



NEWSLETTER

As we enter our fourth full year of operation I wish all our members a happy and successful New Year. 2010 was a good year for CHSA – we survived financially with a small surplus, held a very successful 2nd Biennial meeting at the University of Pennsylvania and increased the ranks of membership by 45%.

Many of those new members were delighted to find that we existed and I continue to believe that we can expand CHSA considerably once we are better known to be a going concern. So this year we will make a better effort to spread the word and become more visible. You can all help in the endeavor in two ways:

- First, by renewing your membership for 2011.
- Second, by helping us recruit new members.

Right now the first is most important, so go to the website (www.constructionhistorysociety.org) and renew and submit your dues via Paypal – could not be simpler! And thanks to those of you who have already signed up for 2011.

We have received apologies from the main Society in England who have been experiencing problems in getting the 2010 Construction History Journal printed. As soon as we receive this it will be mailed to all 2010 members expeditiously. There may be the possibility of adding a special American issue of Construction History in the future. If so, more news will follow.

Finally, note that the Call for Abstracts for the 2012 Paris Congress has been issued a copy appended to this Newsletter on page 7.

Brian Bowen, Chairman
 College of Architecture, Georgia Tech,
 Atlanta GA 404-378-3779
brian.bowen@coa.gatech.edu

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Hoover (Boulder) Dam, 1942, Ansel Adams

THANKS TO OUR INSTITUTIONAL AND CORPORATE MEMBERS

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| * Associated General Contractors of America | * Old Structures Engineering |
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HOOVER DAM 75TH ANNIVERSARY

During October 20-22, the American Society of Civil Engineers History and Heritage Committee coordinated the Hoover Dam 75th Anniversary History Symposium, Tours and Reception for 150 attendees held in Las Vegas, Nevada. ASCE has also published Proceedings (available at www.asce.org) (Publications). Symposium Chair and Editor Richard L. Wiltshire was assisted by David R. Gilbert and Jerry R. Rogers.

Dr. Donald C. Jackson provided the keynote address on "Politics and Dam Safety: The St. Francis Dam Disaster and the Boulder Canyon Project Act," with a slide summary of U.S. Presidents and dams, the proposed Boulder Canyon Project Act, its California boosters (Congressman Phil Swing and Senator Hiram Johnson) and how the St. Francis Dam failure in southern California worried the Boulder Canyon Dam supporters.

Dr. Brit A. Storey with "Building Blocks of Hoover Dam: Technology, Politics, Economics" stated that the Bureau of Reclamation had built the highest dams in the world up to and after Hoover (Boulder) Dam. He noted that the 1922 Colorado Compact was ratified in 1928 and the 1905-07 Colorado River floods through the agricultural Imperial Valley were utilized to promote the need for Hoover Dam.

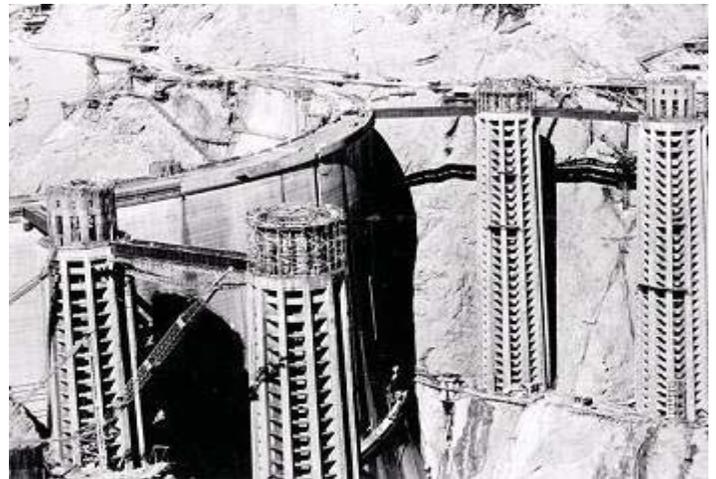
In his paper, "Reclamation, the Army and Hoover Dam during World War II," Dr. Jim Bailey stated that the Army created Camp Sibert near Hoover Dam but placed marginal soldiers there. A high machine gun bunker was built and a camouflage of Hoover Dam was proposed.

Timothy P. Dolen, "Advances in Mass Concrete Technology- The Hoover Dam Studies," said Hoover Dam concrete studies were unprecedented in scope, complexity and difficulty, with verifications of mixture proportions useful today as were the use of cooling pipes in the dam's mass concrete. Westin Joy presented "Long-Term Properties of Hoover Dam Mass Concrete." A 1995 dam concrete coring and laboratory testing program determined that Hoover Dam's concrete is of exceptional quality and can withstand even higher loads.

In "75 Years of Hydraulic Investigations- Hoover Dam," Phillip H. Burgi noted that Hoover Dam design technology involved innovative hydraulic studies actually completed during design and dam construction. The Hoover Dam was filled by 1941 due to three months of heavy river-basin run-

off that caused an Arizona spillway tunnel flow cavitation problem. In 1983 heavy river-basin runoff led to the side-channel spillways being used and additional Nevada spillway tunnel flow cavitation and repairs.

William R. Fielder showed slides of "Performance of Spillway Structures Using Hoover Dam Spillways as a Benchmark." There were unprecedented spillway flows around 10,000 cubic feet per second each in 1983, causing damage and requiring spillway tunnel design changes (aeration ramps and offsets).



Hoover Dam under Construction.

Dr. J. David Rogers covered "Engineering Firsts at Hoover Dam." He said 26 faults caused careful selection of the Hoover Dam site in Black Canyon. General Superintendent Frank T. Crowe's crews built catwalk wire bridges for workers access, expanded and enhanced cableways, drilling jumbos, cofferdams 100 feet high, embedded instrumentation, chilled water pipes to cool the mass concrete, and highly automated high-level (and low-level) concrete mixing plants. With his extensive construction experience on Reclamation and other dams, Crowe was given a free reign to manage the Hoover Dam project for Six Companies, Inc.

Adam Toothman, "Seismic Evaluation of Hoover Dam Powerplant," computed the powerplant roof dead load at 405 pounds per square foot that was modeled with 2D and 3D structural models. He said the next calculation needed is to perform a non-linear structural analysis.

In a re-creation of the signature white hat and white shirt (without his coat taken off at noon each day) at the job site, Professor Phillip Dunn, Jr. presented "Frank Crowe: General Superintendent of the Six Companies, Inc. Hoover Dam Project." Frank T. Crowe was a 1905 University of Maine civil engineering graduate who worked with the U.S. Reclamation Service during the summer of 1904 and for many years after graduation, working on and supervising construction of Reclamation dams. Crowe left in 1924 to perform dam construction with Morrison-Knudson in Boise before becoming General Superintendent for Six Companies, Inc. - with his corporate liaison Charlie Shea. Crowe's nickname was "Hurry-Up" and his crews completed the dam under budget and 24 months early, earning Crowe a significant bonus.

Alfred Willis showed slides of the sculptural program at Hoover Dam. Oscar Hansen sculpted the 30 foot tall "Wings of the Republic", the elevator tower sculpture, and the universal clock at Hoover Dam.

In his presentation "Megaproject Success: Hoover Dam Construction and Pre-construction Management Ingenuity," Dr. John Walewski showed 1998-2000 U.S. Department of Energy criteria for success on \$400 million + megaprojects. The successful Hoover Dam project was completed under budget and 24 months ahead of schedule.

Charles R. Parrish, "Construction Management of a Mega Project," stated that General Superintendent Crowe had four successful management practices:

- He urged workers to fully understand their jobs before starting.
- He scheduled work simultaneously in as many locations as possible.
- He would ask for and listen to input regarding construction improvements with enthusiasm (new compressed air equipment and the drilling and trimming jumbos are examples).
- He would make adjustments with new improvements quickly (the Colorado River cofferdam construction by dumping rock from the edge of a wooden bridge is an example).

Tamiko Powell-Melhado in "The Construction of Hoover Dam--- A Case Study from a Builder's Perspective" indicated Hoover Dam was a skillful coordination of labor, materials, machines and scheduling in construction as were the high-

and low-level concrete mixing plants.

In a creative, illustrated, symposium- anchor presentation, Raymond Paul Giroux used an animated presentation with actual photographs to diagram the river diversion work sequence, the concrete arch gravity dam, and the powerplant construction components. Giroux summarized the many innovative sides of General Superintendent Frank T. Crowe and the Hoover Dam Project with an educational presentation.

Co-chairs and co-editors David R. Gilbert and Jerry R. Rogers closed the symposium with thanks to all the authors and speakers, Chair and Lead Editor Richard L. Wiltshire, ASCE's Carol Reese, ASCE's History and Heritage Committee and EWRI-HHC, and the Bechtel Corporation for sponsoring the symposium.



Hoover Dam Today

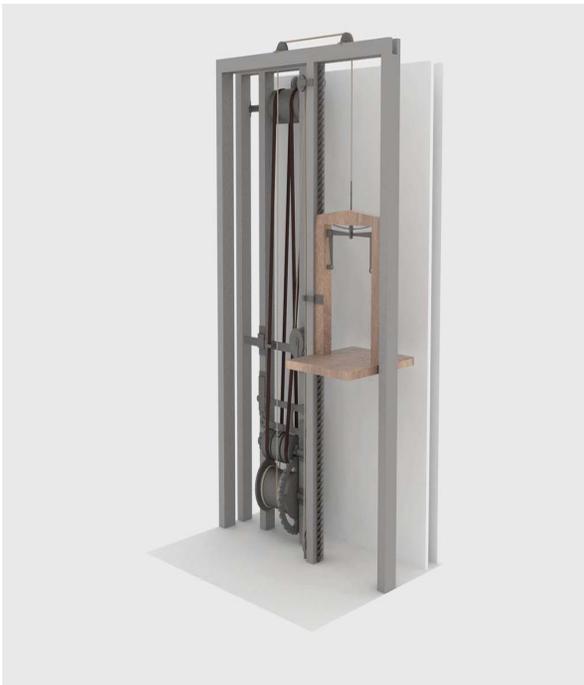
by :

*Jerry R. Rogers (rogers.jerry@att.net),
Richard L. Wiltshire (rlwiltshire.pe@comcast.net) and
David R. Gilbert (dagilbt@olympen.com)*

CHSA IN THE MIDWEST – IOWA AND MINNESOTA

The Construction History Society of America opened doors to the Midwest this past Fall with two presentations to state chapters of the American Institute of Architects. Past CHSA meetings have focused on the east coast, but the heartland—particularly Chicago and Minneapolis—are important centers for the history of construction materials and techniques, and we have been keen to establish connections in the region in the lead-up to the Fifth International Congress on Construction History in Chicago, tentatively scheduled for May, 2015.

Meghan Elliott, an engineer specializing in historic concrete structures with Meyer Borgman Johnson, Minneapolis; Lee Gray, Associate Dean of the College of Arts & Architecture at UNC Charlotte; and Thomas Leslie, AIA, Associate Professor at Iowa State University, assembled the sessions as introductions to Construction History for interested practitioners. While much traditional architectural history focuses on styles, movements, and biographies, these sessions argued that the links between history and practice made CH a far more relevant discipline to the current profession, both for technical and educational purposes.



Otis Elevator Patent Application - Visualization

Elliott presented an overview of the work of C. A. P. Turner, the Minneapolis engineer who refined and invented important reinforced concrete techniques in that city around the turn of the century. Her work in analyzing, restoring, and rehabilitating concrete structures demonstrates how an awareness of the technical, scientific, and even cultural climates in which historic construction took place can benefit contemporary practice by providing a context for new work.

Gray's research on historic elevator design has led to quite compelling digital reconstructions, demonstrating that patient research can provide us with far more detailed understandings of historic technology and the buildings in which this was applied. He argued convincingly for these reconstructions as the only opportunity we have to fully understand the three-dimensional nature of building transport systems of past generations—and his lush illustrations and videos of these in action proved popular with attendees.

Leslie's work on Chicago skyscrapers showed how practice can, in turn, inform historiography. By focusing on these buildings' conception "from the drawing board and the job site" instead of the lectern, he argued for a greater attention to practice from historians and, in turn, greater interest in history from practitioners.

The sessions were held at the AIA Iowa and AIA Minnesota Annual Conventions, and drew impressive crowds of 100 and 200 audience members, respectively. Such interest bodes well for the future CHSA biennial meeting in Minneapolis in 2014, where attendees will undoubtedly get to see some of North America's most important historic concrete structures first-hand.



*Tom Leslie
Iowa State University
Ames, IA
tleslie@iastate.edu*

THE CUMBERLAND ROAD/ THE NATIONAL ROAD 1811

2011 marks the 200th anniversary of the start of work on the first 140 mile section of this road from Cumberland, MD to Wheeling, WV – the first in the country to be partially federally funded by land sales. It was authorized in 1803 by an Act of Congress. The driving force behind the project was Senator Henry Clay. The road reached Wheeling in 1818 and work continued in a desultory manner to 1841 when it arrived at Vandalia, IL. The coming of the railroads in the 1830's led to the abandonment of the project at this point, short of its original target of St. Louis.

There is a splendid website dedicated to the history of the road at www.cumberlandroadproject.com Included there is a copy of an 1815 contract for construction of a division of the road approximately two miles long at a rate of \$20.00 per perch (16.5 ft). Go to

<http://www.cumberlandroadproject.com/general/road-construction-agreement1.php> for more details.



COMPLETION OF THE PACIFIC TELEGRAPH 1861

This year is the 150th anniversary of the completion of the Pacific Telegraph from St Joseph, MI to Sacramento, CA. This was authorized by the Pacific Telegraph Act of 1860 and the contract was awarded to Western Union. They formed a consortium with California interests and construction began from both ends, meeting in October 1861 at Salt Lake City, UT. Within two years of the completion of the line, the Pony Express which had been the main overland connection between East and West, went out of business.



THE OVERLAND PONY EXPRESS.—(Illustration at Salt Lake City, from a Picture by George H. Brown.)

BOOK REVIEW

GUASTAVINO VAULTING: THE ART OF STRUCTURAL TILE

*JOHN OCHSENDORF (AUTHOR),
MICHAEL FREEMAN (PHOTOGRAPHER)*

John is a member of CHSA and one of its founding members. His long-awaited book has now been published by Princeton Architectural Press and we will have a full review of it in our next newsletter. The Guastavino family was active in the US from the 1880's for seventy years and their unique Catalan vaulting was incorporated into many famous buildings around the country.

MEMBERS ANNOUNCEMENTS

THIS IS A NEW SECTION OF THE NEWSLETTER. IF YOU WISH TO ADVISE MEMBERS ON AN ACTIVITY, EVENT, PROMOTION, JOB CHANGE . . . WHATEVER, PLEASE LET US KNOW.

Andy deGruchy, an historic preservation mason, a CHSA member and the owner of LimeWorks.us, will be the Keynote Speaker at the 2nd Annual Lancaster Historic Home Show. The event is being held June 10, 11 & 12 at the Lancaster County Convention Center, PA. For more information see:
www.lancasterhistorichomeshow.com

Andy will be accompanied at the 2011 Lancaster Home Show by his friend Ian Cramb, an 83-year-old Scottish stone mason who has practiced stone masonry for over 60 years and who is the author of "The Art of the Stonemason" (ISBN 0-911469-27-3). Ian will be releasing his second book, "The Gospel According to Ian Cramb", at the event. There will be a book signing on June 11, 2011.

Grace Palladino, CHSA member, author of *Skilled Hands, Strong Spirits* and a well known construction labor historian recommends visiting the site below, curated by a friend of hers, Janet Wells Greene:

<http://www.laborarts.org/exhibits/buildingtrades/>

FUTURE CHSA EVENTS

20¹¹ October: One day event in New York, Columbia University, New York

20¹² July 3 - 7: 4th International Construction History Congress, Paris

20¹² Fall: 3rd US Biennial Meeting, MIT, Boston

20¹³ : Warm-up event in Chicago

20¹⁴ : 4th US Biennial Meeting, Minneapolis

20¹⁵: 5th International Construction History Congress, Chicago

Pamela Fisher, Vice President of Prosafe Solutions, Villa Rica, GA is working on a paper on the History of Construction Safety. She is looking for any historical materials or references.

If you have suggestions please e-mail her at:
pam@prosafesolutions.com

4TH INTERNATIONAL CONSTRUCTION HISTORY CONGRESS, PARIS



As previously noted this will be held from July 3rd to 7th. The Congress website is now up at www.icch-paris2012.fr which includes a brief program outline and the Call for Abstracts, which appears below for your convenience. A listing of the topics and subjects which papers should recognize will be found at the website. **Abstracts of 400 words are due April 15th 2011** and we would encourage you to submit so that we may have a strong American presence at this event.

We invite researchers from all disciplines concerned with the history of construction— whether they be historians or experts, experienced or young researchers—to submit 20- minute paper abstracts for the 4th International Congress on Construction History. The proposal should include:

- a title followed by the name(s) of the author(s) and institutional affiliation(s);
- an abstract of 400 words maximum that must contain mention of the sources consulted;
- six key words (selected, if possible, from the list of topics and subjects);
- a short curriculum vitae of one page maximum indicating contact information, status, laboratory affiliation if relevant, as well as a list of your most important or most recent publications.

Prospective speakers should submit proposals to us by e-mail (tricia.meehan@parismalaquais.archi.fr) no later than **15 April 2011**. Two members of the Scientific Committee will evaluate each proposal. The results of these deliberations will be communicated before **30 June 2011**. This will give authors of accepted proposals six months to complete their papers—following the publication format guidelines that will appear on the web-site under the header “Instructions for Papers”—to be sent no later than **31 December 2011**. The paper will then be evaluated by the Scientific Committee, which has the right to accept the text as it is, request modifications or refuse the text submitted.

After approval by the Scientific Committee, the papers will be published in both paper and electronic versions. In the electronic publication, authors who would like to may, in addition to the English version of their article, also publish a version in the language of their choice.

We have drawn up a thematic list of topics and subjects attempting to cover the various aspects of the history of construction. Undoubtedly, the submitted and accepted abstracts will challenge this scheme, thereby revealing the state of research in construction history in 2012. They will intersect with the suggested thematics, giving rise to new and stimulating debates. One of the interests of the Congress is just this: to discover the richness of research today in construction history.

However, as you are aware, the history of construction should not be confused with the history of architecture, of urbanism or of heritage, even if it maintains privileged and sometimes direct links with these disciplines. Any proposition must therefore make sure to respect the distinctions that constitute construction history. Furthermore, we would like to draw your attention (and especially that of non English speaking researchers) to the fact that the texts must be written in an impeccable English in order to not detract from the quality of the publication that will result from this congress.

WHO WE ARE

The Society is dedicated to the study of the history and evolution of all aspects of the built environment—its creation, maintenance and management. It is a forum for scholars and professionals in the field to share, meet and exchange ideas and research.

Membership is open to a wide range of construction related disciplines involved in the planning, development, design and construction of buildings and engineering infrastructure, in addition to those concerned with their operation and preservation.

Members share a passion for examining how our existing structures were planned, designed and built, with the purpose of using this knowledge to better preserve what we have and to guide us in determining future directions.

The US branch of the Construction History Society is a distinct entity catering to the historical studies and interests of its members here in America. Membership in the US branch includes full benefits in CHS at large, including receipt of the Society's Journal and newsletter and links to scholars in the field worldwide.

CORRESPONDING SOCIETIES

Public Works Historical Society, www.pwhs.net

Historical Construction Equipment Association, www.hcea.net

MANAGEMENT COMMITTEE

Brian Bowen (Chairman), GA Tech, Atlanta, GA

Anat Geva (Vice Chairman), Texas A&M University, College Station, TX

Tom Leslie (Secretary), Iowa State University, Ames, IA

Meghan Elliott, Meyer Borgman Johnson, Minneapolis, MN

Mohammad Gharipour, Morgan State University, Baltimore, MD

Lee Gray, University of North Carolina, Charlotte, NC

Jeff Beard, ACEC, Washington, DC

Donald Friedman, Old Structures Engineering, New York, NY

Michael Ramage, Cambridge University, Cambridge, UK

Linda Ruth, Auburn University, Auburn, AL

Sara Wermiel, Independent Scholar/Historic Preservation Consultant, Boston, MA

COMMITTEE ADVISORS

Frank Matero, University of Pennsylvania, Philadelphia, PA

John Ochsendorf, MIT, Cambridge, MA

THIS IS YOUR NEWSLETTER AND THE ONLY VEHICLE WE HAVE TO KEEP IN TOUCH WITH ONE ANOTHER.
SO PLEASE USE THIS TO LET US KNOW:

- * your interests in construction history, your current research, précis of recent lectures, etc.
- * books, texts & articles that your fellow readers should know about
- * names and e-addresses of colleagues and friends that we can include on our mailing list
- * if you are willing to write a brief article for us.

Construction History Society of America
Post Office Box 93461
Atlanta, GA 30377-0461
Email: chs@coa.gatech.edu
www.constructionhistorysociety.org