

Thirty Years of Documenting Engineering and Industrial Heritage through HAER Publications

HAER was established to document America's engineering, industrial, and technological heritage with measured and interpretive drawings, large-format photographs, and written histories. The drawings, photographs, and histories, primarily compiled by student architects, engineers, and historians during the summer months, become part of the national collection at the Library of Congress, as an archive of our technological heritage. A review of publications by and about HAER reveals the program's evolution over the last three decades.¹

The first publications were brochures providing basic information about the program, and catalogs revealing the riches within the collection—the types of sites, structures and objects recorded and the number of drawings, photographs and data pages produced. Standards and guidelines instructing field teams and others on compilation of documentation followed. Later, reports, articles, documentary films, and publications stemming from the projects were produced.

The first brochure was printed in 1970, a year after the program started, and updated in 1972, 1978, and 1990. Catalogs and listings of the sites, structures, and objects in the collection were produced in 1972, 1976, 1983, and 1985.² The 1976 catalog contained annotated entries for the 514 sites recorded as of the end of 1975. Currently, information on the HAER program and documentation can be retrieved online. The collection is being scanned and digitized as part of the Library of Congress' National Digital Library, and can be accessed through the Library's "Built in America" web page at <<http://memory.loc.gov/ammem/hhhtml/hhhome.html>>.

Ten years after its founding, HAER published the first field guidelines. Simply titled *HAER Field Instructions*, these were updated and republished in 1996 as *Recording Historic Structures & Sites for the Historic American*

Engineering Record. The field instructions are comprehensive and thorough, providing advice to field teams on analyzing and evaluating the site, and on the preparation of written reports, drawings, and photographs. They also cover coordination between the various disciplines working on projects, presentations to the client and the public, critical planning, and instructions for efficient field work. Nearly half the publication is dedicated to examples of HAER drawings, critiqued to explain what is desirable and what should be avoided. *Recording Historic Structures* was published by the American Institute of Architects Press in 1989. Profusely illustrated with drawings and photographs from the collection, it provides background information for both HAER and its sister program HABS, and includes a series of case studies of various documentation projects. Other standards and guidelines include *How to Complete HAER Inventory Cards* (1978), completed when the program was sponsoring statewide and area inventories, and *Guidelines for Recording Historic Ships* (1988), to promote documentation of the nation's floating vessels and other maritime resources, such as shipyards, marine railways, lighthouses and other navigational devices.

Selected HAER projects have been published, helping inspire recognition of the importance of industrial and engineering sites. The *Report on the Mohawk-Hudson Area Survey: A Selective Recording Study of the Industrial Archeology of the Mohawk and Hudson River Valleys in the Vicinity of Troy, New York, June—September 1969*, was published by the Smithsonian Institution Press in 1973. This report of HAER's first official project is now considered a classic, helping to establish industrial archeology as a separate discipline in the United States. Robert M. Vogel, then curator of Mechanical and Civil Engineering at the Smithsonian Institution, served as project direc-

tor. The report includes drawings, photographs, and histories of a wide variety of engineering and industrial sites, and provides important background information on the selection of sites, the costs of the survey, measuring and drawing time, private sector support, and methodology.

In 1973, *Great Falls/Society for Establishing Useful Manufacturers Survey: A Report on the First Summer's Work*, reviewed the results of one of HAER's first multi-year projects. This effort involved documentation of industrial sites along the three-tiered system of water-power canals at the Falls of the Passaic, established by Alexander Hamilton as a demonstration of his vision of America as an industrial society. In addition to the work in Paterson, HAER fielded multi-year teams in the former textile city of Lowell during the summers of 1974-1975. Both communities considered themselves "birth places" of the American Industrial Revolution, and in the 1970s there was much interest in promoting the revitalization of these depressed industrial areas as historic districts. The results of the two summers in Lowell were published in 1976 as the *Lowell Canal System*. Subsequently, the Great Falls SUM District in Paterson was designated a national historic landmark, and Lowell eventually became a national historic site administered under a federal, state, and local partnership. Both sites served as models for future endeavors to bring landmark designation to outstanding historic industrial districts, and for the concepts of industrial heritage corridors and areas. During the 1980s and 1990s, industrial heritage areas and corridors have been aggressively promoted in other depressed former

mill towns, and industrial and transportation districts and corridors.

While pioneering new ways to look at large industrial districts, HAER promoted the concept of comprehensive area, state-wide, and subject inventories during the 1970s. Approximately a dozen inventory projects were published that covered water resources in the American Southwest (1973), and engineering and industrial sites in Florida (1973), Oklahoma (1974), New England (1974), Long Island (1974), North Carolina (1974-75), Delaware (1975), Cleveland, Ohio, (1975, 1978), Lower Peninsula of Michigan (1976), Upper Peninsula of Michigan (1978), Lower Merrimack Valley (1976), Rhode Island (1978), Connecticut (1981), and Boston (1984).³ Inventories were designed to promote an awareness and inclusion of engineering and industrial resources within the state and National Register surveys being conducted by state historical societies and preservation offices. HAER also believed that, once engineering and industrial sites had been identified, documentation projects would follow, recording the most important and threatened sites. The inventory/documentation combination worked in North Carolina, Cleveland and Long Island, but not in the other areas, primarily due to lack of funding. Today, many states include engineering and industrial resources in their statewide surveys, but there still exists a need for intensive documentation of the most significant resources.

The last of the comprehensive inventory projects was undertaken in the 1980s and 1990s as part of a new Park Service initiative on industrial heritage areas and corridors. Heritage areas and corridors were the result of Congressional appropriations to revitalize depressed industrial areas through heritage tourism and other economic incentives. HAER was asked to evaluate and help define the character of these areas by inventorying the historic industrial resources. Two areas that received assistance from HAER were the Illinois & Michigan Canal National Heritage Corridor, a water route linking Chicago with the Mississippi River, and America's Industrial Heritage Project (AIHP), nine southwestern Pennsylvania counties focusing on the themes of railroading, mining, and the iron and steel industries. Today there are over a dozen designated heritage areas and corridors in the United States, many based on industrial and transportation themes. HAER work in some of the early

HAER Exhibit Opens Oct. 26, 2000

Celebrating 30 years of HAER engineering heritage documentation, the National Building Museum (405 F Street, NW, Washington, DC 20001)—with funding from the ASCE, the National Park Service, and other leading engineering firms and individuals—will mount a comprehensive 3,000-square-foot HAER exhibit curated by Laura Greenberg. After hanging in Washington for six months, the exhibit will travel throughout the United States to science and industry museums, historical societies, schools of engineering, and other locations. Along with the exhibition, HAER, the Building Museum, and ASCE are planning a symposium on engineering heritage documentation. This will be a retrospective review of engineering heritage documentation and preservation over the last 30 years and what may be anticipated in the future.

heritage areas and corridors resulted in a series of publications and in-depth recording projects.⁴ HAER spent three summers, 1985-1987, recording engineering, architectural, and industrial resources in the I&M Canal corridor, and nine years, 1987-1995, in AIHP. Sponsored by the Steel Industry Heritage Corporation, HAER set up its first multi-year field offices in Homestead, Pennsylvania, documenting primarily the iron and steel industry of the Monongahela River valley.

HAER also directly promoted revitalization of historic properties through “rehab-action” projects. A phenomenon of the late 1970s, when HAER was part of the Heritage Conservation & Recreation Service (HCRS), a new federal agency that combined recreation, cultural, and natural resources, the goal was the revitalization of depressed industrial communities through funding from tax incentives for rehabilitating historic buildings and making buildings energy efficient. The results of rehab-action projects were a series of booklets produced for local distribution to generate interest in revitalization.⁵

HAER has documented a number of military sites including Wright-Patterson Air Force Base, Ohio; Langley Naval Air Station, Virginia; Philadelphia Naval Shipyard; and along with HABS, over 70 US Army Materiel Development and Readiness Command (DARCOM) munitions research, development and storage sites throughout the U.S. Publications include *The Engineering of Flight: Aeronautical Engineering Facilities of Area B, Wright-Patterson Air Force Base, Ohio* (HABS/HAER, National Park Service, U.S. Department of the Interior, 1993); *Last Line of Defense: Nike Missile Sites in Illinois* (NPS, 1996); and individual reports on the 74 DARCOM installations.

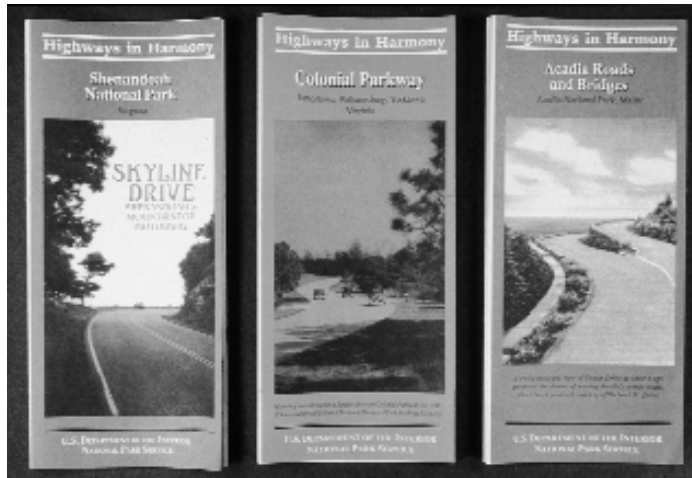
Other publications based on recording projects reflect special efforts by the staff or cosponsor, and the availability of funding. For example, in 1977, Douglas Ross, Chairman of the Woodstock (Vermont) National Historic Landmark Commission, used HAER’s report, drawing, and photographs to publish a booklet, *The Elm Street Bridge* (1977), on an 1870 Parker truss threatened with replacement. Because of Ross’ efforts, Elm Street Bridge was one of the first successful bridge preservation projects, using federal highway funds to rehabilitate a historic bridge for continued vehicular use.

Another publication, *Historic Bridges of Montana*, illustrates a major HAER initiative to

save the historic bridges of the United States. Authored by Fred Quivik, the report was based on field work that produced approximately 500 HAER inventory cards for railroad and vehicular bridges built in Montana before 1945. Sponsored by the Montana Highway Department, Montana State Historic Preservation Office, and Montana Historical Society, the survey was a prototype for other states conducting inventories to identify historic bridges that might be affected by the national bridge replacement program. Several other states—Idaho, Colorado and Arizona—used HAER inventory cards in conducting statewide bridge inventories.⁶

In addition to working with different state departments of transportation to identify and record America’s historic bridges, HAER, in cooperation with the Federal Highway Administration and the Federal Lands Highway Program, began the comprehensive documentation of historic bridges throughout the national park system. Over a 10-year period, beginning in 1988, HAER has fielded recording teams in many of the major national parks having historic road systems. Initially focused on bridges, HAER soon realized that the actual road was part of a larger cultural context that helped define how visitors experienced and perceived the park. Consequently, documentation was expanded to include landscape features, view sheds, plant materials, and other park elements. HAER architects, landscape architects, and historians discovered the indelible relationship between landscape architects and engineers working for the Bureau of Public Roads (BPR) that crafted the beautiful parkways like the Blue Ridge and Rock Creek. Park service landscape architects set the design and aesthetic standards and BPR engineers perfected the working drawings and specifications so that park roads enhanced the landscape. In addition to the drawings, photographs and histories, HAER teams produced interpretive brochures for the public. We live in an age of infrastructure improvement and just as the primary and secondary road systems are being rehabilitated, park roads are undergoing massive change. As we conclude our work on the roads in the great national parks, HAER’s Park Roads and Bridges Program will publish a comprehensive review of over a decade of work.⁷

In 1982, following a survey of the Quincy copper mining region in the Upper Peninsula of Michigan, the Quincy Mine Hoist Association



HAER's NPS Park Roads Program has published several brochures disseminating the results of documentation efforts to the public.

published a book on the results of that project written by the two project leaders, HAER historian Larry Lankton and project historian Charles Hyde. In that same year, Terry Reynold's *Sault Ste. Marie: A Project Report*, on the world's longest horizontal-shaft hydroelectric power plant, was published with funding from the cosponsors. The same held true for *The McNeil Street Pumping Station Museum* (1981) and *Kennecott, Alaska* (1987). Shreveport, Louisiana architect Bill Wewer, the primary motivator for the McNeil Street project, used the HAER survey as a vehicle for successfully nominating the pumping station as a national historic landmark, transforming it into a city museum. At Kennecott, project leader Robert Spude and Sandra McDermott Faulkner, of the NPS Alaska Regional Office, in cooperation with Cordova Historical Society, Cordova, Alaska, republished the drawings, photographs and historical report produced by the HAER team as *Cordova to Kennecott, Alaska* (1988) a simple solution that could be a model for other HAER projects.

Other co-sponsors have also assisted in publishing HAER documentation. Following three summers of HAER work (1974-1977) recording the wind and tide mills of Long Island, New York, the project's cosponsor, the Society for the Preservation of Long Island Antiquities, worked with W.W. Norton & Company of New York to publish *Windmills of Long Island*. Project historian Robert Hefner became an expert on the preservation of windmills, and to this day, the Long Island windmill drawings remain "classics" of the HAER collection often used for illustrations, exhibits, and postcards. Also, after five years of HAER work in Birmingham, Alabama,

Birmingham Historical Society director Marjorie White mounted an impressive traveling exhibition of the HAER documentation of that city's famous iron industry and manufacturing works. The exhibition was accompanied by a cleverly designed publication that reproduced the drawings and photographs in large-format with historical commentary.⁸

Articles originating from HAER projects have been published in some of the leading technical journals and magazines, such as *IA: The Journal of the Society for Industrial Archaeology*, *American Heritage of Invention & Technology*, *Technology & Culture: The Journal of the Society for the History of Technology*, and the proceedings and national reports of TICCIH, the International Congress for the Conservation of the Industrial Heritage, *Monuments Historiques*, and *La Revue*.⁹ There are too many to enumerate, but a partial listing is available in *Historic American Buildings Survey/Historic American Engineering Record: An Annotated Bibliography* (1992) compiled by James C. Massey, Nancy Schwartz, and Shirley Maxwell.

The results of HAER recording projects also have been published in hardback, coffee-table style books. *Industrial Archeology: A New Look at the American Heritage* by Theodore Anton Sande was the first in 1976, followed by *Industrial Eye: Photographs by Jet Lowe from the Historic American Engineering Record*, published by The Preservation Press, National Trust for Historic Preservation in 1986. *Landmark American Bridges* (1993) by Eric Delony was next. The bridge book was a joint venture between HAER and the American Society of Civil Engineers (ASCE), one of the constituent groups that helped found the program in 1969. Significantly, ASCE secured a commercial co-publisher, Little Brown Publishing Company, Boston, Bulfinch Press, helping documentation from the HAER collection reach a larger audience. HAER historian Dean Herrin currently is working on the second book of this nature which examines 19th-century engineering and technological achievements that have been recorded over the last 30 years by HAER.

The preservation of America's engineering and industrial heritage was slow in arriving, but there can be no doubt that these resources are now considered part of the thoughtful preservation of our built environment. The publications highlighted in this essay, and others to come, will

help insure that the sites, structures, and artifacts of our technological achievements will not be forgotten.

Notes

- 1 For a selection of articles on HAER projects see *IA: The Journal of the Society for Industrial Archaeology* 23:1 (1997), a special issue titled "Documenting Complexity: The Historic American Engineering Record and America's Technological History."
- 2 All HAER catalogs are out-of-print, but *America Preserved: A Checklist of Historic Buildings, Structures & Sites* (Washington, DC: Library of Congress, 1995) is available. In 1995, the HAER collection was reproduced on 870 silver halide positive-reading microfiche by Chadwyck-Healy, Inc., Alexandria, VA.
- 3 Few if any of these publications remain in print as they were all designed to be inexpensive, brief annotated listings of the sites identified. Rarely were more than 500 copies printed. Copies may be available through interlibrary loan at local libraries.
- 4 *An Inventory of Historic Structures within the Illinois and Michigan Canal National Heritage Corridor*, multiple volumes (1985, 1987, 1987); Gray Fitzsimons, ed., *Blaine County and Cambria County, Pennsylvania: An Inventory of Historic Engineering and Industrial Sites* (Washington, DC, 1990); Sarah Heald, ed., *Fayette County, Pennsylvania: An Inventory of Historic Engineering and Industrial Sites* (Washington, DC, 1990); Nancy S. Shed, author, and Sarah Heald, ed., *Huntingdon County, Pennsylvania: An Inventory of Historic Engineering and Industrial Sites* (1991); Margaret M. Melroony, *A Legacy of Coal: The Coal Company Towns of Southeastern Pennsylvania* (Washington, DC, 1989). While the I&M publications are out-of-print, one may be able to get copies of the AIHP studies from AHDC, PO Box 565, 105 Zee Plaza, Hollidaysburg, PA 16648.
- 5 Donald Stevenson, *Lockport, Illinois: An HCRS Project Report* (Washington, DC, 1980); T. Allan Comp, *Butte, Montana: A Project Report* (Washington, DC, 1981); Charles Leach, and T. Allan Comp, *Rehabilitation: Claremont 1978: Planning for Adaptive Use and Energy Conservation in an Historic Mill Village* (Washington, DC, 1978); Donna M. Ware, and James Vaseff, *Lehigh Canal: An HCRS Project Report* (Washington, DC, 1981); James Vaseff, and Hugh McCauley, *Rehabilitation: Fairmount Waterworks 1978: Conservation and Recreation in a National Historic Landmark* (Washington, DC 1979); T. Allan Comp, *Rehabilitation Danville 1978: A Strategy for Building Reuse and Neighborhood Conservation* (Washington, DC 1979). All these reports are out-of-print.
- 6 See Eric DeLony, "Bibliography of State Historic Bridge Inventories," *IA: The Journal of the Society for Industrial Archaeology* 16:1 (1990): 68; and "HAER's Historic Bridge Program," *IA: The Journal of the Society for Industrial Archaeology* 15:2 (1989): 57-71.
- 7 HAER Historian Timothy Davis published "Rock Creek and Potomac Parkway, Washington, DC: The Evolution of a Contested Urban Landscape," in *Studies in the History of Gardens & Designed Landscapes, An International Quarterly* 19:2 (April-June 1999): 123-237; and "Mount Vernon Memorial Highway: Changing Conceptions of an American Commemorative Landscape," in *Places of Commemoration, Search for Identity and Landscape Design*, Joachim Wolschke-Bulmahn, ed., (Washington, DC: Dumbarton Oaks, 2000).
- 8 Philip A. Morris, and Marjorie L. White, *Birmingham Bound: An Atlas of the South's Premier Industrial Region* (Birmingham, AL: Birmingham Historical Society, 1997).
- 9 *Monuments Historiques: Etats-Unis*, No. 173, Mars-Avril 1991, was dedicated to historic preservation in the United States including a brief article on bridge preservation by the author. *La Revue*, No. 19, Juin 1997, was dedicated to "Images du Patrimoine Industriel des Etats-Unis," a Franco-American exhibition sponsored by the Ecomusee du Creusot-Montceau, Musee des Arts et Metiers and the Marie du 3rd Arrondissement, Paris.

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