

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

Volume 10 Number 4

Fall 1981

THE S.S. TENNESSEE PROJECT: WEST COAST UNDERWATER ARCHEOLOGY YIELDS ANOTHER CLAIMANT FOR "OLDEST AMERICAN MARINE ENGINE" TITLE

Since Aug. of last year, National Park Service staff and volunteers at the Golden Gate National Recreation Area in San Francisco have been working to document the history and archeological remains of the gold rush side-wheel steamer *Tennessee*, which ran aground on the rugged Marin Co. coast north of the Golden Gate on Mar. 7, 1853. The 532 passengers, their baggage, the U.S. mail, much of the cargo, and 14 chests of gold were safely landed. The 5-year-old, 210-ft. long, 1250-ton ship with her massive 239-h.p. side-lever engine (built in N.Y. by the Novelty Iron Works) was a complete loss. The rough surf tore away the wheelhouse, toppled the stack, and smashed the hull, scattering wreckage throughout the small cove and beach which later took for itself the steamer's name.

It was the end of a brief but glorious career that had begun in Oct. 1848 when N.Y. master shipbuilder William Henry Webb launched the *Tennessee* to join her sister ship, the *Cherokee*, on the first steamship line between N.Y. and Savannah, Ga. The *Tennessee* made her first voyage the following Mar. A few months later, as demand for fast, reliable transportation on the Pacific developed as a result of the Calif. gold rush, N.Y. entrepreneur William Henry Aspinwall purchased the vessel for his Pacific Mail Steamship Co. line plying between Panama City and San Francisco. Sailing around Cape Horn in late 1849, the *Tennessee* arrived in Panama in Mar. 1850 to the enthusiastic cheers of hundreds of anxious argonauts awaiting passage to San Francisco. The steady stream of gold seekers landing on the Caribbean side of the Isthmus of Panama and hiking overland to the Pacific shore had created the "Panama Route," the major route to Calif. Pacific Mail operated several vessels between Panama and San Francisco; the *Tennessee* was the favorite because of its large size, generally palatable food, and speed.

Carrying the cargo, gold, and passengers that would create a new Calif. in the aftermath of the mad rush for gold, the *Tennessee* and her contemporaries performed a vital role in the development of Pacific Coast navigation and commerce. Her contribution came to an untimely end in 1853 when, in a thick fog, she missed the Golden Gate and crashed ashore, breaking

apart in a matter of days. Portions of her machinery could be seen at low tide through the years, and occasionally winter storms would strip the beach to reveal rusting engine parts.



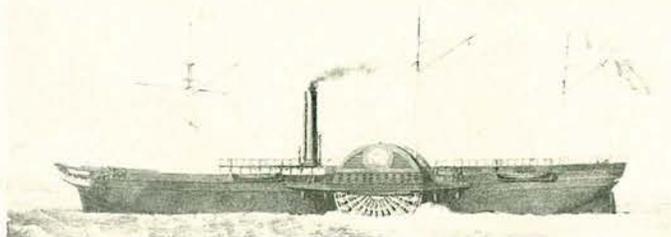
Crossrail of the S.S. *Tennessee* engine on the beach of Tennessee Cove, Marin Co., Calif. This is the only exposed member of the ship. National Park Service photograph by James P. Delgado.

In Aug. 1980, the National Park Service decided to see how much of the *Tennessee* survived. Working with a dedicated cadre of volunteer archeologists, divers, and scientists, the initial investigation revealed that in fact a great deal had survived: the bottom of the hull, broken and smashed beneath the sand and weighed down by the heavy cylinder and side-levers of the engine; the engine itself; and scattered remnants of cargo. Due to a small budget, work progressed on only a limited scale, but sufficient information was gathered to have the *Tennessee* listed in the National Register last spring.

Meanwhile, work continues with volunteers. Much remains to be done. The full extent of the remains still is not known, and plans call for a detailed underwater survey with electro-magnetic equipment and some limited excavation. A thorough documentation of the remains and an assessment of their condition and integrity are essential in order to evaluate future plans for salvage. Detailed research into the history and characteristics of the *Tennessee* is planned, with publication of the results and the preparation of professional and popular reports to better acquaint the public with an important part of its heritage.

Despite keen public and professional interest, severe funding problems exist. Project volunteers are seeking money to continue their research and are formulating plans to investigate two other recently located contemporary wrecks, the steamships *Winfield Scott* and *Independence*, as part of a comparative study. Financial and technical assistance is needed and welcome; readers are invited to contact the project at the Golden Gate National Recreation Area, Bldg. 201, Fort Mason, San Francisco, Calif. 94123. J.P.D.

Editor's Note: The Tennessee engine is a contemporary, to the year, of the Indiana engine recovered from Lake Superior off Crisp Point, Mich., in 1979 [SIAN Sept. 79:1].



The *Tennessee* in her prime. Copy of lithograph courtesy of National Maritime Museum, San Francisco.

OLD POSTCARDS: PERISCOPES ON THE PAST

On May 19, 1898, the U.S. Congress passed a law allowing picture postcards to be sent through the mails. Since that time millions of cards have been produced that record a multitude of local scenes, many of IA interest. With a little luck, it is still possible to get many good pre-World War I postcards in the \$.35-\$1.50 range and, given what these “periscopes on the past” can tell us about sites and structures that have long since disappeared, that’s a real bargain.

Perhaps the most remarkable thing about postcards made between 1900 and 1912, considered the “golden age” of postcards, is their incredible range of subject matter. Unlike modern postcards, which usually depict only major “landmarks,” old postcards show all kinds of sites and structures in even the smallest towns. Bridges, trains, depots, factories, waterworks, canals, mines, blast furnaces, hoists, and inclines are all subjects of old postcard views.

Before radio and television became a part of American life and before amateur photography had extended much beyond the upper middle class, postcards were perhaps *the* means of “seeing” the rest of the world. Many families kept postcard albums, as numerous cards with the message “Here’s another one for your collection” bear witness. People were anxious to share postcard views of their town with distant friends and relatives. These frequently depicted scenes of local industries or engineering structures. Views of mills and factories signified progress and prosperity, and even bridges were a source of special pride. A view of the American Waltham (Mass.) Watch Factory bears the simple message: “I go by here on my way to school, [signed] Harold.” Another card, from Cleveland, boasts, “Isn’t this pretty? There are the greatest lot of bridges here you ever saw.”

Probably the most common “IA” postcards show views of



This c. 1910 view of a Town lattice truss in Easthampton, Mass., is noteworthy because the bridge had been torn down more than ten years earlier. Even in 1910 covered bridges evoked feelings of nostalgia. *Raphael Tuck & Sons, publisher, collection of Donald C. Jackson.*



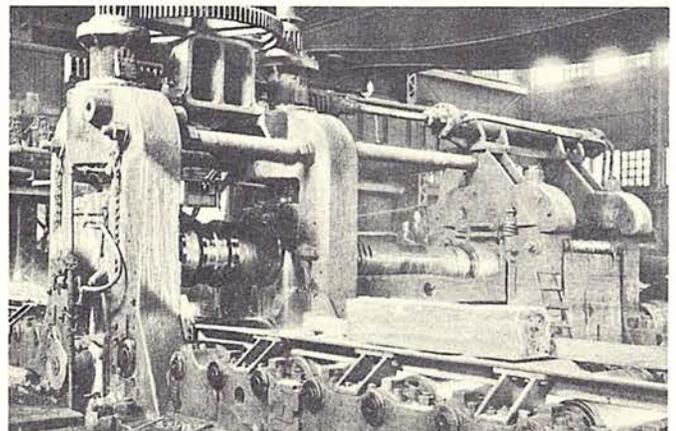
“Real-photo” postcard of Brattleboro, Vt., suspension bridge, postmarked Nov. 22, 1908. Magnification of the nameplate shows that it was built by the Berlin Iron Bridge Co. *Publisher unknown, collection of Donald C. Jackson.*

bridges or factory exteriors, although one finds occasional factory interior scenes as well. Municipal structures such as waterworks and dams were also commonly featured, as were transportation subjects. Local industries were often depicted, especially in regions where one industry dominated the local economy. For example, one can find many cards of anthracite coal mining operations in northeastern Pa.

The visual record of engineering and industry as depicted in postcards can often be valuable to the historian faced with a dearth of visual documentation. Even the messages sometimes contain valuable information, and there is no doubt that old postcards impart a “flavor” of the period that few other sources can match. Another advantage is that it is possible to collect and study postcards without access to a library, museum, or corporate archives (although libraries and museums often have collections of old postcards).

Among the most attractive features of postcards as historical documentation is the imprint of a dated postmark on those that actually were mailed. Such data can sometimes be useful in developing the chronological history of a site. Even if a postcard has not been mailed, it is often possible to estimate its date of manufacture. Prior to 1907, it was illegal for a message to be written on the same side as the address; thus, pre-1907 postcards usually carry the admonition “address only on this side.” After 1907, cards were printed with a “divided back” with a separate space for messages similar to the system in use today.

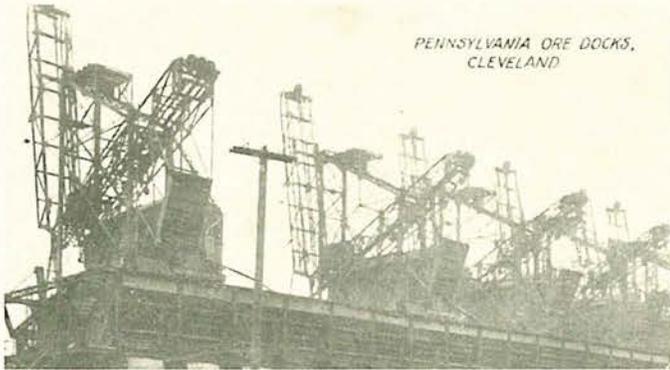
During the “golden era” many of the finest cards were printed in Germany. After America’s entry into World War I almost all U.S. cards were produced by American firms, and the graphic quality of these later views rarely equalled the older, imported cards. About 1915 the so-called “white border” postcard appeared, and in the early 1930s another, cheaper type of card



This card, c. 1905, shows the interior of an unidentified rolling mill. “Charlie,” the message reads, “this is the way it goes in.” *Publisher unknown, collection of Donald C. Jackson.*

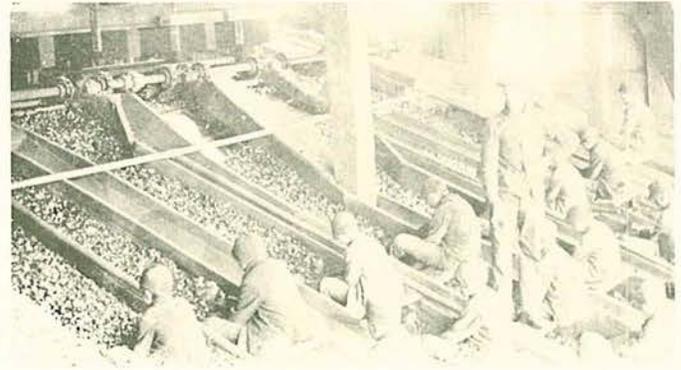


Bearing a 1912 postmark, this postcard of the testing room of the Consolidated Lamp & Glass Co., Coraopolis, Pa., shows a mostly female workforce. *The Pittsburgh News Co., publisher, collection of Carol Poh Miller.*



PENNSYLVANIA ORE DOCKS,
CLEVELAND

The McMyler ore unloaders shown in this view of the Pennsylvania Ore Dock in Cleveland, O., were superseded by the technologically superior Hulett unloaders in 1912, still in use today. This may well be the only view of the earlier machines at this dock. Although the card was never mailed, its undivided back indicates that it was published prior to 1907. *Publisher unknown, collection of Carol Poh Miller.*



This postcard of a screen room at a Wilkes Barre, Pa., anthracite coal breaker provides a fascinating glimpse of child labor. Postmarked Mar. 16, 1909, the card was used to announce the birth of a new baby boy; the choice of this card was rather ironic—or perhaps only prophetic. *Publisher unknown, collection of Donald C. Jackson.*

printed on stiff linen paper took over the market; “linens” remained in vogue until the early 1950s when photochrome cards (usually called “chromes”), based on color photographs, became the dominant type. Today almost all postcards are “chromes.”

The desirability (and hence cost) of a postcard depends on its age and condition, as well as on the particular view. Collectors with IA interests will quickly discover that certain cards, such as pre-World War I views of steam locomotives, airplanes, or dirigibles, can rarely be found for less than \$5, and that views of factory workers often carry premium prices. Cards advertising a particular company or product also are usually more expensive. Still, numerous cards priced below \$2 can be found that show interesting aspects of IA. New collectors will want to decide the particular type of cards that interest them according to location, subject, or age and then begin concentrating on building up their own collections. One collector we know specializes in diners and water towers.



The growth of the Las Animas, Colo., waterworks is evidenced by this view of the city's two water towers. Postmarked 1910, the card shows the original wooden tank at the right (similar to 19th-c. railroad water tanks) and the more modern six-column “classic tin man” of steel. *United Art Publishing Co., publisher, collection of Carol Dubie.*

Here are a few practical tips on postcard collecting: Old cards can be found in antique stores, at flea markets, and in junk shops. In addition, there are many dealers who concentrate solely on postcards, and in the long run they probably will be the best source for quality cards. Then, there are special “Postcard Shows” sponsored by local postcard clubs; these attract large numbers of dealers and are held throughout the country. Although card prices may be higher at these shows, one can visit a large number of dealers at one time. Finally, cards can be pur-



The tile works at Salineville, O., as it appeared in 1908, is here preserved in crisp photographic detail. *Publisher unknown, collection of Carol Poh Miller.*

chased by mail “on approval”; to do this, one writes directly to a dealer or places an advertisement in a postcard journal or newsletter specifying “wants.” *Deltiology* (Deltiologists of America, 10 Felton Ave., Ridley Park, Pa. 19078) and *American Postcard Journal* (Box 562, West Haven, Conn. 06516) are two periodicals that carry such classified ads, as well as general articles about postcard collecting. For the names of postcard dealers in your area, write: John McClintock, Editor, *Postcard Dealer*, Box 1765, Manassas, Va. 22110. Be sure to enclose a large self-addressed, stamped envelope. *D.C.J. & C.P.M.*

TESTING THE (IA) WATERS OF HAWAII

A recent (May 1981) effort to determine the degree of interest in IA in Hawaii brought results that bode well for its future in that outpost. In response to a Bishop Museum monthly calendar announcement that read “Brown Bag Seminar: ‘Industrial Archeology’ by Ms. Nan Sumner, Hawaii Loa College, featuring the film ‘Working Places’,” an SRO audience of sixty gathered. It was a most appreciative audience—including anthropologists, entomologists, geographers, and other curators on the museum staff—that launched a barrage of questions following the film. Names of other persons and groups in Hawaii that might be interested in IA were suggested, and many members of the audience mentioned sites of potential interest to IA buffs.

On another occasion, a similarly enthusiastic group of board members of the Hawaii Multi-Cultural Center in Honolulu saw the film and generated a dozen suggestions for group exploration of sites on Oahu. Robert Hughes, president of the Center’s board and president of the Hawaiian Sugar Planters Assn., pointed out that 1982 marks the centennial for HSPA and that there will be heightened interest in sugar-processing equipment research.

Ed Beechert, professor of economic history at the Univ. of Hawaii at Manoa (Honolulu), says that a HAER expedition recorded some sugar machinery [R.W. Meyer Sugar Mill, 1878] on Molokai about three years ago [Summer 1978]. There may be more sites worth recording, but much of the really early processing equipment has either succumbed to wartime scrap drives or was sold to Peru, Cuba, the Philippines, and other sugar producers when new types of equipment came along. Honolulu Iron, for example, once specialized in shipping whole second-hand sugar mills overseas.

Hawaii, with its strong ties to Asia and the Pacific Islands, might easily be made to serve the interests of international IA of the type Kenneth Hudson worries about—non-metal-based technologies of cultures that can be lost entirely when modern Western technologies are introduced. Some of the larger *heiaus* in Hawaii, for example, which are usually regarded as sites for religious observances, include not only living quarters for their former residents but sections devoted to cloth production and other communal industries. *N.S.*

MICHIGAN TRUSS BRIDGE RESTORED WITH FEDERAL FUNDS

After months of persistent efforts by legislators, municipal officials, and local citizens, the City of Allegan, Mich., will be allowed to use federal money to restore and upgrade its historic Second St. Bridge over the Kalamazoo River. The money will come from Mich.'s allotment of the Federal Highway Administration's (FHWA) Rural and Secondary Road Fund in an 80/10/10 percent match of federal, state, and city monies.

Fabricated in 1886 by the King Iron Bridge & Mfg. Co. of Cleveland, the wrought-iron bridge is among the last surviving King double-intersection Pratt through trusses. The bridge, 18 ft. wide and 225 ft. long, will carry one-way traffic out of Allegan's business district and serve as a "relief valve" during periods of peak traffic. The bridge is *not* part of a critical transportation corridor, and this is one reason that it is being restored rather than replaced.

Interest in upgrading the Second St. Bridge dates to 1978, when a preliminary engineering study recommended that it be limited to five-ton loadings because of the wooden deck's deteriorated condition. In 1979, the Wilkins & Wheaton Engineering Co. of Kalamazoo, Mich., undertook a full investigation of the span, including ultrasonic testing of the pin connections. They found that, except for the weakened deck and some corrosion in the vertical web members, the structure generally was sound. In concert with Allegan City Manager Joanne Wrench, Wilkins & Wheaton began building the case that a restored Second St. Bridge would be more than adequate for local traffic needs and that total replacement of the historic span was unnecessary. This "hard analysis" of Allegan's traffic situation eventually played a critical role in the decision to allow the use of federal funds for restoration of the one-way, one-lane bridge. In addition, Wilkins & Wheaton consulted with David Plowden, Robert M. Vogel, and Donald C. Jackson [all SIA] and received unanimous confirmation of the structure's historical significance.

Following the city's decision to pursue funding for restoration rather than replacement, there began a long series of meetings with state and federal legislators, the Mich. State Highway Dept., and the FHWA to determine how FHWA funds could be used for a bridge project that would *not* result in a structure meeting modern highway bridge standards. The city continually stressed that they did not need a new bridge and that, both economically and aesthetically, it was in the public interest to restore the existing span. Estimated cost of a new structure capable of carrying two-way traffic was \$1.2 million, while the cost of restoring the present bridge was \$437,000. The latter figure includes replacement of the floor beams, stringers, the wooden deck, vertical web members, and several bottom chord pins. Replacement of the verticals constitutes the greatest loss of historical integrity, but they will be replaced with visually similar members, and the structure will retain its original top chord, bottom chord, and diagonal members. Final approval of FHWA funding for the project was received in Jan. 1981, and restoration should be completed later this year. *G.E.J.*



The Second St. Bridge over the Kalamazoo R. in Allegan, Mich., will be restored with federal funds. *George Boyce photograph.*

historic bridges. However, such restoration work invariably fails to result in a structure meeting the FHWA's standards for modern bridges and, prior to approval of the Allegan project, they had refused to authorize any funds for rehabilitation projects that would not meet these standards. Since the FHWA standards usually require a minimum load capacity of 30 tons and a minimum width of approximately 30 ft., it is not surprising that almost all historic truss bridges must be totally replaced if a city or state desires federal assistance.

It appears that Allegan was successful in its efforts because of two major factors. First, their plans were based upon careful analysis of Allegan's transportation system and the role of the Second St. Bridge in this system. Secondly, the city government vigorously lobbied both the State Highway Dept. and the FHWA. By doing their "engineering homework" and by promoting the project politically, Allegan was able to save over \$700,000 of taxpayers' money.

The "catch" in the Allegan story is that the FHWA money is coming from its Rural and Secondary Road (RSR) funds, not the Bridge Replacement and Rehabilitation Program (BRRP). The BRRP is funded at \$1.3 billion for FY 1981 and is the source of FHWA funds for almost all bridge projects, except in Allegan. Why RSR instead of BRRP funds are being used in Allegan is unclear, but it may be that the FHWA did not wish to establish a precedent for spending BRRP funds on restoration projects. The FHWA interprets "rehabilitation" in a way that bears little resemblance to "repair" or "restoration"; rather, "rehabilitate," according to the FHWA, means "bring up to modern standards." In the case of Allegan's Second St. Bridge, they have not compromised their definition.

NEW TAX INCENTIVES FOR PRESERVATION

Preservation of historic American buildings has been boosted significantly by a tax credit for historical rehabilitation provided in the new Economic Recovery Act.

The new law provides a 25 percent investment tax credit for the cost of rehabilitating historic commercial and industrial buildings, and residential buildings that are for rental. Buildings that qualify are those listed individually in the National Register, and those located in registered historic districts if they are certified as contributing to the significance of the district. Registered historic districts include those in the Register and those that are state or locally designated, if the ordinance or law authorizing or creating the district and the district itself are certified.

The new 25 percent tax credit replaces existing tax incentives that include a 5-year writeoff of rehabilitation expenses, or 10 percent investment tax credit (only on industrial or commercial properties), or accelerated depreciation of the rehabilitated historic property.

The existing certification process administered by the National Park Service will be used to identify eligible buildings and qualify their rehabilitation. To qualify for investment tax credit, buildings must be substantially rehabilitated and rehabilitation costs must equal \$5,000 or the initial cost of the building, whichever is greater.

According to Michael L. Ainslie, president of the National Trust for Historic Preservation, "Developers, landlords, Main St. merchants, and investors who have never been involved with historic buildings will be seeing them as major investment opportunities."

The new investment tax credit will be available for projects beginning Jan. 1, 1982; existing historic preservation tax incentives will be in effect through Dec. 1981.

Editor's Note: The approval of FHWA funds for a bridge restoration project (as opposed to replacement or rehabilitation) is welcome news to everyone interested in historic bridge preservation, since it offers the hope that other such projects can receive federal funding. In the past the FHWA has, at least officially, acknowledged their ability to fund projects that will upgrade

The SIA Newsletter is published with the support of the Program for the History of Science & Technology, Case Western Reserve University, Cleveland, Ohio.

MISC. SITES & STRUCTURES

Henry Ford's Highland Park factory [SIAN July 80:4], birthplace of mass production and spiritual cradle of the American automobile industry, will be sold to a group of land developers. The Ford Motor Co. announced the plan in Aug., saying, "It's a matter of economics." Highland Park's most recent use was as warehouse for old company files. The last vehicle was produced there in 1973. The plant, designed by Albert Kahn, was regarded as a "crystal palace" by Detroit newspapers at the time of its opening on New Year's Day, 1910. The revolutionary multistory building was designed to allow raw materials to be loaded in at the top floor and to flow downward. The introduction of the moving assembly line at Highland Park made the automobile affordable to the average American family.

Cityside, Inc., a citizens' group in Wilmington, Del., has launched project R.O.W. (Reclaim Our Waterfront). Aided by a grant from the National Trust for Historic Preservation, the group has made an inventory of waterfront property that includes information on its history and current condition. Cityside (P.O. Box 1775, Wilmington, 19899) hopes to attract developers who will take advantage of the city's maritime heritage and utilize existing historic buildings. It has published a brochure that discusses the history of **Wilmington's waterfront** and shows off a sampling sites with development potential. Wilmington, the state's largest city, lies at the confluence of the Brandywine and Christina rivers. The city was the site of the 1977 SIA Annual Conference [SIAN July 77:8-11].

Schrafft's Candy Co., which had been making chocolates, mints, and lollipops at its Charlestown, Mass., plant since 1928, suddenly ceased operations last Mar. Gulf & Western, the conglomerate that bought Schrafft's six years ago, gave the plant's 350 workers one week's notice. A month later the American Safety Razor Co. of Staunton, Va., came to the rescue. It purchased Schrafft's and announced that it would reopen the Charlestown plant, once the world's largest candy factory.

The **Old Croton Aqueduct** [HAER] winds its way along a 41-mi. underground course from the Croton Reservoir in Westchester Co. to N.Y.C. The red-brick tunnel, completed in 1842, was America's first aqueduct and the major source of fresh water for N.Y.C. In recognition of this historic engineering feat, the N.Y. State Dept. of Parks & Recreation has provided the village of Ossining with funds to clear and open a section of the aqueduct for public viewing. In May, during the Village Fair, 400 people descended into the tunnel on the first public tour. In addition, the Ossining Dept. of Community Development has opened a weir chamber—a structure housing a valve that enables workmen to stop the flow of water through the conduit—and has constructed a staircase down into the aqueduct. Prints and other historical materials will make up a small interpretive museum inside the aqueduct and weir chamber. The aqueduct has not been used by N.Y.C. since 1955, or by Westchester Co. since 1965.

In June, the *Manchester Guardian Weekly* reported that **Hammerwood Park house** in East Grinstead, Sussex, England, was rapidly deteriorating after having been purchased by the rock group Led Zeppelin in 1973 for a concert and then abandoned. What makes this particular house interesting is that it is one of two houses designed by Benjamin Latrobe prior to his departure for America in 1796 after the death of his first wife. In America he found renown as an architect and civil engineer ("arguably the greatest early 19th century architect in America", as the *Guardian* noted). Latrobe remarried in 1800. Of his two surviving sons, John Hazelehurst Boneval Latrobe became counsel to the B&O RR, and Benjamin Henry Latrobe became its chief engineer. The article mentions the efforts of "SAVE," a preservation group, to preserve this and other mansions and put them to beneficial use. A.R.C.

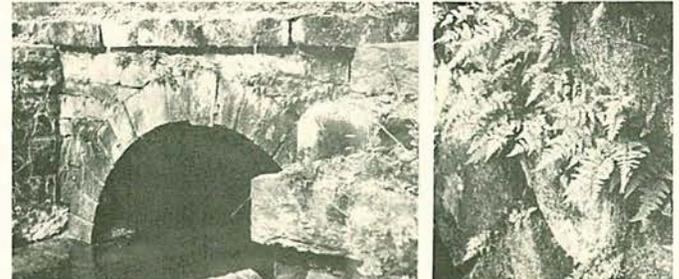
According to *Engineering News-Record* (June 11, 1981), the proposal to bridge the **Messina Strait** between mainland Italy and Sicily is again receiving serious attention. The least-costly proposal (\$2 billion!) is for a **suspension bridge** with a two-mile span. It would be twice as long as the Verrazano Narrows Bridge in N.Y.C. and would have towers 1,247 ft. high—2½ times higher than those of the Humber Bridge in England, currently the world's longest suspension bridge. If built, the breakthrough in span length would be reminiscent of the similar breakthrough achieved by the George Washington Bridge [HAER] in N.Y.C. in 1931, whose 3500-ft. main span was twice as long as that of any existing suspension bridge. A.R.C.

Clearly, there is far more to IA than was anticipated when we first all sat down to systematize it one long decade ago . . .

PONTAPHYTES AND OLD STONE BRIDGES

Should the second place winner ["What's Happening Here?," SIAN Jan./Mar. 79:3] decide to visit the old Conrail bridge over the Conestoga during his two-week vacation in Lancaster, he would find those lovely stone arches dotted with clumps of purple cliffbrake ferns. The bridge would be labeled a "Pellaea bridge" by a Millersville (Pa.) State College biology professor who is making a study of "pontaphytes" (plants that grow on bridges). Pellaea comes from the scientific name of purple cliffbrake (*Pellaea atropurpurea*), just about the only fern growing on the old railroad bridge.

A cursory examination of these attractive old masonry structures reveals that "each bridge has its fern," so to speak, and they may readily be identified as *Pellaea*, *Woodsia*, *Cystopteris*, or *Asplenium* bridges.* Where combinations do occur, one species is clearly dominant. Other ferns may grow on top, around the edges



Pontaphytes (*cystopteris fragilis*) on host, a small culvert beneath the Chesapeake & Ohio Canal in western Md. Kenneth G. Miller photographs.

or on the ledges, but the true pontaphytic ferns are those which arise from the mortar joints and may be the only form of plant life anywhere on the bridge. Their microscopic spores settle into the tiny cracks and fissures in the masonry between the stones where they find moisture and protection enabling them to develop and grow. The reasons for this apparent relationship is the subject of current research involving the complete ecology of these four species of pteridophytes (ferns). Old stone bridges, the older the better, with untouched mortar joints and walls either below grade or thick enough to retain internal moisture and lower temperatures, provide a uniquely favorable habitat for these four fern pontaphytes. K.G.M.

*Purple cliffbrake (*Pellaea atropurpurea*), blunt-lobed woodsia (*Woodsia obtusa*), fragile fern (*Cystopteris fragilis*), and ebony spleenwort (*Asplenium platyneuron*).

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SIA FALL TOUR: UPPER MICHIGAN'S COPPER COUNTRY

Getting there was half the fun! By various means of transportation, fifty IA enthusiasts straggled into Houghton, Mich., for the 1981 Fall Tour of the Lake Superior Copper District, held Oct. 8-11 and hosted by Mich. Technological Univ.'s Dept. of Social Sciences. The brilliant autumn colors of the Keweenaw Peninsula promptly revived the exhausted travelers as three-and-a-half days of wonderfully organized activities began.

Thurs. evening's reception turned smoothly into a lecture series on the history of the region from prehistoric times to the present. After the audience was solidly grounded in cultural geography, technology, economics, and social history, the films began. Historic footage of copper mining, milling, and smelting helped set the stage for the coming tours. No better prepared SIA group ever went forth to examine the physical remains of a great industry.

The first stop Fri. morning was at the surface ruins of the abandoned Cliff Mine, the earliest major enterprise (mid-1840s) of the "Copper Boom" that transformed the landscape of the Keweenaw. Next, we went underground at the Delaware Mine, walking down an inclined shaft to learn about stopes (steplike excavations formed by the removal of ore from around a mine shaft), drifts (horizontal passageways driven into or along the path of a vein or rock layer), and the hazards of work in a hard-rock mine. Bats hanging overhead added to the menacing ambience.



Charles Hyde holds class amid the ruins of a hoist house at the Delaware Mine. *Patrick E. Martin photographs.*

Back into the open and now all the way out on the northern end of the peninsula, we stopped for lunch at the Keweenaw Mountain Lodge, where we marvelled at the log architecture and at the size and delectability of Lake Superior trout. By mid-afternoon, after making our way southward, going up and down mountains and past many old mining towns, we were ready for the quick beers served up in the late-Victorian Shute's Bar in Calumet.

At another stop on Fri.'s schedule, we stayed in the shafthouse and watched a cage, or man car, go up and down the steep (72 degree) shaft of the Champion Mine. After examining the electric hoisting equipment, we visited the mine's old machine shop, now occupied by Northern Industrial Products. The firm manufactures heavy-duty wheeled vehicles for use underground. Car buffs were green with envy when they saw these welded steel monsters—no more fender benders with one of these during a morning commute!

One more excursion through a leaf-lovers' paradise brought us to the site of two dams in Redridge, one steel and one of timber cribbing, used to impound water for stamp mills. We returned to Houghton for dinner on our own, followed by an exhibition hosted by Theresa Spence in the fascinating Copper Country Archives at Mich. Tech. A reception at the home of Larry and Rachel Lankton ended a busy and exciting day.

Sat. belonged to the Quincy Mine [SIAN Jan. 80:4, Winter 81:9], whose enormous shaft-rockhouse had beckoned to us from

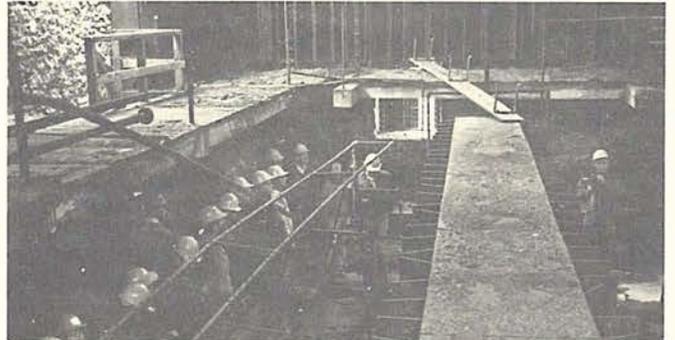


Standing atop a water-bailing skip at the Quincy Mine, Larry Lankton prepares part of the tour group for their climb up the shaft-rockhouse.

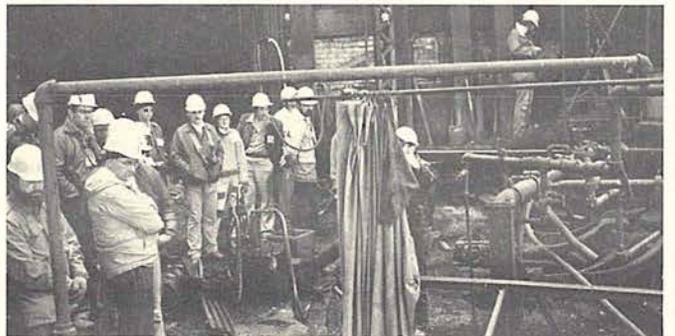
the bluff across Portage Lake since our arrival in Houghton. The subject of both a HAER survey (1978) and a book (forthcoming) by Larry Lankton and Charles Hyde [both SIA], the Quincy Mine (c. 1846-1945) was the second largest in the region and is now one of the most interesting IA sites in the U.S. We crossed the Houghton-Hancock double-deck lift bridge and rode up Quincy Hill past the mine agent's house, the company office, and examples of mail-order (Sears) company housing. The incredible complex of the Quincy Mining Co. was filled with simply too many artifacts and structures to examine in one trip, but our guides did a splendid job of pointing out the highlights and providing detailed commentary.

Here was something for everyone: miles of rail lines; two locomotives; three hoist houses; a "dry" house (or change house) complete with rusty lockers and discarded boots; a machine shop; a blacksmith shop, and more. The world's largest steam-powered hoist, built by Nordberg and in operation from 1920 to 1931, awed everyone. A climb to the operator's perch and a grasp of the controls gave many of us a new sense of industrial power. Nearby, though, was an even greater thrill: the 150-ft.-tall shaft-rockhouse.

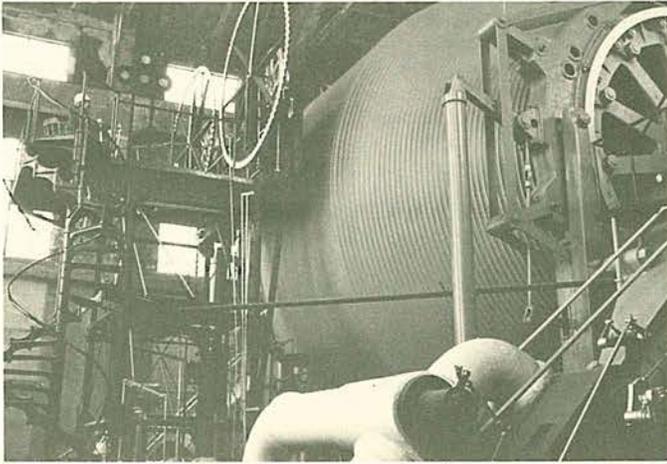
All the sorting, breaking, storage, and loading facilities were intact. The almost-vertical ladders leading to the top were less well-



"Dry," or change, house at the Quincy Mine, unused since 1945.



Here, tour participants learn that a maze of pipes and iron once was, in fact, a semi-automatic casting machine at the Quincy smelter.



SIA vice-president Pat Malone looks more diminutive than usual at the controls of the world's largest steam-powered hoist, located at Quincy's No. 2 shaft.

preserved, but adequate for those of us with no trace of vertigo. Decades of pigeon droppings made the climb a public health nightmare for the squeamish, but the true IA enthusiast laughs at such perils. Muttering, "press on regardless" to ourselves, we tried not to look down during the ascent to the lair of the pigeons and the head rope sheaves. Incredibly enough, the descent was even worse, but we all survived and were better for having made the trip.

We had seen the heights; next came the bowels of the Quincy Mine. Jim Robb of Mich. Tech's Mining Dept. took us into an adit (horizontal tunnel) now serving as Tech's mining laboratory. The adit driven into the hillside connected with the main Quincy works at the relatively shallow depth of 420 ft. below the top of Quincy Hill. The cavernous Quincy stopes that we examined had been opened in the mid-1860s. Before closing in 1945, Quincy worked its way to a depth of 9,200 ft., making it the deepest mine in the U.S.

Sat.'s lunch was a novelty for sure. We ate underground in a classroom hollowed out of solid rock. This was no meal for the claustrophobic, although authentic miners' grub—pasties (meat pies)—was a great cure for nervous stomachs. Our walk of nearly



Outside the Mich. Tech adit, the hungriest IA-ers raise their hands; they're volunteering to eat their Cornish pasty *first* and tour the rest of the underground *second!*



The unusually animated Larry Lankton explains how one-thousand tons of rock per day could slide through jaw crushers inside Quincy's No. 2 shaft-rockhouse.

a mile underground included a demonstration of machine drilling that shook us up a little and prepared us for the ultimate IA experience: an underground blast with sequential charges that shattered a solid rock face to a depth of nine ft. Opening our mouths to relieve pressure differentials, we heard the explosions and felt the successive shock waves rushing down the adit. Future tour organizers will have trouble topping this one!

Like the copper rock from the mine, we had a few more processes to see. We traveled to the ruins of several stamp mills on Torch Lake, where we saw the last steam-stamp in the district and a derelict dredge, half sunk in the water and last used for sucking up waste stamp sands for recycling at Quincy's reclamation plant. Back in Hancock, Louis Koepel opened up the old Quincy Smelter and told us of its operation.

A banquet in the faculty lounge at Mich. Tech on Sat. evening was another example of MTU hospitality. During the reception that followed, we were entertained by a local string band, Thimbleberry, which played mining and ethnic folk songs for a happy group congregated around an open bar.

Sat. night's post-banquet revelry was only a partial cause of our blurred vision on Sun. morning, because heavy fog had temporarily descended on the Keweenaw. Undaunted, we ventured to Calumet and took a walking tour of the remains of the largest mine in the region, the Calumet & Hecla [SIAN Nov. 72:2, Jan. 74:3]. Following the leads of Arnold Alanen and Kathryn Eckert [SIA], we also took a bus tour of workers' and managers' housing in Calumet and its "bedroom community" of



For a while on Sun. morning, dense fog obscured everything—even a massive smokestack—at the Calumet & Hecla Mine.

Laurium. We lunched at one of the region's many historic bar/restaurants, the Michigan House, toured the grand Calumet Theatre, and took to the sidewalks to explore Calumet's business district. The tour officially ended late Sun. afternoon, although many still-energetic souls accepted the invitation to go on their own to the Houghton Co. Historical Society Museum in Lake Linden, opened especially for our group.

Tour participants were all very grateful to the organizers and principal guides: Larry Lankton and Patrick Martin [SIA] of Mich. Tech and Charles Hyde of Wayne State Univ. Their knowledge of the Copper Country and their efficient orchestration of a "Superior" tour deserve the highest praise. *P.M.M.*

"WORKING PLACES" TRAVELS ABROAD

From Richard M. Candee [SIA] comes word that the SIA film "Working Places" is having an impact on the other side of the globe. Barnes Riznik of Lihue, Hawaii, traveled to New Zealand on a Fulbright scholarship last spring to survey historical museums and preservation activities there. He carried with him a copy of "Working Places" that Candee had supplied. "Wellington was clearly impressed," Candee writes in a note accompanying a clipping from the *Wellington Evening Post* of July 3, 1981. "How to Save 750 Wellington Buildings," by columnist David McGill, discusses the film and the potential for preservation and adaptive reuse in Wellington. McGill focuses attention on "750 unreinforced masonry commercial buildings which the council is requiring owners to strengthen or demolish," noting that unrealistic building codes drawn up before the advent of sprinkler systems present major obstacles to developers interested in the renovation and reuse of old buildings. He is hopeful, though, that the laws can be changed. "With a bit of imagination," McGill quotes a developer who viewed the film, "you could do a lot with those old warehouses on Jervois Quay."

MISC. NOTES

A TOUR of engineering and industrial landmarks in the United Kingdom, sponsored by the ASCE Committee on the History and Heritage of American Civil Engineering, will be held June 11-27, 1982. The tour will include sites in London, York, Ironbridge, Bristol, Bath, Edinburgh, and North Wales, among others. Information: Alan L. Prasuhn, Dept. of Civil Engineering, South Dakota State Univ., Brookings, S.D. 57007.

THE FOURTH ANNUAL CONFERENCE ON PUBLIC HISTORY, sponsored by the National Council on Public History, will be held in Chicago Apr. 22-24, 1982, at the Radisson-Chicago Hotel. Loyola Univ.'s Dept of History and the Public Works Historical Society will host the conference. The theme is "History and the Public." Formal and informal sessions will examine the relationship of history to public values, public interests, and public activities. Information: Ted Karamanski, Dept. of History, Loyola Univ., 820 N. Michigan, Chicago, Ill. 60611; (312) 670-3078.

OTHMAR AMMANN AND LONG-SPAN BRIDGE-BUILDING, an exhibition produced by the Swiss Federal Institute of Technology and the Technorama Schweiz (a museum in Winterthur), will begin a two-year U.S. tour this fall, just in time for the fiftieth anniversaries of two of the bridges he designed: the George Washington [HAER] and Bayonne bridges. Ammann (1879-1965) was a Swiss engineer who spent most of his working life in the U.S., designing long-span bridges. The exhibition documents Ammann's life and works and explores some of the engineering problems of long-span bridges. Ninety panels of photographs, graphics, and text are accompanied by a model illustrating the aerodynamic instability of long-span bridges and films showing the dramatic collapse of the Tacoma Bridge and the spinning of giant suspension cables. The exhibition is available for six-week bookings from the Assn. of Science-Technology Centers, 1016 16th St., NW, Washington, D.C. 20036; (202) 452-0655. Cost is \$700 (\$500 for ASTC members), plus shipping.

THE HISTORIC AMERICAN BUILDINGS SURVEY (HABS) of the National Architectural and Engineering Record (NAER), National Park Service, is preparing for its fiftieth anniversary celebration, to be held in 1982. HABS would like to update its alumni mailing list in time for the celebration and requests that HABS alumni send a postcard with their current address, the year they participated in the program, and the name of the project they worked on to: Carolyn Pitts, HABS, NAER, National Park Service, U.S. Dept. of the Interior, Washington, D.C. 20240.

ASCE WALL CALANDAR for 1982, featuring photographs and prints of thirteen National Historic Civil Engineering Landmarks, is available for \$5.95 from: American Society of Civil Engineers, 345 E. 47th St., N.Y.C. 10017. Add \$.50 for orders outside continental U.S. Discounts are available for quantity orders.

"BIKING THE BRASS CITY," a brochure prepared by the Mattatuck Museum in Waterbury, Conn. [SIAN Spring 81:5] will serve as a superb guide for those who visit the museum's new industrial history exhibit, "Metal, Minds, and Machines," and then wish to see some of the city's historic mill sites. It is available gratis from the museum, 119 W. Main St., Waterbury, 06702.

S.S. CHIEF WAWATAM, Mackinac Straits, Mich., last remaining hand-fired reciprocating steam-powered ship on the Great Lakes [SIAN Nov. 78:2], recently was the subject of two film makers, the Smithsonian Institution and the private concern of Heaver & Ruhl [SIA]. The former took extensive 16mm footage and is awaiting an angel of mercy to donate the necessary funds to develop it into a first-class film. The latter produced a 20-min. film on Super 8, with lots of technical shots down below. Sound was recorded separately and dubbed in. Copies are available for \$115 ppd. Information: Stephen Heaver, Jr., 500 Woodlawn Rd., Baltimore, Md. 21210.

THE EARLY AMERICAN INDUSTRIES ASSN. sponsors a Grants-in-Aid Program providing five annual grants up to \$1,000 each to individuals or institutions engaged in research or publication projects relating to the study of early American industries in homes, shops, farms, or on the sea. Winners of the 1981-1982 grants are: Alexander Farnham, Stockton, N.J., for a two-year study to identify N.J. toolmakers prior to 1900; Robert D. Mussey, Jr., Milton, Mass., for continuing research on the materials, methods, and tools of furniture finishing in New England from 1700 to 1820; Janine E. Skerry, Wilmington, Del., for a study of types of machinery used in silversmithing in 18th and 19th-c. America; Electa Kane Tritsch, Medfield, Mass., for a publication on Dedham, Mass.-area craftsmen and an exhibition on pre-industrial craft production; Nicholas P. Hardeman, Long Beach, Calif., for an examination of the technology of barrel making (cooperage) from the 17th c. to 1900. Information: Charles F. Hummel, Chairman, Grants-in-Aid Committee, Winterthur Museum, Winterthur, Del. 19735.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED, a new booklet published by the Advisory Council on Historic Preservation, presents in clear and readable form the up-to-date text of the NHPA, including amendments passed by Congress in Dec. 1980. Annotated. Single copies are available gratis from the Council, 1522 K St., NW, Rm. 430, Washington, D.C. 20005.

INTRODUCTION TO FEDERAL PROJECTS AND HISTORIC PRESERVATION LAW, a two-day training course designed by the Advisory Council on Historic Preservation, explains the Section 106 review process required by law for any federally-funded or -licensed project that affects historic or archeological properties. The 1982 training schedule is as follows: Jan. 14-15, July 19-20, and Sept. 13-14, Washington, D.C.; Apr. 19-20, Chicago; June 7-8, Denver. Cost is \$145. Information: Office of Personnel Management, Management Sciences Training Center, P.O. Box 7320, Washington, D.C. 20044; (202) 632-5600.

THE INTERNATIONAL CENTRE FOR THE STUDY OF THE PRESERVATION AND RESTORATION OF CULTURAL PROPERTY (ICCROM) in Rome, Italy, affords professionals with at least four years experience the opportunity to study Architectural Conservation, Conservation Science, and Mural Painting Conservation abroad. American applications must be submitted for review to the International Centre Committee no later than Jan. 15. Information: Executive Director, International Centre Committee, 1522 K St., N.W., Rm. 430, Washington, D.C. 20005.

PRESERVATION RESOURCE GROUP has entered into an agreement with ICCROM for exclusive North American distribution of its English-language publications. These fourteen technical booklets deal with such topics as historic district planning, museum lighting and security, conservation of waterlogged wood and wet leather, and photogrammetry and architectural conservation. *Porous Building Materials* by Giorgis Torraca, ICCROM's most recent publication, is a short course in building material technology with descriptions of relevant conservation practices. Write PRG, 5619 Southampton Dr., Springfield, Va. 22151, for a list of publications.

THE AMERICAN SOCIETY OF PHOTOGRAMMETRY recently established the U.S. Branch of the International Committee of Architectural Photogrammetry. The committee's activities are directed toward the advancement of architectural photogrammetry throughout the world. The committee assists in recording projects, conducts workshops and seminars, and maintains a listing of people interested in the field. Photogrammetry in many cases is the only tool that can accurately document an endangered site or object. Information: US-ICAP, P.O. Box 604705 (Uleta Branch), Miami, Fla. 33164.

IA IN MUSIC. *PACIFIC 231* by the Swiss-French composer Arthur Honneger (1923) has been recorded by the New York Philharmonic Orchestra conducted by Leonard Bernstein. It is

available on Columbia ML 6059. The inspiration was a French Pacific type locomotive with the first portion of its number given, indicating the wheel classification (in French practice, the *axles* are designated, not the wheels, hence, 2-3-1 rather than 4-6-2).

POSITIONS AVAILABLE

DIRECTOR, SLOSS FURNACE PROJECT, 32-acre National Historic Landmark with oldest hot-blast furnaces in the Birmingham (Ala.) District. Major urban artifact to be preserved and developed by City of Birmingham as museum of industry, local history, and related subjects. Challenging new position for person experienced in management, preservation, interpretation, program development, fund raising, and working with board and community organizations. Resume, salary history and requirements to: Jim H. Waters, Jr., 209 22nd St. N, Birmingham, Ala. 35203; (205) 254-2367.

DIRECTOR, ENGINEERIUM. Planning is under way for a proposed technical museum/science center that will deal with the technology and social impact of electrical energy. The "Engineerium" would be housed in a former generating station located at Niagara Falls, Ont. A director is sought to undertake portions of the project's planning study and to coordinate studies conducted by outside consultants. An appointment of 12-18 mos. is offered, with the possibility of a permanent appointment if the project is implemented. Submit resume, references, and salary requirements to: Chairman, Sandford Fleming Foundation Engineerium Committee, P.O. Box 816, Waterloo, Ont., N2J 4C2.

RESEARCH QUERIES

Information is sought on the C.S.S. *Georgia*, a Civil War ironclad. Constructed in Savannah in 1862, she was scuttled by her crew in Dec. 1864 to avoid capture by Sherman's troops. Now a hazard to navigation in Savannah Harbor, the vessel is being studied by the Army Corps of Engineers, which also seeks information on other ironclads and wooden ships of the Savannah Defense Squadron. July L. Wood, SASPD-E, U.S. Army Corps of Engineers, Savannah District, P.O. Box 889, Savannah, Ga. 31405; (912) 944-5840.

The Underground Technology Research Council, under the joint sponsorship of the American Society of Civil Engineers and the American Institute of Mining, Metallurgical and Petroleum Engineers, has formed a technical committee on the history of tunneling. The committee seeks photographs of tunneling technology from the early 19th c. to 1925. These materials will be incorporated into a pictorial history of American tunneling, tentatively to be published by the ASCE. Donald P. Richards, Committee Chairman, c/o Jenny Engineering Corp., 9458 W. Colfax Ave., Lakewood, Colo. 80215; (303) 232-2574.



Vt. Divn. of Historic Preservation photograph.

The artifact pictured above recently was found buried in the ground in the vicinity of several 19th-c. charcoal kilns in southwestern Vt. Can anyone hazard a guess as to what it is, or its probable/possible function? Giovanna Peebles, State Archeologist, Agency of Development and Community Affairs, Montpelier, Vt. 05602.

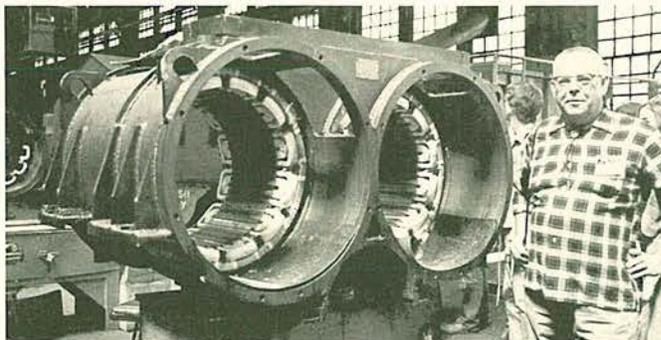
Information is sought on the C.L. Centlivre Brewing Co. of Fort Wayne, Ind. Does any portion of the brewery complex survive? Daniel D. Reiff, Art Dept., State Univ. College, Fredonia, N.Y. 14063.

The George Scripps Memorial Laboratory [NR] in La Jolla, Calif., incorporates interior sidewalk lights made by Waterhouse Price, then (1910) called "vault lights." To assist in the ongoing restoration of "Old Scripps," information is sought on the repair or replacement of chipped sections of sidewalk lights. Sally Spiess, 9450 La Jolla Shores Dr., La Jolla, Calif. 92037.

NEWS OF MEMBERS

With tremendous sadness we must report the death, from cancer, of **FIELD CURRY** on Sept. 11. Many of us knew Field as an avid, loyal member of the Society from almost the beginning, bringing with him not only a spirit of fellowship and friendship but a profound knowledge of nearly everything technological.

It was he who proposed and then nearly single-handedly organized and ran the unforgettable 1974 Annual Conference in Pittsburgh. That event set a standard for scope, interest, and good times that we have tried—not always with total success—to match ever since. For that occasion Field "invented" the concepts of the weekday process-tour adjacent to the conference weekend, the special Sat. evening dinner tour (in that case, the absolutely incomparable dusk boat trip past the steel mills and coke works along the Monongahela), and the "ethnic-lunch" element of the Sun. tour.



Field Curry with the field assembly of a GG1 electric locomotive traction motor, ex-Penna. RR shops, Wilmington, Del. SIA 1977 Annual Conference.

Field was by training an electrical engineer with the esoteric specialty of signal engineering. Most of his career was spent with the celebrated Union Switch & Signal Co., one of that galaxy of rock-solid firms organized by George Westinghouse toward the end of the 19th c. to develop and manufacture his family of devices aimed at improving railroad operational safety.

Field's other major interest was the early development of submarine telegraphy, no doubt at least initially inspired by his maternal relationship to Cyrus Field, promoter of the first Atlantic cables, from whom his given name was taken. Field was a major force in the preservation of the little cable terminal building at Orleans, on Cape Cod, one of the last to survive in the U.S., and its conversion several years ago into a museum of ocean cable technology [SIAN May 72:2].

Although Field's first love in the history of technology was signaling, closely followed by all aspects of electric power and wire communications, there seemed to be no area with which he was not conversant. His was an encyclopedic knowledge, but one that went far beyond the simple cataloging of facts. Above all, he had the strong sense of the important interrelationships that marks the mind of the real historian. It will be a source of eternal regret to his colleagues that, despite his vast store of information, an enviably lucid expository style, and an abiding willingness to share with the world his knowledge (much of which seemingly only he possessed), Field never took the opportunity formally to set down what he knew.

With his wife Ruth, all of us who knew Field will long feel his loss. *R.M.V.*

CHAPTER NEWS

EMORY KEMP, Director of the Program in the History of Science & Technology at W. Va. Univ., was awarded the American Society of Civil Engineers' 1981 Civil Engineering History & Heritage Award "for his dedication to the teaching and study of civil engineering history; the furtherance of the field of industrial archeology as applied to civil engineering; and the promotion of civil engineering activities in the field of historic preservation." Kemp, first editor of *IA*, actively participated in the scheme to preserve and restore the Wheeling Suspension Bridge (1849), salvaged the partially-burned Meems Bottom timber truss bridge by an innovative method of conserving and reinforcing the damaged members, and has directed many other preservation and restoration projects.

DAVID McCULLOUGH has been granted Honorary Membership by the ASCE, their highest honor, bestowed for special distinction in the field. McCullough is one of the few non-engineers to be so recognized. He was cited principally for his two enormously successful books, *The Great Bridge* and *The Path Between the Seas* (vivid accounts of the building of the Brooklyn Bridge and the Panama Canal), which the ASCE viewed as "contributing greatly to public recognition of the civil engineering profession."

LARRY D. LANKTON, formerly Historian of the Historic American Engineering Record, has assumed the position of Assoc. Prof. of Science, Technology and Society, Dept. of Social Sciences, Michigan Technological Univ. (Houghton, Mich. 49931).

JACK R. STOKVIS has been appointed General Deputy Asst. Secy. for Community Planning and Development, U.S. Dept. of Housing and Urban Development. Prior to his appointment at HUD, he was Director, Dept. of Planning and Grants, in East Orange, N.J. In his new position, Mr. Stokvis will have responsibility for the management and direction of all CPD programs, which include HUD's Community Development Block Grant and Urban Development Action Grant programs.

NICHOLAS WESTBROOK, curator of exhibits at the Minn. Historical Society in St. Paul, is one of two Americans to receive a 1981 Winston Churchill Traveling Fellowship from the English-Speaking Union of the U.S. Westbrook is presently in Great Britain studying significant accomplishments of British engineers (particularly 19th-c. suspension bridges) and the interpretation of industrial history in British museums.

VIRGINIA WESTBROOK, a consultant, is working with the public relations and design staffs of Republic Airlines to develop a corporate museum interpreting the many contributions employees have made to the company. Housed at Republic's corporate headquarters at the Minneapolis-St. Paul Intl. Airport, the museum will also deal with the histories of the "pre-merger" companines: North Central, Southern, and Hughes Air West.

SIA AFFAIRS

THE 1983 ANNUAL CONFERENCE will be held in the Twin Cities. The Minn. Historical Society in St. Paul has generously offered to host the event. Society employees Robert M. Frame III, Nicholas Westbrook, and John Wickre will serve as chief conference planners. They have proposed the dates of May 13-15 and would appreciate notification of any conflicts with other events.

SIAN NOTES. Deadline for receipt of copy for the Winter 1982 issue is Jan. 1; for the Spring issue, Apr. 1. Copy intended for publication should be typed *double space* with generous margins on either side and at the top and bottom of every page.

Beginning with this issue, "Publications of Interest" appears as a separate supplement to the *SIA Newsletter*.

CHICAGO. About a half dozen members are at work on an inventory of *IA* along the 25-mi. stretch of the Des Plaines River between Chicago and Joliet. This section includes two canals, numerous quarries, fifteen moveable bridges, a small hydroelectric plant and two large coal-powered plants, a good-sized steelworks about to celebrate its centennial by closing, and isolated pockets of wilderness. Last year, chapter members visited the freight tunnels under the Chicago Loop and printed a brief account of their construction, history, and present condition. This is a now largely abandoned system, about 60 mi. long, where electric trains once traveled 40 ft. below street level, linking the railroad stations and servicing downtown buildings. *D.B.*

ROEBLING. On Sept. 12, the first annual Roebling *IA* Symposium was held at Drew Univ. in Madison, N.J. Presentations were made by Abba Lichtenstein, who spoke on historic bridges and criteria for their preservation; Ed Rutsch, on the *IA* of New York Harbor; and Dave Peifer, who reviewed his work with Prof. Leedom Leifferts on an *IA* inventory of Warren and Sussex cos. (N.J.). A number of shorter presentations were also made on work-in-progress in the N.Y.-N.J. metropolitan area. On Sept. 26-27, the chapter sponsored an *IA* tour of Burlington Co. in South Jersey. On Sat., stops included the Batsto restoration, an 18th-c. bog-iron and glass-making site; Martha's Furnace, a bog-iron furnace site; Hog Wallow (blueberries); and a cranberry plantation, where some of the earliest sorting machinery (c. 1900) still in operation was viewed. On Sun., the group visited the restored Smithville Industrial Village near Mt. Holly and ended the day at the former Roebling Works in Roebling. Bill Bolger, until recently director of the Smithville restoration, organized and hosted the tour. The chapter's annual "beer and corn" fest was held on Sat., Aug. 22, at Charles Emmerich's farm in Randolph. The annual meeting will be held at ITT in Nutley, N.J., on Tues., Jan. 12, at 8:00 P.M. Information: Thorwald Torgerson, chapter president, (201) 852-8630.

NORTHERN NEW ENGLAND. The NNEC held its fall meeting on Sat., Oct. 3, in Gray, Maine. More than thirty members then toured the Royal River Brick Co. in North Yarmouth. Richard Hossman, owner and operator since 1977, introduced the group to the brickyard's history, then guided them through the complex as employees demonstrated each step of the manufacturing process. Royal River has been producing waterstruck brick since the turn of the century and is the oldest working brickyard in Maine, perhaps in New England. Bricks here are still made "the old way" and are much in demand for restoration projects throughout New England. In the business meeting, John Jordan was elected NNEC president; David Warden, program coordinator; Richard Borges, secretary. Christina Fonda was re-elected treasurer. The chapter voted to send a letter to SIA President Robert Vogel requesting that the SIA take an active stand in opposition to the rerouting of Hwy. 101 through the town of Harrisville, N.H. The spring chapter meeting will be held in Vt. at Ben Thresher's mill. *D.R.S.*

IA IN THE NATIONAL REGISTER

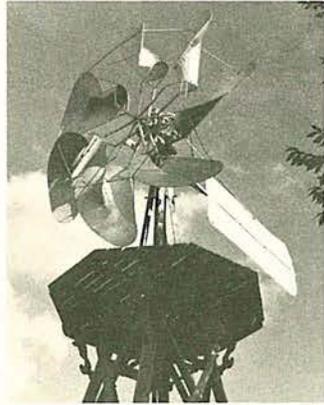
Compiled by Carol Dubie

National Register Listings, May 1 - Sept. 1, 1981:

ALABAMA. Blount Co. Covered Bridges. Three Town trusses: Swann CB, Cleveland vic., 1933, three spans; Nectar CB, Nectar vic., 1934, four spans; Easley CB, Oneonta vic., 1927, one span. Thirteen covered bridges are left in Ala., a state with a long tradition of wood-truss construction.

ARIZONA. Gillespie Dam Highway Bridge, Gila Bend vic. Nine-span steel through truss consisting of five 200-ft. and four 160-ft. riveted Parker spans. When completed in 1927, this was the longest bridge of any type in Ariz. and a major link in the state's

east-west transportation arteries. **Iron Turbine Windmill**, Prescott. Windmill, fabricated c. 1880 and erected in Ariz. Territory in 1885; moved to Sharlot Hall Historical Museum in 1973. Consisting of bucket-shaped blades of sheet iron on a wooden tower, the all-metal wheel construction was a significant advance in the evolution of the water-pumping windmill. **McPaul Suspension Bridge**, Dome vic. Built in 1928 by the Levy Construction Co. of Los Angeles to carry U.S. 95 across the Gila

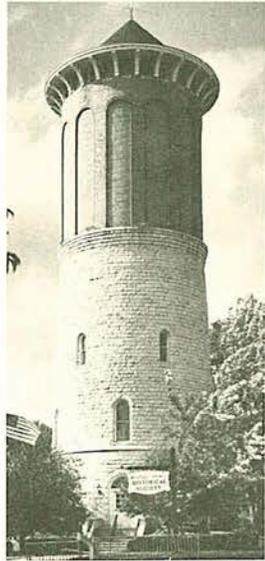


Iron Turbine Windmill, Prescott, Ariz., built by Mast-Foos, Springfield, O. T. L. Baker photograph.

R. The 798-ft. Warren pony truss is supported by cables from 70-ft. towers on reinforced-concrete piers. **Navajo Steel Arch Highway Bridge**, Lee's Ferry vic., 1928. This major bridge over the Colorado R. allowed the completion of U.S. 89 between Salt Lake City and Nogales, Ariz. The bridge was designed by R.A. Hoffman and constructed by Kansas City Structural Steel Co. **1931 Tempe Bridge**, Tempe. Ten-arch, open-spandrel bridge, 1577 ft. long, designed by Ralph Hoffman, bridge engineer for the State of Ariz.; significant example of concrete construction.

CALIFORNIA. Lower Blackburn Grade Bridge, Bridgeville vic. Reinforced-concrete arch bridge, 1925, consists of seven approach spans and one through-arch main span for a total length of 258 ft. Designed by John B. Leonard, promoter of concrete bridge construction in Calif. and author, with partner William Day, of *The Concrete Bridge: How It Has Proved Itself in California* (1912).

ILLINOIS. Stone Arch Bridge, Champaign. Random dolomite bridge with 7-½-ft. span, constructed c. 1860 as part of a rail line linking Urbana and W. Urbana for shipment of produce; deteriorated condition. **Western Springs Water Tower**, Western Springs. Brick and stone water tower supporting 169,000-gal. steel tank, built in 1892 as the first village water supply. Still functioning, the tower was designed by civil engineer Benezette Williams, who also designed the water and sewage system at Pullman, Ill., and the Chicago Ship & Sanitary Canal.



Western Springs (Ill.) Water Tower. Western Springs Historical Society photograph.

INDIANA. E. Laporte St. Footbridge, Plymouth. An early form of cantilever, 100 ft. long, this metal bridge is one of two built in 1898 by the Rochester Bridge Co. **Hursch Rd. Bridge**, Cedarville vic. Pin-connected, double-intersection Pratt truss built in 1879 by the Western Bridge Works, Ft. Wayne, Ind.; one of the three bridges of its type in Allen Co. **Richmond Gas Co. Bldg.**, Richmond. Two-story brick building, built in 1855 for coal-gas production. **Starr Piano Co. Warehouse and Administration Bldg.**, Richmond. Surviving elements (1872, c. 1900) of a brick factory complex significant in the city's early industrial history. The piano company was said to be one of the first manufacturers west of the Alleghenies; in 1915 the company expanded to include phonograph and record production. **Roann Covered Bridge**, Roann. 1877 Howe truss fabricated by the Smith Bridge Co., Toledo, O., 288 ft. long. The fourth bridge at this site since 1841, it is part of a historically important route from Rochester to Wabash Town.

MARYLAND. Western Maryland RR Right-of-Way, Milepost 126 to Milepost 160, Allegany and Washington cos., Md., and Morgan Co., W. Va. Includes numerous cuts and fills and 33 culverts, bridges, and tunnels of special note along its 34-mi. length.

MICHIGAN. Chapin Mine Steam Pumping Engine, Iron Mountain. Built to remove water from the Chapin Mine. Designed in 1890 by Edwin P. Reynolds of E. P. Allis Co., Milwaukee, the pumps (but not the engine) were patterned after similar ones used at tin and copper mines in Cornwall, England.

MINNESOTA. Smith Ave. High Bridge, St. Paul, 1889. This is one of the oldest extant major river crossings in the Twin Cities area as well as the longest (2700 ft.) 19th-c. bridge in the metropolitan area. It is a modified Warren deck truss of 28 spans carried on 27 bents. Constructed entirely of wrought iron, the bridge lost five spans in a windstorm in 1904; these were rebuilt in a similar configuration in steel. [Nomination prepared by Robert M. Frame III, SIA.]

NEW HAMPSHIRE. County Farm Bridge, Wilton. Semi-circular arch of cut granite set within a sloping stone causeway constructed of random-sized boulders. Built in 1885 by the Ward Bros. of Lowell, Mass., bridge contractors for the Boston & Lowell RR in southwestern N.H. [Prepared by Roger Brevoort, SIA.] **Hancock-Greenfield Bridge**, Greenfield. "Teco-Pratt" timber truss, 1937, unusual for its use of modern timber connections in an attempt to adapt the wooden truss to 20th-c. highway needs.

NEW MEXICO. New Mexico-Arizona Wool Warehouse, Albuquerque. Concrete and brick warehouse, 1928, symbolizing N.M.'s prominent position in American wool production from the civil War through the 1940s.

OREGON. Portland & Southwestern RR Tunnel, Columbia Co. 1712-ft. tunnel with timber post-and-rib reinforcement system, constructed 1910-1920, used until 1943. A unique survivor of the long semi-temporary RR tunnels built to facilitate logging and the transport of timber and rare example of timbered tunnel construction typical in the early 20th c.

TEXAS. San Antonio Waterworks Pumping Station #2, San Antonio. 36-ft. square limestone building, 1885, with frame addition, later used as an artist's studio, now vacant.

VIRGINIA. Mt. Vernon Memorial Parkway, Alexandria, Arlington, Fairfax Co., and District of Columbia, 1929-32. Commemorative parkway with distinctive stone-faced arch bridges, concrete slab base, bevelled curbing, and landscape plantings.

WASHINGTON. Horseshoe Bend Placer Claim, Snohomish Co. Mine site includes river diversion system, machinery remains, portions of flume system, and a deposit area for sluice-box debris; one of the few identifiable mine sites in the area, especially important for its diversion system, central to placer mining operations.

WEST VIRGINIA. Covered Bridges Thematic Resources. Nomination adds eleven bridges to five earlier listings: Carrolton CB, Carrolton, Burr arch, 1856; Hens Mill CB, rtes. 40 and 60/11, queenpost, 1884; Hokes Mill CB, Hokes Mill, modified Long truss, 1899; Fletcher CB, Malen vic., multiple kingpost, 1891; Simpson Creek CB, Holen Mill vic., kingpost, 1881; Sarvis Fork CB, Sandyville vic., Long truss, 1889; Walkersville CB, Walkersville vic., queenpost, 1903; Laurel Creek CB, Lillydale vic., 1910; Dent's Run CB, Laurel Pt. vic., kingpost, 1889; Locust Creek CB, Hillsboro vic., modified Warren, c. 1870; Fish Creek CB, Hundred vic., kingpost, c. 1881. **Elm Grove Stone Arch Bridge**, Wheeling. Three-span bridge of uncoursed limestone; along with the Wheeling Suspension Bridge, the last structures in W. Va. associated with the National Road.

WISCONSIN. Milwaukee Fire Dept. High-Pressure Pumping Station, Milwaukee. Brick building with central machinery hall containing three mounting pads that originally supported the pumps and electric motors. Built by city's Water Engineering Dept. in 1931 to assure year-round delivery of high-pressure water.

ASME LANDMARKS

The following sites recently were designated landmarks by the American Society of Mechanical Engineers:

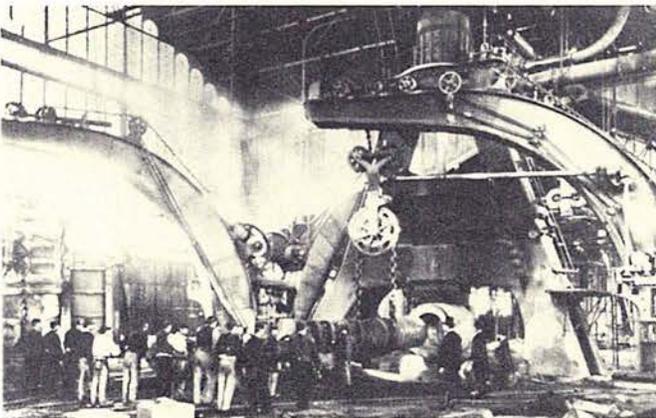
SOUTHERN PACIFIC No. 4294, a 4-8-8-2 cab-in-front articulated locomotive, is the sole surviving steam locomotive of its type. Southern Pacific was the only major railroad in this country to use steam locomotives with the cab in front, which allowed the engine crew to see further down the track for greater safety in negotiating curves, tunnels, and snowsheds. It also eliminated smoke and heat in the cab. The locomotive is on display in the Calif. State Railroad Museum in Sacramento [(SIAN July 74:2, Summer 81:4)].

MESTA 50,000-TON HYDRAULIC FORGING PRESS, U.S. Air Force Plant 47, Cleveland, O., with a sister press at N. Grafton, Mass., the most powerful production machines in the free world. (U.S.S.R. claims a press of 82,500 tons capacity at Novo Kramatorsk.) Built primarily to forge critical structural elements of aircraft, the Cleveland landmark began pressing in 1955, courtesy the federal government's Heavy Press Program. She stands 8 stories, with a 15-ft. maximum stroke and a 26 x 12-ft. die bed. ALCOA is contractor and operator; Wyman-Gordon Co. runs the press in N. Grafton.

ASME recently designated the following two sites *International Historic Mechanical Engineering* landmarks:

100-INCH HOOKER TELESCOPE at Mt. Wilson, Calif., completed in 1918, was for three decades the world's largest. The increased light-grasp of this telescope made possible many notable advances in structural cosmology between 1924 and 1930, revising our ideas about the universe. The telescope's mirror support and the use of mercury flotation to reduce friction are among its outstanding engineering features. George Ellery Hale, founder and first director of the Carnegie Institution of Washington's Mt. Wilson Observatory, initiated the project. John D. Hooker, a Los Angeles businessman, provided funds for casting (in France) a 4.5-ton disk for the great mirror, and in 1911 Andrew Carnegie made his second major endowment to the Carnegie Institution, making possible construction of the mounting and dome. The new telescope collected three times as much light as the observatory's earlier 60-in. instrument.

FRANCE'S 1876 CREUSOT STEAM HAMMER, now a public monument in the town of Le Creusot, stood for 50 years in the Schneider ironworks delivering 80 to 100-ton blows in the fabrication of engine shafts, cannon, armor plate, and other heavy forgings. It was the world's most powerful hammer until 1891, when it was surpassed by Bethlehem Iron Co.'s 125-tonner, built on the Creusot patent, demolished in 1902. Both hammers were victims of hydraulic presses—less wear and tear on forgings, more sustained pressure (see MESTA above). Further facts and figures on both hammers are available from SIA HQ at the Smithsonian, Attn: David H. Shayt. *D.H.S.*



Creusot's hammer at work, c. 1880, attended by one of its four swan-neck cranes. Here, hammer removes a mandrel from a hollow forging.

ASME has also announced that it will place the two cross-compound **CORLISS PUMPING ENGINES** of the York (Pa.) Water Co. on the *Pa. Historic Mechanical Engineering Landmarks* register. A date for the dedication has not been set. Those members who made a path to this lovely site after reading about the engines in SIAN ["The Worth of Steam," Mar. 77:2] will be glad they did. Sad to say, what probably were the last Corliss horizontal pumping engines to be operated regularly in the U.S. have been silenced. In Mar., the 1947 Babcock & Wilcox water-tube boiler was condemned, and the water company is installing a diesel engine to drive some centrifugal pumps as standby equipment. *S.H.*

Follow-Up on the News

More is now known about the ore cars that plunged into Ontario's Trent R. in Aug. 1881 and were recovered late last year [SIAN Summer 81:7]. The cars were built in 1867 by James Crossen of Coburg, Ont.; the wheels were made by John McDougall of Montreal. The Metallurgical Society of the Canadian Institute of Mining is in the process of reconstructing one of the ore cars and hopes to conduct some analysis of the materials to learn more about their fabrication.

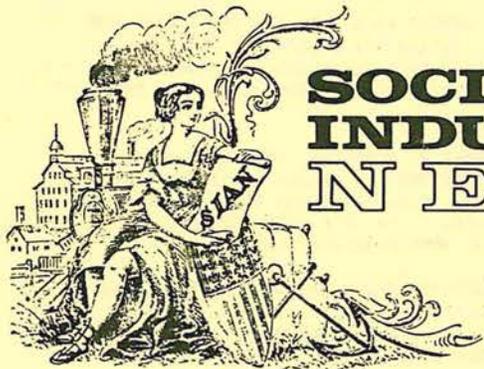
Renovation of the Starrucca House in Susquehanna, Pa., the last major railroad station-hotel in the U.S., proceeds apace [SIAN Spring 81:1]. According to the *Binghamton* (N.Y.) *Press* (Aug. 23, 1981), owner Michael J. Matis has re-shingled and in some places rebuilt the roof, replaced windows, and put a fresh coat of white paint on the dormer windows. Most unfortunately, however, the paper also reports that the building's brick exterior has been sandblasted.

Inside, work is nearing completion on a bar and lounge; next to open will be an adjoining dining room and fifteen hotel rooms. Matis envisions the 125-ft. Cascade Room with its 35-ft. ceiling as a dinner theater. Matis, who owns and operates a lingerie factory, "is remodeling Starrucca House through the memories of elderly residents, faded photographs, and historical data contained in a report prepared for the Susquehanna Borough Council. The project has no written plans and no architect," according to the *Press*. Matis estimates that the three-year project will cost between \$300,000 and \$350,000. "What I'm hoping will happen," he said, "is that it will become a cultural center. The tradition is here. Everyone that lives here was somehow connected with the railroad."

CORRECTION

Owing to a printer's error, several words were deleted from Helena Wright's review of *Realism and the Industrial Age* by Marianne Doezema [SIAN Summer 81:8]. The third sentence of the fourth paragraph, which began at the bottom of the left-hand column, should have read: "Doezema's text is a skillful blending of aesthetic criticism and social history, tempered by her understanding of the Realist tradition and its illumination of the industrial past."

The *SIA Newsletter* is published four times a year (Winter, Spring, Summer, and Fall) by the Society for Industrial Archeology. It is sent to SIA members, who also receive the Society's journal, *IA*, published annually. SIA promotes the identification, interpretation, preservation, and reuse of historic industrial and engineering sites, structures, and equipment. Annual membership: individual, \$20; couple, \$25; institutions, \$25; contributing, \$50; sustaining, \$100; students \$12. Send check payable to SIA to Treasurer, Room 5020, National Museum of American History, Smithsonian Institution, Washington, D.C. 20560; all business correspondence should be sent to that office. Editorial correspondence should be sent to CAROL POH MILLER, Editor, *SIA Newsletter*, Program for the History of Science and Technology, Mather House, Case Western Reserve University, Cleveland, Ohio 44106.



SOCIETY FOR INDUSTRIAL ARCHEOLOGY NEWSLETTER

PUBLICATIONS OF INTEREST

VOL 10 NO 4

A SUPPLEMENT

AUTUMN 1981

Compiled by Robert M. Frame III, Minnesota Historical Society, and Robert M. Vogel, National Museum of American History

BOOKS & ARTICLES

Fred B. Abele, *THE MOHAWK & HUDSON RAIL ROAD CO., 1826-1853*. Mohawk & Hudson Chapter, Nat'l RR Historical Soc. (PO Box 523, Schenectady, N.Y. 12301), 1981. 24 pp., illus. \$4 Ppd.

Robert M. Aduddell & Louis P. Cain, *PUBLIC POLICY TOWARD "THE GREATEST TRUST IN THE WORLD."* In *Business History Review*, Summer 1981, pp. 217-42. Meatpacking industry and antitrust, 1875-1919.

David Alexander & Rosemary Ommert (Eds.), *VOLUMES NOT VALUES: CANADIAN SAILING SHIPS & WORLD TRADES*. Memorial Univ. of Newfoundland (St. Johns, Newfoundland), 1979. 373 pp. \$10. Rev.: *Bus. Hist. Rev.*, Spring 1981.

Eleanor Amigo & Mark Neuffer, *BEYOND THE ADIRONDACKS: THE STORY OF ST. REGIS PAPER CO.* (Contributions in Economics & Economic History No. 35). Greenwood Press (Westport, Conn.), 1980. 219 pp., illus., notes, index. \$23. Rev.: *Jnl. of Forest History*, April 1981.

Mary Beth Arceneaux, *CAPTAINS OF THE NAVAL STORES INDUSTRY: JUDGE HARLEY LANGDALE, SR.* In *Naval Stores Review*, Sept.-Oct. 1980, pp. 8-9. Langdale (1888-1972), turpentine operator at Valdosta, Ga., was founder & longtime president of the American Turpentine Farmers Assn.

John H. Armstrong, *SOLID-FUEL RAILROADING IN THE '80s?* In *Railway Age*, Oct. 13, 1980, pp. 36-7. American Coal Enterprises' plan to develop 2 prototype "ACE 3000" modern coal-burning, reciprocating, steam locomotives.

Adrian Ball & Dianna Wright, *SS GREAT BRITAIN*. David & Charles (PO Box 578, N. Pomfret, Vt.), 1981. 96 pp.; 24 color/120 b&w photos; 30 dwgs. \$25. Brunel's 1st iron ship; unlike his Great Eastern a fair success. Now restored and well at Bristol, her birthplace.

Ken Baynes & Francis Pugh, *THE ART OF THE ENGINEER*. Overlook Press (PO Box 427, Woodstock, N.Y. 12498), 1981. 240 pp.; 228 illus. in color/b&w; folio. \$60 to 31 Dec.; \$75 after. Reproduces and discusses a selection of mechanical-engineering drawings made for the transportation industries--land, sea, air--from the late 16th c. to the present. A truly extraordinary work, without parallel, a monumental celebration of the draftsman's and the renderer's skill but overall focussing on the principal role of the drawing: the initial physical embodiment of the designer's concept, vital for his own further creativity, for communicating his design to the executor, and occasionally for persuasion of various sorts.

Derrick Beckett, *BRUNEL'S BRITIAN*. David & Charles (Newton Abbot, Devon), 1980. 222pp., illus. £ 8:50. Rev.: *Newcomen Bulletin*, April 1981, by R.A. Buchanan (SIA).

Maxine Berg, *THE MACHINERY QUESTION AND THE MAKING OF POLITICAL ECONOMY, 1815-1848*. Cambridge Univ. Press (Cambridge), 1980. 379 pp. \$35. The political and social context of the machine. Rev.: *Technology & Culture*, April 1981.

Michael Bezillia, *ELECTRIC TRACTION ON THE PENNSYLVANIA RR, 1895-1968*. Penna. State Univ. Press (215 Wagner Bldg., Univ. Park, Pa. 16802), 1980. 223 pp. \$17. Rev.: *Railroad History*, Spring, 1981.

David P. Billington, *BRIDGES AS AN EXPRESSION OF REGIONAL AESTHETICS*. American Soc. of Civil Engineers (345 E. 47th St., N.Y.C. 10017), Preprint 80-032 from ASCE Convention, Portland, Ore., April 14-18, 1980. 21 pp., 10 figs. Discusses the designs of Thos. Telford, John Roebling, Gustav Eiffel, Robert Maillart, Othmar Ammann, and Christian Menn.

John Birchfield, *STEAMED UP AT RYHOPE*. In *Popular Archaeology*, Oct., 1979, pp. 16-19. Ryhope steam pumping station in the North East of England.

Colin Bowden, George Cooper & Ted McAvoy, *STATIONARY STEAM ENGINES IN GREAT BRITAIN, A CHECK LIST*. The Author (16 Church Manor, Bishops Stortford, Herts.), 1979. 91 pp. \$6.00. Excellent guide for the engine watcher of engines *in situ*, with all available details, prospects, &c.

Mary Brignano & Hax McCullough, *THE SEARCH FOR SAFETY: A HISTORY OF RAILROAD SIGNALS & THE PEOPLE WHO MADE THEM*. (Commissioned by) Union Switch & Signal Divn., American Standard Inc. (Pittsburgh, Pa. 15218), 1981. 200 pp. Not, regrettably, the history of the American signal industry, but a sketchy, pop account with a bit too much of the "context" of the times.

R.A. Buchanan, (SIA), *HISTORY & INDUSTRIAL CIVILISATION*. Macmillan, 1979. 200 pp. £3.50. A broad, personal, view of some of the major themes in the emergence of modern industrial civilization. Rev.: *IA Review*, Autumn 1980.

Cecelia Bucki, *METAL, MINDS & MACHINES: WATERBURY AT WORK*. Mattatuck Historical Soc. (119 W. Main St., Waterbury, Conn. 06702), 1980. 93 pp., illus. Splendid account of the city from which during the 19th c. came almost everything of brass in America: clocks, buttons, lamp parts &c.

Peter Canby, *THE ICEMAN SURVIVETH*. In *Audubon*, Jan. 1981. Ice harvesting in Maine.

Robert B. Carson, *WHAT EVER HAPPENED TO THE TROLLEY?* Univ. Press of America (Wash., D.C.), 1978. 171 pp., biblio. \$7.00. Rev.: *Public Works Hist. Soc. Newsletter*, Mar. 1979.

Julian Cavalier, *CLASSIC AMERICAN RAILROAD STATIONS*. A.S. Barnes & Co. (San Diego, Calif. 92121), 1980. 212 pp., illus. \$17.50. Selection of 40 stations covering the entire U.S. based on architectural variety, scale, and location. A few are well-known: (Point of Rocks, Caanan, Lebanon, Pa., N. Conway); the bulk are not. Eight poorish color plates, the rest b&w, not very well reproduced. A record but not too much more. Rev.: *RR History*, Spring 1981.

H.E. Comstock, *THE REDWELL IRONWORKS*. In *Journal of Early Southern Decorative Arts*, May 1981, pp. 40-81. (Box 10310, Salem Station, Winston-Salem, N.C. 27108). Important late-18th-early 19th c. iron furnace near (now) Luray, Va.

- William P. Corbett, MEN, MUD & MULES: THE GOOD ROADS MOVEMENT IN OKLAHOMA, 1900-1910. In *Chronicles of Oklahoma*, Summer 1980, pp. 132-49.
- Albert E. Cowdrey, A CITY FOR THE NATION: THE ARMY ENGINEERS AND THE BUILDING OF WASHINGTON, D.C., 1790-1967. Historical Div., Office of Administrative Services, Office of the Chief of Engineers, May 1979. (Avail.: Supt. of Docs., U.S. Govt. Printing Office, Wash., D.C. 20402.) 75 pp., illus., appendix, biblio.
- John T. Cumbler, WORKING-CLASS COMMUNITY IN INDUSTRIAL AMERICA: WORK, LEISURE, AND STRUGGLE IN TWO INDUSTRIAL CITIES, 1880-1930. Greenwood Press (Westport, Conn.), 1979.
- C. Lyle Cummins, Jr., INTERNAL FIRE: THE INTERNAL COMBUSTION ENGINE, 1673-1900. Carnot Press (P.O. Box 1544, Lake Oswego, Ore. 97034), 1976. 351 pp., illus., \$19.00. Development of the i.c. engine by son of founder of Cummins Diesel.
- Ernie Danek, CEDAR RAPIDS (IOWA), TALL CORN AND HIGH TECHNOLOGY. Windsor Pubs. Inc. (Woodland Hills, Calif.), 1980. 232 pp., illus., biblio., index, appendices, \$20. Includes thumbnail sketches of Cedar Rapids mfg. firms. Rev.: *Annals of Iowa*, Summer 1981.
- Jean Dethier (Ed.), ALL STATIONS: A JOURNEY THROUGH 150 YEARS OF RAILWAY HISTORY. Urban Center Books (457 Madison Avenue, NYC 10022), 1981. 176 pp, 381 illus. \$17.95 + \$2.00 post. Based on the Pompidou Centre exhibit: the world's stations from 1830 to now, from architectural, engineering, and social standpoints.
- John N. Dickinson, TO BUILD A CANAL: SAULT STE. MARIE, 1853-54 & AFTER. Ohio State Univ. Press (Columbus) for Miami U., 1981. 222 pp., illus., maps, notes, biblio., index, \$21.50.
- D.A. Farnie, THE MANCHESTER SHIP CANAL & THE RISE OF THE PORT OF MANCHESTER, 1894-1975. Manchester Univ. Press (Manchester), 1980. 187 pp., \$14.50 Rev.: *Bus. Hist. Rev.*, Summer 1981.
- Robert H. Farson, THE CAPE COD CANAL. Wesleyan Univ. Press (Middletown, Conn.), 1977. 177 pp., illus. \$6.95. Rev.: *Technology & Culture*, April 1981.
- James E. Fell Jr., ORES TO METALS: THE ROCKY MOUNTAIN SMELTING INDUSTRY. Univ. of Nebraska Press (Lincoln), 1980. 341 pp., 15 photos. \$21.50. Rev.: *Bus. Hist. Rev.*, Summer 1981; *Arizona & the West*, Summer 1981.
- James Marston Fitch, HISTORICAL PRESERVATION: CURATORIAL MANAGEMENT OF THE BUILT WORLD. Urban Center (457 Madison Ave., NYC 10022), 1982. 448 pp; 454 illus. \$32.50 + \$2. post. The strategies and methods for adapting, renovating, and preserving early buildings and districts. Case histories. A last-word handbook.
- Mark S. Foster, FROM STREETCAR TO SUPERHIGHWAY: AMERICAN CITY PLANNERS & URBAN TRANSPORTATION, 1900-1940. Temple Univ. Press (Phila., Pa. 19122), 1981. 263 pp., 22 photos, \$20.
- Kenny A. Francks, Paul F. Lambert & Carl N. Tyson, EARLY OKLAHOMA OIL: A PHOTOGRAPHIC HISTORY, 1859-1936 (Montague History of Oil Series No. 2). Texas A & M Univ. Press (College Station), 1980. \$28.
- Joseph R. Frese & Jacob Judd (Eds.), BUSINESS ENTERPRISE IN EARLY NEW YORK. Sleepy Hollow Press (Tarrytown, N.Y. 10591), 1979, 224 pp., index, \$17.50. Six essays, incl. Irene D. Neu, HUDSON VALLEY EXTRACTIVE INDUSTRIES BEFORE 1815.
- August W. Giebelhaus, BUSINESS & GOVERNMENT IN THE OIL INDUSTRY: A CASE STUDY OF SUN OIL, 1876-1945. JAI Press (Greenwich, Conn.), 1980. 332 pp. \$29.50. Rev.: *Business Hist. Rev.*, Winter 1980.
- Laurence F. Gross & Helena Wright (both SIA), THE LOWELL MACHINE SHOP. In *Harvard Business School Bulletin*, Jan.-Feb. 1981, pp. 24-27.
- Charles Hadfield & Alice Mary, AFLOAT IN AMERICA. David & Charles (N. Pomfret, Vt. 05053), 1980. 160 pp., photos, maps, \$13. Their experiences along 8000 miles of railways & waterways.
- Robert M. Hanft, RED RIVER: PAUL BUNYAN'S OWN LUMBER COMPANY & ITS RAILROADS. Center for Business & Economic Research, Calif. State Univ. (Chico, Calif. 95929), 1980. 304 pp. \$29.90. More on logging and its RRs in the NW. Rev.: *RR History*, Spring 1980.
- Susan E. Hanna & Michael J. O'Malley, AMERICA'S OLDEST BREWERY: A PICTORIAL HISTORY. In *Pennsylvania Heritage*, Spring 1980, pp. 25-30. D.G. Yuengling & Son has been at its same Pottsville site since 1831, although present buildings date from an 1840 modernization.
- Leslie Hannah, ELECTRICITY BEFORE NATIONALISATION. Johns Hopkins Univ. Press (Baltimore), 1979. 467 pp. \$28.50. British electricity, technology & economics. Rev.: *Business History Rev.*, Winter 1979.
- Eldon S. Hendriksen. CAPITAL EXPENDITURES IN THE STEEL INDUSTRY, 1900-1953. Arno Press (NY), 1978. 209 pp. \$16. Reprint of 1950 Ph.D. thesis. Rev.: *Business History Rev.*, Winter 1979.
- Brooke Hindle (SIA) (Ed.), MATERIAL CULTURE OF THE WOODEN AGE. Sleepy Hollow Press (Tarrytown, N.Y. 10591), 1981. 394 pp., illus. \$22.50. Ten fine essays on wood on the farm, as a structural material in buildings and bridges, in ships, as road paving, as a chemical raw material, as iron-smelting fuel, in naval stores, and in its many uses on the railroad--for car building, fuel, and in the permanent (?) way. We forget how vital and versatile was this humble material in the 19th century.
- Stuart Holmquist, GREAT NORTHERN'S IRON RANGE. (Reference Sheet No. 65). Fraternal Order of Empire builders (Great Northern Ry. Hist. Soc.), 1981. Avail.: Martin Evoy III, Sec'y, 6161 Willow Lake Dr., Hudson, OH 44236. 24 pp., photos, map, drawings, notes, table. Particularly concerned with GN's Allouez ore docks, largest in world, at Duluth-Superior harbor.
- David A. Hounshell (SIA), COMMENTARY ON THE DISCIPLINE OF THE HISTORY OF AMERICAN TECHNOLOGY. In *Jnl. of American History*, March 1981, pp. 854-65.
- Paul Hudon, INDUSTRIAL ARCHAEOLOGY: AN OVERVIEW. In *Harvard Business School Bulletin*, Jan.-Feb. 1981, pp. 104-07, 115.
- Jack F. Hurley (Ed.), INDUSTRY & THE PHOTOGRAPHIC IMAGE. Dover Pubs. (N.Y.), 1980. 150 pp., 153 photos. \$8. A stunning selection of photos, then to now. Hine, Stieglitz, them all.
- Mary Ann Landis, HENRY HERRMANN, AN AMERICAN MANUFACTURER IN THE LONDON FURNITURE TRADE. In *Antiques*, May 1981, pp. 1174-77.
- John Langton, GEOGRAPHICAL CHANGE & INDUSTRIAL REVOLUTION: COAL MINING IN SOUTH WEST LANCASHIRE, 1590-1799. Cambridge Univ. Press (N.Y.), 1979. 322 pp. \$44.50. Rev.: *Business Hist. Rev.*, Winter 1980.
- T.E. Leary (SIA), INDUSTRIAL ARCHAEOLOGY & INDUSTRIAL ECOLOGY, In *Radical History Review*, Fall 1979, pp. 171-82. A useful, brief critique with a mildly anthropological bent. M. Folsom.
- S.M. Linsley, PRESERVATION IN INDUSTRIAL ARCHAEOLOGY. In *Industrial Archaeology Review*, Winter 1980-81, pp. 41-50. Suggesting guidelines for an integrated preservation policy for both intellectual and political reasons. G.B., but just as pertinent to N.A.
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- Betty Messenger, PICKING UP THE LINEN THREADS: A STUDY IN INDUSTRIAL FOLKLORE. Univ. of Texas Press (Austin), 1978. 265 pp. \$16. Rev.: *Bus. Hist. Rev.*, Spring 1981.

Edward S. Rutsch (SIA), TOUGH MEN FOR A TOUGH JOB. In *Metro-Newark!*, October 1980, pp. 12-17. Tug & barge repair unit of McAllister Bros. Tug Boat Co.

Stanley Sandler, EMERGENCE OF THE MODERN CAPITAL SHIP. Univ. of Delaware Press (Cranbury, N.J.), 1979. 335 pp. \$19.50. Technological advances that resulted in H.M.S. *Devastation*. Rev.: *Bus. Hist. Rev.*, Summer 1980.

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Robert L. Schuyler (SIA), URBAN ARCHAEOLOGY IN AMERICA. Baywood Publ. Co. (Farmingdale, N.Y.), 1980. 160 pp.

Keith A. Sculle, ILLINOIS COVERED BRIDGES. In *Outdoor Illinois*, June-July 1977, pp. 8-19. Illus., biblio.

Bruce E. Seely (SIA), WILMINGTON AND ITS RAILROADS: A LASTING CONNECTION. In *Delaware History*, Spring-Summer 1980, pp. 1-19.

Robert B. Shaw, A HISTORY OF RAILROAD ACCIDENTS, SAFETY PRECAUTIONS, & OPERATING PRACTICES. Northern Press (Potsdam, N.Y.), 1978. 473 pp. \$14.50. Several accident narrative chaps. are organized around technological histories. Rev.: *Bus. Hist. Rev.*, Winter 1979.

Edwin Van Syckle, THEY TRIED TO CUT IT ALL: GRAYS HARBOR--TURBULENT YEARS OF GREED & GREATNESS. Friends of the Aberdeen Public Library (Aberdeen, Wash.), 1980. 2nd edn. to be avail. from Pacific Search Press (Seattle). 308 pp., illus., biblio., index. \$18/10. Logging and sawmilling in western Wash. Lists logging firms, RRs, and vessels in the trade.

Frank J. Vopasek IV (SIA), CONRAIL'S LONG SLIP POWERHOUSE. In *Live Steam*, June 1980, pp. 10-11. The former Lackawanna RR facility at Hoboken, N.J. is the last operating RR-owned powerhouse along the Hudson River.

_____, YESTERDAY'S ENGINE TODAY AT MARCAL PAPER MILL. In *Live Steam*, Jan. 1980, pp. 32-36. 1923 Worthington (Laidlaw Works) compound engine at Marcal Paper, Elmwood Park, N.J.

David A. Walker, IRON FRONTIER: THE DISCOVERY & EARLY DEVELOPMENT OF MINNESOTA'S THREE RANGES. Minn. Hist. Soc. (St. Paul), 1979. Long on business; short on technology. Rev.: *Western Historical Quarterly*, Jan. 1981.

R.J.B. Walker, OLD WESTMINSTER BRIDGE: THE BRIDGE OF FOOLS. David & Charles (N. Pomfret, Vt.), 1980. 320 pp., 48 photos. \$33.50.

James A. Ward, J. EDGAR THOMSON: MASTER OF THE PENNSYLVANIA. Greenwood Press (Westport, Conn.), 1980. 265 pp. \$25. Thomson's 22 years as president of the PRR, beginning in 1852. Revs.: *Penna. Magazine of Hist. & Biog.*, Jan. 1981; *Bus. Hist. Rev.*, Summer, 1981; *Railroad History*, Spring, 1981.

Dan Wascoe, Jr. & Bethany Christenson, SILO LIVING: JUST AROUND THE CORNER. In *Minneapolis/St. Paul Magazine*, May, 1981, pp. 86-91. Minneapolis project to convert concrete grain elevator into condominiums.

Sara Ruth Watson, WESTERN RESERVE PROFILES: WILBUR J. WATSON, BUILDER. In *Western Reserve Historical Society News* (Cleveland), July-Aug. 1980, pp. 38-41. Watson (1871-1939) was an important bridge engineer with speciality in concrete.

Dana Wegner, THE PORT ROYAL WORKING PARTIES. In *Civil War Times Illustrated*, Dec. 1976, pp. 22-31. Union mechanics, stationed at Port Royal, S.C., repaired ironclad monitors.

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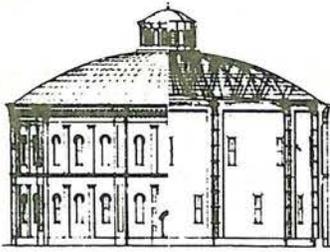
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SOCIETY FOR INDUSTRIAL ARCHEOLOGY

Dear SIA Member:

14 December 1981

Greetings of the Season to you. The close of the Society's 10th year of existence (organized in October 1971; officially sanctioned at our First Annual Conference, New York, April 1972) seems a good time to speak of several things.

In every area of our concern the decade has seen positive forward movement-- some as a direct consequence of our own activities; some, we should like to believe, as a result of the general broadening of interest in industrial archeology that surely can in part be attributed to the presence of an industrial-archeology society.

PRESERVATION: The number of engineering and industrial sites and structures that have been saved from destruction within the past ten years is enormous. Without any solid statistical basis, it would be easy to believe that as many structures of industrial-archeological interest have formally been preserved in this period as in the fifty years previous. The incentives for this have been varied. The chief one, it is only fair to say, has been the expectation of greater financial return as the cost of new construction has gone through the roof; as the federal government, in a rare burst of enlightenment, has provided tax advantages for this sort of thing; and as public attitudes toward the adaptive use of old buildings has grown more liberal. Then, there has been an impressive upsurge of interest in The Past that has had a powerful impact on the general acceptability of historic preservation.

Thus, we have seen scores of factories and mills, car barns and breweries, railroad stations and flour silos, of all ages and sizes, in all parts of North America, successfully converted into apartments, craft studios, shops, offices, and even into industrial space of a nature radically different from the original. Would it be too immodest to imagine that the SIA slide-film and book, *WORKING PLACES*, were to some degree instrumental in this movement?

RECORDING AND INVENTORYING: The number of industrial-archeological sites entered in the National Register of Historic Places and the various state registers has shown a geometric rise over the past decade. Complementing that, most of the professional engineering societies have undertaken active landmark programs, with close to 100 sites and structures formally commemorated.

Under the Historic American Engineering Record, systematic recording and inventorying has gone forward with great energy, falling off somewhat only during the past few years as the excesses of President Carter's National Park Service Director disem-boweled many of the government's historical programs. But there is hope presently that the damage can and will be undone, and that HAER will be its former robust self in short order. In the meantime, a number of states, provinces, regions, and cities have undertaken inventorying programs of their own, and there has been a certain amount of recording on the part of government and such other groups as universities and SIA local chapters.

INTERPRETATION: In terms of publication and education there has been a steady increase of activity over the decade. A sizable group of colleges and universities now offer courses and programs with more-or-less emphasis on the industrial heritage and its consequences. There have been summer institutes and special courses at even more institutions of learning, and there is a glimmer of interest in introducing the subject into primary and secondary schools. In fact, the SIA presently is holding out its hat to the National Endowment for the Humanities seeking a major grant to develop a school curriculum in the general area of industrial work and its history.

THE SOCIETY'S OWN ACTIVITIES have been many and varied during its first ten years of life. There has been an annual conference every year since that memorable one in 1972, invariably events of singular interest and high spirit. With only a single year's miss, there also has been a fall tour every year. A full, vivid report of the most recent of these--to the far reaches of Michigan's Upper Peninsula--will be found in the accompanying Newsletter. Additionally, there have been several special events and tours, most notably the 1978 Marthas Vineyard symposium on Industrial Archeology and the Human Sciences.

The Newsletter continues to be the principal voice for industrial archeology in North America. Its frequency now is quarterly (solely in the interest of economy), but with its new "literary supplement"--the first edition of which also accompanies this--the number of pages and the annual volume of published material is the same as under the former bi-monthly schedule. The Society's journal, IA, also flourishes, this year's Volume 7 being regarded as the most outstanding to date.

All of which leads me to suppose that this might be an appropriate time again to point out that which we tend to point out from time to time: both publications depend heavily upon the Society's membership to act as far-flung correspondents. With the Newsletter, especially, it is vital that you be sensitive to what's happening in your area and report accordingly to the editor--even if by a newspaper clipping--for in most cases there is no other way in which she will know. The same with respect to IA. If you have an article, or even the notion of one, or learn of a recent book that you think should be reviewed, advise the editor. Neither modesty nor shyness has any place in Spreading the Gospel of Industrial Archeology.

In addition to the pending NEH education project, there are several other special projects afoot. A number of publishing and fund-raising ventures are in planning: reprints of important works relating to industrial archeology in its broad interpretation; a selection of attractive and appropriate graphic representations of industrial structures; and like other undertakings of anticipated usefulness and appeal. Initial planning already is underway for the next three annual conferences:

1982 Harrisburg (6 - 9 May)

1983 Minneapolis & St. Paul

1984 Boston.

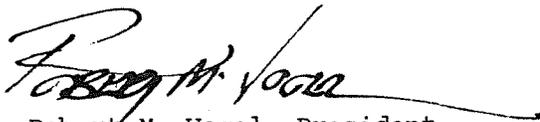
If all goes according to expectations, the Boston conference will be conjoined with the next International Conference on the Conservation of the Industrial Heritage, which would be the first to be held away from Europe.

And finally, a few practical matters. With the end of the calendar year it is, of course, again time for annual dues collection. The customary invoice is enclosed. May we ask for a quick response so as to reduce the burden on our able but overworked (volunteer) headquarters staff.

Note that with the great volume of material herewith is included a copy of our new, improved MEMBERSHIP BROCHURE. Would you be so kind as to hand it to an interested person (or library, or other organization) who might enjoy and profit from a closer relationship with industrial archeology. If you can use additional copies, simply request them from Room 5020.

On behalf of the entire Board of Directors, with all best wishes,

Sincerely,



Robert M. Vogel, President