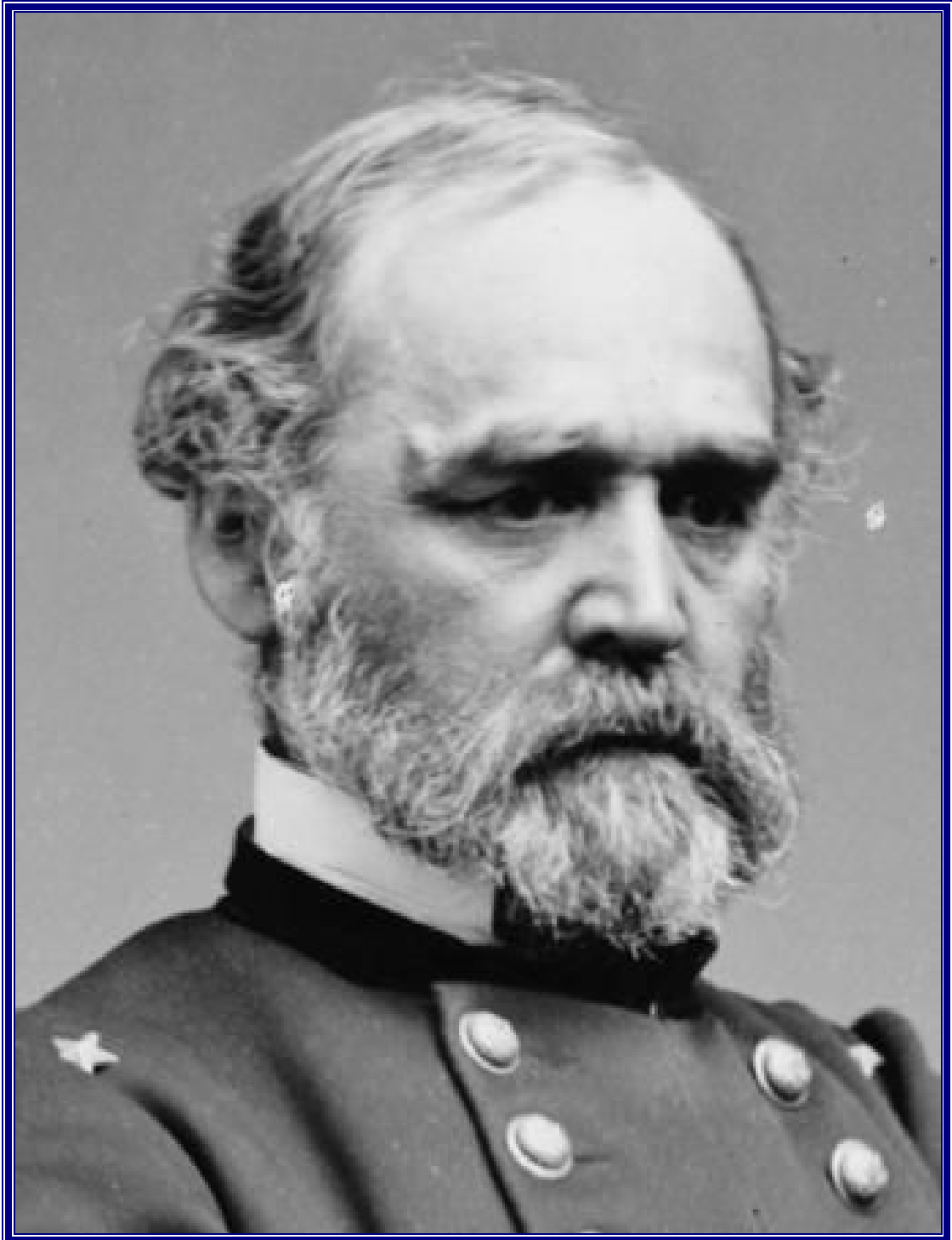


MONTGOMERY C MEIGS

PART-1

By EurIng Brian Roberts, CIBSE Heritage Group



Brevet Major General Montgomery Cunningham Meigs, 1816-1892

Meigs was born in Augusta, Georgia, in May 1816, the son of Dr Charles Meigs. In 1817, his father moved to Philadelphia and established a practice there. Young Montgomery was educated at the famous Franklin Institute, then a preparatory school for the University of Pennsylvania which he attended when he was only 15 years old. His family had extensive ties to the military and in 1832 Meigs won an appointment to the United States Military Academy at West Point, at that time the only engineering school in the States. On graduation, he received a commission as a Second Lieutenant in the 1st US Artillery, but he went on to carry out much of his army service with the Corps of Engineers.

Meigs worked on many important engineering projects. In his early assignments, he helped build Fort Mifflin, Fort Delaware, Fort Wayne and Fort Montgomery (He also served under the command of Lieutenant Robert E Lee). His favourite project, before the Civil War of 1861-1865, was said to be the construction of the monumental Union Arch Bridge (part of the Washington Aqueduct works), which he supervised from 1852 to 1860.

During this period, Captain Meigs was appointed to supervise the building of the changes to the United States Capitol in Washington, a task he undertook from 1853 to 1859. The work included construction of the dome and the two new wings and arranging for the required systems of heating and ventilation.

Following the outbreak of the Civil War, on 14 May, 1861, Meigs was appointed Colonel 11th US Infantry and on the following day promoted to Brigadier General and Quartermaster General of the Army. He quickly “established a reputation for being efficient, hard-working, and scrupulously honest..... He was one of the first to fully appreciate the importance of logistical preparations in military planning, and under his leadership, supplies moved forward and troops were transported over long distances with ever-greater efficiency.” The Union supply system, which he controlled, operated out of sixteen major depots and while the Confederacy never had enough supplies, Meigs ensured that Union forces had adequate food, ammunition and weapons.

A staunch supporter of the Union, despite his Southern Roots, Meigs disliked everything the Confederacy stood for. His feelings led directly to the establishment of the Arlington National Cemetery in Virginia in 1864 on land previously belonging to Robert E Lee (General-in-Chief of the Confederacy). After the War, Meigs continued his construction activities, which included new buildings at Arlington and designing the Civil War Unknown Monument.

Though continuing as Quartermaster, Meigs was still involved with building engineering services. The General Post Office in Washington was first completed in 1842. The expansion started in 1855 was delayed by the Civil War and not completed until 1866, with Meigs as engineer for the heating systems.

In 1881, Meigs was directed by the US Congress to develop a fireproof building for the Pensions Bureau. Construction began in 1882 and ended in 1887 with Meigs arranging for a fresh air ventilation system and innovative daylighting arrangements. This was his last major project.



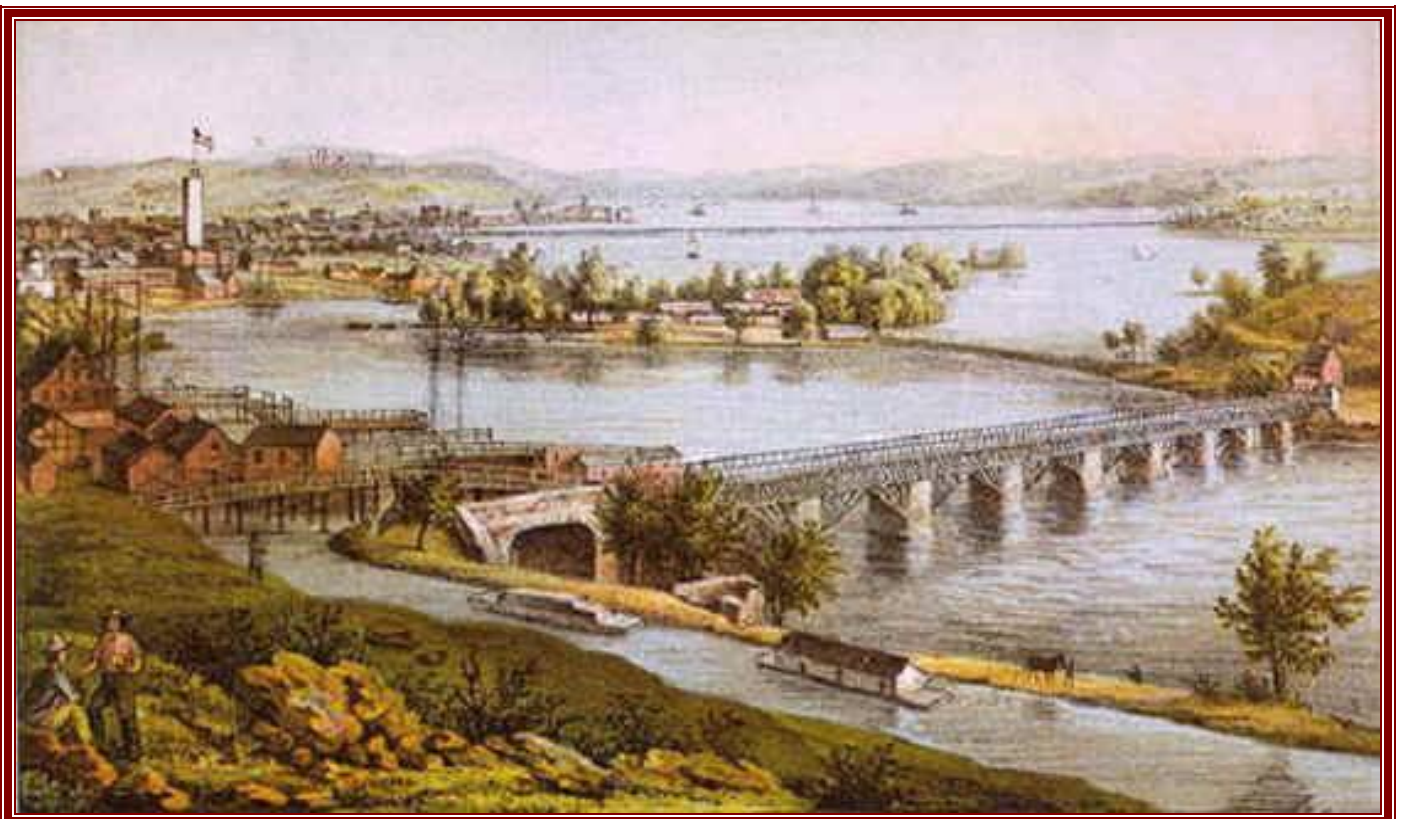
The United States Military Academy at West Point



Fort Wayne



Fort Montgomery



Union Arch Bridge, Washington Aqueduct



Montgomery C Meigs

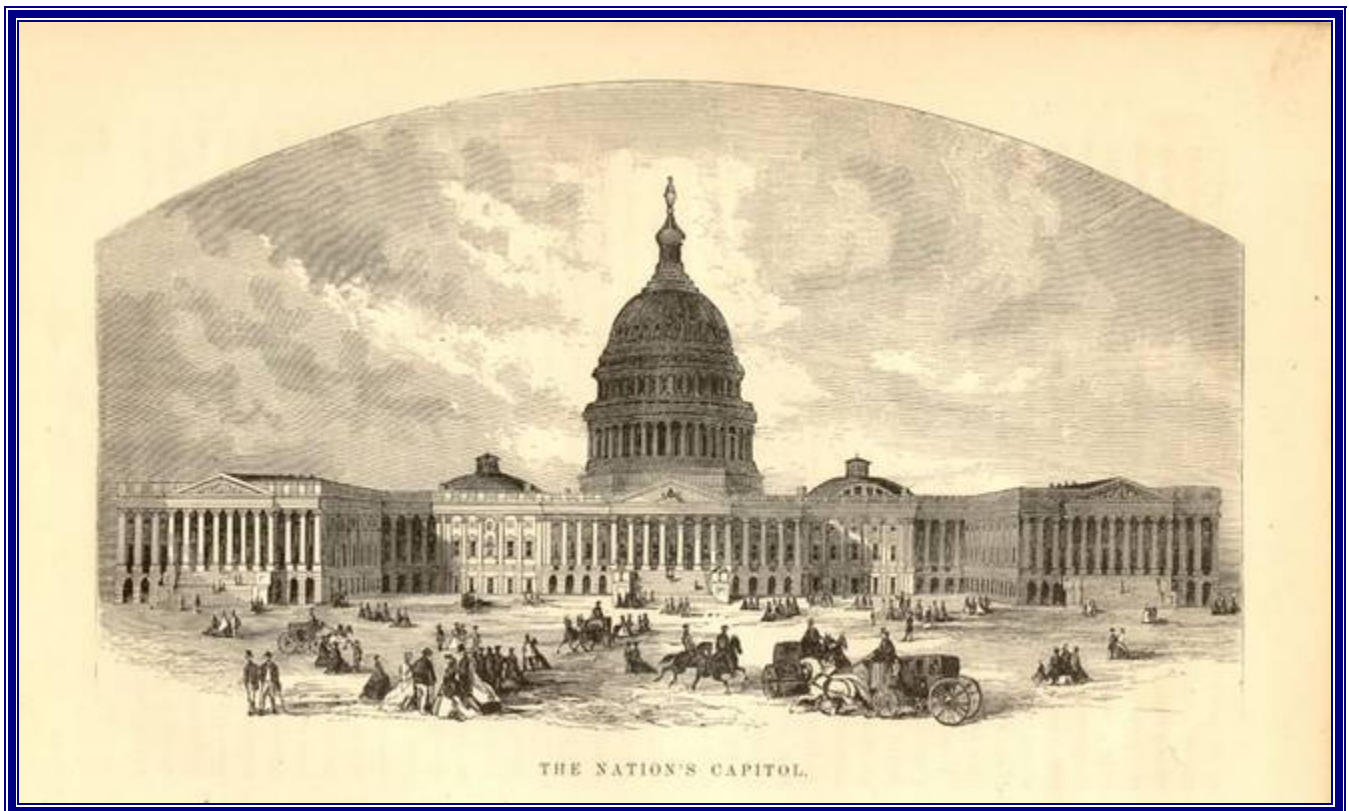
The United States Capitol, Washington DC

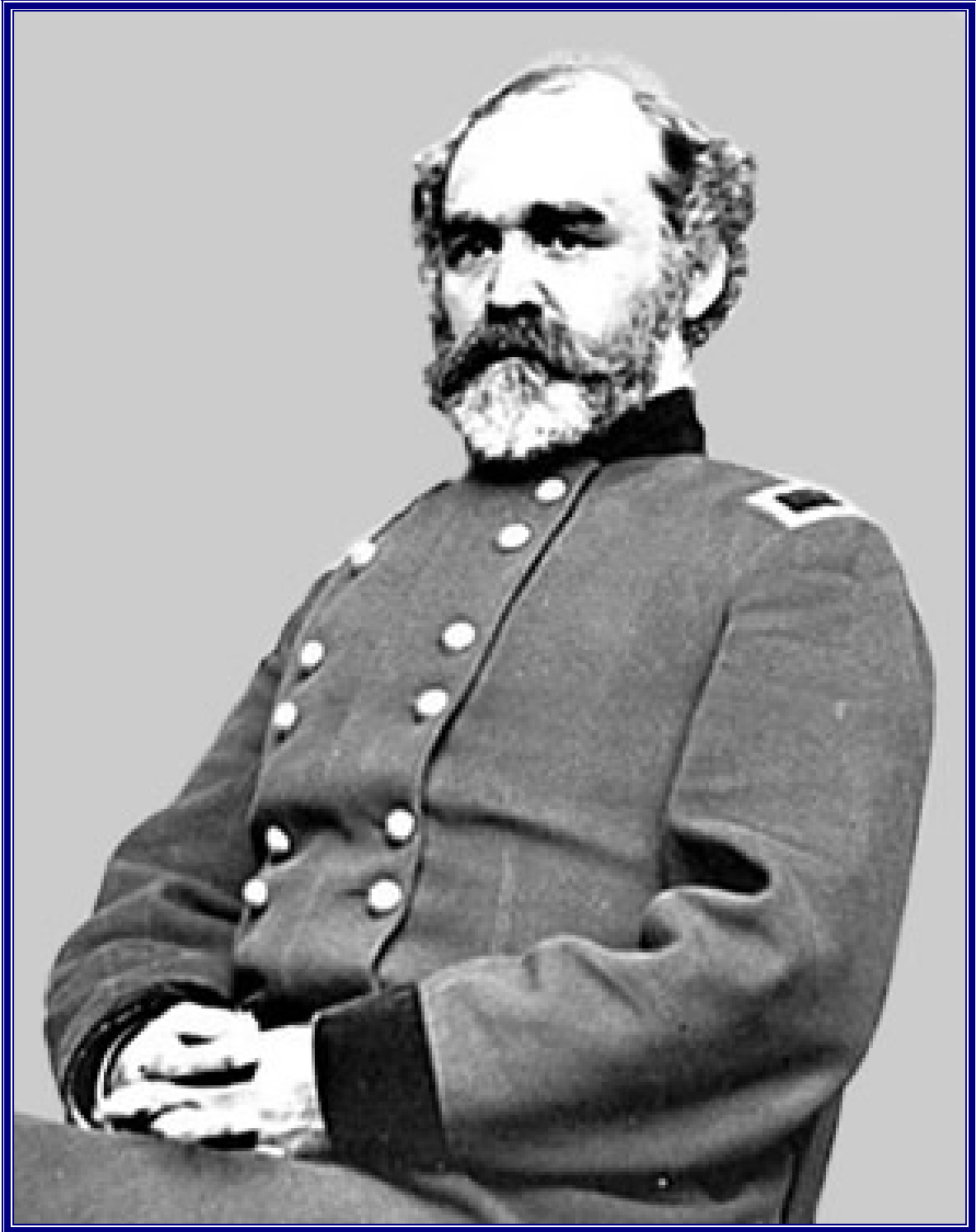
A design competition for a US Capitol building was held in 1792. However, the most promising entry by Stephen Hallett, a French trained architect, was deemed too French and too costly. A late entry in January 1793 by an amateur architect, William Thornton, though in the French style, was approved and Thornton was appointed as the First Architect of the Capitol, but his design was later modified by Benjamin Henry Latrobe and then by Charles Bullfinch.

The Senate and House of Representatives was finally completed in 1811, but soon after the Capitol was badly burned in 1814 by the British. Reconstruction began in 1815 and this phase continued until 1926. By 1850, it became clear that the Capitol was not large enough to accommodate the growing number of legislators from newly admitted states, and President Fillmore appointed the architect Thomas U Walter to carry out the expansion. This comprised two new wings, doubling the length of the Capitol. In addition, in 1855, the decision was made to tear down the existing dome and replace it with the cast-iron dome that stands today.

In 1855, the problems of heating and ventilating the new House and Senate were passed to Captain Montgomery Meigs “the able, if occasionally pompous, Superintendent of Construction,” who considered the task “the most difficult piece of engineering and construction that I have yet to undertake.”

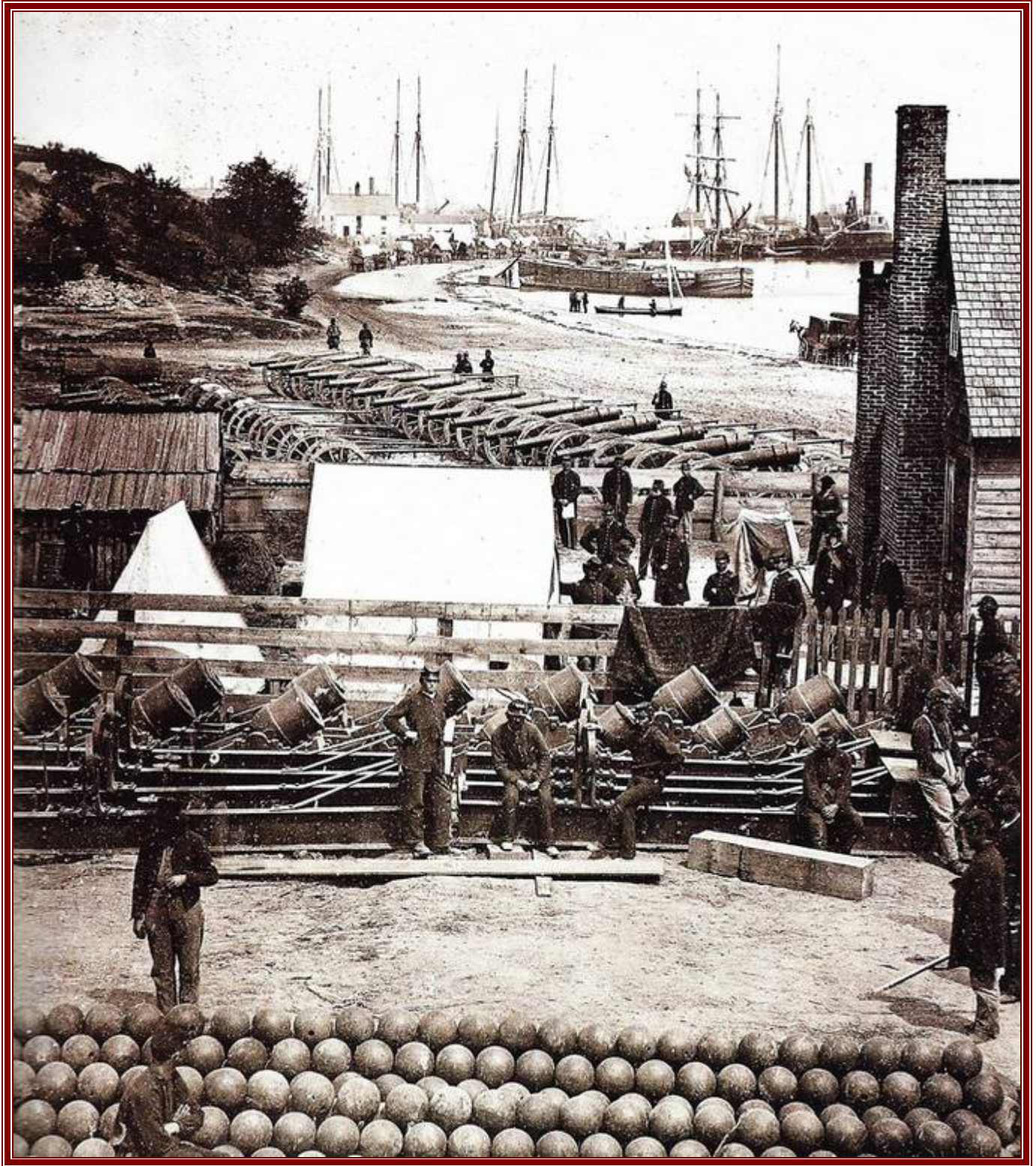
Details and drawings of the heating and ventilating systems adopted by Meigs are given in Part-2 of this ebook.





Montgomery C Meigs

In March 1862, the Union army at last set out to reinforce the garrison at Fort Monroe located on the Virginia peninsula, the remainder of the State being in Confederate hands. Meigs “organised the great flotilla of 400 vessels that took three weeks to ferry the Army of the Potomac to Fortress Monroe: 121,500 men, 14,592 horses and mules, 1,150 wagons, 44 batteries of artillery, 74 ambulances, pontoon bridges, tons of provisions, tents, telegraph wire.....” His other responsibilities during the Civil War included command of the supply base at Fredericksburg for Lieutenant General Ulysess S Grant (December, 1863), command of a Division defending Washington (July, 1864) and refitting Major General William T Sherman’s army at Savannah (January, 1865).



Under Meig's direction, ordnance for the Union Army of the Potomac piles up at Ship Point near Yorktown, awaiting shipment to Fort Monroe on the Virginia peninsula.

General Post Office, Washington DC



Stereoscopic photo card

In 1810, the US Government purchased Blodgett's Hotel in Washington DC to house the General Post Office and the US Patent Office. The building had been designed in 1793. After British troops had burned Washington in 1814, Congress met in the former hotel until the rebuilding of its damaged public buildings could take place. Unfortunately, in 1836, fire destroyed both the Post Office and the Patent Office and it was decided to construct a new building on the site.

President Andrew Jackson appointed Robert Mills, who would later design the Washington Monument, as architect. The first stage of the building was completed in 1855 and the architect Thomas Ustick Walter was appointed to design the proposed extensions. These were halted during the Civil War when the basement was used to store munitions. Captain Montgomery Meigs, who had worked with Walter on the additions to the Capitol, is reported to have "engineered the addition's inbuilt mechanical heating and cooling system," but the details seem not to be available. The work was completed in 1866.



The General Post Office, Washington DC

Pension Building, Washington DC



In 1881, the US Congress directed Meigs to develop a fireproof building to house the Pensions Bureau, a department to administer the pensions of the many thousands of veterans of the Civil War. Work began in 1882. Meigs thought to create a light and airy environment for the federal employees and a fitting tribute to those having served in the Civil War.

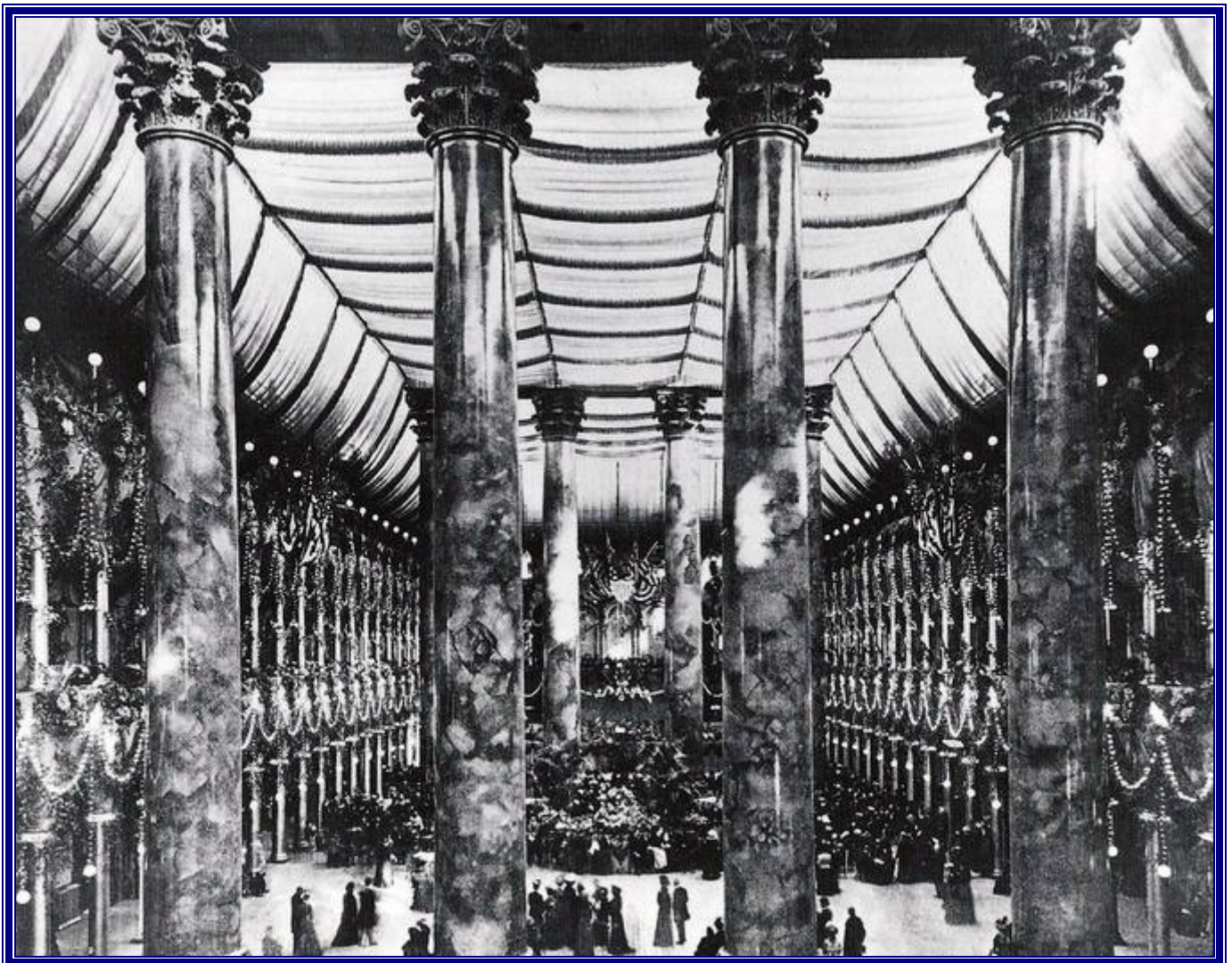
The red brick building, named by some as “Meigs Red Barn,” occupied an entire city block and used 15.5 million bricks. It is 400 feet long by 200 feet wide with the lower exterior facades said to be modelled on the Palazzo Farnese in Rome. The exterior walls are constructed of load-bearing brick, 75 feet high and 2 feet 4 inches thick, faced with decorative masonry and ornamental terracotta. Inside, the Pension Building is dominated by a full height atrium in the centre with interconnecting rooms at the perimeter. The Great Hall is divided into three courts by two sets of four colossal Corinthian columns, supporting a metal and glass roof structure.

One description of the engineering services states “numerous technological innovations were incorporated into the building’s design. A fresh air ventilation system was based on the premise that the central atrium could act as a giant flue. The exposed roof structure, ornate fenestration and the full height of the Great Hall acted as a chimney to exhaust unwanted heat. Air was automatically drawn from the perimeter of the building through the clerestory windows, which were opened by a mechanical system. The large central hall with perimeter offices ensured there were no dark corridors, with daylight and air permeating every space.”

This project was finished in 1887 and was Meigs last. He died on 2 January, 1892, aged 75, and was buried in the Arlington National Cemetery.



The giant columns, which are 75 feet high and 8 feet diameter, under construction.



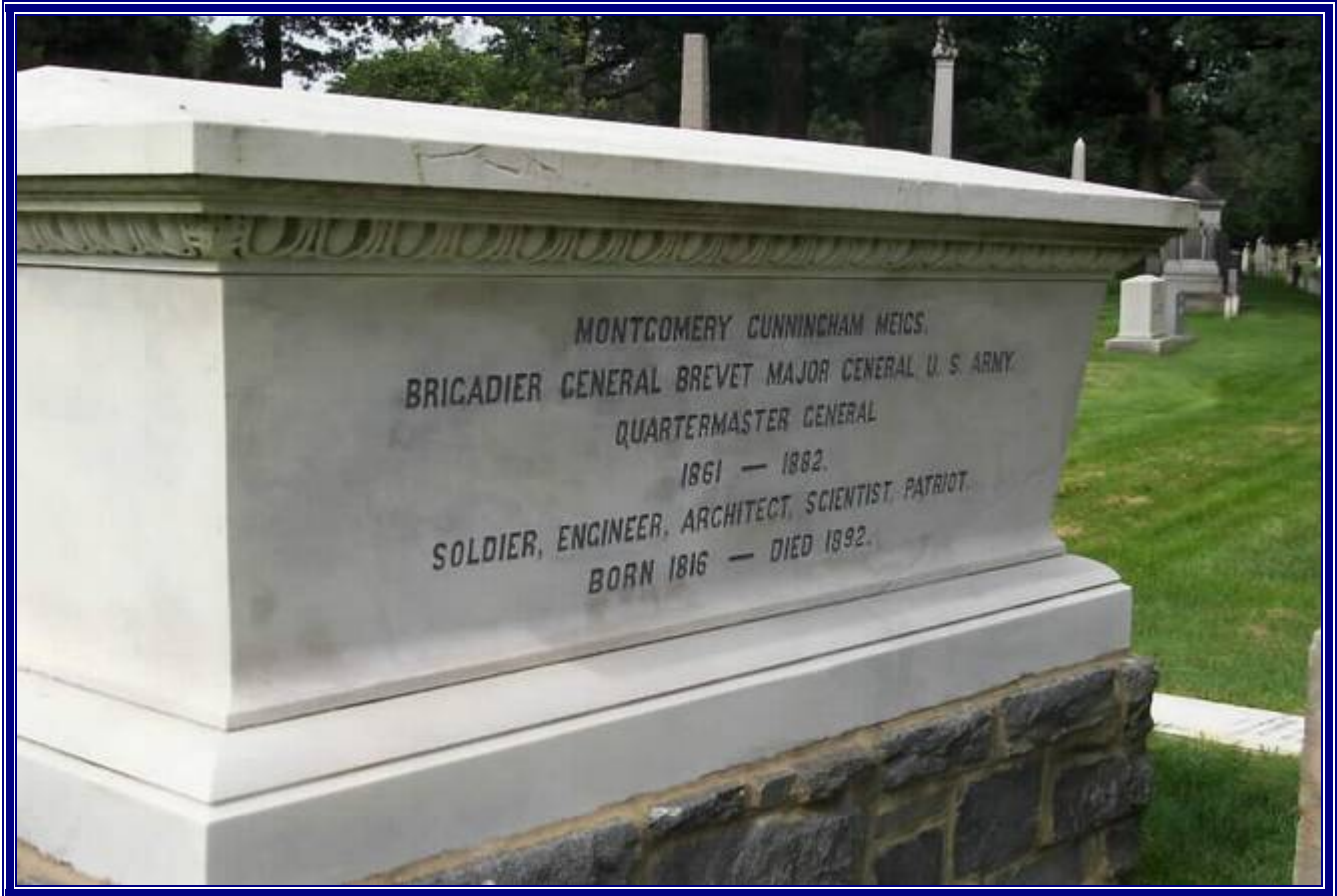
President William McKinley's second Inaugural Ball in 1901



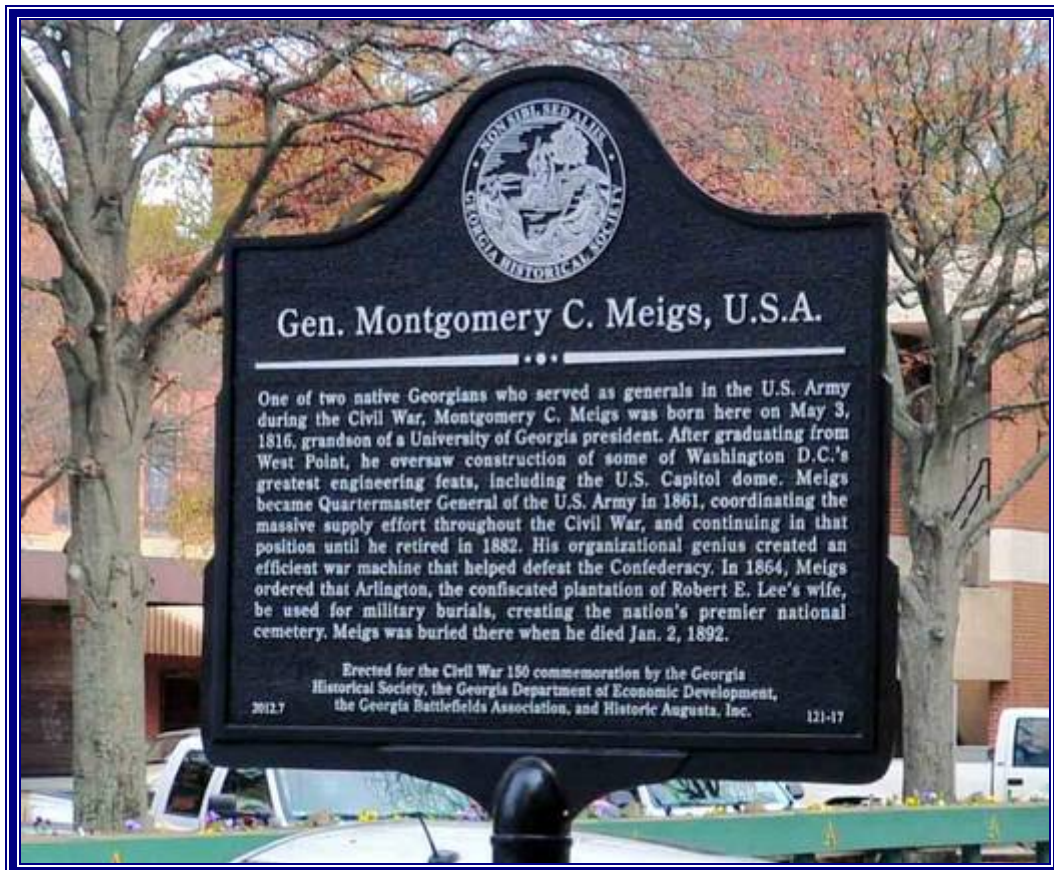
The Pension Building became the National Building Museum in 1985



Interior of Meigs house on Vermont Avenue in Washington in 1892



Meig's Tomb at Arlington



A Memorial Marker to Meigs in Augusta, Georgia



Portrait of Montgomery Cunningham Meigs

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