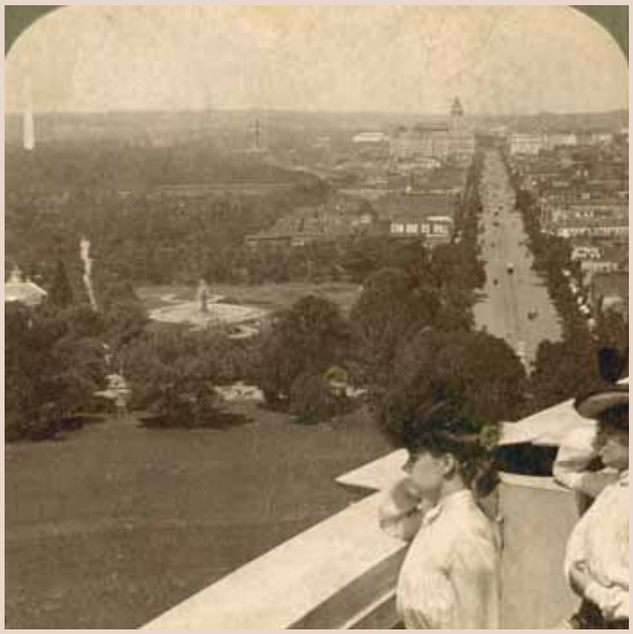
Windows on the Mall

An Architectural History of the U.S. Botanic Garden

By William C. Allen

The U.S. Botanic Garden stands at the foot of Capitol Hill overlooking the eastern end of the National Mall. Its tall arched windows look out onto the sloping grounds of the Capitol and the great white dome that presides so majestically over the capital city. Straight ahead is the Grant Memorial with its brooding statue of the Civil War general flanked by representations of cavalry and infantry—a superb composition in bronze and marble that shimmers in the waters of the nearby reflecting pool. Farther down the Mall are the remarkable museums that form the Smithsonian Institution. Nearby is the National Gallery of Art, housed in two marble buildings that are themselves admirable works of art. Standing over the western end of the Mall are the Washington Monument and Lincoln Memorial, two strikingly different yet equally powerful tributes to two great leaders. Education, preservation, beauty, and memory are themes that are common to all structures lining the national Mall.

The Mall is Washington's "monumental core." Although its physical appearance has evolved over the years, it was created by the original city plan drawn in 1791 by the French-American artist-engineer Pierre Charles L'Enfant. L'Enfant's plan of America's new capital—to be laid out on what had been Tidewater Maryland farmland—had all the accouterments of a great city: broad avenues, vast public plazas and squares, and prominent sites for national buildings such as the Capitol, the President's House, a national church, a national bank, a market, and a theater. The plan called for an immense city covering eleven square miles at a time when London covered just eight.



(above)
View of the Botanic Garden on the Mall from the Capitol dome, ca. 1900.
Architect of the Capitol

(opposite)
Capitol dome viewed from the canopy walk in the Conservatory Jungle.

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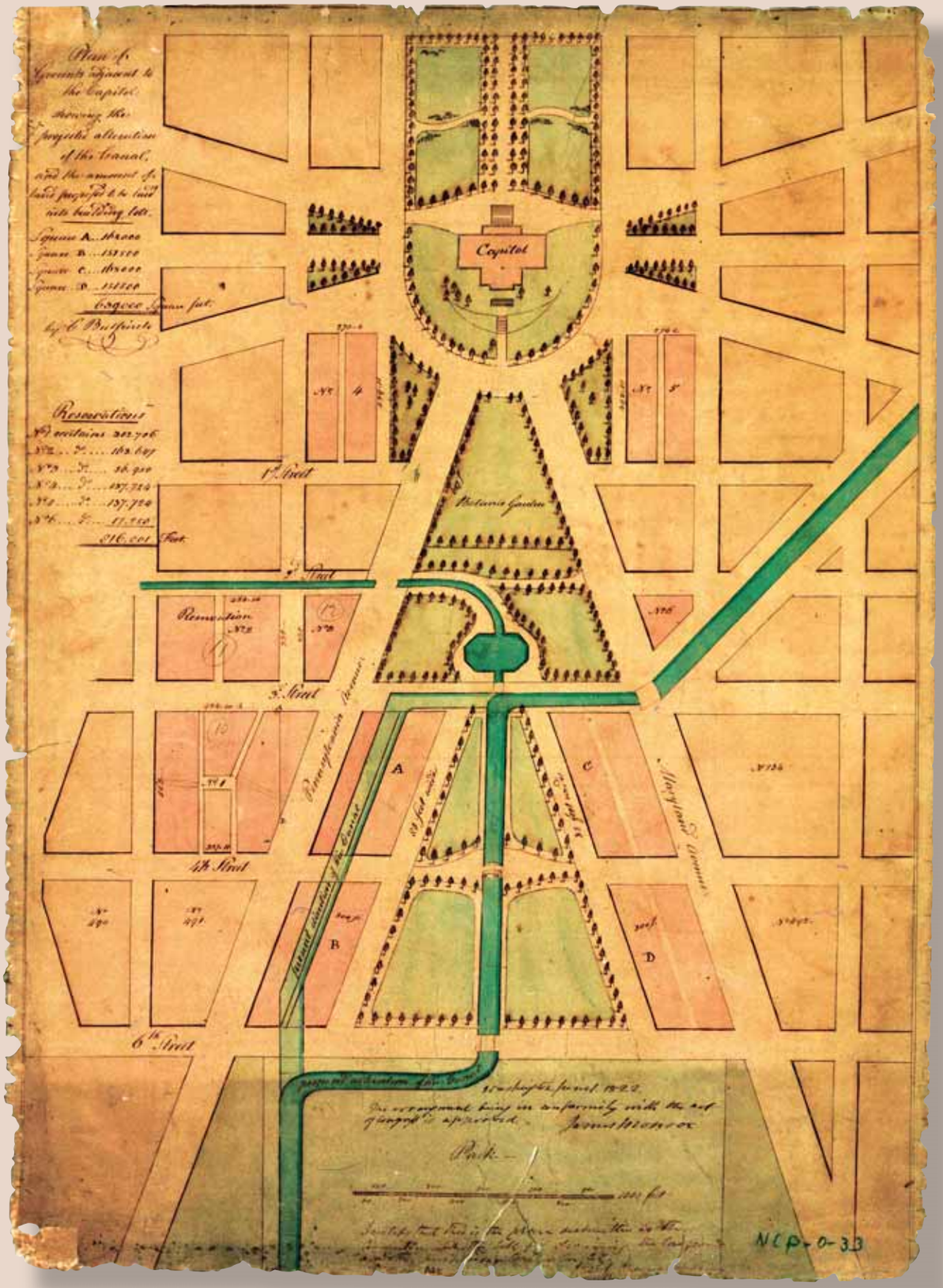

Plan of Grounds Adjacent to the Capitol
Capitol
Reservations
1st Street
2d Street
3d Street
4th Street
6th Street
Botanic Garden
Reservation
Maryland Avenue
A
B
C
D
Park
NCP-0-33

L'Enfant's plan was the fulfillment of his patron's fondest wishes for the city that would bear his name. George Washington had first envisioned a new city to serve as the nation's capital even while the outcome of the war for independence was still uncertain. He wanted it located on the banks of his beloved Potomac River, which he foresaw as the principal route to the bounty that lay west of the Appalachian Mountains: in Washington's view the Potomac was a prime locale for commercial as well as for political activities. In 1790 Congress had granted the president the authority to select the specific site for the seat of government along the Potomac and created a three-man board of commissioners to oversee preparation of the city for the installation of government ten years thereafter. At this time Washington began to focus on three things that would make the city a success: grandeur, permanence, and usefulness. Grandeur in the city's plan and in the public buildings would make the place irresistible to those in Congress who would otherwise be reluctant to forgo the comforts of New York or Philadelphia. It would supersede other commercial centers and state capitals in the affections of the American people and develop into a truly national metropolis that would help bind far-flung states into a stronger, more unified nation. Washington also valued the idea of a permanent capital that would not be relocated on a whim—a stable and secure location from which to govern a stable and secure nation. After the wanderings of Congress during the Revolutionary War period, permanence would be welcomed. As for usefulness, like most Americans, Washington valued practicality above almost any other virtue. Wherever possible, he sought to combine it with grandeur. While considering the ambitious idea of a domed Capitol, for instance, he said that he liked the concept of a dome because it would give the building grandeur and provide a useful place to hang a bell or mount a clock.

The idea of a botanic garden as a useful and ornamental part of the capital

(above)
View of the Capitol at Washington, by William Henry Bartlett, 1837.
Architect of the Capitol
The Botanic Garden was located south of Pennsylvania Avenue (right), yet it appears indistinguishable from the Capitol grounds. Fashionably dressed sightseers stroll past the site of the garden on their way to the Capitol.

(opposite)
Plan of Grounds adjacent to the Capitol, by Charles Bulfinch, 1822.
Cartographic and Architectural Branch, National Archives
Flanked by Pennsylvania and Maryland Avenues, the original site of the United States Botanic Garden was a wedge-shaped plot of ground at the foot of Capitol Hill. Its design can only be surmised from vague depictions on maps such as this one by the architect in charge of completing the Capitol, Charles Bulfinch.

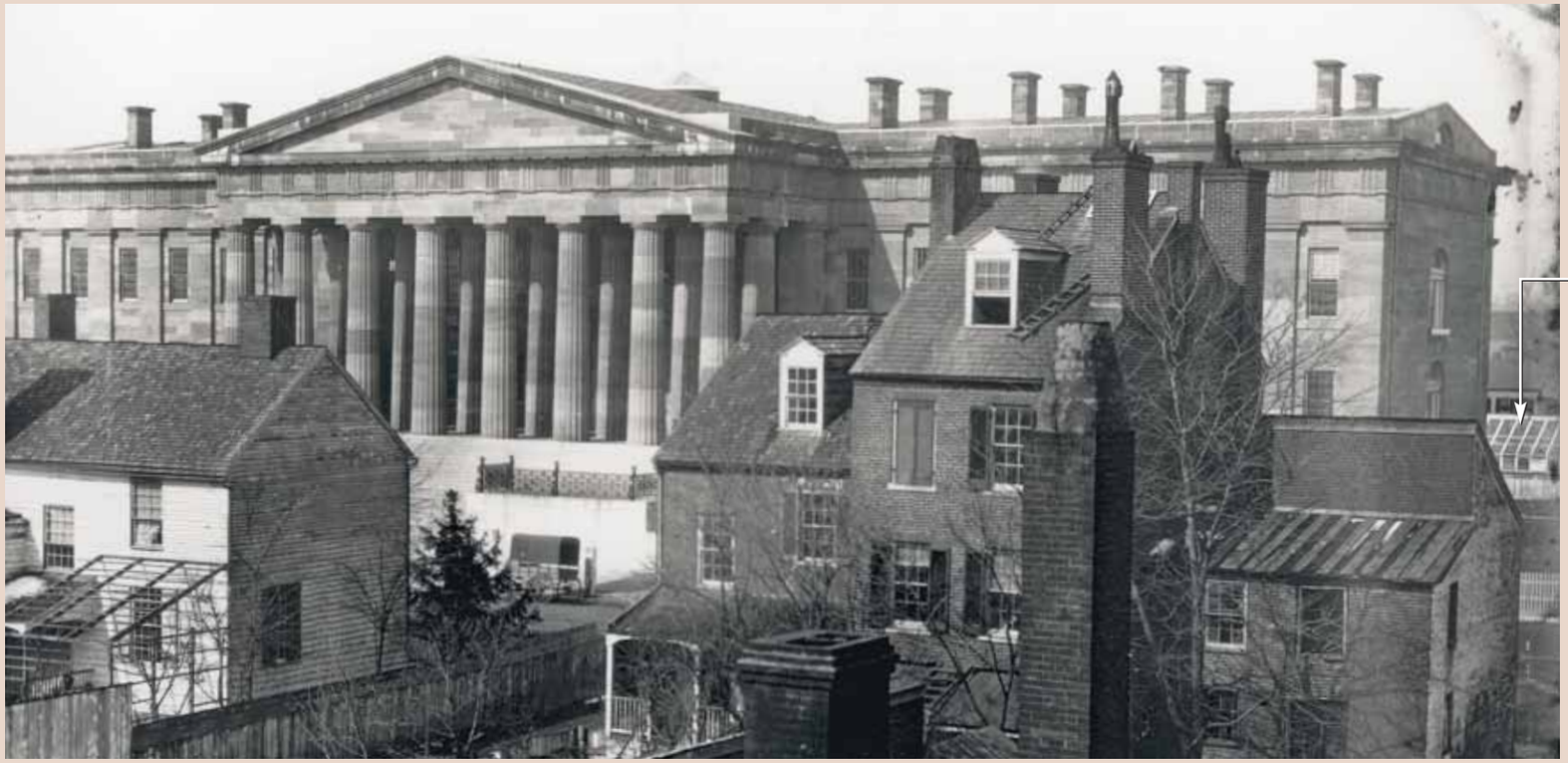
(above)
Wye Plantation Orangery, Talbot County, Maryland.
Library of Congress, Prints and Photographs Division
In the eighteenth century, greenhouses and botanic gardens were rare private luxuries.

(opposite)
The Patent Office, daguerrotype by John Plumbe, 1846.
Library of Congress, Prints and Photographs Division
With its monumental Doric portico modeled after the Parthenon in Athens, the Patent Office was one of the great civic improvements made to Washington in the Jacksonian era. In this extremely rare early photograph, a small glass greenhouse, temporary home of the Botanic Garden, is visible to the right (see arrow). Plants from the U.S. Exploring Expedition were housed here until they were moved to the site of the original Garden near the Capitol.

was first articulated in 1796 when one of the city commissioners, Alexander White, wrote the president's strongest ally in the House of Representatives, James Madison, with a proposal to establish such a facility on the city's "pleasure grounds" (i. e., the Mall). The matter was apparently discussed among government leaders in Philadelphia and within a month Washington had written back with his approval. He was especially enthusiastic due to its possible relation with another favorite project—a national university. Washington suggested locating both facilities west of the President's House on a site overlooking the Potomac near the present-day State Department. If that location were inadequate, the president wrote, then perhaps a site overlooking the Anacostia River would be suitable. (L'Enfant had designated that site for a marine hospital.) A third possible location was the President's Square, but that was to be considered temporary unless private interests improved it with pleasure walks.

The potential locations that Washington suggested for a national botanic garden were all prominent, which suggests the significance he attached to it. Of the three locations, two were within walking distance of the President's House, which perhaps indicates that he considered the botanic garden as a potential amenity for the nation's principal residence. At Mt. Vernon, Washington had a substantial brick greenhouse (built in 1787) and a private botanic garden, in which he cultivated useful and rare plants for medicinal, agricultural, and ornamental purposes. Greenhouses were not common in America during the eighteenth century, but for wealthy planters like Washington, they seem to have been highly prized. One of the finest greenhouses to survive from that period is on Wye Plantation in Talbot County, Maryland, seat of the Lloyd family. Thomas Jefferson's greenhouse, still in service at Monticello, was integrated into the main residence just off his library and bedroom. The expense and scarcity of glass, however, put this luxury beyond the reach of most Americans.

The city that Washington had envisioned and that L'Enfant had mapped out on paper took generations to mature. Its development was retarded by the remoteness of the site; a perpetual shortage of workmen, money, and materials; and a reluctance in Congress to support improvements amid constant threats of removing the seat of government to Philadelphia or to the west. After British troops torched the public buildings during the War of 1812, only the irresistible force of Washington's memory could persuade the nation's legislators to keep the capital on the Potomac. The Capitol, the President's House, and the executive offices were



Botanic Garden Greenhouse, 1846.

restored on their original locations and according to the original designs that Washington himself had approved (albeit with inevitable modifications). New, monumental buildings for the Treasury Department, the Patent Office, and the Post Office were constructed in the Jacksonian era, which expanded upon the ideas of grandeur, permanence, and usefulness that were vital to the founder's vision. Improvements to city parks were slowly made, fenced to keep out wandering cattle and hogs, landscaped with flower-beds and meandering walkways, and occasionally ornamented with statuary. Although a rarity, some streets around the public buildings were paved. The city's growing pains had eased by the mid-nineteenth century, but it would still take years before a world-class capital emerged.

Not all of Washington's hopes for the city came to be: a national university, for instance, never materialized. Other things simply took time, and the U. S. Botanic Garden was a case in point. Although the idea for a botanic garden had been around for a quarter century, it did not come into being until 1820 when the Columbian Institute for the Promotion of Arts and Sciences was granted use of five acres for a garden on the Mall at the foot of Capitol Hill. The garden was enclosed with a board fence and contained a pond, paths, and planting beds. Despite membership that included presidents, senators, representatives, cabinet secretaries, and the Marquis de Lafayette, the institute suffered financially and from a lack of leadership: the Columbian Institute and its botanic garden went out of business in 1837. Except for vague and imprecise markings on historic maps, there are no visual records or remains of that garden.

In 1842 the garden was reincarnated in a small, unassuming greenhouse located behind the Patent Office. It was built to house materials collected by the U.S. Exploring Expedition of 1838–1842 but was torn down in just eight years to make way for a substantial enlargement of the building. In a happy coincidence,

(above)

The Crystal Palace, London, illustration, ca. 1851.

Library of Congress, Prints and Photographs Division

Although much smaller and less influential, the Botanic Garden's Gothic greenhouse was nonetheless related to Joseph Paxton's Crystal Palace in London, one of the principal monuments of iron-and-glass architecture.

(opposite)

Botanic Garden greenhouse, ca. 1860.

Smithsonian Institution

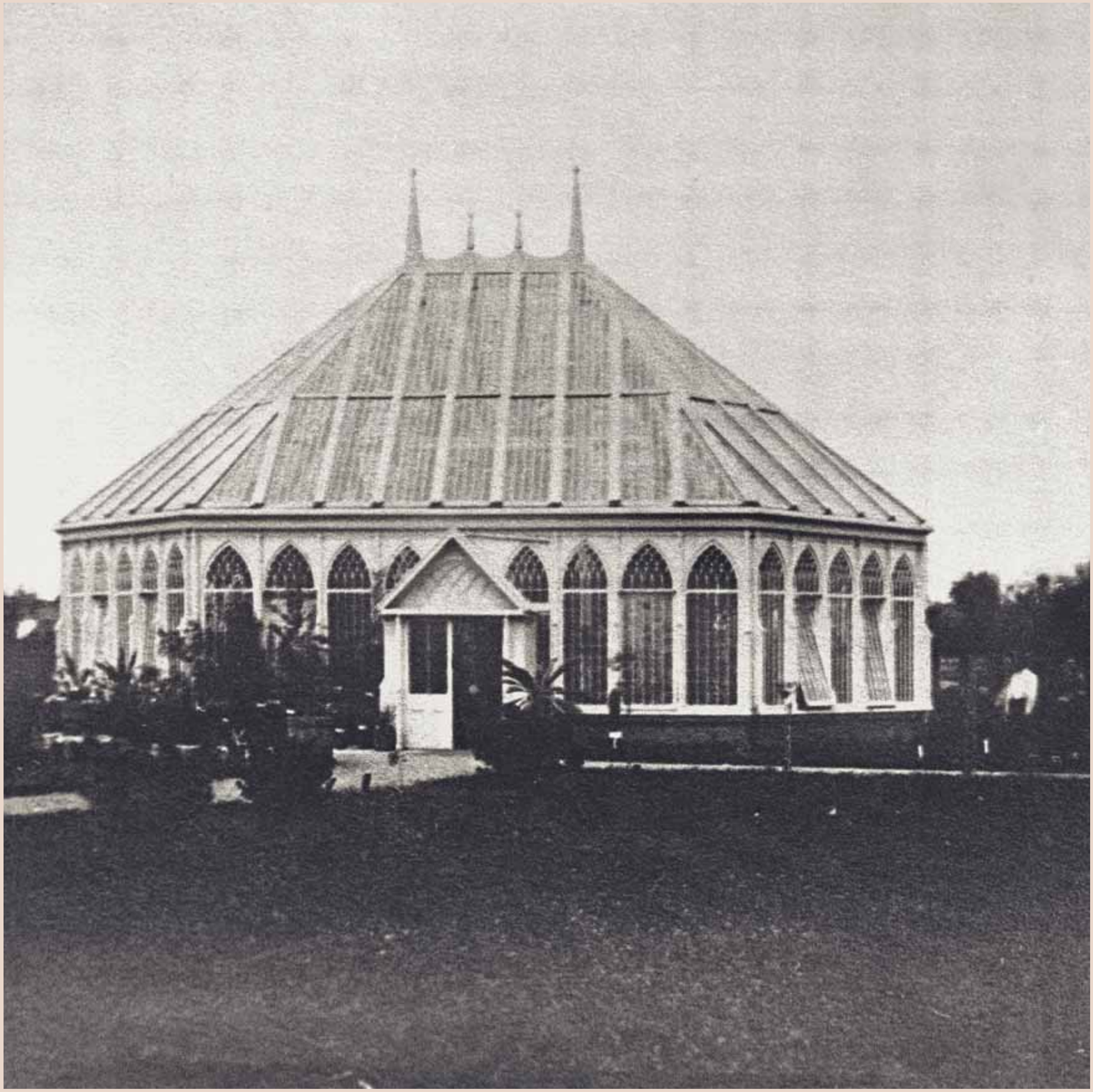
This is the earliest known close-up photograph of the first greenhouse located at the eastern end of the national Mall. The pointed arched windows and roof pinnacles provide the Gothic touches that were considered fashionable in the 1840s and 1850s.

however, the appearance of the greenhouse was documented by John Plumbe, who photographed Washington public buildings in 1846. While his camera was aimed at the Patent Office he also captured a charming array of brick and frame residential buildings in the foreground and a little greenhouse in the background. There appears to be no architectural pretense about the greenhouse, which consisted of a simple painted iron or wood frame holding large panels of sheet glass.

Congress appropriated $5,000 in 1850 to relocate the Botanic Garden. It was returned to the plot of ground on the eastern end of the Mall where the first garden had been located. The commissioner of public buildings had a greenhouse constructed, but little is known of its designer or builder. Credit is sometimes given to Thomas U. Walter, the architect of the Capitol extension, but his papers and other documents do not support the attribution. (In addition, the Botanic Garden greenhouse was most likely built a year before Walter moved to Washington.) From photographs, it is known that the new greenhouse was a more elaborate and a larger building than its predecessor behind the Patent Office: in plan it was an elongated octagon with Gothic sash and tall pinnacles along the ridge line. Although of a much smaller scale, it is nonetheless related to other, more stylish iron and glass conservatories such as the Royal Palm House (1848) at Kew Gardens near London, and is exactly contemporary with one of the great monuments of nineteenth-century glass architecture, the Crystal Palace (1850–1851) in London. All of these buildings depended on advances in structural iron and developments in casting and rolling glass, which made large, open, and naturally lit spaces possible.

During the Civil War era, the little Gothic greenhouse appeared forsaken at the bottom of Capitol Hill, surrounded by ill-kept grounds and the decrepit skeleton of the Washington Canal. Photographs taken of the Capitol from the west during the war years were intended to show the progress of the great iron dome rising above the rotunda, but they sometimes also captured the solitary Botanic Garden in the foreground. Happily, the Garden's prospects began to look up a few years after the Battle of Appomattox when additions transformed the little greenhouse into a Victorian conservatory of ample style and proportion.

In 1867 Congress made the first of a series of appropriations to enlarge the greenhouse at the Botanic Garden. The first appropriation of $35,000 stipulated that the new section would have a central dome and a wing designed by the architect of the Capitol extension, which had been approved by the Joint Committee on the Library. The architect, Edward Clark, was



1858

1860

(this page and opposite)

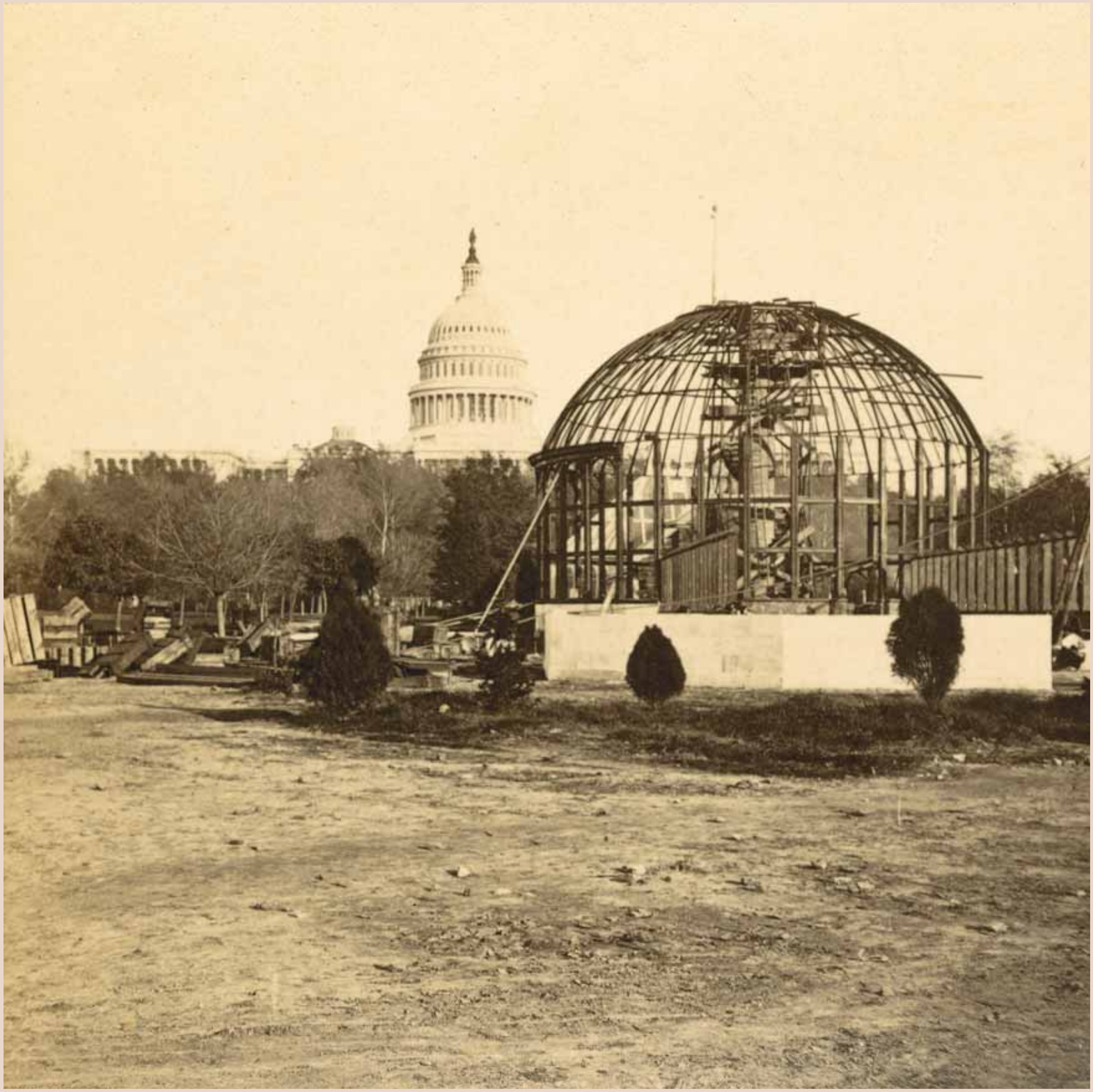
Views of the Capitol from the west, 1858, 1860, 1862, and 1865.

Architect of the Capitol

Although the purpose of these photographs was to show the progress of the iron dome rising above the Capitol's rotunda, the Botanic Garden is also seen flanked by the dilapidated Washington Canal. The garden's Gothic greenhouse and auxiliary structures were protected from wandering wildlife by a plain, sturdy wooden fence.

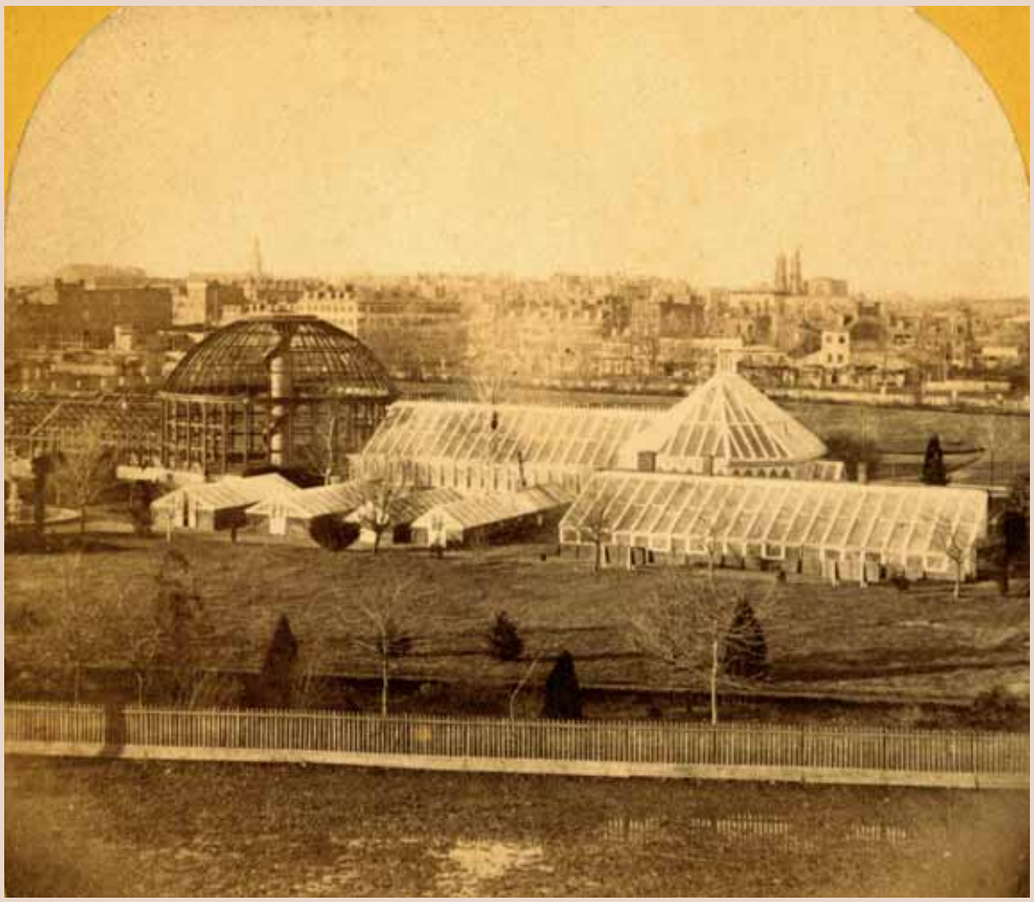
1862

1865



a former pupil and protégé of Thomas U. Walter, and he had taken over the Capitol extension office upon Walter's resignation in 1865. Clark had little of his old boss's genius for design, but he was capable of planning enlargements that were thoroughly respectable. In Clark's scheme the little octagonal greenhouse would form the eastern pavilion of a five-part conservatory. The next section would be a so-called parallelogram, or hyphen connecting the octagon with a new central rotunda. Two more building programs would be necessary to construct a matching parallelogram and a western octagon. Each section was constructed with iron posts, hinged iron sash, ventilators, hoisting gear, and cast plates for floor walks. Heat was provided by hot water pipes and a furnace that was connected to a round brick chimney that rose through the center of the rotunda. An iron stair wrapping the chimney allowed visitors a bird's-eye view of the interior. The rotunda and first parallelogram were built by the Architectural Ironworks of New York City in 1867–1868, while the west parallelogram and west octagon were constructed by Washington iron workers E. N. Grey and G. E. Noyes in 1872 and 1873, respectively.

Once the conservatory was completed, the grounds around the Botanic Garden were enclosed with an iron fence. Impressive brick and marble gates were



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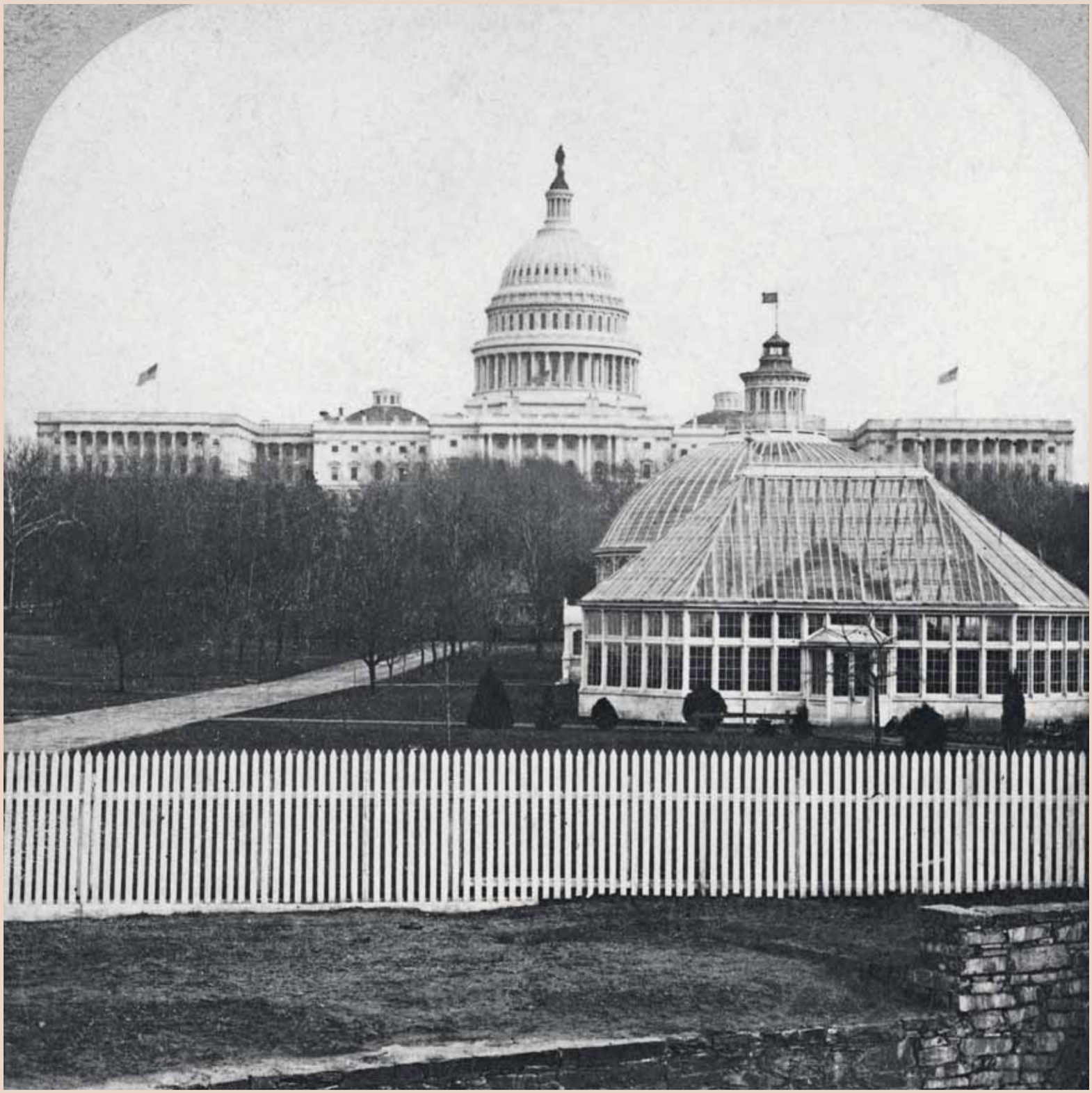
Construction of the Botanic Garden rotunda and wings, 1867–1873.
Architect of the Capitol

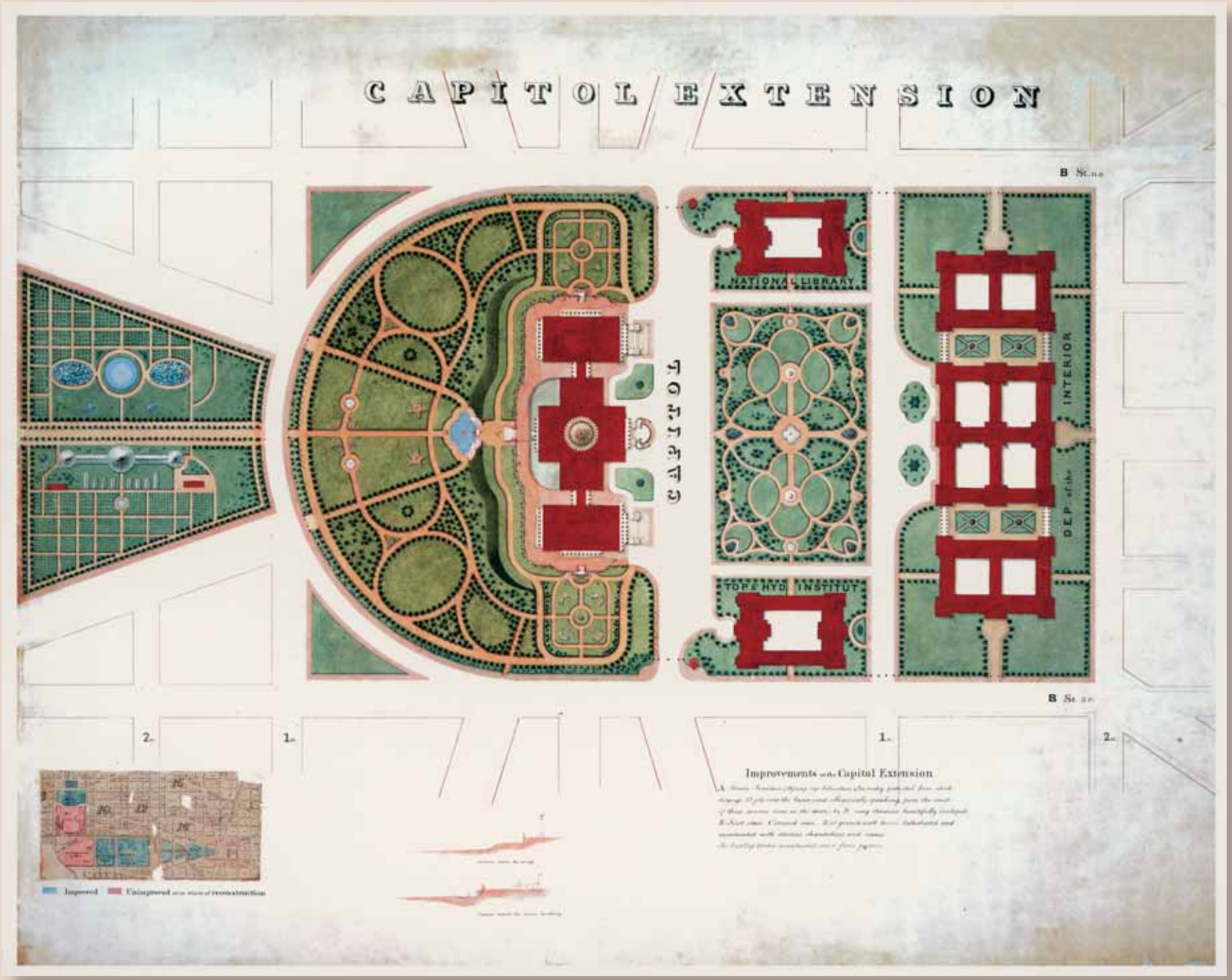
(above)
The rotunda of the Botanic Garden's Conservatory, ca. 1880.
Architect of the Capitol
The main pavilion of the Victorian Conservatory, built in 1867, was the third of five sections. An observation platform allowed visitors to view the garden while the lantern disguised a large central chimney.

(opposite)
Botanic Garden Conservatory and west front of the United States Capitol, 1887.
Architect of the Capitol
The close proximity of the garden to the Capitol is illustrated in this view from a stereoscopic image.

positioned along the streets that bordered the ten-acre property (Maryland and Pennsylvania Avenues between First and Third Streets, west). In addition to the conservatory, the Botanic Garden now consisted of two houses used as the superintendent's office and a seed house, two large greenhouses located near the office, eight propagating houses, and two old hot houses. In 1877 the government paid $6,000 for an iron fountain sculpted by Frédéric Auguste Bartholdi (later famous for the Statue of Liberty) that had stood at the Centennial Exhibition in Philadelphia. Landscape architect Frederick Law Olmsted, Sr., who was redesigning the Capitol grounds at the time, had learned that the fountain was available and recommended to the Architect of the Capitol that it be bought and placed in a suitable location. A new water basin was built opposite the conservatory's principal (north) front to receive the fountain. In 1885, it was illuminated by the addition of thirty-six gas lights.

While the Botanic Garden was being finished, the rest of the Mall was filling up with ever more disparate neighbors. After the Civil War, Congress had allowed several railroads to lay tracks across the Mall to let south-bound trains from the north (and vice-versa) speed through the city. Railroad stations were built on or adjacent to the Mall. In 1868 the

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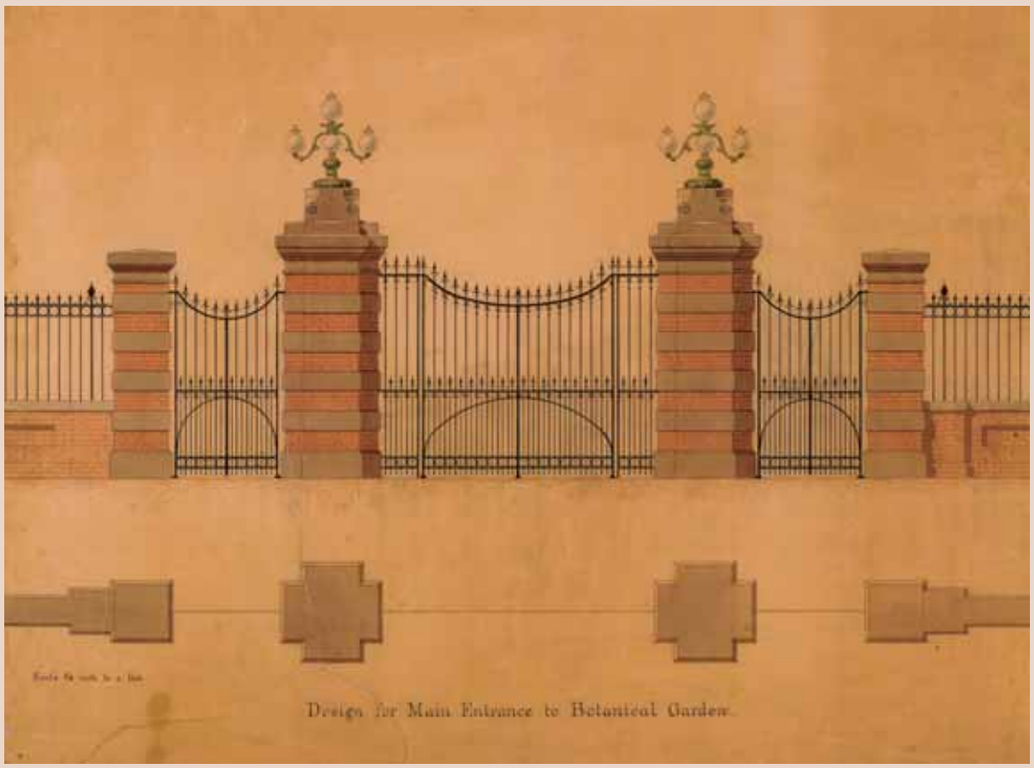
Improvements in the Capitol Extension
Improved
Unimproved

Department of Agriculture built a Second Empire–style headquarters on the Mall at Fourteenth Street. It was fronted by a formal French garden that juxtaposed itself against an existing Romantic (and overgrown) garden fronting its Smithsonian neighbor. Critics deplored the helter-skelter appearance and, as Washington approached its one hundredth anniversary as the nation's capital, professionals in the design field clamored for improvements and restoration. The Senate Committee on the District of Columbia created the McMillan Commission (named for its chairman, James McMillan of Michigan) to address the problems. Members of the commission included the architect Daniel Burnham of Chicago, the landscape architect Frederick L. Olmsted, Jr., and the sculptor August Saint-Gaudens. They became convinced that the national Mall had to be returned to L'Enfant's original vision: an unencumbered open space lined with classical buildings. Among other things, this meant clearing extraneous structures off the Mall, including the U. S. Botanic Garden.

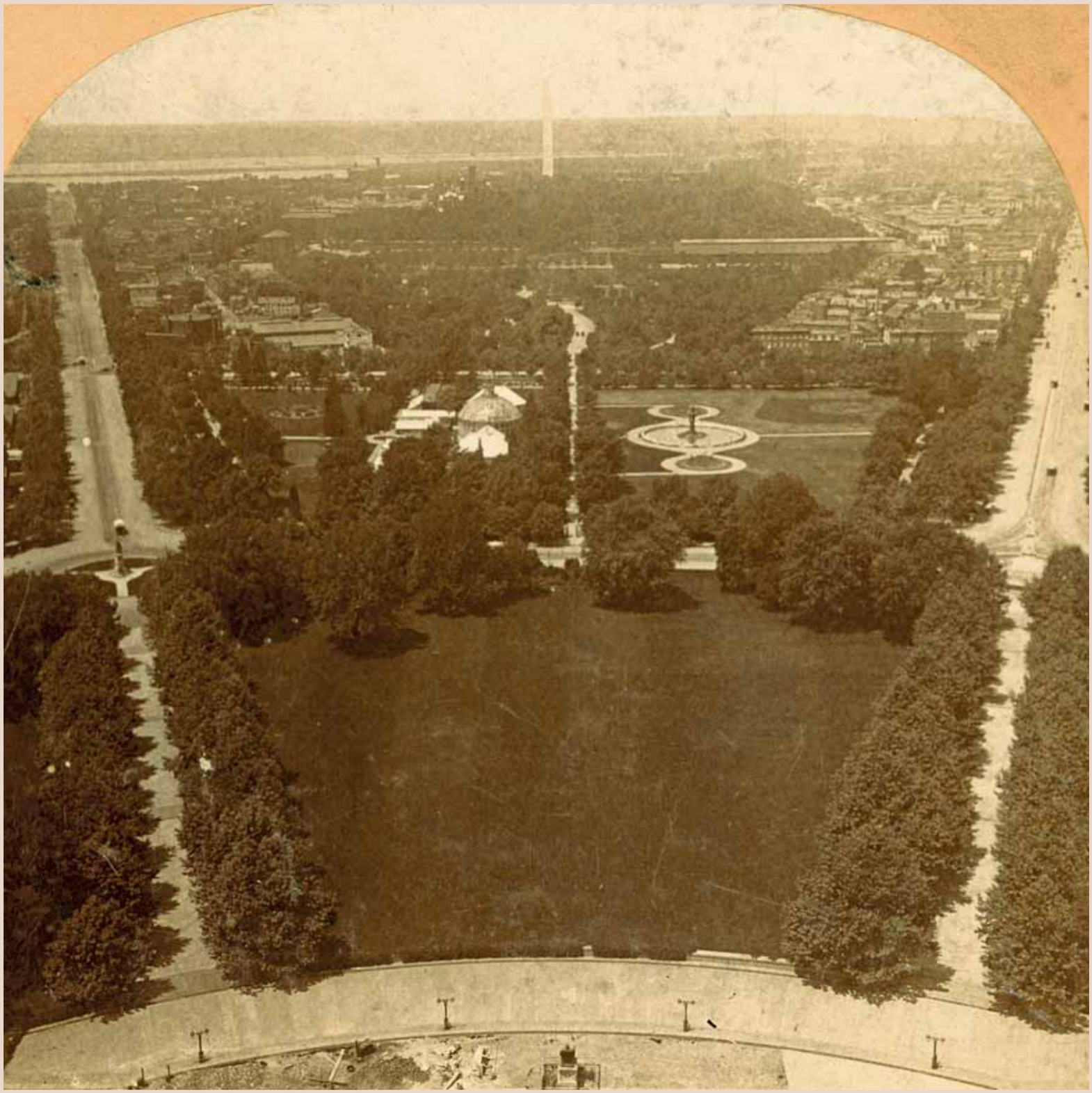
While relocating the Botanic Garden was a major step towards restoring the Mall, the Garden did not move far. It was simply shifted a few hundred feet south to a new site overlooking its former setting, which was slated to become the site of the Grant Memorial, authorized by Congress



(above)
Design for Main Entrance to Botanic Garden, Edward Clark, architect, ca. 1874.
Architect of the Capitol

(left)
View of the West Front of the Capitol from the Botanic Garden gates, ca. 1890.
Architect of the Capitol
To complement the enlarged and upgraded Conservatory, the Architect of the Capitol designed a handsome iron fence and entrance gates for the Botanic Garden.

(opposite)
Improvements at the Capitol Extension, T. Enthoffer, 1871.
National Archives
While the main purpose of this drawing was to show landscape improvements intended for the Capitol grounds, the artist also illustrated the site plan of the U. S. Botanic Garden at left center.



(opposite)

View of the Mall, Maryland Avenue, and Pennsylvania Avenue from the Capitol, ca. 1890.

Architect of the Capitol

Prominently displayed in the center of the Mall is the Bartholdi Fountain, which the government purchased in 1877 on the recommendation of Frederick Law Olmsted, Sr. To the left (south) of the fountain is the rotunda of the Garden's Conservatory.

(above)

The Botanic Garden, ca. 1910.

Architect of the Capitol

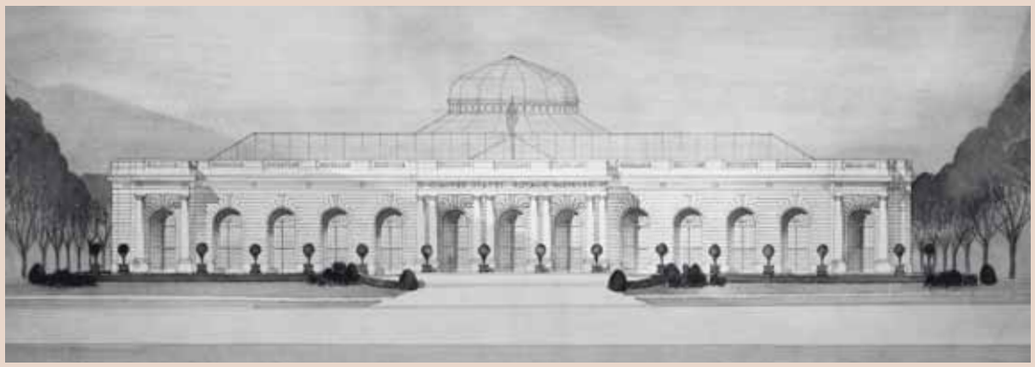
The Botanic Garden's most visible features, the Conservatory and the Bartholdi Fountain, are shown here. Barely visible to the left of the fountain is the base for the unfinished Grant Memorial.

(left)

U.S. Capitol and the Mall from the Washington Monument, ca. 1910.

Library of Congress, Prints and Photographs Division

To restore the Mall, the McMillan Commission proposed removing the extraneous buildings, railroad tracks, and overgrown woods shown here.



(above)

Preliminary rendering of the north elevation of the U.S. Botanic Garden, Bennett, Parsons & Frost, ca. 1930.

Architect of the Capitol

To economize on the final design, the architects reduced the principal elevation by two bays and simplified it by eliminating the Doric order.

(opposite)

Construction of the new Botanic Garden Conservatory, photograph by Underwood & Underwood, 1932.

Architect of the Capitol

The aluminum structure for the great Palm Court is shown here framing a view of the Capitol dome.

in 1902. For years the move was delayed by protests against the inevitable removal of trees from the former Botanic Garden site, but in 1927 the final relocation legislation was enacted. The timing coincided with a long-term project begun in 1910 to clear the residential and commercial neighborhood that once existed between the Capitol and Union Station. (The new station allowed removal of railroad tracks that formerly encumbered the Mall and was one of the first and finest achievements of the McMillan Commission.) This too was a beautification project prompted by the same forces that drove the Botanic Garden off the Mall. The station's architect, Daniel Burnham, declined the commission to create the new park between Union Station and the Capitol, but recommended the architectural firm of Bennett, Parsons & Frost of Chicago, where one of the principals, Edward H. Bennett, was a Burnham protege. It was a natural step for the same firm to be put in charge of designing the new Botanic Garden.

The design that emerged from the drafting boards in Chicago drew upon two distinct greenhouse traditions. The front portion was a simple, well-proportioned limestone building with pronounced rustication, lofty arched openings, and a flat roof with a balustrade. It was a tightly controlled neoclassical revival design that is closely related to the seventeenth-century orangery at Versailles. Its simple, symmetrical masonry block with pronounced windows also relates it to eighteenth-century greenhouses in America—including Washington's at Mount Vernon. Distinctive heads, or mascarons, were carved for alternating keystones on the facade—the sole sculptural decoration found on the building. They were modeled by Leon Hermant, a French-American sculptor whose most famous work was the *Pasteur Memorial* in Chicago's Grant Park. The actual carving was performed by the Shawnee Stone Company in Bloomington, Indiana. The heads that Hermant created represent four figures from ancient mythology: Pan, a male figure with horns, wild flowers, and oak leaves; Pomona, a female figure with wild flowers and a head-band; Triton, a male figure with aquatic flowers and shells; and Flora, a young and smiling female figure with roses.

Behind the formal stone front is the Conservatory, which was derived from the nineteenth-century iron-and-glass

(above)
Keystone carvings on the Botanic Garden's new Conservatory.
Architect of the Capitol
The dramatically carved heads sculpted by Leon Hermant were used as keystone ornaments and help to enliven an otherwise restrained architectural design. They represent (from left to right) Pomona, Pan, Flora, and Triton.

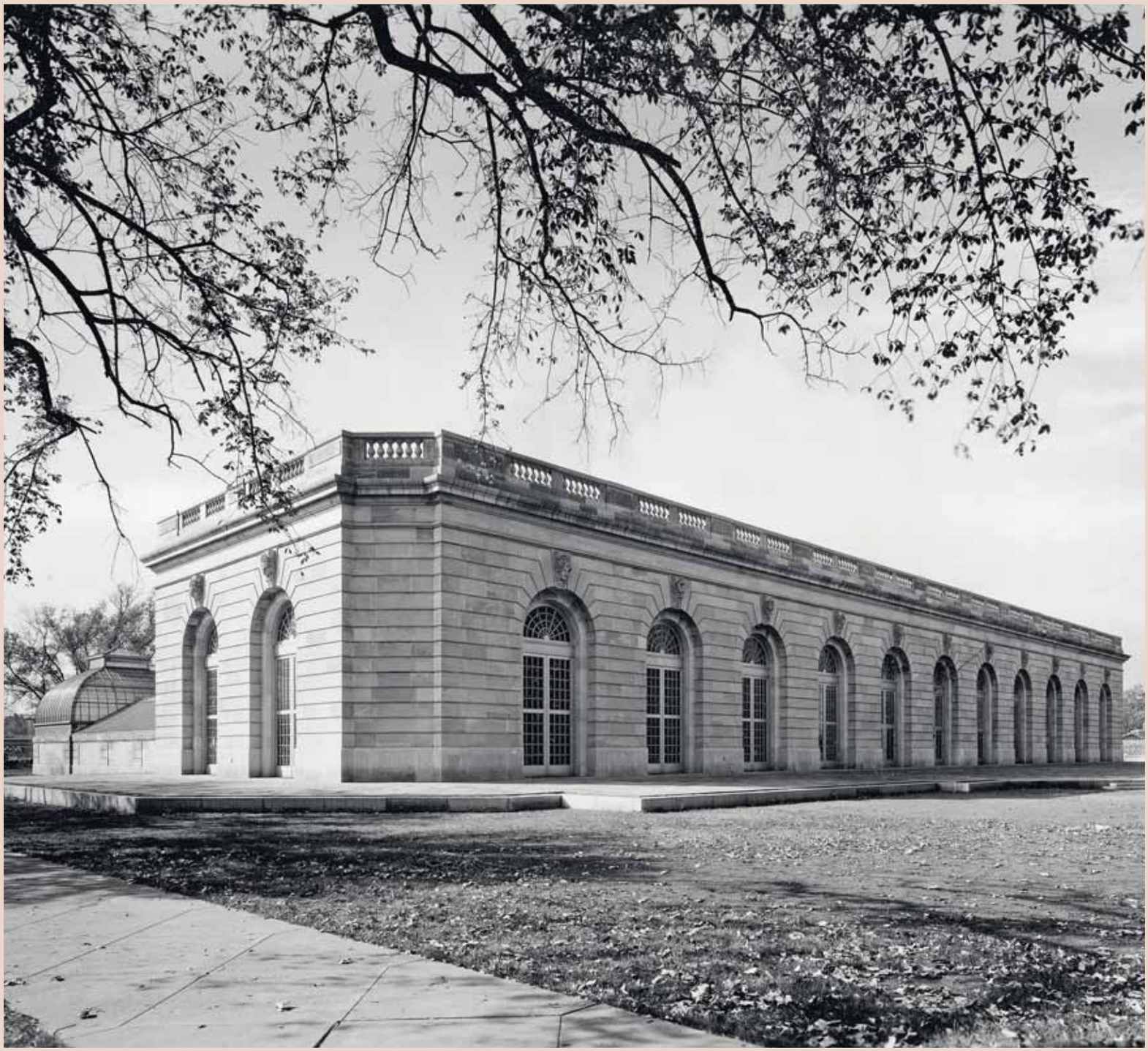
(opposite)
The new Conservatory, 1933.
Architect of the Capitol

(pages 72–73)
Time-lapse photographs of the Botanic Garden Conservatory reconstruction, 1997–2001.
Architect of the Capitol

greenhouse tradition. This greenhouse, however, made with aluminum, was the first major American building to exploit the structural possibilities of that strong yet lightweight metal. The interior contained a lobby 200 feet long, which provided access to almost 30,000 square feet of growing space. The most memorable interior feature was the great Palm House, which rose 83 feet above the ground and was covered by a dome 67 feet across. The Bohn Aluminum Company of Detroit was the supplier of the metal for the framework, while the fabricator was the venerable Lord & Burnham Company of Irvington, New York. The George A. Fuller Company of New York served as the general contractor for the Botanic Garden project, which by the time it was completed in 1933 had cost $633,585.

By the early 1990s, some of the structural aluminum used to construct the Conservatory had shown signs of weakness, prompting extensive renovation. The Palm House was dismantled in 1992, and in 1997 the Conservatory was closed for four years while the entire structure was reconstructed. The restored building, reopened in 2001, preserves the integrity of the original Bennett, Parsons & Frost design, while providing new environmental systems, modern facilities, and ADA-compliant access.

For more than 175 years the U. S. Botanic Garden has had a graceful and educational presence on the National Mall. Today hundreds of thousands of visitors come to the Garden each year to learn about its plant collections and programs, and to marvel at the beauty, scholarship, and stewardship the Garden represents. As a permanent and useful ornament in our grand capital city, the U. S. Botanic Garden helps fulfill George Washington's highest aspirations for his city on the Potomac.



November 20, 1997

September 21, 1998

December 19, 1998

February 16, 1999

May 10, 1999

July 23, 1999

November 5, 1999

February 21, 2000

April 6, 2000

May 24, 2000

August 4, 2000

November 5, 2000

November 22, 2000

January 5, 2001

May 14, 2001

November 20, 2001