

Besides this functional distinction, other criteria considered are use, context, and innovation. An engineering structure or system can be considered a landmark worthy of recording by virtue of its implicit technical ingeniousness. On the other hand, a relatively routine solution can be recognized as a landmark of engineering history because of its substantial effect on the urbanization or transformation of a region's physical, social, or economic configuration. Other factors in evaluating the relative significance of engineering structures and the need to record them are the esthetics of honest and often dramatic expression of form and function and the danger of impending destruction.

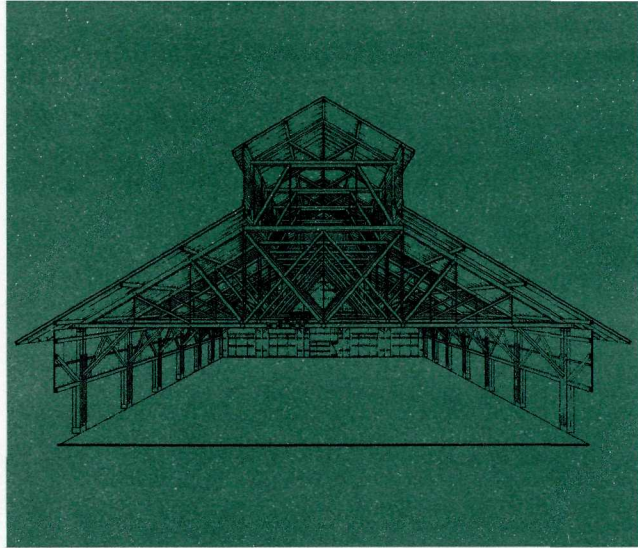
In general, to qualify as being of recordable merit, structures must be or must have been one or more of the following:

- Associated with significant events or personages in the cultural, political, economic, military, or social history of an area.
- Instrumental, either individually or as part of a system, in achieving the settlement and economic stability of an area.
- Built using unique methodologies or materials.
- Significant in the history of a particular branch of engineering.
- Designed or built by famous engineers, architects, or master builders.
- Typical of an early engineering structure commonly used throughout an area for a specific purpose.
- Sole remaining example of a type.

THE RECORDS

The Historic American Engineering Record archives are deposited in the Division of Prints and Photographs of the Library of Congress. The HAER collection includes precise measured architectural and engineering drawings, professional photographs, historical and technical written data, photogrammetric plates, and old drawings, photographs, and maps. The geographic scope of the documentation will ultimately include all States, the District of Columbia, and U.S. territories and possessions. The records are prepared to be as permanent as possible and to withstand extensive use. The public is encouraged to utilize the records which may be published without restriction. The courtesy of a credit line is requested.

Copies of the records may be ordered from the Photoduplication Service, Library of Congress, Washington, D.C. 20540. Estimates should be obtained from the Library's Division of Prints and Photographs before ordering. At this writing, ozalid prints of drawings are 35 cents each; 4 x 5 inch and 5 x 7 inch contact prints of photographs are \$1.25 each; and photostats are \$1.85 for four pages of data. Xerox copies of data are 60 cents each for the first five pages and 16 cents for each additional page. A minimum charge of \$2 is made for each type or reproduction. The mailing charge is 25 cents. Copies of new records not yet deposited in the Library of Congress may be obtained from the National Park Service, U.S. Department of the Interior, Washington, D.C. 20240.



Photographs and drawings for use in public exhibitions in museums, libraries, universities, and at regional meetings of historic preservation groups may be loaned from the National Park Service. The Service also will cooperate with organizations planning to assemble special exhibits.

The National Park Service encourages libraries, historical associations, and local governments to purchase duplicate collections of the records in the Library of Congress to simplify the research procedure and to enhance the educational value of making the findings known and easily accessible to the public.

Documents on engineering feats compiled since 1933 by the Historic American Buildings Survey remain in the HABS archives at the Library of Congress. A cross-reference index of the HAER and HABS collections will facilitate the research procedure.

RELATED PROGRAMS

HISTORIC AMERICAN BUILDINGS SURVEY. This program for recording important examples of American architecture, the parent program of HAER, is conducted in cooperation with the American Institute of Architects and the Library of Congress. The measured drawings, photographs, and written data, kept in the Division of Prints and Photographs of the Library of Congress, are available for public use and reproduction. Most recorded buildings will eventually be in the *National Register of Historic Places*.

NATIONAL REGISTER OF HISTORIC PLACES. The National Historic Preservation Act of 1966 directs the Secretary of the Interior to expand the National Register to include entries of State, regional, and local significance as well as those nationally significant places qualified for designation as National Historic Landmarks. This act provides certain safeguards against damage by Federal undertakings for all properties included in the National Register and a grant-in-aid program to assist in their preservation.

Though the National Register includes places of national, State, regional, and local significance, Landmark designation is the unique status accorded by the Secretary of the Interior to limited numbers of properties meeting the stringent criteria of national significance.

NATIONAL HISTORIC LANDMARKS PROGRAM. The Historic Sites Act of 1935 authorizes the Secretary of the Interior to make a survey of historic sites and buildings to identify those of national significance. Potential Landmarks are evaluated by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments, and are recommended to the Secretary of the Interior.

Sites and structures found nationally significant by the Secretary are eligible for designation as National Historic Landmarks and are recorded in the National Register. Upon the owner's agreement to adhere to accepted preservation precepts, Landmark designation is recognized by the award of a bronze plaque and a certificate. The program began in 1960.

Properties eligible for Landmark designation are listed in a booklet entitled *National Parks and Landmarks*. Studies leading to the selection of National Historic Landmarks are published in a series of books. Write to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for price lists.

OTHER GOVERNMENT PROJECTS. The National Historic Preservation Act of 1966 and companion legislation place important responsibilities for historic preservation on all Federal departments and agencies. For most of them the responsibility is primarily a statutory obligation to exercise care in all undertakings affecting cultural properties worthy of preservation.

The Department of Housing and Urban Development has been given important new authority to undertake programs of active aid and encouragement to historic preservation. For information write to the Department of Housing and Urban Development, Washington, D.C. 20410.

On the basis of 1966 and 1968 legislation, the Department of Transportation has adopted policies and programs giving maximum consideration to the effect of projected transportation facilities on the quality of the environment. Cultural properties are among the environmental elements given special attention. For further information write to the Department of Transportation, Washington, D.C. 20590.

RELATED PRESERVATION FOLDERS

The National Park Service publishes the following preservation program folders similar to this one: *The Historic American Buildings Survey*, *The National Register of Historic Places*, *National Park Service Archeological Program*, *The National Historic Landmarks Program*, and *The Natural Landmarks Program*. These publications are available in packet form (National Park Service Preservation Programs, 50 cents) from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Also available from the Superintendent of Documents is the *National Environmental Landmarks Program* folder, 10 cents.

For further information about any of the programs mentioned in this folder, write to the Director, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240.

National Park Service
U.S. Department of the Interior

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For thousands of years the engineering works of man have been one index of his rise to civilization. But it was not until the beginning of the 19th century that engineering began to profoundly shape American civilization and to help provide the base upon which the Nation's present wealth and power rests. Spurred primarily by the introduction of the steam engine, the United States began the change from an essentially agrarian to a highly industrialized society.

Mechanization spread rapidly throughout the country, allowing increasing exploitation of natural resources. Great construction feats were accomplished as industry grew rapidly, as transportation was revolutionized, and as public works projects were completed to meet the needs of a growing population. Later, the advent of electricity revolutionized communications and most aspects of American life, providing comforts never before enjoyed in the world.

American engineers have been in the forefront of these technological changes for the past 150 years. The Historic American Engineering Record was established in 1969 to preserve examples of their contributions to the development of the country for the enjoyment and edification of future generations of Americans.

DEVELOPMENT OF THE RECORD

The Historic American Engineering Record is closely related to the Historic American Buildings Survey, which was organized in 1933 as the first major step by the Federal Government toward cataloging and preserving historic works of architecture. The Survey, with cooperative efforts of the Library of Congress and the American Institute of Architects, became a long-range National Park Service program under the Historic Sites Act of 1935. Along with recording historic buildings of architectural merit, the Survey has documented a great variety of engineering works, including bridges, canals, dams, and industrial complexes. HABS for many years championed surveys in industrial archeology and successfully stimulated an interest in engineering history on the part of both professional engineers and the general public.

The American Society of Civil Engineers has also been active in recognizing the importance of engineering as a part of the Nation's heritage. In 1964 the society set up a Committee on the History and Heritage of American Civil Engineering. This committee has designated landmarks of civil engineering, started a project for the publication of a series of books on civil engineering history, and published a biographical dictionary of civil engineers.

An accelerated concern for environmental quality and a greater use of comprehensive urban and regional planning programs resulted in a growing interest in historic engineering structures and systems that reflect not only the Nation's technological development, but also its social, industrial, economic and physical development. This interest plus the efforts of HABS and ASCE led to the establishment of the Historic American Engineering Record in 1969 by the

National Park Service, in cooperation with the Library of Congress and the American Society of Civil Engineers. The Library keeps the HAER records, makes them available for study, and supplies reproductions through its Photoduplication Service. ASCE provides professional counsel through its national membership, financial assistance through its local sections, and aids the program in other ways.

Since its inception, HAER has documented examples of civil engineering genius, historic engineering works of both the mechanical and electrical engineering professions, and other engineering feats.

In 1971 the American Society of Mechanical Engineers formed a History and Heritage Committee, which actively supports the work of the Record. HAER encourages the support and participation of professional engineering societies and expects that other engineering societies will join ASCE as major sponsors of the program.

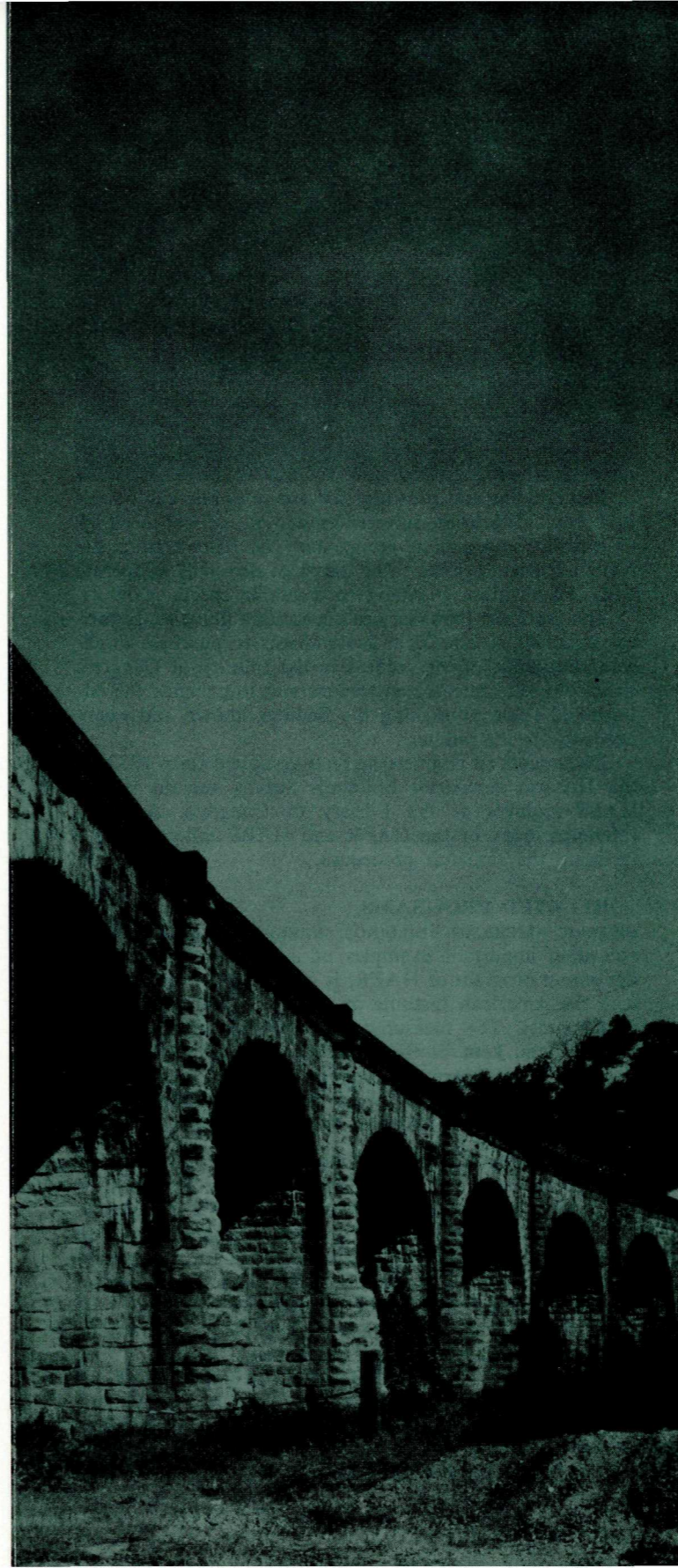
CURRENT PROGRAMS

Through the Historic American Engineering Record, the National Park Service conducts a national program of intensive surveys of engineering works on a shared-fund basis in cooperation with professional engineering societies, State and local governments, historical societies, and preservation groups. The Record also works closely with the Smithsonian Institution, with universities, and other organizations throughout the country.

The program operates primarily through two types of comprehensive surveys: the regional survey, determined by geographic factors, and the industrial survey, determined by the type of industry. A broadly conceived regional survey identifies engineering landmarks within a State or group of States, and the records produced range from inventory accounting to complete historical, photographic, and measured drawing documentation. Such a survey may develop cooperatively with national, regional, and local professional engineering societies, landmark commissions, State and local historic preservation societies, as well as with universities, scholars, and other interested individuals. Summer field projects based on a State inventory help the local community become more aware of existing landmarks and prepare a foundation for an in-depth study later.

A regional approach can also consider significant engineering relics within a limited area. For example, the first official HAER survey recorded a unique group of 19th-century structures at the confluence of the Mohawk and Hudson rivers in the Albany-Troy-Cohoes area of New York. This area is richly endowed with monuments of early transportation and industrial ventures, some of which are associated with illustrious pioneers of the engineering profession.

An industrial survey records the physical aspects of a particular production or service industry. This type of survey may focus on a single industry consisting of many individual firms widely dispersed throughout an area, with



recording emphasis on the diversity of engineering solutions to problems common to the industry. The New England Textile Mill Survey, conducted by HABS before the formation of the HAER, is an example of this type of survey. This project documented a group of textile mills throughout New England that typified collectively the development of the physical works of America's first factory-based industry.

Sometimes the industrial survey concentrates on a single firm or system with the emphasis being on its varied types of engineering structures. For example, in 1970 an HAER team surveyed one of the Nation's earliest railroads, the Baltimore & Ohio Railroad, whose original main line ran between Baltimore and Cumberland, Md. Examples of railroad stations, hotels, bridges, viaducts, roundhouses, and shop buildings were recorded.

Besides large-scale surveys, HAER records individual structures and systems of particular merit. Priority is given to engineering monuments threatened by demolition, for documentation by the National Park Service can often lend weight to the cause of preserving them.

The actual recording is accomplished primarily during the summer when university student architects and engineers and faculty supervisors are available to measure and prepare architectural and engineering drawings. These drawings, together with professional photographic and photogrammetric records and the historical research and technical documentation of professional historians, comprise the records which are deposited in the HAER archives at the Library of Congress. The National Park Service and other sponsoring organizations periodically publish State catalogs and documentary reports on some of the surveys.

Though these records are for the use of the general public, they are of special value to historians, architects, urban planners, engineers, and preservationists.

CRITERIA FOR SELECTION

The purpose of the Historic American Engineering Record is to record a complete summary of engineering technology by surveying significant examples of engineering solutions which demonstrate the accomplishments of all branches of the engineering profession (civil, mechanical, architectural, electrical, hydraulic, etc.).

Two basic types of engineering achievement are recognized. The first and most apparent kind is a specific engineering installation: a structure or system which is a purely technical solution and usually non-sheltering in nature, such as a bridge, canal, waterworks, irrigation system, dam or tunnel. The other type is a group of structures which individually are of subordinate or secondary importance but which collectively comprise an engineering or industrial system of major consequence. An example of such a group would be the buildings along a railroad—the passenger station and hotel, the train shed, car shop, roundhouse—which are sheltering structures along a transportation network.