

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

Volume 20

Summer 1991

Number 2

20th Annual Conf., June 13-17, 1991

Chicago: Industrial Heartland, U.S.A.



Above: Bridges and architecture are two of Chicago's prime attractions. Viewed on the Sunday boat tour, the huge Merchandise Mart (1930) looms above the Franklin-Orleans St. double-leaf trunnion bascule. The Mart was the world's largest building (in floor area), until the Pentagon was built.

Below: In the Mainstream Station pumphouse, 300 ft. underground, the painted circle shows the scale of the 33-ft.-diam. hardrock tunnel. *R. Frame photos.*



Left: The Bismarck (and tour leaders Kim & Linda Brietenbach) welcomed the Society to Chicago.

Above: Chicago no longer is Sandburg's "Hog Butcher for the World." Only the 1875 Union Stock Yard Gate [NHL; Burnham & Root] remains from the original 475 acres of yards and packing houses. *R. Frame photos.*



At long last, the SIA came to Chicago. It was fitting that this legendary city of the nation's industrial heartland should be the site for the Society's 20th anniversary conference. Over 200 of the faithful attended, about equalling the city's 1834 population. With such a feast of urban IA to choose from, almost any selection of sites and tours might have been worth the trip. Our host and co-sponsor, the Public Works Historical Society, pulled out all the stops to arrange the widest possible sampling, from the internationally acclaimed

town of Pullman, to the little known, such as the Replogle Globe plant, and from the early—the Illinois & Michigan Canal, to the most modern—the great Mainstream Pumping Station. Throughout the weekend we took in the neighborhood IA around the conference HQ, the Bismarck Hotel, including the Chicago El and the many movable bridges, marvelous engineering works that are part of Chicagoans' everyday lives.

A welcoming reception Thursday evening at the Chicago Maritime Museum in the historic North Pier Terminal building kicked off the festivities. Paul Barrett, Illinois Inst. of Tech., presented a slide overview of the city's transportation networks and related industrial development. We viewed the museum's photo exhibits, including "Port to Port: 300 Years of Commerce on the Great Lakes." Phil Elmes, museum founder and conference committee member, helped organize the event.

Friday morning we were up and on the buses early for the day's process tours. Registrants selected from among five different tours, with most stopping at two relatively modern examples of major urban public works: Mainstream Pumping Station and the Stickney Water Reclamation Plant.

Located in Hodgkins, Ill., the **Mainstream Pumping Station** of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) is one of two stations in the



Left: As part of the exhibit at the Mainstream Pumping Station, this ingenious model rises out of its base to reveal TARP's complex underground system.

Right: At the end of the process at the Stickney Water Reclamation Plant, sludge ("dewatered wastewater solids") is conveyed [above] to a truck- and rail-loading facility. The Metropolitan Sanitary Dist. locomotive hauls sludge to drying areas in cylinder side-dump DIFCO gondolas [below]. R. Frame photos.



Tunnel and Reservoir Project (TARP—Deep Tunnel). It was designed to prevent backflows into Lake Michigan, eliminate waterway pollution caused by combined sewer outflows, and provide an outlet for flood waters. We made a 300-ft. ear-popping trip down the elevator to view the underground pump station for the immense 35-ft.-diam. main tunnel. Based on planning that began in the 1950s, Mainstream construction was begun in 1976 and completed in 1985. The tunnel-boring technology used here later was adopted for the English "Chunnel" project.

Mainstream is designed to pump sewage and stormwater to the **Stickney Water Reclamation Plant**, one of the largest wastewater treatment facilities in the world, serving a 260-sq.-mile drainage area. Stickney actually is two plants, the West Side (1930), which treats 40%, and the Southwest (1939), which treats 60%. The maximum combined capacity is 1,440 million gals./day. When flowage exceeds capacity, it is diverted into the 1-billion-gal. TARP tunnel system for temporary storage and is treated later, rather than overflowing into area waterways. Stickney employs conventional treatment technology, discharging the effluent into the Sanitary Drainage & Ship Canal.

Other public works facilities visited on Friday included: the **Marseilles Hydropower Plant** (courtesy of Illinois Power Co.), built 1911 to power the interurban system in the

Illinois River valley and operated until 1988; **Lockport Power Station** of the MWRDGC (1907), which not only generates power but allows outflow control of the Sanitary & Ship Canal; and **Commonwealth Edison State Line Generating Station**, built in 1927, which once boasted the world's largest turbine-generator.

Replogle Globes, Inc. is the world's largest manufacturer of geographical globes. There, we were surrounded by a cosmos of miniature planets—all Earths—ranging from an asteroid-like 4.7 ins. to a whopping Jupiterian 32 ins. (retailing for \$4,500), all in varying stages of manufacture. Newsprint manufacturing was viewed at **FSC Paper Co.** in Alsip, where this relatively modern (1968) plant uses only old newspapers as raw material. Two mammoth printing operations were toured: the great **Lakeside Press of R.R. Donnelley & Sons** (courtesy of conf. supporter Gaylord Donnelley), publishers of the Sears catalog, among other items; and the **Tribune Freedom Center**, the spanking-new and highly automated printing plant for the *Chicago Tribune*. The latter seemingly operated without the benefit of human labor; to some, it was an eerie—and dispiriting—sight.

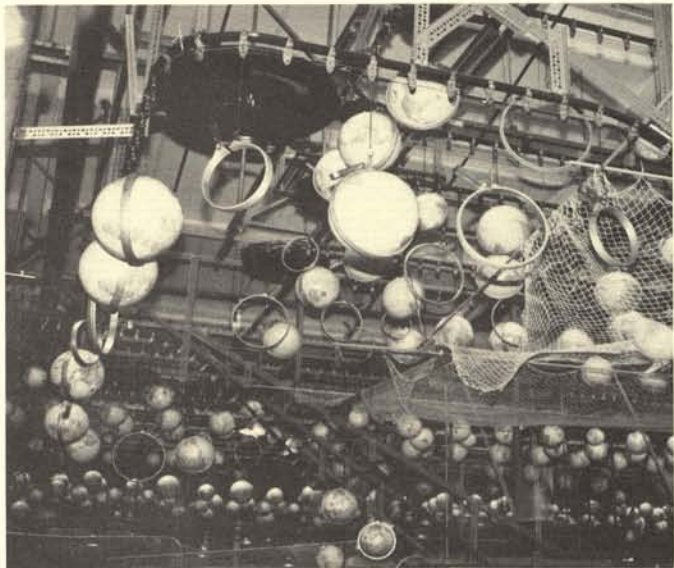
Chicago lived up to its name as Carl Sandburg's "Tool Maker." Among the metalworking sites visited was **Brad Foote Gear Works** in Elgin, which opened in 1924 and is now the world leader in bevel gears, specializing in induction hardening of individual gear teeth. Here we witnessed gear cutting of every imaginable variety and a fiery oil-quenching process. At century-old **Goodman Equipment Co.**, Bedford Park, we observed the assembly of mining locomotives.

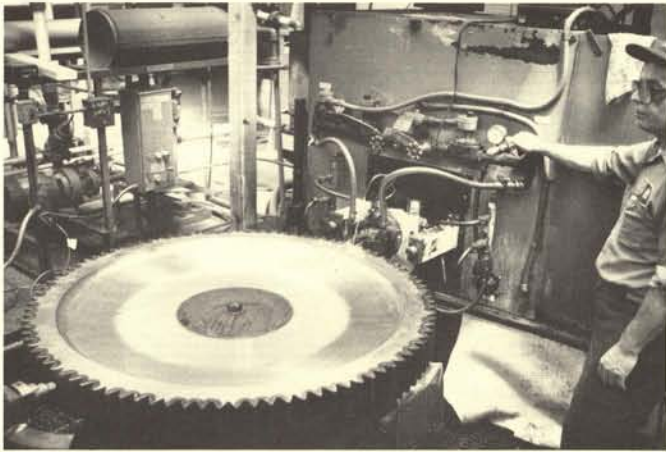
REPLOGLE GLOBES, INC.

Left: Replogle's cosmos, suspended from overhead conveyors.

Center: Die-cut hemispheres await global mounting.

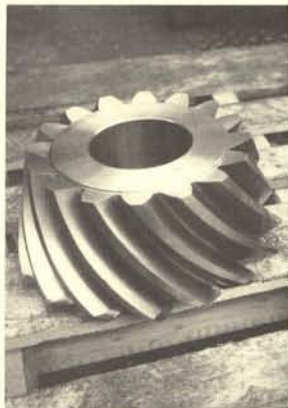
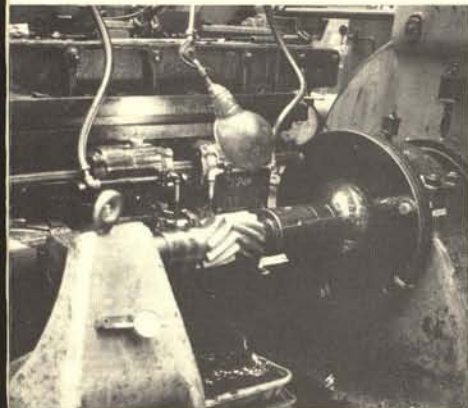
Right: A southern hemisphere is fitted into an assembly jig. J. Shprentz photos.





BRAD FOOTE GEAR WORKS, INC.

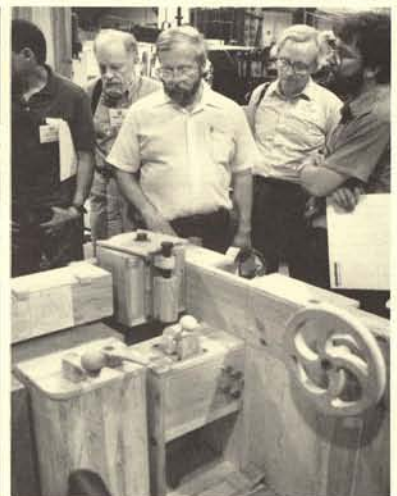
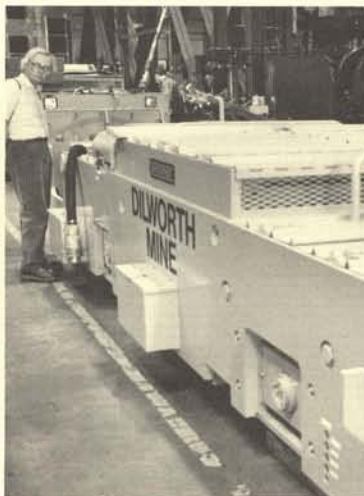
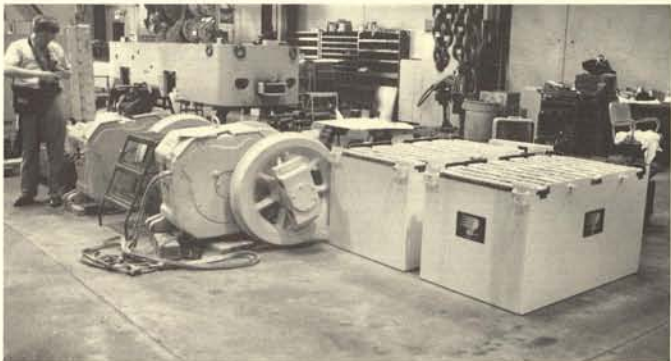
Above: World's only plant capable of induction-hardening of curved-tooth bevel gears.
Below left: Special cutter produces herringbone gear.
Below right: A Brad Foote specialty: the curved-tooth bevel pinion. *R. Frame photos.*



While at **Anderson Shumaker Co.**, a small open-die forge shop founded in 1902, the mostly Polish, highly skilled work force manned four steam hammers ranging from 1,500 lbs. to 6,000 lbs., turning out stainless and high-temp. steel forgings for a wide range of industries. As we watched, fascinated by the perfect synchronization of the hammer's blows and manipulation of the forging, company president Richard J.

GOODMAN EQUIPMENT, INC.

Below: Motors and batteries for mining locomotive. *Near right:* 20-ton locomotive awaits shipment to Dilworth Coal Mine in Pa.
Far right: Customers can design cab arrangement using this wooden mockup of 15-ton locomotive.
Right above: Newly assembled cab with traditional controller. *R. Frame photos.*



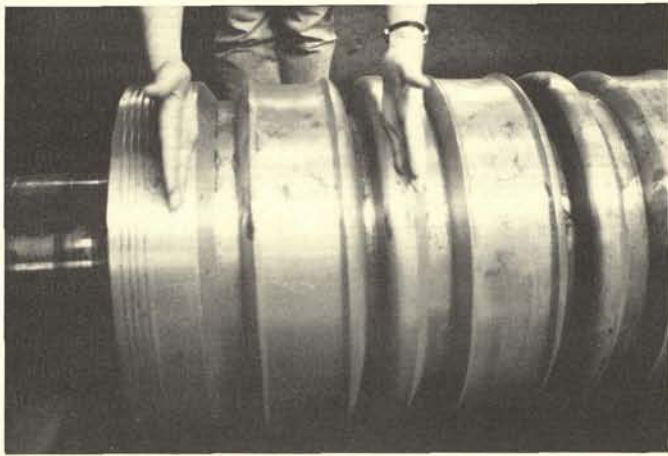
Tribble, who led the tour, confirmed our observation that the blacksmith's work is more art than science. Finally, traditional IA was viewed in the tour of the **Joliet Steel Works** ruins, which include the archeological remains of early blast furnaces. Joliet Steel began as the Union Coal, Iron & Transportation Co. rail mill in 1869.

Friday's events concluded with dinner at **The Berghoff**, Chicago's renowned German restaurant, followed by the traditional show & tell slide presentations.

Saturday was devoted to paper sessions. There was a wide variety of presentations, including: the "8th Annual Historic Bridge Symposium," chaired by HAER Chief Eric DeLony; three series of papers on Chicago IA; two "Iron/Extractive" sessions; and sessions devoted to Bureau of Reclamation projects, "Rust Belt Rehabilitation," and IA documentation. During the luncheon in the Bismarck, President David Salay chaired the SIA Annual Business Meeting (see meeting minutes under "SIA Affairs" in this issue). That evening, the **Chicago Historical Society** graciously hosted the SIA's annual banquet, catered amidst the CHS's noteworthy exhibits. Featuring nouvelle cuisine, it may well have been the most elegant in the annals of SIA feasts. Kudos to CHS Director Elsworth Brown and Curator Bob Goler (as well as the chefs).

On Sunday we all took the same two half-day tours, one by boat and one by bus, each starting in downtown Chicago in the morning, meeting in Joliet at midday, and returning by the opposite mode in the afternoon. The bus tour wandered through the city's many industrial neighborhoods, touching the near west side, home to Jane Addams' historic Hull House, through the Czech area known as Pilsen, near the site of International Harvester's McCormick Plant, and past the Central Manufacturing District, an early industrial park. We made a stop at the Union Stock Yard Gate [Burnham & Root, 1875; NHL], sole remnant of the once-vast and sprawling stockyard and meat packing zone that had made it "Hog





CHICAGO HEIGHTS STEEL. Hands define the roll area that will split one 112-lb, RR rail: the head area is at left, web in middle, flange at right. *R. Frame photo.*

Butcher to the World," and another stop at the incredibly modest homes of current and past Mayors Daley. Another obligatory photo opportunity was the two Comiskey baseball parks, the 1910 edition undergoing demolition (souvenir bricks available at \$15 each). A highlight of the bus tour was the visit to Pullman [Solon S. Beman, 1880-81], the company town built by sleeping-car magnate George M. Pullman to house workers at the Pullman Palace Car Co.

The boat cruised between downtown Chicago, on the Chicago River, and Joliet, on the Sanitary & Ship Canal, passing the entrance to the Illinois & Michigan; the mouth of the Calumet-Sag Channel [1911-22], a Ship Canal tributary; Lamont Quarries, supplying the very stone through which the Canal was cut; and Material Services Corp., founded in 1919 to supply building materials and now a major property owner (itself owned by General Dynamics) along the Canal. Without doubt, however, the premier attraction(s) of the boat tour was the unbelievable array of movable bridges. Chicago harbor, in fact, has more bridges than any other in the world. There were swing bridges (including an asymmetrical vehicular swing with the pivot on shore), vertical-lift bridges, bas-



Asymmetrical swing bridge with pivot on shore of Sanitary & Ship Canal. *R. Frame photo.*

cules of all engineering and architectural types, and in single- and double-leaf versions, and even a rare retractile bridge. A number of them were opened for our boat, and we barely inched beneath some of those that weren't; so close was the clearance that the canal level was purposely lowered so this trip could be achieved. The boat tour was superbly narrated by Harold Platt and Ted Karamanski, both of Loyola Univ.,



PULLMAN.

Left: Erecting shops (1880; modified in 1909 for steel cars). In background is the clock tower of the Admin. Building (1880).

Right: Hotel Florence, opened in 1881 and operated until 1975.

R. Frame photos.



LOW BRIDGE ON S&S CANAL.

Above: Tour boat Jamaica approaches group of four (two pair, alternately opposed) rolling lift RR bridges. Seeing low clearance, Howard Rosen runs away, terrified.

Right: Crewman signals amount of clearance to pilot.

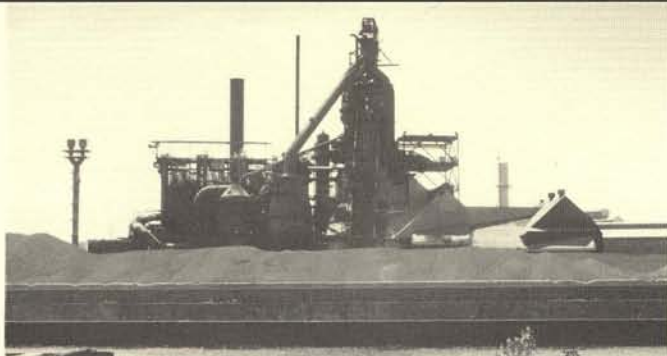
Right below: With passengers lying low, the Jamaica barely clears the bridges. *J. Shprentz & R. Frame photos.*



Dennis McLendon, American Planning Assn., and John Lamb, Drew Univ.

For most, the Sunday tours marked the end of a great conference. For one small group of the incorrigible that registered in time, there was another day to go. On Monday, this lucky busload went off to **Chicago Heights Steel**, founded in 1893, the longest operating RR rail rerolling mill in North America. Here, 140,000 tons per year of used rails are heated and sliced into their three fundamental parts: head, web, and bottom flange. In the mill, among 100 other products, the flanges are rolled into new rail clamps, the webs become bed-frame angles, and the heads are turned into countless fence posts—some 60,000 tons of fence posts last year. As the bus left, sharp eyes spotted the abandoned works of the **Bisbee**





USS GARY WORKS.

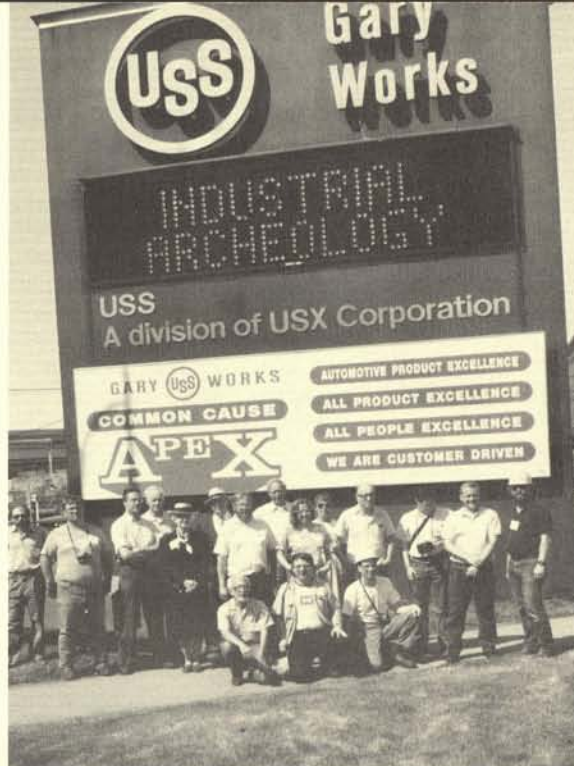
Left above: The huge, 8,000-ton/day, No. 13 blast furnace (1974).



Left below: Torpedo cars carry 120-150 tons of molten iron from the blast furnace to the steel shop.

Right: The Gary Works electronically welcomed the post-conf. Monday tour group.

R. Frame photos.



Linseed Oil Co., prompting a quick photo stop.

For Monday lunch it was back to Pullman, to dine at the Hotel Florence (1881), named for George Pullman's wife, and then on to the great **USS Gary Works** (div. of USX Corp.), originally constructed 1906-09 by Indiana Steel Co. This 6 1/2-mile-long plant is the largest domestic producer of iron and steel, turning out 6 million tons per year (85% cast, 15% plate), with five blast furnaces and 7,800 employees. We bussed past big No. 13 blast furnace (1974), one of the most productive on the continent, whose 8,000-ton/day-capacity is fed with Mesabi taconite. Then we went indoors to view the state-of-the-art, 92-in.-wide cap., Sumitomo A-Line Caster (1986), and the 84-in. Hot Strip Mill (1967), which rolls a 40-ft. cast slab into a 4,000-ft. strip, from .070 to 1/2-in. thick (84 ins. is the diam. of the finished coil, not the width of the strip).

When we arrived back at the Bismarck, the long Chicago weekend was done. For those of us who wanted to slip away from IA, there was plenty of other Chicago culture to absorb, not the least of which is the city-full of world famous Chicago School architecture, to say nothing of the Frank Lloyd Wright assemblage in Oak Park. And with our 20th Annual Conf. concluded, we only began to tap the city's IA heritage, leaving behind more than enough to generate interest in return visits. Well deserved thanks go to Howard Rosen, Joel Mendes, Ann Durkin Keating, and Antoinette C. Ewing of the Public Works Historical Society; and the local planning committee (in addition to others noted above) of: Frank Beberdick, Kim & Linda Breitenbach, David Bolanos, and Terry Sinnott.

CHICAGO: AN INDUSTRIAL GUIDE, prepared for the 1991 SIA Annual Conference, is available for \$5 from the Public Works Historical Society, 1313 E. 60th St., Chicago IL 60637 (312-667-2200). The 52-page paperback volume describes over 100 sites and includes 90 illustrations and 5 maps. It is organized into four parts. Harold Platt of Loyola Univ. provides an introductory essay that places industrial sites in a broader interpretative framework. Sections two and three include two self-guided regional tours and entries on individual sites. The book concludes with a Chicago industrial bibliography, maps, and an appendix. The guide was prepared by Ann Durkin Keating, Dan Barron, Dennis McLendon, and Joel Mendes, and was supported by the Ill. Humanities Council, the Natl. Endowment for the Humanities, the Ill. Gen. Assembly, and the PWHS.

SITES

BOTTLING MACHINE QUERY. Information is sought about the U.S. Automatic Rotary Vacuum Filler, manufactured by the U.S. Bottlers Machine Co., Chicago. One has been located at the Charles Krug Winery in northern California, and details about age and design are sought. Contact Amy Federman [SIA], 13417 Briar Path Lane, Silver Spring MD 20906 (301-871-9254).

BUFFALO BILL (SHOSHONE) DAM [1905-10; NR, ASCE Landmark], across the Shoshone River near Cody in northwestern Wyoming was one of the first high concrete dams in the U.S. In a major new project, its height has been raised 25 ft. to 350 ft. Additional work, to be completed next year, includes three new powerplants, spillway alterations, modifications to the Cody Canal, new dust-abatement dikes, and relocation of recreational areas. The height increase expands the reservoir to supply the powerplants that, combined with the old 5-MW Heart Mountain plant, will provide 25.5 MW. With its thickness tapering from 108 ft. at the base to 10 ft. at the top, the dam is among the thinnest ever built by the Reclamation Service or its successor, the Bureau of Reclamation, according to Donald C. Jackson [SIA].

CANADA'S OLDEST OPERATING DISTILLERY CLOSED last fall in Toronto. The (William) Gooderham & (James) Worts distillery was founded in 1832. The present complex on the Toronto waterfront was built from 1859 to 1880 and was designed by local architects David Roberts & Son. The distillery was declared a National Historic Site in 1989. Now the future of the complex is in doubt. It is owned by Hiram Walker Allied Vintners Ltd., Somerset, England. For information about the site and its future, contact Joan Murray, Curator, Toronto's First Post Office, 260 Adelaide St. East, Toronto, Ont. M5A 1N1.

OSIA Bulletin