



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEW S L E T T E R

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Number 4

The Aermotor Company: From Windmills to Forest Lookout Towers *A Brief History and 1920s Design of Aermotor Forest Lookout Towers*

The U.S. Forest Service built lookout towers throughout the country's forests in the early 20th century to detect and control fires before they spread. While the towers were mostly used by federal and state governments and timber companies to protect their forests, they were also used as observation towers for public resorts and for public recreation (with hikers and

other recreationists climbing the towers for their views).

Forest lookout towers became increasingly popular around the 1920s, as permanent and substantial structures for shelter and security for fire lookouts and their instruments. From the towers, fires could be accurately located within a few minutes of starting. Early forest lookouts were made mostly of wood. However, the increasing concerns with fire prevention and detection prompted a desire for more permanent structures. The U.S. Forest Service relied on Aermotor to build galvanized steel towers, because they provided strength, safety, mechanical perfection, rigidity, as well as quick and accurate detection of fires.

Aermotor was founded by Chicago manufacturer LaVerne Noyes. He worked with Thomas O. Perry, a mechanical and civil engineer, to develop the first steel windmill. Aermotor steel windmills were a more durable replacement for wooden windmill structures.

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Camille Marcotte

Mount Beacon Aermotor Co. LS-40 Model Fire Tower
(2014).

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Between the 1850s and 1870s, most windmills in the United States were made of wood that was held together with metal rods and other hardware. Around the 1870s some windmill manufacturers began to offer all-metal windmills, challenging wooden windmill manufacturers. Using metal to make windmills proved difficult, because manufacturers had to ensure that the windmills were rugged and balanced to use the wind effectively while also being lightweight. To make the windmills commercially attractive and economically competitive with the wooden windmills, costs of materials had to be kept low. Some companies (Mast, Foos and Co.) manufactured all-metal windmills before Aermotor; however, Aermotor was the most successful. Issues with scarcity of quality lumber, the Bessemer process, and other improvements in the production of steel led to an increase in the use of steel for building windmills. Steel provided lightness in design, durability and strength, and rigidity or elasticity. Thomas Perry scientifically tested the design of

steel windmill wheels, while manufacturers continued to debate the merits of wooden and steel windmills. Perry presented his findings to his employer at the time: the U.S. Wind Engine and Pump Co. in Batavia, Ill., which rejected his findings. Perry then went to LaVerne Noyes and together they created the first successful steel windmills.

LaVerne Noyes became interested in windmills around 1887. His work with Thomas O. Perry resulted in a steel windmill that was much more efficient than previous wooden windmills in part because of the wider sails, their angle of curvature, and increased speed. In 1888, the first Aermotor steel windmills were introduced and sold. Aermotor quickly grew throughout the late 1890s as steel windmills increased in popularity.

Noyes was head of Aermotor until his death in 1919 and spearheaded the direction of its mechanical and engineering work. One of these directions was developing towers that made it easier to provide maintenance on windmills.

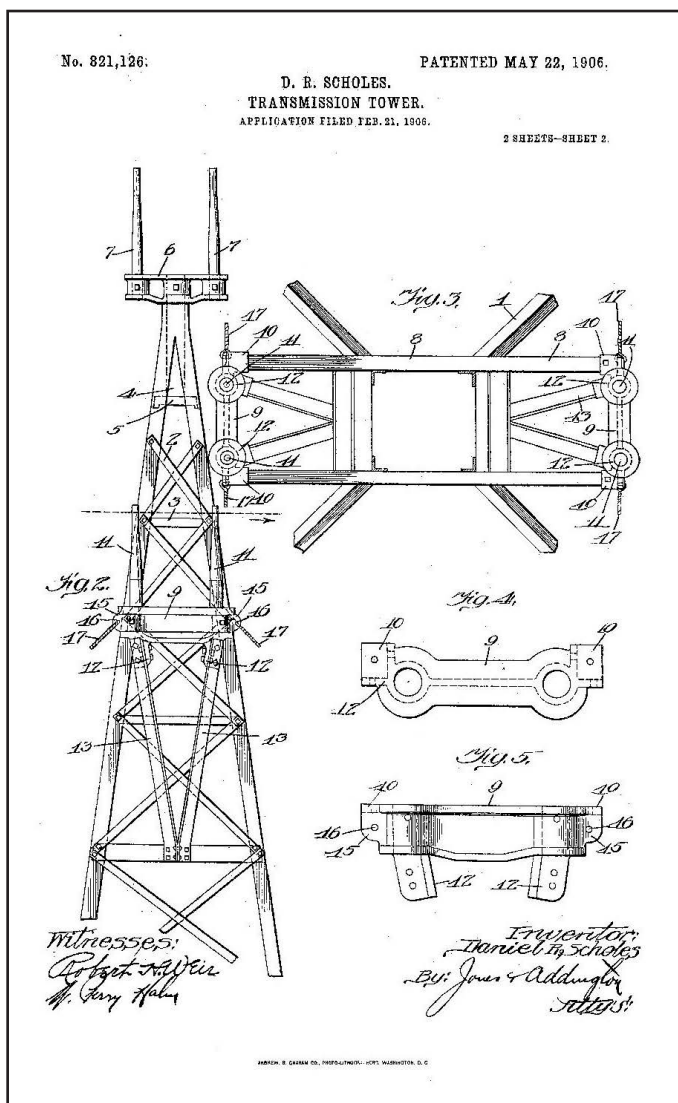
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The SIA Newsletter is published quarterly by the Society for Industrial Archeology. It is sent to SIA members, who also receive the Society's journal, IA, published biannually. The SIA through its publications, conferences, tours, and projects encourages the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts, and technology. By providing a forum for the discussion and exchange of information, the Society advances an awareness and appreciation of the value of preserving our industrial heritage. Annual membership: individual \$50; household (joint) \$55; full-time student \$20; institutional \$75; contributing \$100; sustaining \$150; corporate \$500. For members outside of North America, add \$10 surface-mailing fee. Send check or money order payable in U.S. funds to the Society for Industrial Archeology to SIA-HQ, Dept. of Social Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931-1295; (906) 487-1889; email: sia@siahq.org; website: www.sia-web.org.

Mailing date for Vol. 48, No. 4 (Fall 2019), December 2019. ISSN 0160-1067. If you have not received an issue, apply to SIA-HQ (address above) for a replacement copy.

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

TO CONTACT THE EDITOR: Marni Blake Walter, Editor, SIA Newsletter, 11 Esty Rd., Westmoreland, NH 03467; sianeditor@siahq.org.



Daniel R. Schole's patent for a transmission tower (May 1906).

Scholes, D. R. (1906). USA Patent No. 821,126. U. S. P. Office.

IA in Art: Delaware, Ohio's 1853 Suspension Bridge

The 150th anniversary of the Wheeling Suspension Bridge in 1999 was, justifiably, worthy of celebration. Stretching a bit over 1,000 ft., the bridge was the nation's longest single span when it opened in Oct. 1849 and was the first crossing of the Ohio River's navigable channel. Less well appreciated is that the bridge introduced a widespread building trend for suspension bridges throughout the Ohio Valley. Documentation exists over the next three decades of numerous instances of new suspension bridges erected in places where the technology was a viable option but far from a necessity. A bridge built in 1853 in the City of Delaware in central Ohio is a perfect example, and a recognized Ohio artist documented it.

The builder was John Gray. A native of Kentucky, in 1850 he was living in Pittsburgh and calling himself a civil engineer. Officials from Seneca County, Ohio, made a trip to Pittsburgh in April 1853 to investigate suspension bridge technology. Shortly thereafter, Gray signed a contract to build a 210-ft. wire suspension bridge over the Sandusky River in downtown Tiffin. Simultaneously, he contracted with a private bridge company in northern Kentucky, where he would eventually live, to erect a 550-ft. suspension bridge over the Licking River oppo-

site Cincinnati. In October of 1853, he contracted with City of Delaware officials to place a small—about 200-ft.—suspension footbridge over the Olentangy River near the downtown that was aligned with modern-day Winter Street. It was completed by Dec. 15.

The Delaware bridge is the one documented by Catherine Cooper Hopley in the summer of 1857. She was a British citizen who eventually returned to Great Britain, but between 1855 and 1859 lived in Cleveland. There she offered private instruction in drawing, painting, music, and French. Her watercolors and drawings received commendations at the Ohio State Fair in 1856 and 1858.

The circumstances of Hopley's visit to the City of Delaware are unknown, but the design of Gray's suspension bridge there is known only through her artwork. Erected on traditional stone piers, the towers appear to have been iron. The bridge also seems to have a traditional stiffening truss, although one wonders about its effectiveness. A local newspaper reported that as the finishing touches were being made, "a dozen or more Rowdies" entertained themselves by shaking and swinging the superstructure to the point of endangering those attempting to cross it. Furthermore, their "performance" was laced with "obscene remarks and profanity." Within a

week, a city ordinance was passed making it illegal to "jerk, vibrate, or sway" the suspension bridge or to drive livestock over it. Offenses would result in fines and payment for repairing any damages to the bridge. The incident reflected badly on the technology, for only a few weeks later, the county commissioners declined the opportunity to build two more suspension bridges.

In 1883, ice floes from a winter flood carried away the superstructure. The King Bridge Co. fabricated a two-span, iron through-truss replacement bridge. The era of suspension bridge enthusiasm had died in Ohio.

David A. Simmons



Delaware County Historical Society, Delaware, Ohio

Bridge at Delaware, Ohio by Catherine Cooper Hopley. Ink, graphite, and wash on paper, 8 × 11½ in., Aug. 1857.

AERMOTOR COMPANY *(continued from page 2)*

Noyes received several patents for some of the first steel windmill tower designs. Aermotor capitalized on their technical designs and capabilities to expand production of towers to other purposes such as electricity transmission towers, radio towers, and eventually lookout towers. Noyes believed there was a great future for wind power to generate electricity and pursued this through his development of electric transmission towers, patented for Aermotor by Daniel R. Scholes (Chief Engineer of Aermotor). Noyes' talent and leadership contributed to the expansion and long-term success of Aermotor.

Aermotor emerged as a leader in the design and manufacturing of steel towers, and quickly became the leading supplier for state and federal lookout towers. Aermotor's galvanized steel structures served as the standard for lookout towers, especially in the years before World War II. A 1959 brochure for Aermotor details their expansive production of steel towers, stating, "For over 50 years Aermotor Company has been designing and building galvanized steel towers for a variety of uses."

The first towers were sold between 1914 and the early 1920s, and had small cabs as they were based on the windmill tower designs. Aermotor continued to adjust the designs of these towers, increasing the size of the cab at the top, making them taller, and adding easier-to-climb steps.

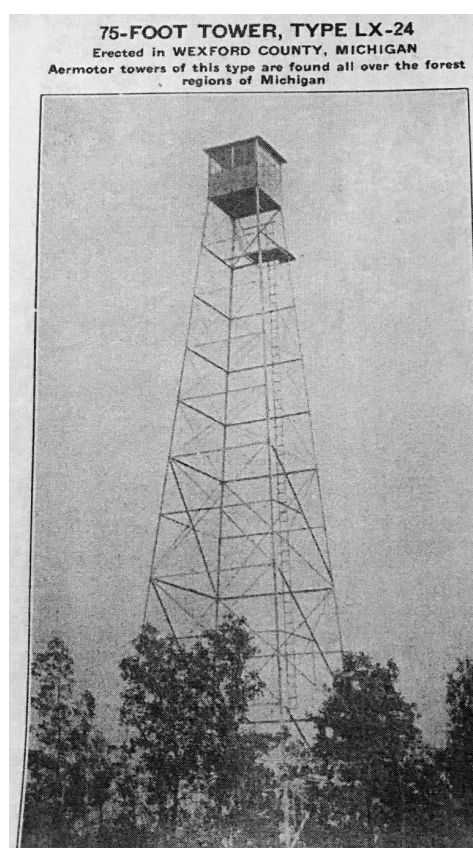
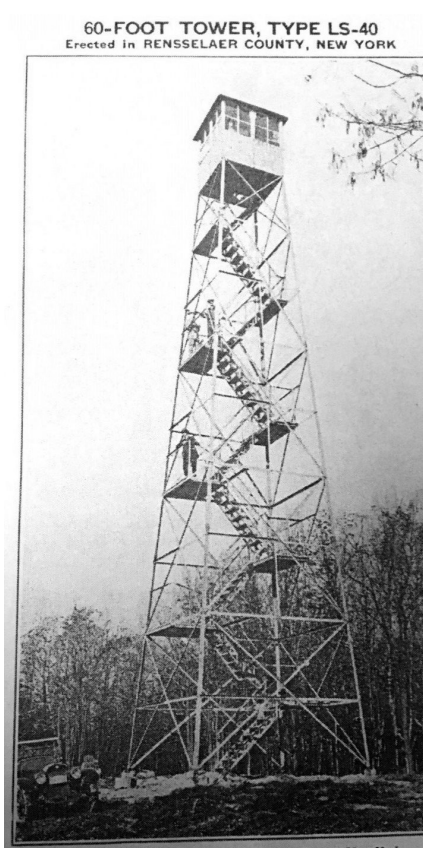
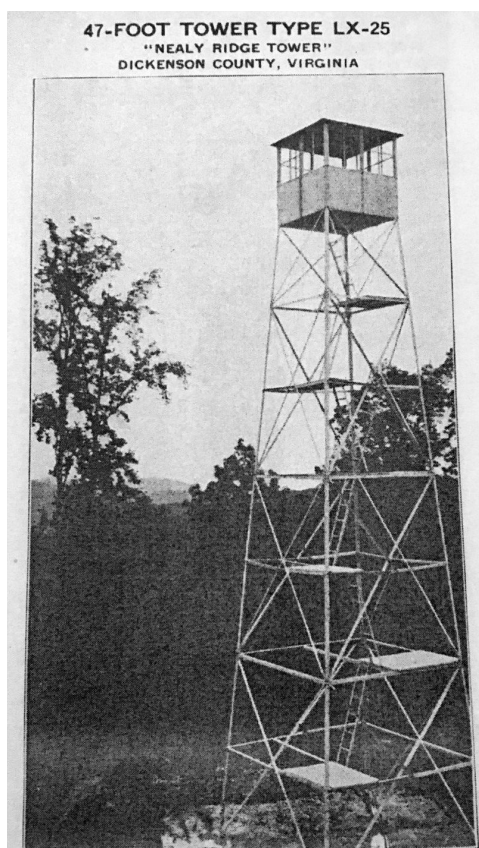
Through the years, Aermotor produced several models of the lookout towers, including the LS-50, LS-40 and MC-39 models, which came in a variety of different standardized heights (though were occasionally customized). The towers were long-lasting, which made them an enticing option as they were believed to be the cheapest method for fire detection and prevention in the long run.

Aermotor towers were made of galvanized steel (each tower had a thick coating of zinc to protect from rust). All the steel parts were galvanized by a hot process after manufacturing was complete (except for nuts and bolts, which were galvanized and then threaded). Towers were built to withstand storms and fires and were said to have a lifetime guarantee.

There were three different types of forest service towers produced by Aermotor in 1920: the LS-40, LX-25, and LX-24. Heights for the 1920s models ranged from 21 ft. to 102 ft., and were calculated based on the height of the floor of the house above the ground. Prices also varied based on the height, and ranged from \$210 to \$1,340 (1920s prices). Forest lookout towers ranged in weight from about 1 ton to over 8 tons.

The LS-40 tower had an inside stairway, making it safer to climb and more sophisticated compared to the other two models which had an inside steel ladder (LX-25) or an

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Examples of the 47-ft. LX-25 type, 60-ft. LS-40 type, and 75-ft. LX-24 type.

SIA 49th Annual Conference

Lehigh Valley, Pa.—May 28–31, 2020

Join the Society for Industrial Archeology May 28–31 in the historic Lehigh Valley of Pennsylvania for the 49th Annual Conference! The region came to prominence in the 19th century with the development of the Lehigh and Delaware Canals to transport anthracite coal, cement, and slate deposits. Other prominent industries include musical instruments, brickmaking, and iron and steelmaking, symbolized by the huge integrated steel works on the south side: Bethlehem Steel, which operated from the 1860s to the early 2000s. There is also a legacy of transportation infrastructure, from canals to railroads to a wide variety of historic bridges.

While the SIA has visited the region before (fall tours in 2002, 1988, and 1974), this is the first time the Lehigh

Valley has hosted a spring conference. The conference headquarters will be the Historic Hotel Bethlehem (www.hotelbethlehem.com), next to the historic Moravian Village, where remains of early industries are preserved in the Colonial Industrial Quarter.

While planning is still in development, the local planning committee has secured tours of Martin Guitar, LaFarge cement, Glen-Gary brick, KCM fire trucks, Lehigh anthracite mining facilities, active railroad facilities, and the Atlas test lab at Lehigh University. Historic sites will include Eckley Miners' Village, No. 9 Coal Mine, Hoover-Mason Trestle at the former Bethlehem Steel works, and multiple bridges, cement works, slate quarries, mills, and iron furnaces.

Three partnering agencies are hosting the conference: the Anthracite Heritage Museum, National Museum of Industrial History, and the National Canal Museum. Attendees will have the opportunity to visit NMIH throughout the weekend, culminating with the Saturday banquet at the museum, and a chance to walk along the recently completed elevated bridge at SteelStacks, a preserved section of the early 20th-c. blast furnace plant at Bethlehem Steel.

Join us for a unique perspective on the Lehigh Valley and behind-the-scenes insights that only the SIA can provide. We look forward to seeing you there.

HAER PA-156, Jet Lowe, 1979



Preserved ca. 1875 Coplay Cement Co. kilns.

The blast furnace plant at the South Bethlehem Works has been preserved as part of the SteelStacks campus.



HAER PA-386-D, Jet Lowe, 1988

Call For Papers

SIA 49th Annual Conference, Lehigh Valley, Bethlehem, Pa.

The Society for Industrial Archeology invites proposals for presentations and poster displays at the 49th Annual Conference in the Lehigh Valley, Pa., May 28–31, 2020. The presentation sessions will be held at the conference hotel, the Historic Hotel Bethlehem, on Sat., May 30. Conference sponsors include the Anthracite Heritage Museum (Scranton), the National Canal Museum (Easton), and the National Museum of Industrial History (Bethlehem).

We invite presentations on all topics related to industrial archeology, industrial heritage, history of technology, social change related to industry, and historic industrial structures and bridges. Papers about industries in Pennsylvania's Anthracite Region and on canal history are particularly encouraged. Proposals on historic bridge-related topics will be considered for inclusion in the 27th Historic Bridge Symposium. Poster displays are also encouraged, and can be on works in progress or finished projects. All presentations and poster displays should offer both interpretation and synthesis of data.

The deadline for proposals is Jan. 31, 2020.

<http://www.sia-web.org/sia-49th-annual-conference/>

Presentation Formats: Proposals may be for individual presentations 20 min. in length, a group of three or four presentations on a common theme filling a 90-min. session, or a 90-min. panel discussion with 2–5 discussants (a formal moderator is optional, but encouraged). SIA will provide computers, data projectors, screens, microphones, and speakers as needed in each presentation room. Posters will be on display all day Saturday with a dedicated time for poster presenters to be present at their poster for discussion.

Proposal Formats: Proposals should be submitted online unless special arrangements have been made. Each proposal must include:

1. The presentation title (you will indicate the type of presentation—single paper, session proposal, or poster—on the submission form)
2. A 300-word abstract that outlines the scope, findings, and conclusions of the presentation
3. Contact information including name, affiliation,

email address, mailing address, and telephone number for each presenter

4. A brief biographical statement of 150 words for each presenter
5. The software (incl. version) used to create your presentation and any additional audio-visual requests beyond the standard equipment listed above.

For 90-min. themed sessions or panel discussions, the organizer should submit a title and a brief description of the theme, along with all above information together as a group as prompted on the online submission form. If any of these items is missing, the proposal cannot be considered. Note that the above word counts apply separately to each presenter in a group. Note that all speakers are expected to be (or become) SIA members and pay the registration fee (for either the full conference or one-day rate). New members welcome and encouraged!

To submit your proposal and for further information, go to the online form linked at <http://www.sia-web.org/sia-49th-annual-conference/>. For questions please contact David A. Simmons, SIA Presentations Committee Chair, dsimmons@ohiohistory.org.

Student Travel Scholarships. The SIA awards travel scholarships to full-time students and professionals with fewer than three years of full-time experience. The scholarship stipends are intended to help students offset expenses associated with attending SIA events (e.g., airfare, hotel, registration, etc.). To be eligible for a scholarship, the applicant must become a member in good standing. Student memberships are available for as little as \$20/year. Applications should consist of 1) a letter demonstrating a commitment to IA from the student and 2) a letter of reference from a faculty member or an individual active in the SIA. For information or to apply for the 2020 Annual Conference in Bethlehem, Pa., May 28–31, please contact Patrick Harshbarger, pharshbarger@hunterresearch.com; (609)-695-0122, ext. 115. Deadline for applications is Mar. 31, 2020.

CALL FOR NOMINATIONS 2020

President, Vice President, Three Directors, and Nominations Committee member

Attention SIA Members!

This is your opportunity to help maintain the quality, strength, and diversity of leadership that has kept the SIA growing for more than four decades. We have six important positions to fill in the coming year and you can help choose the next leaders of your organization.

SIA's elected officials work for you to carry out the business of the organization. They represent the SIA to others, recruit new members, and plan the future of your society.

In 2020, there will be six (6) openings: President, Vice President, three members of the Board of Directors, and one of the Nominations Committee. We need candidates willing to give their time, knowledge, and experience to the SIA.

This year's Nominations Committee is asking you to identify candidates—friends, colleagues, or perhaps even yourself—who are qualified and willing to serve. (If modesty precludes self-nomination, please find someone to nominate you.) Each candidate must be an SIA member in good standing and must consent to being considered for nomination.

The deadline for nominations is **Mon., Jan. 13, 2020**. If you have any questions or need additional information, please don't hesitate to contact **John Mayer**, Chair, SIA Nominations Committee, 68 Cabot St., Portsmouth, NH 03801; 603-969-3913 (mobile); jmayer.nh@gmail.com.

Positions Open in 2020:

President (2-year term). The President is the principal executive officer of the SIA and, subject to the control of the Board, in general supervises and controls the business and affairs of the SIA and sees that all orders and resolutions of the Board are carried into effect. The President is a member of the Board and presides at all meetings. To be eligible for this position the candidate must have served on the Board for a minimum of one (1) year as a voting member.

Vice President (2-year term). The Vice President is a member of the Board and in the absence or disability of the President performs the duties and exercises the authority of the President; and in general performs all duties as from time to time may be assigned by the President or the Board. To be eligible for this position the candidate must have served on the Board for a minimum of one (1) year as a voting member.

Directors (3-year term). Three (3) of seven director positions are open this coming year. The Board meets approximately four times per year (both in person and on-line), including during the Annual Conference. Directors govern official business and affairs of the SIA, and often chair committees that oversee operations such as publications, grants, and local chapters.

Nominations Committee Member (3-year term). One (1) of three elected members who assist with recruiting and evaluating nominees, and monitoring annual elections, with the assistance of the immediate past president as an *ex-officio* member. It is expected that members will attend the Annual Conference to count ballots, and that each member will chair the committee during the final year of their term. The Chair announces the results of the election at the Annual Business Meeting during the Conference.

All nominations will be reviewed by the Nominations Committee, which will present a slate of candidates to the membership. Each nomination must include the name, address, telephone number, and email address of the person being nominated, the office for which the nomination is being made, and evidence that the candidate consents to being nominated. Once the slate is selected, the Nominations Committee will request a brief biographical statement and a photograph from each nominee.

For summaries of the nomination process and responsibilities of SIA officials, view the SIA Bylaws on the "About" screen at www.sia-web.org. If you're unsure about the process or the obligation, please call or write the Nominations Chair at the address above. Current officeholders and their terms are shown below for your reference.

SIA Officers

Christopher Marston, President (2018–2020)
Saul Tannenbaum, Vice President (2018–2020)
Maryellen Russo, Past President (2018–2020)
James Bouchard, Secretary (2019–2022)
Nanci K. Batchelor, Treasurer (2019–2022)

Board of Directors

Mark Brown (2017–2020)
Arron Kotlensky (2017–2020)
Joe Seeley (2017–2020)
Rebecca Burrow (2018–2021)
David Simmons (2018–2021)
Bob Newbery (2019–2022)
Seth Price (2019–2022)

Nominations Committee

John Mayer (2017–2020)
Ian Hay (2018–2021)
Diana Bouchard (2019–2022)
Maryellen Russo, *ex officio* (2018–2020)

TICCIH Representative

Bode Morin (2018–2021)



2020 SIA GENERAL TOOLS AWARD

Call For Nominations

The SIA General Tools Award Committee is seeking nominations for the 2020 General Tools Award. This year's committee members are Patrick Harshbarger, Chair, Fred Quivik, and David Simmons. Give this committee some work to do, reviewing nominations for distinguished service to industrial archeology. Any SIA member in good standing may make a nomination.

Remember, the General Tools Award is the highest honor the SIA can bestow. It recognizes individuals who have given sustained, distinguished service to the field of industrial archeology. The award is presented at the SIA's annual business meeting.

Here's what we're looking for: (1) the recipient must have given noteworthy, beyond-the-call-of-duty service, over an extended period, to the cause of industrial archeology; (2) the type of service for which the recipient is recognized is unspecified, but must be for other than academic publication; (3) it is desirable but not required that the recipient be, or previously have been, a member of the SIA; (4) the award may be made only to living individuals. Teams, groups, agencies, firms, or any other collective entities are not eligible.

Think of a name, then start a nomination. This committee can help you finish. You can write a statement of 2–3 pages identifying the qualifying accomplishments. Or, write a partial nomination describing one sector of the person's work you know best, with suggestions of others who might know more about the candidate's career. Nominations also may be collaborative efforts submitted by two or three members.

Supplementary material (the candidate's resume, for example) may be added. Nominations must also include the name, address, phone, and email of the nominator.

Information on the award and examples of successful nominations appear on the SIA website for many of the members who have received the award to date: www.sia-web.org/activities/awards/general-tools-award.

Previous recipients are Emory Kemp (1993), Robert Vogel (1994), Edward Rutsch (1995), Patrick Malone (1996), Margot Gayle (1997), Helena Wright (1998), Vance Packard (1999), Eric DeLony (2000), Robert Merriam (2001), Charles Parrott (2002), Alex Barbour (2003), Charles K. Hyde (2004), Lance Metz (2005), [no award given in 2006], Patrick Martin (2007), Chris Andreae (2008), Carol Poh (2009), Robert Gordon (2010), Richard Anderson (2011), Jane Mork Gibson (2012), Bob Frame (2013), Jet Lowe (2014), [no award given in 2015], Duncan Hay (2016), Patrick Harshbarger (2017), Fred Quivik (2018), and David Simmons (2019).

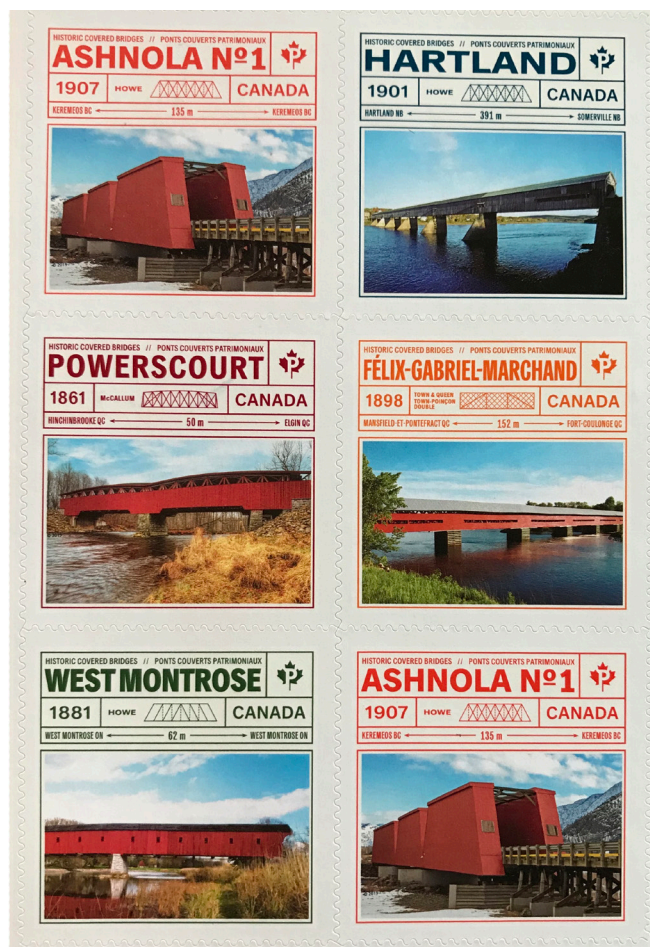
The General Tools Award was established in 1992 through the generosity of Gerald Weinstein [SIA], then chairman of the board of General Tools & Instruments Co. LLC. High Road Capital Partners acquired General Tools & Instruments in Feb. 2014 and have been pleased for the SIA to continue using the company's name on the award.

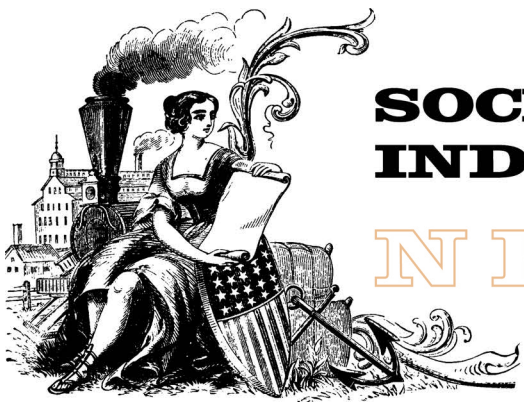
The award is funded by the Abraham and Lillian Rosenberg Foundation. The Rosenbergs founded General Hardware, the predecessor to General Tools. The award consists of a citation, a commissioned sculpture ("The Plumb Bob"), and a cash award.

Please email or call Patrick Harshbarger, this year's committee chair, if you are interested in making a nomination for 2020. He'll be happy to talk about it. Nominations are due on Mar. 31, 2020 to Patrick at pharshbarger@hunterresearch.com; (609)-695-0122, ext. 115.

IA IN PHILATELY

In the summer 2019 issue (Vol. 48, No. 3), *SIAN* reported that Canada Post had issued a set of five stamps celebrating historic covered bridges. However, I omitted an image of the stamps (provided by Brian Gallaughier [SIA]), which is included here for readers' benefit. The five bridges are the Hartland Covered Bridge (N.B.), Powerscourt Bridge (Que.), the Felix-Gabriel-Marchand Bridge (Que.), the West Montrose Bridge (Ont.), and Ashnola No. 1 Bridge (B.C.). Info: www.canadapost.ca/shop, search on covered bridges. ■





SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLetter

PUBLICATIONS OF INTEREST

Vol. 48, No. 4

Fall 2019

COMPILED BY

Mary Habstritt, New York, N.Y., Patrick Harshbarger, Wilmington, Del., and Marni Blake Walter, SIAN editor, Westmoreland, N.H.

GENERAL INTEREST

- ◆ Murray Carpenter. **The Evolution of the Hard Hat.** NYT (Oct. 1, 2019; print ed., Oct. 2, pp. B1). The hard hat was designed 100 years ago by Edward W. Bullard as protective gear for miners and other laborers. Describes how hard hat design and its symbolism among users has evolved over the years. Now in its fifth generation of family ownership, the Bullard company makes millions of hard hats each year for tens of thousands of customers, primarily at its headquarters in Cynthiana, Ky.
- ◆ Gilmore G. Cooke [SIA]. **The Existential Joys of Fred Stark Pearson (1861–1915): Engineer, Entrepreneur, Envisioner.** Bowker, 2019. 373 pp., illus. \$63. Engineer and innovator Fred Stark Pearson built systems and businesses from the emerging inventions of the late-19th c. Pearson could claim to have been the central figure in creating the pioneer transit systems in Boston and New York, as well as building electric utility systems, generating plants, mining and railroad systems, and more across three continents. He and his wife Mabel perished on the *Lusitania* in 1915, obscuring his legacy. This biography brings attention to Pearson's work and the enterprises he created and shaped.
- ◆ **Engineering Heritage Australia Magazine**, Vol. 3, No. 3 (Sept. 2019), www.engineersaustralia.org.au/Communities-And-Groups/Special-Interest-Groups/Engineering-Heritage-Australia/Publications. Includes Miles Pierce, *Electrification of Melbourne's Suburban Railway Network: Summing up for the Centenary—1919 to 2019*; John Muirhead, *Gladesville Bridge*, Sydney, NSW: *A Brief Account of the Building of a Pioneering Concrete Arch Bridge*; Richard Venus, with Jim Simmers, Stuart Wallace, and Brian Beconsall, *Lighting the Streets with Electricity* (sections on several major cities); Keith Baker, *Honeysuckle Creek & the Moon Landings: 50th Anniversary of the Apollo 11 Lunar Landing* (incorporating an extract from his book "A Century of Canberra Engineering"); Susannah Churchill, *Making an Oral History of the Moon Landing*; and Bill Phippen, *Beirut to Tripoli Railway* (with sections on its bridges, tunnels, people, and opening ceremony).
- ◆ Joshua B. Freeman, ed. **City of Workers, City of Struggle: How Labor Movements Changed New York.** (Columbia Univ. Pr., 2019) 248 pp., illus. \$40. Brings together essays by leading historians on the 400-year history of efforts by New York workers, from indentured servants and slaves to tech workers in the gig economy, to improve their lives and their communities.
- ◆ **IA News**, No. 188 (Spring 2019) is a typical meaty issue of IA stories and tidbits from around Great Britain and beyond. This issue includes Kevin Camidge, *The Wheel Wreck* (underwater archeology of a site found by divers in 2005, called the wheel wreck due to a cargo of orderly stacked cast-iron pipes and wheels, now thought to be parts on route to a Cornwall mine; 3D model and more info available at vdt.cismas.org.uk/trails/the-wheel-wreck/); Robert Carr, *Pumping Stations in Danger* (two late Victorian stations in Whitley and another at Northumberland Park in London); Bruce Hedge, *A Heavy Anti-Aircraft Artillery Battery* (four WWII gun placements outside Swindon); Chris Barney, *Operation Outward* (top-secret WWII operation set loose balloons to drift toward Europe, with hopes the balloons would entangle and wreck radio towers and electrical transmission wires; it actually worked to a degree); A *Primary Industrial Archaeology Survey of the Wenzhou Alum Mine, Zhejiang Province in China* (in operation for more than 600 years); Martin Green, *When in Rome—A Unique Combination of Classical Archaeology and Industrial Archaeology* (at the Musei Centrale Montemartini classical Roman statues, sculptures, and mosaics are displayed against a backdrop of the machinery in a generating hall of the decommissioned Azienda Elettrica Municipale hydroelectric plant of 1912 on the Tiber River); and Lisa Harris, *Restoring the 'Empress of Britain' at the Museum of East Anglian Life* (details of restoration of an agricultural steam traction engine made in 1912 by Charles Burrell & Sons).
- ◆ **TICCIH Bulletin 84** (2nd Quarter, 2019) includes Colm Murray, *Opinion: The Nizhny Tagil Charter in the Ecological Age*; Carolina Castañeda López, *Not*

Just Carmen: Spain's Tobacco Heritage; Mirhan Damir, *Alexandria's Karmouz Tram Workshop*; Szu-Ling Lin, *Toward Sustainable Conservation: Pingtung Tobacco Factory*; Rolf Höhmann, *The Industrial Heritage of Modern Iron- and Steel-making in Europe, Part II*; Zachary Liollo [SIA] and Justin McIntyre, *Early Sonar and Submarine Archaeology*; Jaime Migone Rettig, *The Management Plan for Campamento Chuquicamata*; Anders Svensson, *Legal Protection for Mobile Heritage*; James Douet, *The Heritage Potential of International Oil*; Stephen Hughes, *Evaluation: The Process Explained*; Ana Isabel Lino and Maria Leonor Botelho, *Reconversion of the Porto Tram Museum*; and conference reports, book reviews, and organizational news.

IRON & STEEL

- ◆ Geoff Weisenberger. **Wanted: Old Steel Bridges.** *Modern Steel Construction* (Oct. 2019), pp. 50–55. Purdue University's Center for Ageing Infrastructure (CAI) is a 22-acre, open-air site containing a wide array of complete steel bridges and bridge components. Various departments of transportation donated the antique bridge elements, and the collection is now used as a training facility and teaching and research lab. The facility's largest user is the Steel Bridge Research Inspection Training and Engineering Center.

MINES & MINING

- ◆ Damian Nance [SIA], Kenneth Brown, and Tony Clarke. **A Complete Guide to the Engine Houses of Mid Cornwall.** Lightmoor Pr., 2019. 172 pp., color illus. £18.00. During the 19th century, Cornwall produced most of the world's copper and tin, as well as significant amounts of lead, silver, arsenic, tungsten, zinc, iron, and uranium. What made this unparalleled productivity possible was the development of the Cornish beam

engine. Although few of these great engines survive, many of the buildings in which they were housed remain to this day. This book provides an overview and illustrated guide using contemporary and archival photographs supplemented with brief descriptions and short histories of the mines of which the engine houses were part.

RAILROADS

- ◆ **Back on Track.** *Preservation* (Summer 2019), pp. 20–27. The preservation success story of Cincinnati's Union Terminal (tour and banquet site—2012 Annual Conference) with a focus on \$225 million in restoration and art conservation efforts that began in 2016.

AGRICULTURE & FOOD PROCESSING

- ◆ **Old Mill News**, Vol. 46, No. 3 (September 2019) includes *SPOOM Conference 2019 Review* (activities and sites from near Old Cherokee, Ga.); Charles D. Hockensmith, *White's Mill near Abingdon, Virginia* (grist mill of ca. 1850s, became a historic site in 2001); Scott Withrow, *The Carson-Andrews Mill* (one of the first mills in the Ozark Mts. of Ark., opened ca. 1830–35, derelict in Withrow Springs State Park near Huntsville).
- ◆ Ian Spellerberg. **Milk Cans: A Celebration of Their History, Use, and Design.** Astragal Pr., 2019. 272 pp., illus. \$35. Illustrates the diversity of milk cans, churns, and pails with discussion of variation in shape, size, and design.

WATER CONTROL & RECLAMATION

- ◆ Kevin Franklin. **A Short History of the Watervliet Water Works.** *The New York History Blog* (July 24, 2017), www.newyorkhistoryblog.org. Describes the development of water systems in Watervliet, N.Y., driven originally by the need to fight frequent fires.

OIL & NATURAL GAS

- ◆ Hereward Longley. **Digging For Oil in the Boreal Forest.** *Hagley Research & Collections News* (Mar. 18, 2019). www.hagley.org/librarynews/digging-oil-boreal-forest. Short essay with photos about Sun Oil's development of the Great Canadian Oil Sands Limited (GCOS) in northeastern Alberta.

POWER GENERATION

- ◆ **Windmillers' Gazette**, Vol. 38, No. 2 (Spring 2019) includes T. Lindsay Baker, *A Closer Look at the Aero-Matic Windmill*; Etienne Rogier, *The First Wind Generator in France, 1887*; A. Clyde Eide, *The "Eureka Variant" Mystery*; Mike Werst, *A Tribute: David Wayne Ballinger, 1951–2018*; Christopher Gillis, *Setting Windmill Tower Anchors*. Avail: \$20/yr., published quarterly. Christopher Gillis, Editor, P.O. Box 788, Buckeystown, MD 21717; www.windmillersgazette.org.

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With Thanks.

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PROTESTS TO INDUSTRIAL WATER POLLUTION

Concluding a discussion of environmental conditions along the Schuylkill River in Philadelphia in *The Redemption of the Lower Schuylkill* (1924), John Lewis states “It is not necessary to say more. The oil refineries, paint works, chemical factories, and garbage disposal plants further down the river, merely darken conditions already too foul for polite discussion.” In *Philadelphia: Holy Experiment* (1945), Struthers Burt comments on loyalists and rejectionists of Philadelphia’s municipal water. “The city is divided into two camps: those who square their shoulders and look brave and frank, and say ‘Why, of course I drink it! Nonsense!’ and those who cast down their eyes and shudder.” Jeanne Lowe, in *Cities in a Race with Time* (1967), refers to the Philadelphia “chlorine cocktail” (≈ “Schuylkill punch”). Lowe also recounts the stinging response of a California businessman to a Philadelphian who was lobbying him in 1948 to open an East Coast office in Philadelphia. “Why come to Philadelphia with its stinking water and its lousy politics?”

Visiting Philadelphia in 1972 and 1973, the present author—raised on private and municipal well water in the outer coastal plain of New Jersey—certainly noted the un-

natural odor and taste of the city’s tap water.

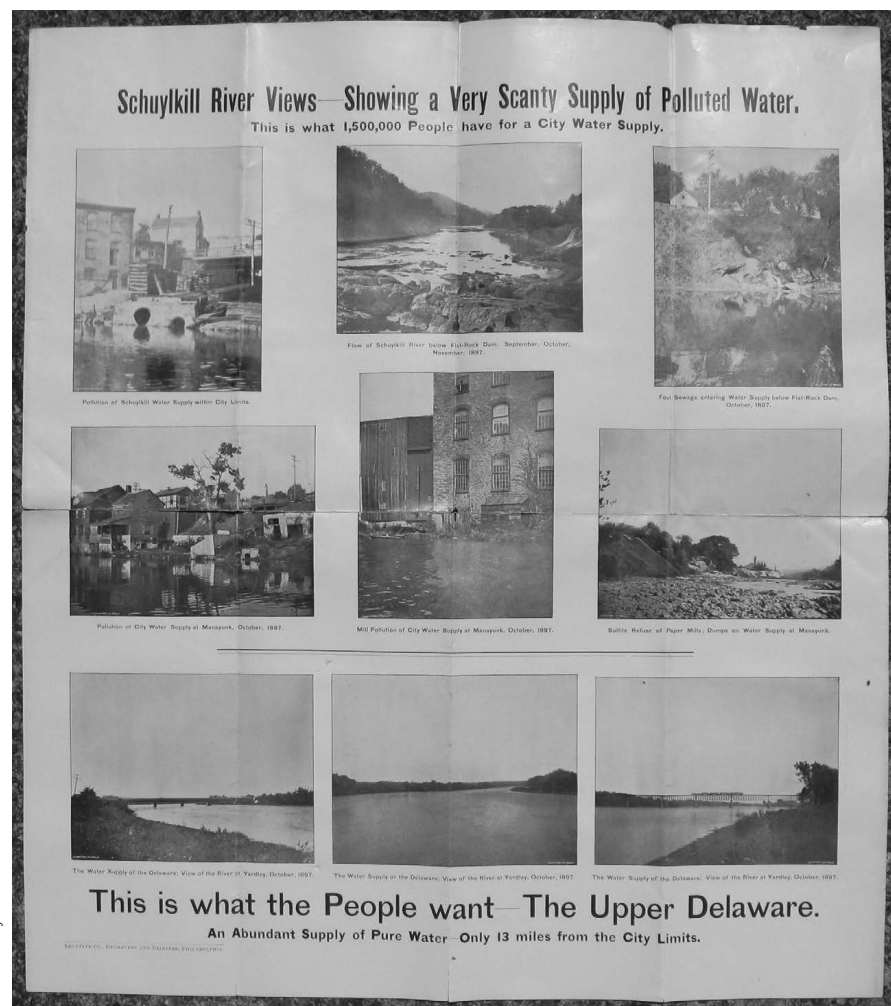
The author’s archive contains a poster or broadside, 16 in. by 18 in., which decries the contamination of the Schuylkill River (a tributary of the Delaware River) within the city limits, specifically at Manayunk. According to William Campbell in *Old Towns and Districts of Philadelphia* (1942), Manayunk is Native American for “our drinking place.” The banner across the top of the document exclaims “Schuylkill River Views—Showing a Very Scanty Supply of Polluted Water,” with the subtitle “This is what 1,500,000 people have for a city water supply.” The poster goes on to proclaim “This is What the People Want—the Upper Delaware.” The proposed alternative source is shown as the Delaware River at Yardley, Bucks County, more than 20 miles upriver from the intake for the city’s Torresdale Filter Plant (completed in 1909).

Two of the nine photographs on the poster depict IA. One is captioned “Mill pollution of city water supply at Manayunk, October, 1897,” and shows a plume of discoloration emanating from a concealed outfall. Six of the other photos are also dated October 1897. The other IA photo is a view of

mounds captioned “Sulfite Refuse of Paper Mills: Dumps on Water Supply at Manayunk.” The scale suggested by the people (possibly children) standing on the distant mound is that the near mound could be 6 or 8 ft. in height. The Schuylkill Canal, which passes through Manayunk parallel to the river, was completed in 1819. By 1822, nine textile and paper mills were located on the canal in Manayunk.

The author’s library also includes *Boyd’s Philadelphia Business Directory* of 1888, which lists Martin and William H. Nixon and American Wood Paper Co. on River Rd. “above” Fountain St. in Manayunk, under “Paper Manufacturers and Dealers.” In 1858, Martin Nixon, at his Flat Rock Mills in Manayunk, patented a method of making straw paper, which he first supplied to a Philadelphia newspaper. The American Wood Paper Co. was organized in 1864. Together, these two companies were reputed in 1884 to be the most extensive paper works in the world. Martin Nixon was one of the signatories to a memorial addressed to the Pennsylvania legislature in 1868, who claimed that dire economic

(continued on page 12)



1897 poster highlighting pollution of Philadelphia’s water supply.

PROTEST TO INDUSTRIAL WATER POLLUTION *(continued from page 11)*

consequences would result from the passage of a proposed bill that would impose fines on persons who discharged to the Schuylkill River waste from “any dye house, still house, tan yard, or manufactory or mill.” The bill denied “length of possession” (grandfathering) as a means of avoidance.

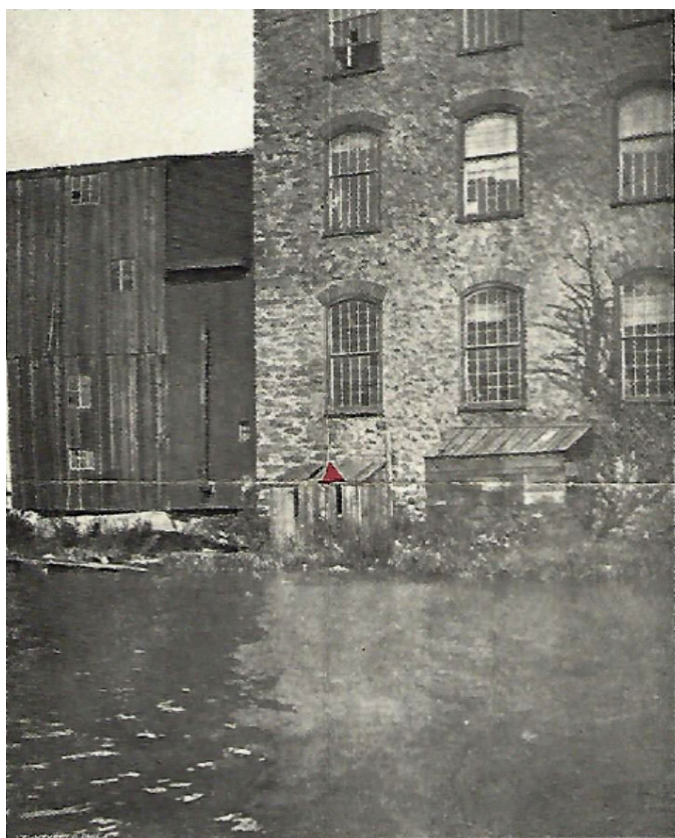
Voices such as those expressed on the broadside led to the passage of Pennsylvania’s Clean Streams Law of 1937. Section 301 (Prohibition Against Discharge of Industrial Wastes; amended July 31, 1970) states “No person or municipality shall place or permit to be placed, or discharged or permit to flow, or continue to discharge or permit to flow, into any of the waters of the Commonwealth any industrial wastes, except as hereinafter provided in this act.” Section 307 (Industrial Waste Discharges; amended Oct. 10, 1980) states “No person or municipality shall discharge or permit the discharge of industrial wastes in any manner, directly or indirectly, into any of the waters of the Commonwealth unless such discharge is authorized by the rules and regulations of the department or such person or municipality has first obtained a permit from the department.”

Officially, “industrial waste” means any liquid, gaseous, radioactive, solid or other substance, not sewage, resulting from any manufacturing or industry, or from any establishment, as herein defined, and mine drainage, refuse, silt, coal mine solids, rock, debris, dirt and clay from coal mines, coal

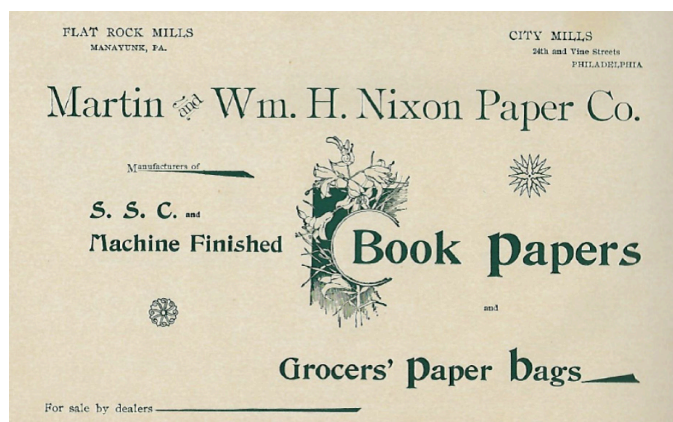
collieries, breakers or other coal processing operations. “Sewage” means any substance that contains any of the wastes or other discharge from the bodies of human beings or animals. “Waters of the Commonwealth” include “any and all rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial.”

Industrial wastewater is a serious issue. The author (an environmental consultant since 1986) recalls the story told by a former co-worker, who had been an enforcement officer with the old Pa. Dept. of Environmental Resources. This officer was escorted off the premises—samples in hand—by a state trooper after the owner of an industrial plant with a history of willful violations verbally threatened him and physically interfered with his collection of wastewater samples. But the gross conditions and carefree practices shown on the poster of 1897 are history.

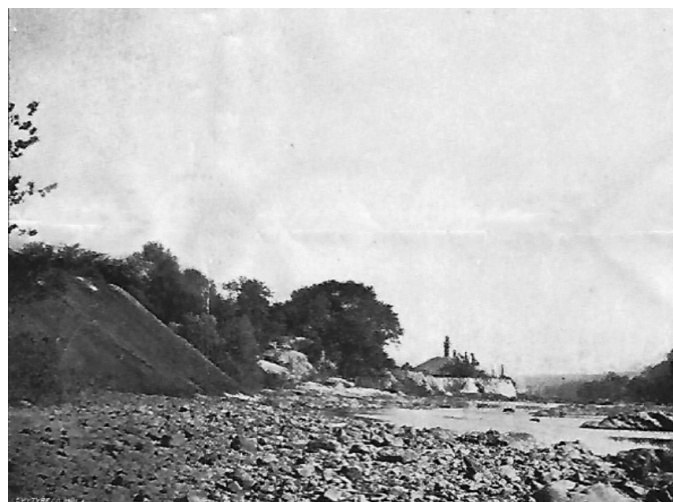
Michael Bernstein



Detail from 1897 poster showing mill pollution at Manayunk.



Advertisement for Nixon Paper Co. and their Flat Rock Mills in Manayunk.



Detail from 1897 poster showing sulfite refuse from paper mills at Manayunk.

The Book of Philadelphia (1894)

Collection of Michael Bernstein

CHAPTER NEWS

The SIA **Great Northern Chapter** spent Saturday morning, June 29, in Superior, Wis., touring and studying the **SS Meteor**, the world's last surviving whaleback lake ship. In the afternoon, we toured the nearby Fraser Shipyard, the *Meteor*'s birthplace. Superior Public Museums, managers of the *Meteor*, hosted the chapter for the day. Chapter member Dara Fillmore, Special Projects Coordinator for the Museums and *Meteor* expert, conducted the onboard "nooks and crannies" tour, pointing out interesting technical details. Eric Bonow [SIA], who helped arrange the day's tours, unfortunately was called away to his day job as second mate on a lake boat operated by the Interlake Steamship Co. and missed the events.

Roger Pellett, marine engineer and author of *Whaleback Ships and the American Steel Barge Company* (Wayne State Univ. Pr. 2019; Minnesota Book Awards Finalist and Northeastern Minnesota Book Awards Honorable Mention), presented the history and future of the *Meteor*. Pellett was joined by Jim Sharrow, retired from the Duluth Seaway Port

Authority, for the study session held onboard the ship.

Launched in 1896 as the *Frank Rockefeller*, the *Meteor* steamed until 1969, hauling a variety of cargoes including iron ore, grain, cars, and oil. She was number 36 of 44 whalebacks built by the American Steel Barge Co. after the design by Alexander McDougall. The design of the whalebacks included a flat bottom for larger hauling capacity, a conical bow and stern for hydrodynamics, and very little freeboard (just 7 ft. when the ship was loaded). The term "whaleback" came from the camber of the main deck, which allowed waves to wash over it, creating less resistance to the water and greater stability. In 1927 she was converted to an automobile carrier named the *South Park*, and became the *Meteor* in 1943, when she was converted to a tanker. As the final surviving whaleback ship, the *Meteor* boasts her original and remarkably intact triple expansion steam engine—one of the few still accessible to visitors—with auxiliary machinery dating from 1896 through the 1940s.

After lunch, everyone journeyed the short distance to

(continued on page 14)

Superior Public Museums photo.



The *Meteor* in her original configuration as the *Frank Rockefeller*, about 1900 in the American Steel Barge Co. shipyard (later Fraser), Superior, Wis.

Bob Frame



Viewing the *Meteor*'s original triple expansion engine, 1,195 HP, running at 75 RPM, powerful enough to tow one or two consort barges, doubling the 5,200-ton hauling capacity as a bulk freighter.



The original 1896 engine instrument panel.

Bob Frame



Dara Fillmore explains the chadburn (engine order telegraph), compasses, and other machinery in the pilothouse, which date from the original 1896 installation to additions in the late 1940s.

Fraser Shipyards. After opening in 1888 as the American Steel Barge Co., the yard built 42 whaleback barges and steamships before 1899. Today Fraser remains a working shipyard, repairing and repowering ships, and building boats (fire boats, tour boats, small landing vessels, and more) and machinery. In addition to touring the steel fabrication shops, we viewed Fraser's historic drydocks, one dating to the yard's original construction. Under repair in one drydock was the riveted-hull lake boat *Arthur M. Anderson*, the last laker to communicate with the crew of the *Edmund Fitzgerald* before she sank.

Following the tours, we gathered at Fairlawn Mansion, a historic house museum interpreted by Superior Public Museums. There, Museums director Megan Meyer joined Dara Fillmore to moderate a discussion with chapter members and the two expert guests, Roger Pellett and Jim Sharrow. A significant part of the day's agenda was this opportunity to explore issues involving the *Meteor*'s future, taking advantage of a roomful of SIA brains and experience. Conversation explored the technical and financial options for preserving and

interpreting such a complex maritime site. The group also discussed the *Meteor*'s currently stalled process to achieve National Historic Landmark status, which it richly deserves.

The day's events were shared with members of the Minnesota Chapter of the Society of Architectural Historians.

—Bob Frame

On Aug. 13, the **Northern Ohio Chapter** (NOCSIA) enjoyed a tour of the **National Bias Fabric Co.**, guided by company president David Breen. This Cleveland-based company has been family-owned and operated since 1902, and is now one of the few survivors in a garment industry which employed tens of thousands in Cleveland in the first half of the 20th century. As its name suggests, National Bias Fabric specializes in producing rolls of fabric cut on a 45° bias. As owner Breen explained, bias-cut fabric is used for pieces that need to stretch or go around circles without curling (such as for waist-bands of pants). In a process that seems magical to anyone without a good understanding of three-dimensional geometry, a bolt of conventional non-bias fabric is run through a machine that turns the fabric on an angle and sews it into a long tube, which can then be sliced into bias-cut rolls of various widths.

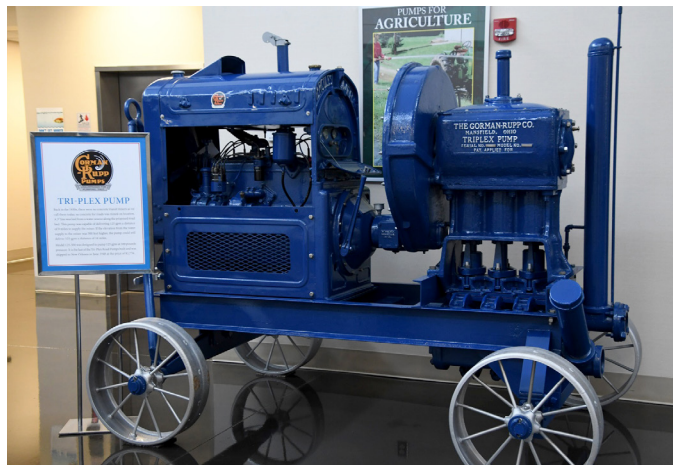
In the past National Bias Fabric was much larger, with as many as 60 employees, but such labor-intensive work has largely migrated to Asia and Africa. The company currently employs 20 workers, in part because work for the U.S. Department of Defense requires U.S.-sourcing. National Bias Fabric is also a leading producer of insulated pizza delivery bags with self-contained heating units, and the company makes other specialty items such as fire-resistant stage curtains and cloth used in cheese factories.

Lunch was next door at Marie's Croatian restaurant, a vestige of the historic immigrant neighborhood that provided labor for nearby factories. Over lunch, Ron Petrie [SIA] led a discussion of Taylorism in the Cleveland garment in-

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Touring Fraser Shipyard where the *Meteor* was built and viewing the *Arthur M. Anderson* in one of the historic drydocks in preparation for a season on the Great Lakes.



A triplex pump on display at the Gorman-Rupp Co.

SITES & STRUCTURES

Colonial-Era Mill Site to Be Closed

Wilkins Rogers Co. announced in October that it would cease flour and corn meal production at the ancient Ellicott City, Md. mill site, just three years short of the 250th anniversary of milling started at that location on the Patapsco River by the three Ellicott brothers in 1772. The Ellicotts built an extra-large merchant mill and constructed their own roads and pier in Baltimore Town to market Patapsco brand flour. The Ellicotts advertised that they had adopted Oliver Evans's automated machinery for grain processing. The mill scheduled for closure was a large, modern plant dating from 1918. The many mill owners survived fire and flood but operated on the same site using water power, steam, and electricity.

—John W. McGrain

Transportation Reject Becomes Retro Art

A quarter-century since it was lifted from its abutments and stored at a discontinued landfill, an 1888 Berlin Iron Bridge Co. lenticular pony truss has been repurposed for use in a commercial building on Main St. in Great Barrington, Mass.

The building itself, an 1845 Methodist Church (enlarged

in 1892) sold by the diminished congregation in 2015, is an evolving edifice. Developer Paul Joffe raised the structure 8 ft. and built a new basement—prompting its nickname, the “Flying Church”—and added onto two sides to create space for a restaurant and retail and commercial tenants. The bridge provides railings for a disabled access walkway.

The lenticular-truss bridge in its original purpose replaced a span on Pumpkin Hollow Rd. that had washed out in a spring freshet. According to the *Berkshire Courier* for Apr. 25, 1888, Berlin Iron Bridge's was the lowest bid submitted, \$1,172, compared with higher figures from Pennsylvania Bridge Co., Dean & Westbrook, Pittsburgh Bridge, Groton Bridge, Hawkins Iron Works of Springfield, Wrought Iron Bridge, and Canton Wrought Iron Bridge.

“The bridge is to be one span of 55 feet and a 12-foot roadway,” the newspaper reported, “and will be a low truss. The Selectmen will furnish the abutments all ready for the bridge, and also the joists and plank for the roadway. The contract calls for the bridge to be finished July 1st.”

All six Housatonic River crossings in Great Barrington were once distinctive Berlin Iron Bridge “pumpkinseed” spans, also nicknamed “fish-belly,” “elliptical,” and “double bowstring” bridges. The spans in Great Barrington were, one by one, replaced due to flood damage or general fatigue by the 1950s.

This is the last surviving 19th-century metal-truss bridge in town. It was closed in 1992. The Board of Selectmen voted to construct a new timber pony truss bridge in 1999. The old trusses went into storage and were forgotten by many. This writer in a chance conversation with Joffe at a neighbor's outdoor barbecue disclosed its availability. Joffe acquired it for \$500.

As he watched its installation on June 13, 2019, Joffe acknowledged the bridge's pin-connected construction was a potential problem if riggers weren't careful in lifting the sides. Secured with timbers and bolts, it was sufficiently rigid to be moved. “I hope people notice it,” Joffe said, admiring the structure's design.

The span is based on William O. Douglas's 1878 U.S. Patent No. 202,526.

—Bernard A. Drew



Bernard A. Drew

Installation of Great Barrington's 1888 Berlin lenticular-truss bridge at its new location.

SAVE THE DATE!

SIA Fall Tour, Sept. 24–27, 2020 • Central and Mid-Coast Maine

The 2020 SIA Fall Tour will be based in historic Bath. We will explore Maine industries including textiles, shoes, bricks, and narrow gauge railroads, as well as lumbering,

boat building, quarrying, high-tech manufacturing, and an active paper mill. Stay tuned for more information in the next issue of the *SIA Newsletter* and at www.sia-web.org.

dustry during the Progressive Era of the early 20th century. Taylorism is the management practice of imposing certain work methods on industrial workers in order to increase productivity, named after Frederick Taylor, one of several early management consultants who sought to improve industrial work methods and training. Richard Feiss, who managed Cleveland-based Joseph & Feiss from 1909 to 1925, was a Harvard graduate who used “scientific” management to create a more humane workplace. His innovations in the Cleveland garment industry included redesigned chairs and tables to reduce worker injury and fatigue; enhanced lighting and ventilation; after-hours social and athletic activities; the industry’s first five-day work week; the industry’s first company-funded healthcare; and promotion based on merit.

After lunch, the NOCSIA group toured the **Tower Press Building**, guided by owner Karen Perkowski. The building was built in 1907 for H. Black and Co., a manufacturer of women’s clothing and coats. Due to garment-industry consolidation, the factory was repurposed in 1928 for printing and publishing books and pamphlets. After a \$10 million renovation in the early 2000s, the Tower Press Building is now a mixed-use residential complex with 8,000 sq. ft. of restaurant, retail, and office space on the ground floor, and with arts-oriented loft apartments on the upper levels. The centerpiece of the development is a dramatic, five-story, lighthouse-style apartment contained in the 130-ft. tower that gives the building its name.

—Guy Marentette, with Kathy Lawrence,
Ron Petrie, and Mary Starbuck

NOCSIA’s activities continued with its annual picnic, held on Oct. 4 in Mansfield, Ohio, a major manufacturing center located exactly midway between Cleveland and Columbus. NOCSIA member (and Mansfield manufacturer and historian) Jerry Miller guided a day-long bus tour of Mansfield industrial areas, stopping for factory process tours

at Gorman-Rupp in the morning, and at Mansfield Engineered Components in the afternoon. **Gorman-Rupp** is one of the world’s leading producers of pumps. The company’s world headquarters in Mansfield has 825,000 sq. ft. of space for machining and assembly of pumps and pumping systems of all sizes. **Mansfield Engineered Components** makes highly specialized hinges and ships them throughout the world to manufacturers of kitchen and laundry appliances.

The NOCSIA group stopped for a picnic lunch at North Lake Park, site of an early-20th-c. amusement park. In the park’s indoor pavilion, Jerry Miller presented a slide show on the history of industry in Mansfield, with the startling revelation that the unionized plants in this once-heavily-unionized community had all but disappeared, while the surviving factories are mostly non-union. The day ended with a visit to the **Mansfield Memorial Museum** with amazing artifacts from the city’s illustrious past such as Elektro, an 8-ft.-tall humanoid robot built for the Westinghouse exhibit at the 1939 New York World’s Fair. Reflecting the era in which he was made, Elektro’s capabilities once included cigarette smoking, though he has since kicked the habit.

—Ron Petrie

The **Roebling Chapter** (greater N.Y.-N.J.) held several events in the early fall. On Sept. 7, members gathered at Gerry Weinstein’s Engineerium in Croton-On-Hudson for the chapter’s annual Corn Roast. Sept. 21, members explored the Chester Furnace and nearby Hedges Mine site in Morris County, N.J.

Support Your Local Chapter. For info on a chapter near you or to start one, check out the local chapters section of the SIA website (www.sia-web.org). ■



Guy Marentette

Northern Ohio Chapter touring Mansfield, Ohio. The logo for Mansfield Engineered Components is a stylized hinge.

CONFERENCES & WORKSHOPS

Call for Abstracts. The **Construction History Society of America** (CHSA) invites researchers and practitioners from all aspects of the history of construction to submit presentation abstracts on subjects relating to the Americas for the 7th Biennial Meeting on Construction History, to be held in Bloomington, Ind. at Indiana University, May 29–30, 2020. All presentations must be in English and related to construction in North or South America. Abstract deadline: Jan. 2, 2020. Info: www.constructionhistorysociety.org.

Call for Abstracts. The **Petroleum History Institute** (PHI) is accepting abstracts of research for presentation (oral or poster) at the 2020 PHI Annual Symposium, Apr. 2–4, in Santa Barbara, Calif. To submit an abstract for consideration, contact William Brice (wbrice@pitt.edu) or Marilyn Black (814-677-3152, ext. 105; mblack@oilregion.org). Abstract deadline: Mar. 1, 2020. Info: <https://petroleumhistory.org>.

Call for Papers. The **Northern New England Chapter of the SIA** invites proposals for papers to be presented at the 33rd Annual New England Industrial Archeology Conference. The conference is alternately hosted by the Southern New England and Northern New England chapters. The confer-

ence will be held Sat., Mar. 14, 2020 at Plymouth State University in Plymouth, N.H. Papers are welcomed on all topics related to industrial history, archeology, manufacturing, preservation, engineering, architecture, etc., in New England and elsewhere. Deadline for paper proposals is Jan. 31, 2020. For more info: nec-sia.org, or contact David Coughlin, 276 Black River Rd., Bedford, N.H. 03110; ykforestry@yahoo.com.

Call for Sessions. The **Society of Architectural Historians** (SAH) invites individuals and those representing SAH chapters and partner organizations to submit a session proposal for the SAH Annual International Conference, Apr. 14–18, 2021, in Montréal, Qué. SAH membership is a requirement to chair or present research at the annual conference; non-members who are selected to chair a session will be required to join SAH. Sessions may be theoretical, methodological, thematic, interdisciplinary, pedagogical, revisionist, or documentary in premise and ambition and have broadly conceived or more narrowly focused subjects. Sessions that embrace cross-cultural, transnational, and/or non-Western topics are particularly welcome. Session proposals must be submitted online by Jan. 14, 2020. For more info see: www.sah.org/2021/call-for-sessions. ■

PUBLICATIONS OF INTEREST (continued from page 10)

HAND TOOLS & MACHINE TOOLS

- ◆ Thomas L. Elliott. **A Guide to the Makers of American Wooden Planes**. 5th ed., Astragal Pr. 2019. 456 pp., illus. \$40. With its initial publication in 1983, Elliott's guide became a standard model for books on tool collecting. The heart of this updated 5th ed. is an alphabetical directory of plane makers and dealers.

MISC. INDUSTRIES

- ◆ Jake Halpern. **The Business of Scavenging in Postindustrial America**. *NYT Magazine* (Aug. 21, 2019). In-depth and fascinating look at the scrap metal industry from the self-employed peddlers who troll curbsides to the corporations that specialize in processing scrap copper and other metals. The worldwide scrap metal industry is estimated to employ more than one-half million people, more than computer programming, web development, chemical engineering, and biomedical engineering combined. Article has interviews, photographs, and details of scrap recycling processes in Buffalo, N.Y.
- ◆ Steven Kurutz. **These Flowers Have Been Growing for 103 Years**. *NYT* (May 8, 2019). M&S Schmalberg has been making silk flora for fashion brands for more than a century. The company continues the craft through many changes and challenges in the industry.

ABBREVIATIONS:

- CH = *Construction History*, Journal of the Construction History Society
- CHSA = Construction History Society of America
- IA News = Bulletin of the Association for Industrial Archaeology (U.K.), www.industrial-archaeology.org.
- NYT = *New York Times*
- OMN = *Old Mill News*, published by the Society for the Preservation of Old Mills (SPOOM)
- SPOOM = Society for the Preservation of Old Mills
- TICCIH = *The International Committee for the Conservation of the Industrial Heritage*, <http://ticcih.org>.

Publications of Interest are compiled from books, articles, and digital media brought to our attention by you, the reader. SIA members are encouraged to send citations of new and recent books, articles, CDs, DVDs, etc., especially those in their own areas of interest and those obscure titles that may not be known to other SIA members. *Publications of Interest*, c/o Marni Blake Walter, Editor, SIA Newsletter, 11 Esty Rd., Westmoreland, NH 03467; sianeditor@siahq.org. ■

outside steel ladder (LX-24). The LS-40 tower also had frequent landings and a guardrail that continued all the way up to the house at the top. The platforms were wooden and came ready-made to be inserted into the tower.

The house at the top of the tower was 7 sq. ft. and 6-ft.-9-in. tall to the eaves. The roof was made in four pieces, so that it could be assembled from the inside of the house and was galvanized steel. The lower portion of the house was enclosed by galvanized steel sheets. There were two windows on each side of the house, but only one window opened on each side. Aermotor supplied all of the materials for building the towers except for the window glass. It was recommended that the purchaser acquire the glass themselves and have glazing done once the tower was constructed. The entrance to the house was through a trap door in the floor of the house that opened by hinges. The LX-24 model was entered from a platform below the house.

Towers were often anchored to high points within forests by 5-ft.-long galvanized rods. Some of the forest towers were placed on rocks, which was accomplished by using 3 to 6-in.-long anchor bolts. If the towers were to be placed on ground that could be excavated up to 5 ft., angled steel anchor posts could be included. Specifications for anchor-

ing equipment were provided when the towers were ordered (the default was 5-ft. rods).

Towers were shipped in pieces so they could be easily transported. Blueprints were included to provide dimensions to assist with erection and showed the location of every piece. Each piece or bundle of pieces had its number stenciled onto it. The towers were assembled from the ground up, bolted in place piece by piece. A gin pole was used to put on two or more sections of the tower without having to move the pole. Poles were used to hoist corner posts into position, while lighter pieces were pulled up using a hand line. An article called "Uncle Sam's Highest Lookout Tower" in *American Forests and Forest Life* detailed that it took a crew of five men 20 days to build a 120-ft.-tall tower in eastern Arizona.

Forest lookout towers made a significant impression on the landscape, with hundreds of steel towers built throughout the United States. Today, lookout towers are no longer needed for forest fire detection and prevention due to technological advances. However, many towers still stand, including those designed by Aermotor, which illustrates the impact the company had on the manufacturing of lookout towers and forest fire management. Today, many Aermotor lookout towers have been preserved for historical and recre-

PRICE LIST

LS-40 Type with Inside Stairway

	Weight Pounds	Price
22-foot Observation Tower.	3,200	\$ 335.00
35- " " "	4,300	455.00
47- " " "	6,300	615.00
60- " " "	8,500	725.00
73- " " "	11,000	865.00
80- " " "	12,000	970.00
93- " " "	14,500	1,250.00
100- " " "	16,500	1,340.00

LX-25 Type with Inside Ladder

	Weight Pounds	Price
21-foot Observation Tower.	2,500	\$ 260.00
35- " " "	3,800	350.00
48- " " "	5,200	435.00
62- " " "	6,950	580.00
75- " " "	8,700	715.00
82- " " "	9,500	830.00
102- " " "	12,500	1,000.00

LX-24 Type with Outside Ladder

	Weight Pounds	Price
21-foot Observation Tower.	2,400	\$ 210.00
35- " " "	3,100	280.00
48- " " "	4,100	365.00
62- " " "	5,000	440.00
75- " " "	6,300	530.00
82- " " "	7,000	575.00
102- " " "	8,400	725.00

The different anchors are described on page 4. Be sure to specify on the order the kind of anchors desired.

Galvanized Ladder Enclosure for LX-24 Type Tower, per linear foot, \$0.80

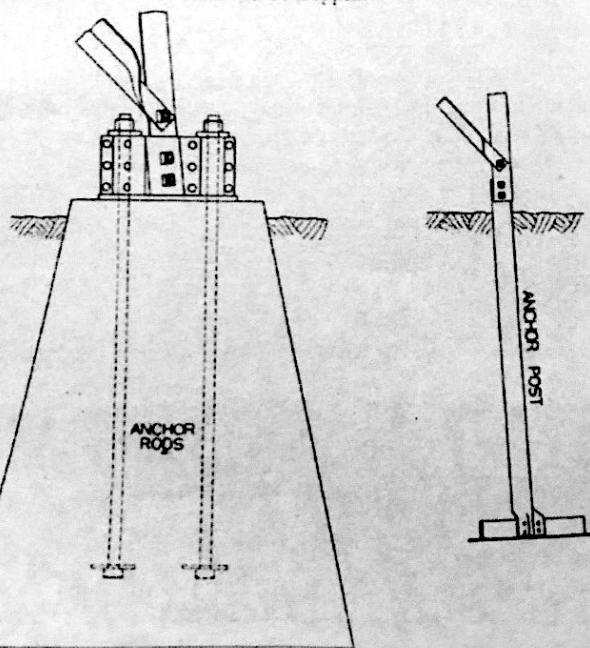
Any of above towers fitted with 16-foot galvanized flag pole, extra, \$10.00.

ANCHORAGE

We regularly furnish with these towers galvanized anchor rods 5 feet long for imbedding in concrete piers. When the towers are to stand on solid rock we will furnish anchor bolts 3 feet 6 inches long if preferred.

Where the ground can be easily excavated to a depth of five feet, angle steel anchor posts can be used at some saving in the expense of the foundations.

Orders should specify the type of anchorage desired. If this is not done the 5-foot Anchor Rods will be shipped.



Aermotor Forest Service Tower Price List.

Anchoring sketch.

ational purposes, like the Mount Beacon Fire Tower located in Beacon, N.Y.

Camille Marcotte

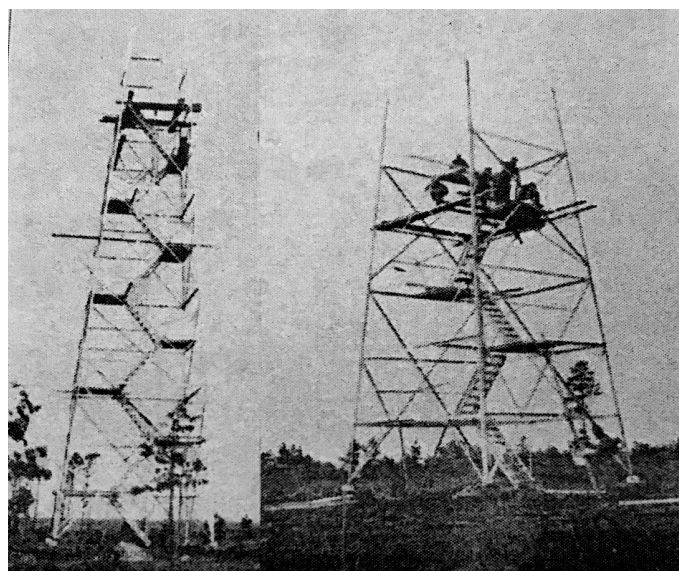
For more information:

Ancona, E. P. (1925). Uncle Sam's Highest Lookout Tower. *American Forests and Forest Life*, 31 (381), 538–539.

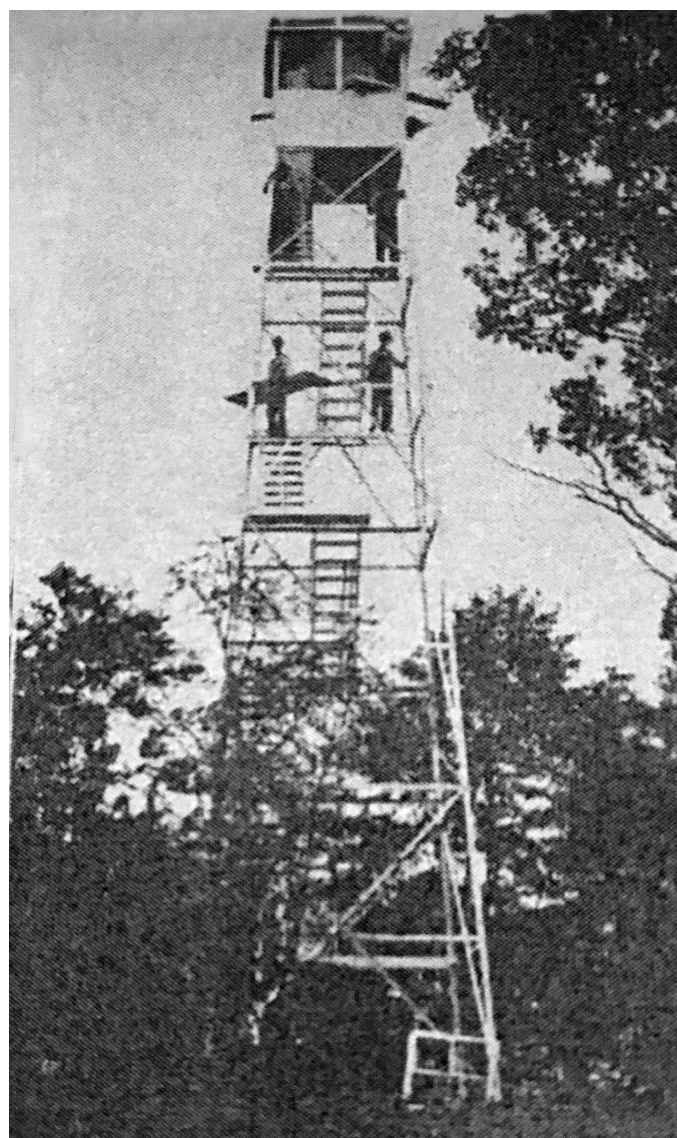
Eldredge, I. F. (1928). Fireproofing the Georgia Woods. *American Forests and Forest Life*, 34 (412), 221–223.

Gillis, C. C. (2015). *Still Turning: A History of Aermotor Windmills*. College Station: Texas A&M Univ. Pr.

Grosvenor, J. A. (1999). *A History of the Architecture of the USDA Forest Service* (EM-731 0-8).



Aermotor Co., 1920, p. 34–36



Forest Tower Construction.

Eric DeLony Industrial Heritage Preservation Grant Fund Application Deadline: Mar. 1, 2020

The SIA offers grants from the Eric DeLony Industrial Heritage Preservation Grant Fund from \$1,000 to \$3,000 for the study, documentation, recordation, or preservation of significant historic industrial sites, structures, and objects. Funds may be used for a range of projects including, but not limited to: increasing public awareness of preservation efforts, photography, videography, preparing inventories, and developing measured drawings of extant significant industrial sites, structures, maritime facilities, and industrial artifacts. Grant recipients must agree to prepare a written summary of their project suit-

able for publication in either the *SIAN* or for *IA*, the Society's scholarly journal.

Grants are open to qualified individuals, independent scholars, nonprofit organizations, and academic institutions. Organizations are preferred over individuals. Substantial participation from state, county, or local history organizations is encouraged, although such groups do not necessarily need to be a sponsoring agency.

For info on how to apply: www.sia-web.org/activities/preservation-grants

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CALENDAR

2020

Jan. 8–11: Revolution: Society for Historical Archaeology Annual Conference on Historical and Underwater Archaeology, Boston, Mass. Info: www.sha.org.

Mar. 14: NEW ENGLAND INDUSTRIAL ARCHEOLOGY CONFERENCE, PLYMOUTH, N.H. Sponsored by Northern New England Chapter SIA. See call for papers in this issue. Info: nec-sia.org.

Mar. 18–21: National Council on Public History Annual Meeting, Atlanta, Ga. Info: <https://ncph.org>.

Apr. 2–4: Petroleum History Institute Annual Symposium & Field Trip, Santa Barbara, Calif. See call for abstracts note in this issue. Info: petroleumhistory.org.

Apr. 29–May 3: Society of Architectural Historians Annual International Conference, Seattle, Wash. Info: www.sah.org/2020.

May 6–9: Vernacular Architecture Forum Annual Meeting, San Antonio and Central Texas. Paper sessions and tours. Info: www.vafweb.org.

May 28–31: SIA 49th ANNUAL CONFERENCE, LEHIGH VALLEY, BETHLEHEM, PA. See conference preview and call for papers in this issue. Info: www.sia-web.org.

May 28–30: Ry. & Locomotive Historical Society Annual Meeting, Bryan/College Station, Texas. Info: www.rlhs.org.

May 29–30: Construction History Society of America 7th Biennial Meeting on Construction History, Bloomington, Ind. See call for abstracts note in this issue. Info: www.constructionhistorysociety.org.

June 10–15: Mining History Assn. Annual Conference, Elko, Nev. Tours and paper sessions. Info: www.mininghistoryassociation.org.

Aug. 20–27: Assn. for Industrial Archaeology, Annual Conference, Liverpool, England, U.K. Paper sessions and tours. Info: www.industrial-archaeology.org.

Sept. 24–27: SIA FALL TOUR, CENTRAL AND MID-COAST MAINE. Info: www.sia-web.org.

Oct. 7–11: Society for the History of Technology (SHOT) Annual Meeting, New Orleans, La. Info: www.historyoftechnology.org.

2021

April 14–18: Society of Architectural Historians Annual International Conference, Montréal, Qué. See call for sessions note in this issue. Info: www.sah.org/2021. ■