



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

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GRAND RAPIDS IA 2023 ANNUAL CONFERENCE REVIEW

More than 100 SIA members and guests traveled to Grand Rapids, Mich. for the 51st Annual Conference, held June 7–11, 2023 and headquartered at the Embassy Suites Downtown Hotel.

Located on the Grand River, Grand Rapids and the wider Grand River Valley emerged during the mid-19th c. as a prominent manufacturing center. The production of household furniture became Grand Rapids' signature industry by the 1880s. Annual furniture exhibitions drew national and international buyers and secured the city's place as "Furniture City, U.S.A." until the 1930s. Other supporting industries included design, printing, metalworking, and gypsum mining. Later, automobile parts, precision manufacturing, and specialized furniture production shaped the region's economy. A more recent development is a vibrant independent brewing and distilling industry. Many of these historic and modern industries were featured on our tour itineraries,

and are described here, with thanks to the members who volunteered to contribute the following reports and photographs for *SIAN*.

The schedule followed the typical pattern of past conferences, with pre-conference tours and a welcome reception on Thursday, historic site and process tours on Friday, paper sessions and Annual Business meeting on Saturday (see articles elsewhere in this issue), the Saturday night banquet held at the **Knickerbocker New Holland Brewing Co.**, and post-conference tours on Sunday. In addition, on Wednesday night a public presentation by Rebecca Smith-Hoffman of Past Perfect, Inc., introduced attendees to the history and impact of preservation in Grand Rapids. The event was held jointly with the SIA and the Grand Rapids Historical Society at the historic Main Branch of the Grand Rapids Public Library.

Thursday Tour 1: Walking Tour of the Grand River Waterfront and Downtown Grand Rapids. Eleven SIA conferees

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Christopher Manston

The Embassy Suites Hotel offered views of the historic 1886 Sixth St. Bridge along the Grand River, which was restored in 1975 as an early example of urban bridge preservation.

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 - Paul White—Vogel Prize
 - Student Scholar—Dan Trepal
 - Business Meeting Minutes
- Historic Smelting Artifact Conserved
- St. Croix Windmills

GRAND RAPIDS *(continued from page 1)*

gathered to join a guided tour of the riverfront and downtown areas of the City of Grand Rapids. The river has been a crucial factor in the development of the city. Grand Rapids is located at the furthest extent that lake boats could come up the Grand River from Lake Michigan, just one incentive for industrial development at this spot.

Most of the furniture manufacturing activity that once thrived in Grand Rapids is gone, but many buildings that were part of the industrial economy still stand. Most have been successfully converted to other uses, some are still used for industrial/commercial purposes, and many others have been demolished with only traces of foundations left.

Our very knowledgeable guide treated us to an interesting walk along both sides of the river and talked primarily of what used to be on the west side, which is rapidly gentrifying, and what is now on the vibrant, downtown east side. Additionally, Grand Rapids is a bridge lover's delight and we saw five of them (excluding expressway bridges). They represent all types, uses, and ages. Some are now pedestrian only.

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.

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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.

As would be expected, early industry clustered along the river to take advantage of the hydraulic power provided by the 10–15 ft. drop created by the rapids of the Grand River and supplied to industry (including electricity generation in 1880) by raceways along both sides. These were filled in during the 1920s and no traces remain of this infrastructure. More unfortunately, Grand Rapids heartily embraced the freeway building and urban renewal booms of the mid and late 20th c., which clear-cut most of the waterfront.

The group left the hotel on the east side of the Grand River and immediately crossed the 536-ft. **Sixth St. Bridge** (NR), a Pratt through-truss bridge built in 1886 and rehabilitated in 1975, an early example of a city saving one of its historic bridges. It is the longest and oldest metal truss bridge in Michigan and still carries vehicular traffic. The city has created a very good riverwalk on both sides of the river so it was possible to conduct most of the tour away from traffic. We saw the historic **Eliphalet Turner House**, at Sixth St. and Front St., a remnant from the once-vibrant neighborhood that stood on the west side of the river until everything else (churches, houses, etc.) was destroyed by expressway building. Proceeding south we passed a fish ladder installed to allow fish to bypass a small weir on the river. The installation also included public art, a frequent occurrence in the city. Our guide emphasized the importance Grand Rapids attaches to supporting the arts and beautifying public spaces in this way.

From the west side we could see the imposing downtown skyline. Many of the medical and commercial buildings and the notable convention center were financed and promot-



John Rearp

Longtime member John Bowditch returned to his first SIA conference in decades and drove a hot rivet at Lansing Community College, while the instructor guides and his assistant applies a pneumatic bucking tool. The rivets are being driven into holes in a VJM Riveting Training Fixture devised by Vern Mesler and fabricated by Jeff Haynes and Ken Barlage of Haynes WeldFab LLC. The fixture for 5/8-in. rivets has the advantage of being re-usable, and students can inspect the rivets that they've driven.

ed by the founders of the Amway Co., which originated in Grand Rapids and still operates nearby.

We passed the Gerald Ford Library and Museum and the Public Museum, both beautiful, modern buildings in park-like settings. Crossing the river back to the more highly urbanized east side, we viewed several imposing hotels and public buildings, including the Civic Auditorium, which is a magnificent Art Deco performing arts center, and a terracotta clad building which has been used as a showroom for the various furniture manufacturers. Our guide also pointed out the remnants of the original riverfront commercial district, most of which has been redeveloped in the last 50 years. Only a few, charming 19th-c. buildings remain. The riverwalk on the east side is narrow, but it reflects the pride Grand Rapids takes in its public spaces and provides a good transition between the bustling commercial city to the east and the river flowing to the west.

Thursday Tour 2: Furniture, Rails, and Mines headed north from the hotel paralleling the path of a former power canal and past the Sixth St. Bridge and past former furniture mills, a 1912 pumping station, and a Grand Trunk Western RR bridge. The first two stops were both family-owned furniture manufacturers: **Nucraft Furniture** and **Irwin Seating**. Their products and markets are both focused and not overlapping, typical of Grand Rapids industries.

Nucraft Furniture dates from the last day of 1944. Initially producing office accessories in wood, its focus now is on the manufacture of large board tables. Their products are designed and manufactured to fit specific needs for offices as well as some hotels and universities. The tables are generally highly selected veneer on fiberboard, some designed with stone or glass inlays and often designed to accommodate electronic support for meetings.

The business operates on a single shift with eight levels of worker skill ranging from Operator 1 through Technician 3 to Supervisor. Level 3 Operators and Technicians can be assigned to any task within the plant. Workers can enter the business with no experience and advance through internally provided education and training. The company includes substantial safety focus in its training and operations. The

plant includes 43 vacuum lifts to minimize physical lifting by workers. Veneer can be pressed onto about 400 panels per shift. Finishing takes about five hours to complete in a three to five step process. Tables are fully constructed and assembled on site then disassembled, packed, and transported for reassembly on site by contractors.

Irwin Seating traces its origins to about 1907 as a furniture manufacturing and construction company. They now focus on indoor and outdoor stadium seating for stadiums, theaters, and educational institutions. The business operates with a workforce that has been unionized since 1951. It operates on a single shift of eight to ten hours in length. The seating manufacture includes plywood, steel, molded plastic, and fire-resistant fabrics.

The plant is about 380,000 sq. ft. and is heated but not cooled. It includes plywood shaping and bending, fabric cutting and sewing, steel cutting, stamping, and welding capabilities. Almost all metal in the finished product is powder-coated. Outdoor seating painting is done at an outside facility. Seat sizing is offered from 18 in. through 23 in. with double-wide theater seating offered.

The **Coopersville and Marne Railway** is a combined tourist and line-haul operation located northwest of Grand Rapids. Its tourist operations utilize former New Jersey (DL&W) commuter cars running over the seven miles between Coopersville and Marne, Mich. Following our lunch on the Coopersville square, we toured the railway grounds with guided introductions to both operating and project equipment. A GE switch engine was operated during our visit to position for a future car movement.

Michigan Natural Storage Co. (MNS) is located in Wyoming, Mich., southwest of Grand Rapids. It operated from 1907 to 1943 as the Alabastine Mine mining gypsum for use in plaster products, for whitewash and particularly for Alabastine Whitewash Paint. The grandfather of the current owner purchased the property in 1946 primarily for the land above the mine. The mine floor is level, stable, and dry with about six linear miles of tunnels. Its average annual temperature is 49°F, increasing slightly at deeper levels. Product can be stored at this temperature or freezer units installed with

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William McNice

A view along the factory tour at Irwin Seating.



Anthony Meadow

SIA members explore the Coopersville & Marne Ry.

greatly reduced refrigeration costs.

In 1957, the mine began reuse as a storage facility for produce. Into the 1970s, all of the company's storage was underground. Since then, the company has used a combination of underground and aboveground refrigerated buildings. An ammonia process is used for refrigeration above with chilled brine below. All produce movement into and out of the storage facility is accomplished by MNS staff.

Friday Tour 1: Traditional Furniture, Water, and Sky. The day began with a visit to **Kindel Furniture**. The company's original product line was convertible bedding, what we now call sofa beds and daybeds. Over time, the company shifted to high-end case furniture and upholstered furniture, much of it custom orders. They also have the contract to produce reproduction furniture for Winterthur Museum.

Much of the work on a piece of Kindel case furniture is done by hand. Some carving is done by a machine that follows a template, but the final stages are done by hand.

There is extensive use of veneers, carefully matched, and glued onto poplar, not particle board. We saw a worker cutting sections for a curved apron, the part of a table visible beneath the top. He had a large glued-up block of poplar. He glued a paper template onto the top, and followed the curved lines by eye. No guides on the saw, no computer in control, just a steady hand and years of experience.

Next stop was the first of two water visits. At the **Grand Rapids Water Resource Recovery Facility**, we saw a presentation on the history of the sewage system. In the late 1800s, Grand Rapids had a sewer system that, like those of many cities, combined sewage and surface runoff in the same system and released everything into a nearby body of water. Grand Rapids used the Grand River, which was a problem for communities downstream. In the 1920s, the city of Wyoming, Mich. sued Grand Rapids over the water quality. As a result of the suit, Grand Rapids spent \$10,000,000 rebuilding the sewer system and constructing a water treatment plant. We visited the original building, which was completed in 1931. As practices and procedures changed, the facility has

grown, and we saw the current treatment areas, too.

The third stop gave us both sky and water, plus some geology. The sand dunes along Lake Michigan are more than just piles of sand. Created by glaciers and wind, and stabilized by vegetation, some are sturdy enough to support buildings. In some places, the dunes have steep slopes and are a few hundred feet high. One of these dunes hosts a Cold War-era radar installation, the **Saugatuck Gap Filler Radar Annex**. The system was put into operation by the U.S. Government on the top of Mt. Baldhead dune in 1958 to warn against aircraft coming over the Arctic. Although it was decommissioned in 1968, the building and radar antenna still stand, and those hardy enough to climb more than 300 steps got a sweeping view of Saugatuck and Douglas, important 19th-c. lumber towns. The site was added to the National Register of Historic Places in 2022.

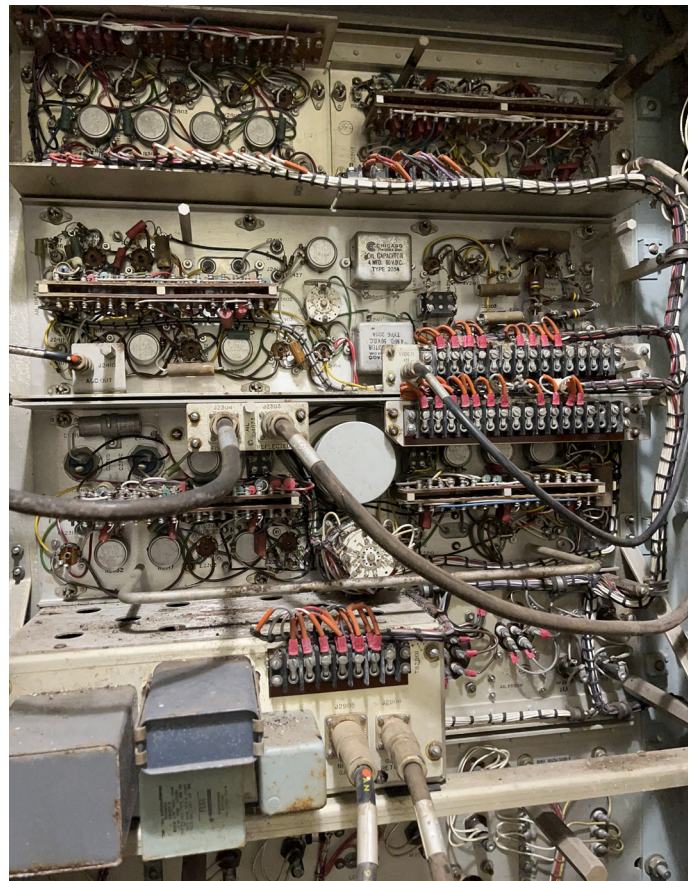
For those who didn't climb to the top, there was a chance to learn about local history in the **Saugatuck-Douglas History Museum**, housed in Saugatuck's first water pumping station (1904). And a surprise treat was seen nearby on the water. Saugatuck has the last remaining hand-cranked chain ferry in the world. The iconic **Saugatuck Chain Ferry** across the Kalamazoo R. is powered by two people who turn a crank that moves the boat along a chain in the water. The chain is slack enough that it lies on the bottom of the river when the boat isn't crossing.

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Kathryn Fox

Carving of a chair leg at Kindel Furniture.



Martha Meyer

Saugatuck Gap Radar electronics.

Paul White—2023 Vogel Prize Recipient

Each year, the SIA highlights outstanding scholarship in the field of industrial archeology with the Vogel Prize. Named in honor of SIA co-founder and distinguished member, Robert M. Vogel, the award recognizes the author of the best article to appear within the last three years of the Society's peer-reviewed journal, *IA: The Journal of the Society for Industrial Archeology*. The Vogel Prize consists of a cash award and a unique, genuine wooden foundry pattern mounted on a plaque, engraved with the recipient's name—easily one of the most distinctive trophies in the scholarly world.

Before naming the winner of the 2023 award, I wish, as committee chair, to thank this year's Vogel Prize Committee: Martha Mayer, Bob Newbery, Lynn Rakos, and Bill Vermes, all of whom diligently read and evaluated the eligible articles and recommended the articles they believed to be most deserving of the award.

The committee is pleased to have selected Paul White's "A Mill Man's Day: Task Scheduling at Alaska's Gold Cord Mill," which appeared in Vol. 45, no. 2, of *IA* (2019).

White provides us with a clearly written account of the equipment and operations of the Gold Cord Mill in Alaska, as recorded and documented by a summer field school run in 2016 by the Dept. of Anthropology at the Univ. of Alaska Anchorage. The article is well illustrated by photos and drawings made by the author. The article references the expected historical technical literature on the operations of a mill for processing gold ore, and the author and his field school had the added benefit of on-site oral accounts of operating the mill given them by Dan Renshaw, the owner of the property who had worked the mill by himself as late as the 1970s.

Renshaw helped the field team understand subtle details of the typical routine as well as insights into problems that could upset that routine, helping to bring the idle mill to life.

One member of the committee wrote, "White's [article] makes clear the value of detailed documentation of processes from multiple sites, or replicate observations. While the processes are the same, subtle differences determined success or botch. I couldn't help but think the one-man successful operation of the Gold Cord Mill as depicted was like an active symphony conductor leading the various clanking machines instead of musicians."

Paul was not present at conference, so he sent the following statement in accepting the prize:

I am honored that "A Mill Man's Day" was selected for the Vogel Prize, and I apologize for not being able to accept this award in person. This article had its origins almost a decade ago, when I brought a vanload of university students to Hatcher Pass to map a portion of a historic mining site owned by the State of Alaska. Midway through the exercise, a local resident came over to say that we had strayed onto private property. He suggested that I talk to the landowner, Dan Renshaw, who lived further up the hill. This was the inauspicious start to what would become a long-term friendship and collaboration. The documentation of his father's mill soon became one of the most enjoyable archeological projects that I have had the pleasure of working on. Dan's humility prevented him from accepting co-authorship credits, but this article simply would not have been possible without him, nor without the support and encouragement of the Renshaw family. Thank you.

IA ON THE WEB

The Brickyard Ruins—Fertile, Minn. (www.youtube.com, search on title). The narrator walks through this long-abandoned 1897 brickyard in the town of Fertile, Polk County, Minn., with both historic photos and current views. He then explains why the brickyard was located here and how the operation changed over time. From the same narrator: **Minnesota's Last Brickyard—Ochs Brick & Tile Co. of Springfield, Minn.** (www.youtube.com, search on title). The last Minnesota brickyard (out of hundreds) closed in 2016. This brickyard began as the A. C. Ochs Brick & Tile Co. in 1891. The company continued in the Ochs family until it was purchased by the Acme Brick Co. in 2008. The Acme-Ochs plant remained in operation until 2016. See the abandoned grounds, with the original clay pit, an old beehive kiln, and

what remained in 2022 of this once thriving brickyard. The narrator's primary website is www.mnbricks.com.

Scope of Work (www.scopeofwork.net). Website and weekly mailing list for stories about engineering, manufacturing, and infrastructure. Scope of Work also runs a job board, a Brooklyn-based workshop, an infrastructure tour group, and original features, and supports a member community "of people working on real problems in the physical world." The weekly newsletter is free but a subscription is needed to access additional content. The newsletter occasionally includes articles of interest to SIA members: one example is an article about the Erie Canal Schoharie Creek Aqueduct, July 31, 2023: www.scopeofwork.net/2023-07-31. ■

MKPS Completes Conservation of Historic Cast Iron Water Jacket

Eric DeLony Industrial Heritage Preservation Grant Update

Mineral King Preservation Society (MKPS) in Three Rivers, Calif., is dedicated to preserving the history of Mineral King and the Southern Sierra. As a result of a grant from the SIA's Eric DeLony Industrial Heritage Preservation Fund, MKPS was able to conserve a historic cast iron water jacket and bring its story to a wider audience. The project drew the community together to provide labor, materials, ingenuity, and donations.

A circa 1870 cast iron water jacket is on loan to MKPS by the National Parks Service (NPS). It was delivered to the exhibit location at 42668 Sierra Dr., Three Rivers, Calif. in June 2018. The New England Tunnel and Smelter Co. water jacket is part of a smelter that was originally intended to smelt copper; however, in 1876 Washington Bevans and his partner John Wallace decided to adapt the technology to smelt the galena ore found in the Mineral King Mining District.

The water jacket was abandoned around 1890 and was exposed to the elements at about 7,500 ft. elevation. The water jacket shows signs of water and rock damage after it fell down a steep embankment into a river where it may have lain for decades. The relic is estimated to weigh over 500 lbs. and is composed of multiple riveted plates, many of which have an embossed manufacturer mark. The water jacket had a fairly even layer of dark orange and brown corrosion products throughout with bright orange corrosion along the lower edge and rivets. The mid-horizontal riveted seam is damaged on one side, including a large horizontal crack in the plate above the riveting and a large horizontal inward dent to the rivet join and lower plate.

Our Objects Conservator is from the National Parks Service Regional Office, Western Archeological & Conservation Center. Her goals of treatment were to reduce disfiguring corrosion products and accumulated dirt and debris



NET&S water jacket in the exhibit space, prior to renovations and conservation.

Gary Whitney (local contractor) and Paul Hardwick (NPS) ready to move the water jacket out of the exhibit space for conservation work.

MKPS all photos

and reduce the rate of corrosion through the application of coatings.

Our biggest obstacle was moving the relic from the current exhibit site and flipping it on end. The conservator wanted to clean out the debris and begin working on the interior walls which can only be accessed in the upside-down position. A NPS maintenance crew and local contractor crew worked together to secure the water jacket, move it from the exhibit area and flip it. The water jacket needed to be flipped again on day three to enable work to continue on areas the conservator wasn't able to reach when it was upside down.

Prior to treatment, the condition of the relic was documented with photographs. Molds of the external seam damage were taken. Using this mold, a custom fill was created from layers of woven fiberglass laminated with epoxy resin. The fill was fitted in the void. The conservator cleaned the surface and applied Halox 630 solution as a corrosion inhibitor. She applied 2 coatings of Paraloid B48N in acetone as a surface barrier and she used paste wax to aid in corrosion inhibition. The conservator was able to maintain the integrity of the maker's marks and gave them a slight color so that visitors will be able to see the marks. To ensure long-

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Conservator II, Elena Mars, works on the water jacket.



Local volunteers and NPS crew use manpower to flip the water jacket on its top.



Maker's marks are highlighted so that visitors can easily see the detail.

term preservation of the water jacket, staff was trained in the maintenance of the relic.

The hardest part, for our volunteers, was yet to come. The completed relic now needed to be moved once again onto a stand, manufactured by the local community college welding department, that stood 2 ft. tall. Add that height to the 4-ft.-tall water jacket and an 8-in. clearance into the exhibit. Our team of NPS and local volunteers were careful to not scratch the water jacket. It was nail biting but this awesome team got the job done!

We were able to tell the story of the New England Tunnel and Smelter Co. and the people that were a part of this rich history. The outside exhibit has been instrumental in exposing the community and new visitors to the museum to learn the history behind the NET&S Co. and the function of the water jacket.

Sandra Stryd



The exhibit is ready for visitors.



Visitors enjoying the exhibit.

2023 SIA Student Scholarship Recipient *Dan Trepal*

Through members' donations, this year the SIA was able to offer one \$1,000 scholarship, awarded to Dan Trepal of Michigan Tech.

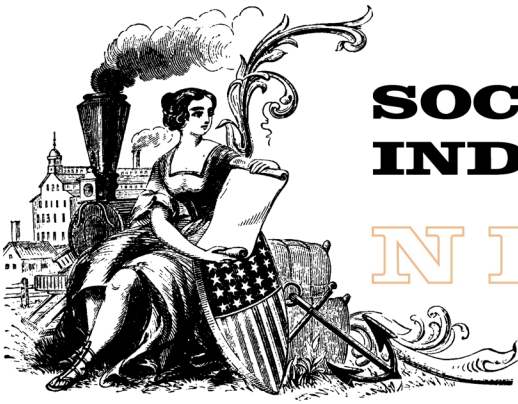
Each year, the SIA offers travel scholarships to assist students with offsetting expenses associated with attending our conferences. The scholarships are open to full-time students or to emerging professionals with less than three years of experience. Applicants must demonstrate an interest in and commitment to the field of industrial archeology.

Dan completed his Ph.D. in Industrial Heritage and Archeology at Michigan Tech in 2019. Although he managed to time his graduation to coincide with the start of a global pandemic, Dan is now working as an adjunct assistant professor at Michigan Tech's Social Science Dept., as well as a research scientist at Michigan Tech's Geospatial Research Facility. Dan first joined SIA in 2006 as a graduate student working on research at the West Point Foundry. In addition to publishing his West Point research in the IA Journal, Dan recently did an IA Online feature piece, and he presented at this conference on his remote sensing work at the Adventure Mine in Greenland, Mich.



Dan Trepal (right), Student Scholarship winner, and Scott See (left), Scholarship Committee chair, presenting the award at the Annual Business Meeting.

Kyle Parker-McGlynn



SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

PUBLICATIONS OF INTEREST

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COMPILED BY

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Daniel Schneider, Lake Linden, Mich.; and Marni Blake Walter, SIAN editor, Westmoreland, N.H.

GENERAL INTEREST

- ◆ Seren Griffiths, ed. **Scientific Dating in Archaeology**. Oxbow, 2022. 256 pp., illus., \$45. Provides a timely review of the methods, applications, and challenges of applying different scientific dating techniques to archeological sites and material culture. Includes an introduction to Bayesian modeling, and highlights a series of considerations in the application of scientific dating techniques.
- ◆ Not that long ago, a sometimes topic at SIA gatherings was concern that other preservation organizations failed to appreciate the significance of industrial archeology and its buildings, structures, machinery, and sites. A sure sign that industrial heritage is now mainstream are recent issues of **Preservation**, **The Magazine of the National Trust for Historic Preservation** that seamlessly mention industrial resources among a wide variety of architectural landmarks. The Winter 2023 issue spotlights the techniques used to clean Union Station in Washington, D.C. (pp. 10–11), restoration of the St. Augustine Lighthouse (p. 12), threats to the American Canning Co. factory in Eastport, Me. (p. 16), and the operations of six historic bakeries across the U.S. (pp. 54–57). The Spring 2023 issue features restoration of the Nowland Ave. Bridge in Indianapolis, Ind., a concrete arch designed by Daniel B. Luten in 1903 (p. 12), an uncertain future for the Flying Yankee streamlined locomotive currently in storage in N.H. (p. 14), and the Carbide and Carbon Building in Chicago and the Hope Memorial Bridge in Cleveland, which make a short list of Art Deco landmarks.
- ◆ **TICCIH Bulletin 99** (1st Quarter, 2023) includes Gabriele Bosi, *Initiatives In Industrial Tourism*; Dave Blaine, *Betty's Hope Historic Sugar Plantation*; James Douet [SIA], *Battersea Power Station Recharged*; Paulo Oliveira Ramos, *A Carved Stone Train*; Kutay Karabag, *Adaptive Reuse Potential of Istanbul Grain Silos*; Monika Schott, *Melbourne's Sewerage Farm Community*; Tahzeeb Fatima Rozy, *A Legacy of Lal Imli Mills*; Priyanka Panjwani, *The Old Jamnagar Railway Station*; Robert Ghirlando, *Kordin Underground Generators*; Miles Ogleshorpe [SIA], *New TICCIH Bulletin Editor*; Clara Susana Fernández Rodríguez, *Conference Report: The Industrial Heritage of the Bay of Havana*; a book review: *Einfach Leicht. Vladimir G. Sukhov 1853–1939*, by Rainer Graefe, Ottmar Pertschi, Erika Graefe, Andrij Kutnyi (eds.), reviewed by Patrick Viaene.

MINES & MINING

- ◆ Robrecht Declercq, Duncan Money, and Hans Otto Froland, eds. **Copper Spoon: A Global History of Copper, 1830–1980**.

UBC Pr., 2022. This anthology of scholarly articles sets out to address the rise and fall of mostly American-based corporations that dominated the international copper industry until the last quarter of the 20th c., when nationalization altered the balance of power. Topics include the role of the London Metal Exchange in opening the way to American dominance, how American mining engineers devised technologies and labor management practices to provide a template for copper ventures across the globe, and case studies set in Australia, Central Africa, Chile, Cuba, Iran, United States, and Zambia. Rev: *Mining History News* (Spring 2023).

- ◆ Damian Nance [SIA], Kenneth Brown, and Tony Clarke. **A Complete Guide to the Engine Houses of East Cornwall and Devon**. Lightmoor Pr., 2023. 152 pp., color photos. £22.50. During the 19th c., Cornwall and West Devon (U.K.) produced most of the world's copper and tin, as well as substantial quantities of lead, silver, arsenic, tungsten, zinc, iron, and uranium. This productivity was made possible by the development, pioneered by Cornishman Richard Trevithick, of the Cornish beam engine, a reciprocating steam engine capable of driving pumps that could keep the mines free of water. Although few of these engines survive, many of the buildings in which they were once housed remain, forming characteristic features of the landscape. In recognition of the global influence of this pioneering technology, the Cornwall and West Devon Mining Landscape was named a UNESCO World Heritage Site in 2006. This book provides an illustrated guide to the engine houses in East Cornwall and Devon using contemporary and archival photographs with brief descriptions of the engines, simple interpretations of some of their key features, and short histories of the mines of which they were part.

RAILROADS

- ◆ **Hudson River Tugboat Views: The West Shore Railroad, Track Walkers & Hoboes**. www.newyorkalmanack.com (Aug. 9, 2023). Originally published July 8, 1973, by retired tugboat captain William O. Benson (1911–1986). A wistful account of the changes in railroading as viewed from a tug on the Hudson River, with captivating details about last whistles, track walkers, and hoboes.

AUTOMOBILES & HIGHWAYS

- ◆ Stuart Leuthner. **The Car Wash: America's Love Affair with a Clean Machine**. *SCA Journal* (Fall 2022), pp. 18–25. Traces the development of automobile car washing technology

and marketing from the “automobile laundries” of the 1910s where workers manually pushed cars from station to station for soaking, soaping, rinsing, and polishing, to conveyor-style systems that developed from the mid-1920s onward. More than 2,000 car washes were operating nationwide by 1955. Amply illustrated.

- ◆ Debra Jane Seltzer. **Shoe- and Boot-Shaped Signs.** *SCA Journal* (Fall 2022), pp. 34–37. A visual sampling of roadside signs from around the U.S. advertising shoe repair, boots, western wear, and cowboy bars.

BRIDGES

- ◆ **Covered Bridge Topics**, Vol. 81, No. 2 (Spring 2023) is a commemorative issue devoted to acknowledging the 80th anniversary of the publication and its author/editor Richard Sanders Allen [SIA], noted covered bridge historian and member of the National Society for the Preservation of Covered Bridges. Includes a reprint of the first edition and an expansion upon some of the articles that were presented in the first and other early additions.
- ◆ Bob Dover. **Bridgespotting: A Guide to Bridges That Connect People, Places, and Times.** Sewell Pond Pr., 2022. Profiles of 140 bridges in the U.S. and Europe that have visual, cultural, and historical aspects that give it context. The author organizes the bridges by those features that attract visitors and tourists rather than classifying them by type or age, as is typical for most bridge gazetteers.
- ◆ **NSPCB Newsletter** (Spring 2023) includes brief articles on covered bridge preservation and rehabilitation projects at Sanborn Bridge (Lyndon, Vt.), King Bridge (Troup County, Ga.), and Sheard’s Mill Bridge (Bucks County, Pa.), as well as the usual round-up of covered bridge news and activities from across the U.S.
- ◆ Monica Schultes. **Florida Contractor with Family Ties.** *ASPIRE: The Concrete Bridge Magazine* (Winter 2023), pp. 6–9. Features Leware Construction Co., a construction firm specializing in concrete bridges for the Florida DOT. Founded in 1970 by Jim Leware, Sr., its headquarters are in Leesburg where it has a large fleet of cranes and equipment.
- ◆ Scott Wagner. **Dutton Woods—A New Hampshire Bridge Builder.** *CBT* (Winter 2023), pp. 3–16. An analysis of covered bridges attributed to Dutton (1809–1884), a Henniker, N.H. native who built timber trusses of the Town lattice and Long patterns. One of his bridges, Waterloo Station Bridge in Warner, survives and this article compares that bridge and another eight non-extant bridges, as well as several others that share some similarities.
- ◆ Walter Waldis and Dimitrios Papastergion. **Widening the Paudze Bridges with Precast and Cast-in-Place Ultra-High-Performance Concrete.** *ASPIRE: The Concrete Bridge Magazine* (Spring 2023), pp. 38–40. Describes techniques used to widen two, long-span, concrete, segmental, box girder bridges, which were landmark Swiss structures when constructed in 1971–73. Retrofitting required preservation of the structures’ original form, preserving the bridge’s historic authenticity, as well as protecting the local landscape of historic vineyards near the city of Lausanne along the Lake Geneva Shoreline. A Warren-truss girder deck support system was constructed using high-performance concrete that retained the bridges’ clean lines.

AGRICULTURE & FOOD PROCESSING

- ◆ **Old Mill News**, Vol. 50, No. 1 (Winter 2023) includes reports on the SPOOM Fall Meeting in central Pa., the 50th Annual

Conference in Battle Creek, Mich., the Shaker Mill at West Stockbridge, Mass., and a remembrance of archeologist Donald B. Ball (1947–2021), noted for his studies of mills in Kentucky and surrounding states. Vol. 50, No. 2 (Spring 2023) includes a detailed analysis of an unfinished quern (small millstone) from Grayson County, Ky., brief histories of Murray’s Mill near Catawba, N.C. and Rome Mill in Sullivan, Wisc., a report on an ongoing project to locate all of the windmill sites on St. Croix, V.I. (see also the article on St. Croix windmills in this issue), and a remembrance of millwright Derek Ogden.

BUILDINGS & STRUCTURES

- ◆ Angela Carella. **Preservation Efforts Stymied as Yale & Towne Faces Likely Demolition in Stamford.** *CT Examiner* (Sept. 3, 2023). <https://ctexaminer.com>. The Yale & Towne Mfg. Co. factory building in Stamford, Conn., constructed in 1900, was repurposed in 2010 when developer Building & Land Technology converted it into a 225-unit apartment building called The Lofts at Yale & Towne. The city’s chief building official has issued an unsafe structure notice amid a lawsuit about the condition and treatment of the building. The owners are applying for a demolition permit, while preservationists speak up for saving the highly significant, National Register-listed element of Stamford history.
- ◆ Peter Glazer. **Domaine d’Esterel, a Shattered Dream.** *SCA Journal* (Fall 2022), pp. 38–42. Located in the village of Sainte Marguerite-du-Lac-Masson, Que., Domaine d’Esterel was a planned community consisting of a hotel, shopping center, sporting club, and upscale housing. Work began in 1936 directed by Belgian real estate developer Louis Empain and architect Antoine Courtney’s working in a Streamline Moderne style. The development thrived in the late 1930s but was seized by the Canadian government during WWII for a military training facility and suspicions that Empain was a German spy, although ironically Empain returned to Belgium to fight the Nazis and spent five years as a prisoner of war. Portions of the development survive, much neglected and altered.
- ◆ Michael Murphy. **GOOGIE MODERN: Architectural Drawings of Armet Davis Newlove.** Angel City Pr., 2022. 206 pp. \$50. Formed by Louis Armet and Eldson Davis in 1947, adding Victor Newlove in 1963, ADN specialized in “Googie” architecture, a subset of mid-century modern associated with commercial architecture with walls of glass, abstract rooflines, liberal use of natural and faux rock, and usually very eye-catching. An ADN design that caught on nationally was the immediately recognizable Denny’s restaurant chain but most of their work was in southern California. Rev: *SCA Journal* (Fall 2022), pp. 45–46.
- ◆ National Academies of Sciences, Engineering, and Medicine. **Postwar Commercial Properties and Section 106: A Methodology for Evaluating Historic Significance.** The National Academies Pr., 2023. 125 pp., free download: nap.nationalacademies.org/catalog/27140/.
Just as postwar houses and subdivisions are increasingly being considered for eligibility for listing in the National Register of Historic Places (NRHP), so too are the commercial properties that stand alongside suburban and exurban roadways. Despite the large number of postwar commercial properties, very little guidance exists on how to consistently evaluate the potential significance of these properties. From the Transportation Research Board’s National Cooperative Highway Research Program, this publication provides guidance on how to evaluate the potential significance of postwar commercial properties for NRHP eligibility.

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WINDMILLS OF ST. CROIX DOCUMENTED IN NEW WEBSITE

The Caribbean sugar industry strongly impacted Western history. Sugar spurred colonization of the Americas and growth of the Transatlantic slave trade, sparked wars over small islands, and slaked the thirst of rum-loving pirates. Over centuries, the sugar industry changed food preservation, extended food shelf life, and altered eating habits, causing conditions like tooth decay, obesity, and diabetes. Economic and political events placed the Caribbean sugar industry as a central cog in the globalization of trade.

Much can be learned of this wide-reaching history with access to data on more than 100 sugar industry structures over an entire island. At the June 2023 SIA Annual Conference in Grand Rapids, a new website highlighting the sugar cane crushing windmill ruins of St. Croix, U.S. Virgin Islands was presented. This website, www.stcroixwindmills.org, precisely locates and describes all the windmills built to crush sugar cane on St. Croix. Using information drawn from dozens of historic maps plus fieldwork to find the ruined structures, a thorough inventory of the island's windmills was created.

Archeological remnants of the sugar industry shed light on the first industry to systematically combine agriculture and manufacturing in a single estate. Sugar cane spoils within about 72 hours of harvest, requiring mills and factories to be built on each estate. The mills extracted juice from the crushed cane, and factories boiled the juice to make sugar and byproducts like molasses and rum. A profitable estate required skillful agricultural practices, manufacturing by milling and processing sugar products, and trading connections across oceans. Counterbalancing these skills were harsh living conditions, including constant fear of insurrection and tropical diseases, along with brutal treatment of enslaved laborers.

Historic maps depicting mills on St. Croix are a fundamental resource and many are included on the website. Maps of St. Croix were created in each decade from 1750 through the turn of the century, with publication of new maps slowing after the 1790s. Maps drawn over two centuries depicted operating windmills and animal mills or their ruins that trace the growing sugar industry. In addition to identifying significant investments, windmills and animal mills depicted on maps also provide a visual representation of growing settlement.

Identifying the locations of windmills and animal mills is facilitated by St. Croix's rectilinear survey, reputedly the first in the world of its type. Positions of the windmills and animal mills within estates indicate that the maps depicted windmills with a good degree of precision, although each map includes curious incongruities of apparently misplaced structures.

While the website focuses on windmills, sugar cane crush-
(continued on page 12)



John Brambrick

Sugar crushing windmills include the main components of the masonry tower; cap, sails, and tail pole; gearing and shafts; and the crushing rollers. See more at www.milldrawings.com.



First printing (1754) of the Beck map, showing the rectangular outline of each estate and the larger quarter boundaries. Depicts 8 windmills and 74 animal mills. Those numbers increased to 21 and 94, respectively, in the second printing.

WINDMILLS OF ST. CROIX (continued from page 11)

ing mills built on St. Croix included animal mills, windmills, and steam mills. Additional windmills drew water from a well or cistern. Numerous remnants of mills, factories, and other structures dot the island. One reason to focus on sugar cane crushing windmills is their size. At approximately 25 ft. in diameter and 20 to 40 ft. tall, with walls at the base typically exceeding 5 ft. thick, the round shapes survived many hurricanes. Their prominence in both size and location helps locate them in the field. Despite being uniformly large, individual windmill towers show significant differences in height and truncated conical shape.

Animal mills are more difficult to locate in the field than windmills because little stone construction is present above ground level. Early maps of the Danish period of St. Croix, which started in 1733, indicate that most estates entered sugar processing with an animal mill. Reasons for this include the lower cost of an animal mill, easier operation, and less technical expertise required in construction.

Windmills and animal mills each represented a significant investment. In the 1760s, the construction cost of a windmill was about 9,000 pieces of silver and an animal mill cost 1,000 pieces of silver. At current silver prices around \$25 an ounce, these values convert to \$225,000 and \$25,000 for a windmill and animal mill, respectively.

The new website features over 150 sugar cane crushing windmills built at 147 individual estates on the 84-sq.-mi. island. Of these, 119 windmill ruins have been located in the field. Some windmills were certainly obliterated, such as the one in the path of the current airport runway. Estimating 154 windmills built is reasonable with the number between 150 and 160.

Providing context about production, the website includes an overview of sugar cultivation and manufacturing. Several pages feature the 30 historic maps of St. Croix used to locate specific windmills and animal mills. Another page provides links to additional resources about Virgin Islands history, numerous St. Croix maps not used on the site, and the Carib-

bean sugar industry, including links to bibliographies and finding guides for further exploration.

At the heart of the website are the 147 pages dedicated to each estate that had, or is depicted on at least one map as having, at least one sugar cane crushing windmill. Because several estates had two or three windmills, the number of windmills exceeds the number of estates.

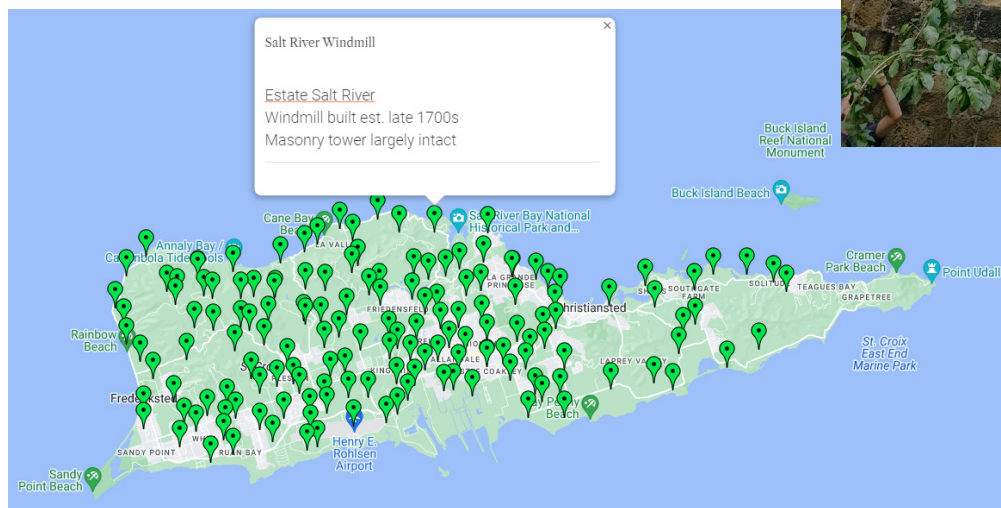
Each estate page features snippets of that estate from historic maps along with available photographs of ruins found in the field. For some estates, speculation is made about the genesis of the estate's current name based on landowner names or other information.

Most windmills remain only as masonry towers. About 100 ruins have a substantial amount of the truncated conical tower remaining. Some ruins where the masonry cone remains intact have been incorporated into dwellings. Alternatively, several were converted to store water by blocking the entrances with stones and lining the interior with concrete. A

(continued on page 19)



The estate Bonne Esperance mill in Queens Quarter has many remaining timbers, including portions of the cap structure. Pictured here is the shaft on which the sails rotated and portions of its supporting structure in the cap.



The home page map features green pins for each windmill. Clicking on a pin opens a window with identifying information and linking to the estate page. Each estate page has a map with just that estate's windmill(s).

Minutes of the SIA's 52nd Annual Business Meeting June 10, 2023

President Arron Kotlensky called the Annual Business Meeting to order at 1:06 p.m. Eastern Daylight Time in the Embassy Suites Downtown Hotel, Grand Rapids, Mich., with about 95 people present in person. He noted that this was the 52nd Annual Business Meeting and the 51st Annual Conference of the SIA. He went on to say that this conference was happening due to the efforts of many: Mathew Daley and his local team; Courtney Murtaugh; Patrick Pospisek for the paper sessions; and Daniel Schneider for registration.

Secretary's Report. Secretary James Bouchard stated that the minutes of the previous year's Annual Business Meeting were published in *SIAN* Vol. 51 No. 3 (Summer 2022). He asked for amendments or corrections; none were forthcoming.

President Kotlensky called for a motion to approve the 2022 Annual Business Meeting minutes as published. David Simmons moved, Duncan Hay seconded the motion, and it passed unanimously.

James Bouchard announced that he will not run again for Secretary when his current term ends in 2025 and requests that the Nominating Committee take this into consideration.

Treasurer's Report. Treasurer Nanci Batchelor read her report:

"The Society maintains its books and records on a cash basis and a calendar year for tax and reporting purposes. SIA is classified as tax-exempt under IRS Code 501(c) (3) as an educational organization, and we file a Form 990 tax return yearly. The following report is for the year that ended Dec. 31, 2022.

We began 2022 with a total fund balance of \$294,915. Cash receipts for the year totaled \$96,546. Most of our annual income comes from membership dues. In 2022, the total dues received were \$49,935. The remaining balance is made up of interest income, contributions to both the general and restricted funds, publication sales, and excess proceeds from tours and conferences. The Society members continue to be very generous, and the total contribution to the various funds was \$27,555 in 2022.

Total expenses for the year were \$76,432. The production costs of our publications, the newsletter, and the journal combined were \$22,659. \$31,746 went towards labor, postage was \$1,897, and insurance, prizes, and awards were \$2,389. There

were no scholarships awarded in 2022. Office overhead and a few miscellaneous items made up the balance.

The Society closed 2022 with excess revenue over expenses of \$20,114. The total fund balance was \$317,347, of which \$57,108 is in restricted funds.

Through March 2023, the Society has had a total of \$26,164 in cash receipts and has spent \$14,975."

She highlighted the \$27,000 in donations received in the past year, which greatly helped the finances.

If anyone has any questions regarding the Society's financial data, please feel free to contact her.

Headquarters Report. SIA Headquarters Manager Daniel Schneider started by noting that Grand Rapids is his hometown, and it is nice to see all of us enjoying it.

Daniel gave the following membership statistics: 2023 membership to date: 812 active members renewed for 2023; 2022 membership as of June 5, 2022: 840; 2022 membership at end of year: 888; new members joined in 2023: 27.

He also thanked the membership for supporting his position as headquarters manager.

He invited members to attend the Inland Waterways International's World Canal Conference 2023 Online sessions. IA Online may make a return at some later date and in a new form.

He encouraged members to help the Society be more relevant and effective by looking for opportunities for the SIA to be a point of connection among people and organizations working on different facets of industrial archeology and heritage.

Daniel announced that he will be away for two months in Finland for a mine residency.

Executive Secretary and IA Editor Steve Walton noted that he wears four hats, but one of them, signing timesheets, is now irrelevant because Daniel has become an MTU employee. He stated that we need more people to contribute by producing material and more professionals to show us what their industries do. He needs all of us to reach out to our younger colleagues and interested friends. All this is needed so that the Conference and Journals can continue.

He announced that arrangements have been made to fill in for Daniel when he is away in the fall.

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SAVE THE DATE! MAY 16–19, 2024 SIA'S 52ND ANNUAL CONFERENCE, MINNEAPOLIS, MINN.

Mark your calendars for the 2024 SIA Annual Conference in Minneapolis, Minn. The conference will include "early bird" and post-conference tour options, along with a full schedule of presentations, process

tours, historic site visits, and other conference events. We look forward to seeing you in 2024! Stay tuned for details to follow in the *SIAN*, on the SIA website, and in email announcements.

IA Journal. Steve Walton reported that a double issue of Vogel Prize articles should be going out in July and another single issue soon. He is working on an issue on copper and brass with the help of Fred Quivik and on a double issue on WWII on the home front. However, there is not much in the hopper beyond that. He is therefore requesting articles, theme issue ideas, and guest editors to help get issues going.

He reported that we received \$4,400 from JSTOR as payment for downloaded articles. He also reported that the earliest journals are falling into the public domain. It seems that the original copyright is for 28 years unless renewed.

He reported that he is still looking for a Book Review Editor and that sign-up sheets are in the hall. Because publishers are no longer sending books for review, if you have an interesting book and want to do a review, please do it.

Arron Kotlensky reported that we are reaching out to institutional organizations regarding their membership.

SIA Newsletter. SIA Editor Marni Blake Walter was absent, so her report was read by Steve Walton:

The current issue (Spring 2023) is now with our graphic designer for layout and will head to the printer soon. Thanks to the many of you who volunteered to cover the events at this conference, and to everyone who helps throughout the year. I'm looking forward to your reports and photos!

Tours & Conferences. SIA Events Coordinator Courtney Murtaugh reported on some of her activities.

She worked with the local Grand Rapids committee to plan and implement the Grand Rapids conference with continued post-pandemic challenges: response to email, getting calls returned, supply chain issues, staffing shortages, and rising prices.

She met monthly with the leadership team regarding the conference program, details, and logistics. She also worked with the hotel and vendors to finalize logistics and orders.

Earlier, she worked on the Western Pa. Fall Tour, which had about 40 attendees with an all-inclusive price that in-

cluded the tour fee and all meals. She is currently working on the Akron Fall Tour, Sept. 20–22 (checkout on Saturday the 23rd) with hotel at \$119 per night. The all-inclusive Fall Tour price will cover all meals and tours.

Ron Petrie spoke about the upcoming Fall Tour in Akron. He noted that it is the 125th anniversary of the founding of Goodyear, so the focus will be on tires and rubber plus the canal system, aviation, and steel.

The hotel for the 2024 Annual Conference has been secured with a bid process and negotiations for Minneapolis: May 16–19, 2024, rate \$159.

Fred Quivik spoke about the Minneapolis Conference in 2024. He noted that it will cover the resources along the Mississippi River, medical devices, and NE Minnesota.

Eric DeLony Industrial Heritage Preservation Grants. The DeLony Industrial Heritage Preservation Grants Committee report was read by Duncan Hay.

SIA started awarding grants to support industrial heritage preservation projects in 2004. Since then, the Society has awarded more than 40 grants to support projects in 16 states in amounts ranging from \$1,000 to \$3,000. In 2018, the program was renamed to honor former HAER chief and long-time SIA member, Eric DeLony.

This year's selection committee included Paul White, Suzanne Wray, and Duncan Hay, with support from Daniel Schneider at SIA headquarters.

The Grants Committee is pleased to announce that SIA will be awarding a \$2,850 grant to the Buckland Historical Society in Buckland, Mass.

The organization is actively working on the preservation of Elmer's Mill, the last survivor of 17 water mills that once lined the banks of Clesson Brook in the Town of Buckland near Shelburne Falls. The first industrial facility on this site was a tannery, established in 1828. It was expanded in 1835 to include a sash and blind factory and during the 1860s and 1870s to produce a wider variety of woodenware. In 1880, Horace and Eugene Elmer purchased the building and water rights, replaced the overshot waterwheel with a turbine, and installed grain milling machinery.

Members are asked to help get the word out about SIA's grant program. Applications are due by March 1 each year. Further details and application forms are under the "activities" tab on the SIA website. You can help extend the program's reach with an earmarked donation when you renew your membership.

Student Travel Scholarship Award. Committee chair Scott See provided the following report.

Each year, the SIA awards travel scholarships to assist students with offsetting expenses associated with attending our conferences. The scholarships are open to full-time students or to emerging professionals with less than three years of experience. Applicants must demonstrate an interest in and commitment to the field of industrial archeology.

Scholarships are funded through a dedicated account. This fund relies on annual contributions for replenishment, and members are encouraged to consider making a donation at the time that they receive their annual dues notice.

CONTRIBUTORS TO THIS ISSUE

Nanci Batchelor, Bordentown, N.J.; Marc Belanger, Reno, Nev.; Diana Bouchard, Montreal, Que.; James Bouchard, Montreal, Que.; William Cleveland, Grand Rapids, Mich.; Arlene Collins, Calumet, Mich.; Matthew Daley, Grand Rapids, Mich.; Kathryn Fox, Summit, N.J.; Bob Frame, St. Paul, Minn.; Brian Gallagher, Toronto, Ont.; Mary Habstritt, New York, N.Y.; Patrick Harshbarger, Wilmington, Del.; Neill Herring, Jesup, Ga.; Nan Jackson, East Lansing, Mich.; Arron Kotlensky, Pittsburgh, Pa.; Christopher Marston, Silver Spring, Md.; Martha Mayer, New Bedford, Mass.; William McNiece, Indianapolis, Ind.; Anthony Meadow, Santa Fe, N.M.; Vern Mesler, East Lansing, Mich.; Steve Muller, Troy, N.Y.; Kyle Parker-McGlynn, Evans, Colo.; Fredric Quivik, Saint Paul, Minn.; John Reap, Sun City West, Ariz.; Daniel Schneider, Lake Linden, Mich.; Sandra Stryd, Three Rivers, Calif.; Robert M. Vogel, Washington, D.C.; Steven Walton, Hancock, Mich.; Suzanne Wray, New York, N.Y.; Helena Wright, Washington, D.C.

With Thanks.

This year, through your donations, the SIA was able to offer one \$1,000 scholarship, awarded to Dan Trepal of Michigan Tech (see feature elsewhere in this issue).

Please join me in congratulating Dan and extending him a warm welcome.

Vogel Prize. Committee chair Fred Quivik read the Vogel Prize citation and thanked the Vogel Prize Committee: Martha Mayer, Bob Newbery, Lynn Rakos, and Bill Vermes. He accepted the award on behalf of recipient Paul White and read his acceptance statement (see article elsewhere in this issue).

General Tools Award. Fred Quivik reported for General Tools Award Chair Brian Shover that no nominations were received this year for this award. He asked all to consider making a nomination for next year.

Chapter Recognition. Vice-President Quivik led the traditional roll call of chapters.

Nominations Committee. Mark Belanger, Chair of the Nominations Committee read his report:

The SIA Nominations Committee met yesterday to count the paper ballots, review the electronic results, and thus determine the outcome of the election.

Three Directors were elected for three-year terms: Christopher Fennell, John Meyer, and Mary Starbuck.

One member of the Nominations Committee was elected for a three-year term: Bill McNiece.

I would like to thank all those who presented themselves as candidates for their willingness to serve SIA. Many thanks are due also to my fellow committee members: Rebecca Burrow, Ron Petrie, and Saul Tannenbaum, and to the members of SIA staff who provided vital support to the election process.

Recognition to Outgoing Board Members. President Kotlensky recognized outgoing board members: Jacob Kaplan, Lynn Rakos, and Gerry Weinstein. He also thanked all those who ran for office.

Adjournment. At 2:16 p.m. Eastern Daylight Time, President Kotlensky asked for adjournment, which was moved by Martha Mayer, seconded by Dean Pyres, and carried.

Respectfully submitted,
James Bouchard, Secretary

PUBLICATIONS OF INTEREST

(continued from page 10)

- ◆ Monica Shultes. **Engineering Consulting Giant Spans the Globe.** *ASPIRE: The Concrete Bridge Magazine* (Spring 2023), pp. 6–8. WSP, founded in London in 1969 and now headquartered in Montreal, has more than 66,000 employees across the globe offering a wide range of engineering services. This brief article includes a thumbnail history of growth through acquisition, including the U.S. firms Chas. H. Sells in 2007 and Parsons Brinckerhoff in 2014, and discussion of its business organization and philosophy.

POWER GENERATION

- ◆ **Windmillers' Gazette**, Vol. 42, No. 3 (Summer 2023) includes T. Lindsay Baker, *The Most Impressive Exhibit of New Windmills Ever Assembled and Portable Windmills for Old-Time Orchard Irrigation*; Etienne Rogier, *Wind-Power Pumping of Seawater in France to Create Living Environments for Ocean Animals*; A Tribute: William C. "Cliff" Conway 1954–2023; and Christopher Gillis, *Pouring Windmill Babbitt Bearings*. Avail.: \$20/yr., published quarterly. Christopher Gillis, Editor, P.O. Box 788, Buckeystown, MD, 21717; www.windmillersgazette.org.

ABBREVIATIONS:

- CBT = *Covered Bridge Topics*, published by the National Society for the Preservation of Covered Bridges
- OMN = *Old Mill News*, published by the Society for the Preservation of Old Mills (SPOOM)
- SCA = Society for Commercial Archeology
- SPOOM = Society for the Preservation of Old Mills
- TICCIH = The International Committee for the Conservation of the Industrial Heritage, <https://ticcih.org>.
- TT = *Timber Transfer*. Published by Friends of the East Broad Top. Avail. with membership. \$30/yr. www.febrt.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.

SITES & STRUCTURES

Old Bridge Moved to New Home. The nearly 100-year-old Winchester Bridge in Washakie County, Wyo., which had been deemed unsafe for public travel in a recent WYDOT inspection, was sold by auction in May 2023 to Galloway Ranch north of Ten Sleep, Wyo. The 90 x 25-ft. structure was hauled 40 miles to its new home, where it will get new concrete footers and decking. The new owners plan to use it to connect their ranch with their son's to create a more direct route for moving livestock and farm equipment.—cowboystatedaily.com, June 4, 2023.

Preservation Maryland was awarded \$747,216 for rehabilitation and preservation of historic **Rock Run Mill** in Susque-

hanna State Park, Md. The mill is a contributing resource to the Lower Deer Creek Valley National Historic District. Built in 1797 along the banks of the Susquehanna River, the Rock Run Mill is a surviving connection to when the wheat and flour trade provided a much-needed economic foundation for the new American republic. The Maryland Park Service (Md. Dept. of Natural Resources) and Preservation Maryland will partner on the project to restore the roof, windows, doors, masonry, and structural components of the late-18th-c. mill, as well as complete site work to protect the foundation from flood damage.—www.preservationmaryland.org, July 27, 2023. ■

The final stop was all about water. The **Michigan Maritime Museum** has a collection of restored boats and related artifacts. Some boats are operational and are used for boat rides. Others, including two restored Coast Guard boats are exhibited in the boat house. *Evelyn S.* is a 50-ft. fish tug built in 1939 that worked the waters of Lake Michigan and eventually found a home at the museum. Inside are the engine and displays of other equipment.

Friday Tour 2: Belts, Dams, and Boats covered some of the diversity of industrial activities in and near Grand Rapids over the last couple of centuries. The **Clipper Belt Lacer Co.** (now part of **Flexco**) addressed a widespread need in Grand Rapids industry: re-attaching the ends of industrial drive belts quickly and durably together. The company's proprietary link design was called the "Clipper" because, like the famous sailing ships, it got the job done faster than anything else. They made not only the clips, but also the machines for attaching them and even small hand-held versions for shops with small belts, such as laundries. Founded in 1914, the company moved twice and now occupies a 330,000-sq-ft. plant with a 40-ft. ceiling, including a CNC department, punch presses, and a tool and die shop that makes custom equipment.

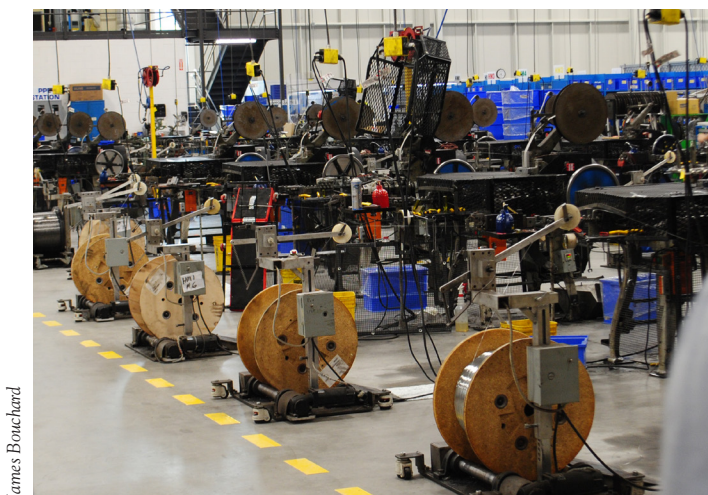
The **Hardy Dam** was one of three large earthen dams that harnessed the power of the Muskegon River. They are operated in "run of river" mode, meaning that they do not purposefully retain water. Built in 1929, the dam has a 100-ft. head and was the world's largest earthen dam until the 1970s. The Spanish Revival powerhouse (NR) houses three turbine generators, each of over 10 MW, and is now operated by Consumers Energy. It features both an old control panel on a massive slate backplate and an up-to-date computerized control system. A massive rainfall in 1986 led to the dam being "somewhat threatened" and motivated the construction of a new spillway, which is currently underway. The impoundment, with the unassuming name of "Hardy Dam Pond," and its environs are used for recreation.

Muskegon was settled in the 1830s and by the late 19th

c. became a booming lumber port. Wealthy lumber baron Charles Hackley stayed after the forests were cleared and the mills closed to establish the Muskegon Industrial Fund to bring new industries to the town. His efforts were successful, but nevertheless the economy declined after 1970.

The group drove through the historic district and then south to the berth of the **Milwaukee Clipper**, the oldest and last passenger ship on the U.S. side of the Great Lakes. This ship had a long and checkered past covering much of the history of passenger boat travel in the U.S. It started service as the *Juniata*, one of three large ships in the Buffalo to Duluth service for the Erie & Western RR. When the 1912 Panama Canal Act forced railroads to divest themselves of their steamships, the Great Lakes Transportation Co. took over. After a Coast Guard-mandated refit in 1936, the ship served many years as a South Haven to Milwaukee car ferry (with a hiatus as a car transport for Detroit automakers). The ship still contains its Art Deco public rooms and 1940s Naugahyde furniture from this period, as well as quadruple-expansion steam engines that, alas, were off-limits. Traffic gradually declined, however, and the ship was put up for sale in the 1970s. A series of repurposing projects failed, and in 1997 business and boating people formed a charitable organization to buy the ship and tow it to Muskegon. There it remains, as the only floating National Historic Landmark and a reminder of an enjoyable and relaxing way to travel that disappeared with America's lake and coastal passenger boats.

Friday Tour 3: Preservation, Restoration, and Demonstration. After a 60-mi. drive south, our first stop was the **Kalamazoo Air Zoo Restoration Center**, located at the Kalamazoo-Battle Creek International Airport in Portage. The Kalamazoo Aviation History Museum was founded in 1977 by Preston Parish, a WWII military pilot, and his wife Sue, a former member of the Women Airforce Service Pilots. The restoration center building, opened in 1979, was the original Air Zoo, populated by WWII aircraft such as a Curtiss P-40N Warhawk, Grumman F6F-5 Hellcat and F8F Bearcat, General Motors (Eastern Aircraft) FM2 Wildcat, Bell P-39



James Bouchard

Flexco Clipper original machines.



Anthony Meadow

SS Milwaukee Clipper.

Airacobra, and Aeronca L-3 Grasshopper. More recent additions include a Cessna L-19 Bird Dog, Hiller OH-23 Raven, Lockheed SR-71B Blackbird, Grumman F-14A Tomcat, McDonnell Douglas F/A-18A Hornet, and a Lockheed F-117A Nighthawk. Most of the collection is housed in the nearby Air Zoo Aerospace and Science Center, which was dedicated in 1999 and enlarged in 2011.

A number of aircraft reciprocating engines are displayed in the front reception hallway of the restoration center, ranging from four-cylinder, 50-hp Continental, Lycoming, and Franklin examples found in pre-WWII Piper Cubs, to a 28-cylinder, 3,500-hp Pratt & Whitney Wasp Major, the most powerful aircraft piston engine to reach mass production. Of 18,697 produced, almost half powered the postwar primary strategic bomber fleet, plus their tanker and transport support aircraft.

A highlight of our visit was a behind-the-scenes viewing of two WWII U.S. Navy aircraft undergoing the process of restoration after five decades on the bottom of Lake Michigan. Both aircraft in the shop were assigned to the pilot training program at Naval Air Station Glenview, north of Chicago, and were lost in the lake on carrier landing qualification flights, the necessary step before aviators could be assigned to duty on aircraft carriers. They are still Navy property and will be loaned to designated museums upon completion of the work.

The center has restored several aircraft for the military, and although they won't be flyable, the contracts call for all exterior features, such as landing gear, propellers, doors, canopies, service panels, and flight control surfaces (rudder, elevators, ailerons, and flaps) to be functional, so the planes can be posed as desired. We were told that the future doesn't look too promising for future recovery of salvable aircraft, given the invasion of the Great Lakes by zebra and quagga mussels in recent decades. The bivalves build colonies on any subsurface object, and their acidic urine accelerates the deterioration of aluminum.

The next stop was **Calhoun County Historic Bridge Park**, located southeast of Battle Creek, near the North Branch Kalamazoo River. The park was established by the county in the late 1990s, directed by Dennis Randolph, formerly of the Calhoun County Road Commission. The unique park consists of four historic truss bridges that were moved and saved, and one extant combination stone and concrete double-arch structure, which carries a functional rail line (Norfolk Southern, ex-Grand Trunk Western) over a single-lane road and Dickinson Creek. The walking tour of the bridges was led by Vern Mesler [SIA], who supervised the rehabilitation of the structures in the park, replacing deteriorated truss elements with new material as required. Rather than using high-strength bolts, the original method of hot-riveting was employed for such repairs, and for replacement of rivets that had loosened after years of service.

Hot riveting was a key rehabilitation process for the work done to preserve the truss bridges for the Calhoun County Historic Bridge Park, where efforts were made to use historically accurate techniques as much as possible. The rehabilitation work at the park has led to ongoing training in riveting at Lansing Community College and to the development of specifications for riveting by MDOT for rehabilitation of some of Michigan's highway bridges currently in use. A feature of the tour was a hot riveting demonstration at Lansing Community College's West Campus, where participants also had the opportunity to use a field rivet hammer to try their hand at driving rivets.

The final stop was the **R.E. Olds Transportation Museum** in Lansing. Its collections document the role played by the city and Ransom E. Olds in helping to develop automobiles and other vehicular transportation. The museum is located in the former transit company bus garage. One room housed early Olds engines and cars, REO autos and earlier trucks, one Diamond REO tractor, and earlier Oldsmobiles. A larger room at the front of the building displayed later-model Oldsmobiles. From this museum to a view of the GM Grand

(continued on page 18)



Christopher Marston

Vern Mesler describes the rehabilitation of the 1886 Charlotte Highway Bridge, a double intersection Pratt truss built by the Buckeye Bridge Co., at the Calhoun County Bridge Park.



John Reap

1925 1½-ton six-cylinder REO Speed Wagon, which was introduced with a load capacity of 2,500 lbs.

GRAND RAPIDS *(continued from page 17)*

River Assembly that builds the Camaro (ending in 2024) and Cadillac CTS models, tour participants could see the significant, ongoing legacy of Lansing's automobile industry.

Sunday Tour 1: Walking Tour of the Grand River Waterfront and Downtown Grand Rapids. A second version of the city walking tour took place on Sunday. At the Sixth St. Bridge our guide, Gina Bivins, led us across Michigan's largest river. The 536-ft. bridge across from our hotel was built in 1886 just upriver of the significant 18-ft. drop that characterizes the mile-long rapids at Grand Rapids. Factories were built along the river on the hills to the east of the river and hotel, now replaced by apartments and condos. West of the hotel canals operated on both sides of the river for products on the east side and power on the west.

Old factory buildings, some still in use, stand at each end of the bridge. On the West end, the building in which Allen adding machines were formerly made now houses office space (RVC Offices). Across the street stands a fine example of an 1846 residential structure built of Grand Rapids limestone.

Walking south along the river on the west side we entered **Fish Ladder Park** under I196 and passed Gerald R. Ford Museum to the Grand Rapids Public Museum which encloses a working carousel high on the river bank, a popular weekend attraction.

We crossed back to the east side of the river on **Bridge St.**, the site of the first bridge built across the river in 1844. Since then, the site of numerous renovations on the east side of the river, north of Bridge St., is now covered by a large Post Office. It once was the location of the Grand Trunk RR station.

Near the end of the rapids some older buildings still stand, such as the tan Randall Building where factory belts were made before the structure was converted to use for exhibits and product displays. Another red brick building on the east side was originally used by AT&T, which took advantage of the river for equipment cooling purposes. Moving back to our hotel past the post office we observed contributions to

the city from Amway at the DeVos Performance Hall and DeVos Place convention center. Continuing back to the hotel, we passed through Spartan territory where Michigan State Univ. occupies much real estate with an innovative health sciences program.

Sunday Tour 2: Walking tour of Grand Rapids' Heritage Hill and Cherry Hill Districts. More than a dozen attendees accompanied Rebecca Smith-Hoffman through the drizzle for a tour highlighting some of what was saved and lost when Grand Rapids underwent misguided urban renewal in the 1960s and 1970s. She is a member of the Grand Rapids Historical Commission and a historic preservation consultant. Starting at the conference hotel, the group walked toward downtown, passing some old factory buildings undergoing conversion, some new construction, and several large parking lots where factories were demolished. The large **Pantlin Hotel**, where the city's furniture makers held their semi-annual exhibitions, still stands. A 40-acre prime area cleared by urban renewal did not attract private investment and ended up being developed largely as a government center. The area includes city hall, state and federal office buildings, and courts. The modern architecture ranges from the bland SOM city hall to the dreadful federal building. Fortunately, the city created the downtown **Heartside Historic District** in 1976, so many historic buildings that were still standing at that time have survived. Grand Rapids was once served by eight railroads, and this neighborhood had many wholesale businesses and warehouses. Ironically, the city's Union Sta-



Brian Callagher

Fish ladder along the Riverwalk.



Steve Muller

The Brass Works Building, a renovated former industrial structure near the conference hotel.

tion was demolished and remains a vacant site. Participants were impressed by the many adaptive reuse projects and the generally sympathetic infill projects (mostly apartments), and by the active street scene even on a Sunday morning.

The SIA recognizes and thanks the many organizations and volunteers who made this conference possible. Many thanks to the local planning committee: Rebecca Smith-Hoffman and chair, Matthew Daley; the presentations committee, chaired by Patrick Pospisek; the Grand Rapids Historical Society, Gina Bivins, President; Julie Tabberer and Jennifer Andrews from the Grand Rapids Public Library; SIA national officers: Arron Kotlensky, President; Saul Tannenbaum, Past President; Steve Walton, Executive Secretary; Courtney Murtaugh, Events Coordinator; and Daniel Schneider, SIA Headquarters Manager. SIA also extends our gratitude to our many tour guides and the organizations and companies that opened their doors to welcome us.

With contributions by Diana Bouchard, James Bouchard, Matthew Daley, Kathryn Fox, Brian Gallagher, Nan Jackson, Christopher Marston, Martha Mayer, Bill McNiece, Anthony Meadow, Vern Mesler, Steve Muller, and John Reap



William McNiece

Interior of the Hardy Generating Station.

WINDMILLS *(continued from page 12)*

remarkable number of windmills retain some wooden beams used when the mill last operated, likely over 150 years ago.

Numerous photos are included to enhance the technical documentation of the mills. A picture of the shaft that held the sails and other supporting timbers appears on the estate Bonne Esperance page in Queen's Quarter. The crushing cylinders in the reconstructed mill are seen on the Whim page. The Castle Coakley page features two closely co-located windmills and a glimpse of how polished the work floor stones became (the well-worn smoothness may explain why many of the floors were stripped from the windmills). One example of a remaining steam mill is pictured on the Annaly page, while steam chimneys also dot the island.

The Windmills of St. Croix website first launched in March, 2023. An expansion to the site will add 50 estate pages where an animal mill but not a windmill is believed

to have been built. Planned blogs will elaborate on specific characteristics of individual windmills and other aspects relating to the growth and impact of the sugar industry on St. Croix. For anyone interested in historic maps, masonry ruins, and industrial history with a tropical breeze, visit www.stcroixwindmills.org to learn about an impactful period in our collective past and culturally relevant part of our present.

William Cleveland



The twin windmills at estate Castle Coakley in Queens Quarter are surrounded by elaborate masonry structures to remove the crushed cane and store the cane juice.



The windmill at Estate Annaly was incorporated into a dwelling and often rented out. The datestone indicates the mill was built in 1803. The steam mill, pictured on the website, is down the hill.

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CALENDAR

2023

Oct. 28: The 43rd Roebing Chapter Symposium on Industrial Archeology in New York and New Jersey, Montclair, N.J. Info: contact mhabstritt@aol.com or brakos@hotmail.com.

Nov. 8–10: National Trust for Historic Preservation Conference, Washington, D.C.
Info: <https://savingplaces.org/conference>.

2024

Jan. 3–6: Society for Historical Archaeology, Annual Conference on Historical and Underwater Archaeology, Oakland, Calif. Info: www.sha.org.

Apr. 10–13: 2024 National Council on Public History Annual Meeting, Salt Lake City, Utah, and virtual, late April 2024 (virtual is jointly with the Organization of American Historians). Info: <https://ncph.org>.

Apr. 17–21: Society of Architectural Historians Annual International Conference, Albuquerque, N.M.
Info: www.sah.org.

May 16–19: SIA ANNUAL CONFERENCE, MINNEAPOLIS, MINN. Info: www.sia-web.org.

June 5–9: Mining History Association Annual Conference, Park City, Utah.
Info: www.mininghistoryassociation.org.

July 9–14: Society for the History of Technology Annual Meeting, Viña del Mar, Chile.
Info: www.historyoftechnology.org.

(TBD) Aug.: National Railway Historical Society Convention, Harrisburg, Pa. Info: nrhs.com.

Sept. 20–22: Society for Commercial Archeology 2024 Roadtrip: A Walk Through Nashville's Neon Canyon, Nashville, Tenn. Info: sca-roadside.org. ■