



## ASCE History and Heritage Programs

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**Abstract:** Concerned that neither the general public nor civil engineers themselves were fully appreciative of the contributions of civil engineers to the development and standard of living of the country, a few dedicated civil engineers persuaded the ASCE Board of Direction to establish a history and heritage committee and a formal program in 1964. The committee has more or less flourished since that date, with an ever-expanding number of programs. The purpose of this paper is to provide an overview and description of some of these programs, with some consideration of what has worked well, and what has been less successful. It is hoped that this overview will encourage local ASCE units to reenergize their history and heritage efforts. It may also be of use to engineering groups, or perhaps others, contemplating an increased effort in the areas of history, heritage, or preservation. The primary purposes for the program were (1) to create an awareness and pride in civil engineers for the rich history and heritage of their chosen profession; and (2) inform the general public of the role that civil engineering has played in the development of the country and in improving the quality of life. These purposes are accomplished through the following activities: landmark programs, conference sessions and congresses, historic publications, recognition of civil engineers, cooperative efforts, slide shows and videos, tours, historic preservation, and other activities.

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### Introduction

Prior to 1964, ASCE had no organized history and heritage program. This is not to say that civil engineering history was ignored. Rather its overall importance was not recognized by the society. Certainly, the centennial year of 1952, and the centennial issue of *Civil Engineering*, demonstrated that ASCE was willing to support civil engineering history. For the serious reader the *Transactions of ASCE* provide a venerable record of the history and heritage of American civil engineering. In addition to the documentation of the development of civil engineering practice over the first 100 years of ASCE, the papers and ensuing discussion provide enormous insight into the leading civil engineers and their innovative solutions to problems.

Outside of ASCE, the Society for the History of Technology (SHOT) in the United States and the Newcomen Society in Britain provided some opportunities for publishing of technical articles, but other activities were limited or not readily available for American civil engineers. Other examples of individual efforts to promote civil engineering history abound as well. What was clearing lacking was a structured effort by ASCE, as the lead

society, to promote this history and heritage. This paper discusses that structure.

The ASCE history and heritage programs are under the purview of the ASCE Committee on the History and Heritage of American Civil Engineering (CHHACE), the name of which was recently changed to the History and Heritage Committee (HHC). The ASCE Board of Direction needed little encouragement to approve the establishment of a history program in 1964. That little encouragement was provided primarily by Neal FitzSimons, the second writer. The process may be summed up in his own words as follows (FitzSimons 1996):

In my personal view, the present History & Heritage program of the American Society of Civil Engineers began in the study of Dean S.C. Hollister, at Cornell University, Ithaca, New York in the Fall of 1947. I was among a group of Civil Engineering students meeting with the Dean to discuss the first post-war 'Engineers' Day'. As with most meetings, it became a bit tedious and my eyes wandered to the books on the shelves of his den library which surrounded us. A set of four large tomes caught my eye and during coffee-time, I browsed through them—*D'Architecture Hydraulique* by Bernard Forest Belidor. They were fascinating! It was this incident at Cornell that sparked my interest in engineering history.

It was not until October 1963 after my early construction career overseas and an assignment in the field of protection from nuclear weapons that I again became active in ASCE and found that there was no program which focused on history. With some diffidence I appeared before the Board of Direction and proposed a history and heritage program. At their suggestion I wrote a formal letter to William 'Pete' Wisely the Executive Director of the Society. The response came in April, 1964 from President Waldo Bowman in the form of my appointment to a Task Com-

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**Fig. 1.** Although seemingly out of place in California, the Bridgeport Bridge, completed in 1862, provided a major link for heavy freight between Marysville, Calif., and Virginia City, Nev. It was designated a NHCEL in 1970.



**Fig. 2.** Site of one of the 23 incline planes on the Morris Canal (with slack-water towpath bridge below) that were required to overcome the cumulative rise and fall of 1,674 ft as the canal crossed New Jersey. The Morris Canal was designated a NHCEL in 1980.

mittee on the History and Heritage of American Civil Engineering (CHHACE) to be chaired by Past-President Gail Hathaway. A few years later he passed the torch to me.

FitzSimons, with a rotating corps of dedicated and prominent civil engineers, lead the creation and operation of the committee for nearly 25 years. He was ably assisted throughout this entire period by staff contact Herbert R. Hands. The first writer chaired the committee from 1990 until 1997. He was followed in turn by Jerry Rogers who more recently turned over the leadership to Henry Petroski in 2000.

CHHACE flourished and has received the blessing of ASCE for over 38 years. As a clear measure of this success, other engineering societies have virtually duplicated portions of the ASCE program whereas other organizations have used the ASCE activities as a guide in setting up their own successful programs. For example, very effective programs operate in Australia, Canada, and Great Britain. Various components of the program are discussed in the following pages.

### Civil Engineering Landmark Programs

The historic landmark program is the oldest, the most visible, and probably the most successful activity sponsored by the committee. The Bollman Truss Bridge at Savage, Maryland, was selected in 1966 as ASCE's first National Historic Civil Engineering Landmark (NHCEL). The program has been so successful, that in spite of very stringent qualifications which must be met before ASCE will grant National Landmark status to a project, there are well over 190 National Historic Civil Engineering Landmarks extending across the United States from border to border. Although many of the landmarks have immediate world-wide recognition (e.g., the Brooklyn Bridge, Golden Gate Bridge, or Hoover Dam), others are much more low key, such as the first United States stream gauging station at Embudo, New Mexico, or the pioneer Folsom Hydroelectric Power House, now a state park in California (Figs. 1–3).

In order to qualify as a NHCEL, the project must be at least 50 years old, and have made a significant contribution to both the civil engineering profession and at least a major region of the United States. It was decided at the outset that the NHCEL nominations must come from the local ASCE sections and branches.

Thus, local engineers must be involved; in fact, they have the responsibility for developing not only the nomination, but also a plaque presentation ceremony and the associated public relations efforts. At the recognition ceremony the plaque is presented to the project owner by the president of ASCE or another high-ranking official, and an effort is made to invite the general public, newspapers, and television stations. Historic societies and other local groups with an interest in history are frequently involved, providing help with promotion of the event and increasing the attendance.

On occasion, hundreds of people have attended the presentation ceremonies. Countless others have read about the landmark ceremonies, heard about them on radio or television, or simply stumbled upon a landmark plaque and thereby associated the visible project with civil engineering. Certainly, millions of people have been made more aware of the proud history and heritage of American civil engineering as a result of this program.

The nominations provide documentation that becomes part of a permanent database. Because of the nomination process, the records are somewhat uneven, but still are useful for research and



**Fig. 3.** Then ASCE President Tom Sawyer presents a plaque designating the St. Claire Railroad Tunnel between Port Huron, Mich., and Sarnia, Ontario, as a NHCEL in 1991. This was the first subaqueous tunnel in North America.



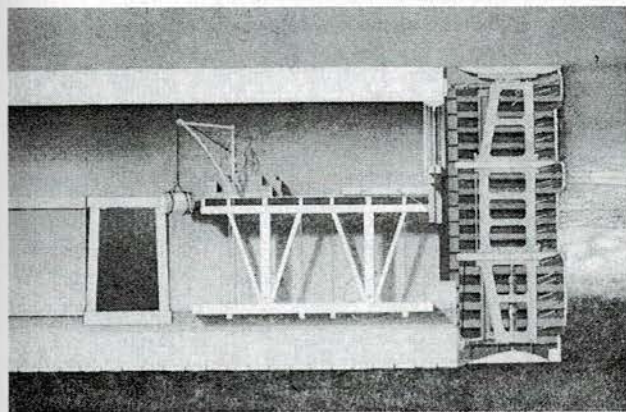


**Fig. 4.** ASCE's second International Historic Civil Engineering Landmark, the Zuiderzee Enclosure Dam (constructed 1927–1932) near Amsterdam was so recognized in 1983.

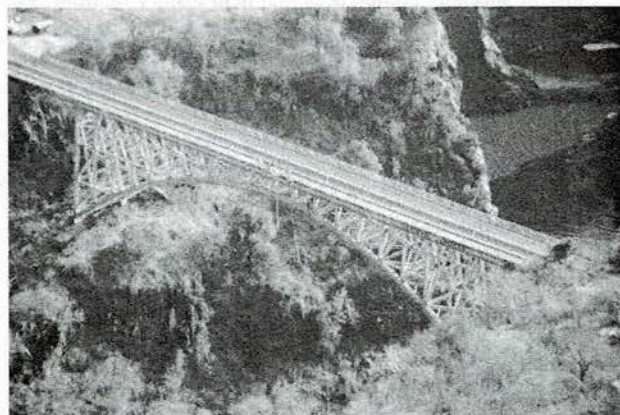
archival purposes. Nominations that the committee feels are not of national caliber are usually designated as local or state historic civil engineering landmarks with a similar plaque and (usually a local) presentation ceremony. They become part of a parallel local landmark program. An unknown number of local or state historic civil engineering landmarks have been so designated. Some states such as California and Texas have designated a large number of local landmarks, others may have very few. Some have been recognized by a landmark plaque similar to the national landmarks, others are only recognized in a booklet or local guide. ASCE has only limited information on the local landmarks, but they add to the overall recognition of our civil engineering heritage just as surely as do the national landmarks.

Some obvious NHCELS have never been nominated. At the head of this list is the Empire State Building. However, its recent recognition by ASCE as a Civil Engineering Monument of the Millennium (ASCE 2001) rightfully celebrates its contribution to civil engineering.

The International Historic Civil Engineering Landmark (IHCEL) program is younger, but the criteria are even stricter. To



**Fig. 5.** The Thames Tunnel in London—first subaqueous tunnel in the world—was dedicated as an IHCEL in 1991 to recognize the collective engineering genius of Marc and Isambard Kingdom Brunel. Tunnel and tunneling shield are shown in this drawing by Marc Brunel.



**Fig. 6.** An aerial view of the 1905 Victoria Falls Bridge in Zimbabwe. An ASCE delegation led by then President Stafford Thornton participated in the IHCEL plaque dedication in 1995.

be designated an IHCEL, the project must be among the most significant civil engineering landmarks in the world. The first IHCEL, designated in 1979, was the Iron Bridge in England (the oldest extant metal bridge in the world). What a tremendous role this bridge played in the history of bridge engineering! There are now over 31 IHCELS including such diverse projects as the Forth Railway Bridge in Scotland, the Eiffel Tower in Paris, the Panama Canal, Smeaton's Eddystone Lighthouse, the Zuiderzee Enclosure Dam in the Netherlands, the Ecole National des Ponts et Chaussées in France, and the Victoria Falls Bridge in Zimbabwe.

As with the NHCELS, many of the IHCEL recognition ceremonies have been very well attended. Local color has included Morris dancers in England, a bagpipe band in Scotland, alpine horns in Switzerland, strings of firecrackers in China, and a marimba band in Zimbabwe. In addition to providing a showcase for the rich heritage of civil engineering worldwide, the IHCEL presentations have provided a unique opportunity for ASCE to work closely with engineering societies around the world. Often the U.S. delegation and the local civil engineers have an opportunity to participate in a number of social and professional activities in conjunction with the dedication ceremony (Figs. 4–6).

### History and Heritage Conferences, Sessions, and Congresses

The CHHACE program has to compete with the many other professional and technical committees of ASCE. Initially it was very difficult to arrange for sessions on history and heritage themes, particularly at national conferences. The first session devoted to history at a national convention was in October 1972 at Houston, Texas. The topic, not too surprisingly, was "National Historic Civil Engineering Landmarks" and it was well attended. The next year, when the meeting was held in Washington, D.C., the local Section prepared, and ASCE published, a *Guide to the Civil Engineering Landmarks of the National Capital Area*, but no sessions were authorized. The very important local publications such as this *Guide* will be discussed below.

Probably the biggest year for CHHACE sessions during its early years was in 1976, the American Bicentennial. At the ASCE national meeting in Philadelphia almost every technical division included papers with historic themes and there was a special CHHACE-sponsored history session. Also in that year there were



a number of specialty conferences that held history sessions. For example, the ASCE "Rivers '76" conference at Colorado State University had a session on the history of American waterways.

The first international history session was held at the Boston convention in 1979. A group of Swiss engineers presented a program on the history of long-span bridges emphasizing the contributions of the Swiss-American civil engineer, Othmar Amman. The following year, CHHACE sponsored a session on "Civil Engineering and Historic Preservation." This led to ASCE participation in the National Academy of Sciences' conference on the "Conservation of Historic Stone Buildings and Monuments" in 1981.

CHHACE sponsored sessions at two national conventions in 1982: in the Spring at Las Vegas, "Civil Engineers Protecting Their Heritage," and in the Fall at New Orleans, "Milestones in the Practice of Civil Engineering." Two sessions were also sponsored in 1983. At the Spring convention in Philadelphia there was a session on "Research Needs for the Rehabilitation of Structures" and in the Fall, in Houston a session was titled "Engineering Classics." At this latter session Ralph Peck spoke on his experiences in working with Karl Terzaghi to a standing room only crowd. The San Francisco ASCE meeting in October 1984 was also a very special one since it included a recognition of the 20th anniversary of CHHACE and the 15th anniversary of Historic American Engineering Record (HAER). The session's theme was "Historic Bridges and their Builders."

The history and heritage sessions have always been of high quality and well attended. On the other hand, CHHACE has not been equally successful in setting up stand-alone history and heritage conferences, as ASCE has persistently maintained, perhaps with good reason, that they would not be financially profitable. When ASCE cut back to one convention a year, CHHACE sessions were reduced accordingly.

However, the recent restructuring of ASCE has permitted a resurgence of history sessions. Beginning in 1996 at the ASCE annual convention in Washington, D.C., there was an extremely successful, parallel National Congress on History and Heritage with as many sessions as in 1976. The congress and ASCE proceedings were a joint effort between the national and local history and heritage committees. This model was repeated at the annual convention in Boston in 1998. Proceedings, edited by Jerry Rogers who was also responsible for the organization of the congresses, were published for both congresses (Rogers et al. 1996, Rogers 1998). It appears that this type of event will become a frequent practice at future annual conferences as it did at the 2001 Annual Conference in Houston, which featured international civil engineering speakers, historic bridge rehabilitation sessions, section history sessions, civil engineering history posters, and a myriad of history topics (Rogers et al. 2001).

Commencing in the early 1990s, CHHACE began a series of history and heritage breakfasts at the annual conventions. Although these have included a number of excellent presentations, attendance has been limited by the cost and the competing events.

### Historic Publications

Immediately after CHHACE was authorized, *Civil Engineering* began publishing a series of articles by FitzSimons on early American civil engineers. Although the selected individuals were leaders in the development of early civil engineering, they were largely forgotten by contemporary engineers. From March 1965 through November 1966, these articles were in a "Who am I?"

format. Later the series was widened in scope to include the broader subject of civil engineering history. These continued from 1965 through 1973.

In 1966, ASCE reached an agreement with the Smithsonian Institution to establish a biographical archive of American civil engineering. One of the first results of this was the *Biographical Dictionary of American Civil Engineers* published by ASCE (1972). Under a grant from ASCE, FitzSimons and a graduate student in history wrote 170 biographical sketches of American civil engineers born prior to 1861. These were included in this volume of the dictionary. The material collected was placed in the archive. Fifteen years later, under the direction of Frank Griggs, ASCE published a second volume of this popular reference work with 218 entries born prior to 1900 (Griggs 1991).

CHHACE encouraged ASCE to begin publishing books with a history theme. The first was *The Civil Engineer: His Origins* (ASCE 1970). The biographical dictionary mentioned above was published in 1972, and the following year a joint effort of ASCE, HAER, and Texas Tech University titled *Water for the Southwest* was published (Baker et al. 1973). The next CHHACE publication, a collection of classic papers, titled *American Wooden Bridges* followed in 1976 (ASCE 1976). A similar collection of papers on water supply and wastewater treatment, *Pure and Wholesome*, was published in 1981 (ASCE 1981). These collections were primarily reprints of landmark papers from the ASCE *Transactions* of the previous 120 years. The second volume of the above-mentioned *Biographical Dictionary* was published in 1991. While these publications were reasonably well accepted, ASCE pricing policy limited their circulation, and ASCE has not encouraged subsequent committee publications.

However, ASCE and/or CHHACE have also been involved in a number of other successful publications that include *Engineering Classics* (1978), a collection of articles by the late James Kip Finch that was edited by FitzSimons; *Historic Preservation of Engineering Works* edited by Emory Kemp and Theodore Sande also published in 1978, and the result of a Engineering Foundation conference on preservation; Daniel L. Schodek's book *Landmarks in American Civil Engineering* published by the MIT Press, Cambridge, Massachusetts in 1987 describing with considerable clarity the first 100 NHCEs; *Sons of Martha* (1989), a series of readings collected and compiled by A.J. Fredrich mostly dealing with history and heritage (the title of which is taken from the poem of the same name by Rudyard Kipling in which he refers to engineers and builders as the biblical sons of Martha); *Landmark American Bridges* by Eric DeLony (1993); and *Historic American Covered Bridges* (1997) by Brian J. McKee copublished with Oxford University Press. (It might be noted in passing that Kipling in poem after poem pays tribute to the toil of civil engineers and builders.)

Cooperative agreements with the British Institution of Civil Engineers have led to an exchange of titles and marketing between ASCE and ICE Thomas Telford, Ltd. This has resulted in a number of outstanding British references on civil engineering history and heritage becoming readily available to American civil engineers. This includes an excellent series of regional books on British civil engineering history titled *Civil Engineering Heritage*, and prepared by the ICE Panel for Historical Engineering Works (PHEW).

The American Society of Mechanical Engineers published a book on National Historic Mechanical Engineering Landmarks in 1979. Although not a civil engineering publication, it is worth mentioning to indicate the broad influence of CHHACE on engineering history.



## ASCE Guide to History and Heritage Programs and Local Publications

Possibly CHHACE's most important and influential publication is the *ASCE Guide to History and Heritage Programs* (ASCE 1998). This booklet was originally intended to aid local sections in developing and operating their own programs. It has also had a much wider use by other historical groups in the United States and by many foreign engineers and societies. First distributed in 1968 as a pamphlet, it is now in its sixth major edition. The current 56-page booklet continues to serve both as a "how to do it" and a reference source on civil engineering history. As a direct result of this guide, many dozens of our local ASCE sections have formed committees similar to CHHACE.

With the encouragement of CHHACE, the local units have embarked successfully on their own history and heritage activities. These include designating local landmarks, publishing local landmark guides, developing walking tours of civil engineering landmarks in urban areas, publishing of local engineering histories, providing speakers on engineering history, and a variety of other programs. The first such local publication was the aforementioned *Guide to the Civil Engineering Landmarks of the National Capital* produced in 1973. For the American Bicentennial in 1976, the Los Angeles, Sacramento, and San Francisco sections of ASCE each published high-quality booklets on the civil engineering landmarks in their respective regions of California. The Florida section published a similar high-standard bicentennial booklet, as did many other sections. Some of these booklets remain in circulation today. Many more local publications in a similar vein have followed. Perhaps the largest single effort was a publication by the Texas section titled *The First Eighty Years, a History of the Texas Section* (Wagner and Santry 1993).

## Recognition of Civil Engineers

The nomination form requests information on the engineer(s) involved in any historic project to be nominated as a NHCEL. This provides the opportunity for the landmark recognition ceremonies to properly emphasize the civil engineers that were involved in the project and their specific roles that lead to the completion of the successful project. On occasion, the names of the engineers have appeared on the plaque.

In addition to the recognition associated with the landmarks, programs have been established to specifically provide recognition and historic documentation on famous civil engineers themselves. The two volumes of the *Biographical Dictionary of American Civil Engineers* discussed previously provide a very real example. Both volumes have proven to be very popular and useful reference sources. The "Who am I?" articles provide another. A third volume of the series, an international biographical dictionary, is currently under development.

The committee also set up an oral history program. Excellent examples were provided originally by FitzSimons, and a kit was prepared to give local ASCE sections instruction in the techniques of oral history. All tapes and manuscripts are copied and placed in the Smithsonian Institution. This ASCE program has been emulated by other groups such as the American Public Works Historical Society, which has a significant oral history program. Because of the press of other activities, the ASCE oral history program has not flourished and, in fact, has become dormant of late.

In 1966, to reward ongoing efforts, CHHACE member Trent R. Dames endowed an ASCE Civil Engineering History and Heri-

tage Award "to recognize those persons who through their writing, research or other efforts have made outstanding contributions toward a better knowledge of, or appreciation for, the history and heritage of civil engineering" (ASCE Official Register 2002). This award is not just for Americans or even confined to civil engineers. To date, two British engineers, Stanley B. Hamilton and John James, one Canadian engineer, Robert Leggett, and two non-engineers including, David McCullough, author of *The Great Bridge: The Epic Story of the Building of the Brooklyn Bridge and Path Between the Seas: the Creation of the Panama Canal, 1870-1914*, have been honored by this award. (More recently the same Trent Dames endowed a Fund for Civil Engineering History at the Huntington Library in San Marino, California.)

A few years ago the ASCE Board of Direction approved an American Civil Engineering Hall of Fame. This is intended to recognize pioneering civil engineers that have been deceased for at least 50 years. The Hall of Fame has not yet been put into effect, but promises to bring deserved attention to our forebears, the civil engineers that have led the way in the United States. The Hall of Fame was intended to complement existing society programs such as the Honorary Membership grade that recognizes the achievements of living civil engineers.

## Cooperative Efforts

The committee's longest, and arguably most successful cooperative effort is with the National Park Service (under the U.S. Department of the Interior). Shortly after the inception of CHHACE, talks were begun with the National Park Service and the Library of Congress to establish a national program to document engineering structures and sites. After a few years of effort, a formal agreement was reached and in 1968, Congress approved funding for the Historic American Engineering Record (HAER). This was despite one Senator's incredulity that "engineers could be interested in history."

HAER was modeled after the similar Historic American Buildings Survey (HABS), which was established during the U.S. depression in the 1930s to help provide employment for architects. Today, through the work of HAER, which has closely followed the traditions and standards of HABS, the collections of the Library of Congress includes thousands of drawings, photographs, and documents dealing with all facets of civil engineering structures. Recently, the Shell Oil Foundation donated \$500,000 to the Library of Congress to scan photographs and drawings for a new National Digital Library. HAER materials are the first to be scanned and should be available on the Internet.

A related effort of HAER, which also touches on preservation, involves creating an inventory of historic bridges in conjunction with federal and state departments of transportation. Although not without controversy, this program has helped to provide a basis to determine which bridges should be rehabilitated for their historic significance, which should be bypassed and preserved intact, and which should be replaced (but with possible HAER documentation). HAER has also consulted with CHHACE to develop engineering world heritage site nominations within the United States. The first site to be proposed is likely to be the Brooklyn Bridge; however, this project is on hold for political reasons.

By their very nature, the IHCEL recognition ceremonies are always cooperative efforts between the respective engineering societies. Within the United States, a number of NHCEL ceremonies have provided cooperative opportunities because of the complex nature of the landmark. For example, mechanical, electrical,



and civil engineers all participated through their professional societies in the ceremonies at the first (in the United States) commercial hydroelectric plant in Appleton, Wisconsin.

CHHACE through ASCE has provided seed money and/or technical assistance for publications, television productions, movies, and other interesting ventures as they come along. One request was for financial help to aid in the cataloging of the John A. Roebling papers. Roebling was of course the engineer of the Brooklyn Bridge. Another excellent example is the television production of *The Great Bridge* (Brooklyn Bridge) by the then relatively unknown producer, Ken Burns. Budget limitations certainly impact CHHACE's ability to accomplish all of its goals and potential activities. For some time, it has not been possible to support these efforts, no matter how worthy.

In the early 1990s CHHACE, the History Committee of the American Society of Mechanical Engineers (ASME), and the Public Works Historic Society (of the American Public Works Association) set up a committee to determine whether society history committees could jointly accomplish more than was apparently possible by the individual societies acting alone. If some success could be demonstrated, it was felt that other societies would be willing to join the effort. After some initial success, and one national workshop in Washington, D.C., the effort floundered, partly because of the lack of strong ASCE backing.

However, the effort was restarted in 1998 with a Consortium Engineering History Workshop involving CHHACE, ASME, and the National Park Service. This has evolved into an annual summer event with the different engineering societies (IEEE, ASME, etc.) organizing the one-day workshops. Attendance has ranged from 30 to 50 over the past 3 years. It remains to see if this will prove more successful than the first attempt.

Finally, CHHACE through its members and ex-members, has frequently responded to all types of queries from the press, television stations, other engineers, other societies, and the general public. Topics have ranged from the Golden Gate Bridge, to IHCELS, to the Seven Modern Engineering Wonders of the World.

### Historic Preservation

CHHACE has not been specifically involved in the preservation of engineering works on a regular basis. However, it encourages involvement of engineers in preservation projects, and many civil engineers, committee members or otherwise, have been so involved. Committee involvement has usually been on an ad hoc basis, and has usually taken the form of responses to requests, e.g. how to preserve an old bridge, or should an old bridge be preserved. However, the landmark program has surely had some influence on the preservation of engineering structures. The best and biggest example of CHHACE involvement is perhaps the Statue of Liberty in New York Harbour. When rehabilitation became essential, ASCE, with the assistance of CHHACE, raised \$250,000 in the early 1980s to permanently record the structural details of the Statue of Liberty.

The committee position has always been to approach preservation on a realistic basis. While preservation is strongly encouraged and is frequently the desired end result, it has always been felt appropriate to include the economic benefits of rehabilitation and/or preservation when considering the future of engineering structures. Adaptive reuse is also strongly encouraged when preservation intact is not feasible. If actual preservation is not possible, then documentation (e.g., by HAER) is encouraged, if appropriate.

### Tours

On a number of occasions, particularly under the leadership of the first writer, CHHACE has cosponsored tours to the Netherlands and Great Britain in conjunction with IHCEL presentations. The tours have ranged in size from a party as small as approximately 16 for a visit in 1983 to the Netherlands to recognize ASCE's second IHCEL, the Zuiderzee Enclosure Dam, up to about 48 participants in 1985 on a visit to England and Scotland to recognize the Forth Bridge as an IHCEL. The tours have generally been 12–14 days in length, and covered a wide range of historic and modern civil engineering works. Participation by the local engineering societies, particularly individual members of the ICE Panel for Historical Engineering Works (PHEW) in Great Britain who have joined the group on a day-by-day basis, made the tours truly memorable experiences.

As presidential international visits became a more formal process, frequently with relatively large delegations, they replaced the CHHACE tours. However, committee members have continued to provide support to ASCE on presidential visits both across the United States and around the world. This has occurred most often when historic landmark presentations have been involved; in which case CHHACE members have assisted with background information and material for presidential addresses.

### Slide Shows and Videos

ASCE has produced numerous slide shows and several have had an historical theme. The first produced by the History and Heritage Committee was "Five Thousand Years of Civil Engineering" (1970) based upon a book by Captain Charles Merdinger, USN, who was a member of the first committee. In 1974 after ASCE recognized its first 100 NHCELS, a popular slide show was developed emphasizing the national landmark program. Slide shows have always been well received at local section meetings and public presentations by ASCE members; and many individuals have personal collections based on the landmarks and other historic projects. In 1976 for the American Bicentennial, ASCE, in cooperation with other engineering societies, produced a slide set which illustrated the history of American engineering by using slides of commemorative U.S. postage stamps. Another slide show was "Agents of Progress" with a similar theme, but using Currier and Ives prints.

Videos, CDs, PowerPoint presentations, and use of the Internet, have now become the more popular mediums for presentations of this type. A recently produced video is discussed under "Other Activities." ASCE, with some CHHACE input, has developed a history perspective on it Web site. There is an enormous opportunity for future projects in these areas.

### Other Activities

In 1994 CHHACE organized a board of consultants with worldwide representation to denominate the seven modern civil engineering wonders of the world. The globally circulated magazine *Popular Mechanics* included the resulting consensus as the featured article in its December 1995 issue (Pope 1995). The selected seven modern civil engineering wonders are the Channel Tunnel between England and France, the CN Tower in Toronto, the Empire State Building in New York City, the Golden Gate Bridge in San Francisco, Itaipu Dam on the Brazil/Paraguay bor-



der, The Netherlands North Sea Protection Works, and the Panama Canal. These projects are now included on ASCE's Web site (see [www.asce.org](http://www.asce.org)) and queries are still received concerning these projects.

At the request of CHHACE, ASCE recently approved a policy statement on history and heritage. This puts the Society officially on record as recognizing the overall importance of civil engineering history and heritage activities. Among other intents, the policy encourages civil engineers to be individually involved in history and heritage activities, and urges civil engineering faculty and university civil engineering departments to include a historic presence in their curricula.

Another recent activity is the creation of "History Modules," an effort lead by former committee member, Frank Griggs. The idea is to provide, at modest cost, an off-the-shelf product pertaining to the history of civil engineering that busy engineering professors, or others, can make use of without in-depth research on their own part. Initially, a total of four articles were written on various facets of civil engineering history of which three were published by ASCE and one by the Boston Society of Civil Engineers Section. The first three were on the flexural formula, the development of the truss, and the Manning equation and the final one was on the history of geotechnical engineering. It was originally proposed that these topics could be converted into short slide shows, but it may now become necessary to create the somewhat more expensive videos. To lead off, a 40 min video on the history of the truss bridge was produced by Frank Griggs, and distributed by ASCE. It is intended that more would follow, but financial and time constraints have slowed progress on the project.

From time to time, the committee has also been asked to cooperate with other societies, such as the Society for the History of Technology (SHOT) and the Society for Industrial Archaeology (SIA). This has involved joint sponsorship of meetings, help with meeting publicity, and other projects. Some of the committee members have also been active or have had leadership positions in these other organizations.

### Closing Remarks

The participation of engineers in history and heritage activities has come a long way since the ASCE Committee on the History and Heritage of American Civil Engineering was established in 1964. There are many similar programs in countries around the world. The CHHACE feels that it has played an important role in the progress that has been made. In the words of the late FitzSimons, the programs "seek to educate both our own profession and the public at large, in all facets of the history of Civil Engineering from the monumental to the mundane. In this way, we will all come to better understand the role engineers have had,

and continue to have in transforming society. Our profession, even before it was formally recognized as such, has always responded to society's changing needs and demands and has therefore had an enormous impact on our economy, the appearance of our landscape, and the health of our people" (FitzSimons 1996).

This has become even more true in these troubled times. Many challenges remain. As population increases, and there are more and more demands for new construction, both in the developed and developing countries, preservation of the engineering heritage continues to demand constant vigilance and an active voice from knowledgeable engineers and related professionals. As to the proper recognition of the contributions of civil engineers, we have hardly scratched the surface.

### Acknowledgments

This paper is the outgrowth of some 42 years of collective experience working with the ASCE History and Heritage Program. Some parts of the paper have been presented previously by one or the other of the two writers. The landmark photographs are all taken by the first writer.

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