual.htm.

2004

June 10-13: SIA 33rd Annual Conference, Providence, RI. Watch future issues of *SIAN* and the SIA Web site (www.sia-web.org) for updates. Info: Robert Stewart (robert.stewart13@worldnet.att.net). ■

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