



NEWSLETTER

We are publishing this newsletter a little earlier than scheduled in order to encourage you to attend the Society’s Inaugural meeting November 6th – 8th at Georgia Tech in Atlanta. As noted in the April newsletter, this will be an opportunity to meet up with friends and colleagues, help craft the future direction of CHSA and, at the same time, listen to some excellent keynotes and paper presentations around the theme: “Learning from Design and Construction Failures”. More details on page 2 and registration is open at our website www.constructionhistorysociety.org

I want to give a big thank-you to our old and new Institutional members. These now number 8 with promises of more to come. This quarter we welcome AGC of America, Skanska USA Building, Inc. and CH2M HILL. The full list is printed below. While their financial support is appreciated, it is their commitment to an organization dedicated to the recording, study and research of the history of the construction industry at large, that is most encouraging.

The Third International Construction History Society Congress will be held in Cottbus, Germany, May 20th – 24th 2009. This will attract construction historians from around the World. Twenty papers have been accepted from US residents. Further details of the gathering can be found at www.ch2009.de

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THANKS TO OUR INSTITUTIONAL MEMBERS:

- ★ AGC of America
- ★ Auburn University
- ★ CH2M HILL
- ★ Clemson University
- ★ Construction Management Association of America
- ★ Georgia Institute of Technology
- ★ Skanska USA Building, Inc.
- ★ University of Pennsylvania

JOHN OCHSENDORF WINS “GENIUS” GRANT
MACARTHUR FOUNDATION NAMES JOHN 2008 FELLOW



photo: The MacArthur Foundation

John Ochsendorf, CHSA Organizing Committee member, is an associate professor of architecture at MIT.

He studies historic design methods and their modern application. He claims he’s been walking on air, a futuristic technique.

John will be a keynote speaker at at our Inaugural meeting in November

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The Inaugural Meeting of
The Construction History Society of America

LEARNING FROM DESIGN AND CONSTRUCTION FAILURES

NOVEMBER 6 – 8, 2008

Student Center

Georgia Institute of Technology, Atlanta, Ga

Sponsored by:



The Associated General Contractors of America

Skanska USA Building, Inc.

SKANSKA



Old Structures Engineering, PC

The history of design and construction consists of many incremental changes with occasional moments of revolutionary innovation. Failures—whether unsustainable architectural design, catastrophic structural collapses and fires, chronic curtain-wall leaks and the like—are one of the main sources of improvement in building practice. Failures show

designers and builders when ordinary practice is flawed, when incremental changes have pushed practice too far in one direction, and when an innovation has hidden flaws accompanying its visible benefits. This conference will address some of history's design and construction failures and how they have contributed to improved safety, stability and longevity.

ATLANTA 1908: A BRIEF DESIGN AND CONSTRUCTION PERSPECTIVE

A PROGRAM OFFERED ON THE AFTERNOON OF NOVEMBER 8TH

In recognition of its 100th anniversary, the Georgia Tech College of Architecture is offering this brief assessment of 1908 Atlanta's urban, architectural, and construction environment.

Subjects will include:

Urban and Community Development in Atlanta to 1908

Prominent Architects operating in Atlanta 1908 and their work

Mill Engineering: The Story of Lockwood Greene's Southern Expansion

The Rise of General Contracting and its Impact on Architectural Practice

Speakers from the Georgia Tech College of Architecture

FOR REGISTRATION, GO TO WWW.CONSTRUCTIONHISTORYSOCIETY.ORG

EMAIL CHS@COA.GATECH.EDU FOR A COPY OF THE PROGRAM

STRUCTURAL FORM STUDY GROUP

Richard Etlin

Le Mans Cathedral
photo: Richard Etlin

I propose the formation of a Structural Form Study Group (SFSG) which would exchange ideas via a list-serve and meet at each annual CHSA meeting. I take the term structural form from the engineer Curt Siegel's *Strukturformen der modernen Architektur* (1960), where the author discusses modern structural forms—such as portal frames, V-supports, folded plates, space frames, thin shells, cable structures, etc.—in terms of the relationship of form to static behavior, as well as the expression of that behavior through the form. Siegel explains, “Structural forms cannot simply be computed; they must be designed. The relationships between structure and form are too complex for the result to be expressible in numbers alone. An element of artistic creation is involved” (*Structure and Form in Modern Architecture* [London: Crosby Lockwood & Son Ltd., 1962, pp. 7–8]).

The SFSG would study modern and historical structural forms. As an architectural historian, I am intrigued by the ways in which architects in the past conceived of structural forms as design elements with specific structural purposes that are not always evident to our contemporary way of thinking. I give two illustrative examples:

Flying buttresses: Whereas most contemporary writing about flying buttresses focuses on the flyer, Viollet-le-Duc, in his article “Arc-boutant” (*Dictionnaire*

raisonné de l'architecture française du XIe au XVIe siècle [1854], vol. 1, pp. 62–63), explained that the double-tiered flying buttresses of the early thirteenth century work analogously to a carpentry brace where a vertical plank laid against the wall is held in place by upper and lower timbers comparable to the flyers. In other words, Viollet-le-Duc considered the vertical reinforcement of the wall of the church at the level of the vault as integral to the flying buttress as a structural form.

Viollet-le-Duc explained that this arrangement was a response to the actual spread of thrust not limited to a theoretical line but rather reaching across a zone extending from the springing of the vault to about half of its height. What are other historical explanations of flying buttresses and how can modern engineering tools of analysis evaluate them?

Serial Arches and Vaults: In *Le cupole di Borromini: la “scienza” costruttiva in età barocca* (Milan: Mondadori Electa, 2004, p. 46), Federico Bellini explains, “[Martino] Bassi [1542–91], like his contemporaries and his Baroque



Vestibule, City Hall, Arles, 1673-75
architects: Jules Hardouin-Mansart with Jacques Peytret;
photo: Richard Etlin

successors, believed that arches also had the function of ‘tying’ the structure, implicitly attributing—and without conscious awareness—a resistance to tension that we know is inexistent; and this is certainly the major point of contrast between our way of understanding masonry wall

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structures and theirs” (*Ma Bassi, come i suoi contemporanei e i successori barocchi, crede che gli archi abbiano anche la funzione di ‘legare’ le strutture, attribuendogli implicitamente—e senza consapevolezza—una resistenza a trazione che noi sappiamo inesistente; questo è certamente il punto di maggiore contrasto tra il nostro modo di vedere le strutture murarie e il loro*).

Is there an alternative way of explaining Bassi’s text? Certainly there is ample evidence across the history of architecture that serial arches or barrel vaults were embedded in walls to consolidate them and/or to resist the thrust of a vault or dome. Were Bassi and others

talking not of “tension” but rather using a metaphor about “tying” together much as we would say “to consolidate”? Philibert de l’Orme, for example, employed the same metaphor when advocating the use of large ashlar blocks to consolidate a wall that also contained smaller stones called moellons (“les ligatures de pierre de taille”) in *Nouvelles inventions pour bien bastir et à petits fraiz* (1561, p. 5).

What other historical texts made the same claim? How can modern engineering tools of analysis evaluate the static behavior of this structural form?



photo: Sheppard Ferguson

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CALENDAR OF EVENTS

October 11–14, 2008 The Society for the History of Technology will hold its annual meeting in Lisbon, to continue the celebration of the 50th anniversary of the founding of the Society.

October 23–25, 2008 The 12th Annual Conference on Cultural and Historic Preservation: Creating and Preserving the American Home, Salve Regina University, Newport, RI www.salve.edu/chp2008

November 6–8, 2008 Construction History Society of America Inaugural Meeting, Georgia Tech, Atlanta, Georgia: chs@coa.gatech.edu

March, 2009 A Critical examination of Preservation & Sustainability - the Sixth National Forum on Historic Preservation Practice, Goucher College, Baltimore, MD davames@udel.edu

May 20–24, 2009 Third International Congress of the Construction History Society, Cottbus, Germany: www.ch2009.de

THE HISTORICAL CONSTRUCTION EQUIPMENT ASSOCIATION

Thomas Berry, Archivist, HCEA

The Historical Construction Equipment Association (HCEA), a 501(c)3 non-profit organization, is the only organization in the world dedicated to preserving and documenting for public education the history of the construction, dredging and surface mining equipment industries.

Founded in 1987 by a group of men and women who were committed to seeing this history, we now have over 4,400 members in twenty-five countries worldwide. Our members share the common bond of wanting to see this rich history, which is so often lost to the scrapper or the landfill, preserved.

We are working on several fronts to fulfill our mission. We operate the National Construction Equipment Museum in Bowling Green, Ohio. The Museum collection has over sixty pieces of antique construction machinery, from circa 1900 to the early 1960s, and we have a fully equipped restoration shop in which our volunteers restore machines to original appearance and operating condition. Visitors are welcome; Museum hours are 1:00 to 5:00 PM weekdays. We recommend calling ahead to let us know you're coming.

The Associated Equipment Manufacturers, the construction equipment industry's leading trade organization, has designated us an official archives for the industry. Our Archives documents over 2,600 equipment manufacturers from the 1870s to the present day. Sales literature, manuals, photographs, business records and more are preserved for public reference. Our worldwide



clientele includes: The Smithsonian Institute; owners, operators and restorers of antique equipment; model builders; The Discovery Channel®, and authors of books on equipment history.

Our 36-page quarterly magazine, *Equipment Echoes*, is mailed to our members. Each issue contains articles about construction, dredging and surface mining equipment history.



At our annual International Convention and Old Equipment Exposition, vintage equipment is shown and demonstrated for the general public. Each of our last several shows has featured over 220 antique machines. Our 2009 show will be September 18th through 20th at our headquarters and museum in Bowling Green, Ohio.

Our website, www.hcea.net, features message boards for the exchange of information about antique equipment. When rebuilding is complete, it will also have an extensive photo gallery and hundreds of links to sites about all aspects of construction, mining, dredging and the machinery used in these industries.

We've participated in the last three CONEXPO-CON/AGG trade shows, helping to coordinate many of the historical exhibits and signing up as many as 300 new members per show at our booth.

Our operations are funded primarily in two ways. One is by the sale of books, videos, scale models, apparel, collectibles and our calendar. The calendar features

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twelve photographs of heavy machinery at work from the late 1800s through the early 1960s. Many companies order them with their own name, address and phone numbers imprinted on them as eye-catching advertising pieces.

Our other major funding source is membership dues, currently \$30 a year US and Canada and \$40 US for all others. We invite you to join the HCEA and help us fulfill our mission of preserving this wonderful history for public education. We can be reached at 16623 Liberty Hi Road, Bowling Green, Ohio 43402, phone 419-352-5616, e-mail tberry@hcea.net.

Thomas Berry
Archivist, HCEA

BEFORE THE BIG DIG: BOSTON'S CENTRAL ARTERY AS A CONSTRUCT OF MID-CENTURY MODERNITY

Amy D. Finstein

The construction of Boston's elevated Central Artery provides a monumental example of the introduction of modernity into the twentieth century city. Conceived in the late 1920s but not realized until the 1950s, the Central Artery was the first significant addition to Boston's landscape that fully embraced the automobile. This 1.7 mile stretch of expressway provided six elevated lanes for high-speed automotive travel, with additional roads for local connections underneath.

The Central Artery's route across and through downtown Boston answered many citizens' calls for a quick and convenient way to traverse the city's notoriously complicated web of streets. Physically, the Central Artery introduced new forms to Boston's urban fabric. The rhythmic march of the road's green steel girders, and the shadow cast by its 100-foot wide, and 40-foot high



roadbed, contrasted sharply with the conservative masonry buildings that had dominated Boston's landscape until mid-century.

With the dramatic insertion of the Central Artery, city planners proclaimed the formal arrival of modern highway construction techniques in Boston. To some, the new expressway scarred the urban landscape—a mechanical intrusion on the city's fabric. To others, the Central Artery symbolized modern commerce and corporate America. Ultimately, the Central Artery laid the formal and ideological groundwork for Boston's contention in the national arena of urban architecture, transportation, and commerce.

Tracing shifts in contemporary social, political and architectural sensibilities, this paper argues that the Central Artery represented an ongoing dialogue about what it meant to be socially and aesthetically "modern" between 1920 and 1950.

This article, previously published in *ARRIS: Journal of the Southeast Chapter of the Society of Architectural Historians* 16 (Winter 2005): 69–81., received the Public Works Historical Society's 2006 Michael Robinson Award.



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EXHIBITIONS

HOME DELIVERY: FABRICATING THE MODERN DWELLING

Museum of Modern Art, New York (until October 20th 2008)

As Time magazine stated “prefab (housing) may have had a checkered past, but it always has a future.” The exhibit traces some of the past attempts to create a market in the US for prefabricated houses, including an unsuccessful effort by Thomas Edison and the better organized venture by Sears Roebuck from 1908 to 1940. The Museum has installed five modern prefab houses on an empty adjacent lot.

More information at www.moma.org There is an excellent project journal available from the MOMA bookstore.



TWO CARPENTERS: ARCHITECTURE AND BUILDING IN EARLY NEW ENGLAND, 1799 – 1859

J. Ritchie Garrison, University of Tennessee Press, Knoxville, 2006

Reviewed by Brian Bowen.

Drawing on the written account books and journals of the Stearns family, Massachusetts carpenters and builders, from the first half of the nineteenth century, the author subtly juxtapositions the art and business of the carpenter with social, cultural and architectural changes taking place at the time. The story begins in 1800 as the young twenty-one year old Calvin Stearns begins as a journeyman

carpenter in Western Massachusetts, Vermont and Boston and progresses to Master Builder some twelve years later. His eldest son George, takes over in the 1840's and transitions into general contracting. The subject is primarily house building and is one of the few studies that combines both architecture and construction.

ANNIVERSARIES

FORD MOTOR WORKS, HIGHLAND PARK, MI 1908

In 1908 Henry Ford appointed the Kahn Brothers (Albert the architect and Julius the engineer) to design a factory for manufacturing the Model T car. The building used the patented Kahn system of reinforced concrete with an exposed frame, inset with steel sash windows imported from England. It was four storeys high and it was soon discovered that a gravity feed system whereby components were fed from the top floor to the first level, was inefficient. Only horizontal assembly made any sense leading to the acquisition of the Rouge River site and the construction thereafter of single storey steel framed plants. Most of these continued to be designed by the Kahns.



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.

THANKS TO GEORGIA TECH
COLLEGE OF ARCHITECTURE

We are indebted to and grateful for the financial support we are receiving from the College of Architecture at Georgia Tech. Their support will carry us for a few more months, but beyond that we will be on our own. Please help us lay our own sound financial footing by joining CHS now.

CONSTRUCTION HISTORY SOCIETY
ORGANIZING COMMITTEE

Brian Bowen, Georgia Tech, Atlanta, Georgia

Dr. Anat Geva, Texas A&M University, College Station, Texas

Dr. John Ochsendorf, MacArthur Fellow, MIT, Cambridge, Massachusetts

Jeff Beard, American Council of Engineering Companies, Washington D C

Donald Friedman, Old Structures Engineering, New York, New York

Tom Leslie, Iowa State University, Ames, Iowa

Frank Matero, University of Pennsylvania, Philadelphia, Pennsylvania

NOTE

We are compiling a list of any courses being taught that touch on any aspect of construction history, other than history or architectural design. If you are involved in, or are aware of, any such course, would you please bring it to the attention of Dr. Anat Geva (anatgeva@archone.tamu.edu). Thank you!

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

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