



# NEWSLETTER

First, our thanks to all of you who have renewed your 2014 memberships to date – about 70% of the total which we have come to learn is probably as good as it gets. And thanks also go to all the new members who have signed up so far this year.

Our UK affiliate has been true to their word in getting the Construction History Journal issued on a regular schedule and increasing publication to two per year. The first volume of the 2014 issue has been received and mailed to all members. Remember that the Journal editors are always anxious to receive papers for publication and we need to ensure that there is an American presence on those pages.

Preparations for our fourth Biennial Meeting in Minneapolis in November are in hand. There is a fuller report inside with information on the program, accommodations and registration.

Over 450 abstracts were received in response to the call that went out in April for the 5th International Congress in Chicago and these are now being reviewed by the scientific committee. Again there is more information on preparations underway inside and at the Congress website [www.5icch.org](http://www.5icch.org).

Being summertime this is a slim newsletter. This is a good place to mention that we need short (up to 600 word) articles for inclusion in future issues. Please consider submitting.

Brian Bowen  
Chair, Management Committee

Don Friedman  
Newsletter Editor

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*Seventh Street Bridge Improvement Arches  
1884, St Paul, MN*

## THANKS TO OUR INSTITUTIONAL AND CORPORATE MEMBERS

- \* Altusworks, Inc.
- \* Associated General Contractors of America
- \* Canadian Centre for Architecture
- \* Cappeto Conservation LLC
- \* Consigli Construction Co.
- \* ConstellationCenter
- \* Construction Management Association of America
- \* Georgia Institute of Technology
- \* Gilbane, Inc.
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- \* National Center for Preservation Technology and Training
- \* Oak Grove Restoration Company
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- \* Texas A & M University
- \* The Pepper Companies
- \* The Whiting Turner Contracting Company
- \* University of Oklahoma
- \* Vertical Access LLC

## THE ST. FRANCIS DAM COLLAPSE, CA, 1928

The centenary last year of the completion of the first stage of the Los Angeles Aqueduct brings to mind that this was only a beginning of the challenges and controversies surrounding the need for reliable water sources for the city and its environs.

William Mulholland, the self-taught engineer and superintendent of the Los Angeles Water Company, was responsible for the design and construction of the initial stage of the aqueduct and continued to expand and support the water supply system for the city up to his resignation in 1928. Initial concerns were the threat of sabotage from the farmers of Owens Valley whose water in their view had been stolen, the potential for seismic damage (the aqueduct passed over the San Andreas fault) and fears arising from the frequent droughts to which California was susceptible. One of Mulholland's responses was to build multiple reservoirs to provide back-up water supply in case of problems, especially drought.

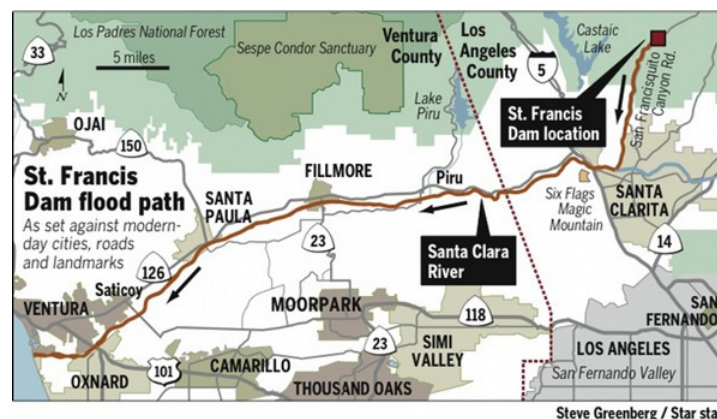
The largest of these was in the San Francisquito Canyon, the St. Francis Dam. This was Mulholland's 19th and final dam he had designed and built. It was constructed between 1924-1926 and cost approximately \$1,250,000. It was designed as a concrete arched gravity dam meaning its stability came from the dam's dead weight. It could hold more than 12 billion gallons of water, a year's supply for the entire city about 50

miles south. Many of the people who worked on the dam lived in the surrounding towns. Cracks appeared early in the dam, which caused concern to those in the surrounding valley. Locals used to joke that they would see you later "if the dam don't break"

### Actual Collapse

A specific leak, seen on the morning of March 12, 1928, worried the dam keeper so much, that Mulholland was called to come investigate. After his inspection, he deemed the leak was safe and returned to Los Angeles. Not even 12 hours after Mulholland left, at approximately midnight, power lines snapped as water came rushing towards surrounding communities. It took only 70 minutes for the dam to empty the 12 billion gallons of water it contained. This created a 125 foot high wave that traveled down the San Francisquito Canyon.

The resulting damage from the collapse destroyed over 1,200 homes, leaving thousands of people homeless. It caused 54 miles of wreckage, ending near Ventura. A map of the path of the wreckage is shown below. The map features present day cities and landmarks. Bodies washed up on beaches as far as San Diego for the next few weeks, which is more than 100 miles down the coastline. No one knows the total amount of lives lost because of the amount of unidentified immigrant workers, but it is estimated that over 500 people died.



## Why the dam collapsed

A report on what may have caused this disaster attributed the dam's failure to three things: the instability of the material on which the dam was built, the failure to compensate for the additional height added during construction, and the design and construction being overseen by only one person. The eastern part of the dam was built on ancient landslide material, which would have been impossible to detect at the time. The landslide involved 1.5 million tons of schist moving against the dam's 271 thousand tons of concrete. Also, Mullholland had decided to raise the dam by 10 feet twice during construction without increasing the base width. This raised the height by 11%. Although there were errors with the design, these were not credited as the cause of the collapse.

Mullholland felt so much guilt after the incident that he even uttered the words "I envy the dead." He accepted all of the blame, stating that it was his error in

judgment. However by the time the hearing was over, Mullholland was cleared of guilt and it was stated that "the construction and operation of a great dam should never be left to the sole judgment of one man, no matter how eminent." Nonetheless Mullholland resigned that year, went into isolation and died in 1935.

The St. Francis dam disaster prompted the federal government to inspect the safety of all dams, revealing that one-third of them needed changes or repairs. New federal standards for dam construction were put into effect and there was an increased awareness of the importance of inspecting geological factors. California quickly passed safety legislation and soon had some of the strictest oversight laws in the country.

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## MEMBER NEWS

**Sara Wermiel** was interviewed about the history of emergency egress in buildings for the radio program, "99% Invisible, A Tiny Radio Show About Design with Roman Mars." The show is titled Episode 122: Good Egress, and it can be heard online at <http://99percentinvisible.org/> The show drew on Sara's article "No Exit: the Rise and Demise of the Outside Fire Escape," *Technology & Culture* 44 (April 2003): 258-284. Sara's most recent publication treats the history leading to the creation of what is perhaps the first glass-enclosed multi-story building (an office building and museum): the Higgins Armory Museum in Worcester, Massachusetts. You can read about it in "Early Curtain-Wall Buildings and the Higgins Armory Museum in Massachusetts," *APT Bulletin* 45 (2014): 43-49. Her article on the Lumber Exchange building and fire in Minneapolis and the history of tile-protected timber framing is scheduled to appear in the fall issue of *Minnesota History*, in time for the CHSA meeting there.

*Please let us have your news for publication.*

## 5TH INTERNATIONAL CONGRESS ON CONSTRUCTION HISTORY

June 3-7, 2015, Palmer House Hotel, Chicago. IL

Planning preparations for the Congress continue apace. You can keep track on our progress at the website [www.5icch.org](http://www.5icch.org) Latest activities have included:

- Over 450 abstracts have been received from all over the globe and are now being evaluated with a deadline of August 15th for notification of acceptances.
- Five keynote speakers have been approached and have accepted as follows:
  - \* William F. Baker, PE, SE, FASCE, FISTRUCTE,  
Structural and Civil Engineering Partner, Skidmore, Owings & Merrill LLP
  - \* Stella Nair  
Associate Professor, Arts of the Americas, UCLA  
Assistant Professor, Cotsen Institute of Archaeology, UCLA
  - \* Thomas Leslie  
Pickard Chilton Professor, Architecture  
Associate Professor, Iowa State University College of Design
  - \* Santiago Huerta  
Professor, Universidad Politecnica de Madrid, Spain
  - \* Dr. James Campbell  
Senior University Lecturer (Department of Architecture)  
Fellow and Director of Studies, Queens College, Cambridge, UK
- A 45 member Scientific Committee has been appointed – see the website for a list of names.
- Our fund-raising campaign is now underway. A brochure has been printed outlining the benefits of supporting the event and different levels available – this is at the website [www.5icch.org](http://www.5icch.org) . Melanie Feerst ([melaniefeerst@gmail.com](mailto:melaniefeerst@gmail.com)) is managing this activity. If you know of any corporate, institutional or individual entity that you think should be approached please let Melanie know. We are off to a good start with an award of £5,000 from our sister organization the Construction History Society to be used for student awards.
- The Palmer House Hotel has begun taking room reservations at the special rate of \$209.00 per night.
- Congress registration is scheduled for late fall and will include a special rate for CHSA members.



## CHSA FOURTH BIENNIAL MEETING

November 12-15, 2014, Minneapolis, MN

Of mud and mortar, bridges and buildings, leadership and memorials, the 2014 CHSA Biennial Meeting will be doing something new: we are partnering with the American Institute of Architects Minnesota State Convention to present a varied slate of academic papers, local tours, perhaps some films, culminating in a presentation and tour of the Cass Gilbert designed Minnesota State Capitol, now under a major reconstruction effort. Teaming with AIA-MN brings solid logistics and event planning experience, along with a large interested and informed audience, typically with over 2000 attendees. Access to all AIA program events and the exhibit hall is included in the registration, with flexible registration options available. Social events for members only are also planned, to enable meeting historically minded colleagues and presenters.

Hotel accommodations are being arranged by AIA at rates to suit all pockets. While the registration is not yet open (and we will circulate news about its arrival in

September), we suggest a periodic visit to the [AIA-MN convention website](#). For planning purposes, the AIA Convention starts on November 11th, however CHSA events will not start until November 12th, run through the 14th, with a return travel ideally suited for Saturday, November 15th. A tentative schedule is attached.

Let's congregate in Minneapolis, and share the past with our architectural colleagues.



*Seventh Street Bridge Improvement Arches  
1884, St Paul, MN*

### WELCOME TO NEW MEMBERS

Here are members who have joined since the last newsletter in April:

John Bennett, Uzon & Case, Atlanta, GA  
Michael Ford, WJE, Chicago, IL  
Douglas Frey, Marietta, GA  
Laura Gilmore, Chicago, IL  
Liane Hancock, Louisiana Tech University, Ruston, LA  
John Lauber, John Lauber & Co., Minneapolis, MN

Welcome & thank you!

AIA-CHSA CONVENTION SCHEDULE

DAY	TIME SLOT		THEME TITLE	SPEAKER	HOURS
Wednesday 12th	9:30 - 11:00	Architectural details	The Technicians Detail: Patte, Soufflot's Circle and the Constructive Turn, 1755-1802	Bellin, Eric	
			Judith Chafee: Massive Material Building, Un-Building, rebuilding: Marcel Breuer's House in the Museum garden	Domin, Christofer	
				Oldfather, Margaret	
Wednesday 12th	10:45 - 1:00		EXHIBIT HALL	Hilger Bowen	
			CHSA Walking Tour/Lunch: 7th Street Bridge, St. Paul Swede	Benjamin Ibarra	
Wednesday 12th	1:00 - 2:30	Leadership and Memorials	Leadership Principles in the Design and Construction of the Empire State Bldg.	Robson, Kenneth	
			The Contractor's Perspective: Influence of Pride and Duty on Construction of the Oklahoma City National Memorial	Ryan, Richard and Lippert, Tom	
			Japanese Internment Camp Recon	Cline, Casey and Mirsky, Rebecca	
Wednesday 12th	2:45 - 4:00	Education	Ambitions of a Civil Engineer Fresh Air in Schools (Historical perspective)	Uihlein, M.S. Harmon, Steve PE	
Wednesday 12th	3:45 - 6:00		EXHIBIT HALL	Hilger Bowen	
Wednesday 12th	6:00 - 7:30		RECEPTION Keynote Address (TBD - McCullogh???)		
Thursday 13th	9:30 - 10:45	Mat'l	Rainbow Brick Platteville Limestone	American Artstone/Hilger Paul Whitenack	
Thursday 13th	11:00 - 12:15		OPEN (Tour Presentation) OPEN (Tour Presentation)		
Thursday 13th	12:00 - 2:30		EXHIBIT HALL (to 2:30)	Hilger Bowen	
			CHSA Tour/Lunch	TBD	
Thursday 13th	2:30 - 4:00		Keynote Address (AIA Jurors Show and Tell)		
Thursday 13th -	2:30 - 4:00	Engineering	How to Float a Wall on Mud: Building New York City's Bulkhead	Rice, Zach Watson	
			Building Harvard Stadium ; Early Conc Design and Const	Svenson, Alicia L. AIA	
			Steinman and the Mackinac Bridge	Dermody, Robert	
Thursday 13th	4:00 - 5:15	Past	History of the AGC Legacy Minnesota Firms Showcase	Bowen / Sanem KA / Cook / Crawford Merz / Haglin	
			CHSA Member Reception (concurrent with AIA reception)		
Friday 14th	7:30 - 9:00		CHSA Board Meeting		
Friday 14th	8:30 - 10:00	Mid-Century Modern	Sculpture on a Grand Scale: Structural Geometry of Jack Christiansen's Thin Shells	Sprague, Tyler S., PE	
			Constructing Suburbia: The Hidden World of Prestressed Concrete in Postwar Minnesota	Frame, Robert PhD	
			Defining "Modern" in Post-war Amarillo: The Schell-Munday Co., Synthetic Living and the 1947 Perma-Stone Protest	Gomez, Marisa	
Friday 14th	10:15 - 11:45	Process	State Capitol Restoration "Keystone" Presentation; How Built/Re-Built	Jeff Calinan - JE Dunn Ted Lentz - Cass Gilbert Society David Hart, FAIA - MOCA Michael Bjornberg, AIA - HGA	
Friday 14th	12:00 - 2:00		Program Lunch / Major Keynote Address (AIA Foundation Sponsored)		
Friday 14th	2:15 - 5:00		State Capitol Tour	Jeff Calinan - JE Dunn	
Friday 14th	5:00 - 9:00		AIA Awards Celebration / CHSA Private Informal @ Engine Room		
Saturday 15th	7:00 - 9:00		CHSA Private Breakfast / Event / TBD		

## 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](http://www.pwhs.net)

Historical Construction Equipment Association, [www.hcea.net](http://www.hcea.net)

Society of Architectural Historians, [www.sah.org](http://www.sah.org)

## MANAGEMENT COMMITTEE

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

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

Jeff Beard, Drexel University, Philadelphia, PA

Jenn Cappeto, Higgins Quasebarth & Partners, New York, NY

Benjamin Ibarra-Sevilla, University of Texas, Austin, TX

Lee Gray, University of North Carolina, Charlotte, NC

Peter Hilger, University of Minnesota, Minneapolis, MN

Donald Friedman, Old Structures Engineering, New York, NY

Stephen Buonopane, Bucknell University, PA

Rachel Will, Wiss Janney Elstner, Chicago, IL

Construction History Society Representative  
James Campbell, Cambridge, UK

## 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.

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