

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

Volume 31

Winter 2002

Number 1

THE COGGY BITS OF CORNWALL *SIA Study Tour Review*

“Have a geek, me loveys!” called out the old tin miner as he welcomed us to the room-sized three-dimensional skeletal model of the hundreds of mine shafts and tunnels of the St. Just mining area at the western tip of Cornwall. “And don’t miss the photo of the bal maidens.” It was the morning of Sept. 3, our first full day of the Cornwall Study Tour, and fifteen of us had just arrived at Wheal Geevor, one of the last Cornish tin mines to close. Wheal (works), bal (mine), adit (lowest horizontal tunnel with natural drainage), zawn (vertical cleft)—fortunately our local guide Pat Sargeant had given us a five-page lexicon of Cornish mining terms. He had also made it clear that the Cornish consider themselves Celtic, a different people from the English, and joked that we would have to pass through customs if we left Cornwall and returned to Devon.

The tour was planned and led by Bierce Riley with the assistance of Pat, a bearded, handsome, very funny geologist and professional tour leader; and Elizabeth Snodgrass, our cheerful and capable Academic Travel Abroad (ATA) tour manager

and details maven. In a former career, Elizabeth was trained in Arles to be a professional chef, so she knew how to find good pubs and restaurants. Our bus driver, Terry Audley, was from St. Ives, a picturesque bayside tourist town and site of our lodgings. Terry’s ability to get a bus into tight spots was amazing; when he drove the bus down the winding, narrow road into the Blue Hills ravine, the owners and other onlookers applauded! Terry even took us on a delightful walking tour of St. Ives one evening and told us many tales about local characters.

Ours was a compatible group having many interests in common, and during our ten days of great weather, much walking, and evening lectures, we became good friends. Pat and Elizabeth, our two non-SIA guides, have led many tours for the Smithsonian, National Geographic, and college alumni groups, but they told us SIA was unique. Usually, they said, the eyes of other groups start to glaze over after about five minutes at a mine or steam engine, but we all wanted to climb, touch, push levers, ask all sorts of questions, discuss technical details, spend half a day or more at each of the fabulous Cornish industrial sites.

(continued on page 2)



The SIA Cornwall Study Tour group next to the convex buddle (a shallow trough in which ore is washed) at the Blue Hill Tin Streams.

They called us “The Coggies”; in Cornwall, the machinery associated with something is called “the coggy bits” for the cogs (teeth) on the gears.

The tour began on Aug. 30, when Bierce and eight of the group flew to England for the optional two-day pre-trip excursion to the **Great Dorset Steam Fair**, an entirely satisfactory excuse for getting covered with soot and grease. The remaining four of us arrived on Sept. 1. En route to St. Ives, we stopped at Sticklepath, on the northern edge of Dartmoor, to see the **Finch Foundry**, an early-19th-century water-powered forge that produced edge tools. It had three waterwheels: one for the forge furnace blower; one for the drop hammer, the two tilt hammers, and the iron shears; and one for the grinding wheel. In a nearby village we had our first excellent pub lunch.

The next morning we got down to business: seeing mines. It's easy to forget how important tin is. Alloying 10 percent tin with copper yields bronze, a far harder and tougher metal than either of its separate components. Both tin and copper are found in abundance in Cornwall and have been mined since the Early Bronze Age (2100–1500 B.C.). Traders have been coming here for 3,500 years; artifacts of the Mediterranean Beaker People have been found. More recent uses of tin include pewter (93 percent tin), solder (typically 80 percent tin, depending on the melting point desired) and, of course, the ubiquitous tin-coated steel for “tin cans” and corrosion-resistant sheeting. (But not galvanizing, which is zinc plating!)

A knowledge of Cornwall's geology is key to understanding its industrial heritage. The sedimentary rock comprising much of Cornwall is underlaid with a batholith, a huge mass of granite. The Cornish mining areas are located in and around several large, roughly circular, exposures of this granite, called plutons. These plutons are, from west to east, the Land's End peninsula, the Camborne-Redruth area, the St. Austell-Lostwithiel area, Bodmin Moor, and Dartmoor. In general, tin and other metals are found in fracture zones around the north and west edges of the smaller

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

Mailing date for Vol. 31, 1 (Winter 2002), Feb. 2002. If you have not received an issue, apply to SIA-HQ (address above) for a replacement copy.

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

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



Bierce Riley

Gevor Mine headframe, St. Just, Cornwall.

plutons, where mineral-bearing water rose from below, while kaolin (china clay) tended to form in the interior of the two larger plutons of Bodmin Moor and Dartmoor. Both tin and copper are found at the surface, but in underground mining, the shallowest 300 ft. yields primarily tin, then the main copper lodes are below 300 ft. and down to 1500 or 2000 ft., and the richest tin of all is found very deep, as much as 3000 ft. below the surface near Camborne.

The earliest mining, from the Bronze Age to the Medieval Period, was merely the physical separation of cassiterite, black tin ore, from the lighter alluvial stream gravels and beach sands in regions where the lodes had been eroded by the sea or streams, using techniques called vanning and streaming that were much like gold panning and sluicing. Colin Wills, owner of the **Blue Hills Tin Streams**, an ancient mining site in a ravine on the north coast, gave us an outstandingly clear summary and demonstration of early tin separation and smelting technology: dishing, vanning, jigging, stamping, buddling, roasting, and the four steps of smelting.

As a boy, Colin used to watch an old man who was reworking mine dumps to recover residual tin. Some years ago he, with his wife and son, bought the property, which was deserted and derelict, restored the water wheel, stamps, buddle, and other water-powered equipment, added a shaking table (driven by an electric motor) and continued reworking the dumps. Most of their income is from selling this tin, especially after winter storms when the nearby beaches are black with fine particles of ore washed in by the waves. Colin showed us the traditional final test for the purity of tin by bending a small ingot (8-in. long by about 3/4-in. wide and 1/8-in. thick) in his hands, and then letting us do it. If it is pure, the tin emits a strange squeaky, crackling sound called “the cry of tin.”

We next went to the St. Just district on the western tip of Cornwall, an area of spectacular cliffs riddled with shafts and tunnels,

(continued on page 3)



Jim Owens

Arsenic maze, Botallack.

some extending almost two miles out under the sea. All are now closed and flooded up to sea level with fresh water. With the exception of the **Geevor Mine** and the **South Crofty Mine** in Camborne-Redruth, little is left to see of the surface workings except lonely chimneys and the ruins of engine houses and of a few stamp mills. Evidently the engine houses and chimneys were built very solidly, and they have survived, but their machinery has all been scrapped except for the handful of engines maintained in museum settings.

Early smelting was, of course, done in Cornwall, but later large-scale tin and copper smelting was done primarily in Wales, where there was coal. However, some specialized ore processing was done in Cornwall at such facilities as the ruined calciner and arsenic maze we visited at **Botallack**. Arsenic was extracted by calcining (heating the ore with flux), which converted it to gaseous arsenic trioxide. The hot gas was condensed on the walls of a labyrinth, a serpentine brick tunnel roughly five-feet high, five wide, and several hundred feet in total length, ending in a tall stack that provided draft. Arsenic soot, nearly pure arsenic trioxide, was deposited on the walls of the maze. A couple of times a year the system would be shut down and the maze allowed to cool somewhat, and then small boys with heavy clothing and wet cloths over their faces would be sent into its darkness to scrape off the arsenic and haul it out. A major use of the arsenic was as a pesticide for boll weevils in the southern U.S.

The Geevor Mine still has ore-concentrating equipment. It was re-opened early in the 20th century to drain and extend the tunnels of several earlier mines, and it was reasonably successful for almost 75 years. Unfortunately, the price of tin collapsed in 1985 when the tin cartel was overwhelmed by the opening of mines in Malaysia. Geevor continued to operate sporadically, but the pumps were finally turned off in 1991 and the mine closed; its tunnels are now flooded. It became a museum in the late 1990s, and it was here that the miner who called us “me loveys” led us on a fascinating above-ground tour of the relatively modern works: huge air compressors, pumping and winding engines (all powered by electric motors), safety and rescue equipment, a shop for drill sharpening, and the “miners’ dry” (shower and chang-

ing rooms, with old posters still pasted inside the lockers). We then had an underground tour (partially by candlelight to get the feel of the narrow tunnels following the thin, steeply dipping ore seams), and concluded our visit in the museum and bookshop.

Our final tin mine and mill visit was to the **Camborne School of Mines**, which still trains mining engineers who work all over the world. We first visited the outstanding geological museum and tempting bookshop on the main campus. The group then went to see the surface collection at the **King Edward Mine** at Troon, the field school of the Camborne School, where Tony Brooks enthusiastically explained to us the workings of a large building full of operating ore-processing equipment, “a bit of kit” as he put it. The working equipment in the lab includes Cornish (square) and California (round, rotating) stamps, one of two Cornish round frames known to exist, a convex buddle, sluice boxes and dipper wheels, and two modern shaking tables.

Near the centers of the larger plutons that form the Moors, hot water rose from deep below and decomposed feldspar, one of the component minerals of granite, into kaolin, a white hydrous aluminum silicate that is used to make fine translucent porcelain. These giant open-pit mines are entirely different from the small, deep shafts of the tin mines; the ore is highly decomposed, relatively soft, and occurs in large bodies rather than veins and lodes. We visited the operating mine and visitor center at **Wheal Martyn**, on the south side of the St. Austell-Lostwithiel pluton, where we hiked up to see the huge open pit and even higher waste tips. The ore is mined using hydraulic sluicing (high-pressure water jets). The slurry is then pumped to the top of the pit, where it runs downhill through the processing areas. Gravity-fed tanks separate the fine kaolin from other unwanted minerals and rocks, and dye is added to correct for any off-white hue. The kaolin then passes to large outdoor settling tanks and a huge drying furnace. The clay is handcut into large blocks for shipment.

(continued on page 4)



Jim Owens

Bierce Riley [SIA] with Tony Brooks of the Camborne School of Mines at the shaking table used by the field school.

The few remaining Cornish beam engines—owned by the National Trust, managed by the Trevithick Trust, and kept operational by the Trevithick Society—were the mechanical highlights of the trip. We saw three engines, the **Levant Mine Engine**, the **East Pool Winding Engine**, and the **Taylor's Shaft Engine**. These large vertical steam engines led us to extended discussions over such topics as how Cornish valving worked (rods and bars rather than eccentrics), how the operator's reversing lever acted to change the direction of winding drums, and, especially, how and how well the parallel-motion mechanism worked to limit side thrust on the piston rods. (More modern designs use a crosshead.)

Two variants of beam engines were used for pumping and winding, differing only in the output motion. Both used a vertical steam cylinder with the piston rod attached to one end of a heavy horizontal iron beam, or bob, pivoted at its center. For a pumping engine, the outer end of the beam suspended a huge rod of Sitka spruce, typically 12 in. or more square, successive lengths of which were fastened together with heavy iron plates and bolts, its total length equal to the depth of the mine shaft—a quite incredible object to move. This vertical pump rod was oscillated up and down to pump water out of the mine by lifting the water through a succession of intermediate tanks spaced one pump stroke apart. An important addition was a counterweight, or balance bob, for the wooden rod, connected via another pivoting horizontal beam, so that the steam engine actually only lifted the weight of the water, not that of the wooden rod.

Sometimes these oscillating-vertical-rod engines were used as man lifts. Each man wanting to come up would step onto a notch or step of the rod at the bottom of its stroke, ride up, step off onto a platform at the top of the stroke. Descent was accomplished on the downstroke. By 1840, miners had to climb well over 1500 ft. from poorly ventilated tunnels at temperatures over 100° F, and this climb "to grass" after an exhausting shift in mind-numbing heat was hazardous at best. Tragically, the rod of the Levant man engine collapsed in 1919, after 63 years of use, and 31 men were killed. After this, man engines were replaced by cages lifted by winding engines.

A winding engine, also called a whim or a rotative beam engine, had a conventional connecting rod (or other arrangement to avoid patent infringement) between the outer end of the beam and a large flywheel and drum, on which chain or cables were wound and unwound to raise and lower ore buckets or miners. These had to have valve-timing cams with adjustable phase so that the connecting rod could either push or pull when the crankshaft was at a given angular position, and hence the winding drum could be driven in either direction.



Jim Owens

Pump rod of the 90-in. pumping engine at Taylor's Shaft.

Our first Cornish beam engine was at the **Levant Mine** on the cliff edge at Pendeen, near St. Just, a spectacular site where the winding engine served mines running far out under sea. It was built in 1840 and is the oldest still running. This is not a big engine (24-in. bore and 48-in. stroke), but it is unique in that it still runs on live steam (although generated by diesel fuel rather than coal). It is operated and lovingly maintained by a group of volunteers appropriately called the Greasy Gang.

The second engine we saw was the **East Pool Winding Engine**, or Mitchell's Whim, a large and beautiful rotative beam engine, now turned by an electric motor. Built by Holman Brothers in Camborne in 1887, it has a 30-in. diameter cylinder and a 9-ft. stroke! As in most Cornish engine houses, large pots of geraniums bloomed on the windowsills, encouraged by the warmth and humidity of the steam. Also in East Pool, we visited the giant pumping engine at **Taylor's Shaft**, having a 90-in. bore and 10-ft. stroke. Built by Harvey & Co. of Hayle in 1892, it is a huge engine, requiring several flights of stairs to reach the 52-ton beam, and it worked (with the aid of a balance bob) an almost unbelievable 1700-ft. wooden pump rod. This engine ran a working mine pump until 1954. Although, it was under repair during our visit, we nevertheless were all staggered by it.

Other sites of interest:

Telegraph Museum at Porthcurno. Near the southwestern-most tip of Cornwall is a small cove and beach where the first undersea telegraph cable came ashore and connected to transmitters and receivers. By World War II, this was the terminal for six-

(continued on page 5)

STUDY TOUR-SWEDEN-ALERT

The Society is planning a tour of the IA of Sweden for the first two weeks in September, to visit survivals of the early iron industry, copper mines, canals, hydroelectric plants, and many additional sites of great interest, as well as several present-day industries such as steel mills and machine works. Also to be seen will be the early-17th-century warship *Vasa* that foundered in Stockholm Harbor on its maiden voyage and recently was raised, several museums of technology, and other world-class sites. A full descriptive announcement and registration information will be sent to all members in late winter. ■

CORNWALL *(continued from page 4)*

teen cables, covering much of the world. The heavily fortified concrete bunker built to protect the cables and sending and receiving equipment is now a museum of antique telegraph equipment—the telegraph system has long since been replaced by satellite and by underwater optical fiber cables—but the equipment is familiar and fun to see for those of us old enough to have used similar apparatus in our younger school days. A big pile of scrap cable sits in the cove, but none of us could figure out how to cut some off to bring home.

Pilchard Works in Newlyn. This 18th-century stone fish-packing plant is still packing pilchards (fully grown sardines) in the traditional manner. The whole fish, not gutted nor filleted, is soaked for weeks in brine, packed by hand in wooden boxes and casks in attractive patterns, compressed by screw presses to remove excess oil and brine, then shipped, primarily to southern France and Italy during Lent. They even have a historic mechanical loom that weaves nets in the traditional diamond pattern which, in fact, catches fish more effectively than modern nets with hexagonal openings. Who knows why sardines are tastier than pilchards, and why anchovies are even more so? Don't ask us; it's gruesome.

Mineral Tramways. We had a pleasant day of walking on these paths, which cross Cornwall from northwest to southeast. The tramways historically were used for the transport of timber and coal brought inland from ports to mines, while tin and copper ore were taken out to the coast for shipment to remote smelters. The original mule trains (each mule carrying 200-300 lbs.) were replaced about 1825 by three-ton horse-drawn wagons with flanged wheels running on light track, to be replaced in turn in 1855 by small steam locomotives and railroad cars. We were pleased that these footpaths had been reopened after the U.K.'s outbreak of hoof-and-mouth disease earlier in the year.

St. Austell Brewery still uses early-19th-century copper tanks and has its own cooper's shop to make casks that sit behind the bar of traditional pubs. Excellent beer—Tinnerns Cornish Bitter—and killer imported rum.

Charlestown, a tiny port near St. Austell seems to have been used for shooting almost every pirate film ever made. We had cream tea outdoors while looking at two square-rigged ships, which by themselves filled the narrow harbor. Bierce climbed aboard one of them to watch the crew caulk recently replaced decking with oakum and tar.

The Lost Gardens of Heligan is the largest horticultural archeology and garden restoration project in England. It was originally part of the Tremayne estate, but the manor house was converted to flats long ago and the gardens were completely forgotten and overgrown until the 1980s. The gardens and service buildings have now been largely restored by volunteers. There were even specialty greenhouses, now rebuilt, where the soil and conditions of Hawaii (hot, dry soil, and humid air) were reproduced so that pineapples could be grown.

Great Devonport Leat. On our last afternoon, on the way to Exeter for the night before going on to Gatwick Airport, we stopped high on Dartmoor for a hike. Bierce led us over Black Tor (a tor is a hilltop crowned with a granite outcropping that looks like a pile of rock slabs) to see the channel dug by hand to bring water from several moorland drainages to Devonport, 40 miles distant, and to see the remnants of an early and crude tin blowing-house (smelter). We saw wild ponies, prehistoric stone rows, and wonderful wild countryside covered with blooming heather.

Postscript: Our return trip proved to be complex because of the events of Sept. 11. My flight on Sept. 10 from Newark to Rochester, NY, was cancelled due to bad weather, so I spent the

(continued on page 10)

2002 SIA Conference and Tour Dates

Mark Your Calendars!

June 6-10

SIA 31st Annual Conference, Brooklyn, NY.

Tours will explore Brooklyn's prominence as a transportation center and the many manufacturers and processing plants that support the great metropolis to Brooklyn's west. Members will receive registration materials and an itinerary of tours and events this Spring. Info: Mary Habstritt (212) 769-4946; mhabstritt@aol.com.

October 17-20

SIA Fall Tour, Lehigh Valley, PA

The Lehigh Valley has long been a site of industrial activity from the colonial Moravians to the great Bethlehem Steel mills. Tours will explore historic canals and silk, slate, coal, and steel industries, as well as active manufacturers in the region like Crayola. Hosted by the National Canal Museum. Info: Lance Metz, NCM, 30 Centre Sq., Easton, PA 18042; (610) 559-6613.



Tom Flagg

Brooklyn's waterfront teems with activity and will be one of the many industrial sites explored during the SIA 31st Annual Conference from June 6 to 10.

TICCIH Report

In my new role as SIA's representative on the Board of The International Committee for the Conservation of the Industrial Heritage (TICCIH), I attended the October meeting in Terrassa, Spain, north of Barcelona. The meeting was convened in the Museum of Science and Technology of Catalonia, housed in a marvelous early 20th century textile factory. This museum, and an integrated network of 20 industrial sites and museums spread throughout Catalonia, is directed by Eusebi Cassanelles, the President of TICCIH. Eusebi's museum not only hosted the Board meeting, but also hosts the TICCIH Web site: <http://www.museu.mnactec.com/TICCIH/>.

TICCIH strives to fulfill its stated role as the focus for international cooperation regarding industrial heritage, as it has for nearly 30 years. Though it has been a predominantly European organization, it continues to reach out to the New World and to developing nations elsewhere in order to broaden its scope of influence and effect. This Board meeting included representatives from Spain, Germany, France, Hungary, Sweden, Denmark, Greece, Holland, the United Kingdom, Mexico, Russia, and the United States. A day-long session covered a broad array of issues; I'll attempt to cover them generally for you here.

A major topic of discussion focussed on the emerging relationship between TICCIH and the International Commission on Monument and Sites (ICOMOS). ICOMOS is the primary non-governmental organization affiliated with the United Nations that concerns itself with preservation and interpretation of cultural sites. It is UNESCO's principle advisor in these matters, and has member committees in 107 countries, including the U.S. and Canada. ICOMOS uses a system of International Scientific Committees of experts to provide advice about technical matters, and TICCIH is serving as the relevant committee on industrial heritage. While this arrangement was informally in effect for some time, it was formalized by an agreement signed in 2000. Upcoming activities include a preconference tour of IA sites in South Africa and Zimbabwe before the ICOMOS General Assembly scheduled for Oct. 2002 in Victoria Falls. Other ICOMOS activities with significant TICCIH involvement include two World Heritage site projects in the works; an International Collieries Monument List, and the second an International Cornish Mining listing. Furthermore, ICOMOS has solicited a TICCIH Charter on Industrial Heritage, a unified position statement for international guidance and recognition. For more information about ICOMOS, visit <http://www.icomos.org/>.

TICCIH has several special-interest sections, including Mining, Textiles, Communications, Paper, and others. The most active section has been the Textiles group, holding independent

(continued on page 19)

Proposed Slate 2002 SIA Election

The SIA Nominations Committee is pleased to present the following slate of candidates for the 2002 elections of directors and officers:

Vice President

(2-year term): Elect One

Chris Andrae
Richard O'Connor

Director

(3-year term): Elect Three

Susan Appel
Perry Green
Nancy Hachtel
Martha Mayer
Bode Morin

Director

(2-year unexpired term*): Elect One

Betsy Fahlman

Nominations Committee:

(3-year term): Elect One

Robert Newbery
Justin Spivey

* A vacancy occurred on the Board of Directors due to a resignation in Sept. 2001. The by-laws state that the Board shall fill the vacancy until the next scheduled election. Betsy Fahlman, who was the runner-up in last year's election for Director, was appointed by the Board in Oct. 2001.

SIA by-laws state that the Nominations Committee shall notify the membership of the proposed slate. This is that written notice, **it is not a ballot**. Additional nominations can be made in writing over the signatures of no fewer than twelve members in good standing (dues paid for 2002) and delivered to the chair of the Nominations Committee at the address below by Apr. 27, 2002. Candidates must have given their consent to be nominated and must also be members in good standing. Ballots with a biographical sketch and photograph of each candidate will be mailed to members for a vote in May.

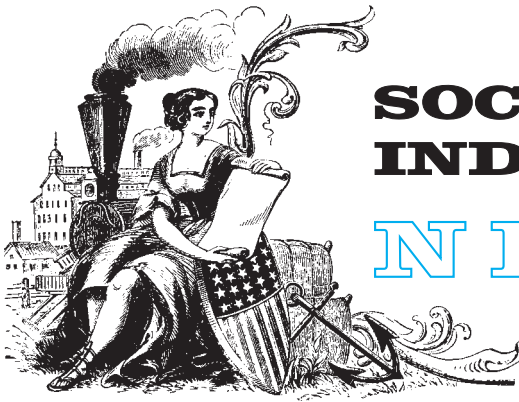
The 2002 Nominations Committee is Patrick Harshbarger (Chair), Robert Frame, Michael Raber, and Sandy Norman (ex officio). Reply to: SIA Nominations Committee c/o Patrick Harshbarger, 305 Rodman Road, Wilmington, DE 19809; (302) 764-7464.

Remember: SIA membership dues were mailed in Dec. Only members who have paid their dues will be allowed to vote. The membership period is the calendar year. ■

2002 IRONMASTERS CONFERENCE, ATHENS, OH April 26-28

The 2002 Ironmasters Conference will be held on the campus of Ohio University at Athens, Apr. 26-28. The West Virginia University Institute for the History of Technology and IA and the SIA Three Rivers Chapter are the conference's sponsors. The three-day event will feature a Friday early-bird tour of the Ironton area charcoal iron industry, Saturday paper sessions, and a Sunday tour of Buckeye and Vinton furnaces.

Papers will relate to industry and life in the Hanging Rock Iron Region, as well as the more general topics of ironmaking and mining. The conference is a favorite of many SIA members with an interest in the history of the iron industry. Info: Lee Maddex, IHTIA, 1535 Mileground, Morgantown, WV 26505; (304) 293-3829; LMaddex@wvu.edu. ■



SOCIETY FOR INDUSTRIAL ARCHEOLOGY NEWSLETTER

PUBLICATIONS OF INTEREST

A Supplement to Vol. 31, No. 1

Winter 2002

COMPILED BY

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

GENERAL INTEREST

- Michael Thad Allen and Gabrielle Hecht. **Technologies of Power.** MIT Press, 2001. 520 pp., illus. \$24.95. Essays explore how people embed their authority in technological systems. Written in honor of scholars Thomas Park Hughes and Agatha Chipley Hughes.
- Nigel Balchin and Peter Filby. **A Guide to the Industrial Archaeology of Cambridgeshire & Peterborough.** Assn. for Industrial Archaeology (UK), 2001. AIA's gazetteer, produced for the 2001 annual conference in Cambridge. Fen drainage, transportation, wind- and waterpowered mills, lime and cement industry, public utilities, telecommunications.
- David E. Brown. **Inventing Modern America: From the Microwave to the Mouse.** MIT Press, 2001. 200 pp., illus. \$29.95. Profiles 35 inventors who exemplify the rich technological creativity of the U.S. over the past century.
- **Industrial Sites on the UNESCO World Heritage Web Site.** www.unesco.org/whc/sites/industrial. Historic industrial sites on the UNESCO World Heritage List. Links to each site with photos and descriptions. Indexed by country. From Neolithic Flint Mines in Belgium to the Darjeeling Himalayan Railway in India.
- Bruce J. Noble, Jr. "Lord Willing n' the Creek Don't Rise": **Flood Sustainability at Harpers Ferry National Historical Park.** CRM, No. 8, 2001. Efforts to protect historic industrial sites, structures, and exhibits from flooding. Part of CRM theme issue on emergency preparedness.
- Robert W. Passfield. **Commemorating Historic Engineering Landmarks in Canada.** *ASCE International Engineering History and Heritage, Proceedings of Third National Congress, Houston, TX.* ASCE (Reston, VA), 2001, pp. 175-84. Canadian approach and guidelines developed for evaluating and commemorating historic engineering landmarks, and what has been done to date.
- **World Archaeology.** (Avail: Routledge, Taylor & Francis; 1-800-821-8312; www.tandf.co.uk). \$63/yr. Journal deals with archeology on a world-wide, multi-period basis, with occasional articles/theme issues of IA interest. Recent or forthcoming issues include: food technology in its social context, shipwrecks, the archeology of slaves and slavery.
- small horsecar and railroad car manufacturer, through its emergence as a world leader in trolley car and truck construction, to its demise in the mid. 20th c.
- Jane Fishman. **Railroad Boomer Would Like to See Downtown Savannah's Tracks Active Again.** *Savannah Morning News* (Oct. 31, 2001). Dave Lathrop, curator of Savannah's Historic Railroad Shops (tour site—1999 Annual Conference), hopes to put electric trolleys back on city streets.
- James Glanz. **The Hudson Tube: From 70's Relic, a Possible PATH Station.** *NY Times* (Nov. 13, 2001). Old Hudson & Manhattan RR station, abandoned since early 1970s, on the eastern edge of the World Trade Center site, could be reopened to replace the subway station crushed by the Sept. 11 disaster.
- Vern Glover. **The Deming, New Mexico, Depot.** *R&LHS Newsletter* 21,4 (Autumn 2001), p. 11. Preservation of depot where Santa Fe and Southern Pacific joined rails in 1881.
- Aaron Isaacs. **Birth of a New Museum?** *RMQ*, v. 21 (Summer 2001), pp. 2-6. Review of meeting to establish a South Shore Railroad museum commemorating history of interurban line between Chicago and northern Indiana.
- Aaron Isaacs. **Rebirth at the Cumbres & Toltec.** *RMQ*, v. 21 (Fall 2001), pp. 5-9. Recent efforts to keep the historic narrow-gauge steam railroad in Colorado and New Mexico operating.
- Robert LeMassena. **Additional Notes.** *R&LHS Newsletter* 21,3 (Summer 2001), pp. 3-5. Succinct account of factors affecting steam locomotive fuel consumption.
- Norris Pope. **Dickens's "The Signalman" and Information Problems in the Railway Age.** *T&C* (July 2001), pp. 436-461. A Dickens short-story is used as a touchstone for examining mid-19th-c. railway signalling technology and practice and public attitudes toward railroad safety.
- Elsie Voigt. **Diesel Engineers Remember ALCOs, FMs, EMDs, and GEs.** *R&LHS Newsletter* 21,4 (Autumn 2001), pp. 5-6. Engineers recall the handling qualities—their likes and dislikes—of a variety of locomotives.

WATER TRANSPORT

- Yudhijit Bhattacharjee. **Persian Canal Discovery Is Testament to Ancient Engineering Skills.** *NY Times* (Nov. 13, 2001). Archeologists have found a canal built by Xerxes in 480 B.C. through a rocky peninsula in northern Greece. Approximately 1.25 miles long, it was built for the galleys used in the Persian conquest of Greece. It was later abandoned, filled with sediment, and lost to history. Although

RAILROADS

- Debra Brill. **History of the J. G. Brill Co.** Indiana Univ. Pr. (1-800-842-6796), 2001. 272 pp., photos. \$44.95. Story of Philadelphia's J. G. Brill, from its establishment in 1868 as a

ancient Greek texts referenced the canal, some historians had doubted the canal's existence, arguing that construction would have been an impossible task for workers of that day.

- Charles W. Ebeling. **You Call That Damn Thing A Boat?** *I&T* (Fall 2001), pp. 24-27. History of the Whaleback freighter. Includes *S.S. Meteor* (tour site, 2000 Annual Conference—Duluth).
- Claire Peachey. **Field Conservation on the Housatonic and Hunley Shipwreck Excavations.** *CRM*, No. 6 (2001), pp. 8-10. Conservation techniques for working underwater, shipboard, and in cramped quarters while excavating Civil War shipwrecks in South Carolina coastal waters.
- Bill Trout. **The Upper James Atlas: Rediscovering River History in the Blue Ridge and Beyond.** Virginia Canals & Navigation Society (4066 Turnpike Rd., Lexington, VA 24450), 2001. 114 pp. \$20 ppd. 12th in a series of guidebooks to canals, mills, furnaces, batteau sluices, and other historic sites on Virginia's river system. See listing, www.batteau.org.

AUTOMOBILES & HIGHWAYS

- Gijs Mom and David Kirsch. **Technologies in Tension: Horses, Electric Trucks, and the Motorization of the American City.** *T&C* (July 2001), pp. 489-518. The initial success and eventual demise of the electric truck offers a window into the evolutionary process by which trucks gradually displaced horses.

BRIDGES

- **Canton Viaduct Web Site.** <http://members.home.net/thecantonviaduct>. Info on the 1835 stone-arch Canton (MA) Viaduct includes bibliography, links to related Web sites, gifts with images of viaduct. Prepared by Ed Costanza.
- Lilia d'Acres and Donald Luxton. **Lions Gate.** Talonbooks, 1999. 175 pp., illus. \$34.95. Vancouver, Canada's Lions Gate Bridge, completed in 1938. Innovative use of prefabricated strands for the suspension cables.
- Robert Hadlow. **Elegant Arches, Soaring Spans: C. B. McCullough, Oregon's Master Bridge Builder.** Oregon St. Univ. Pr. (<http://osu.orst.edu/dept/press>), 2001. 224 pp., illus. \$24.95.
- Robert W. Jackson. **Rails Across the Mississippi: A History of the St. Louis Bridge.** Univ. of Illinois Pr. (1-800-545-4703), 2001. 265 pp., illus. \$34.95. A fresh look at the 1874 Eads Bridge. Chronicles the grand dreams, shady politics, daring engineering experiments, greed, ambition, and westward expansion that fed into the successful construction of the world's first long-span steel arch bridge.
- William D. Middleton. **The Bridge at Quebec.** Indiana Univ. Pr. (1-800-842-6796), 2001. 216 pp., photos. \$39.95. Illustrated account of the long effort to build a bridge across the St. Lawrence, with particular emphasis on the 1907 collapse.
- Robert W. Passfield. **Construction of the Victoria Tubular Bridge.** *Canal History and Technology Proceedings, Vol. XX* (National Canal Museum, Easton PA), 2001, pp. 5-52. illus. Traces the design and construction of a 25-span, 6,592-ft.-long, tubular railway bridge, erected across the St. Lawrence at Montreal in 1856-60. The world's then-greatest bridge construction project was transformed from a costly failure into a triumph of construction engineering through innovative adaptations of steam power to speed construction and reduce manpower demands. Among the innovations were steam-powered dredges, pile drivers, traveling gantry cranes, barge jib-cranes, and centrifugal pumps; the introduction of a novel steam-powered trussed boom derrick, North American building technology (rock-filled timber crib caissons, staging construction of timber trestle bents, and wood Howe trusses), as well as "just-in-time" material delivery system and unconventional pay incentives for workers.
- Donald Sayenga. **Ellet and Roebling.** 2nd. ed. Canal History and Technology Press (30 Centre Sq., Easton, PA 18042; 610-559-6613), 2001. 71 pp., illus. paper \$15.70 ppd. Chronicles the lives and accomplishments of two mid-19th-c. engineering geniuses: Charles Ellet, Jr., and John A. Roebling, pioneers in the use of wire rope in bridge design. First published in 1983, revised second edition includes corrections, new pictures, captions, plus notes.

CONTRIBUTORS TO THIS ISSUE

Susan Appel, Champaign, IL; Paul Bartczak, New York, NY; Herman C. Brown, Grand Isle, VT; Arlene Collins, Houghton, MI; Ed Costanza, Chandler, AZ; Karin DuPaul, St. Paul, MN; Don Durfee, Houghton, MI; Betsy Fahlman, Tempe, AZ; Gray Fitzsimons, Lowell, MA; Tom Flagg, New York, NY; James Gilbeau, New Orleans, LA; Huntly Gill, New York, NY; Mary Habstritt, New York, NY; Bob Hadlow, Portland, OR; Neill Herring, Jesup, GA; Forest Holzapfel, Marlboro, VT; Elliot Hunt, Hoboken, NJ; Bob Kapsch, N. Potomac, MD; Paul Lusignan, Washington, DC; Lee Maddex, Morgantown, WV; Christopher Marston, Washington, DC; Pat Martin, Houghton, MI; Lance Metz, Easton, PA; Carol Poh Miller, Cleveland, OH; Larry Mishkar, Houghton, MI; James C. Owens, Pittsford, NY; Vance Packard, Thornhurst, PA; Robert Passfield, Ottawa, ON; Bierce Riley, Morristown, NJ; Justin Spivey, Brooklyn, NY; Jim Stewart, Churchville, NY; Robert Talbot, ID; Bill Trout, Richmond, VA; Robert Vogel, Washington, DC.

With Thanks.

BUILDINGS & STRUCTURES

- Kathryn Bishop Eckert. **The Sandstone Architecture of the Lake Superior Region.** Wayne State Univ. Pr., 2000. 324 pp., illus. \$39.95. History of quarrying operations and Lake Superior sandstone architecture in Marquette, Michigan's copper country, the Chequamegon Bay area, and Duluth-Superior. Rev: VAN (Fall 2001), pp. 27-28.
- Margaret Heilbrun. **Inventing the Skyline: The Architecture of Cass Gilbert.** Columbia Univ. Pr., 2000. 312 pp., illus. \$50. Architect of Manhattan's Woolworth Building and the Minnesota State Capitol. Examines the creative process of design and the practical aspects of managing a large architectural practice through the archival drawings and records of Gilbert's office. Rev: VAN (Fall 2001), pp. 34-35.
- Sally McMurry and Annmarie Adams, eds. **People, Power, Places: Perspectives in Vernacular Architecture VIII.** Univ. of Tenn. Pr., 2000. 295 pp., illus., \$30. Articles from papers presented at 1996/1997 Vernacular Architecture Forum conferences. Of IA interest: origins of balloon framing in Midwest farmhouses; adaptive reuse of trolley cars for cottages;

workers' housing in Milwaukee; manufacturing spaces at the Massachusetts State Prison; housing for working women at the Eleanor Clubs in Chicago. Rev: VAN (Fall 2001), pp. 28-29.

POWER GENERATION

- T. Lindsay Baker, ed. **Windmillers' Gazette**. Quarterly. Avail: Box 507, Rio Vista, TX 76093. www.windmillersgazette.com. \$20/yr. Dedicated to the preservation of America's wind-power history and heritage. Vol. 20,4 (Autumn 2001) includes *The Railroad Eclipse Copies* (windmills patterned after Eclipse Co.'s large-diameter windmills for pumping boiler water for steam locomotives).
- Raoul Drapeau. **Pipe Dream**. *I&T* (Winter 2002), pp. 24-35. Building the Canol pipeline through the Yukon's arctic wilderness during WWII. Designed to supply the U.S.'s armed forces in Alaska with a reliable source of fuel, the line operated for only a short period and then was shut down because of high costs and engineering difficulties.
- David G. Edwards. **Historical Gazetteer and Bibliography of By-Product Coking Plants in the United Kingdom**. Merton Priory Press (Cardiff), 2001. 80 pp., illus. £12.50. Rev: *IAR* 118 (Autumn 2001), p. 18.
- Andy Fahrenwald. **Knight Foundry Water Dimensions**. *The Knight Club Noon Whistle*, No. 2 (Nov. 2001), pp. 4-7. Waterpower development and the Knight Wheel (impulse turbine) at the Knight Foundry, Sutter Creek, CA (tour site, 1996 Annual Conference—Sacramento), the last waterpowered iron foundry in the U.S. *The Noon Whistle* is the newsletter of the revitalized project to preserve the foundry, which is currently raising funds to match a \$570,000 grant from the Save America's Treasures program. Annual sponsorship in the Knight Club begins at \$18.72/yr. (Knight Foundry was established in 1872). Info: Box 1776, Sutter Creek, CA 95685; (209) 267-0201.

Historic John J. Harvey Served at World Trade Center Disaster

In recent years, the *John J. Harvey*, a New York City fire tug launched in 1931 but now retired, has hosted several SIA Roebling Chapter events. The dedicated group of volunteers who have preserved the tug went beyond the call of duty on Sept. 11 when they spontaneously met at Pier 63 and took her south to help at the World Trade Center. They joined tugs and ferries evacuating a trapped crowd from the seawall near the Battery, taking some 150 people north to Pier 40. En route, the fire department radioed a request that the boat tie up adjacent to the disaster site to provide pumping capacity, as hydrants were not working. The *John J. Harvey* joined FDNY boats *Fire Fighter* and *McKean* to provide the only water available at the site for more than three days. Among the volunteers serving on the *John J. Harvey* were Chase Welles, Tim Ivory, Tomas Cavallaro, Andrew Furber, and Huntley Gill. Supporters of the *John J. Harvey* should be proud that this great old lady was preserved and available to work for New York City during the crisis.

Huntley Gill

- Angela Starita. **Razed or Praised?** *NY Times* (Dec. 2, 2001), NJ Sec., p. 6. NJ City Landmarks Conservancy efforts to preserve the Hudson & Manhattan Powerhouse (*SIAN*, Fall 2000).

MINES & MINING

- Tony Brooks. **Castle-an-Dinas, 1916-1957**. Cornish Hillside Pub. (St. Austell), 2001. 146 pp., illus. £11.99. Tungsten ore mines in Cornwall. Rev: *IA News* 118 (Autumn 2001), p. 19.
- Andrew Mcleish. **The Foxfield Railway and Colliery Project**. *IA News* 118 (Autumn 2001), pp. 6-7. Restoration at Dilhorne, N. Staffordshire, U.K.
- Michael Messenger. **Caradon and Looe**. Twelveheads Press (Truro, U.K.), 2001. 168 pp., illus. £ 26.00. Tin and copper mines, associated railways and canal, in Cornwall. Rev: *IA News* 118 (Autumn 2001), p. 18.
- Walter Weart. **Mine Tram: Colorado's Overlooked Electric Railroad**. *Railfan & Railroad* (July 2000), pp. 6-8. Henderson molybdenum mine, part of Phelps Dodge Co., operated 14-mile electric railway with 9.8-mile tunnel to transport ore from underground mine to processing mill. Railway built in 1970 was replaced by the world's longest conveyor belt system in 1999.
- Dail W. Woodland. **The First Domino? LTV Closes Hoyt Lakes Mine**. *Railfan & Railroad* (May 2001), pp. 6-9. LTV taconite plant and ore railroad close (tour site, 2000 Annual Conference—Duluth).

TEXTILES

- Pam Belluck. **Anthrax Outbreak of '57 Felled Mill but Yielded Answers**. *NY Times* (Oct. 27, 2001), p. B8. In light of contemporary events, intriguing story of anthrax cases in Manchester, NH, Arms Textile Mill, where anthrax spread from the process of pulling wool and Afghanistanian (!) goat hair. Considered an occupational illness, more than 100 cases of anthrax were reported from 1941 to 1957. Four workers died in outbreak of 1957. When mill was demolished in 1970s, special care was taken to spray debris with chlorine and formaldehyde solutions and incinerate timbers and bury the bricks to prevent accidental spread of the disease.
- Douglas McCalla. **Textile Purchases by Some Ordinary Upper Canadians, 1808-1861**. *MHR* (Spring-Summer 2001), pp. 4-27. Accounts of village stores are analyzed for buying patterns of factory-made textiles.

COMMUNICATION TECHNOLOGY

- Sungook Hong. **Wireless: From Marconi's Black-Box to the Audion**. MIT Press, 2001. 272 pp., illus. \$34.95. Early days of wireless communication, including Guglielmo Marconi, Ambrose Fleming, Nevil Maskelyne.

IRON & STEEL

- F. Habashi. **History of Iron on Postage Stamps**. *Iron & Steelmaker Magazine* (Sept. 2001). Postage stamps from various countries are used to tell the history of ironmaking from ancient times to the present. www.issource.org/magazine/web/0109/habashi/habashi-0109.htm. Web site also contains links to the Iron & Steelmaking Society and indexes its magazine, which focuses on current issues in the industry.

CHEMICAL INDUSTRY

- Fred Aftalion. **A History of the International Chemical Industry.** 2nd ed. Chemical Heritage Foundation (1-888-224-6006 ext. 222), 2001. 436 pp., illus., \$19.95. Integrates the story of chemical science with that of the chemical industry. 2nd ed. includes events from 1990 to 2000 with case studies of diversified companies such as BASF, Dow, and Bayer.

TOOL INDUSTRY

- Dana M. Batory. **Vintage Woodworking Machinery: An Illustrated Guide to Four Manufacturers.** Astragal Press (Box 239, Mendham, NJ 07945; 866-543-3045). 145 pp., illus. \$21.95. Fay & Egan, Yates-American, Defiance, and Oliver. History of each manufacturer, with evolution of its product line.
- Kenneth L. Cope. **American Lathe Builders: 1810-1910.** Astragal Press (Box 239, Mendham, NJ 07945; 866-543-3045), c. 2001. 204 pp., illus., glossary. \$24.95. More than a thousand illustrations taken from catalogs and periodicals. Information on over 330 builders. This is very good!
- Robert Grimshaw. **Grimshaw on Saws.** Astragal Press (Box 239, Mendham, NJ 07945; 866-543-3045). 202 pp. \$19.95. Reprint. Written in 1880, this remains a definitive work, describing and illustrating all types of saws from handsaws to late-19th-c. power saws. Loaded with practical information on rake, saw setting, filing, and swaging. List of saw patents.
- Curt Wohleber. **Henry Phillips's Screw Invention.** *I&T* (Fall 2001), pp. 6-7. The history of the Phillips screw, patented 1936, that had advantages over standard slot screws for use with power tools and high-volume manufacturing. By 1940, virtually every American automaker had switched to Phillips screws.

LOGGING & LUMBERING

- Ralph W. Andrews. **This Was Sawmilling.** Astragal Press (Box 239, Mendham, NJ 07945; 866-543-3045). 176 pp., illus. \$25. Classic history of the sawmill industry in the Pacific Northwest. Also, **This Was Logging.** 157 pp., illus. \$14.95. Over 200 photos taken between 1890 and 1925 by Darius Kinsey depict logging during the heyday of the great Pacific Northwest woods.

MISC. INDUSTRIES

- David Osborn. **The Charles Burrell Museum, Thetford, Norfolk.** *IA News* 118 (Autumn 2001), pp. 4-5. English traction steam engine museum.

ABBREVIATIONS:

CRM	= Cultural Resource Management, published by the National Park Service
IA News	= Industrial Archaeology News (UK)
IAR	= Industrial Archaeology Review (UK)
I&T	= American Heritage of Invention & Technology
MHR	= Material History Review (Canada)
R&LHS	= Railway & Locomotive Historical Society Newsletter
RMQ	= Railway Museum Quarterly
T&C	= Technology & Culture: Quarterly of the Society for the History of Technology
VAN	= Vernacular Architecture Newsletter

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

CORNWALL (continued from page 5)

night near the airport. The next morning, back at Newark Airport, I was just lining up to board the flight to Rochester when someone said, "Look at the smoke from the Towers!" We all watched since our departure lounge had a clear view of lower Manhattan. We soon realized what was going to happen at the airport, so we went as fast as we could to the main lobby to try to get rental cars or, failing that, hotel rooms. Of course, all the rental cars were taken, all the nearby hotels filled up immediately, all the buses and vans stopped running. By mid-afternoon, Barbara Freeman [SIA], who was also stranded and trying to get to El Paso, and I had found rooms at a hotel in Englewood, NJ, near the George Washington Bridge. Thanks to a loud, tough policeman and an equally determined lady cab dispatcher there was no line jumping for cabs, the queue (which ran the length of the terminal) moved smoothly, and we were charged only the standard fare. Once we got away from the airport, I tried to take more photos from the cab and wondered why I couldn't see the towers—not realizing they had fallen. The next day, I was lucky to find one rental car available at Keyport, down on the Jersey Shore about an hour's drive (and \$130 cab ride) away, got the car, and drove home

to Rochester. Barbara managed to catch a train to Philadelphia, where she could stay with friends, but did not fly to El Paso and back home until the following Wednesday. Thankfully, all of the other study tour participants eventually made it home safe and sound as well.

James C. Owens

The following references are recommended for more information on Cornwall.

J. A. Buckley, *The Cornish Mining Industry*, Tor Mark Press, Redruth, 1992, and *Geevor Mine*, Cornwall County Council, 1993. Short but definitive booklets.

T. Goode, M. Holder, B. Leveridge, *West Cornwall: A Landscape for Leisure*, British Geological Survey, 1996. In spite of its name, this booklet is a fine source for geology and natural history, with some information on mining.

IA in Art

Forrest Holzapfel

Photographer Forrest Holzapfel is a newcomer to the field of industrial archeology. Working with a Deardorff view camera, his black-and-white images picture ruins of historic industrial structures, including lime kilns, iron furnaces, and old mill buildings in New England and the Hudson River Valley. As they deteriorate, the masonry of these once solid structures gradually is reabsorbed into the landscape. In addressing what he sees as “the residue of American history,” Holzapfel explores with his art the ironies of a nation that has been ever-hungry for the results of industrial progress yet demolishes the structures housing the industries that made it possible.

As he considered the steady disappearance of the artifacts of our industrial past, Holzapfel was inspired to produce a series of photographs. Entitled “Terrain: Remnants of Nineteenth Century Industry,” shown in a 1999 solo exhibition held in the Wilkinson Gallery at the Slater Mill Historic Site in Pawtucket, RI. A graduate of Bard College in Annandale-On-Hudson, NY, Holzapfel’s interests first intersected those of IA when he photographed the stone-lined depressions of house foundations, which led him to study



Forrest Holzapfel
Sharparoon Iron Furnace in Dover Plains, New York
1998

8 x 10" contact print
toned gelatin silver print



Forrest Holzapfel
Cotton Mill along the Walkill River, Rifton, New York
1997

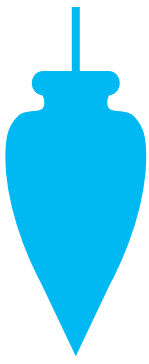
8 x 10" contact print
toned gelatin silver print

the nearby mill ruins where the former residents once worked. Intrigued by the history so palpably before him, images such as his print of cotton mills on the Walkill River, in Rifton, NY, convey the details of the ruins and their surrounding landscape. Holzapfel’s initial fascination with the mills deepened into a broader interest in industrial history, though his was by no means the classic IA perspective of a HAER documentation project. In his imaginative recording of these sites, Holzapfel remained keenly sensitive to the historical mood suggested to him by the ruins.

His first photograph series explored the lime kilns of the once busy Rosendale Cement Co., located in the vicinity of Kingston, NY, near the confluence of Rondout Creek and the Hudson River. Another series was focused on New York’s early iron industry, as in his photograph of the Sharparoon Iron Furnace in Dover Plains. Holzapfel clearly admires the skilled craftsmanship of the stone and brick furnaces, observing that “each furnace remains a distinct personality.” But without stabilization or restoration, he recognizes that the furnaces will inevitably continue to deteriorate. Holzapfel’s photographs have become part of the regional historical record, and they are in several collections, including the Hudson River Maritime Museum in Kingston, and the Ulster County and the Century House historical societies in Marbleton and Rosendale respectively.

Holzapfel’s project has been ongoing for several years. Sometimes a single image conveys what he wishes, while at other times it takes five or six photographs fully to describe the artist’s interpretation of the character of a site. He works slowly and under strict, self-imposed conditions, including taking pictures only when the light is flat to reveal the most information possible and when the trees are bare so as to give maximum attention to the structures in the scene. Strongly drawn toward that which is historic, the artist is, by his own description, “obsessed with the power of the photograph as document,” as he records buildings “that were once full of ener-

(continued on page 12)



2002 GENERAL TOOLS AWARD

Call for Nominations

The General Tools Award Committee invites SIA members to submit nominations for the 2002 Society for Industrial Archeology General Tools Award for Distinguished Service to Industrial Archeology. The award, presented annually at the SIA annual business meeting, recognizes individuals who have given sustained, distinguished service to the cause of industrial archeology.

Criteria for selection are as follows: (1) The recipient must have given noteworthy, beyond-the-call-of-duty service, over an extended period of time, to the cause of industrial archeology. (2) The type of service for which the recipient is recognized is unspecified, but *must be for other than academic publication*. (3) It is desirable but not required that the recipient be, or previously have been, a member of the SIA. (4) The award may be made only to living individuals. Teams, groups, agencies, firms, or any other collective entities are not eligible.

The nomination, which should not exceed three double-spaced typed pages, should address the specific accomplishments that qualify the nominee for the award. Supplementary material (the candidate's resume, for example) may be appended to the nomination. Nominations must also include the name, address, and telephone number(s) of the nominator. Nominations may be made by any SIA member in good standing.

The General Tools Award was established in 1992 through the generosity of Gerald Weinstein [SIA], chairman of the board of General Tools Manufacturing, Inc. of New York City, and the

Abraham and Lillian Rosenberg Foundation. The Rosenbergs founded General Hardware, the predecessor to General Tools. The award consists of a citation, a commissioned sculpture, and a \$1,000 cash award. Previous recipients are Emory Kemp (1993), Robert Vogel (1994), Edward Rutsch (1995), Patrick Malone (1996), Margot Gayle (1997), Helena Wright (1998), Vance Packard (1999), Eric DeLony (2000), and Robert Merriam (2001).

Nominations, *which must be received on or before April 1, 2002*, should be submitted to: Vance Packard, Chair, SIA General Tools Award Committee, Box 179a, HC 2, Thornhurst, PA 18424; (570) 472-3274; vpackard@att.net. ■

Thorwald Torgersen, 1931-2001

The SIA lost one of its former presidents with the passing of Thorwald "Thor" Torgersen on Aug. 5. Thor, known to many at the national level and to many more in the Roebling Chapter, had been in declining health in recent years suffering the effects of diabetes and a heart condition.

Thor graduated from Drew University in Madison, NJ, with a bachelors degree in theology in 1955. He earned his masters in theology from Temple University in 1958 and went on to serve 42 years as an ordained Methodist minister. He had a 30-year tenure at the Drakestown (NJ) United Methodist Church. He was also a certified science teacher in the Mt. Olive school system. Despite the many demands of his occupations, Thor found the time to be active in industrial archeology and historic preservation. For many years he co-taught a course on industrial archeology at the Cooper Union in New York City. Thor was a founding member of the Roebling Chapter and served as its president, responsible for helping to establish the chapter's tradition of an annual IA symposium at Drew University in 1980. As president of the national SIA in the mid 1980s, he was instrumental in planning for the Quebec conference, the Yukon study tour, and the development of an IA and history curriculum. Thor's enthusiasm and energy infected a great many others who developed or strengthened their interest in IA through their contact with him.

Thor actively participated in a number of other industrial and transportation history organizations. As a board member of the Hugh Moore Historical Park and Museums, Easton, PA, he played a prominent part in the planning and development of the National Canal Museum and Archives Center. One of Thor's greatest passions was the study of trolleys and the two-foot-gauge railroads of Maine. He was a strong supporter of the Seashore Trolley Museum at Kennebunkport and of the Wiscasset, Waterville & Farmington Railway Museum.

He is survived by his wife Janet, four children, seven grandchildren, and three great-grandchildren. Thor will be missed by many in the field of IA and beyond. The world is a poorer place for his passing.

Paul Bartzak & Lance Metz

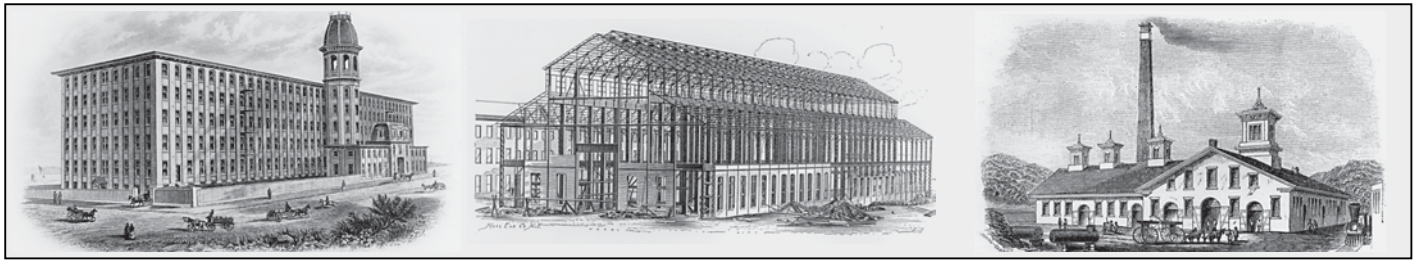
IA in Art *(continued from page 11)*

gy—intense heat, noise, and human toil.”

The Hudson River Valley sites Holzapfel has photographed have long been known to the SIA. While his images are not the rigorous scientific records of the specialist, they do represent a deeply-felt response to the historical resonances of significant sites and they convey valuable information. His “pleasure of ruins” (to borrow the title of Rose Macaulay’s classic 1953 volume) is of course far too romantic for the professional archeologist. But his handsome black-and-white photographs, steeped as they are in a youthful idealism, indelibly convey the sensibility to place and an admiration of structure many of us share in other ways. As the field of IA matures, we need to recognize that not everyone will engage it in the same manner, and Holzapfel’s subjective view, infused with cultural meaning, exemplifies the healthy diversity of the field. His distinctive vision blends precision with perception to enlarge our understanding of the importance of our industrial past: “I hope that entry into these photographs reveals both an experience and a mystery. These images attempt to honor the mythology of an American industrial memory and serve as a linkage between the past and present.”

Betsy Fahlman

Readers are encouraged to suggest essay ideas for the IA in Art column, or submit their own, to Betsy Fahlman, Professor of Art History, School of Art, Box 871505, Arizona State University, Temp, AZ 85287; fahlman@asu.edu.



IA IN THE NATIONAL REGISTER OF HISTORIC PLACES

COMPILED BY

Paul Lusignan, National Register of Historic Places, Washington, D.C.

Editor's Note: With this issue, "IA in the National Register," once a regular feature but long since lapsed, returns to the pages of SIAN. Special thanks go to Gray Fitzsimons [SIA] and Paul Lusignan of the National Park Service for reviving the column.

National Register Entries: May 1–Oct. 6, 2001:

ALASKA. Chicken Historic District, Eagle vicinity along Taylor Highway. Abandoned gold-mining camp from eastern Alaska's Fortymile Mining Dist. The camp consists of 15 modest wood-frame, log, and metal-sided buildings concentrated parallel to Chicken Creek. The buildings include bunkhouses, company stores, a school, roadhouse, and horse barn. Tailings and other mining debris surround the camp, which was operated from 1906 to 1967 under the ownership of John Powers and later the Fairbanks Exploration Co. The camp illustrates the transformation from a local supply center and social gathering spot to a company camp for a large-scale gold mining operation.

CALIFORNIA. Beringer Brothers-Los Hermanos Winery, Saint Helena. Historic Napa winery complex includes a three-story, stone and wood-frame Main Winery Building (1877, 1880, 1935), Distillery Building (1935), Export/Office Building (ca.1889, 1935), natural stone aging caves, and several residences built for the Beringer family and other winery staff. Representative of late-19th-c. family-operated enterprises in northern California's wine country, the complex is significant for its relatively large collection of integrated historic buildings.

COLORADO. Denver Tramway Powerhouse, Denver. Substantial, one-story industrial structure (1904, additions 1911, 1924) located along the South Platte River. Built of red brick with a steel-truss roof and exposed steel structural columns. The facility served as Denver's main streetcar-system power plant. (Formerly home to the Forney Transportation Museum; rehabilitated in 1998-2000 for commercial use, no original equipment.)

CONNECTICUT. Minortown Road Bridge, Waterbury. 64-ft.-long, wrought-iron, lenticular pony-truss bridge over Nonewaug River. The 1890, single-span, pin-connected bridge was fabricated by the Berlin Iron Bridge Co. Currently in service after a 1980s rehabilitation rendered the trusses non-load bearing and inserted a modern timber-beam structural system, the bridge is one of 17 such Berlin Co. lenticular bridges left in Connecticut.

New England Cement Company Kiln & Quarry, Woodbridge vicinity. Remains of a short-lived (1875-76) natural-cement manufacturing operation, includes partially collapsed rubblestone double kiln, quarry area, and other stone features and archeological remains.

Sheffield Street Bridge, Waterbury. 56-ft.-long, wrought-iron, lenticular pony-truss bridge over Hancock Brook. The 1884, single-span, pin-connected bridge was fabricated by the Berlin Iron Bridge Co.



National Register

Sheffield St. Bridge, Waterbury, CT.

Washington Avenue Bridge, Waterbury. 70-ft.-long, wrought-iron, lenticular pony-truss bridge over the Mad River. The 1881, five-panel, pin-connected bridge was fabricated by the Corrugated Metal Co. (later Berlin Iron Bridge). Currently in service after a 1982 rehabilitation rendered the trusses non-load bearing.

Wooster Sawmill and Gristmill Site, Oxford. The remains of this six-acre mill site include a breached rubblestone and earthen dam, a heavily remodeled mill building (now a residence), components of the original headrace gate, stone-lined head and tail races, and a stone arch bridge. The modernized L-shaped mill building retains portions of its small rubblestone wheel pit and turbine power system. Milling at this site began about 1747 and continued up to the 1960s. Archeological features may remain in addition to the extant above-ground features, reflecting the evolution of small-scale water-powered milling.

(continued on page 14)

Made in Auburn

Festival Celebrates Indiana's Automotive Industry

On Labor Day weekend, an estimated 300,000 visitors swelled the population of Auburn, IN, the self-proclaimed "Classic Car Capital of the World." The annual Auburn Cord Duesenberg (ACD) Festival is not only a gathering of classic car enthusiasts, but also entertainment for the general public. Furthermore, it is of IA interest as an economic engine for historic preservation in northeastern Indiana.

In 1956, the first ACD festival was a reunion of Auburn, Cord, and Duesenberg cars and their owners on the DeKalb County courthouse square. The event has since grown into a five-day celebration of motive power, including automobile, truck, and motorcycle parades, a classic car auction, and helicopter and bi-plane tours. In addition to boosting local tourism, the festival provides direct financial support to Auburn's two automotive museums.

The ACD Museum, established in 1974, recalls the American automotive industry's early decades, when the Eckhart brothers' Auburn Automobile Company was one of hundreds of individual manufacturers scattered around the country. E. L. Cord, who later purchased the Auburn company and the Duesenberg works in Indianapolis, is credited with the brief but remarkable success of all three makes. The ACD museum is housed in the Auburn company's fabulous Art Deco administration building, which "looks just as it did when they locked the doors in 1937," according to automotive historian Ben Shackelford. Exhibits celebrate visionary car designers, such as Gordon Buehrig, introduce famous owners of Auburn-built cars, and explain all aspects of production and consumption. Info: (219) 925-1444 or www.acdmuseum.org.

A second, younger museum, the National Automotive and Truck Museum of the United States (NATMUS), has a broader collection including both full-scale and model vehicles. NATMUS occupies several former manufacturing buildings of the Auburn plant. Info: (219) 925-9100.

Justin Spivey



Justin Spivey

The Art Deco administration building of the Auburn Automobile Co.

IA IN THE NATIONAL REGISTER *(continued from page 13)*

FLORIDA. Moore's Creek Bridge (Tickle Tummy Hill Bridge), Fort Pierce. Single-span, reinforced-concrete, deck arch bridge (1925) built by the Luten Bridge Co., Palatka. The vehicular bridge is 46 ft. long, including approaches. Rehabilitated in 1997, it is one of 15 extant concrete arch bridges dating from Florida's early 20th-c. land-boom era.

Nelson & Company Historic District, Oviedo. An eight-acre industrial complex containing a 12,000 sq.-ft. citrus packinghouse (1886) and fertilizer manufacturing plant (1947). An office building and assorted industrial outbuildings, including a 1915 water tank and tower complete the complex. Under the direction of Benjamin Franklin Wheeler, Nelson & Co. became a major regional citrus operation during the early 20th c., physically and economically dominating the small rural agricultural community of Oviedo.

R. W. Estes Celery Company Precooler Historic District, Oviedo. The 6.28-acre industrial site north of the downtown contains a wash house, crate room, precooler building, and loading dock associated with the celery growing and transshipment industry. The interconnected, one-story utilitarian industrial buildings (1950) are of concrete block

with gabled roofs and metal panel siding. Farm wagons and trucks would deliver freshly harvested celery from nearby fields to the wash house for cleaning and processing. Subsequent steps packed the celery into shipping crates and readied the pre-chilled celery (cold water baths) for transfer onto refrigerator cars on the adjacent Atlantic Coast Line sidings. The Oviedo complex was operated by the Estes Celery Co. and other firms from 1950 to 1989 and represents the last remaining Seminole Co. celery precooler plant. During the early 20th c. Seminole Co. was the leading producer of celery—"green gold"—in the U.S.

GEORGIA. Whittier Mills Historic District, Atlanta. Mill village and remains of the 40,000 sq. ft., 1895 Whittier Mills Cotton Co. Set on the south bank of the Chattahoochee River, the 30-acre site includes approximately 90 worker houses (duplexes and triplexes), superintendents' dwellings, a church (1942), and health center (1948). Above-ground mill remains include a three-story brick tower and storehouse. The Whittier Mills represented an expansion of a long-standing Lowell, MA, firm into the Atlanta area, reflecting the industrialization of the New South. The mill closed in 1971 and the industrial facilities were largely demolished in 1988. No extant machinery.

HAWAII. Hana Belt Road (Pi'ilani Hwy.), Makawao District to Hana District, Maui. Stretching 42 miles along Maui's northern, eastern, and southern coastlines, this road connected the isolated areas of eastern Maui with the more populated central and western island communities. Completed between 1920 and 1947, the narrow (16 to 22-ft. wide) road winds around 600 curves and over 59 bridges, including several lava-rock (basalt) masonry arch and reinforced-concrete arch, flat slab, and tee-beam spans. Completion of the initial segment of the road in 1925 provided the first overland automobile route for this isolated part of the island. Passing breath-taking waterfalls, deep valleys, and precipitous sea cliffs, the completion of the road, under the direction of Maui County engineers Hugh Howell and Paul Low, represented an extraordinary engineering achievement under less than optimal conditions.



Bridge on the Hana Belt Road, Maui.

IDAHO. Ninth Street Bridge, Boise. The two-span, pin-connected Pratt through-truss bridge (1911) crosses the Boise River south of downtown. The 322-ft.-long bridge features six-panel steel trusses, concrete abutments, and a central concrete pier. Rehabilitated for bike and pedestrian use in 1988. Bridge plates identify the structure as the work of the Missouri Valley Bridge & Iron Works Co., with LaPointe and Fox as consulting engineers. An excellent example of early-20th-c. steel bridge construction, the structure is one of only a few extant pin-connected bridges of its scale and one of eight multi-span Pratt truss bridges remaining in Idaho.

ILLINOIS. Moses King Brick & Tile Works, Colchester. A small regional brick works including four brick, coal-fired beehive kilns (ca. 1920-50), a 4,500 sq.-ft. brick factory with adjacent drying tunnels and sheds, company office, machine shop, and residence. Built between 1881 and 1950, the site was operated until ca.1968. Some original equipment on site; now used as artist studio space.

Sixth, Seventh & Tenth Street Stone Arch Bridges, Charleston. A series of three, single-arch limestone bridges built ca.1895 by local stonemason Alexander Briggs (1855-1924). Crossing the Town Branch of Cassell Creek, the finely crafted ashlar bridges, each 20-ft.-long, linked residential areas with the expanding commercial downtown, and represent an uncommon bridge type for east-central Illinois.

Warm Air Research Residence, Urbana. Modest Colonial Revival style house (1924) was the nation's first "education research house" funded by a professional trade association—the National Warm-Air Heating and Ventilating Assn. The property was the site of leading research into residential warm-air heating and cooling systems from 1924 to 1946 in association with the Univ. of Illinois at Urbana-

Champaign under engineering professor A. C. Willard. The building served as a full-scale lab for performance testing aimed at convincing the building industry of the value of warm-air heating and establishing design and installation standards.

INDIANA. Furnas Mill Bridge, Edinburg vicinity. 240-ft., two-span, pin-connected Pratt through-truss bridge crossing Sugar Creek in rural Johnson County. Built by the King Iron Bridge & Manufacturing Co., the spans rest on original rock-faced limestone block abutments with a central pier. The 1891 bridge is an excellent example of late-19th-c. Pratt through-truss bridge design by one of the era's most prolific bridgefirms. Approximately seven King bridges remain in Indiana.

Lake Ditch Bridge, Monrovia vicinity. The 61-ft. skewed steel plate-girder bridge (1895) over Lake Ditch is the oldest extant Chicago Bridge & Iron Co. span in the state. The bridge was likely built as a railroad span and later moved to the site ca.1926 where it remains one of the oldest plate-girder bridges in Indiana.

South Bend Brewing Assn., South Bend. Modest industrial complex consists of a four-story brewery (1905) and adjacent 2.5-story brick bottling house (1910) set alongside the former tracks of the New York Central on the west side of South Bend. Opened in 1905 by a company of German, Polish, and Hungarian tavern owners, the firm produced Tiger and Hoosier beer for regional consumption until operations ceased in 1950. It was one of three breweries in the Mishawaka-South Bend area and reflects a typical regional operation from the early 20th c.

Wilson Bridge, Delphi vicinity. 122-ft. long, pin-connected Pratt through-truss bridge crossing Deer Creek. Built by the Lafayette Bridge Co., the 16-ft. wide, 1898 bridge represents an increasingly rare example of Pratt through-truss design in northwestern Indiana.

KENTUCKY. Newport and Cincinnati Bridge (Louisville & Nashville RR Bridge), Ohio River between Newport, KY and Cincinnati. Unique multi-span bridge combining side-by-side highway, railroad, and pedestrian service. 2,760-ft. of total length includes brick barrel-vaulted approaches, steel deck-trusses, and five Parker through-truss spans. Completed in 1897 by the Edge Moor Bridge Co., Wilmington, DE, on limestone piers of an earlier (1872) Ohio River crossing, the bridge provided a strategic transportation link between the south (Kentucky coal fields) and the commercial hub of Cincinnati. Bridge engineer was M. J. Becker (L&N RR).

Saltpeter Cave, Olive Hill vicinity. Extensive limestone cave system once used for niter (saltpeter) mining operations in the Northern Cumberland Plateau mining area of Kentucky. Largely abandoned, the cave system features 3.05 km of passages, with archeological remains such as spoil piles and abandoned wood vats providing evidence of historic mining perhaps as early as 1810. The site is reported to have been used for gunpowder production during the War of 1812.

George T. Stagg Distillery, Frankfort. 50-acre industrial complex associated with bourbon production. Set alongside the Kentucky River, the site includes over 60 buildings, including a stillhouse (1936), mash house (1937), fermenting buildings (1881), warehouses (1881, 1884, 1907, 1937), residences (ca.1790, 1933, 1940s), and social clubhouse (1935). The firm, under the direction of Col. Albert B. Blanton, was one of the few distilleries to remain open during Prohibition for the production of "medicinal whiskies." Now operated as Buffalo Trace Distillery.

(continued on page 16)

(continued from page 15)



George T. Stagg Distillery, Franklin Co., KY.

MARYLAND. Coca-Cola Baltimore Branch Factory, Baltimore. Early 20th-c. industrial complex for cola syrup production. 9.4-acre site includes two-story, brick-faced reinforced-concrete syrup factory (1921), one-story brick sugar warehouse (1935), 2-story, brick steel-frame former mattress factory (1921, adapted 1930s), and a one-story cooperage (1921). One of seven Coca-Cola plants nationwide in 1921. No extant equipment.

J. C. Lore Oyster House, Solomons Island. Rectangular frame marine industrial building (1934) overlooking the Patuxent River. Operated from 1934 to 1978, the Lore property illustrates a substantially unaltered early 20th-c. seafood processing plant. The interior of the two-story building retains the functional division of space for receiving, shucking, processing, and packing along with much of its original processing equipment (shucking stands, conveyors, shuckers' blocks, buckets, blow tanks, skimmers, tally board, foot-operated and electric canning machines, cold rooms, and steam sterilization equipment). Pipe cranes and hoisting equipment along the bulkhead and quay sides of building allowed direct off-loading of oyster boats. The Lore firm, in operation along the Chesapeake Bay since 1922, was among the region's premier oystering operations, employing upwards of 50-100 (largely African-American) laborers and shuckers during its peak seasons. Now operated as part of the Calvert Marine Museum. Few fully equipped oyster houses of this age survive. Designated a National Historic Landmark, Aug. 2001.

Mount Vernon Mill No. 1, Baltimore. Textile mill complex set along Jones Falls in the Hampden area of Baltimore. Steam-powered cotton-duck mill includes three-story brick mill building (1873), two-story brick picker house (1873), two-story brick store house (ca.1881), and a reinforced concrete warehouse (1918). No extant machinery. Southernmost of a series of 19th-c. cotton mills in the Jones Falls Valley. Built by Horatio Gambrell, David Carroll, and William Hooper.

Nicodemus Mill Complex, Keedysville vicinity. 1810 stone farmhouse and adjacent ca.1829 grist mill ruins. Stone mill on Dog Creek (near Antietam National Battlefield) was built and operated by Valentine Nicodemus. No equipment.

MASSACHUSETTS. H. F. Barrows Mfg. Co. Building, N. Attleborough. Romanesque style industrial/office building (1905) located at the edge of the commercial downtown district, an important regional jewelry manufacturing center. The brick, L-shaped building features an office block flanked by one-story man-

ufacturing wings. A central, three-stage clock tower, with a 1907 Seth Thomas No. 15 clock (restored 1996) dominates the office's main corner entry. The well-preserved and architecturally distinctive complex served as the home of the locally significant watchcase and chain manufacturing firm founded by Henry Francis Barrows Sr. in 1851 and later operated by his sons and family. Operations moved in 1999.

MICHIGAN. Marantette Bridge, Over St. Joseph River, Mendon. Steel Pratt through-truss highway bridge with pin connections (1900). Single-span, eight-panel, 141-ft.-long bridge, fabricated by Massillion (OH) Bridge Co. Closed to traffic 1984. Rare surviving example of through-truss bridge in southwestern Michigan.

Marshall Avenue Bridge, Marshall. Three-span stone arch bridge crossing Rice Creek. The 25-ft. stone arches feature random ashlar facing with cut-stone voussoirs. The bridge was constructed in 1899 and substantially rehabilitated in 1996. It is a rare multi-span example of a stone-arch bridge in Michigan, where few are found.

NEW HAMPSHIRE. Piermont Bridge, NH Route 25 over Connecticut River, Grafton County. 352-ft., rivet-connected, steel Pennsylvania through-truss, erected by the Boston Bridge Works, in 1928. The original deck stringers, floor beams, and railing were replaced in a 1993 rehabilitation. The bridge is one of three Pennsylvania truss bridges in NH (all across the Connecticut) and is the longest single-span example.



Piermont Bridge, Grafton Co., NH.

NEW JERSEY. Weymouth Road Bridge, Hamilton Township. One-span, riveted, steel Warren pony-truss bridge built in 1920 across the Great Egg Harbor River, adjacent to sites of the Weymouth Iron Furnace & Forge (1801) and Weymouth & Atlantic paper mills (1866). Designed by county engineer Alexander H. Nelson and built by contractor Henry S. Kraus, it is one of three remaining pony truss bridges in Atlantic Co.

NEW YORK. Jenkins-DuBois Farm & Mill Site, Gardiner. 107-acre farmstead containing a ca.1793 stone farmhouse, 1865 barn, and the remains of a 1793 mill. Four generations of the Jenkins family operated a series of grist and saw mills on a site along the north side of Plattekill Creek until ca. 1925. Foundation ruins of the three-story mill and adjoining wheel house are still visible along with remains of an abandoned wood and stone dam and bridge crossing.

Modesty, W. Sayville. Long Island "South-Sider" shellfish dredging sloop (1923). Built at Greenport, NY, by the Wood & Chute Shipyard, the 36-ft. vessel features a wide, 12-ft. 2-in. beam and 2-ft. 8-in. draft ideally suited for dredging the shallow flats along the Long Island and Connecticut shores. Believed to be the last commercial sailing work boat on Long Island Sound, it is now docked in W. Sayville and maintained by the Long Island Maritime Museum. Oak and cedar structural elements with Douglas fir decking and pine mast. Gaff-rig sail plan. Restored 1975, relaunched 1980. "South-Siders" represent the particular vessel types built along the southern shore of Long Island, of which the *Modesty* is a rare, nearly unaltered example. She was operated as a scallop dredger from 1923 to ca.1936 by Theodore Haupt and later served as an oyster dredge out of Bridgeport, CT. Designated a National Historic Landmark, Aug. 7, 2001.

Rudolph Oyster House, West Sayville. Wood-frame marine industrial building built on wooden piers near the water's edge along Long Island's Great South Bay. Built 1908 by William Rudolph, the utilitarian building served as an oyster culling and shucking house until 1947. The Great South Bay area was once regarded as the most abundant oyster ground north of the Chesapeake, noted specifically for its "Blue Point" oysters. The Rudolph Oyster Co. (1895-1947), like many other Long Island firms, planted, cultivated, and harvested their own oyster beds along with managing their processing operations. Now maintained by the Long Island Maritime Museum. Designated a National Historic Landmark, Aug. 7, 2001.

Saratoga Gas, Electric Light & Power Company Complex, Saratoga Springs. Seven-acre parcel consisting of brick gasholder house (ca.1874) and brick electrical substation building (1903). The cylindrical 70-ft.diameter gasholder No. 2 is the only extant feature of Saratoga's original 1874 gas works. The structure features a wood-frame roof with slate shingles and six exterior buttresses. Original gas holder and guiding mechanism not extant. Archeological remains of historic retort building, purifying house, second gasholder, and metering system have been identified. The site served as Saratoga's primary power production and distribution facility from 1874 to 1928.

NORTH CAROLINA. Caraleigh Mills, Raleigh. Two-story brick Italianate-style textile mill (1892) with a raised stone foundation and monitor roof. Later construction includes two-story warping and beaming room (1900), furnace room and machine shop (1910), and warehouse (1919). Original equipment removed. Financed and organized by local businessman Alfred Augustus Thompson, the Caraleigh (Carolina and Raleigh) Mills were the largest of Raleigh's six textile manufactories, producing cotton and woolen sheet goods until 1956, when the property was purchased by the Fred Whitaker Co. and switched to nylon production. Closed in 1999. At its peak, the Caraleigh Mill employed 235 and operated 325 looms. Company-built housing exists nearby.

Carolina School Supply Co. Building, Charlotte. Three-story, brick-veneer industrial showroom and wholesale distribution warehouse in the W. Morehead industrial corridor. The rectangular 1927 building features heavy-timber mill construction with steel columns, flat roof, and large steel sash. It reflects Charlotte's increasing role as an important regional distribution center.

Daniel A. Tompkins Co. Machine Shop, Charlotte. Two-story brick factory complex (1904-1911), located in the Dilworth industrial area along the Southern Ry. corridor, includes attached machine shop, office, boiler house, and foundry. No historic equipment. The Daniel A. Tompkins Co., one of the earliest firms

in the Dilworth industrial corridor, produced textile machinery, supplies, and equipment for the textile mills of the New South. Tompkins was an active local industrialist, banker, and community booster responsible for substantial industrial investment and philanthropic (education) efforts.

Mor-Val Hosiery Mill, Denton. Small one-story, brick mill (1936) consists of a manufacturing block and office wing. No original machinery. Operated from 1936 to 1965 under the ownership of Autie Ray Morris and Norman Valentine Johnson, the mill is typical of the small-scale hosiery concerns in the Piedmont during the second quarter of the 20th c. By 1939, about 250 such mills were operating in North Carolina, four in Denton alone.

NORTH DAKOTA. Knife River Bridge, Stanton vicinity. Six-panel, pin-connected Pratt through-truss bridge built in 1898 by Dibley & Robinson Co.

OHIO. Cincinnati & Whitewater Canal Tunnel (Harrison Tunnel), between Cleves and North Bend. Brick-lined, 1,143-ft.-long tunnel (1837-1863) with cut sandstone portals. Originally 24-ft. wide and 20-ft. high (15 ft. above canal waterline), the tunnel is now heavily silted, restricting access. Three-course brick lining and iron rings for ropes to help guide canal boats are still intact. The tunnel extends beneath the natural ridge separating the Ohio and Great Miami rivers. A part of Ohio's 1,000-mile network of navigable canals constructed between 1825 and 1847, it was a product of the early 19th c. era of enthusiastic canal building. Municipally funded, this was the first canal tunnel in Ohio, and one of only nine in the U.S. (third longest). In later years, it was used by the C & I Railroad.



Cincinnati & Whitewater Canal Tunnel, Hamilton Co., OH.

(To be continued next issue)

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The Register is administered by the National Park Service, which is a bureau of the U.S. Department of the Interior. For more information on the Register, or to obtain copies of particular nominations, contact the Register archives at nr_reference@nps.gov, or by telephone at 202-343-9536, or visit the Web site at: <http://www.cr.nps.gov/nr/>.

SITES & STRUCTURES

Philadelphia's **Fairmount Waterworks** [tour site, 1990 Annual Conference] is scheduled to open to the public in early 2002 after more than 30 years of renovation. The waterworks' \$24-million physical restoration will soon be completed. The buildings have been repaired and sections adaptively reused to house a bistro and a museum. Opened in 1815, the Fairmount Waterworks was once considered the most advanced municipal water system in the nation. Its engine house, water pumping system, lovely neo-classical architecture, and landscaped grounds drew visitors from around the world. The waterworks stopped pumping in 1909; it was subsequently turned into an aquarium, which closed to the public in 1962. During the 1960s and 1970s, the loss of the waterworks was a real possibility, and restoration did not begin in earnest until the mid 1990s when the Fairmount Parks Commission began pressing for major contributions from charitable groups. Congratulations go to many SIA members who have participated in this success story (*Philadelphia Inquirer*, Sept. 2, 2001, Sect. H, www.philly.com). **NB, sadly, word comes at press that the engine house was severely damaged by fire in early Jan. The fire apparently began in the second story of the building near where new mechanical systems had been installed. The impact of the fire on the re-opening is being evaluated. See, http://dailynews.philly.com/content/daily_news/2002/01/02/local/WATRO2C.htm.**

Early in 2001, **LTV Steel** announced it would close the West Side steel mill, the historic Jones & Laughlin works, in Cleveland. The rolling mill was the last of the four sites toured as part of the 1986 Annual Conference in Cleveland to remain in operation. J&L (then Republic Steel, at which SIA toured the 84-in. hot-strip mill), the Euclid Lamp Plant, the C&P Ore Dock (with its four Hulett unloaders), and the Joseph & Feiss garment factory all, now, are history. LTV Steel has donated a large collection of slides, negatives, and photos of steel plants to the Western Reserve Historical Society. The bulk of the collection comes from Republic Steel and consists of tens of thousands of negatives and

slides covering nearly all aspects of steel production. Info on the collection can be found at www.wrhs.org/steel/clevelandsteel.htm.

The **Theodore Hamm Brewery** in St. Paul, MN, is the subject of a preservation initiative. Community leaders are seeking partners to find adaptive re-uses for the 25-acre, 50-building site. The brewery was established in 1865 and grew to become one of the largest breweries in the country. It stayed in the Hamm family for over 100 years. Eventually, it was bought out by Stroh, which closed the plant in 1997. Photos and info: www.DaytonBluffs.org (click on Hamm Brewery news) or Karin DuPaul, Friends of Swede Hollow, drg2@qwest.net.

The **Union Pacific Shops** in Omaha, NE, were demolished to make way for a convention center parking lot in Oct. The two shop buildings were built in 1905 and 1906. They were the last remnants of a 235-acre complex that had been established by the railroad in the early 1880s to build, repair, and maintain locomotives and cars. The UP began tearing down the complex in 1988 after building newer maintenance facilities in Arkansas and elsewhere (*Omaha World Herald*, Oct. 5, 2001, p. B1).

The Historic American Engineering Record (HAER) has been documenting the **Bronx River Parkway** in Westchester County, NY. The HAER recording team, supervised by Christopher Marston [SIA] and Tim Davis, received high praise in a press release from the county parks commission. The commission stated, "We are proud to be stewards of such an important historic landmark and are committed to its preservation. The parks department eagerly worked with the HAER team and will use their research to help shape future plans for the [parkway]." Completed in 1925, the parkway's design combined beauty, safety, and efficiency by reducing the number of dangerous intersections and surrounding motorists with a broad swath of landscaped greenery. These concepts were copied in other later New York parkways. ■

NOTES & QUERIES

Call for Papers: "The Technological Fix." The Hagley Museum and Library, Center for the History of Business, Technology, and Society, invites paper proposals for a conference, "The Technological Fix," Oct. 4-5, 2002. Papers will consider technology that has targeted 20th-century problems such as dishonesty, crime, pollution, waste, danger, disease, resource depletion, time pressures, crowding, and agricultural productivity. Papers may discuss technological fixes that have worked, failed, were never implemented, or efforts to solve problems that earlier technologies created. Proposals are due Feb. 15 and should include an abstract of no more than 500 words and a brief c.v. Funds may be available to support travel for conference speakers. Info: Roger Horowitz, Hagley Museum and Library, Box 3630, Wilmington, DE 19807; (302) 658-2400; fax 655-3188; rh@udel.edu.

The **Institute for the History of Technology and Industrial Archaeology** (IHTIA) at West Virginia University reports on a number of recent initiatives in its newsletter the *Review* (2001). IHTIA has undertaken a multi-year Kanawha Valley Chemical Industry Survey, which will trace the origins of the chemical industry in West Virginia from antebellum salt and cannel coal to the expansive growth of fertilizer, pesticide, industrial organics, and inorganics in the years following World War II. The Institute

is documenting the St. Nicholas Central Coal Breaker in Schuylkill County, PA, built in 1931-32, and one of four anthracite breakers still standing. In Summer 2001, IHTIA sponsored a summer field school documenting the ca. 1900 Fitzgerald Oil Rig, the 1910 Fairbanks Central Powerhouse, and the 1915 Baines Machine Shop [tour sites, 2000 Sarnia Fall Tour]. Info: www.as.wvu.edu/ihitia.

The **U.S. Capitol Historical Society Fellowships** offer support to graduate students and scholars wishing to propose research projects and publications on the art and architecture of the U.S. Capitol complex, including the Capitol, congressional office buildings, Library of Congress, Supreme Court, and the Botanic Garden. The fellowship is administered by the society and the Architect of the Capitol, which also can provide a list of suggested topics, including several with IA-related content, e.g., decorative glass made by the Gibson Glass Co. in the mid-19th-c., design and construction of various buildings, and history of lighting, electrification, heating, and air conditioning of the Capitol. Fellowships have been offered annually for the past 17 years. Deadline for fellowships beginning Sept. 2002 is Mar. 15. Info: Barbara Wolanin, Curator, Architect of the Capitol, Washington, D.C. 20515; (202) 228-1222; bwolanin@aoc.gov. ■

CHAPTER NEWS

Northern New England held its annual meeting in Proctor, VT, in Sept. The meeting followed a morning tour of the Vermont Marble Co. and the Carving Studio and Sculpture Center located in West Rutland. After the meeting, participants spent the afternoon at the Vermont Marble exhibit in the company's offices in Proctor. The afternoon program included an introduction to the past and present marble industry in Proctor, viewing a film on the company's history, and a visit with the resident sculptor.

Oliver Evans (Philadelphia) heard a presentation at its Nov. meeting by architectural historian Jonathan Farnum on "The Architect as Collaborator with the Engineer: Paul Cret and the Delaware River (now Ben Franklin) Bridge." Lance Metz offered a rare projection of William Rau's glass lantern slides of Philadelphia from 1880 to 1920 for the chapter's Dec. program. The slides are in the collection of the National Canal Museum (Easton, PA) and include views of the navy yard, railroads, operations of the U.S. mint, and other Philadelphia industries. The chapter's annual meeting (Jan. 25) featured a presentation by Rich Remer on "Early Industrialization of Kensington," home of such progenitors of American industry as William and Charles Cramp (shipbuilding), John Harrison (chemicals), Henry Disston and William Sellers (toolmakers), and John Hewson and John Bromley (textiles).

Samuel Knight (N. California) sponsored a maritime tour of Richmond and Marin in Sept. They visited the S.S. *Red Oak Victory*, a 1944 ammunition carrier, now a floating museum. The Rosie the Riveter Memorial at the site of the former Kaiser Shipyard No. 2 pays homage to the role women played during the war with a stainless-steel sculpture of a ship's hull under construction. The chapter's final stop was the U.S. Army Corps of Engineers San Francisco Bay Model research facility housed in a warehouse of the former Marinship Co. shipyard.

HABS/HAER Summer 2002 Jobs

The Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey (HABS/HAER/HALS), a division of the National Park Service, seeks applications from qualified individuals for summer employment documenting historic sites and structures of architectural, technological, and landscape significance throughout the country. Duties involve on-site fieldwork and preparation of historical reports and measured and interpretive drawings for the HABS/HAER Collection in the Library of Congress. Architects, historians, engineers, landscape architects, industrial designers, and industrial archeologists are invited to apply. Projects last approximately 12 weeks, beginning in May/June. Salaries range from \$4,500 to approximately \$8,500 for the summer, depending on job responsibility, project locality, and level of experience. For more information and to download application forms visit: www.cr.nps.gov/habshaer/joco/summerjobs.htm. Info: Summer Programs Administrator, HABS/HAER/HALS, National Park Service, 1849 C Street NW, NC 300, Washington, DC 20240; (202) 343-9626/9618; robbyn_brooks@nps.gov. ■

Southern New England toured hydroelectric facilities in the Deerfield River Valley of Massachusetts in Oct. The Deerfield No. 4 plant, dating to 1912, and the Harriman plant, dating to 1924, are operated by U.S. Generating New England, which graciously opened them to inspection and supplied participants with complimentary copies of the power company's corporate history, *From the Rivers*. The Hudson-Chester and Chester Granite quarries in the Berkshire Hills of western Massachusetts were the subjects of the chapter's Nov. tour. Chapter members had the opportunity to compare an abandoned historic granite quarry with a modern operating one. The Hudson-Chester quarry was opened in the 1870s and closed in 1947. It is one of the most intact historic quarry landscapes in Massachusetts, with a blacksmith shop, standing derrick, and experimental air-drill testing tunnel. The Chester Granite quarry, also opened in the 1870s, remains in operation, mainly supplying architectural stonework. The group toured the cutting and polishing operations. The chapter held its annual meeting in conjunction with the Nov. tour. ■

TICCIH Report (continued from page 6)

meetings and sharing information widely. There are plans for the Mining section to gear up some activity soon; I will circulate information when it is available.

Of particular interest to SIA members may be the announcement of the next TICCIH Congress, to be held in Russia in July 2003. The Congress will begin in Moscow, then move on to Nishny Tagil and Ekaterinburg in the Urals for an extensive tour of sites related to the iron and steel industry (including what is billed as the last operating Bessemer converter), an operating salt complex from the 19th century, and an impressive landscape with ancient churches and monasteries. The Congress will be sponsored by the Institute of the History of Material Culture in Ekaterinburg, housed in a series of 19th-century ironworks buildings, the location of an archives, exhibition hall, training and research center. Detailed plans for the Congress are being completed, and should be released by early 2002. We will provide links through the SIA Web site as soon as possible; meanwhile interested parties should contact the Congress Secretariat, Institute of History of Material Culture, Box 65, Ekaterinburg, B-109, Russia; e-mail: logunov@online.ural.ru.

In my opinion, TICCIH is an organization undergoing some flux and change. It has functioned as a committee for decades, a small in-group that had important influence via its membership. In the present and future, TICCIH is attempting to be more inclusive, with expanded individual memberships (see the Web site for information), a regular newsletter, and a journal published through Louis Bergeron in France. It remains to be seen how thorough and how successful this transition will be. Meanwhile, I think it is very important, for TICCIH, for SIA, and for the cause of industrial heritage preservation that we have a voice in this arena. For that reason, I intend to be an active advocate on your behalf.

Patrick Martin

CALENDAR

2002

Mar. 20-22: American Society for Environmental History Conference, Denver, CO. Conference theme is "producing and consuming natures." Info: www2.h-net.msu.edu/~environ.

Mar. 21: 21st Annual Canal History & Technology Symposium, Lafayette College, Easton, PA. Hosted by National Canal Museum, 30 Centre Sq., Easton, PA 18042; (610) 559-6613; www.canals.org.

Apr. 19-21: Annual Meeting of the Business History Conference, Hagley Museum and Library, Wilmington, DE. Conference theme is "corporate governance." Info: Hagley Center, Box 3630, Wilmington, DE 19807; (302) 658-2400.

Apr. 26-28: Ironmasters Conference, Athens, OH. See article elsewhere in this issue. Info: Lee Maddex (304) 293-3829; LMaddex@wvu.edu.

May 15-18: Vernacular Architecture Forum Annual Conference, Williamsburg, VA. Info: www.vernaculararchitecture.org.

June 6-9: Railway & Locomotive Historical Society Annual Meeting, Colorado Springs, CO. Tours and speakers. Info: Mike Walker, 2002 Rails in the Rockies, Box 62924, Colorado Springs, CO 80962; mike.walker@trw.com.

June 6-10: SIA 31st Annual Conference, Brooklyn, NY. Info: Mary Habstritt (212) 769-4946; mhabstritt@aol.com.

July 5-8: National Assn. of Mining History Organizations Conference, Univ. of Wales, Aberystwyth, Wales, UK. Theme: Application of Waterpower in Mining. Hosted by Welsh Mines Society. Tours and paper sessions. Info: www.namho.org or John Hine, Conf. Sec., The Grottage, 2 Cullis Lane, Mile End, Coleford, Glos. GL16 7QF, UK.

Oct. 17-20: SIA Fall Tour, Lehigh Valley, PA. Hosted by the National Canal Museum, Easton, PA. Info: Lance Metz, NCM, 30 Centre Sq., Easton PA 18042; (610) 559-6613.

Oct. 17-20: Society for the History of Technology Annual Meeting, Toronto, Ontario, Canada. Info: www.shot.jhu.edu. ■

NEWS OF MEMBERS

Robert Kapsch has been appointed the National Park Service Senior Scholar on Historic Architecture and Historic Engineering, a new position established to undertake scholarly publications and studies on architecture and historic engineering that relate to the park service's historic preservation mission. Among Bob's first projects will be a series of publications including *An Illustrated History of American Canals*; *A Construction History of the White House*; and *The Potomac Company*. Kapsch, who formerly he headed the National Park Service's HABS/HAER program, was elected to the SIA board of directors in 2001.

Robert Talbot passed away on July 12 and, sadly, was followed by his wife Winifred on Sept. 12. Both died of cancer. Their interest in IA predated SIA, beginning with the exploration of an

abandoned mill in New Hampshire in the mid 1960s. They joined the SIA in its early days and over the years attended numerous conferences, tours, and chapter field trips. Bob was born in 1920, graduated from Brooklyn Technical High School, and went on to Brooklyn Poly to study architecture. At the end of World War II, having served in a special naval unit repairing battle-damaged ships in Hawaii, he and Wini moved to New Hampshire. They practiced self-sufficiency in everything while raising five children on a hillside farm. Bob and Wini took the family on tours of factories and called them vacations. On one memorable vacation, the family toured Ft. Ticonderoga, the Champlain ferry, the Erie Canal, Gerber, Kodak, Corning, and saw the construction on the St. Lawrence Seaway. Bob and Wini's son, T. Robert Talbot, writes, "Thanks to the SIA and all its members who, over the years, provided welcome and friendship to Wini and Bob." ■

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

**SOCIETY FOR
INDUSTRIAL
ARCHEOLOGY**

Address Service Requested

Presorted Standard Mail
U.S. POSTAGE
PAID
Permit No. 110
Hopkins, MN