



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

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IA IN THE RUHR, GERMANY

2001 Study Tour Review

The Ruhr Tour, or, as some of us referred to it, the Ruhr *Tuhr*, was an immersion in German industrial archeology, but more than that, we discovered how our German colleagues are working in successful ways to make industrial heritage preservation relevant to Ruhr Valley communities and, in the process, making successful strides to preserve massive industrial complexes and landscapes. Forty-seven SIA members participated in the ten-day tour, coordinated by Pat Martin, SIA's executive secretary and journal editor. Our chief guide and host was Wolfgang Ebert, president of the Deutsche Gesellschaft für Industriekultur, e. V. (DGfIV), which translates as the German Society for Industrial Culture.

The society is the orga-

Industriekultur im Ruhrgebiet, a heritage route that links the region's many historic and modern industrial sites. Wolfgang invited the SIA study tour to experience the newly developed route.

Our home base was two small hotels in the attractive city of Duisburg. Fittingly, Wolfgang welcomed us at Brauhaus Schacht 4/8, a pub in downtown with a mining theme ("Schacht" = mine shaft). The pub even sells key chains with miniature miner's hardhats attached. During the 19th century, coal mining and iron production were the leading sectors of the Ruhr's industrialization. Duisburg developed as the regional shipping center by virtue of its harbor, which reportedly ranked as *(continued on page 2)*
the biggest inland port in the



Headframe at the Zeche Zollern II/IV mine.



Larry Mishler

One of the gigantic “map pins” that mark the Route Industriekultur im Ruhrgebiet, the Ruhr Valley’s industrial heritage route.

world. The first stop was the **Museum der Deutschen Binnenschifffahrt**, the inland shipping museum in Duisburg. It is housed in a former public bath, or Schwimmbad, built in 1910. Exhibits cover shipping history from prehistoric times to the present and include a remarkable model ship collection and other artifacts. The swimming pool has been reused for a sailboat display. The museum also served as our introduction to the identification system on the Route Industriekultur im Ruhrgebiet. Most sites are marked outside by a large yellow pole that looks like a gigantic map pin. Near the pole are interpretive signs, the size and shape of billets of steel.

Duisburg’s **Innenhafen**, or inner harbor district, was the center of the European grain trade after the Franco-Prussian War, and in recent years has been redeveloped for modern commercial and cultural uses. After lunch in a former flour mill, we toured the harbor and saw the **Fussgängerbrücke** (pedestrian bridge), a suspension bridge of 1999, the deck of which can be drawn up at its center to clear higher boats by shortening the back stays with large hydraulic pulling cylinders, and one of Europe’s first riveted steel silos, 1905, now part of the **Küppersmühle** modern art museum.

Our day in Duisburg ended at the **Landschafts-Park Duisburg Nord**, a blast furnace complex that has been adaptively reused as a park. The **Dampfgebläsehaus** (blowing engine house) now houses a performance stage, a catering hall, and a disco, the coal bunkers contain community gardens, and the gasholder is a scuba tank. Paths through the site are popular for hiking and dog-walking. The complex is illuminated each evening with a light show. Wolfgang explained that the furnace was preserved because the cost of demolition was great while tourism and recreation are the fastest growing sectors of the economy. Part of the planning was not to spend the capital required to preserve the site for all time, but to expend funds only on what needed to be repaired in the short term to keep it open as a park and cultural center. No admission is charged because patrolling the property and staffing a gate would be expensive. Wolfgang explained that low-cost, low-maintenance adaptive reuse, especially for commercial, cultural and recreational purposes, has been a successful approach for persuading the public to preserve large industrial sites and landscapes in the Ruhr. It is a preservation philosophy that we saw repeated throughout the tour.

Our first stop the second day was **Schleusen Park** in Waltrop, of which the centerpiece is the old **Schiffshebewerk**

Henrichenberg. This ship-lift is capable of lifting a 750-ton boat a height of 14 m. between two levels of the canal. We toured the small museum devoted to the lift, the nearby 1914 lock and the **Dortmund-Ems Kanal**, built between 1892 and 1899 from the North Sea to Dortmund, a distance of 287 km, for the export of coal to, and the import of iron ore from, Sweden. The **Schiffshebewerk** was opened in 1899 with great ceremony by Wilhelm II and operated until 1970. We braved spitting snow and patches of ice to climb the towers, then returned to the museum to see a restored steam engine run in an exhibit reproducing a boat’s engine room.

Amazing new solar-powered technology was featured at the **Akademie Mont-Cenis Herne**, housing training and seminar facilities for the Interior Ministry, a hotel, indoor park, and library. It is capable of operating completely off the electric grid by using the world’s largest solar roof installation covering 83,700 sq. ft., which, with another 7,000 sq. ft. array on the façade, produces 750,000 kw. hrs. per year. Methane gas from a former coal mine, closed in 1978, fuels cogeneration plants. This mine, once the center of the town of Sodingen, contains the deepest shaft in the Ruhrgebiet at 4,268 ft. The building sits directly over the former pit head, floating on concrete piles.

We continued on to the **Skulpturen-Park Rheinelbe**, a sculpture park built on the site of a coal mine. Finished in 1999, the park was a conscious effort to change public attitudes toward coal mining. The DGflev is promoting the idea of sculptures set on coal waste tips as monuments to industrial heritage. The centerpiece of this park is a massive creation of recycled concrete slabs set atop the mine’s waste tip. The tailings are sculpted and augmented with waste from other mines to create a hill-like base that is an integral element of the sculpture. Climbing to the top was akin to making a pilgrimage to the altar of ancient Mayan sacrifices. What would the gods of IA demand?

Our third day of touring brought us to the first of several historic coal mines. The **Zeche Zollverein XII** (Customs Association Colliery), opened in 1847, is in the great steel city of Essen. The mine’s name refers to the customs union formed in 1843 among the German states, which eliminated tariffs at their borders and placed trade on a national level. In 1932 one main shaft was dug to connect four of the seams with the goal of raising production to 12,000 tons of coal per day and

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From Salt to Stainless Steel: Touring the IA Heritage of Syracuse, New York October 11-14, 2001

The 2001 SIA Fall Tour will explore Syracuse, NY. Once a major center for 19th-century salt production and still known as the Salt City, Syracuse and its surroundings today boast an incredible diversity of industrial products and processes. This year's tour will be sponsored by the Onondaga Historical Association, which operates the county historical museum and research center.

A couple of preview events are planned for Thursday. Early arrivals can sign up to board the *City of Syracuse* as it plies the waters of the State Barge Canal and "locks through" at Baldwinsville. The boat, of recent construction but in the style of lake steamers of the late 19th century, will then take a spin into Onondaga Lake, once the heart of the city's defining salt industry. That evening, participants will have the option of attending *Under the Eyes of Gambrinus*, a beer-tasting celebration at the OHA Museum.

Over the next two days of tours, participants will visit Marsellus Casket, founded in 1871 and one of America's leading producers of fine wooden caskets. Several U.S. presidents rest for the ages in this Syracuse product. We also will see remnants of the mid-19th-century Erie and Oswego Canal, including aqueducts, locks, and a dry dock repair facility dating from 1855, currently under restoration.

Another sojourn will be to the Jamesville Quarry, where a blast demonstration will be offered. Also planned are visits to Crucible Steel, a specialty tool steel maker started in 1876; Baker Wood Products Engineering Lab at the State University of New York School of Environmental Science and Forestry, one of the nation's leading centers for forest management and wood products study; Syracuse China; Camillus Cutlery, a maker of high-grade knives, begun in 1876; and the Woodland Reservoir, heart of Syracuse's 1894 water delivery system from Skaneateles Lake. A ride on Syracuse's in-city rail system, OnTrack, will offer a narrative of



Solar salt workers, ca. 1900.

several former industrial sites and a special stop to explore the ruins of the 1860 Geddes brine pump house, one of just two surviving structures of the once mighty salt industry. Additional tour stops are being investigated.

A reception at the OHA Museum will start the Saturday evening festivities. Several unique venues are under consideration for the banquet, some dependent on renovation schedules, so stay tuned. Sunday morning will bring walking tours of downtown Syracuse's historic architecture with stops at the Erie Canal Museum, housed in an 1850 canal weighlock, and the Museum of Automobile History, boasting one of the largest private collections of automobile literature and graphic materials in the nation.

Due to the high demand for lodging in Syracuse in the fall (Syracuse Univ. events, etc.), three hotel options are available. Two are historic properties in the downtown area, within easy walking distance of the OHA Museum, the Museum of Science and Technology, and Armory Square, a renovated 19th-century commercial district boasting several restaurants and night spots. A third, suburban choice is also available at reduced cost. Shuttles will be provided. Registration materials are due out in late summer. Info: Dennis Connors, (315) 428-1864; djcoha@juno.com. ■



Geddes pumphouse, ca. 1930.



Jamesville Quarry when it was providing limestone for the production of soda ash, 1921.

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making the mine one of the most modern in the world. Architects Fritz Schupp and Martin Kremmer designed a complex of spare, Bauhaus-style buildings, thin-skinned structures with steel-frame brick walls only 1/2-brick thick. The site, together with eight other shafts and a portion of the town, is slated to become a UNESCO World Heritage Site because of its unique style and high degree of integrity.

The history of the mine is interpreted through exhibits in the coal-sorting plant,

where each car came up the 620-m. deep shaft and tipped its load in a mere 83 seconds. The mine produced good coking coal but it was very gaseous and thus all cars, pumps, and lighting ran on compressed air to prevent sparks that could cause explosions. In the museum is an example of a compressed-air lantern with a dynamo in its base. The view from



the roof of the washing plant gave us an overview of the operation, including the coke plant, in use until 1993 and now open to the public. It is one of some 500 coke plants that once operated in the region, of which only three remain active.

The current state of Germany's coal industry is bleak, in part due to heavy regulation of the industry, which includes stiff fees to a compensation fund for homes damaged by mine subsidence. In spite of government price supports, German coal costs 270 deutsche Marks (DM) per ton while imported coal can be purchased for 90 DM per ton. Many young workers were drawn to mining in the 1970s because of the demand for coal during the energy crisis, but as mining grew more mechanized and oil supplies became more stable in the 1980s and 1990s, many young workers were laid off and thus unemployment is a serious problem in the Ruhr.

Zeche Friedrich-Heinrich is still operating and we began our tour in the beautifully stenciled central hall, built in 1912 and recently restored. Miners gathered in such halls before entering the mines and also to collect their wages on payday. As we set off, we shouted the Ruhr miner's traditional greeting, "Glück auf!" (Good luck!). Since 1968, all German mines have been state owned. The Friedrich-Heinrich's seams yield 60 percent coal and the waste is sold as gravel and sand, or "white coal." We traveled to the top of the newer of two headframes, built as a replacement in 1952 with two fully automatic Brown Boveri electric hoisting engines, each moving the skips at a rate of 16 meters per second. The first example of many we saw of the Koepe friction hoisting system commonly used in Germany.

The fourth day began with what had become the pre-departure routine on the bus with Pat Martin counting us off and responding to Wolfgang's question, "Are we complete?" with the response, "We are complete." And we headed off to **Thyssen-Krupp**



Larry Mishler

One of the buildings at the Landschaftspark Duisburg-Nord is decorated with Becher water tank images.

The Landschafts-Park Duisburg Nord is a blast furnace complex that has been adaptively reused as a park. The complex is illuminated each evening for a light show.



Larry Mishler

Ruhr tour participants make their way to the outdoor sculptures atop a coal mine tip. The adaptive reuse of industrial sites for recreational and cultural activities was visible throughout the Ruhr.

Stahlwerke. Thyssen and Krupp merged in 1998, and this integrated steel plant, covering 10 sq. km., was originally one of the Thyssen properties. The plant produces more than 10 million tons of steel per year and employs 13,000 to 14,000 workers. Its four blast furnaces (of an original nine) produce more than 11,000 tons of iron per day. The newest one, built in 1993, still has its original lining. All of the iron ore is imported, 55 percent coming from South America and the remainder from Scandinavia, Canada, and Australia. The coal and limestone are locally extracted.

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The Ruhr Tour group in the central hall of the Zeche Friedrich-Heinrich coal mine.

The plant's primary product is strip steel, 50 percent of which is destined for the automotive industry. Its bow-type continuous casters produce 10-m. long slabs up to 2.5-m. wide and 255-mm. thick. Car manufacturers require 0.6 to 0.8-mm. thicknesses. Generally, hot rolling can get the slab down only to 1.5 mm., so it is followed by cold rolling. Thyssen-Krupp combines casting and hot rolling, able to produce thicknesses down to 0.8 mm and allows them to bypass cold rolling for some customers. Some sheet steel is rolled as thin as 0.1 mm for the packaging industry. (Steel is used more widely for soda cans in Europe than is aluminum.) The plant has the ability, with its five coating lines, to coat the steel with zinc or aluminum to prevent corrosion. Laser cutting and welding allows them to cut pre-fabricated pieces for the auto industry. Two million tons of rails also are produced here in lengths up to 120 m., which are shipped on eight flatcars. We were able to observe several pours of hot iron into the oxygen furnaces, stopped in at one of the blast furnaces, and saw the continuous casting process from beginning to end. The tour ended with a traditional steelworkers lunch - bread, beer and soup - in a company dining room.

We next visited the **Rheinisches Industriemuseum** in Oberhausen, housed in the former Altenberg zinc factory. The small museum's exhibits describe the history of coal mining and steelmaking, beginning with the first deep mine, established in 1830 by Franz Haniel, who also built the first coke-fired blast furnace in the Ruhrgebiet. The first iron used was "bog iron" found in a level of watery soil at the surface. Although Bessemer and Thomas steelmaking processes began to be used in the 1890s, puddling—to produce wrought iron—was still in use in the Ruhr as late as 1912. Seamless tube manufacturing was developed in 1885 by Reinhard and Max Mannesmann, whose company is still headquartered in Dusseldorf. During World War II, workers from Poland, Russia, and France were forced into labor to replace German men sent to the front. A Krupp diesel truck and locomotive were among the large items on display. In a partially recreated machine shop, staff demonstrated a lathe, which operated in the original zinc factory until ten years ago. A 53-ton forging hammer is also on display.

After 1830, the Ruhr's rapid industrial growth resulted in competition for workers. Several workers' housing settlements were on the itinerary, illustrating the coal and steel companies' efforts to attract workers with, by American standards, quite lovely and

comfortable company towns. The **Rheinpreussen-Siedlung** in Duisburg was built for coal miners in the Gartenstadt, or garden suburb, style and is one of the best-preserved examples, with about 400 double-houses remaining. **Siedlung Teutoburgia** in the town of Herne once housed 7,000 people. The tree-lined main street, or allée, led directly to the mine entrance, a common feature of the mines in the area. The mine's headframe and hoist house, dating from 1907-08, still remain and have been incorporated into a park that includes artistic installations. One of these, called the "Haunting of the Deep," imitates a covered mine shaft, with howling sounds emanating from speakers mounted underneath the wooden platform. It was one of several examples we saw of art being incorporated into historic industrial sites as a way to redefine them as cultural landscapes and attract people.

Next, we traveled to Wuppertal where we rode the **Schwebebahn**. The world's oldest operating monorail, the Schwebebahn (literally, "suspended way"), is suspended from a single rail. It was built between 1898 and 1903 to create public transportation in minimal space along the narrow valley of the Wupper River. For most of its 13.3-km. length it runs 12 m. above the river. Its 472 steel arches spanning the riverbed are being replaced and many of the stations are being restored.

Bochumer Verein Verkehrstechnik GmbH (Bochum Association for Transportation Engineering, Inc.), in the city of Bochum, was begun in 1842 and was originally part of an early Krupp steel works. The wheel foundry includes a showroom of locomotive wheels. We then saw the process from its beginning, where blanks were cut from billets, heated in a natural gas-fired furnace, and descaled. The main forge provided drama as the red-hot blanks were moved by conveyor and robot under the hammer. Coal powder burst into flame as it was dropped onto the blank as a lubricant. An operator uses tongs to insert a mandral and, once the press punches out the axle hole, retrieves the mandral from a

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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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pit below. Robots move the wheels from the forge to a rolling mill, to a secondary press, and to other stations for final shaping and gauging, then stacks them while they were still cherry red. A bar-lift (no fork, only a tine) moves the wheels around the plant.

The Ruhr Valley boasts an impressive number of historic sites and museums related to coal mining. The **Zeche Hannover II/IV** is operated by the **Westfälisches Industriemuseum** (Westphalian Museum of Industry). The hoisting tower dates to 1858, while the two-cylinder steam winding engine inside is from 1892. Museum staff met us at the site, which was not yet open for the season, and ran the engine. It no longer runs on steam, but on electricity, while the reverse gear operates on compressed air as it did originally. There is no longer any cable connected to skips, but it was still great fun to see it go. This mine is credited with the development in 1876 of friction or traction hoisting. Here the cable connecting two skips—in balance—passed around the engine's hoist sheave rather than winding on a drum. Flat wire rope hanging beneath and joining the two cages served as counterweights, balancing the changing weight of the hoisting cable as the skips moved up and down. A wonderful little display showed many different thicknesses and styles of wire rope. Outside, an artwork several hundred pairs of empty boots commemorated the miners marching to work. The museum is working on restoring nearby workers' housing and on building a "children's mine" which will allow youngsters to learn about the need for miners to cooperate as they interact with the exhibit.

Another coal mine awaited us in Witten. **Zeche Nachtigall** (Nightingale Colliery) was one of the earliest deep mines in the Ruhrgebiet with coal dug from a vertical shaft in 1832. Surface mining goes back at least 1,200 years. Our guide claimed that the technique for freezing shafts was developed at Nachtigall in 1851. The method froze the water-laden soil around the shaft causing it to act as a solid, reinforcing shell. (Other sources claim the first use of this method to have been in 1862 in England.) The mine closed in 1892 and was succeeded by a brickyard, which was in operation



Larry Mishkar

The Oberhausen Gasometer, built in 1929 for the storage of coke gas, now houses an arena with seating for about 500.

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With Thanks.

until 1963. The museum, another branch of the Westphalian Industrial Museum, incorporates remnants of both industries.

We continued on to **Gruben und Feldbahnmuseum Zeche Theresia** (Theresia Colliery Mining and Field Railway Museum). Mining at the Theresia site began in 1728 and went underground in 1850. It closed in 1892. At its peak, it employed 350 miners and some of the workers' housing is still extant. A 61-member club is restoring and rebuilding the mine structures to house its collection of 240 cars and 80 locomotives. All of the equipment comes from mining operations. The "field" in the museum's name comes from the use of some trains to mine sand on the moors for brick-making. Most of the equipment is less than 50 years old, but there is one locomotive from 1915. The newest is from 1991. Most engines in the collection are diesel-powered, but some are powered by batteries and there are even a couple of compressed air models.

En route to the **Deutsches Bergbau-Museum** (German Mining Museum) the next morning, Wolfgang explained how the Route Industriekultur is organized. Fifty percent of its funding is provided by the Northern Westphalian government, 40 percent comes from the European Union, and 10 percent from local municipalities. Wolfgang works as a consultant to the project. He would like to create a Europe-wide industrial heritage route. Partners in the

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SIA members make their way to the engine hall at Zeche Zollern II/IV coal mine.

United Kingdom, Belgium, Luxembourg and the Saar are working with him, and a master plan is in the works to extend the route to these countries by 2004 and to all of Europe by 2011.

The German Mining Museum was established in 1930 by the city of Bochum in partnership with a miners' educational insurance association. Bochum was once the largest mining town in Europe, with 44 mines in operation at its peak. An underground demonstration mine with 2.5 km of tunnels gives visitors a sense of what it is like to be in a coal mine, though no mining ever occurred at this site; the mine serves educational purpose only. Underground exhibits contain drilling and boring machinery, including a coal plow, and various tunnel support systems. All of it is operational, and we even got to try our hands at a pneumatic drill. From the tunnels we took an elevator to the top of the headframe of the Germania mine, relocated to the museum. We spent several hours roaming the enormous museum, which held everything from medieval drinking cups depicting miners to paintings of St. Barbara, patron saint of miners, to a room full of safety lamps and headlamps. Such comprehensive central museums were very popular in the early 20th century, but Wolfgang commented that they encouraged destruction of sites, rather than preserving them intact.

In the afternoon we visited the **Deutsche Arbeitsschutzausstellung** (German Occupational Safety Exhibition) where exhibits of working Jacquard-style looms, printing presses and steam engines focused on the dangers faced by their operators. **Nordsternpark** was our last stop of the day. This 1868 mine site became the location for the Bundesgartenschau (Federal Garden Show) in 1997. The show focused on the relationship of industry and nature and resulted in the redevelopment of the site with a commercial operations in new structures at the north end, a model railroad club in one on the mine buildings, and a landscape park. Bike trails and footpaths over the Rhein-Herne Canal connect the park to others in area towns, creating a vast greenway that attracts many visitors.

We began the next morning with a visit to the **Oberhausen Gasometer**, built in 1929 by the city for the storage of coke gas. The gasholder is one of the tallest in Europe at 117.5-m. high; it has a diameter of 67.6 m and an effective volume of 347 thousand cubic meters. It is of the MAN "waterless" type (as built by Maschinefabric Augsburg Nürnberg). The pressure in the mains

was maintained by a piston that "floated" on the contained gas within a rigid cylinder, rather than by the weight of the holder cylinder itself as it rose and fell within its water seal. The relatively light weight of the piston-, or disk-, type gasholder was well-suited for the foundation conditions in an area that suffered from mining subsidence. The disk weighs 600 tons, but was overlaid with concrete to achieve the weight of 1210 tons needed to provide adequate pressure. It went out of use in 1988, at the same time as the Osterfeld Kokerei which supplied the gas. When restored in 1998, an arena with seating for about 500 was built atop the disk. From the top of the gasometer we enjoyed a panoramic view of the Ruhr Valley.

At the **Arenberg-Fortsetzung** mine, a brief stop, we saw the newly restored 1904 office building with the pay hall where workers also checked in each morning. The skylight was designed so managers could conduct health inspections. Sick miners were expensive to carry out from and were not wanted underground. We then traveled to the **Zeche Zollern II/IV**. Lunch was served in the *Pferdestall* (horse stable), which has been transformed into a very fine restaurant. The mine was built in 1902 and miners last went underground there in 1965. The buildings were rented out to small industries until 1979, when the machine hall was put under a preservation order, the second

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SIA's Ruhr Tour host, Wolfgang Ebert, at the Krupp gravesite.

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industrial building in Germany to be so designated. In 1999, the site completed permanent exhibits on the social and cultural aspects of mining. It is owned by the state of NordRhein Westphalia, and some buildings, such as the former central stores, are let out for functions. The changing hall, where miners hung their clothes in baskets on chains and pulleys, is now an exhibit hall.

On Saturday we paid homage to the Krupps, one of Germany's leading industrial families, with visits to the Krupp graves in the **Friedhof Baldeney** in Essen, and to **Villa Hügel**, the family mansion, completed in 1873 and occupied until 1945, now a museum. Sculptor Otto Lang designed the imposing bronze and marble funerary monuments. Wolfgang and George Bulow [SIA], who works for descendants of the Krupp family, provided information on the dynasty. Friedrich Krupp opened the family's cast steel factory in 1811, but it was his son Alfred who expanded the business in the 1860s. He perfected techniques for manufacturing seamless cast-steel railroad wheels, immortalized in the Krupp trademark of three interlocking circles. Alfred went on to manufacture munitions, instrumental in the Prussian victory in the Franco-Prussian War. The Krupp corporation served as a uniting economic force when modern Germany was formed in 1871. Alfred was the first to rise

from the ranks of self-made men to be recognized by the Kaiser and achieve stature equivalent with the noble-born in Germany. Margarethe, Alfred's wife, is said to have been behind the early social endeavors, such as workers' housing and insurance, which improved conditions for the workers. Alfred died in 1887. Alfred's son, Friedrich Alfred, followed in his footsteps but had only one child, a daughter named Bertha (after whom the eponymous Big Bertha howitzer was named). Under German law of the time, women could not inherit businesses. Upon her marriage to Gustav von Bohlen und Halbach, a mate selected for her by the Kaiser, a law was passed to allow heads of families to inherit and his name was changed to Gustav Krupp von Bolen und Holbach, a designation that could only be passed to the oldest son and head of the company. When the last Krupp died (though there are still von Bolen und Holbach descendents), the government stepped in to keep the corporation together and helped form a foundation, of which it owns 20 percent, that administers the company holdings.

The Krupp family theme continued with a visit to



The water tower, built in 1892-93, at the **Aquarius Wassermuseum** in **Mulheim**.

Robert Vogel



John Tschmeder

SIAers pump the handcar at Eisenbahnmuseum (Railroad Museum) in Bochum-Dahlhausen.

Margarethenhöhe, a Krupp-built worker settlement. Margarethenhöhe was designed in the Gartenstadt style in 1902 by Georg Metzendorf of the Deutscher Werkbund, a design cooperative with a philosophy that eventually led to the Bauhaus movement. Margarethenhöhe housed Krupp workers and others of the "inferior classes" and is the best known of all the Ruhr workers' settlements. It was intended to re-create the feeling of the small villages and neighborhoods from which the workers had migrated.

Our visit to **Henrichshütte**, an ironworks founded in 1854 and closed in 1987, began with a 1964 film showing the manufacture of a nuclear reactor vessel at the plant. Henrichshütte maintained a specialty in producing high technology products. Its blast furnaces, coke ovens, and forging and rolling mills once employed 10,000 workers. Due to frequent changes in ownership, there is little documentary material to guide the museum staff in interpreting the site, and local residents were

so angry about the plant closing that the staff had to work hard to win their cooperation in the project, which began in 1989. Since then, many oral histories have been collected from former workers, and their stories are related along three trails that lead visitors through the complex. One of the last two blast furnaces is gone, having been dismantled and sold to China (where it is in use) as a way to raise funds to save the other.

Our last day began at the **Eisenbahnmuseum** (Railroad Museum) in Bochum-Dahlhausen, operated by the German Society for the History of Railroads. The site, which developed in the 19th century to serve the coal industry, is rented by the society from the state-owned railroad, Deutsche Bundesbahn. There is a working turntable which can carry a 190-ton locomotive and can be turned by hand if necessary, but also works on compressed air. Three steam locomotives are working and can run on the state railway. Competition for historic railroads is fierce since some 400 steam locomotives are preserved and in service across the country, many of them important single examples of their

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

GENERAL INTEREST

- ▶ Louis Bergeron and Maria Teresa Maiullari-Pontois. **Industry, Architecture, and Engineering: American Ingenuity, 1750-1950.** Harry N. Abrams, Inc., 2000. 287 pp., illus. \$65 hb. Historic and contemporary photographs, mostly drawn from the HAER collection, handsomely illustrate broad-ranging essays on America's industrial history. English-language edition of the companion book to the exhibit, *The Industrial Heritage of the USA*, which toured France and Italy in 1997-98 (see *SIAN* Winter 1997). Thought-provoking observations from the European perspective on recent efforts to preserve America's industrial heritage. Introduction by HAER chief Eric DeLony.
- ▶ Edward Elwell's **Catalogue of Forged Tools.** Reprint ed. EAIA (Book Sales, Linda Stanton, 13231 Cypress-N. Houston Rd., Cypress, TX 77429; (281) 469-6328; LStan48682@aol.com), 2000. 93 pp., softcover. \$26.25. Originally published about 1870, includes 38 plates showing over 1,000 tools for construction, agriculture, woodworking, quarrying, mining, and the maritime industries. Elwell was based in Wednesbury, Staffordshire, England. The company carried on a considerable export trade to North America and to British colonies.
- ▶ Peter English. **British Made: The Industrial Development and Engineering for Kenya.** *IP* v. 4 (2000), pp. 83-94. Guide to industrial heritage sites in Kenya: Uganda Rwy. (Mombasa to Lake Victoria); steam ferries; Nairobi Rwy. Museum; Mombasa port docks; hydropower; Mombasa's mid-1950s thermal plant.
- ▶ Joshua B. Freeman. **Working-Class New York: Life and Labor Since World War II.** The New Press, 2000. 409 pp. \$35. New York's journey from a city of manufacturing and union strength to one of service industries and union struggle.
- ▶ Brian Greenfield and Patrick Malone. **"Things" that Work: The Artifacts of Industrialization.** *Organization of American Historians: Magazine of History for Teachers of History* (Fall 2000) pp. 14-18. Enthusiastically suggests simple ways to use models, museum exhibits, landscapes and factory tours to incorporate industrial history into curricula. A lengthy bibliography provides additional resources.
- ▶ Laura Hapke. **Labor's Text: The Worker in American Fiction.** Rutgers Univ. Pr., 2001. 474 pp., illus. \$30. Portrayals of the worker in fiction over two centuries, from stories written about the women who spun away their lives in the mills at Lowell to the writings of novelists Louisa May Alcott, Upton Sinclair, Richard Wright, and Russell Banks.
- ▶ John Holusha. **Turning Brownfields into Fairways and Greens.** *New York Times* (Oct. 29, 2000), Real Estate, pp. 1, 4. How developers, aided by state policies, are finding new uses for polluted NJ sites. The primary example is a current plan to turn 900 acres of construction debris and industrial waste in the Meadowlands into golf courses.
- ▶ Robert Lewis. **Manufacturing Montreal: The Making of an Industrial Landscape, 1850-1930.** Johns Hopkins Univ. Pr., 2000. 336 pp., maps, tables, illus. \$45. Decentralized industrial development of the city and its suburbs.
- ▶ Howard Mansfield. **The Same Ax, Twice: Restoration and Renewal in a Throwaway Age.** Univ. Pr. of New England, 2001. 288 pp. \$26. If you preserve an ax as a treasured memento, is it still an ax, or has it become something else? The author claims that it is not the same ax. If you instead use it and replace the handle three times and the head twice, you do have the same ax, though not a molecule of the original remains, because you have preserved its use. Its use is an essential part of its being, so you have the same ax, twice. This is the starting point for a discussion of how to preserve the past in a way that invigorates the present.
- ▶ Martin V. Melosi. **The Sanitary City: Urban Infrastructure in America from Colonial Times to Present.** Johns Hopkins Univ. Pr., 2000. 578 pp., maps, tables, biblio., ind. \$59.95. Evolution of water supply, sewerage, and solid-waste disposal.
- ▶ **Menomonee Valley Needs Broader Vision** *Milwaukee Journal Sentinel* (Oct. 9, 2000, p. 1B) and **Projects Push for A Cleaner, Greener Menomonee Valley** (Sept. 26, 2000, p. 1B) describe ongoing policy debate in Milwaukee about redeveloping the city's historic Menomonee Valley industrial corridor. Two competing ideas are a conventional greenway, which would wipe the valley clean of industrial sites, another model based on European precedents that would create a car-free zone of restored wetlands and reclaimed industrial artifacts and buildings.
- ▶ Lance Metz, ed. **Canal History and Technology Proceedings, Vol. XX.** Canal History and Technology Press (30 Centre Sq., Easton, PA 18042; (610) 559-6613), 2001.

- 175 pp., \$24.25 ppd. Proceedings of the Mar. 2001 conference. Includes, Robert W. Passfield, *Construction of the Victoria Tubular Bridge*; Michael Knies, *The D&H Coal Company: New Insights from the James Archibald Papers*; Lee R. Maddex, *A Little Group of Iron Workers: The La Belle Iron Works and the Formation of the Wheeling Steel Corp.*; Thomas R. Winpenny, *Nineteenth-Century Gun Maker and Mechanician John Griffen: The Indispensable Man at Phoenix Iron and Steel*; Sean and Johanna S. Billings, *Colorful Sands: Glassmaking and the Peachblow Craze*; Nadine Miller Peterson & Dan Zagorski, *Zinc Mining in the Saucon Valley Region of Pennsylvania, 1846-1986*.
- **Michigan Technological University, Industrial Archeology Program, Recent Student Projects Online** — www.ss.mtu.edu/IA/IAWeb/projects.html. Gold mining in Death Valley; 18th-c. sugar plantation on Nevis; iron production at Viking village site in England, ca. 1000; Cornish buddles; Carp River forge.
 - The Occupational Safety & Health Administration (OSHA) has made the following manuals available online, which may be of interest to those with historic industrial sites or operating historic machinery: Construction Resource Manual, Field Inspection Manual, Recordkeeping Guidelines, OSHA Technical Manual. <http://osha.gov/readingroom.html>.
 - Anne Raver. **Slag Heaps into Gardens**. *New York Times* (Jan. 18, 2001), pp. F1, F8. The efforts of landscape architects to restore industrial landscapes in Pennsylvania, incorporating material elements that the mining and coking operations left behind.
 - Vince Staten. **Did Monkeys Invent the Monkey Wrench? Hardware Stores and Hardware Stories**. EAIA (Book Sales, Linda Stanton, 13231 Cypress-N. Houston Rd., Cypress, TX 77429; (281) 469-6328; LStan48682@aol.com), 1997. 234 pp., softcover. \$12. Whimsical collection of observations about tools, people involved with them, recollections, and anecdotes from family-owned hardware store in Kingsport, TN.
 - Michael Stratton and Barrie Trinder. **Twentieth Century Industrial Archaeology**. Spon Press (London; www.sponpress.com), 2000. 256 pp., illus. £29.99. Guidebook to the industrial artifacts, buildings, and landscapes of 20th-c. Britain. Food industries, transportation, munitions in two world wars, post-war rebuilding.
 - Carroll Van West. **Tennessee's New Deal Landscape: A Guidebook**. Univ. of Tennessee Pr., 2001. 296 pp., illus., maps. \$18.50 pb. Examines over 250 sites built from 1933 to 1942, including the dams and reservoirs of the TVA, courthouses, post offices, community buildings, schools, museums, and parks.
- MISC. INDUSTRIES**
- Helen M. Gomersall. **Departed Glory: The Archaeology of the Leeds Tanning Industry, 1780 to 1914**. *IAR* 22,2 (Nov. 2000), pp. 133-144.
 - William R. Haycraft. **Yellow Steel: The Story of the Earthmoving Equipment Industry**. Univ. of Illinois Pr., 2000. 465 pp. \$34.95. Earthmoving machines, from their origins as farm machinery to today's massive industrial earthmovers.
 - William Hosley. **Colt: The Making of an American Legend**. Univ. of Massachusetts Pr., 1996. 254 pp., illus, notes. \$49.95. Recounts the story of Samuel Colt, who after several invention and business failures, developed the Colt revolver—"the gun that won the West"—into America's first truly global export. The story continues with his wife, Elizabeth, who re-built the factory after a fire destroyed it and embarked upon a 40-year campaign of civic memorialization and glorification of her family.
 - **Marking Time** is a theme issue of *MHR* 52 (Fall 2000) devoted to time-keeping technologies. Includes: Alexis McCrossen, *Time Balls: Marking Modern Times in Urban America, 1877-1922* (These globes, perched atop a tall building or tower, were made of metal ribs with canvas covers of various colors. They were rigged to an electric pulse, which caused them to drop, usually at noon.); Bryan Dewalt, *Men, Women and Machines: Time Management and Machine Dictation in the Modern Office*; Carlene Stephens, *From Little Machines to Big Themes: Thinking About Clocks, Watches and Time at the National Museum of American History*; Randall C. Brooks, *A Canadian Time Ball*.
 - W. Patrick McKay. **Glassmaking in Renaissance Venice: The Fragile Craft**. Ashgate, 1999. 272 pp. \$78.95. Demand, production, and distribution of glass, including the nature of luxury goods and interaction between industry and government in the Renaissance. Evidence from shop records, pictorial representations of glassmakers, and physical and chemical analysis of glass pieces.
 - Daniela Mazzotta. **An Intervention for Rehabilitation: The Venetian Conterie**. *IP* v. 4 (2000), pp. 51-54. Conterie, glass beadmaking, has been a Venetian industry since the 12th c. Preserving the works on Murano Island.
 - Deb Peterson. **A Paper on Pins**. *ALHFAM Bulletin* (Winter 2001), pp. 12-13. The manufacture and use of 18th-c. pins.
 - Thomas B. Rentschler. **Cosmopolitan and Gwyn & Campbell Carbines in the Civil War**. Mowbray Pub. (Box 460, Lincoln, RI 02865; www.manatarmsbooks.com), 2001. 84 pp., illus. \$26.50 ppd. Two rare and unusual cavalry carbines, their development, sales to the government, use in the field. Often called the only contract arms made in the Midwest.
 - Walker Rumble. **Ready, Go, Set!** *I&T* (Spring 2001), pp. 40-43. Before typesetting was mechanized, the fastest hand compositors raced one another for large cash prizes.
 - Witold Rybczynski. **One Good Turn: A Natural History of the Screwdriver and the Screw**. Scribner, 2000. 173 pp., illus. \$22. From the first earliest documented uses of the screw and screwdriver—assembling armor and attaching matchlocks to firearms—the author searches for the tools' roots in the principle of the helix elucidated by ancient Greeks. He concludes that science did not develop in societies unfamiliar with the screw.
 - Peter Stanier. **Stone Quarry Landscapes: The Industrial Archaeology of Quarrying**. Tempus Pub. (The Mill, Brinscombe Port, Stroud, Gloucestershire, GL5 2QG, U.K.), 2000. 176 pp., illus. £16.99. Quarrying in England from ancient times to the modern day.

RAILROADS

- ▶ Stephen E. Ambrose. **Nothing Like It in the World: The Men Who Built the Transcontinental Railroad, 1863-1869.** Simon & Schuster, 2000. 431 pp., illus. \$28. Focusing on the lives of everyday workers, Ambrose re-tells the story of this engineering triumph that changed our nation.
- ▶ John Belle and Maxinne Leighton. **Grand Central: Gateway to a Million Lives.** Norton, 2000. 230 pp., illus. \$39.95. Beginning with the struggle to save the station, provides a chronology of the previous two stations on the site, the construction of the current one, the emergence of the Metropolitan Transit Authority as the force behind the station's rebirth, and the station's culture.
- ▶ David Brooke, ed. **The Diary of William Mackenzie: The First International Railway Contractor**. Thomas Telford (London), 2000. 610 pp. £29.95. British-born Mackenzie built railroads in France, Spain, and Belgium. Diary from 1840s includes wealth of information on early railroad construction, organization, and finance. Rev: *T&C* (Jan. 2001), p. 166.
- ▶ H. Roger Grant. **"Minnesota's Good Railroad:" The Omaha Road.** *MH 57* (Winter 2000-01), pp. 198-210. Story of perhaps the best-liked and most respected railroad in Minnesota, the Chicago, St. Paul, Minneapolis & Omaha Railway.
- ▶ Alan Ehrenhalt. **A City in Transit.** *Preservation* (Mar./Apr. 2001), pp. 42-49. Snaking its way through Chicago's North Side, the venerable Ravenswood El has accompanied an urban revival.
- ▶ Andy Guy and Jim Rees. **Early Railways: Papers from the 1998 First International Early Railways Conference.** Newcomen Society (The Science Museum, London SW7 2DD U.K.) 350 pp., illus. £39.65 ppd. Incl: Greek, Roman and Medieval railways; horse drawn wagonways; development of steam traction; early railways of Europe and America; British regional aspects; railway engineering; early railway economics; historiography, culture, and collections.
- ▶ Robert A. LeMassena. **The First 4-8-4 and 2-6+6-4 (almost).** *R&LSN* (Winter 2001), pp. 3-5. Introduction of new wheel arrangements by locomotive builders in early 20th c.
- ▶ Donald R. McQueen and William D. Thomson. **Constructed in Kingston: A History of the Canadian Locomotive Companies 1854-1968.** Canadian Historical Assn., Kingston Div. (Box 1714, Kingston, ON K7L 5V6 Canada). 348 pp., illus. \$66 US, \$76 Can. A comprehensive history of Canada's premiere locomotive building, illustrated by more than 350 photographs. Includes plant development, corporate history, and engine-by-engine production history.
- ▶ Public Archaeology Laboratory. **Amtrak's High Speed Rail Program, New Haven to Boston, History and Historic Resources.** Funded by Amtrak, 2001. 80 pp., illus. History of this section of the Northeast Corridor including survey of stations, railroad maintenance and service facilities, signals and switches, bridges, freight, and industries. Prepared as part

of the mitigation for the high-speed rail program (Acela) that required new rails, signal upgrades, bridge replacements, and curve realignments. Intended for distribution to libraries and schools in CT, MA, and RI.

- ▶ Joe Strapac. **Dieselization?** *Railroad Model Craftsman* (April 2000), pp. 50-51. Proof positive that a steam locomotive could be dieselized. Illustrates several Heisler logging steam locomotives built 1890s-1930s, dieselized in the 1950s.
- ▶ Matt Steinglass. **The Machine in the Garden.** *Metropolis* (Oct. 2000), pp.126-131,167. Compares the project to create Germany's Landscape Park Duisburg Nord, centerpiece of the SIA's Ruhr Valley study tour, to the creation of the Rivers of Steel National Heritage Area in the U.S. Cultural attitudes toward preservation of industrial landscapes are discussed. (Also avail. at www.metropolismag.com/new/oct_content/lat.htm.)
- ▶ John H. White, Jr. **Making Tracks: Jack Casement's Triumph.** *Timeline* (Mar./Apr. 2001), pp. 3-17. Published by the Ohio Hist. Soc. The Painesville, Ohio, contractor who supervised track-laying for the Union Pacific.

WATER TRANSPORT

- ▶ Mike Clarke. **The Steam Tug *Nadbor* and Industrial Archaeology in Poland.** *IA News* (Spring 2001), p. 4. Preservation of Poland's only surviving steam tug in Wrocław.
- ▶ Meg Jones. **Steaming Along the Liquid Highway.** *Milwaukee Journal Sentinel* (April 9, 2000), Lifestyle, pp. 1, 3. Reporter travels on the *M.V. Burns Harbor* and shares onboard life with the crew of an ore carrier on the Great Lakes.
- ▶ Al Miller. **Tin Stackers: The History of the Pittsburgh Steamship Company.** Great Lakes Books, 1999. 352 pp., photos. \$34.95. Comprehensive history of the company, which today operates the USS Great Lakes Fleet, draws upon company records and interviews with crew members.
- ▶ Jim Noles. **A New Opportunity for Old Lighthouses.** *CRM* 24, 2 (2000), p. 39. Legislation enables federal government to more readily convey historic light stations to preservation organizations.
- ▶ Tom Rinaldi. **Shape Up, Ship Out.** *Preservation* (Mar./Apr. 2001), pp. 21-23. Efforts to preserve the *SS United States*. The 1952 ocean liner docked in Philadelphia faces an uncertain future.

AUTOMOBILES & HIGHWAYS

- ▶ Kenneth D. Durr and Philip L. Cantelon. **Never Stand Still: The History of Consolidated Freightways and CNF Transportation Inc.** Rockville, MD: Montrose Pr., 1999. Authorized history of the company that began in 1929 when Leland James purchased four freight lines in the Pacific Northwest. It soon became the largest motor carrier in the West.
- ▶ Sara Amy Leach and Gary Mason. **Cuba: A Century of Car Culture.** *SCA Journal* (Fall 2000), pp. 4-13. Vintage automobiles and pre-Revolution American-built highways, bridges, and roadside architecture abound in Cuba.

- ▶ Tim Moran. **The Radial Revolution.** *I&T* (Spring 2001), pp. 28-39. The development of radial tires and the problems convincing American automobile makers to adopt them.
- ▶ William L. Witmer. **The Cumberland Gap: Coming Full Circle.** *CRM* 24,2 (2000), pp. 23-24. Cumberland Gap NHP surveys and locates the original alignment of the Wilderness Road, and subsequent early 20th-c. automobile roads, for interpretation and hiking trails.

POWER GENERATION

- ▶ Christopher J. Castaneda. **Invisible Fuel: Manufactured and Natural Gas in America.** Twayne (New York), 1999. 250 pp. \$33. Business history with the basic technology, role of prominent individuals, significant companies, public policy. Rev: *T&C* (Jan. 2001), p. 145.
- ▶ Bryn Nelson. **Back on the Farm.** *Newsday* (Sept. 12, 2000) pp. B6-B7, B10. Profile of the annual Western Minnesota Steam Threshers Reunion which swells the population of Rollag, MN, from 30 to tens of thousands. Steam traction engines, a 1903 De La Vergne stationary engine, a steam locomotive, antique tractors, and linotype machines are among the attractions here each Labor Day weekend.
- ▶ Roger M. Olien and Diana Davids Olien. **Oil and Ideology: The Cultural Creation of the American Petroleum Industry.** Univ. of NC Pr., 2000. 305 pp. \$18.95. Development of the oil industry and its public image from 1880 to 1945. Rev: *T&C* (Jan. 2001), p. 143.
- ▶ George Watkins. **Stationary Steam Engines of Great Britain. Vol. 1: Yorkshire; Vol. 2: Scotland, Northumbria, Co. Durham & Cumbria.** Landmark Pub. Inc. (Derbyshire, U.K.; www.landmarkpublishing.co.uk), 2000. First two volumes in a proposed 10 vol. set featuring Watkins's superb work, now in the national archive of photos of stationary steam engines at the English Heritage National Monuments Record Centre, Swindon.

BRIDGES

- ▶ **Bridges to the Past** is a large four-color flyer/map of historic bridges in Arkansas. Avail: Arkansas Historic Preservation Program, 1500 Tower Building, 323 Center St., Little Rock, AR. 72201; info@dah.state.ar.us.
- ▶ David W. Dunlap. **Which Track for the High Line?** *New York Times* (Dec. 31, 2000) Real Estate, pp. 1, 6. Battle over the abandoned 70-year-old NY Central viaduct on the west side of Manhattan. Friends of the High Line propose a second-story promenade linked to the national Rails-to-Trails network but many property owners in the neighborhood are determined to tear it down.
- ▶ **Historic Michigan Bridges Web Site.** *SIAN* (Winter 2001) incorrectly listed the URL for this site. The correct URL is www.mdot.state.mi.us/historic/bridges/
- ▶ William D. Middleton. **High-Speed Rail's 1835 Underpinning.** *I&T* (Spring 2000), pp. 52-55. The stone-arch Canton (MA) Viaduct has a new concrete deck to

accommodate Amtrak's 150-mph Acela Express. Preservation planning by Paul McGinley [SIA], McGinley Hart & Assoc. Project recently won a Concrete in Transit Award from the Portland Cement Assn.

- ▶ Darl Rastorfer. **Six Bridges: The Legacy of Othmar H. Ammann.** Yale Univ. Pr., 2000. 200 pp., illus. \$39.95. Examines the career of the Swiss-immigrant engineer responsible for NYC's great 20th-c. spans: the George Washington, Bronx-Whitestone, Throgs Neck, Triborough, Bayonne, and Verrazano-Narrows bridges. He also supervised the building of the Lincoln Tunnel. Annotated list of all Ammann's built and unbuilt projects. Also includes glossary of technical terms and over 200 archival photos documenting the bridges' construction.

BUILDINGS & STRUCTURES

- ▶ David W. Dunlap. **For 1930s Behemoth, A New Upscale Life.** *New York Times* (Feb. 20, 2000) Real Estate, pp. 1, 6. The Starrett-Lehigh Building is undergoing a transformation as its large spaces and industrial grittiness appeal to new technology and design companies. The 19-story, 1.8 million-sq.-ft. Manhattan landmark was originally built by the Starrett Investing Corp. and the Lehigh Valley RR with such unique features as freight elevators that hoisted trucks to recessed loading bays that aligned their tail gates with floor level.
- ▶ Amy Slaton. **As Near as Practicable: Precision, Ambiguity, and the Social Features of Industrial Quality Control.** *T&C* 42,1 (Jan. 2001), pp. 51-80. Standards for field testing of cement and concrete at early 20th c. construction sites and the implications of decisions about who should do the testing.

WATER CONTROL & RECLAMATION

- ▶ Margaria Ruas dos Santos. **Preservation of an Historic Heritage, EPAL Water Museum as a Cultural, Environmental and Educational Communication Aid.** *IP* v. 4 (2000), pp. 33-38. EPAL (Emprasa Portuguesa das Aguas Livres, S.A.) is the water utility for 2.5 million people in Portugal. The museum consists of four sites: the 30-mile-long Aguas Livres Aqueduct begun in 1723 and completed in 1834; the Amoreiras Reservoir, built in 1752; the Patriarchal Reservoir, built in 1860-64; and the Barbadinhos Steam Pumping Plant, built in 1880.

MINES & MINING

- ▶ Ian Cowburn. **Mining Archaeology, Conservation, Research and Interpretation Policy in France.** *IP* v. 4 (2000), pp. 9-13. France's diverse mining heritage is preserved at about 30 museums and sites.
- ▶ Veronica Fabbri. **The Sulphur-Mining History in Perticara, Scheme and Development of a Museum.** *IP* v. 4 (2000), pp. 25-30. Italian sulphur mines from Roman times to 1964.
- ▶ Douglas Frantz. **How the Nobels Made a Prize of Baku.** *New York Times* (Feb. 3, 2001), p. A4. In Azerbaijan, the name Nobel is synonymous with oil. In 1873, Robert Nobel—brother of Alfred—stumbled upon a fledgling oil industry on a business trip to Russia and bought a small refin-

ery and kerosene plant. The family soon dominated the oil-fields, commissioning the first steam-powered tanker, the Zoroaster, to help transport their product. The large number of oil rigs on the Caspian shore became known as "the Forest of the Nobels."

- ▶ Ian Jack. **The Heritage of Primary Industry in Rural Australia.** *IP* v. 4 (2000), pp. 75-82. The history and problems of preservation of 19th-c. gold and iron mining and processing sites and artifacts in the Outback.
- ▶ Michael Knies. **Coal on the Lehigh, 1790-1827: Beginnings and Growth of the Anthracite Industry in Carbon County, Pennsylvania.** Canal History and Technology Press (Avail: National Canal Museum, 30 Centre Sq., Easton, PA 18042; 610 559-6626), 2001. 83 pp., illus. \$24.70 ppd. Chronicles the early years of trials and tribulations experienced by a series of entrepreneurs before the phenomenal success of the Lehigh Coal & Navigation Co. Early development of anthracite mining and the problems encountered trying to market and transport the new fuel. Based on the author's master's thesis.
- ▶ Barbara A. Milkovich. **It's Gone; Did You Notice? A History of the Mesabi Range Village of Franklin, Minnesota, 1892-1994.** Magarac Books (Huntington Beach, CA), 2000. 170 pp. \$21.95. Franklin was incorporated in 1915 on the eastern Mesabi Range. Expanding open-pit operations resulted in the disappearance of virtually all evidence of residential activity. Rev.: *MH* 57 (Winter 2000-01), p. 214.
- ▶ John D. Wirth. **Smelter Smoke in North America: The Politics of Transborder Pollution.** Univ. of Kansas Pr., 2000. 264 pp. \$35. Legal, political, and diplomatic wrangling over air pollution along the U.S. borders with Canada and Mexico since the early 20th c. Features lead smelter at Trail, British Columbia, and the Phelps Dodge copper smelter at Douglas, AZ. Rev: *T&C* (Jan. 2001), p. 151.

IRON & STEEL

- ▶ Anne Kelly Knowles. **Labor, Race, and Technology in the Confederate Iron Industry .** *T&C* 42,1 (Jan. 2001), pp. 1-26. Labor shortages and slavery hamper the Southern iron industry's attempts to satisfy the requirements of the Confederate army.
- ▶ Patricia Lowry. Places: **Finding Beauty and Meaning in a Post-Industrial Landscape.** *Post-Gazette Magazine* (Feb. 26, 2001). German landscape architects help Pittsburgh and Mon Valley communities look at ways to redevelop former steel mill sites. On-line: www.post-gazette.com/magazine/20010226lowery4.asp.
- ▶ Ernst Schwartzkopf. **Plain and Ornamental Forging.** Reprint ed. EAIA (Book Sales, Linda Stanton, 13231 Cypress-N. Houston Rd., Cypress, TX 77429; (281) 469-6328; LStan48682@aol.com), 2000. 296 pp., illus., softcover. \$18.95. First published in 1916 as a training course to become a blacksmith. Schwartzkopf taught at the Stuyvesant Evening Trade School in New York.

- ▶ **TICCIH Bulletin No. 11** (Winter 2000-01) is a thematic issue devoted to views from around the world of the conservation and re-use of large iron and steel plants: Sagunto, Spain; Nizhny-Tagil, Russia; Seixal, Portugal; Lorraine, France; Blaenavon Industrial Landscape, S. Wales; Sloss Furnaces, Birmingham, U.S.

AGRICULTURE & FOOD PROCESSING

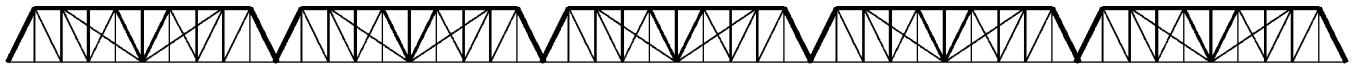
- ▶ William Ashworth. **Between the Trader and the Public: British Alcohol Standards and the Proof of Good Governance.** *T&C* 42,1 (Jan. 2001), pp. 27-50. Traces the development of the hydrometer, used to measure the alcohol content of spirits, according to which 18th-c. British excise duties were levied.
- ▶ **Collections Policies—Outdoor Implements.** *ALHFAM Bulletin* (Winter 2001), pp. 19-20. Pros and cons of storing or operating machinery originally intended for outdoor use. ■

ABBREVIATIONS:

CRM	= Cultural Resources Management, published by the National Park Service
ALHFAM	= Assn. for Living History, Farm and Agricultural Museums Bulletin
CRM	= Cultural Resource Management, published by the National Park Service
EAIA	= Early American Industries Assn.
IA News	= Industrial Archaeology News (UK)
IAR	= Industrial Archaeology Review (UK)
I&T	= American Heritage of Invention & Technology
IP	= Industrial Patrimony (FRA), Journal of the Int'l Committee for the Conservation of the Industrial Heritage (TICCIH)
MH	= Minnesota History
MHR	= Material History Review (CAN)
SCA	= Society for Commercial Archeology Journal
T&C	= Technology & Culture: Quarterly of the Society for the History of Technology

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We endeavor to make citations as complete as possible, but they are from a variety of sources, and are sometimes incomplete. If a date, publisher, price, or other statistic is missing, it simply means that it was unavailable, and, unfortunately, we do not have the time to track down these missing bits. The SIA, unless otherwise noted, is not a source for any of the cited works. Readers are encouraged to use their library, bookstore, computer, or school for assistance with locating books or articles.



Elusive American Truss Bridges

David Guise [SIA] is researching the evolution of the 19th-century American truss bridge for an upcoming book. In the fourth installment in a series to appear in SIAN, he shares his research to date on Thacher's truss. [See previous issues for the Greiner, Kellogg, and Stearns trusses]. The series is intended to serve as a catalyst to elicit additional information, especially the location of historic photos, plans, descriptions, and surviving examples.

Thacher's Truss

In 1883, Edwin Thacher obtained a patent for "a combined triangular and suspension bridge truss." The patent drawings were unusual in that they showed five different configurations ranging from a 6-panel truss to a 12-panel, apparently to demonstrate how the design could be adapted to accommodate different span lengths. The following year Thacher presented a paper to the American Society of Civil Engineers on the merits of his proposal. His accompanying 39-page article included detailed drawings of 15 different truss configurations ranging in size from 6 panels to 20. The complicated geometry of some of the longer-span proposals almost defies credulity. All of the variations, while symmetrical about the center of their spans, contained opposing web diagonals that, while meeting at common connecting points along the bottom of the truss, differed in both their angle of slope and length.

Thacher was concerned that changes in the diagonals' length due to expansion and contraction caused by changes in temperature would cause the longer of the two converging diagonals to exert a greater force on the pin that secured them than would the shorter diagonal. The opposing diagonals of most trusses are symmetrical about their common meeting point. The forces due to expansion and contraction of the diagonals, therefore, are equal and opposite and thus cancel each other. This was not the case with Thacher's configuration.

Thacher's solution to the problem was to connect his opposing diagonals to a pin located at the base of a web vertical. This pin was connected by a short stirrup, or "link," to a second pin located immediately below it on the horizontal bottom chord. There was no other connection between the vertical web members receiving the diagonals and the bottom chord. The link between the two pins was free to rotate about the bottom pin. The top pin could move along a short horizontal arc in response to the unequal forces brought to bear upon it by expansion and contraction of the different length diagonals.

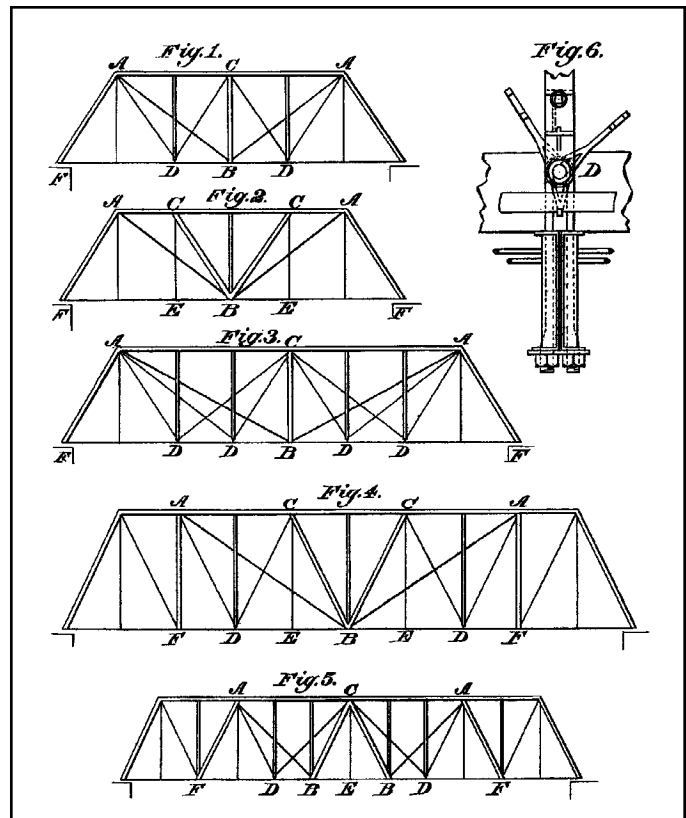
In 1852, some thirty years before Thacher patented his concept, Wendel Bollman had invented a truss pattern in which the opposing diagonals also were of different lengths and slopes. Bollman's diagonals stretched from the bottom of each of his truss web verticals to the top of the truss ends. He also devised a solution that permitted the pin holding the two antagonistically opposed diagonals to move in response to the unequal forces, and to do so without straining the other members of the truss.

The configuration of both the through-truss version of Bollman's design and Thacher's truss, which was built only as a through-truss, resulted in an inefficient use of the vertical struts in the web. The struts in both designs, while supporting a small segment of the upper chord's dead load along with their own weight, served primarily to stiffen the top chord. Thacher and Bollman

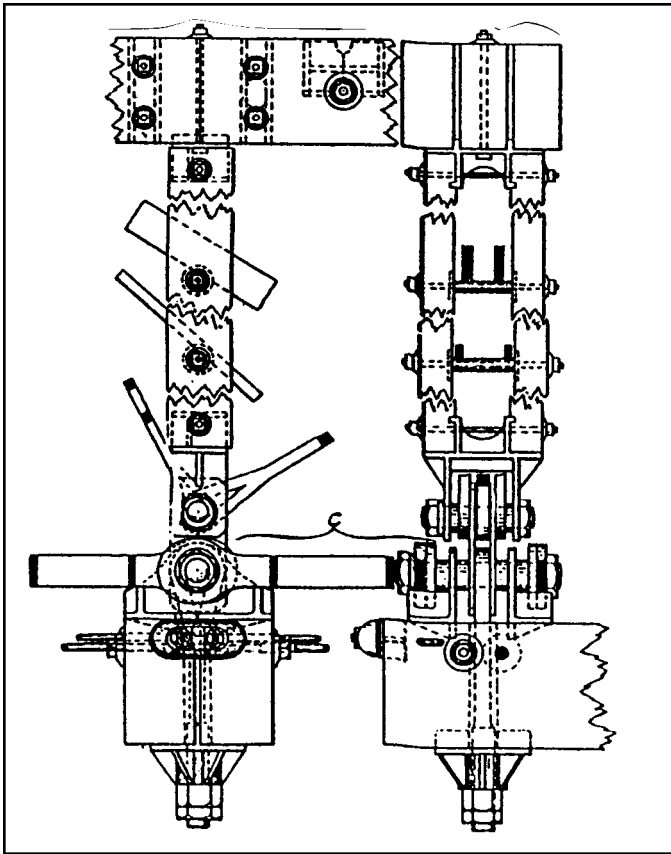
dealt with the unequal expansion issue by providing a means for the pin to move. Both ignored the inefficiency of their verticals. In 1876, Hammond, Morse, and Abbott obtained a patent for a truss configuration that also contained differently sloped diagonals meeting at a common juncture. Their solution to the connection was a standard single pin, thus ignoring—or recognizing as trivial—the issue of differential expansion. No record has come to light indicating their design was ever built.

The major claim made by Thacher in his 1884 ASCE article was that his proposal produced a lighter truss than the commonly available competition. Weight-saving was a major factor in reducing cost and the motivation for many truss proposals. This would have had a stronger claim than the other, more esoteric and convoluted ones regarding stress controls contained in his patent application. The high cost of Thacher's complicated joints, and

Continued on page 15



Thacher's patent drawing, 1881.

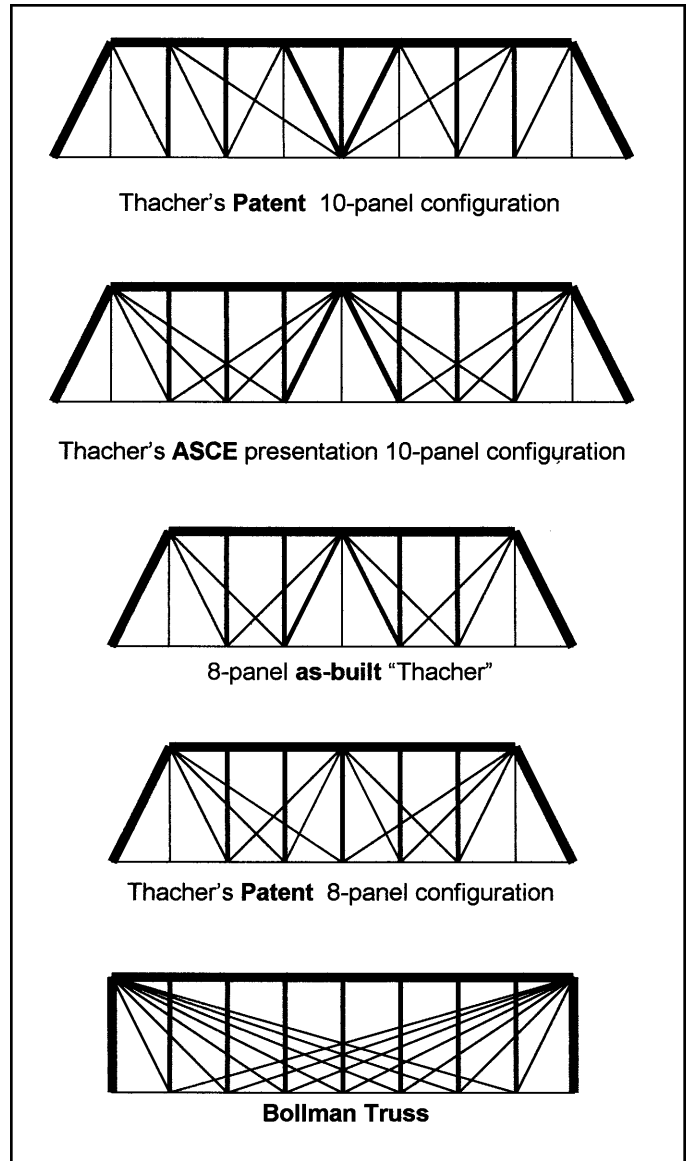


Detail showing Thacher's compensating link, 1884. Source: Plate XXXI, ASCE Transactions.

the overall flexibility of his suspension truss bridges, however, soon discouraged attempts to build any additional variations.

Apparently, Thacher soon lost interest (and perhaps conviction) in his own complex concept, and went on to make a name for himself as a builder of concrete bridges. Thacher's 1920 ASCE obituary does not mention his truss design in any way. However, a number of bridges based on his design were built, and a few remain, including: an 1892 example over the Rio Grande in CO; an 1893 example in Yellow Bank Twp., MN and its twin in Hamlin Co., SD; and an 1898 example over Linville Creek in Rockingham Co., VA. None of the existing examples fully conform to his patent configuration, and no documentation has come to light that indicates a truss fully conforming to his patent was ever built. One can only speculate whether the as-built variations were introduced to avoid royalty payments (a not uncommon practice) or to overcome flaws in what was perceived as an otherwise basically sound approach. Intriguingly, no documentation has come to light indicating that Thacher himself, or the Keystone Bridge Company he headed for several years in the mid 1880s, ever built a Thacher truss.

Historical bridge literature has often compared Thacher's truss with Fink's truss, the most prolifically built suspension truss of the 19th century. Fink's diagonal pattern, however, is symmetrical and thus avoids the entire issue created by unequal diagonals. Why Thacher thought his concept would be accepted at a time when the Bollman design had already been discarded remains a mystery, but it may help explain why the extant Thacher's are all in the manner of, rather than conforming to, Thacher's patented proposals. It should be noted that the vertical web members in the deck



versions of both the Bollman and Fink trusses earn their keep.

By the late 1880s, American universities had been producing well-trained professional engineers for several decades. Edwin Thacher was an 1863 honor graduate of Rensselaer, considered by many the finest engineering school of the time. What inspired him to propose a solution he apparently never saw fit to use, even though he built thousands of steel bridges during his career, and what motivated others to build their own variations of his concept, is a question that may never be answered.

Thacher's design was flawed by the complexity of the joint details, and the cost of his verticals, which were not justified by the amount of work they did. Nevertheless, his solution provides an insight to some of the engineering concerns of the day. The handful of remaining examples provides a picturesque alternative to more efficient but mundane solutions. The Pratt configuration continued to provide a stronger, less flexible truss for a lower price. Thacher himself moved on to other challenges.

Info: David Guise, Box 132, Georgetown, ME 04548; phone/fax (207) 373-2651. ■



TICCIH MILLENIUM CONFERENCE

Conference Review

The XIth General Conference of The International Committee for the Conservation of the Industrial Heritage (TICCIH) took place in London, Aug. 30 to Sept. 2, 2000. The general conference meets every three years to bring attention to international issues in the preservation of industrial sites and artifacts. The TICCIH Millenium Conference gathered about 120 participants, the majority from Europe but also representatives from Japan, South America, South Africa, and Australia. About one dozen delegates, mostly SIA members from the U.S. and Canada, represented North America. Presentations were held at Imperial College with visits to IA sites in London completing the program. A choice of post-conference tours was offered to Scotland, Wales, or Cornwall.

Neil Cossons gave the introductory lecture, *Industrial Archaeology: Perspective and Prospect*. Cossons, well known in the IA field, is the former director of the Ironbridge Gorge Museum and of the Science Museum. He is now Chairman of English Heritage. With an overview of the development of IA in Great Britain, he emphasized the joint contributions of academics and enthusiasts, especially the roles they play educating broad audiences about the importance of industrial heritage. The first plenary session, chaired by Eric DeLony [SIA], was on the European Industrial Revolution of the 18th century with papers presented for comparison on Sweden, Great Britain, France, Poland, and Germany. The second plenary session was on the theme of mass consumerism and production, including a paper by Louise Trottier [SIA] on electrical kitchen appliances manufactured in Canada. The plenary-session papers will be published in a special edition of *Industrial Archaeology Review*, the journal of the Assn. of Industrial Archaeology (AIA). The plenary sessions were followed by concurrent workshops on wide-ranging preservation issues: recording and conserving large-scale industrial sites; demonstrating historic machinery; designating and managing world heritage sites; the future of industrial museums; the promotion of the industrial heritage through the Internet; and gender, race, and class issues in the interpretation of the industrial heritage.

A highlight of the conference was a narrated cruise on the Thames. It offered participants the opportunity to view many of the well-known industrial buildings and structures along the river between Parliament and Greenwich. **Tower Bridge**, constructed between 1886 and 1894, is an icon, and an exceptional work of engineering and architecture. **The Bankside Power Station**, built in 1891 for the London Electric Lighting Co., was heavily damaged by bombing during WW II. It was progressively reconstructed between 1947 and 1961, but ceased operations in 1981. The station is now home to the Tate Modern museum. The rehabilitation retained only the shell of the station, unfortunately without saving any of the original equipment. Nevertheless, the



Louise Trottier

The Great Western Railway Works, Swindon.



Louise Trottier

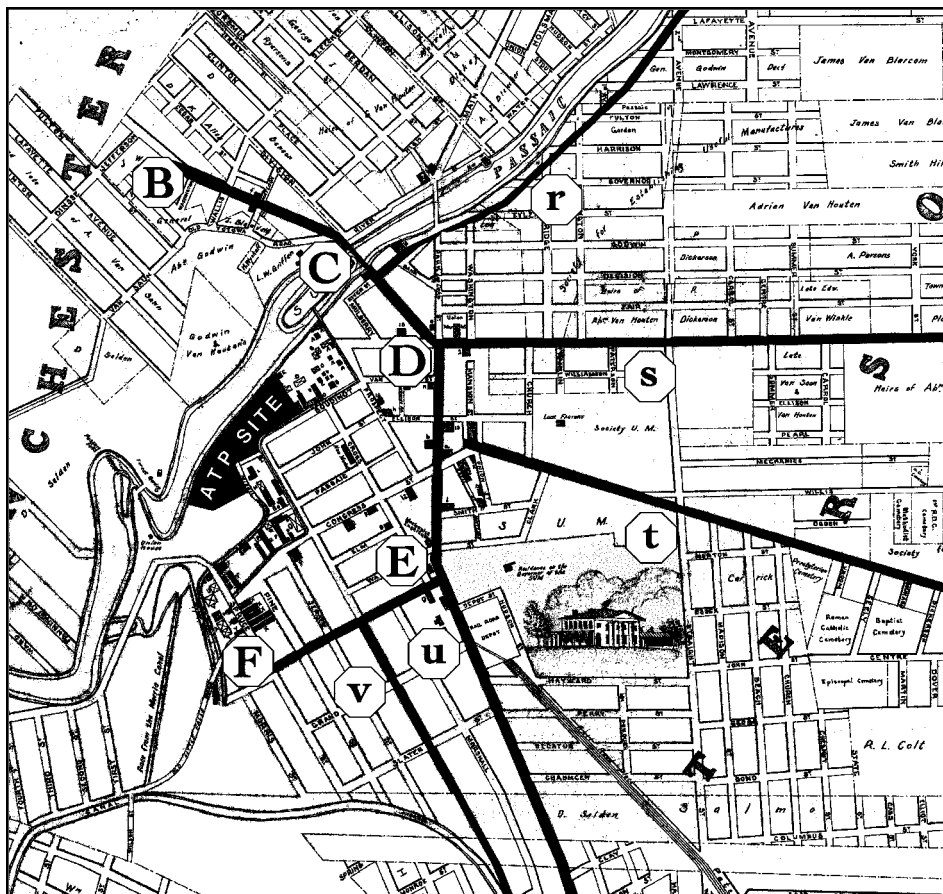
The former turbine hall of the Bankside Power Station, now the reception area of the Tate Modern, London.

result is stunning, even overwhelming, with exhibit galleries and shops overlooking the former turbine hall, which is designed as the main entrance and recep was constructed between 1799 and 1806. Although the original warehouses suffered from bombing, a number of them survived and are now adaptively reused as commercial and residential properties. **St. Katharine Dock** was designed by the famed engineer Thomas Telford and the architect Phillip Hardwick. Opened in 1828, the dock is significant as the first London dock with warehouses built on the quay to facilitate the loading and unloading of merchandise.

The **Science Museum** hosted a reception for the delegates. The new exhibit, *Making the Modern World*, includes nearly 1,800 artifacts tracing technological evolution from 1600 to 2000. Among the major innovations illustrated are the industrial weaving loom presented at the London international fair of 1851; the

(continued on page 19)

REDISCOVERING L'ENFANT'S PATERSON



Nick Stanckry

The Paterson map of 1840 illustrates that some of L'Enfant's street plan was adopted. Notice how a semi-octagon, labeled BCDEF, is formed by Paterson's streets. Radiating from the octagon are five major streets River Street (r), Broadway (s), Market Street (t), Main Street (u) and Mill Street (v). The central point of L'Enfant's city plan was the manufacturing center located within the semi-octagon where most of the mills were established in Paterson's early years.

Published accounts of the conflict between L'Enfant and Peter Colt have been confined to their different methods of bringing water to power the mills. Unpublished letters held by the Passaic County Historical Society also document that Colt's ideas for a Paterson city plan vied with L'Enfant's. Colt began superimposing his street plan over L'Enfant's as early as 1793. Nevertheless, L'Enfant had already established a substantial component of a "spoked-wheel" city plan. Five of Paterson's major streets radiate from an area below the Great Falls. The seven-and-a-half acre parcel that was the site of Colt's mill and later Allied Textile Printing, is at its center (See *SIAN* Summer & Winter 1999).

L'Enfant's unpublished letters describe his plans for Paterson. He wrote on Aug. 19, 1792:

Surrounded by high mountains as is the tract the Society has at disposal - I considered it was not material to observe a regular North & South and East & West direction for the streets[,] a method which I apprehend would rather be improper because it would end every street against steep mountain which would impede a free circulation of air. . . .

L'Enfant's city plan for Paterson considered the natural contours of the landscape and incorporated classical architectural principles. It was also very similar to L'Enfant's now well known plan for Washington. The Washington plan was also disregarded by subsequent builders, but unlike Paterson, late-19th-century city planners rediscovered and then championed L'Enfant's Washington plan. It served as inspiration for the City Beautiful Movement in the nation's capital.

Alexander Hamilton wanted to make Paterson a model city of manufactories. Apparently, he brought L'Enfant to Paterson in 1792 to make it America's second federal city. Of course, Paterson did not become America's second federal city, but the legal and financial advantages that Hamilton gave it enabled it to become a great manufacturing center that excelled in the production of cotton, silk, locomotives, and aircraft engines.

Today, after a century of industrial decline, Paterson struggles to maintain law and order, employment, and housing. Historic preservation was once seen as a potential economic boost but the results of more than 30 years of effort have not been inspiring. Abandoned mills and empty lots abound. A small mea-

(continued on page 19)

Writing on the subject of beauty in 1903, Lucy Fitch Perkins, children's book author and artist, asserted that, "No more inspiring document can be offered the student of Municipal Art than the history of the making of Washington." Perkins was well aware that Pierre Charles L'Enfant was the Federal City's architect. She did not know that he also created a city plan for Paterson, NJ.

Now, after two hundred years, L'Enfant's city plan has been discovered beneath a muddled and unremarkable street plan superimposed over it by Peter Colt, who is remembered best for his role in the Society for the Encouragement of Useful Manufactures (S.U.M.), established in 1792. The S.U.M., guided by Alexander Hamilton, founded Paterson as a planned industrial community at the Great Falls of the Passaic River. Peter Colt is also known in relation to his nephew, Samuel Colt, who first manufactured legendary Colt revolvers in a mill on the S.U.M.'s grounds.

NOTES & QUERIES

Steam Engine Driven Blowing Engines. I am researching steam engine—blowing engine machinery that provided air blast (heated or unheated) to blast furnaces from the 1840s to 1870s. Sought are locations of extant machinery that can be documented, repositories of technical data, engineering or manufacturers' drawings or photos, names or locations of engine manufacturers, etc. Vic Rolando, 126 Union St., Apt. 4, Bennington, VT 05201; (802) 447-2416; vrolando@sover.net.

Cut-Nail Machine Patents and Inventors. I am seeking specifications, drawings, and other materials relating to pre-1836 U.S. cut nail machine patents and their inventors. This information is likely to exist in local archival collections, courthouse records, local histories, and other sources. I am particularly interested in the following inventors: Jesse Reed, Briggs Rogers Reid, Melville Otis, and Samuel Rogers, all of whom resided in and around Bridgewater, MA; and Mark and Richard Reeve of NJ and eastern PA. Lee Maddex, 1535 Mileground, Morgantown, WV; (304) 293-3829; lmaddex@wvu.edu.

Iron Doors and Shutters. I am searching for information on the makers of iron doors and shutters used on California gold country buildings in the 19th century. Specifically, I am researching an 1852-60 stone building in Downieville. The history of the structure is proving exceedingly elusive. One clue I am following is the maker's mark on the iron door and shutters: "T.B.C. & Co." David Dawson, (919) 481-1846; WmDDawson@aol.com.

Metal Lath. I am looking for information regarding early uses of metal lath in plaster applications in North America. I would particularly like to determine where it was first used, manufacturers' specifications, documented uses, etc. The information will be used when dating repairs to historic buildings. Adam Zielinski, 99 Balmoral Ave. South, Hamilton, ON, L8M 3K1, Canada; lebaron@prime-online.com.

SITES & STRUCTURES

Phosphate mines were once the largest industry on the Pacific Island nation of Nauru, but they now are depleted, according to the *NY Times Magazine* (Dec. 10). The article is about the officially supported development of money laundering as a way to save the island's economy, but a brief quote is of interest to IA: Nauru's president, in the context of a proposal to restore the mined areas to take advantage of tourism, says, "One of the things we have in mind is that part of the dug-out area should be left as it is so that future generations can see what it was like." An accompanying photo shows a moonscape of limestone columns where a tropical rainforest once was. The entire interior of the atoll was mined.

Efforts are under way to preserve the **Black Warrior River Bridge** in Northport, AL, a 203'-long bowstring through-truss bridge built in 1882 by the King Iron Bridge Co. The bridge is among the longest surviving bowstring trusses in the U.S. According to the *Tuscaloosa News* (Dec. 21), Friends of Historic Northport recently rediscovered the bridge, abandoned, hidden by vegetation, its deck missing. The country road it once served had been bypassed and unused by traffic since the early 1960s. The preservation group is in the process of raising funds to restore the bridge. ■

Semet-Solvay TNT and Picric Acid Manufacture (Split Rock, NY). I am putting together a comprehensive work on a TNT plant that operated just west of Syracuse during World War I (ca. 1915-18). An explosion occurred on July 2, 1918, killing at least 50 men. Any information about the plant, its products and their transportation, or the quarry operations that preceded the war, would be welcomed. Debra S. Staley, 17 Axbridge Lane, Delmar, NY 12054; (518) 439-7499; fax 475-9705; stalzimm@earthlink.net.

Factory Tour Capital of the World. York County, PA, has staked claim to the title with a tourism campaign built around free factory process tours, according to news item in the *Buffalo* (NY) *News* (Feb. 18). The county's top tourism attraction is the Harley Davidson motorcycle assembly plant. Others are pottery maker Pfaltzgraff; snack-food makers Snyder of Hanover, Utz, Frito-Lay, and Herr; Naylor Wine Cellars, Wolfgang Candy, Family Heirloom Weavers, Cross Mill, York Newspaper, and York Barbell.

IA sites did not fare well in the recent *Pittsburgh Post-Gazette* "What Would You Demolish Survey?" (Jan. 31). After thousands of Pittsburghers lined up to buy raffle tickets for the glory of pushing the plunger on Three Rivers Stadium, the editors decided to see what other Pittsburgh landmarks readers wanted to see go if they could have their wish. The Lawrence Paint Building topped the list and the Squirrel Hill Tunnels finished a close second. Other contenders were the PPG Tower, the Duquesne Lithography/Lampenfield Co. Building, and the Heinz Plant. More reason to educate about industrial and engineering heritage, otherwise the public will support blowing it up for a few minutes' thrill. ■

IA EXHIBITS

Museum of Our Industrial Heritage is under development in Greenfield, MA. According to *The Greenfield Recorder* (Dec. 9), the museum started when Leon Weeks began looking for a way to display his tool collection from Greenfield Tap & Die Co. (GT&D). He and other volunteers formed a group to preserve and interpret the industrial heritage of Greenfield and surrounding Franklin County. The museum has grown to eight rooms chock-full of tools and other exhibits in temporary quarters in the historic O'Hara house. The museum's directors are considering permanent quarters in one of several industrial sites, including the former GT&D Plant No. 1. The museum will tell the story of John Grant, the inventor of a combination bolt cutter and nut threader and founder of GT&D. The museum also has exhibits on Miller Falls Tool, the region's historic cutlery industry, Raytheon, and modern plastic manufacturers. The museum is open from Thurs. to Sun., 2-4 p.m., 77 Petty Plain Rd.

The **Canadian Railway Museum of Delson/Saint Constant**, Quebec, has received a grant of \$10.4 million (Can.) for the creation of EXPO-RAIL, a museum complex that will include a 12-track pavilion for the display and preservation of 50 locomotives and cars. The museum's outdoor site will recreate a switching yard, enlivened by demonstrations and an operable turntable. Also included in the project are an archives and library. EXPORAIL is slated to open in May 2002. ■

RUHR, GERMANY

(continued from page 7)

kind. We continued strolling about the museum after lunch and took turns operating the handcar.

Our tour ended at the **Aquarius Wassermuseum** in Mulheim. Owned by the private waterworks, Rheinisch-Westfälische Wasserwerksgesellschaft, the tower was built by August Thyssen in 1892-93 to supply water to his nearby ironworks. It also supplied drinking water to residents until 1982. Now it is a museum of water in a broad sense. Multimedia exhibits cover water-related disaster, cultural differences in bathing, sewerage systems, canals, purification and, of course, those great consumers of water, coal mining and steelmaking. The local press came by to document our visit. The museum hosted our farewell reception, where a sumptuous buffet was accompanied by a jazz trio. Some SIA members took to the dance floor.

Wolfgang rose to tell us he'd been asked to make a tearful speech, but didn't understand the idiom. As newfound friends, he asked us to remember the keyword, *relevance*, as we pursue our love of industrial heritage. No period has changed history as much as the past 200 years, but industrialization is over. Urban development must take reuse into account so that we save something. Regeneration of industrial areas can be achieved through "valuing" industrial heritage. If the Ruhr Tour had an important lesson for SIA members, it showed us what can be accomplished to change people's attitudes about industrial sites when they are integrated with real community needs, such as spaces for cultural activities, gardens, and community centers. Following a formal thank you from SIA President, Carol Poh Miller, Pat Martin presented Wolfgang with a gift of a triptych of industrial photos taken by Gerald Weinstein [SIA], who graciously donated them.

As we departed for the hotel, we heard Wolfgang, for the last time, call out, "Are we complete?" And Pat's answer, "We are complete!" Instead of our usual, "Gute nacht," Wolfgang asked us to remember, "No surrender until it is preserved!" and wished us good-bye with, "Auf wiedersehen," (until we see each other again). I think we all hope that we will.

L'ENFANT'S PATERSON

(continued from page 7)

sure of success was the designation of the Great Falls National Historic Landmark District, but the tourists that preservationists once imagined would delight in learning about the city's industrial achievements have not appeared, nor have they been aggressively pursued by advertising or first-class interpretive exhibits. Lost to the historical accounts of the district's textiles, revolvers, and locomotives, however, is the fact that the acreage just below the falls that includes the ATP Site is the hub of a spoked-wheel city plan of streets that radiate throughout the city. Like its better known Washington counterpart, the Paterson city plan began as a work of classical proportions designed by a genius.

The Alexander Hamilton National Memorial is a recently established nonprofit organization dedicated to preserving and commemorating the Founding Father's accomplishments in Paterson. Info: Box 20631, Cherokee Station, New York, NY 10021-0072; nicksunday@hamiltonmemorial.com. The Alexander Hamilton National Memorial Website: www.hamiltonmemorial.org.

Nick Sunday

TICCIH

(continued from page 16)

first synthetic dye (1856); a model of the Firth of Forth Bridge; the Model T Ford (1916); the atomic particle accelerator designed by Cockroft and Walton (1937); and the Apollo 10 rocket (1969).

Of the three optional post-conference tours, I chose Wales because of its long tradition of mining. Among the sites we visited was **Cyfartha Iron Furnaces** in Merthy, established 1786-1810 by Richard Crawshay, who is credited with introducing the puddling process for refining pig iron into wrought iron. Except for five preserved blast furnaces, the works were demolished in 1960. A highlight of the Wales tour was the **Blaenavon Industrial Landscape**, a UNESCO World Heritage site. The landscape, which ranges over 33 sq. kms., interprets how coal mining, processing, and transporting changed the landscape from the 1780s to 1970s. Components include the Blaenavon Ironworks, the Brecknock and Abergavenny Canal, and the town of Blaenavon. Interpretation and conservation projects to date have concentrated at the Big Pit mine, in operation 1830-1980. We toured the engine house, compressor house, fan house, sawmills, machine shops, foundry, electric power plant, and facilities for the managers and workers, such as the canteen, clinic, and offices. Led by retired miners, a visit in the underground mine included displays of tools, wagons, and even the stalls for horses that worked in the mine until the early 1960s. A final stop of the Wales tour was the **Museum of the Great Western Railway** in Swindon, located in a section of the restored workshops established by I. K. Brunel in 1840. Exhibits there focus on the social context of the works including labor relations, foundry trades, gender roles in the workshops, working conditions, and education.

I observed that our European colleagues in TICCIH remain concentrated on the study of the classic pre-1900 IA sites of the Industrial Revolution. On a whole, TICCIH does not focus on the industrial processes of the 20th century. By comparison, SIA conferences more often explore the context of factory processes of the more recent past, a reflection of North America's rapid industrial expansion beginning in the late 19th century. There is much room for cross-fertilization since so many technologies transferred in either direction across the Atlantic. Both organizations, SIA and TICCIH, have common ground, although they may sometimes differ in methodologies and research orientations. Many TICCIH colleagues expressed interest in identifying areas where the two groups could work in closer cooperation, especially with issues of advocacy, publications, and promotion of activities and membership.

The XIIth TICCIH Conference will take place in Moscow and in Nizhny Tagil, July 10-18, 2003. The general theme will be "Preservation of Industrial Heritage and Rehabilitation of Old Industrial Centres."

Louise Trotter



CALENDAR

2001

Aug. 17-24: Assn. for Industrial Archaeology, Annual Conference, Cambridge, U.K. Info: AIA Office, School of Archeological Studies, Univ. of Leicester, Leicester, U.K. LE1 7RH; AIA@le.ac.uk; www.industrial-archaeology.org.uk.

Sept. 1-10: SIA Study Tour to Cornwall, England. Optional pre-excursion to the Great Dorset Steam Fair, Aug. 30- Sept. 2. Info: Bierce Riley, 19 Budd St., Morristown, NJ 07960; (973) 455-0491; bierce.riley@worldnet.att.net.

Sept. 13-21: 3rd Latin American Colloquium on the Preservation of Industrial Heritage, TICCIH-Chile, Santiago, Chile. Industrial archeology, conservation case studies, papers. Tours of Valparaiso elevators and funiculars; Sewell mining camp in the Andes; Atacama Desert; Easter Island. Info: TICCIH-Chile, Estaban dell'Orto 6915, Las Condes, Santiago, Chile; Tel/fax 56 2 220.99.66; compalch@entelchile.net.

Sept. 19-22: 7th Historic Bridges Conference, Cleveland State Univ., Cleveland, OH. Sponsored by the Wilbur J. and Sara Ruth Watson Bridge Book Collection, Cleveland State Univ. Library. Field demonstrations, paper sessions, and tours. Info: Bill Barrow, Special Collections Librarian, CSU, 1860 E. 22nd St., Cleveland, OH 44114; (216) 687-6998; w.barrow@csuohio.edu; <http://web.ulib.csuohio.edu/7hbc/>.

Oct. 11-14: SIA Fall Tour, Syracuse, NY. Hosted by the Onondaga Historical Assn. See article elsewhere in this issue. Info: Dennis Connors, (315) 428-1864; djcoha@juno.com.

Oct. 22-25: First Flight Centennial Commission Symposium, NC State Univ., Raleigh, NC. Paper sessions, entertainment, and tours commemorate the centenary of Wright Bros. flight. Info: 4635 Mail Service Center, Raleigh, NC 27699; (919) 733-2003.

Oct. 27: 21st Annual Drew Symposium on IA in the NY-NJ Area, Drew Univ., Madison, NJ. Hosted by the Roebing Chapter. Paper proposals requested (see article in this issue). Info: Tom Flagg, State Univ. of NY, 33 W. 42nd St., New York, NY 10036; tflagg@sunyopt.edu.

Nov. 6-11: Joint Convention of the Assn. Of Railway Museums and the Tourist Railway Assn., Salisbury-Spencer, NC. Hosted by NC Transportation Museum & Foundation. Info: (800) 332-2323; www.nctrans.org. ■

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CHAPTER NEWS

Oliver Evans (Philadelphia) heard from Adam Levine on the history of Philadelphia's sewer system in Mar. Suzanne Jacob presented her research on the Joanna Iron Furnace followed by a tour of the site in Apr.

Roebing (Greater NY/NJ) toured the Oradell (NJ) Water Works in Apr. The waterworks is a complete early-20th-century municipal facility with an enormous Allis-Chalmers triple-expansion pumping engine. Chief engineer Conrad Milster [SIA] gave chapter members a guided tour of the Power Plant of the Pratt Institute in Brooklyn in May. The chapter has formed a conference planning committee, chaired by Mary Habstritt, to host the 2002 SIA Annual Conference in Brooklyn.

Southern held a community service work day at the West Blocton (AL) beehive coke ovens. Built between 1888 and 1891, the ovens operated until 1904. Over the last 90 years nature has slowly reclaimed the ovens, but the town has now begun efforts to develop the site into a park. Members helped clear and interpret the coke-oven ruins for local residents.

Southern New England joined with other local preservation organizations to sponsor a tour of the Charles St. Jail in Boston in Mar. Designed in 1848 by J. F. Gridley Bryant, the jail is scheduled for renovation.

CALL FOR PAPERS: 21st Annual Drew Symposium on Industrial Archeology in the NY-NJ Area. The Roebing Chapter is soliciting illustrated presentations on the industrial heritage of the chapter's geographic region for the annual symposium to be held Oct. 27, 2001, at the Hall of Sciences, Drew Univ., Madison, NJ. Presentations are 25-min. long and illustrated with 35mm slides or other media (no Powerpoint please). Presentations should emphasize topics related to the NY-Northern NJ region. Info: Tom Flagg, State Univ. of NY, 33 W. 42nd St., New York, NY 10036; tflagg@sunyopt.edu. ■

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