

# SOCIETY FOR INDUSTRIAL ARCHEOLOGY

## NEWSLETTER

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### RECIPROCATING FRAME SAW AT THE O'HARA MILL

In many of N. America's newly-settled wooded areas, one of the most important industrial sites was the sawmill with up-&-down, or reciprocating, frame saw. Unfortunately, the documentation and preservation of sawmilling equipment has not been a primary objective of historians, preservationists, or museums, and with rare exception, woodworking history tends to be confused and neglected. The result is that sawmills—an extraordinarily significant class of structures and machines—are misunderstood and poorly represented in museums and preservation programs. In many parts of N. America surviving early woodworking machinery simply is deteriorating, without protest. Even when it is recognized as historic, not often is it given the interpretation and physical attention it merits.

A striking example of unappreciated—and therefore endangered—but very important historic woodworking machinery is on the property of the Moira River Conservation Auth. (MRCA) near Madoc in eastern Ontario, where it is being preserved, after a fashion. It appears to be the only original reciprocating frame-saw in Canada, and one of a handful in N. America. Ironically, though, not until a visit by the writer did MRCA realize that it was a frame saw. Their publications listed it as a "Muley saw"—a later and less significant development.

The O'Hara Mill was built sometime in the 1840s. It operated continuously until 1908, sporadically for another 20 years, and closed permanently in 1928. Remarkably, the derelict mill never was vandalized.

The most unusual feature of the mill itself is that it has survived. Its design is the essence of simplicity. The major components are relatively few. As in all frame saws, the blade is held under tension, here in a massive wooden frame over six ft. x six ft. Saw and frame are driven directly through a connecting rod by a primitive

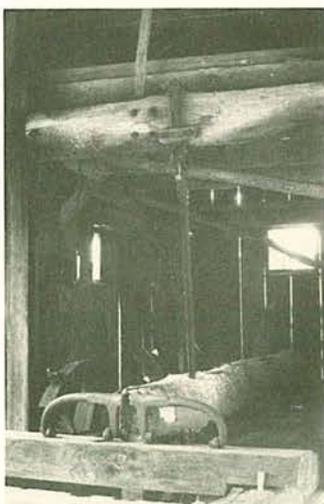
horizontal reaction turbine. The mass of the reciprocating frame limits the speed of such saws to 100 strokes/min. or less. O'Hara normally operates at less than 50. The carriage—all wood except for a few pieces such as the dogs and rack & pinion—moves on inverted-V hardwood rails. The turbine, working pawls acting on a rag (ratchet) wheel, drives the carriage forward. The return—now by hand—once was provided by a Norse wheel. The turbine probably was a late-19thC replacement for a less expensive, but less efficient, wooden flutter wheel.

The problems created by limited water supply, rather than the ravages of time, have caused the mill to suffer its worst indignities. Efforts by MRCA to cope with this problem led to abandonment of the Norse wheel, and the earlier penstock has been replaced by a metal pipe, sheathed with wood in an attempt to give it the appearance of wood-stave pipe. No one is fooled. Even with reduced loss the supply is inadequate. It is proposed that modern technology come to the rescue, in the form of one of the hot rodders' favorites, the Chevy V-8. It has been argued by some of the board that the mill is being retained solely to let visitors see the saw go up and down and the nature of the prime mover is irrelevant; thus the acceptability of the engine.

There are far more acceptable solutions to the very common—and in fact, relatively minor—problem of limited water supply. One is to recirculate the water with an electric pump, a solution used at the Muley Saw & Carding Mill at Upper Canada Village, the Flour Mill at Black Creek Pioneer Village in Toronto, and elsewhere. Also, the terrain is quite suitable for enlarging the millpond. Nor is the number of visitors so great that it is necessary that the saw run daily or even weekly.

The future of the mill's operating components is uncertain. It is to be hoped that future repairs and modifications will bring the mill closer to, rather than further from, original appearance and operation.

The O'Hara saw, the later Muley saw at Upper Canada Village, and other extant, but languishing eastern-Ontario sites have enormous interest and potential. The lumber industry once was an important part of the region's economic foundation, and fortunately significant material remains survive. One only hopes that they will be appreciated, understood, and preserved before it is too late, again. *N.B.*



*Norman R. Ball photograph.*

### THE PETERS CARTRIDGE FACTORY

From across the rolling farmlands of Warren Co., Ohio, near Kings Mills, [5 mi. SW of Lebanon] rises a tall, slender tower reaching skyward out of the forest-covered valley of Deerfield Gorge. Clustered around the ten-story shot tower—one of a handful surviving in the U.S.—are the remains of the Peters Cartridge Factory. The major buildings on the site are early 20thC, of substantial reinforced-concrete with 11-in floor slabs, the exteriors faced with brick and tile. The plant's electricity originally

was generated by the Little Miami River, across which are the crumbling remains of an affiliated black-powder mill dating to the 1870s. Included there are a two-mile headrace and the foundations of such structures as a "Glaze Separator" mill and a "Rifle Corning" mill. A nearby museum displays spark-preventing brass horseshoes used by the animals that transported materials among the mills.

The company town of Kings Mills, complete with paved streets



Peters Cartridge Factory from the Little Miami. Donald Bogosian photo.

and sidewalks, electric lights, and fire hydrants, once presented quite a contrast to the surrounding rural countryside. The nationally-known Kings Island amusement park now is located near the town.

The cartridge factory and powder mills, covering 500 acres, achieved prominence early in the century. After World War II both operations went out of business. Today, a rich growth of floodplain forest covers most of the site.

In 1967, Little Miami Inc. [3012 Section Rd., Amberly Village, OH 45237. (513) 351-6400.] was formed, a citizen's group intent on preserving the Little Miami in its natural state. LMI helped in having the river designated Ohio's first State and Federal Scenic River. As part of the Scenic River program, the Bureau of Outdoor Recreation proposed securing a large tract of land in the Deerfield Gorge.

Meanwhile, in Dec. 1975, the owners of the cartridge property donated about half of the buildings and several acres of land to LMI. Possibly more would be donated if LMI could find a suitable new use for the property. Last Sept. LMI received an Office of Economic Development grant to study re-use possibilities, and contracted with a consulting firm for this purpose.

A concurrent development is Penn-Central RR's planned abandonment of the line serving Kings Mills. A group of local rail buffs has proposed a scenic RR along the river, the cartridge factory to be used as a shop and museum. The state also has expressed interest in the line, as a hiking trail. The two factory areas and the town are being nominated to the National Register as a Historic District.

No definite plans have yet been made for the factory buildings, but LMI hopes to develop a facility compatible with the Scenic River concept. *D.B.*

*Ref: Gelder & Schlatter, History of the Explosives Industry in America. NY, 1972.*

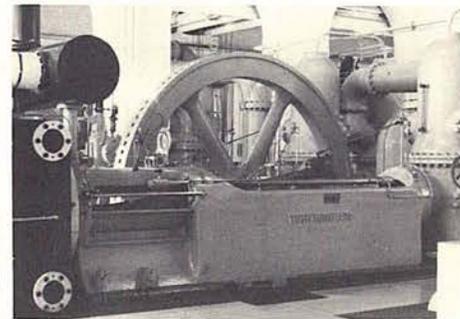
## THE WORTH OF STEAM

Two Corliss engines remain, on stand-by service, in the Brillhart Pumping Station of the York [Pa.] Water Co. Situated three miles S. of York on the eastern bank of Codorus Creek, the station supplies water to c120,000 people in York and its environs. The oldest portion of the brick building dates to 1897. It houses:

TYPE	YEAR	BUILDER	CAPACITY (million gals./day)
Reciprocating	1914	Snow	8
	1925	Worthington	6
Centrifugal (turbine)	1925	Worthington	9
	1946	Worthington	9
Centrifugal (electric)	1955	Worthington	18
	1957	Worthington	18
	1959	Worthington	9

A small package boiler keeps the pumping engines in readiness and a 1947 Babcock & Wilcox oil-fired boiler is routinely fired twice a year when the steam units once again carry the pumping load. There also is a 1925 Badenhausem boiler with coal ram and a day's supply of coal.

On 21 June 1972 the flooding from Hurricane Agnes was



Brillhart Pumping Station, York, (R) The Worthington 6 mgd steam pumping engine of 1925. Stephen Heaver, Jr. photographs.

beginning to swell the Codorus and the basement of the station was filling with water. By midnight the engine room was beginning to fill with water carrying mud, grit, and debris. At 4:00 AM on the 22nd the last electric pump was shut down and the power company told to shut off the station's electricity.

After 47 hours, operations were resumed with the 9 mgd electric pump. For two days prior, company personnel had worked 'round the clock drying the electric motors, controllers, and switchgear, as well as running temporary lines. As it would have taken too long to dry the large 18 mgd pump motors in time to maintain the water level in the company's reservoir, the boilers were prepared for lighting off. At 10:00 a.m. on the 24th the first steam turbine was put on the line followed by the Snow Corliss at 11:30. At that point there was only enough reservoir water for a half hour of service.

Five more days passed before the first electric pump was started. During that time, the steam pump maintained full water service. On the 29th the 1957 pump with 1000 hp motor was put on the line and steam service discontinued. All was well for five more days until another electrical problem developed and steam came to the rescue for an additional three days. Steam was used later on for a week, while the plant's substation was being moved to higher ground, and occasionally is used during summer "brown outs" as well as during the biennial runs of the turbines and engines.

The York Water Co., a private stockholders' corporation, proudly maintains all of its pumps with the idea that in diversity lies the ability to work within a broad range of demands. *S.H.*

## TECHNOLOGIES REVIVED

**A ROSE BY ANY OTHER NAME DEPT.** They do it with a straight face, in a formal little bulletin full of graphs, tables, and a map of "heating zones" in the U.S., calling it all "The Emerson Heat Reclaim System." These are the folks at Emerson Electric Co., St. Louis, who since the '90s have been making those classical 4-blade, low-r.p.m. ceiling fans. They still are, only now, with concern for energy conservation, the things no longer are just fans, they are a "system," (like those new razors that are "shaving systems"). Yes, that's all in the world that the EHRS is: ceiling fans bringing that mass of heated air up around the high ceilings of industrial buildings down to working level. But we're not fooled—we'd know you anywhere, Fan: Same style, same design: pull chain, high & low speed, wood (like) blades, &c. And playing both sides of the street, when used to "... add a little enchantment to the family or garden room ... the cafe; the boutique ... wherever there are people. ..." they become "Casablanca Ceiling Fans." Revive it again, Sam.

**RE-INVENTING THE WHEEL DEPT.** The U.S. Dept. of Transportation's Urban Mass Transportation Admin. is sponsoring a radical "demonstration project" in N.Y.C., in an attempt to evaluate the feasibility for U.S. cities of increasing the passenger capacity of transit routes, while using no more street space than present modes; at the same time increasing the passenger-driver ratio to reduce operating costs. The experimental mode might even, it is felt, be widely used "off-peak," by attracting tourists and sightseers. Eight of the units, built by British-Leyland Corp., are reported already in revenue service. They are buses, but with, like, *two floors*, one up and one down ... no, really, folks ... and they're being called, *double-deckers*. Far out, er, up.

*Continued ...*

**RETURN OF THE FERRIES.** The *L.A. Times* tells us that the circle is complete, or broken, or something. Anyway, the traffic on San Francisco's Golden Gate and Transbay bridges, the links with Oakland that made the ferries obsolete in the first place, now has grown so heavy that they are to be reinstated. But it won't be the steam side-wheelers and it won't be without controversy. Sometime late in the year the first of three sleek, aluminum-hulled, gas-turbine-powered, 750-passenger vessels will go into service, from an ultra-modern terminal. When all are running they will carry 3,200 commuters, reducing rush-hour traffic on the Golden Gate Bridge by up to 2,500 cars. That is, if it is the *automobilistes* who opt for the new mode. But, the skeptics ask, what if it is the present *bus riders*?

**TROLLEYS.** Noted in *SIAN* Mar 76:4 was the intended resurrection of streetcar service in Detroit. It has happened: on 20 Sept. service began—the first new trolley operation in N. America in decades—with a group of handsomely painted open cars of c1900, ex-Lisbon. The nine-block line, costing \$1.5 million (mostly federal funds), is part of a plan to revitalize Motown's CBD. It would be nice if this really were a harbinger.

**NEO-SCHOONER.** Dover, N.H. dairy farmer E.A. Ackerman is having built at the Newbert & Wallace yard, Thomaston, Maine, the *Leavitt*, a two-masted schooner, to haul odd and oversized cargoes between coastal ports, plus up to six passengers, with a crew of three. She will be the first cargo sailing ship to be built in Maine since 1938.

## CANAL NEWS

**ILLINOIS & MICHIGAN.** Work has begun on the semi-restoration of I&M Lock 1 at Lockport, Ill. (JOLIET 114038). The two-year project is expected to restore only the lock masonry, however, as full restoration, with the gates, would flood a number of encroachments that have been built along the banks since closure of the canal in 1930. The work is being undertaken by the Ill. Dept. of Conservation as the first phase in a general plan to restore two of Lockport's four locks and a length of canal towpath for cycling and hiking. The 110-mile canal, completed in 1836, connected Lake Michigan at Chicago with the Mississippi, via the Illinois River.

**DELAWARE & RARITAN PROGRESS.** The D&R Canal Comm'n, established by the N.J. legislature in 1974, has completed a master plan for the 65-mile-long canal park. Executive Director, James C. Amon, reported that in addition to planning for the development of the canal itself, work also had started on detailed scientific studies of soils, vegetation, hydrology, geology, and the history of the region along the canal. The comm'n has land-use authority over all projects within an area that might have impact on the canal park, and the studies will be incorporated into the land-use regulations governing this area. Other projects begun by the comm'n include interpretive signs and maps, and a design vocabulary book providing architectural and landscape architectural standards for park development.

**FOX CREEK CANAL MEMORIALIZED.** An early connecting link between the Merrimack River and the shipbuilding yards of Essex, Mass. was honored at a small ceremony 1 Sept. According to local historian Harold Bowen, initiator of the project to erect a granite marker, the mile-long canal (IPSWICH 536261), constructed in 1820, is "the oldest man-made tidewater canal in the U.S." Any other contenders for this honor?

**MIDDLESEX CANAL PACKET BOAT LAUNCHED.** The Woburn [Mass.] Historical Comm'n., as part of its bicentennial effort, has completed a full-scale replica of a Middlesex Canal packet boat of c1803. Launched on the waters of the canal in July, the *Colonel Baldwin* has been moored at a newly-opened Canal Historic Park in Woburn (WILMINGTON 226075). The park, dedicated 15, Sept., also contains the Loammi Baldwin Mansion, moved to its present location a few years ago and also operated by the comm'n. Beginning next May, the packet boat is expected to make short excursions along a restored stretch of the canal. *PS.*

**ANGLO-WELSH CANAL TOURING.** Let the effete have their Aspen and Caribbean. The knowing have in recent years been taking the ultimate vacation, on the canals of England & Wales, mostly through one of the various firms renting self-driving, on-living, powered "narrow boats." An attractive-sounding scheme is being offered by Paulsen Travel Bureau (431 Springfield Ave., Summit, NJ 07901, (201) 273-1313), for groups of 4 or 8, involving a week in a London apartment and a week on the boat, touring some of the world's most stunningly beautiful scenery and stunningly interesting IA on the Staffordshire & Worcestershire, Shropshire Union, Llangollen, and other canals on the 2000-mile navigable system. Data; brochure: PTB or directly from: Anglo-Welsh Narrow Boats, Leicester Rd., Market Harborough, Leics, LE16 7BJ, England.

## IA IN PHILATELY

**ASHTABULA BRIDGE COLLAPSE CENTENARY.** The Ashtabula [Ohio] Co. Stamp Club has issued a limited edition (1200) Cover with descriptive card commemorating America's worst bridge disaster, unfortunately one of many involving iron bridges, but bringing attention to the need for higher standards in bridge design—especially stress analysis and strength of materials.

On the bitter cold night of 29 December 1876, with a blizzard raging, the Lake Shore & Mich. Southern's luxurious *Pacific Express*, running late and double-headed, was braking for its stop at Ashtabula just W. of the bridge—a 165-ft span Howe deck truss of 1865. The engineer of the lead engine heard a loud noise while on the bridge and opened the throttle. He alone made it across; the bridge, second engine, and cars fell to the valley floor and icy creek 70 feet below. As was inevitable then, the wooden cars were set afire by their heating stoves but even so, one-third of the passengers were rescued. Avail.: Glen Osburn, Pres., ACSC, Box 132, Ashtabula, OH 44004. Send #10 stamped, addressed envelope + 60¢ each (limit 3). (*Abstracted from Conneaut (OH) Museum Newsletter by F.C.*)

**CANADIAN SHIPS.** Canada, shortly before raising first-class



postage rates, issued a set of four-in-block, old-rate 8¢ stamps each showing a different vessel, each named, each a different color: three steamers; two full rigged. The new rate is commemorated by a companion four-stamp set with four other vessels: two side-wheelers; a stern wheeler; and a propeller. Artistic, accurate, and handsome all.

**THE HISTORY OF AMERICAN ENGINEERING** is told entirely through the use of U.S. commemoratives, in an American Soc. of Civil Engineers slide film: *The Builders of America*, using 84 different stamps photographed in color. Engineers will be surprised and pleased to learn how many engineers and engineering achievements have been honored on stamps. 80 slides, with synchronized cassette tape narration and printed script, mounted in a carousel slide tray, \$50. Film Comm Inc., 208 S. LaSalle St., Chicago, IL 60604. (Inquiries: Herbert R. Hands, ASCE. (212) 644-7661.)

**TELEPHONE CENTENARY.** At least 65 countries have issued stamp(s) on this theme, certainly a record, and underscoring its importance in our lives. First day covers alone are worth c\$200; mint sheets and the other collectibles, a small fortune. *F.C.*

**CHINA-JAPAN SUBMARINE TELEPHONE CABLE.** Japan has issued a handsome 50-Yen stamp, depicting China & Japan in outline, a cables ship, and a cable with repeater, commemorating the opening on 25 October 1976 of a 530-mile (850-km) 480-channel cable between Shanghai and Kumamoto Prefecture, the first cable communication with China since the early 1940s. (*Abstracted from Cable & Wireless, Ltd., Zodiac by F.C.*)

## THE WORK OF IA

### The Eaton (Hopewell) Blast Furnace: First Industry in the Western Reserve

The Eaton Furnace on Yellow Creek in Struthers, Ohio (S. edge of Youngstown), built in 1802, is the earliest blast furnace west of the Alleghenies and the oldest industry of any kind in the Western Reserve. When the furnace went out of blast prior to 1812, the seasons took hold collapsing the massive sandstone structure and covering the gorgeside site with up to seven ft. of erosional overburden. The only visible remains were the tuyere opening and a small rim section of the refractory inner lining.

Archeological excavation was begun in the summer of 1975 by the Youngstown State Univ. Dept. of Soc./Anthro. and in 1976 was expanded to include the workers' habitation area beyond the furnace headrace. The furnace remains have been entirely exposed, as have the casting floor, trompe area, and the stone foundations and cellar of a dwelling. Hundreds of artifacts attest that the furnace produced not pigs but readily cast ware such as stoves, utensils, and tools. Also found, beneath 5½ ft. of overburden, was a *salamander* representing the furnace's premature last cast. This "blow-out" runner of iron and uncooked impurities extended from the hearth mouth 20 ft. onto the casting floor. No further attempts ever were made to re-fire following this accident.

Extensive metallurgical analysis by specialists at Youngstown Sheet & Tube Co. seems to provide the clue to the furnace's relatively short duration: the poor desulfurizing capability of the slag created problems when the furnace switched fuel from charcoal to a mixture of charcoal and raw bituminous coal. This factor taken atop the sudden "blow out" may have been the final straw for Eaton. *J.W.*



Eaton Furnace excavation. (L) The furnace front and hillside. (R) Forehearth area. Dark patch in foreground is Eaton's premature last cast. *J. Kivowitz photographs.*

**PHILADELPHIA GAS WORKS.** David G. Orr [SIA], Dept. of American Civ., Univ. of Pa., reports that work begun in 1974 at the Phila. Gas Works' Point Breeze Station continues. Of the four original structures of 1854, two are gone—the Gas Holder and the Retort House—the survivors the subject of the study. The Meter House has been measured and drawn by architect Herbert W. Levy [SIA], and Orr's students now are similarly documenting the Purifying House. A general inventory of all structures on the site is in progress and the company's extensive photographic archive is being catalogued. The first section—a list of the paper prints—is complete, with publication planned. Orr's Phila. Industrial Index, a card inventory, continues in work, entries for the Manayunk textile community, the Phila. Navy Yard, the Frankford Arsenal, and others, now complete.

**1976 SUMMER INTERNS.** George M. Danko [SIA], a Natl. Trust intern working at the State Hist. Soc. of Wisc., prepared an extensive report, *The Development of the Truss Bridge, 1820-1930, with a Focus Toward Wisconsin*. In the course of the work Danko located a large collection of early-20thC bridge construction progress photographs at the former works of the Wisc. Bridge Co., which have been donated to the Society.

Christopher J. Teasdale, a 1976 Skidmore graduate, for the Dutchess Co. (N.Y.) Landmarks Assn. prepared a report on the preservation of the Poughkeepsie (Cantilever) Bridge erected over the Hudson in 1889 by the Central New England RR; reinforced in 1906; discussed since a 1974 fire. It is heavily deteriorated and in jeopardy.

**HUDSON-MOHAWK INDUSTRIAL GATEWAY.** The Gateway, under the guidance of Pres. Thomas Phelan [SIA Bd.] and Exec. Director Thomas McGuire [SIA], has made constructive progress during the year past in furthering its efforts to preserve, interpret, and adaptively use the IA of Troy-Cohoes-Watervliet, N.Y. A feature of the Gateway's program has been a series of tours for both local people and outside groups. Last Sept. an all-day tour of the area's IA was conducted by the American Assn. for State & Local History with Gateway sponsorship, combined with a series of talks on national and local matters of IA concern at key sites along the way.

HMIG has published two important reports, both models and of potential usefulness to similar undertakings. *The Preservation & Utilization of 19thC Industrial Architecture in the Hudson-Mohawk Region* resulted from a City Edges competition grant that permitted an intensive study of certain buildings and complexes, their historical and architectural worth, and potential for tourism and creative adaptive use for industrial or community purposes. *The Burden Iron Co. Office Building—A Historic Structure Report*, prepared by Mendel-Mesick-Cohen, Architects, fully describes the 1882 building historically and architecturally (including an essay on its architect, R. H. Robertson), and presents a plan for its restoration and adaptation to a headquarters for HMIG. (32 and 44 pp. respectively. HMIG, 5 First St., Troy, NY 12180.)

**BRICK KILNS.** An extensive *Report to the U.S. Agricultural Research Service on the Cultural History Values of the N.Y. Ave. Brickyard* by architectural historian Dorothy R. Jacobson comprises an interesting account of the brick industry in Washington, D.C., and a detailed history of one of the city's more interesting industrial sites. The report is in consequence of the site's purchase by the Dept. of Agriculture for expansion of its Natl. Arboretum. (Executive Order 11593 requires such reports for any property to be affected by federally-funded projects.) The site's most impressive feature is a battery of 12 beehive brick kilns, built c1930. The Report considers the potential for arboretum use of the kilns as visitor facilities. (USARS, USDA, Wash., DC 20250.)

**OIL PIPELINE SURVEY.** In 1881 Standard Oil laid three 6-in. pipelines from Olean, N.Y., to Bayonne, N.J.—315 miles. The line ran due E. from Olean to Unionville, where it crossed the N.J. State Line. It then traversed NE N.J. through Sussex, Morris, Passaic, Bergen, and Hudson cos. This system pumped 50,000 barrels of oil/day from the fields of western Penna. to refineries in Bayonne and N.Y.C. The pipeline was abandoned in 1927 when the production from eastern oil fields waned. The North Jersey Highlands Hist. Soc., under the direction of archeologist Edward J. Lenik [SIA], is studying the construction and operation of this pipeline system, and its impact on people and the environment. Lenik conducted a survey along the route, recording pumping sites, village scenes, and pipeline features. His study locates remaining pumping stations and pipeline crossings in N.Y. and northern N.J. A section of pipe has been salvaged and will be preserved in the society's museum. (The survey was described by Lenik at the 1976 SIA Conference, Lowell.)\*

**REED GOLD MINE STATE HISTORIC SITE.** Six months of field research was completed in 1975 at this site in Cabarrus Co., N.C., directed by the Archeology Section of the state's Divn. of Archives & History. The mine was the site of the first gold find by western peoples in the new U.S., when a boy picked up a 17-lb nugget from Little Meadow Creek in 1799. This and subsequent finds on the property of John Reed started the U.S.'s first gold rush, in 1803. The research concentrated primarily on the site of the 1899 stamp mill, which represented the last phase of the mine's industrial operation. The stamp mill reduced partially crushed ore to powder so that the gold could be extracted. Numerous parts of the mill were uncovered by the excavations, including several parts recovered from a lake on the site by underwater archeologists. Extensive soil sampling was used in an effort to find evidence of the historically-documented shift from mercury to potassium cyanide in the chemical processing of the ore. Excavation was done by a crew of six using CETA, Title VI funds.\*

**CONRAIL SURVEY.** The Natl. Historical Publs. & Record Commn. has awarded the Eleutherian Mills-Hagley Fndn. a grant for the survey of the seven eastern U.S. RRs that form Conrail. The project goal, according to its director, Richmond D. Williams, is to preserve invaluable historical data from inadvertent or willful destruction. Over the next four months, EMHF's Hugh Gibb, Specialist in Industrial Collections, and Duane Swanson, Field Representative, Minn. Hist. Soc., will locate, describe, and appraise the records of the companies, develop working inventories, and recommend which materials should be saved or destroyed. Immediate concerns of the project are to find personnel to work with Gibb & Swanson on the survey, and storage space for the records that are saved. Institutions interested in collecting RR records are asked to supply staff members, whose expenses will be paid by the grant. Just as important is the creation of an alliance of RR curators, administrators, archivists, and research scholars who will provide long-term collecting and archival advice and assistance. EMHF, Greenville, DE 19807, (302) 658-2401. (Abstracted from EMHF Newsletter.)

**SANITARY ENGINEERING.** A Cultural Resource study was undertaken last summer by Stephen Israel [SIA], to document and review Trenton's sewer system for the N.J. Dept. of Environmental Protection. A new and larger interceptor sewer is planned to replace 4700 ft. of an existing 1892/93 brick interceptor. In 1884, the City of Trenton retained Rudolph Hering, eminent Philadelphia sanitary engineer, to design a comprehensive city-wide sewer plan. This was completed in 1885 and revised in 1889. Hering's brick gravity-flow sewers consisted of egg-shaped and circular, brick and terra cotta, and cast-iron sewers, laid in a prepared bed. The brick interceptor and main trunk sewers were constructed 1888-93. Thereafter, the smaller and shallower laterals were laid at a quicker pace. Trenton's last brick sewers were built in 1903; by then concrete lines had become more economical.

Substantial documentation was found on Trenton's early brick sewers. Their technological importance and the social/cultural implications of the system's benefits to Trenton residents assures the brick interceptor's eligibility for nomination to the Natl. Register of Historic Places.

**NEW COVERED BRIDGE.** A group of Penna. State Univ. civil engineering students, as a Bicentennial project, built a pedestrian covered bridge in Spring Creek (township) Park near State College. The 38-ft.-span timber structure follows classical lines, although in the construction a composite of traditional and modern fastening methods was used. All design and construction of the abutments and superstructure was carried out by the students. (Fuller account: *Civil Engineering*, Sept. 1976:109.)

## IA ORGANIZATIONS

*We will continue, from time to time, to note organizations that, while not principally devoted to IA, embrace purposes and activities so closely related that we feel their existence is of interest. Those following are a random lot not having any particular relationship one to the other. We would be pleased to learn of others. A directory of all such would be a useful document. If anyone would like to take on its compilation, please contact the editor. Date following name is that of founding. Dues & fees noted are per annum.*

**PRESERVATION LEAGUE OF N.Y. STATE, 1974.** "Private, non-profit organization dedicated to the conservation and continued vitality of the state's historic environment." Preservation, education, adaptive reuse. Activities: newsletters; technical services; preservation leaflets; meetings & conferences; placement service. \$15 (students, \$5). 184 Washington Ave., Albany 12210.

**AMERICAN CANAL SOCIETY, 1972.** "To encourage the preservation, restoration, interpretation, and use of the historic canals of the Americas, particularly the U.S. & Canada... and the exchange of canal information on a worldwide basis." Quarterly

**GOLD MILL.** The U.S. Bureau of Land Management has moved a 1909-c1929 gold mill from the Henry Mountains of central Utah to a BLM visitor complex near Hanksville. The entire mill has been moved, including a two-ton waterwheel, 20 ft. in diameter, which was moved by helicopter.\*

\*Abstracted from *Soc. for Historical Archaeology Newsletter*.

## CONTINUAL HARPING ON RECORDING NEEDED DEPT.: BULK MATERIALS STORAGE STRUCTURES.

Truly, no one seems to be attending to these unobtrusive, unsung, but vital special structures that abound in every industrial area. With changing patterns of bulk-materials usage—especially fuels—they are disappearing at a good clip, and if we don't get out there and at least photograph them — but better, measure & draw — we'll regret it. Let's think coal for a start. From the smallest towns to the largest cities can still be found coal silos or elevators in a variety of configurations, invariably on rail sidings. In most cases, these were built and owned by coal companies rather than RRs. Below are two, recently noted at random within 4 miles of one another.



Coal storage structures. Top: the country cousin—N. Bennington, Vt. Bottom: the city cousin—Bennington, Vt.



*American Canals*; bulletins; data sheets; misc. publs.; field trips. U.S. & Canada \$6. 809 Rathton Rd., York, PA 17403.

**ECONOMIC HISTORY ASSN, 1940.** "To stimulate interest in the study of economic history; encourage research in economic history and history of economic ideas; cooperate with societies devoted to the study of agricultural, industrial, or business history; and to collaborate with economists, historians, statisticians, geographers, and all other students of economic change." *Quarterly Journal of Economic History* (heavy in technological change, technology transfer, diffusion of innovations, & invention, from the economic historical standpoint). Members also receive triennial *Economic History Review* [GB]. U.S. \$10 (students, \$3); Canada \$10.50 (students, \$3.25). R.D. Williams, Secy-Treas EHA, Eleutherian Mills Historical Library, Wilmington, DE 19807. (302) 658-2401.

**WIND ENERGY SOCIETY OF AMERICA, 1974.** Advancement of wind energy technology by disseminating knowledge, coordinating research, and acting as central source of information. Annual symposium; excellent newsletter (a recent one containing an extensive wind bibl.); other publications. 1700 E. Walnut, Pasadena, CA 91106.

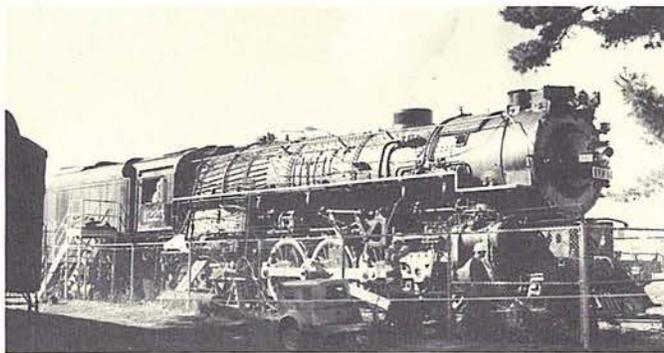
**THE TREVITHICK SOCIETY FOR THE STUDY OF THE HISTORY OF INDUSTRY & TECHNOLOGY IN THE COUNTY OF CORNWALL.** Annual journal; quart, newsletter. Paul Stephens, Hon. Secy., 23, Merrick Ave., Truro, Cornwall TR1 1NF, Engl.

**UNION DES ASSOCIATIONS PROTECTRICES DES MOULINS.** Assn. of all French mill organizations. Center for mill studies: technology, restoration, preservation, history. Journal; other publs. 58, Rue St. Lambert, Paris 15<sup>e</sup>.

**THE INTERNATIONAL MOLINOLOGICAL SOCIETY.** Study of wind and watermills throughout the world. Annual symposium; bulletins; other publs. J. K. Major [SIA], Hon. Secy., 2 Eldon Rd., Reading RG1 4DH, England.

**NICKEL PLATE ROAD HISTORICAL & TECHNICAL SOCIETY.** 1966. All aspects of the history of the N.Y. Chicago & St. Louis RR, but principally its motive power. Quart. *Newsletter*; annual *Magazine*; other publications. Box 6212, Fort Wayne, IN 46806.

**MICH. STATE UNIV. RR CLUB.** Principally sponsoring "PROJECT 1225," the total restoration to working order of Pere Marquette Ry. Berkshire-type (2-8-4) locomotive 1225, built 1941 by Lima Locomotive Works, on outdoor display since 1957. This will be one of about four large American steam locomotives in operation when work is complete c1977. Work described in fascinating detail in monthly newsletter. \$5. MSU Museum, E. Lansing, MI 48824.



Pere Marquette RR Berkshire 1225, built 1941. Test steaming of rebuilt boiler, Oct., 1975. John B. Corns photograph.

**CANADIAN NATIONAL ELECTRIC LINES HISTORICAL GROUP.** 1974. All aspects of historical electric RRs, interurban, and street railway lines in Canada. Quarterly bulletin. \$5.50. Box 565, Oshawa, Ont. L1H 7L9.

**AMERICAN INSTITUTE OF NAUTICAL ARCHEOLOGY.** 1973. "Nonprofit scientific/educational organization whose purpose is to gather knowledge of man's past as left in the physical remains of his maritime activities and to disseminate this knowledge through scientific and popular publications, seminars, & lectures." Full-time staff conducting program of exploration. Newsletter; summer field schools; slides & publications; tours. \$15. Box 261, Philadelphia, PA 19105.

**THE COMMITTEE FOR A NATIONAL MUSEUM OF THE BUILDING ARTS** has been formed to promote the establishment of same, to be housed, it is hoped, in Washington's 1885 Pension Bldg. [SIAN May/July 76:11], the immense central court of which would be one of the most striking imaginable settings for exhibition in this field. Building arts here takes in, naturally, all technological aspects of building; not only structural but mechanical systems, materials, &c. The Committee is a group of distinguished educators, architects, engineers, architectural historians, urbanists, and business & labor leaders from around the U.S.

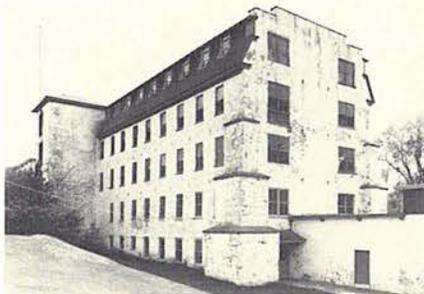
Far more than a museum is intended. NMBA is to be a research center embracing an archive of drawings and other documents, a library and reference service, an extension service to stimulate more awareness in schools of building and planning, and a study

center to encourage scholarly natl. and internatl. exchange. Grants totalling \$85,000 from NEA, HUD, and the LAW Fund have made possible assembly of a small professional staff under the guidance of Cynthia Field [SIA], Exec. Dir. The *Wash. Post's* distinguished architectural critic, Wolf Von Eckardt, has taken a year's leave-of-absence to direct the initial planning studies. 1525 New Hampshire Ave., NW, Wash., DC 20036. (202) 667-6700.

### ADAPTIVE USE

**ST. JOHNSBURY, VT. STATION.** *Possibilities* (2nd Quart. 1976) reports a situation developing with the Canadian Pacific Ry. depot—a handsome 2½ story brick structure of 1883—having several parallels to the saga of Richardson's New London, Ct. station. Under discussion by state historic preservation officials, town selectmen, and a Burlington developer is the possibility of integrating the station into a proposed shopping complex on an adjacent site. Boston architects Anderson Notter Assoc., whose design for the partial conversion of New London Station [SIAN Jan 76:2] was a critical factor in its preservation, have been retained by the developer to prepare a feasibility study of the plan and to determine the structural work required. Despite this, there is some apprehension among preservationists that the developer's desire to save and utilize the building is not wholehearted, and that his principal goal is to secure the land. The success of the New London project and of several local schemes involving the adaptive use of commercial properties may inspire the city government itself to take over the station, as part of a larger rehabilitation and planning undertaking.

**ALLENDALE MILL CHANGES HANDS.** It now is one of the most interesting textile mill sites in New England, the cotton mill Zachariah Allen built at Allendale, R.I. (now part of N. Providence) in 1822, adding to it in 1825. An 1830s fire caused major rebuilding c1839, when the by-then common "slow-burning" heavy-timber interior framing was installed. (It has become evident that contrary to general belief, Allen did not "invent" the system and first install it in this structure as original construction). Numerous additions and alterations were made later in the 19thC. More importantly, Allen experimented with high-speed line-shaft and leather-belt power transmission at this site in the early years, becoming recognized as an important figure in textile technology for this and other innovations. (See his "The Transmission of Power from the Motor to the Machine," *New England Cotton Mfrs.' Assn. Proc.*, No. 10, Boston, 1871.) The mill has been purchased by George Nathan Assoc., silk screeners, who will use about half the space, renting the other half. The new owners are appreciative of the mill's historical importance (it is in the Natl. Register and was recorded by the New England Textile Mill Survey in 1968) and are, in fact, planning to restore its water power. T.S.



Allendale Mill. 1969  
photograph by Jack E.  
Boucher for HABS.

**KINGSTON, ONT. BREWERY.** A community theater and crafts center opened last summer, in the stable yard of the old Dalton/Molson brewery (c1840 and later). The center is officially called the Olympic Theatre in honor of the 1976 Internatl. Games, which included several events staged in Kingston Harbor. The quadrangle of limestone buildings (viewed on the fly during the 1973 SIA Rideau Canal Tour) faces Lake Ontario, a mile W. of the city's business district. In this century the property served a number of non-industrial uses, including a hospital, and military and public works storage. D.C.N.

## MISC. NOTES

**ALTERNATIVE VEHICLE REGATTA—77.** For the past three years the Auto Rd. up the slopes of Mt. Washington, N.H. has been the scene of a strange auto "race," [SIAN Jul/Sept 75:5] with cars and motorcycles toiling up 18% grades, around 99 turns and switchbacks to reach the 6288-ft. summit . . . propelled by flywheels, steam, I.C. engines, or electric motors . . . burning sewer gas, chicken manure, propane, salvaged jet fuel, used hamburger fat, charcoal, or alcohol; or consuming electric power generated by windmills and water wheels. The contest's object is not speed. Any vehicle completing the course in under 25 minutes is disqualified. Rather, these unique cars being designed during the twilight of the Age of Petroleum call for a minimal expenditure of energy, and are encouraged to look elsewhere than the oil well for fuel. The Third AVR, 23-25 June, promises to bring forth a myriad of curious and interesting vehicles. All are invited to enter/observe. Information: Charles E. MacArthur [SIA] Administrator, Mt. Wash. AVR, 1505 John Fitch Blvd., Box 634, S. Windsor, CT 06074. (203) 289-6851.

**BUILD YOUR VERY OWN IA MONUMENT!** We've all seen those handsome paper scale models of well-known historic buildings (the Governor's Palace, Williamsburg; the White House; &c). Now one of the most picturesque American IA structures is obtainable in cut-out & paste-up form: the **1869 Chicago Water Tower** which still graces Michigan Ave. Chief Engineer was Ellis S. Chesbrough, architectural guidance provided by W. W. Boyington. The tower, one of the few survivors of the 1871 Great Fire, was honored by the American Water Works Assn. as "The First American Water Landmark" in 1969. The city designated it an Architectural Landmark in 1971. The model was created by Robert Basso. Avail: The ArchiCenter, 111 S. Dearborn St., Chicago, IL 60603. \$2.50 PP. + 5% in IL. Does Mr. Basso have more IA structures in mind? T.S.

**18th-19thC INDUSTRIAL PRINTS—REPRODUCTIONS.** The First Iron Bridge (1782), The Upper Works at Coalbrookdale (1758), Amalgamated Soc. of Engineers' Membership Certificate (1852), Mouth of Coal Pit near Broseley (1788), &c, &c. Listing + postcards, publications, & 35 mm slides avail. Shop in the Square, Ironbridge, Telford, Salop, TF8 7AW, England.

**INDUSTRIAL REVIVAL.** The last maker of silk top hats—Mark Spooenberg of Eindhoven, Netherlands—two years ago closed his 160-year old business because of higher costs and what he saw as declining demand. A sharper judge—Carlo Habig of Vienna—bought Spooenberg's equipment, went into business, and now barely can keep up with orders, even at \$80 a throw: from magicians, equestrians, and who knows who—all else, world wide.

## PUBLICATIONS OF INTEREST

Jeremy Atack et al, **The Profitability of Steamboating on Western Rivers: 1850.** In *Business History Review*, Fall 1975, pp 346-54.

Paul Barrett, **Public Policy & Private Choice: Mass Transit & the Automobile in Chicago between the Wars.** In *Business History Review*, Winter 1975, pp 474-97.

Hugh Bodey, **20 Centuries of British Industry.** N. Pomfret, VT: David & Charles, 1975. 208 pp., illus. \$18. A wide range of material assembled in a manageable and agreeable way. (Reviewed: R. A. Buchanan [SIA], *Tech. & Culture*, July.)

John Brooks, **Telephone: The First Hundred Years.** NY: Harper & Row (10 E. 53rd St., 10022). \$12.50/2.95. The telephone itself and the Bell system. A co. history but independently written. Highly regarded.

Norman Brouwer, **Erie Canal Boats.** In *Sea History*, July, p. 22. A number do survive, both wood and reinforced concrete! Pretty tatty, the lot, but the author believes some are restorable. (*Sea History* itself a worthy, high quality publ., on all aspects of the sea, mostly sail. Same issue contains article on American clipper hulks in the Falklands. Natl. Maritime Historical Society, 8 Fulton St., Brooklyn, NY 11201.)

Ralph Chiumenti, **Cast iron Architecture in Philadelphia.** Friends of Cast Iron Architecture, Rm 20, 44 W. 9th St., NYC 10011. 8 pp. \$40 PP. Also from FoCIA: Ann Masson, **Cast Iron & the Crescent City,** 50 pp booklet for an exhibition of same in New Orleans. \$3.

Cunningham & DeHart, **A History of the N.Y.C. Subway System, Vol I.** 100 pp, illus, maps. \$6.95 + post. Elec. RRs' Assn., 145 Greenwich St., NYC 10006. Covers Manhattan & Bronx els + IRT subway.

Alan Dawley, **Class & Community: The Industrial Revolution in Lynn [Mass.].** Cambridge: Harvard Univ. Press. 296 pp. \$17.50. Shoes, shoe machinery, & electrical equipment, mostly.

Lowell A. Dearing, **Pullman: A Man, A Palace Car, & a 19thC New City.** In *Outdoor Illinois*. Feb. 1975. (320 S. Main St., Benton, IL 62812.)

Regine Dölling (Ed.), **The Conservation of Historical Monuments in the Fed'l Republic of Germany: History, Organization, Tasks, Case-Histories.** Munich: Heinz Moos Verlag, 1974. 130 pp, illus. Incls. workers' housing, a RR station, and the fabulous Art Nouveau engine room of the Zollern II coal mine at Dortmund-Bövinghausen.

Arthur Channing Downs, Jr., **The Introduction of the American Water Ram, c1843-50.** In *APT Bulletin*, Vol VII, No 4, 1975, pp 56-103. Fine illus article on the device with extensive bibliog. & patent notes.

Alastair J. Durie, **Textile Bleaching: A Note on the Scottish Experience.** In *Business History Review*, Fall 1975, pp 337-45.

Heywood Flessig, **The Central Pacific RR & the RR Land Grant Controversy.** In *Journal of Economic History*, Sept 1975.

Carl Gersuny, **"A Devil in Petticoats" & Just Cause: Patterns of Punishment in Two New England Textile Factories.** In *Business History Review*, Summer 1976, pp 132-152. Hamilton Mill, Lowell, 1830s & Defarge Knitting Mill, Woonsocket, R.I., 1970s.

Joseph & Frances Gies, **The Ingenious Yankee: The Men, Ideas, & Machines that Transformed a Nation, 1776-1876.** N.Y.: Thos. Y. Crowell Co. 376 pp, illus. \$12.95. A new and improved look at the "standard" inventors and technological landmarks, with a good many fresh insights. In four quarter-century sections: 1776-1801 (Fitch, Slater, Evans, Whitney); 1801-1826 (Steamboats, covered bridges, F. C. Lowell, Erie Canal); 1826-1851 (the RRs, Hall, Colt & the "American System," the reapers, Goodyear, the telegraph, the sewing machine); and 1851-1876 (Roebbling at Niagara Gorge, Kelly & steel, Civil War technology, Eads at St. Louis, the typewriter, the telephone, Edison).

Joseph A. Goldenberg, **Shipbuilding in Colonial America,** Charlottesville: Univ. Press of Va. 306 pp. \$15. (Review: S. J. Crowther, *Business History Review*, Autumn.)

William Graebner, **Coal-Mining Safety in the Progressive Period: The Political Economy of Reform.** Lexington: Univ. Press of Ky. 244 pp. \$16.75. (Reviewed: M. H. Rose, *Business History Review*, Autumn.)

Frances W. Gregory, **Nathan Appleton: Merchant & Entrepreneur, 1779-1861.** Charlottesville: Univ. Press of Va., 1975. 358 pp. \$12.50. (Reviewed: M. Walsh, *Business History Review*, Autumn.)

Robert H. Loeb, **New England Village, Everyday Life in 1810.** N.Y.: Doubleday. 98 pp. \$5.95. For young people. Photos of Old Slater Mill and Old Sturbridge Village. One chapter takes us on a stagecoach trip to an industrial village, which is Pawtucket.

Ellis Lucis, **The Big Woods: Logging & Lumbering—From Bull Teams to Helicopters—in the Pacific Northwest.** Garden City, NY: Doubleday, 1975. 222 pp. \$13.

Albro Martin, **James J. Hill & the First Energy Revolution: A study in Entrepreneurship, 1865-78.** In *Business History Review*, Summer, pp. 179-97. Switch from wood to coal on the RRs.

Thomas G. Marx, **Technological Change & the Theory of the Firm: The American Locomotive Industry, 1920-55.** In *Business History Review*, Spring, pp. 1-24.

Michael Massouh, **Technological & Managerial Innovation: The Johnson Co., 1883-98**. In *Business History Rev.*, Spring, pp 46-68, Manufacturers of street railway rails.

Ronald L. Michael, **Construction of National Road Bed—Historical & Archeological Evidence**. In *APT Bulletin*, Vol VII, No 4, 1975, pp. 50-55. Illus.

David F. Myrick, **Railroads of Arizona, Vol. 1**. Berkeley: Howell-North Books, 1975. 480 pp. \$19.50.

David McCullough [SIA], **The Great Bridge**. NY: Avon Books (959 8th Ave., 1019). 636 pp. \$5. Best & fullest word on the conception & construction of Brooklyn Bridge, now in paper (originally published 1972.)

Daniel Nelson, **Managers & Workers: Origins of the New Factory System in the U.S., 1880-1920**. Madison: Univ. of Wisc. Press, 1975. 234 pp. \$15. (Reviewed: R. H. Zieger, *Business History Review*, Autumn.)

J. E. Pallett, **The Contributions of William Froude to the Development of the Oblique Bridge with Mechanically Correct Spiral Taper Courses**. In *Transactions of the Newcomen Society*, 1972-73, pp. 205-15. One of the most interesting but obscure & esoteric sub-branches of civil engineering.

Bradley L. Peters, **Maine Central RR Co.—A Story of Success & Independence**. In *Maine Central Messenger*, Fall. 16 pp. suppl., illus, on the RR's history. With chronology. PR Dept., MCRR, 222 St. John St., Portland, ME 04102.

Merrill Peterson, **The Changing Geography of the Locomotive Industry in the U.S.: 1830-1970**. MA thesis: Western Ill. Univ., 1974.

James M. Ransom, **Vanishing Ironworks of the Ramapos**. New Brunswick, N.J.: Rutgers Univ. Press, 1966. \$10. (see SIA Passaic Valley Tour, above.)

Robert C. Reed, **The Streamline Era**. San Marino, Cal.: Golden West Books (Box 8136, 91108.), 1975. 298 pp. \$25. Principally RRs—the locomotives and trains of the 30s—but touches other aspects of the movement as well. (Review: *RR History*, Fall.)

D. Morgan Rees, **IA of Wales**. Newton Abbot: David & Charles, 1975. 302 pp., 63 illus. \$14. Fine exposition on one of the world's IA foci, by the authority. Incls. sites listings & bibliog.

Stuart M. Rich, **RR Shops & Car Building at Fond du Lac**. In *RR History* (RLHS), Fall, pp. 5-33.

J. B. Richardson, **Metal Mining**. Longmans IA Series No. 12. London: Allen Lane, 1974. 207 pp., illus. \$10. Good general study on the history & technology, in U.K.

Hunter Rouse, **Hydraulics in the U.S.—1776-1976**. Iowa City: Inst. of Hydr. Research, Univ. of Iowa. 238 pp. Price unk. The role of Americans in transforming hydraulics from an art to a science, by our most eminent historian of hydraulics.

Robert H. Ruby & John A. Brown, **Ferryboats on the Columbia River**. Seattle: Superior Publ. Co., 1974. 176 pp., illus. \$14.

David L. Salay, **The Production of Gunpowder in Penna. During the American Revolution**. In *Pennsylvania Magazine* (Historical Soc. of Penna.) Oct., 1975, pp. 422-42.

Douglas Tyburcy, **Reading & the Reading: A Town & a RR Growing Up Together**. In *Historical Review of Berks County*, Winter 1974-75. (940 Centre Ave., Reading, PA 19601.)

Christine Vials, **Windmills & Watermills**. London: A. & C. Black Ltd (4 Soho Sq. WIV 6AD). 48 pp. \$1.50. For children but not a bad general introduction for all. Finely illus with photos & drawings.

C. H. Vivian, **Everturning Windmills**. In *Compressed Air Magazine*, May, pp. 8-11. Nice historical review, illus.

James A. Ward, **J. Edgar Thomson & the Georgia Railroad**. In *Railroad History*, Spring, pp. 4-33. When completed the longest RR in the US under one management. Designed & built by J.E.T. who later presided over the largest corp. in the world: the Penna. RR.

**Independent Telephony in New England**. 362 pp. Price unk. From Eleanor Haskin, Waitsfield Fayston Telephone Co., Box 9, Waitsfield, VT 05673.

**Lehigh Valley: Cradle of U.S. Cement Industry**. In *Fuller News* (Fuller Co., 124 Bridge St., Catasauqua, PA 18032), July-Aug 1975. Some discussion of the Coplay Kilns [SIAN Jan 76:6].

**The Lightning Route**. Assembly of articles on the 1st electric streetcar in the U.S.: Montgomery, Ala., 1886. Elec. RRer's Assn., 145 Greenwich St, NYC 10006. 32 pp. \$2.50 + post.

**Paterson Bicentennial Journal**. Paterson Bicentennial Comm., 72 McBride Ave., Paterson, NJ 07401. 68 pp., illus. \$3.50. Old & new, photos and illustrations of the city's 200-yr history, to the present revitalization of the Great Falls Historic District.

**Tuscarawas County Covered Bridges, 1819-1948**. Avail: Terry E. Miller, 234 Park Ave., NW, New Philadelphia, OH 44663. 88 pp., 26 photos. \$3.50. Reports on 89 spans.

#### SPECIAL PUBLICATIONS

**Energy History of the U.S., 1776-1976**. U.S. Energy Research & Development Admin. (Office of Public Affairs, Wash., DC 20245.) Large (4' x 3'), highly detailed wall chart showing what has happened in energy terms as our nation developed. Includes a decade-by-decade chronology with color bars denoting energy form, a year-by-year key-event chronology, tutorial graphics, and projections to the year 2001. Accompanied by a 24-pp. "User's Manual" with background and additional sources. Among the very best of the Bicentennial offerings. *F.C.*

**Civil Engineering. Special Issue: Bicentennial & Civil Engineers**, July 1976. Several historical articles: **Philadelphia: Three Ages of a City; Highlights of 200 Years in the History of CE; Birth of a Skyscraper** (Jenny's Home Insurance Bldg., Chicago, 1885); **Empire State: Greatest of all Skyscrapers; America's Transportation Revolution; Evolution of Urban Transportation; America's Greatest Suspension Bridges; Benjamin Latrobe: Helping Cleanse America** (Phila. water supply); **George Waring: Giving Sanitation Status**. (ASCE, 345 E. 47th St., NYC 10017.)

**Panama Canal Review, Bicentennial Edn**. Panama Canal Co., Box M, Balboa Heights, Canal Zone. \$.75 PP. Good historical articles.

**Urbanism Past & Present**. Successor to Urban History Group Newsletter. Semi-annual: articles; bibliog.; &c on all aspects of urban affairs. \$5./year individuals; \$10 institutions. Univ. of Wisc. Milwaukee, Dept. of History, Milwaukee 53201.

**Pennsylvania Publs**. The Pa. Historical & Museum Commn's. Book & Publ. List, 1976. Full of interesting items on the Keystone State's coal, lumber, iron, and oil industries; plus lists of maps, microfilm, and all of IA-related materials. Gratis: Divn. of History, PH&MC, Box 1026, Harrisburg 17120.

**Fourth Annual Catalog of Genl. Mdse**. The Tremont Nail Co. Co. Store, Box 111, Wareham, MA 02571. History of this famed firm—largest maker of cut nails in U.S.; description of process with illus.; listing of nails and misc. period hardware; &c.

**Steamboats & Modern Steam Launches**. Facsimile reproduction (1973) in hard binding of all 18 issues of the informative little journal published 1961-63, by the original publisher: Howell-North Books, 1050 Parker St., Berkeley, CA 94710. \$12.50. Aimed at enthusiasts-owners-operators of small steam craft, but some general history. An altogether worthwhile work.

**Textile History**, Vol. 6. K. G. Ponting & S. D. Chapman, Eds. Pasold Research Fund, Edington, Wiltshire, 1975. 176 pp., illus. Subscr.: \$7.50/yr. Annual on various textile historical matters. (Reviewed: T. W. Leavitt, *Tech. & Culture*, July.)

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