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AUSTIN

## AUSTIN WRAP UP

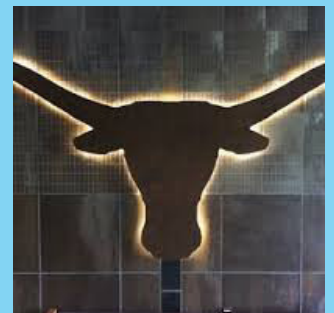
### 5th Biennial Meeting - University of Texas at Austin - May 2016

Our 5th Biennial saw 74 attendees from twenty four states and four countries attending the three day meeting in beautiful Austin, Texas. Hosted by the School of Architecture at the University of Texas, 41 authors presented their research in twelve academic sessions on campus.

A well attended opening lecture by Dr. Richard Cleary and keynotes by Tom F. Peters and Roberto Meli introduced us to the growth of the city of Austin, Eiffel and Jenney's education and their influences, and building techniques transferring from Spain to Colonial Mexico.

Thirty seven attendees spent Saturday afternoon on one of four tours: Walking Austin, which included a behind the scenes visit to the Capitol; Bridges, San Antonio Missions and Painted Churches of Texas. Featured exhibitions included Mixtec Stonecutting Artistry by Benjamin Ibarra Sevilla and a special viewing of the Alexander Architectural Archives at UTSOA.

**THANKS  
TO THE  
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FOR HOSTING  
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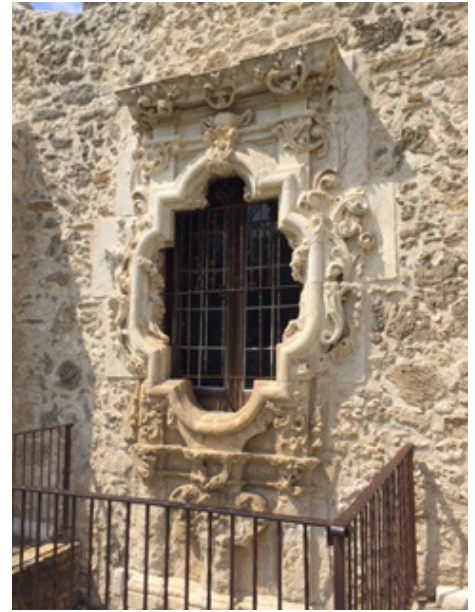
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Thanks for your participation!



**Presenting at SESAH  
in New Orleans  
September 2016**

**CHSA PANEL**

*with*

Benjamin Hays

Lee Gray

Benjamin Ibarra-Sevilla

Craig Swift

**“CONSTRUCTION  
HISTORY AS  
ARCHITECTURAL  
HISTORY”**

Panel Moderator Lee Gray furthers the discipline of Construction History by “looking at how the varied approaches taken by construction historians supplement and nuance methodologies frequently employed by architectural historians”.

**PANEL TOPICS**

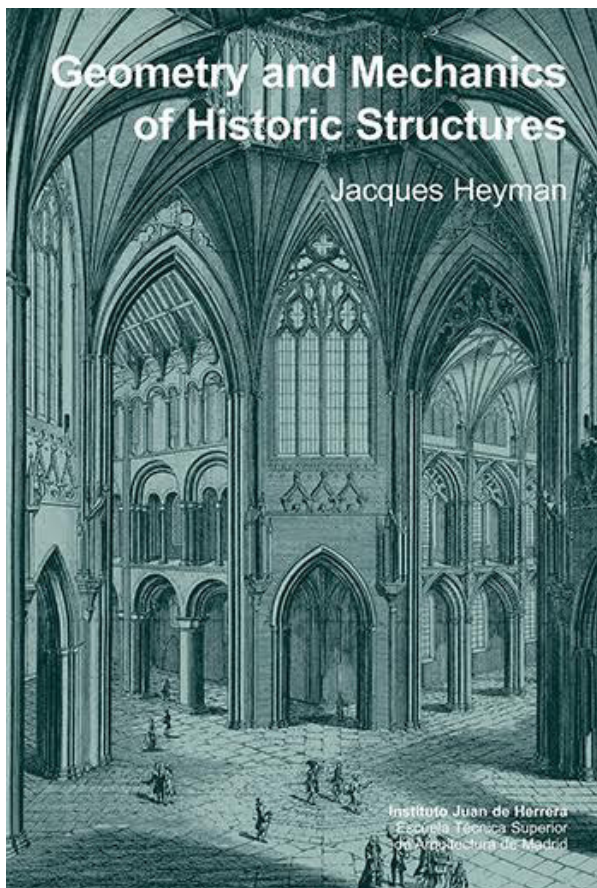
“Reconstructing History”  
Benjamin Hays

“Elevators and Movies”  
Lee Gray

“Geometry, Gravity and  
Structure”  
Benjamin Ibarra-Sevilla

“Feature Stairs: Past and  
Present”  
Craig Swift

[sesah.org/2016-annual-conference-in-new-orleans-la/](http://sesah.org/2016-annual-conference-in-new-orleans-la/)



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**Professor Jacques Heyman**

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## ANNIVERSARIES - 1816 Montgomery Meigs

### Civil War Innovator Montgomery Meigs

Jeffrey Beard

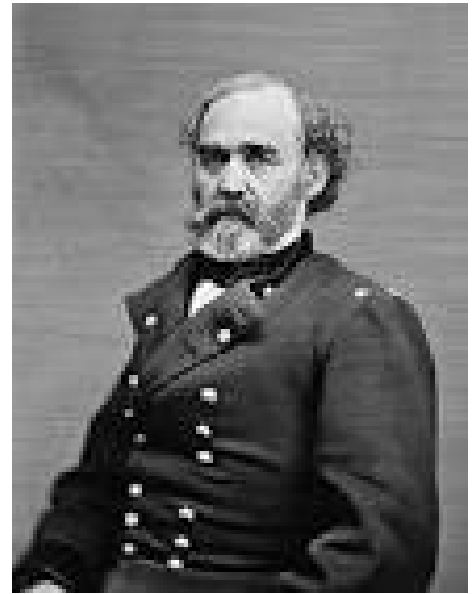
Two centuries have passed since the birth of engineer-architect Montgomery Meigs (born May 1, 1816 – died January 2, 1892) in Augusta, GA. Meigs developed new construction techniques, equipment, and water delivery systems and his innovations merited a promotion from Abraham Lincoln during his presidency. His father Charles Meigs had moved from Philadelphia to Georgia in 1815 to set up a medical practice after graduating from the University of Pennsylvania, returning to the south where his father (Montgomery's grandfather Josiah, a Yale graduate) has been President of the University of Georgia from 1801 through 1809.

The Georgian medical practice did not last, however, because Montgomery's mother Mary detested the practice of slavery by landowners and patients of her husband. By late 1817, the young family moved back north. Adolescent Montgomery grew up along the Delaware River, playing explorers and adventurers with his friends and building crude children's forts with saplings and brush. He must have been an organizer and somewhat bossy with his compa-

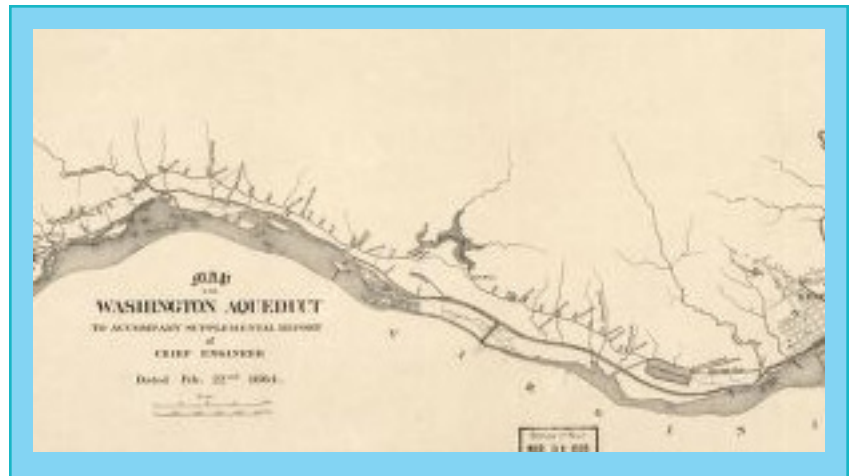
triot, because his mother wrote that he was "high-tempered, unyielding and tyrannical" at the age of six years old. Meigs grew to be a strapping 6 feet 2 inches at age 16, and in 1832 was accepted to attend the first engineering school in the United States at West Point. He honed his interests in architecture and engineering at the Academy, graduating fifth in his class in 1836. Although commissioned as an Artillery Officer, much of his work was with the Corps of Engineers, building forts in Pennsylvania, Michigan and New York, but also working under Lt. Robert E. Lee to improve navigation on the Mississippi River near St. Louis, MO.

In 1852, Meigs was posted to Washington, DC to investigate water supply improvements for the nation's capital. The city's poor quality water was obtained from natural springs, wells and creeks and delivered to buildings through leaky, brittle cast iron pipes. There was no sewage system, and raw effluent ran down into streams and into the District of Columbia canal that connected the Navy Yard to the Capitol building, and continued west to the White House, before emptying out into the Potomac near the tidal basin. The waters were foul, and citizens and visitors to the city were sickened with occasional outbreaks of cholera and typhoid.

Diving into his study on his first day in the capital city, Meigs studied water systems of New York, Boston, Paris, and Rome, and explored the Potomac River above and below the fall line at Great Falls to devise a system that would produce potable water for hundreds of years. He presented a concise and in-depth 55 page study to Congress after three months, and recommended that the legislature approve the most ambitious option. Congress granted the request, and



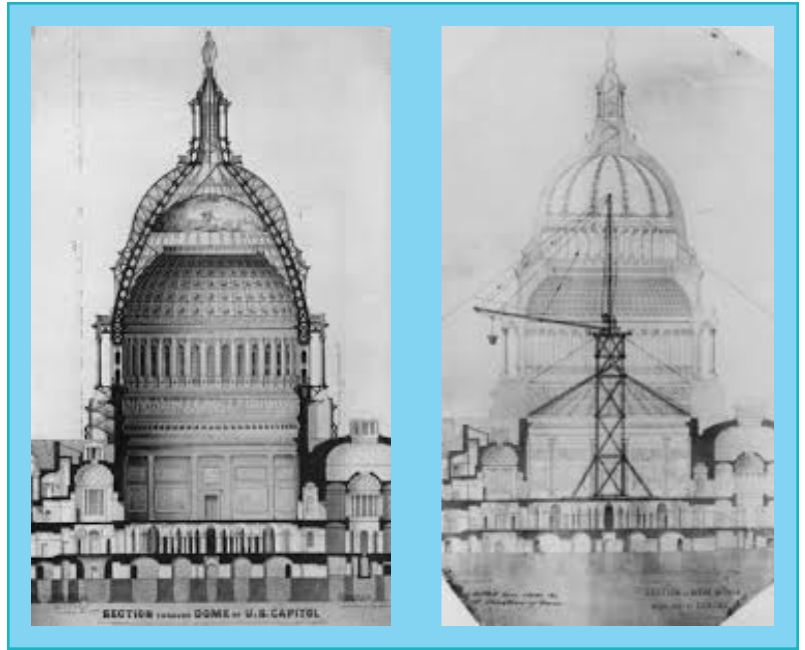
Union Arch / Washington Aqueduct



## Montgomery Meigs (continued)

work commenced on the Washington Aqueduct, which consists of a 12 mile long pipeline nearly nine feet in diameter, the longest masonry arch bridge in the world for 40 years (220 feet), and Dalecarlia Reservoir. The system has operated continuously since 1859 supplying the city's fresh water.

During the same period, Meigs was tasked to oversee the construction of the new Capitol dome. He had a prickly relationship with Thomas U. Walter, architect of the Capitol, who had designed the new high dome as a replacement for the wooden dome originally designed by Charles Bullfinch. But Meigs saw the challenges of constructing a huge masonry and wood dome and was determined to save money and



Tower crane designed for the Capitol dome

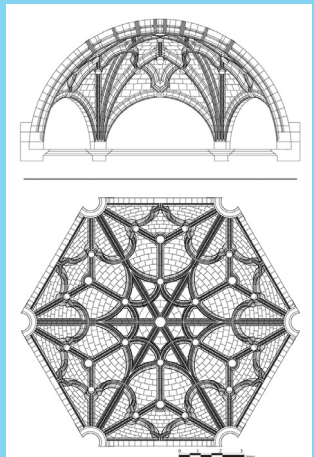
cut construction time using a dome framed with iron. To lift the iron components into place, Captain Meigs designed a tower crane that rose 100 feet through the center of the rotunda, with a derrick of 160 feet to span the diameter, and anchored the entire assembly with wire rope. Powered by a steam engine, the crane could lift 10 tons. To save money and to dispose of the wood from the previous dome, he had workmen fire the steam engine with the old timber. After a successful first test in December 1855, Meigs wrote in his diary "It's a beautiful machine."

Meigs possessed a reputation being demanding, having high standards and operating with integrity. These attributes made him a natural misfit in a freewheeling and sometimes corrupt nation's capital. His superior in the years 1857 to 1860 was John B. Floyd of Virginia, the Secretary of War who was later accused of duplicity for having sold arms and materiel to Southern states. Floyd handed out contracts to favorites and cronies, and Meigs managed to decline or delay most of Floyd's requests. "Contractors, architects, and secretaries are all against me," wrote Meigs, who felt like a stopper in a bottle ...being gnawed at by filthy rats." In September 1860, Secretary Floyd banished Meigs to duty on the Dry Tortugas to work on Fort Jefferson.

Only after Floyd resigned, in 1861, was Meigs permitted to return to Washington. Three weeks after President Lincoln's inaugural, Meigs was summoned to the White House, where Lincoln asked him to take on a secret mission to secure Fort Pickens in Pensacola Bay. "I told [President Lincoln] that I was only a Captain and could not command Majors who were there," said Meigs in his journal. William Seward advised the Commander in Chief to promote Meigs, who set off on a successful clandestine mission while Fort Sumter was being bombarded. Upon his return to the Washington, Meigs was promoted to Colonel, 11th US Infantry, and the very next day to Brigadier General and Quartermaster General of the US

### BENJAMIN IBARRA PRESENTS AT MODELING MEDIEVAL VAULTS CONFERENCE

Assistant Professor Benjamin Ibarra was invited as a Keynote Speaker for the Modeling Medieval Vaults Symposium organized by the University of Liverpool in the UK. The symposium took place July 14 /15 at the London Campus where Ibarra spoke about his research project on sixteenth-century ribbed vaults in Mexico. This international symposium included presentations from scholars doing research in several locations in Europe. Ibarra's work presented a unique approach revealing forms of dissemination and development of educational tools that help to diversify the audience and extend the outreach of the studies about this unique structures across the world. An International Research Group on Gothic Vaulting was one of the outcomes of this meeting in London. Benjamin Ibarra Sevilla will preside over this research group.



## Montgomery Meigs (continued)

Army. He replaced the previous Quartermaster Joseph Johnston, who had resigned to join the Confederate Army.

The Civil War – as James Nagle writes in his opus *The History of Government Contracting* – was the first true war of industrial mobilization. Previous mass production was for a handful of items, such as rifles and pistols with interchangeable parts, but the enormity of the war also forced huge increases in production of wagons, tents, clothes, and shoes. The latter two products presented a new problem: men's shoes and uniforms had to be made in many different sizes. Meigs and his staff introduced the concept of standard measurements for pre-made rather than custom-made garments and footwear. When Meigs arrived at the Quartermaster's desk on his first day, he had 12 civilian employees. By the end of the war, there were 600 people writing specifications, issuing contracts and dispensing funds to support the military effort. Meigs directed his regional Quartermasters to reject bids appearing to be at low rates "... causing a loss to contractors, oppression to working hands, or stealing or cribbaging of materials," and instead instructed his staff to use the "most respectable houses in the trade," which tended to be the larger, more established manufacturers.

Congress reformed the contracting process in 1862, passing an Act that required all federal contracts to be written, signed by the contracting parties, and the contracting officer had to execute an affidavit before a magistrate attesting to their authenticity. Together with good contracting practices instituted by the Quartermaster's office – including advertisements for bids, contract specifications, quality controls and the depot system – a culture of stewardship of the nation's treasury and still ensuring that soldiers were amply supplied was championed by Meigs and his department. "That an army is wasteful is certain," Meigs wrote, "But it is much more wasteful to allow a soldier to sicken and die for want of a blanket or knapsack which he has....thrown away in the heat of the march or the fight than to supply him on the first opportunity with these articles indispensable to health and safety." During the war, the Quartermaster's office obligated more than \$15 billion for all US Army contracting except ordnance and medical supplies.

As the war wound down in 1865, Meigs gave a speech about the Corps of Engineers, asserting that: "The Corps...showed itself competent to take care of supplies and transportation of a great Army during four years of most active warfare. It moved vast bodies of soldiers over long routes; it collected a fleet of over 1,000 sail and steam vessels upon the rivers and coasts; it constructed and equipped a squadron of ironclads for the Army [which led to the Navy accepting and using the ironclad Monitor]." The Quartermaster's office supplied the Army by rail in all facets of the war, including contracting with 50 different railroad lines; it bought, provisioned and then auctioned off more than 200,000 horses. Meigs personally commanded the supply bases at Fredricksburg and Belle Plain, Virginia for Ulysses Grant's army and also organized and commanded the re-supply of William Tecumseh Sherman's army after its March to the Sea. And at the close of hostilities, "[the Department] returned to their homes a million and a quarter men."

A grateful Congress passed legislation in the aftermath of the war that extended the scope of coverage for surviving Union soldiers, and for widows and orphans of deceased soldiers. A new building was needed to house 1,500 Pension Office clerks to handle the huge volume of claims. Meigs retired as Quartermaster General in 1882 and immediately began work as architect of a grand new building patterned after the Palazzo Farnese, a Renaissance palace in Rome. It was a clear break with the Greek revival tradition of most Washington, DC buildings and critics then and now have questioned its out-of-scale interpretation which one could almost term "Michael Gravesesque." Nevertheless, it

### **CALL FOR SYLLABI**

To all faculty who teach a construction history class or incorporate a construction history learning module in your history, design, architectural or engineering class, you are invited to submit a .pdf of your teaching syllabi to the new CHSA Research Repository to help further our collective knowledge.

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## Montgomery Meigs (continued)

was big, brash, controversial, and functional, serving as a welcoming “Red Barn” for those seeking pensions for individual wartime service. Meigs even designed the stairwells with wide treads and low risers to allow the infirm and handicapped to ascend to the various offices.

Two striking features of the Pension building are its enormous interior columns at both ends of the Great Hall, which are composed of pargeted brick, with marble graining over the plaster so that they appear as solid stone. The 75 foot tall columns often serve as backdrops for inaugural balls, and of course, for modern day exhibits of the National Building Museum, which is the current tenant in the building. A second remarkable fixture is the sculptured frieze below the exterior eaves all around the huge building. Since creating the full 1,200 foot sculpture was beyond Meigs’s budget, he had sculptor Caspar Burerl create 28 different scenes totaling about 70 feet, and Meigs had these cast in terra cotta. There are infantry, navy, artillery, cavalry and medical corps, along with supply corps soldiers, as one would surmise. Meigs had instructed Buberl that one of the teamster’s “...must be a negro, a plantation slave, freed by war.” A portion of panel containing this relief is found directly over the western entrance of the building. More than 15 million bricks were incorporated in the grand structure, and wits of the day intoned that the parsimonious Meigs had personally counted every one.

In *Montgomery C. Meigs and the Building of the Nation’s Capital*, Martin Gordon explains that the American Institute of Architects muscled the Corps of Engineers out of the architectural business in the late 19th century, leaving Meigs as the last of the soldier-architect-engineers in America. A tradition of (former military engineers) designing institutional and commercial buildings – such as William LeBaron Jenney, Sebastian Le Prestre de Vauban and Marcus Vitruvius Pollio – has largely disappeared. Meigs succumbed to pneumonia in 1892, and was buried in a family plot located prominently next to the mansion (which was the home of his former Supervising Engineer and friend - but later wartime enemy, Robert E. Lee) at the center of another of his creations: Arlington National Cemetery.

### Sources:

Dickinson, William C with Dean A. Herrin and Donald R. Kennon *Montgomery C. Meigs and the Building of the Nation’s Capital* Ohio U. Press 2001

Miller, David W. *Second Only to Grant: Quartermaster General Montgomery C. Meigs* White Maine Books 2000

Nagle, James F. *History of Government Contracting* George Washington University Press 1999

Weigley, Russell F. *Quartermaster General of the Union Army: A Biography of M.C. Meigs* Columbia U Press 1959



Pension Building, now the National Building Museum, in Washington DC

## Eight Stone Houses Near Minerva, Ohio

John Walker

Just north of Minerva, Ohio, stand eight stone farmhouses, similar to the vernacular architecture of stone houses found throughout eastern and southern Pennsylvania in the early nineteenth-century. Three are in Paris Township, Stark County, and five in West Township, Columbiana County, which borders Paris Township to the east. Early owners of the Paris Township houses were John Betz, Joseph Huet, and Walter R. Walker. In West Township the owners' names were Russell Edwards, Thomas B. Edwards, Isaac P. Edwards, Peter Freed, and Oliver Taylor.

Walter R. Walker (1810-1896), a native of Chester County, Pennsylvania came to Ohio in 1833. He married Evalina Edwards in a double wedding with Isaac P. Edwards and his bride. The exact relationship of Evalina to Isaac is unclear, maybe cousins, maybe siblings. It appears that Evalina was also closely related to Thomas B. and Hugh Russell Edwards. They were all natives of Chester County. Thomas and Russell were stone masons. Oliver Taylor was also a native of Chester County and an Edwards descendant. Old landowners' atlases published after the Civil War show the locations of these eight properties, and using county roadmaps one can find and see the eight stone houses still there today.

We may never know with certainty who built these houses. Other area residents were stone masons at that time. Most likely Walker and his wife's Edwards kin built their homes, as well those of Isaac Edwards and Oliver Taylor. Peter Freed's family lived next door to the Walkers. A Betz is buried in the Walker family cemetery, and Huet may have been a Chester County native.

Determining when each house was built may be easier. A significant rise in the taxable value of a property typically indicates a major improvement has taken place. This approach can be used for the Stark County houses. Walker's property more than tripled in value between 1845 and 1847 making 1846 the likely year of construction. For Columbiana County this approach may not work because a fire in 1963 destroyed many of the county's nineteenth-century records. Fortunately, the houses of Thomas B. Edwards and Oliver Taylor have date blocks reading 1852, and 1864 respectively.



Edwards House



Fox Avenue Station House



O'Taylor House

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## Stone Houses (continued)

There is a lot of history in these old houses and the early families who lived in them. The Walker house sent three sons to fight for the North in the Civil War. Fortunately all returned home. Thomas B. Edwards and sons Oliver and Plummer enlisted in separate Union regiments. Sadly, all three were dead by the end of the war, succumbing to service-incurred disease or injuries. Their graves lie on a hill overlooking the old stone house.

In *History of Stark County with an Outline Sketch of Ohio*, editor William Perrin included this information about Walter R. Walker, stone mason from Minerva: "(He) has left a standing monument of his skill, by putting himself up a durable stone residence, the most capacious stone dwelling in all of southern Stark County."

*Independent Researcher John Walker is interested in any information from CHSA members that can help him fill in the pieces -*

**If you have information, please contact John directly at [dian67@outlook.com](mailto:dian67@outlook.com)**

*How many men did it generally take to build? How long was the process and what was the sequence of steps? How did they estimate the amount of stone and how long did it take to cut and rough dress the stone?*

*What tools, equipment, and animals did they use? Who designed these houses?*

*What training and experience did someone need to be able to direct workers to build these houses?*

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(Submitted by Marci Uihlein, Editorial Board Member)

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