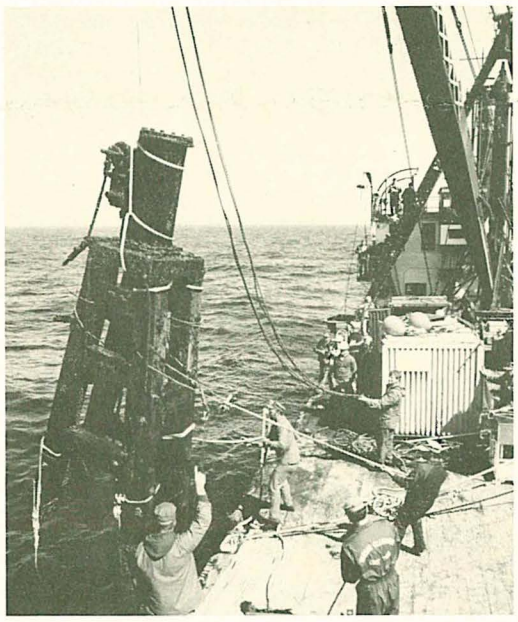
SOCIETY FOR INDUSTRIAL ARCHEOLOGY

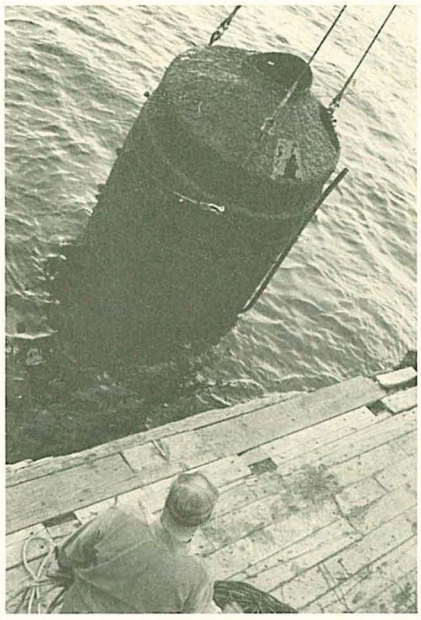
NEWSLETTER

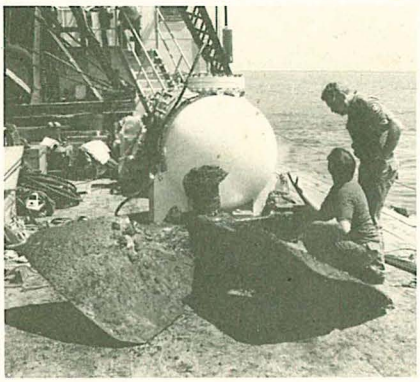
Volume 8 No. 5 September 1979

INDIANA SALVAGE

OLDEST AMERICAN MARINE ENGINE RECOVERED







Indiana's engine and boiler greeting the light of day for the first time in 121 years. At right is the vessel's Ericsson-type composite propeller, with cast-iron hub and wrought-iron-plate blades, one of them stamped with the name of Spang & Co., Pittsburgh, rollers of the iron. This was the only marking found on the elements raised. *National Museum of History & Technology photographs.*

In August the Natl. Museum of History & Technology acquired the entire steam power plant and propulsion system from the *Indiana,* a 146-ft. freighter that sank off Crisp Point, Mich. in eastern Lake Superior in 1858. Recovery of this classic artifact—an artifact that has remained absolutely untouched since antebellum times—entailed the largest and most complex underwater salvage operation in which the Museum has ever been involved.

Built from oak at Vermilion, Ohio, in 1848, the *Indiana* was outfitted with a single-cylinder 16 x 48-in. vertical engine, a massive ten-ton upright boiler, and a ten-ft. Ericsson propeller. Screw propulsion then was in its infancy, but was just about to revolutionize maritime commerce by simultaneously permitting increased speeds and greater cargo capacity. No commercially-built American marine engine in its original state, or any screw propulsion system of comparable antiquity, is known to survive. The *Indiana's* machinery, including all engine accessories, the rudder, and steering quadrant—the entire sytem totalling 20 tons—was salvaged from a depth of 125 ft. by U.S. Navy divers who made more than 300 descents from their base of operations, the derrick barge *Coleman,* which remained on station round the clock for a total of 12 days.

This difficult and costly undertaking was a cooperative effort by the NMHT; Mich. Dept. of State, History Divn.; the Great Lakes Research Center at Bowling Green Univ.; the Navy; and the U.S. Army Corps of Engineers. Also participating was John Steele of Waukegan, Ill. who initially located and filmed the wreck.

Equipment salvaged from the *Indiana*, although remarkably well preserved, has, after all, spent 121 years under water and will require conservation measures as unprecedented in scale as the recovery operation itself. When these are completed, the entire system will be displayed at the Museum as one of the most remarkable technological artifacts brought to light in many years—a pristine, unadulterated, and uncompromised document of American steam engineering of the 1840s, a document without any counterpart. *R.C.P.*

CONTRIBUTORS TO THIS ISSUE

Christopher Andreae, Parkhill, Ont.; Marilyn G. Miller, Heritage Planning Sect., Ontario Ministry of Culture; Susan H. Myers, Natl. Museum of Hist. & Tech.; William Poe, NMHT; Robert C. Post, Smithsonian Books; John R. White, Youngstown State Univ. With thanks.

FALL FIELD TRIP—PENNSYLVANIA'S ANTHRACITE REGION

On 13 & 14 October. You should have received the announcement and registration form for this. If you haven't, contact Room 5020 immediately for a copy. The list is limited. This will be a historic occasion.

Published by the Society for Industrial Archeology Editor: Robert M. Vogel
Room 5020 National Museum of History & Technology Smithsonian Institution Washington, DC 20560

AND ANOTHER FINK TRUSS

Further to our article on surviving Fink trusses [SIAN Jan/Mar 79], as has happened on other occasions of "discovery," it never rains but it pours, nearly. The fact is, that even while the various elements of the Fink article were in preparation, there existed a nagging belief on the part of several Fink watchers that there might be another, based on a dilute rumor of great age that an example existed in Phoenixville, Penna., "on the grounds of the Phoenix Steel Co." A visit has confirmed that, *sort of* on the firm's grounds, is a structure that can only be described as *sort of* a Fink truss bridge, or better, perhaps, a "unilateral demi-Fink truss bridge."

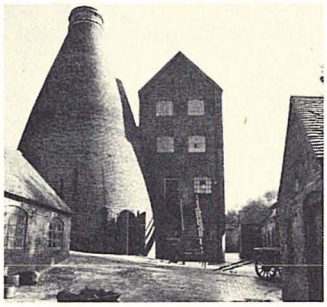
What we have is this: In 1847 the town of Phoenixville built a conventional 3-span stone arch bridge to carry Main St. across French Creek. Main St. separated—either then or at a later time—two sections of the (then) Phoenix Iron Co., which stands on the stream bank. This accounts for "on the grounds . . ." At some indeterminate time later in the century there arose need to accommodate pedestrian traffic on the bridge. Rather than widen the entire structure, a novel expedient was resorted to.

Only the abutments and the two river piers were widened. The inside of the new sidewalk was supported by the outer face of the original masonry, while its outside edge was carried on a *single line* of Fink deck trusses bearing on the outer ends of the widened piers and abutments. There apparently are no records of the widening, but it is dead safe to assume that the trusses were supplied by a Phoenix subsidiary, the Phoenix Bridge Co., whose plant was no more than a long arm's reach from the bridge. Phoenix produced a wide variety of iron truss types, although on the basis of records and archeology, not Finks. Selection of the form in this case, then, is odd. Perhaps the trusses were built as early as the 1860s, when the Fink truss was in its prime, Phoenix trying them experimentally at a spot where their career could be closely monitored by the enigneering staff.

Unlike the only other known Fink deck truss—that at Lynchburg, Va.—these examples are all iron. The bridge is in custody of the County of Chester, which has no plans for its alteration or removal.

THE COALPORT MUSEUM

Worthy of note in the 200th anniversary year of the Iron Bridge is the Coalport China Works Museum, a recent addition to the museum galaxy of the Ironbridge Gorge Museum Trust, whose contributions to salvaging, interpreting, and re-using England's IA have gained international acclaim. Located in the 19thC factory buildings and bottle kilns of the Coalport company, the museum is not a "re-creation" of the factory complex but an instructive and innovative use of space and structures to tell the story of ceramics manufacture in the Severn River Gorge from 1750 to the present day.



Coalport China Works Museum. *Ironbridge Gorge Museum Trust photograph.*

Available coal, refractory clay (for saggers, which protect fine ceramics from the kiln atmosphere during firing), and proximity to the River Severn (for shipping Devon and Cornish clays in and finished products out) made the Gorge area as naturally suitable for ceramic manufacture as for other industries. Although its origins are obscure, a pottery industry was well established there by the late 18thC and soon after John Rose's purchase of the Coalport site in 1814, 400 people were employed. By the 1850s the number had grown to 500.

Drawing on a variety of exhibit techniques, the new museum effectively creates the "atmosphere" of the old potbank, but also presents an analysis of the technology, products, business, and social history of the site in the context of the surviving structures. Methods of forming and glazing ware are demonstrated in a microcosm of a typical factory workshop; a recreation of the sagger-maker's shop explains this important arm of the factory complex. One of the bottles (all of which are bereft of the actual kilns they originally housed) has been adapted to a display of Coalport porcelains. Perhaps the most effective element of the museum, aside from the frankly impressive site of the factory buildings and huge bottles in their setting along the Coalport Canal, is the audio-visual production that describes daily life in the works at the turn of this century. Slides of people and scenes around the pottery, accompanied by the reminiscences of William Bagley who was born in Coalport in 1889 and died there in 1977, come close to animating the structures that once teemed with activity. *S.H.M.*

I A PRESERVATION—THE 19th CENTURY

The following letter was unearthed by Carol Poh Miller [SIA], preservation consultant, in the course of research on Lake Ontario lighthouses for HAER:

LIGHT-HOUSE ESTABLISHMENT

Office of the Light-House Inspector, Tenth District,
Buffalo, N.Y., August 17th, 1899.

Subject: Removal of old abandoned stone tower, Genesee Light-station, not recommended.

The Light-House Board, Washington, D.C.
Sirs:

In compliance with the Light-House Board's letter of 31 July 1899, I inspected the old abandoned stone tower attached to the keeper's dwelling at the Genesee, N.Y. light-station, on the 14th instant.

This abandoned tower is connected by a covered way with the keeper's dwelling, and the lower floor is used for an oil room. Both the Engineer and Inspector of this district have recently recommended that a detached iron oil house be built at the Genessee station. Should this be done the old tower will serve no other purpose than that of being a picturesque stone land mark the removal of which, from near the mouth of the Genesee River [N. of Rochester], would be regretted and probably protested against by the local historical societies, antiquarians, and old settlers. The arguments in favor of removing it are practical, while those in favor of retaining it are sentimental. It is, I believe, the oldest light-house tower now standing on the United States shores of Lake Ontario and the St. Lawrence River, but I am unable to give the exact date of its erection.

As the old tower is situated just east of the dwelling near its S.E. corner, the removal of the tower would give more sunlight on the east end of the dwelling, which is desirable, and this appears to be the principal reason for removing it.

My recommendations are that the old tower should not be moved, but should be beautified by a judicious growth of Japanese or English ivy, and preserved as an interesting historical landmark. . .

Respectfully yours,
Franklin Hanford, Commander, U.S.N.
Inspector, 10th L.H. District

And the ending is a happy one. Hanford's enlightened recommendation indeed was followed, and the Genesee Lighthouse and keeper's dwelling were allowed to live, sans *ivy. The dwelling today is the residence of the Chief of the Rochester Coast Guard Station.*

CANADIAN DEVELOPMENTS

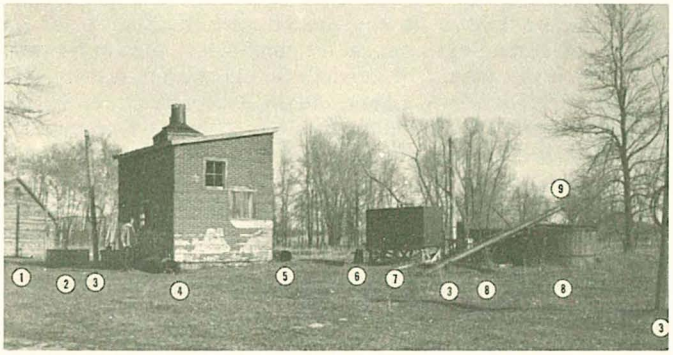
THE IA OF PEPPERMINT DISTILLATION

Peppermint is perhaps the least-known crop to have been cultivated in Lambton, Co., Ontario. Used as flavoring in gum, candy, and medicine, the crop was grown for about 10 years during the late 1930s and early '40s.

The northern part of Lambton Co. traditionally grew celery on its wet bog lands and until the mid-'30s this was a very profitable crop. The industry suffered as a result of the Depression, however, and by 1932 growers were out of business.

In an attempt to locate new, profitable crops, peppermint was introduced into the area from Michigan. By the end of the 19thC the "muck lands" or bog soils of Michigan and Indiana had become the established mint-growing areas of N. America. The similar soils in northern Lambton Co. encouraged the decision to try mint cropping.

Eighty acres of peppermint were cultivated there in 1936. Ultimately five farms grew the crop and three distilleries were constructed to extract the peppermint oil. At the height of the industry, 150 acres were grown in the county. Then, during the 1940s the price of peppermint oil dropped so low that the venture failed, never to be revived.



The Sitter peppermint distillery, Lambton Co., Ontario. 1. supervisor's shanty; 2. well; 3. chimney-guy-wire posts; 4. boiler house; 5. part of fallen chimney; 6. mint-oil collector; 7. condenser; 8. mint tubs; 9. derrick (fallen). *C. Andreae photograph.*

The distillation process used in Lambton Co. followed the standard technology that first had been developed in the 1840s with subsequent technical improvements.

A) Mint hay was packed into a steel tub as tightly as possible.

B) The lid was sealed and steam was introduced at the top of the tub.

C) The oil was extracted by the steam and carried out the bottom into a condenser "worm" set in a water-filled tank.

D) The condensed oil and water flowed together into a receiving container. The oil rose to the surface and dripped into a separate container, the water running off.

Two tubs usually were employed so that one could be unloaded and reloaded while the other was being operated. The mint hay that remained after oil extraction was used as cattle feed.

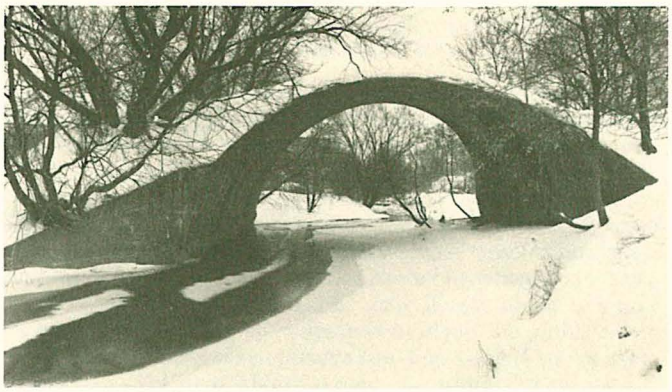
The mint still illustrated belonged to Nicholas Sitter. The boiler was a low pressure type about 12 ft. high and 4'-6" in diameter. The chimney, which stood about 35 ft. high, was guyed to four posts.

The two mint tubs are about 7 ft. in diameter and stand about 4 ft. out of the ground. Since the lids were sealed it was impossible to determine how deep they were set into the ground. A tank at another site was about 8 ft. deep, however.

A derrick, situated between the two tubs and operated by a single-cylinder gas engine, was used to hoist the heavy tub lids and to lift out the mint straw. *C.A.*

PRESERVATION OF THE NEWMARKET RADIAL RAILWAY ARCH

In February 1979, staff of the Ontario Ministry of Culture & Recreation were called on to investigate a ruined reinforced-concrete arch railway bridge in Newmarket, Ontario, once part of the Metropolitan Street Ry, system. The bridge, now owned by the South Lake Simcoe Conservation Auth. was slated for demolition as part of a re-channelization scheme for the Holland River.



The subsequent staff report recommended retention of the bridge because of its national significance as a feature of Canadian engineering and industrial-archeological heritage.

The bridge was constructed in 1909 and was one of the first reinforced-concrete bridges built in Canada, the earliest known example of this type having been constructed in 1906. It also was discovered to be one of the few surviving examples of this early 20thC bridge type. Moreover, the Newmarket Radial Arch was one of the first bridges designed by the well-known Canadian engineering firm of Frank Barber and C.R. Young. Both went on to design significant and innovative bridges in Ontario, and Young later became Dean of Civil Engineering at the Univ. of Toronto. The MSR for a number of years carried the heaviest traffic of any street railway line in Canada. The bridge is one of the few remaining features associated with this line.

Following the airing of a Canadian Broadcasting Corp. "Ombudsman" program on national television in support of preserving the ruined bridge (March 11), concerning which Ministry of Culture & Recreation staff were interviewed, the Town of Newmarket Municipal Council voted unanimously that the historic structure be retained. During the course of this program it was revealed that the bridge would not impede increased flow of the Holland during flood conditions, as was originally believed, but that a nearby ruined wooden trestle of no particular engineering distinction was the real culprit. The Conservation Auth. subsequently decided to revoke their earlier decision to demolish the bridge and to discuss with the Town of Newmarket the means of preserving it. It is anticipated that the Ontario Heritage Foundation, a Provincial agency, will be approached for assistance in preserving this historic structure. *M.G.M.*

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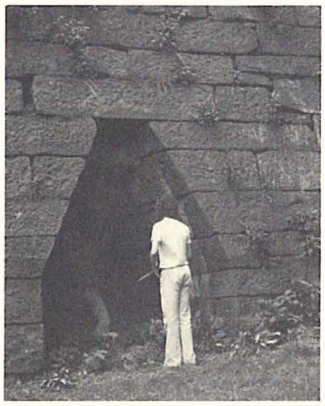
THE DENSMORE PAPERS. The History Dept. of the Milwaukee Public Museum proudly announces donation by Pricilla Densmore of a collection correspondence between the Densmore bros. and Christopher Latham Sholes (inventor of the modern typewriter) containing over 1000 letters, plus legal documents, engineering drawings, advertising brochures, and photographs. Although primarily concerned with Sholes' machine, there is data also on the Densmore typewriter. The papers are expected to provide an interesting case study in the relationship between an inventor (Sholes), a promoter (James Densmore), and a manufacturer (E. Remingotn & Sons). The collection's new home is most appropriate, not only because Sholes was a Milwaukeean, but also because it compliments the Museum's Carl P. Dietz Collection of some 543 typewriters, plus assorted office machines and associated literature. Inventories of the Densmore Papers and the Dietz Collection should be available in 1981. Information: Donald Hoke [SIA], Milwaukee Public Museum, 800 West Wells St., Milwaukee, WI 53233.

THE WORK OF IA

During the 1979 summer John R. White [SIA], Prof. of Anthropology at Youngstown [OH] State Univ. and four aides scoured the Penna. forests west of the Allegheny Mountains in search of early (pre-1850) blast-furnace sites.

The survey was undertaken in order to accumulate data on early ironmaking to compare with findings made from the Eaton (Hopewell) Furnace which he excavated in 1975-77 [SIAN Sept. 77:5]. To this end iron ore, limestone, charcoal, slag, and cast iron were collected at the sites. Chemical and metallurgical analysis is being done now. In addition to gathering data on the efficiency of early ironmaking, White wanted to formally record the furnaces and make recommendations to the Penna. Historical & Museum Commn. as to which sites, because of accessibility, state of preservation, &c. ought to be nominated to the Natl. Register, be recorded by HAER, and/or be further examined archeologically. Ultimately, it is hoped, an accurate "guide" to these furnaces can be produced containing detailed descriptions, photos, drawings, &c., and accurate finding directions. This guide should be useful to scholars and interested citizens alike.

Six counties—Beaver, Butler, Fayette, Lawrence, Mercer, and Venango—were surveyed. In all, 35 sites were examined and recorded. There were originally more sites than those sampled but the survey was not designed to be inclusive, and many furnaces have been *totally* destroyed in the hundred+ years since their active period. Several sites were in present downtown areas covered by concrete and steel. Of the furnaces examined, 9 should be elevated to landmark status: the Porterfield, Raymilton, Rockland, Shippen (Stapely), Valley, and Victory in Venango Co.; the Alliance in Fayette Co.; and the Lawrence and Willroy in Lawrence Co. Perhaps 7 others deserve close consideration. These judgments are based on evaluation of historical significance, furnace condition, architectural or technological uniqueness, archeological potential, and accessibility. Archeological work needs to be done and restoration or stabilization measures must be taken at all sites although some of the stacks are in amazingly good conditon considering their age and exposure. At several sites such as the Porterfield and the Rockland, archeology is likely to reveal some hitherto unknown facts about casting-house activities and waterwheel-headrace systems. *J.R.W.*



Measuring the tuyere at Horse Creek Furnace, Venango County, Pennsylvania. *J. White photograph.*

MISC. NOTES

NEWS OF MEMBERS

BRENDA BARRETT, the Society's Honorary Counsel, has left her private law practice and taken the position of Head of Environmental Review for the Penna. Historical & Museum Commission, Harrisburg, succeeding Vance Packard (see below).

MARGOT GAYLE, well known to many of you as the founder and propelling spirit of Friends of Cast Iron Architecture, has been accorded the well-deserved honor of appointment by the mayor and city council to the New York City Art Commission.

DANIEL D. REIFF, Dept. of Art, State Univ. College at Fredonia, N.Y. will deliver a paper: "L'influence de Viollet-le-Duc apres la traduction des 'Entretiens' par Van Brunt en 1875." (The influence of V-1-D after the translation of 'Discourses' by V.B. in 1875), at an international colloquium celebrating the centenary of le Duc's death (1879). The event will take place in Paris next spring, coinciding with a major V-1-D exhibition. "Le Duc was, afterall, one of the major proponents in the mid-19thC of the use of iron, both in compression and tension, undisguisedly in high-style architecture—besides being a noted historian of architecture, writer, restorationist, designer, and architect." Further information from Prof. Reiff 14063.

VANCE PACKARD has transferred from the Harrisburg HQ of the Penna. Historical & Museum Commn. to become Historic Site Administrator of the Drake Well Museum, Historic Pithole City, and a galaxy of lesser state museum sites in NW Penna. He forecasts greatly increased technological orientation at Drake Well, site of the World's 1st commercially successful oil well.

FRANK J. VOPASEK IV advises that he is one of an assuredly small number of members of this society who is a licensed, working stationary steam engineer. He is employed by the Marcal Paper Mills in Elmwood Park, near Paterson, N.J., caring for, among other machinery, a Worthington cross-compound air compressor of the late 1920s.

EVENTS

The Edison Incandescent Lamp Centennial

EDISON: LIGHTING A REVOLUTION—THE BEGINNING OF ELECTRIC POWER. A new gallery at the Museum of History & Tech., Washington, opening 10 Oct. Daily 10 - 5:30. A splendid catalog is available, by Curator Bernard S. Finn & Historian Robert Friedel. Heavilly illus., 85 pp., a good synopsis of the subject. $3. Divn. of Electricity, NMHT, Wash., DC 20560. (Checks to: Smithsonian Institution.)

EDISON SYMPOSIUM-SHOT ANNUAL MEETING. A major conference on Edison, in conjunction with the Society for the History of Technology's annual meeting, will be held in Newark, N.J., which was the site of Edison's first laboratory-factory. The symposium: "Thomas A. Edison and the Recent history of Science & Technology" is sponsored by the N.J. Historical Commn., the Natl. Park Service (custodians of the Edison Natl. Historic Site at his W. Orange laboratory), and the Newark Public Library, with the Edison Papers, the Newark Museum, and the State Museum cooperating. A galaxy of speakers will present papers. Hilton Gateway Hotel. SHOT: 17-20 Oct. Information: Dept. of History, Univ. of Calif., Santa Barbara 93106. Symposium: 19-20 Oct. N.J. Historical Commn., 185 W. State St., Trenton, N.J. 08625.

THOMAS EDISON, A TRIBUTE. Exhibition dealing primarily with his inventions, from the earliest (his stock ticker of 1869) up to the little-known winged projectiles of WW-I. At the Newark Museum (49 Washington St. 07101) 18 Oct.-31 Dec., daily 12-5; and at the State Museum (205 W. State St., Trenton 08625) 26 Jany.-31 March 1981, M-F 9-4:45; Sat.—Sun. 1-5.

EDISON & THE ELECTRICAL AGE: 100 YEARS. A travelling exhibition by the Smithsonian Institution Travelling Exhibition Service. Available in two versions: free-standing pylons or panels. Pylon version is booked to spring 1981; panels to spring 1980. Information on content, costs, exhibition locations, and future booking: D. Dawson, SITES, Smithsonian Instn., Wash., DC 20560. (202) 381-6631.

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ONE CENTURY—A Leisure Learning Weekend in the Hudson-Mohawk Urban Cultural Park. 19-21 Oct. The rise, peak, & decline of a 19thC industrial society. Lectures, field trips; treating geology, economic foundations of industry, politics, women & children at work, technology's impact on the decorative arts, transportation networks, and more. Eminent faculty. Flyer: Hudson-Mohawk Industrial Gateway, 5 First St., Troy, NY 12180. (518) 274-5267.

TWIN CITIES INDUSTRY: AN INTRODUCTION TO HISTORICAL SOURCES. Informal, no-credit course, Univ. of Minnesota. 3 Oct.-7 Nov. Lectures & field trips. All aspects of the area's industries with emphasis on the specialized sources of information. Org. by R. M. Frame III, with Jno. Wickre, Nicholas Westbrook, & Allan K. Lathrop [all SIA]. Information: RMF, Minn. Hist. Soc., James J. Hill House, 240 Summit Ave., St. Paul, MN 55102. Course given also in spring for credit: March-June.

RURAL ELECTRIFICATION &c. Annual Meeting, Minn. Historical Soc., 27 Oct. AM Session, Downtown Holiday Inn, Minneapolis. "Electrifying the Farm," Virginia Westbrook [SIA]; "Growth of the Electrical Industry," Field Curry [SIA]; "Red Wing Rural Experimental Power Line Project: Collecting Oral History Today," James Fogarty.

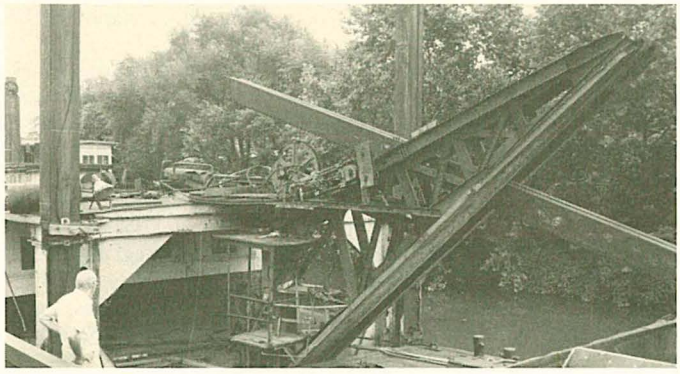
THE LIFE & WORKS OF THOMAS USTICK WALTER. Major exhibition of the work of TUW (1804-87), architect of the Capitol and its cast-iron dome, among other structures of note. 29 Oct.-28 Dec., The Athenaeum, 219 S. 6th St., Philadelphia.

CAST-IRON TOURS. Friends of Cast Iron Architecture's 17th annual fall series of walking tours: 14th, 21st, 28th Oct., 2:00 PM., rain or shine. $2.50. Covering three distinct regions of NYC's cast-iron architecture. Information: (212) 926-6512.

LIFE & TIMES IN SHOE CITY: THE SHOE WORKERS OF LYNN. An exhibition in American social history is being assembled by the Essex Inst., to focus on the period 1870-1920 when Lynn, Mass. produced more shoes than any other U.S. city. Various themes will be explored: the shift from home/craft industry to large-scale mechanization and entrepreneurship; the development of Lynn from a small rural town to a densely populated industrial city; the lives of the workers and industrialists at work and leisure; and the changes in the present city following departure of the shoe industry. A history workshop involving historians and former workers will be held 26-27 Oct. Exhibition: 14 Sept.-27 Jany. 1980. Information: E.I., 132 Essex St.,, Salem, MA 01970. (617) 744-3390.

AVAILABLE

WIND ENERGY. Three useful lists are available from the Wind Systems Branch, Energy Technology-Solar Energy Divn., U.S. Dept. of Energy, Washington, DC 20545: *Selected References on Wind Energy Conversion Systems* (8 pp.); *Commercially Available Small Wind Machines: A Checklist of Systems, Mfrs., and Distributors* (20 pp); *Wind Energy Information Sources* (17 pp). (If trouble with this source, try: Natl. Technical Information Service, 5285 Port Royal Rd., Springfield, VA 22161.)



STEAM DREDGE. The *Northern* (neé *Oswego*), dipper type, built by Corps of Engineers for Cincinnati District in 1883 at St. Louis by Allen & Blaisdell, machinery by Vulcan Iron Works. All original except boiler (new c1948). Steel & iron hull, wood superstructure. L.O.A.: 94 ft.; beam: 31.5 ft; draft: 3.25 ft.; boom: steel, 24 ft. Some blueprints avail. Sale or possible donation. M&O Marine, Inc., Ohio River @ Ohio St., McKees Rocks (Pittsburgh), PA 15136. (412) 331-5657. D.P. Frankenberry or Thos. Chantler.

ANATOMY OF A LOCK. Drawing describing operation of the complex drop gates of Delaware & Hudson Canal, post-1850. All detail shown, fully annotated. By Edwin D. LeRoy [SIA]. Ozalid sheet 18″ x 22″. From D&H Canal Historical Soc., High Falls, NY 12440. Cost unknown.

GRIST MILL FILM. Water powered mills; produced by Charles Howell [SIA], 381 Bellwood Ave., N. Tarytown, NY 10591.

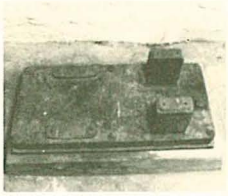
POSITION AVAILABLE. Researcher with knowledge of industrial architecture, water power, to work under contract to consultant. Northern NJ. Available immediately for 3—9 months. Constance Ramirez, Preservation Resource Group, 5619 Southhampton Dr., Springfield, VA 22151. (703) 323-1407 or 533-7321.

SPIRITS OF THE PINES. A 23-min., color film produced by Inst. of Community & Area Development, Univ. of Ga. "A skillful and moving ethnolography of the turpentine industry in the piney woods of central Ga." The industry's development, technology, terminology and the work culture. A heavily 19thC process. Purchase/rental information: Film Library, Center for Continuing Education, Univ. of Ga., Athens 30602.

RESEARCH & INQUIRIES

GRAPHITE ARTIFACTS. Found recently in Appomattox Co., Va., at what may have been a blast-furnace site. They were recovered 1-4 ins. below ground surface in proximity to small amounts of vitreous and porous slag, irregular iron "beads" (apparently solidified spatter), and several small, irregular iron masses suggesting furnace waste. There may or may not be a connection between the two groups.

The objects all appear to be elements of a system of tubing or conduit, with bore of c3/4 in. The largest piece is 10-in. long, 2¾-in. O.D. at one end tapering to 2-in. at other. One fragment appears to be part of a coupling, internally threaded, c2-ins. I.D. The bore, incidently, is far too small for iron furnace blast. What might this be? Suggestions to editor.



MACHINE BASE. What was it for? In basement of the Saint-Gaudens house, Cornish, N.H. (Natl. Historic Site). Cast iron, 1′-7″ x 3′-7½″. Pump? Gas machine? Other? Richard C. Crisson, N. Atlantic Historic Preservation Center, Charlestown Navy Yard, Boston, MA 02109. (617) 242-1979. (Cc to editor, please.)

IA OF THE BOSTON & MAINE RR. The B&MRR Historical Soc. is conducting an all-inclusive photographic inventory of surviving "trackside" structures along all B&M operating and abandoned trackage. This includes not only the RR's own structures—from stations down to crossings and other interesting trackwork—but also RR-related businesses such as factories and mills with sidings. If interested in cooperating contact Eugene Prowten, 132 Stow Rd., Boxborough, MA 01719.

INTER-INDUSTRIAL RE-USE

An interesting example of 19thC industry-to-industry adaptive use is being investigated by Mel Collins of the Preservation Soc., Cumberland, Md.

The Cumberland Brewery in 1890 bought the site of an 1852 cotton mill on N. Center St. at Mechanic that had been founded by a group under the leadership of Alpheus Beall. The Center St. site was chosen as it was undeveloped and on the railroad. (B&O).

The cotton mill closed the year before purchase by CBCo. Brewing began a year later. CBCo. added two wings to the original mill to accommodate its rapidly growing business. During Prohibition CBCo produced the non-alcoholic "Fort Cumberland Beverage" and when the emergency was ended in 1933 resumed brewing.

CBCo. eventually was bought by the German Brewy. Co. of Cumberland and was closed in the 1960s. There are no prospects for reconverting the brewery for use by another industry, although the Preservation Soc. is encouraging its use as a museum on industry-to-industry adaptive use in the 19thC. *W.P.*

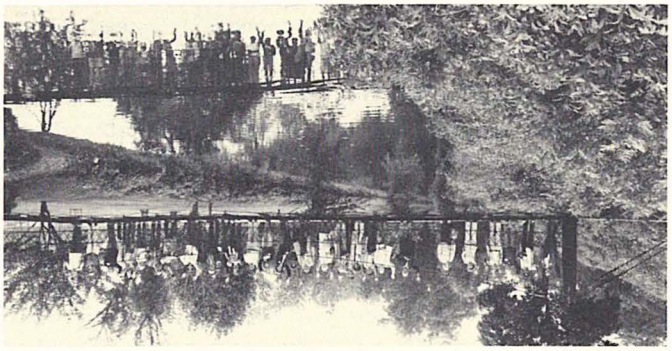
The middle building with "Cumberland" on the gable end is the original cotton mill, engulfed by additions erected by the brewery after purchasing the mill in 1890. *Preservation Soc. of Cumberland, Herman & Stacia Miller Colln.*

CHAPTER NEWS

MCMOC & LATROBE. The Society's oldest and newest chapters conjoined on 18 August in the apparent first Multi-chapter field trip. The Washingtonians and Baltimorians joined hands in an all-day tour of the bridges of Frederick County, Md., examining eleven spans in detail and whisking by some half dozen more. The main focus of the trip was the county's remarkable variety of iron and steel trusses. These have been the basis of an unprecedented plan whereby all of the county's early bridges were inventoried by the county Office of Historic Preservation and in cooperation with the County highway dept. the eight most significant in timber and metal have been placed under official protection and entered in the National Register. (See full account in SIAN Jan/Mar 79:11.)

The tour covered these plus several others, taking in the earliest metal bridge accounted for—the Poffenberger Road Bridge, a double-intersection Pratt truss of 1878 by the Penn Bridge Works incorporating a number of curious details—and in contrast, the latest in the Register—a heavy Parker truss of 1908 on Bullfrog Road.

Characteristic of the small spans built by a number of 19thC bridge companies were the so-called "bowstring" trusses, in reality metallic tied arches stiffened by web trussing, inspired by the success of Squire Whipple's iron trusses with upper chords or arches formed of cast-iron segments. Two of the type were seen on the tour, both in full service and well maintained. The first of these, carrying Bennies Hill Road, was built by the King Iron Bridge Co., a second-generation version of the style that made Zenas King's name (see SIAN Jan/Mar 79:6). The other, on Crum Road (a seeming speciality of Frederick Co. is the picturesque road name), by the Wrought Iron Bridge Co., is the sole survivor *in situ* of a style once numerous in Frederick and adjoining Carrol County.



How many famous people can you spot in the picture? Is the waving man Montgomery C. Meigs or Benjamin H. Latrobe? What is the length of the bridge? How many are there in a span of industrial archeologists? There will be duplicate prizes in the event of a tie.

A diminutive iron suspension foot bridge in the Frederick city park, bult in 1885 by a local machine works, was the most unusual of the spans visited and the lightest; the heaviest without doubt being LeGore Bridge, a massive, unusually lofty masonry arch structure of five arches following an interesting vernacular form. (See SIAN Jan/Mar 79:10).

The trip, organized by HAER's Donald C. Jackson, and Cherilyn Widell of the county Office of Historic Preservation, was in every respect a brilliant success (except it rained a little), and gave the lie to the recently voiced predictions of bloodthirsty territorial confrontation between the contiguous chapters.

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The above-mentioned Jackson, incidently, was elevated to the presidency of the Meigs Chapter at a gala evening meeting on 17 Sept. in Washington's Pension Building, designed by none other than Montgomery C. Meigs and completed in 1883.

RESPONSES

SLOSS FURNACE ASSOCIATION

Birmingham, Alabama

Sir: We feel the article on the Sloss Furnace [July] confirms our belief that this significant Birmingham landmark is of national interest and that concern for its preservation goes beyond our immediate area. There are a few statements in the article, however, that I feel require comment.

Apparently the author had to rely on newspaper accounts for the basis of his article. I am requesting David McMullin to forward a copy of his *Outline of a Plan for the Development of the Sloss Furnace* to you. I think that after reading this you will see that the emphasis is on a quality museum and cultural center complex using the Sloss Furnaces as the focal point and theme element. It is not intended that the "project is to pivot on the amusement-park aspect of the McMullin proposal." The Sloss Furnaces complex is to be preserved and enhanced with a sound and light show to recreate the look of the furnaces in operation.

The statement that SFA has determined which elements of the Sloss complex should be preserved and that its suggestions appear to conflict with this latest scheme is somewhat puzzling. A local engineering firm surveyed the property for the City 2 or 3 years ago and recommended removal of approximately half the complex. SFA took strong exception to this after a committee of our members—including an engineer, architect, and metallurgist—found all but a few small elements to be structurally sound. We actively resisted removal of even the smallest item from the site until a comprehensive plan for the preservation and development of Sloss is made final and we will continue to resist any effort to alter the profile of the complex. We do not feel McMullin's plan conflicts with our efforts to preserve Sloss basically intact.

In July the City voted to employ consultants to develop a master plan for the site and investigate feasibility of the proposed (McMullin) project. Employed were Hardy, Holzman, Pfeiffer Assoc., architects; Thomas Hoving, former director of the Metropolitan Museum of Art; and John Ritt Blum, atty., former chairman of the board of the Brooklyn Museum. We expect their report, including a scale model of the master plan, in late 1979 or early 1980.

The City plans to appoint an overall governing board for the complex, several subordinate boards with specialized interests, and a non-profit corp. to receive grants &c. We expect these appointments to be made in the near future, along with selection of a local architectural firm to work with the consultants.

At this time the SFA is supportive of McMullin's efforts. He has worked closely with us, attending our monthly meetings to discuss his proposals, keep us informed of his progress, and hear our ideas. In addition, we are in contact with him regularly in an effort to assist him and see that the project continues to progress in a manner that will assure a quality development of the Sloss Furnaces.

Yours truly, Jim H. Waters, Jr., President

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In response to the May issue article on the efforts to preserve the Chicago Elevated's famed Loop, we have received a letter from RR historian Field Curry of Pittsburgh. It is full of interesting comment and El lore but its length precludes its inclusion here and we disliked to hack at it. Accordingly, it is dispatched herewith as a *facsimile* Supplement.

PUBLICATIONS OF INTEREST

Conducted by Robert M. Frame III & Susan R. Queripel, Minnesota Historical Society.

George R. Adams, [SIA], **This is Mare Island, Calif., Naval Shipyard Condition Today.** In *Headquarters Heliogram* #102 (Council on Abandoned Military Posts, Box 171, Arlington, VA 22210), July 1978. 8 pp. Includes Drydock No. 1 (1872-91), 1st on US Pacific.

Mary Baldwin & John Wilbur Baer, **A History of Woodward, Baldwin & Co.** Baltimore: Garamond/Pridemark, 1977. 72 pp. $8.00. Baltimore textile mill owners and cloth jobbers. Rev.: Md. Historical Mag., Spring 1979.

Glen Barrett, **Reclamation's New Deal for Heavy Construction: M-K in the Great Depression.** In *Idaho Yesterdays*, Fall 1978. pp. 21-27. Morrison-Knudsen & other major construction firms that benefitted from federal projects and new technology in the 30s.

Israel Berkovitch, **Coal on the Switchback: The Coal Industry Since Nationalisation.** London: George Allen & Unwin, 1977. 237 pp. Hard & soft covers.

James J. Berryhill, **Bicycling Historic Bridges.** HCRS, Dept. of the Interior, Wash. DC 20240. 140 pp. Gratis. The case for incorporating obsolete and abandoned bridges into cycle trails; philosophy and practical means, with costs, methods &c.

D. Randall Bierne, **Residential Growth & Stability in the Baltimore Industrial Community of Canton During the Late 19thC.** In *Maryland Historical Magazine,* Spring 1979. pp. 39-51. First "industrial park" in U.S. (1828), but owned much of local housing as well.

Charles Bohi, **Canadian National's Western Depots.** West Hill, Ont: Rail Fare Enterprises, Ltd. (Box 33, M1E 4R4), 1978. 128 pp. $16.95. Rev.: RR History 140.

Charles W. Bohi & H. Roger Grant, **The Standardized RR Station in Saskatchewan: The Case of the Canadian Pacific.** In *Saskatchewan History* XXXI (Autumn 1978). pp. 81-96. (Sask. Archives Bd., U. of Sask., Saskatoon S7N 0W0.)

Randolph W. Chalfant [SIA], **Calvert Station: Its Structure & Significance.** In *Maryland Historical Magazine,* Spring 1979. pp. 11-12. (Md. Historical Soc. 201 W. Monument St., Balto. 21201.) Important Baltimore terminal (1850-1948).

Patricia Talbot Davis, **End of the Line: Alexander J. Cassatt & The Penna. RR.** NY: Neale Watson Academic Publs., 1978. 208 pp. $15.00. Building of Penn. Station, N.Y.C., as well as other construction of the now bankrupt line. Rev.: Tech. & Culture. Jany. 1979.

Keith Dix, **Work Relations in the Coal Industry: The Hand Loading Era, 1880-1930.** Morgantown: W. Virginia U. Press, 1977. 127 pp. Rev.: W. Va. History, Winter 1979.

Eugene S. Ferguson [SIA], **The Americanness of American Technology.** In *Technology & Culture*, Jan. 1979. pp. 3-24. Fine essay on the philosophy and motivations of American inventors.

Justin Fuller, **History of the Tennessee Coal, Iron, & RR Co., 1852-1907.** Ann Arbor, MI: Univ. Microfilms, 1966. 414 pp., append.; bibl.; maps. Paper, academic $16.50; other $22. U. of N. Carolina dissertation. When acquired by US Steel in 1907 was largest iron & steel co. in South. Rev.: Tenn. Historical Quart., Spring 1979.

H. Hodges, Artifacts: **An Introduction to Early Materials & Technology.** Atlantic Highlands, NJ: Humanities Press (07716), 1964. 248 pp. $11.25.

Donovan L. Hofsommer (Ed.), **Railroads in the West**. Manhattan, KS: Sunflower U. Press (Box 1009, 66502), 1978. 120 pp. $8.00 paper.

Eric J. Holmgren, **Edmonton's Remarkable High Level Bridge.** In *Alberta History* XXVI (Winter 1978), pp. 1-9. (Hist. Soc. of Alberta, Box 4035, Stn C, Calgary, Alta T2T 5M9).

Robert A. Howard, [SIA], **Interchangable Parts Reexamined: The Private Sector of the American Arms Industry on the Eve of the Civil War.** In *Technology & Culture,* Oct. 1978. pp. 633-49.

Louis C. Hunter, [SIA], **A History of Industrial Power in the U.S., 1780-1930. Vol. I: Waterpower in the Century of the Steam Engine.** Charlottesville: U. Press of Va. (Box 3608 Univ. Stn. 22903), 1979. 575 pp., illus., apps. $24.95. Publ. in cooperation with Eleutherian Mills-Hagley Fndn. Detailed account of waterpower from colonial times to its decline (?—at least on a small scale basis) after 1900. Importance of waterpower in the social structure of the early period, transition from small mills to waterpower in large factories—esp. textile mills; development of the turbine and transmission from the turbine into the factory. An important contribution.

Robert C. Reed, **The New York Elevated.** NY: A.S. Barnes, 1978. 256 pp., illus. $17.50. First comprehensive history of most extensive complex of elevated RRs in world. Good account of structure, rolling stock (cable, steam, electric), and operations. Absolutely splendid.

Stuart Smith, [SIA], **A View From the Bridge.** Ironbridge, Salop: Ironbridge Gorge Museum Trust, 1979. 72 pp. (Avail. from SIA, Rm 5020 @ $5.00 PPd.) Essentially a catalog of the 124 graphics and artifacts depicting the Iron Bridge and the industrial era that created it, being shown in a special Iron Bridge Bicenterary Exhibition at the Royal Academy, London. But much more, for it is a synopsised but solid history of this paramount engineering work. Many color plates. Stunning.

Shire Albums. Booklet series on topographical, technological, rural, and social themes in the U.K., nicely treated and illustrated.

Pertinent titles: **Beam engines; Canal Barges & Narrow Boats; Canals & Canal Architecture; Mills & Millwrighting; Railway Architecture; Stationary Steam Engines; Victorian Ironmonger; Village Blacksmith; Vintage Farm Machines.** All about $2.50 from: Shire Publs., Cromwell House, Church St., Princes Risborough, Aylesbury, Bucks HP17 9AK, England.

SERIALS

Civil Engineering. Special issue: Civil Engineering History. American Soc. of Civil Engineers, 345 E. 47th St., NYC 10017. 1978. Reprints articles from 1975-77 issues. 168 pp. $4 members; $8 non-members. Topics incl.: environmental (sanitary); structural; geotechnical; water-resources; and transportation engineering; urban planning; &c.

Energy History Report. U.S. Dept. of Energy Historian's Office, Wash., DC 20585. 4 pp., monthly. Gratis.

History of Technology—2nd Annual Vol., 1977. A Rupert Hall & Norman Smith, Eds. (Avail.: Mansell, Merrimack Book Svc., 22 S. Broadway, Salem, N.H. 03079.) 270 pp. $21.50. The technical problems of different periods & societies and the measures taken to solve them. Incls.: Emory Kemp [SIA], "Samuel Brown: Britain's Pioneer Suspension Bridge Builder"; G. Hollister-Short, "The Vocabulary of Technology"; R. Hills, "Museums, History, & Working Machines"; D. Smith, "The Use of Models in 19thC British Suspension Bridge Design"; N. Smith, "The Origins of the Water Turbine & the Invention of its Name".

———— **3rd Annual Vol., 1978.** 196 pp. Incls.: Jack Simmons, "Technology in History"; R.A. Buchanan [SIA], "History of Technology in the Teaching of History"; P.B. Morice, "The Role of History in a Civil Engineering Course"; A. Rupert Hall, "On Knowing & Knowing How To"; Frank D. Prager, "Vitruvius & the Elevated Aqueducts".

News of the Gateway. John R. Crowl, Ed. Hudson-Mohawk Industrial Gateway, 5 First St., Troy, N.Y. 12180. Bi-monthly newsletter concerning events at the Gateway and discussion of contributions of the region to 19thC industry and technology.

Society for Commercial Archeology Newsletter. Chester H. Liebs & Miriam E. Trementozzi, Eds. The Soc., Wheeler House, U. of Vermont, Burlington 05405. Quarterly, started Sept. 1978. Good bit of IA in with the CA.

Working Papers from the Regional Economic History Research Center. Glenn Porter & Wm. H. Mulligan, Jr., Eds. WPREHRC, Eleutherian, Mills-Hagley Fndn., Greenville, Del. 19807. $5./year; indiv. copies $2.50. Series will incl. contributions from the Center's spring & fall R.E.H. conferences, essays by researchers at the Center, and occasional bibliogs. & finding aids. Estimated 10-12 essays/year.

Summer Field Projects 1979. Historic American Engineering Record, 440 G St NW, Wash., DC 20243. 17 pp. Gratis. Brief description and participants in HAER's dozen or so summer recording, inventorying, and rehabilitation-study projects.

The Official Guide of the Railways, Jan. 1930. NY: Official Guide Reprints (424 W. 33rd. St. 10001), 1978. 1796 pp. $30.00 paper. Information on every passenger train operating in N. America + some air & steamship data. Route maps; station lists; & other information, when things still were nearly at their peak. Valuable historical resource.

Robert R. Goller, Ed., **The Towpath Post. Journal of the Canal Soc. of N.J.** Quarterly. Morristown, NJ: Maccolloch Hall, Box 737, 07960.

MICRO REVIEW

Corps of Engineers Histories.

"I approached the history of the District with no ideological ax to grind, pro or con, and was given *carte blanche* by the District officers. Under these conditions, I hoped to avoid the excesses of panegyric or jeremiad." Thus absolved, Frederick Dobney begins his history of the St. Louis District of the U.S. Army Corps of Engineers, joining 35 other contract historians whose histories of various ACE districts and other entities began coming out in 1975, the Corps' bicentennial year. Dobney's arrived in 1978. Others remain in the works. Of those printed, few fail to stir the deep silent waters of Corps history into a lively broth of engineering derring-do that, whether or not by design, goes far in eulogizing the world's largest and perhaps most unsung organization of engineers.

Being government histories, the books feed directly upon vast banks of primary research material found in the public records. Most of the histories are abloom with previously-unpublished photography and cartography, and contain extensive glossaries and bibliographies along with heavy footnoting and indexing. While some devote most of their pages to the bread & butter civil works of the Corps, others examine the factors that lay behind ACE undertakings—the early shortage of civil engineers and the Corps' interaction with the growth of American technology as examples. The Corps' activities on the operational and geographic frontiers of civil engineering practice lend an unavoidable drama to all the histories.

Due to the strengths of either the authors or the districts, most of the histories tend to have one or two sections of distinctly high-caliber material. The St. Louis District story, despite Dobney's professed nonalignment, has an absolutely swashbuckling account of steam-powered snagboating on the Mississippi, along with a vivid portrayal of Eads' great steel arch bridge at St. Louis. There's a hair-raising telling of the erection of the two Minots Ledge lighthouses in the New England Division history. Despite rather dismal graphics, the Nashville District history includes a complete summary of the canalization of the Cumberland River. The Vicksburg District history lingers lovingly on levee-raising technology and river bank stabilization, while the Baltimore District history unfolds the role played by the Corps in improving coastal waterways. Of special note is the Philadelphia District history. Some exquisite pen & ink drawings and watercolor renderings by Frank Synder [SIA] lend vivid support to Brian Guss' sensitive IA treatment of canal excavation and dredging activities in Penna. and Delaware.

In years past the Corps has taken criticism for what's been seen as a heavy-handed approach to civil works projects: seizing great tracts of land and water, placing national and regional interests over local ones, compromising free enterprise. These recent histories, however non-partial, do appear to counter such outlooks with spirited, well-documented accounts of "good service to the District and the Nation," suggesting their primary function may not simply be history, but morale-boosting for district employees and grass roots buttressing to quiet the hecklers.* Howsoever, the histories make great bedtime reading, offering loads of scholarly insight into the growth and romance of American civil engineering. For a list of those available, write SIAN. *David H. Shayt, Natl. Museum of History & Technology.*

**Let us recall too that it was the Corps that saved the Gruber Wagon Works when they didn't really have to. See SIAN Jan. 77:2.*

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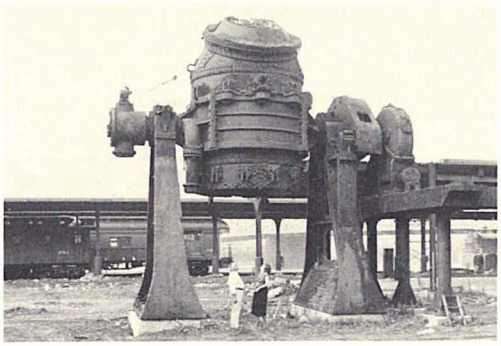

The Bessemer converter, ex-Byers Iron Co. [see SIAN July 77:5], recently arrived at its new home in Pittsburgh's Station Square complex [SIAN May 77:3].

Museum of Hist. & Tech., Ohio Machine Tool Builders Collection.

THE STORY IN A PHOTOGRAPH

TAKE THE PERIOD, say, 1850-1950. When considering the immense weight and volume of the collective product leaving a large machinery-building firm, did you ever wonder in just what raw form the equivalent weight and volume came in at the works entrance? Whether the firm made steam or other engines, machine or other manufacturing tools, locomotives, ordnance, architectural elements, or any other form of heavy goods, invariably its main bulk by far consisted of iron castings.

If a works had its own foundry, as did the larger ones, or if they purchased their castings from a job foundry, the castings had to start somewhere. We all know that castings take form when a stream of molten iron runs from the foundry's cupola furnace directly into sand molds or indirectly into them via a ladle. But how does the iron get into the cupola?

Cast iron is eminently and eternally recyclable and some of the cupola content usually was scrap iron — old machinery, foundry scrap and rejects, and whatall. But the main part of the charge was PIG IRON. And the "pigs" were nothing more than the end product of the blast furnace, in which iron ore was (and still is) smelted.

Although up to the middle of the 19thC it was not uncommon for small castings to be made at the tapping of the blast furnace, it always was the wider practice, and invariable after c1875, for the iron from the furnace to be formed into pigs.* These were crude cast-iron "logs" of managable size and form made by running the iron from the furnace into open molds struck in the sand floor of the casting house at the furnace base. The elongated form of the pig not only made it easy to handle but resulted in large surface area relative to volume for the sake of quick remelting in the cupola. (In the early 20thC pig casting was mechanized with the introduction of "continuous casters" having chains of metal molds.)

When the metal had hardened the pigs were broken away from the "sows", the iron that had hardened in the channels running from the furnace to the individual pigs. Pig iron was a humble but vital item of commerce. It was purchased by the manufacturer, by weight, directly from the furnace or from a jobber.

All of which is by way of introducing this rare view of a shipment of pig iron that has been offloaded at the Hamilton, Ohio works of Long & Allstatter, builders of large presses, punches, shears, and the like, probably in the early 20s. We may assume that we are outside the L&A foundry and that the pigs have been so neatly stacked by a small railroad crane belonging to the works. Until about the turn of the century pigs were made approximately 100 lbs., able to be handled by one man. But by this time they clearly are much larger with handling intended to be mechanical. They would have arrived, typically, in an open gondola car (at right) as bulk freight.

They are, indeed, about to go into the works, the raw equivalent of the machinery that will come out at the shipping department.

*Following the introduction of mass-produced steel, an increasing amount of iron from the blast furnace has gone into the various types of steel-making furnaces (Bessemer converters, open-hearths, electric furnaces, and most recently, basic-oxygen furnaces [BOFs]). These at first were fed pig iron but now universally with the molten iron directly, saving the cost of remelting.

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

N E W S L E T T E R

Volume 8 Number 5 S U P P L E M E N T September 1979

MORE ON THE LOOP

The following letter from railroad historian Field Curry (in real life a railroad signal engineer) is in response to an article in the May issue chronicling the current campaign to preserve the famed Loop of Chicago's elevated. The letter is so laden with interesting information on the Loop and its operations that we thought it worth bringing to our readers intact, without the benefit of our traditional editorial excision.

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FIELD CURRY
305 GARLAND STREET
PITTSBURGH, PENNSYLVANIA 15218

9 September 1979

Dear Robert:

I wonder if David H. Shayt and the other protagonists of Chicago's Union Loop are aware that it has been working less and less, starting with the opening of the State Street Subway in 1943, that "deluge of passengers" is pure fiction, and that the major alterations already have been made.

The State St. Subway took the bulk of the North Side-South Side service off the Loop. At the time, this service was operating on only two sides of the Loop: Wabash and Lake northbound and Wells and Van Buren southbound.

The opening of the Dearborn Street Subway in the 1950s took all of the former Metropolitan West Side service off the Loop. Tower 12 at Van Buren and Wells was removed at this time.

The mid-1960s abandonment of the Chicago, North Shore & Milwaukee RR, who used the middle track in the vicinity of Roosevelt Road (1200 south) as their terminal, meant that Tower 8 at Van Buren and Wabash could be closed as by that time there were no South Side trains using the Loop.

The really big change occurred about 10 years ago when the Lake-Dan Ryan service was begun. The traffic direction of the inner track was reversed, the track layouts at Towers 8 and 18 were altered (quite radically in the case of Tower 18), and new all-relay interlockings installed at each location. Lake-Dan Ryan trains use the Lake and Wabash sides of the loop only, just as a conventional double-track RR.

The only trains that use the other two sides of the Loop, and go completely around the Loop, are Ravenswood (No owl or Sunday/Holiday service) which uses the outer track and Evanston Express (Monday-Friday rush hours only) using the inner track.

I think it very disappointing that the Loop was not recorded when it was in its glory but it is entirely possible that Chicago Transit Authority and particularly CTA people have retained a substantial amount of the Loop's history. In view of the

fact that the Historic Preservation Act of 1966 was in effect when the last alterations were made, it would seem to me that there is a strong case for initiating a historical survey now rather than waiting until some crisis arises.

My last year in Chicago was 1941/42 and I can assure you that evening rush hours on the Loop were really something to watch; I was enthralled by the scene. Morning rush hour is not bad because people get off the platform quickly. In the evening they may have to wait on the platform for several trains to go by. Good transit practice is to operate no more than two different services from the same platform; you have some assurance that each train will pick up at least 50% of the passengers waiting and usually it is substantially higher as there will be common stops for some of the people. In Chicago, there were as many as seven services being operated past the Metropolitan/Lake platforms.

A couple of other gimmicks were used in Chicago and not elsewhere: staggered berthing and multiple berthing. Instead of each train going to the end of the platform and filling the whole platform as in New York, for example, a train would stop so that its doors would be next to platform signs for that particular service. The hope was that people would cluster around the signs and not crowd the platform edge. Platform men were on the job to call out the destination of approaching trains and this helped to keep things from total pandemonium. Since CRT trains were relatively short, it was possible in rush hours to berth two trains in one platform and again the overhead signs told people where to wait. Today, all this is gone, of course.

Tower 18 was without doubt the busiest interlocking this country has seen or will ever see again. The old tower was right in the middle of the intersection and the machine was arranged so that the towerman faced east looking over the machine through a small window so he could see both lines of approaching trains, about each of which he had to make a routing decision. He was in a kind of bay window on the west end of the tower building so he could look left and see approaching North Side trains, and look right to see if there was track space before sending a train through and having it block the plant. To see Lake St. trains he had a mirror which was quite adequate as no routing decision had to be made; he had only to determine whether a train was there. I regret to say that I was never able to be in this tower during rush hour. They speak today of the peptic ulcers that are common among air traffic controllers; I would think this job could easily have been a prime contender.

One of the other interesting facets of the old Tower 18 was bumper tracks; one does not use derails on elevateds, naturally, and the trip-stop system on CRT was so rudimentary that there were short tracks ending in bumpers to avoid side collisions. As I recall one or more headed the train toward the tower building!

Other interesting elements of the Chicago El--but not primarily part of the Loop--were the stub terminals on each line just before reaching the Loop. Apparently these were the actual terminals for each of the lines before the Union Loop was built. (Three of the four lines were in service before the Loop was built. Two of these were built as steam roads; while the Metropolitan West Side was the pioneer electric RR in the country [1894].) The Congress Street stub was only single track and it always has mystified me how it could have handled the millions that visited the World's Columbian Exposition in 1893 (my grandmother included). The Wells Street Terminal, four tracks, was terminal for the Chicago, Aurora & Elgin and a busy place. Merchandise Mart had a three-track terminal. I do not recall the Lake Street stub but I think it was double track. It was the custom of CRT to run a number of trains out of the stub terminals during the rush hour to fill gaps caused by Loop congestion. A rather substantial service was operated out of Wells St. and Merchandise Mart; less out of the others.

Best regards.