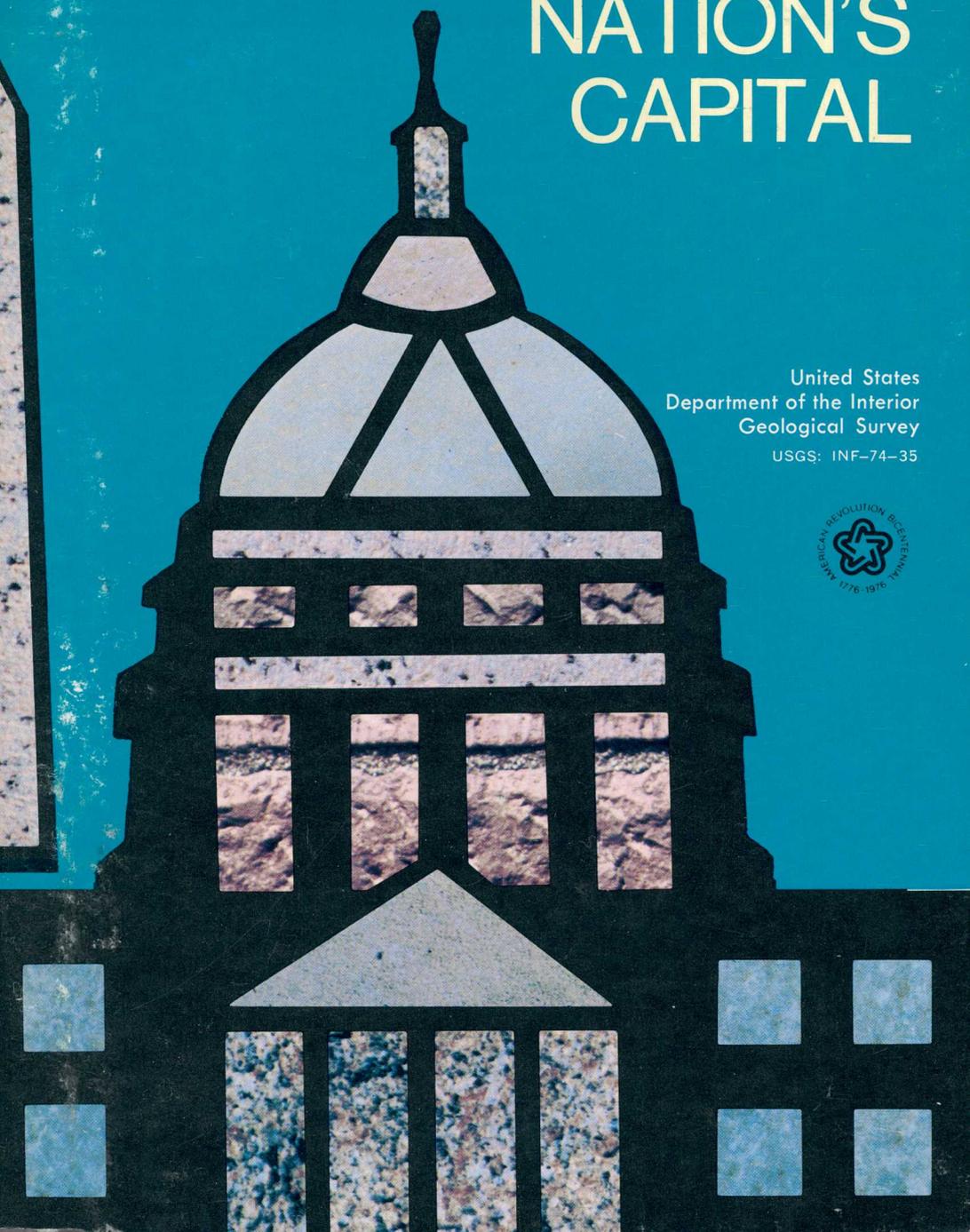


BUILDING STONES of our

NATION'S CAPITAL

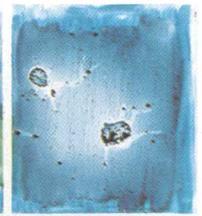
United States
Department of the Interior
Geological Survey
USGS: INF-74-35





BUILDING STONES of our NATION'S CAPITAL

The U.S. Geological Survey has prepared this publication not only as an earth science educational tool, but also as an aid in understanding the history and physical development of Washington, D.C., the Nation's Capital.

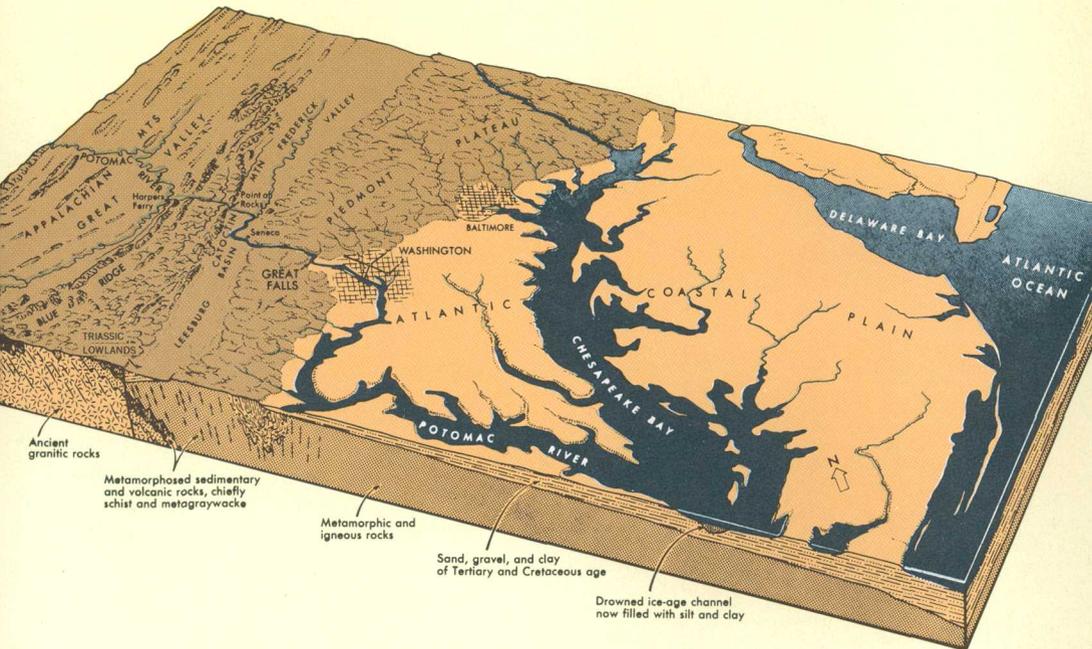


The buildings of our Nation's Capital serve as an unusual geologic display, for the city has been constructed with rocks from quarries throughout the United States and many distant lands. Each building is a unique museum that not only displays the important features of various stones and the geologic environment in which they were formed, but also serves as an historic witness to the city's growth and to the development of its architecture.

This booklet describes the source and appearance of the stones used in

Washington, D.C.; it includes a map and a walking guide to assist the visitor in examining them.

A building stone is judged by three characteristics. It should be pleasing to the eye; it should be easy to quarry and work; and it should be durable. Today it is possible to obtain fine building stone from many parts of the world, but the early builders of the city had to rely on materials from nearby sources because of the difficulty and cost of transporting them. Their decisions, guided by the types of stone available, influenced the



Physiographic Provinces and Geologic and Geographic Features of the District of Columbia region.

styles of architecture that are seen in the buildings of the Capital City.

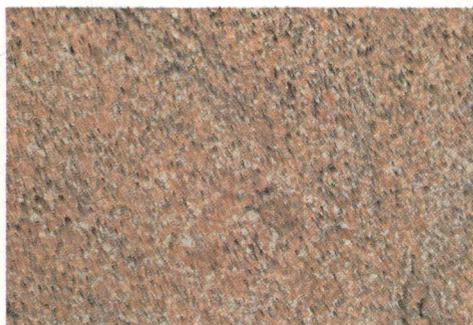
Metropolitan Washington incorporates parts of four physiographic provinces—areas in which the rocks and topography are similar, but differ considerably from those of the neighboring provinces. From east to west, these provinces are the Coastal Plain, the Piedmont, the Triassic Lowland, and the Blue Ridge.

The Atlantic Coastal Plain province borders the Atlantic Ocean and is underlain by gravels, sands, silts, clays, and marls of late Mesozoic and early Cenozoic age. Deposition of these

sediments began 100 million years ago and continues to the present time. The oldest rocks of the Coastal Plain are of Cretaceous age and are poorly consolidated gravels, sand, silts, and clays derived from the weathering of Piedmont rocks to the north and west and deposited by south-flowing rivers. Younger rocks consist of glauconitic and micaceous sands and clays of the late Cretaceous, Paleocene, Eocene, and Miocene ages which were deposited in estuaries and on the Continental Shelf in water that was generally less than 200 feet deep.



Limestone.



Granite.

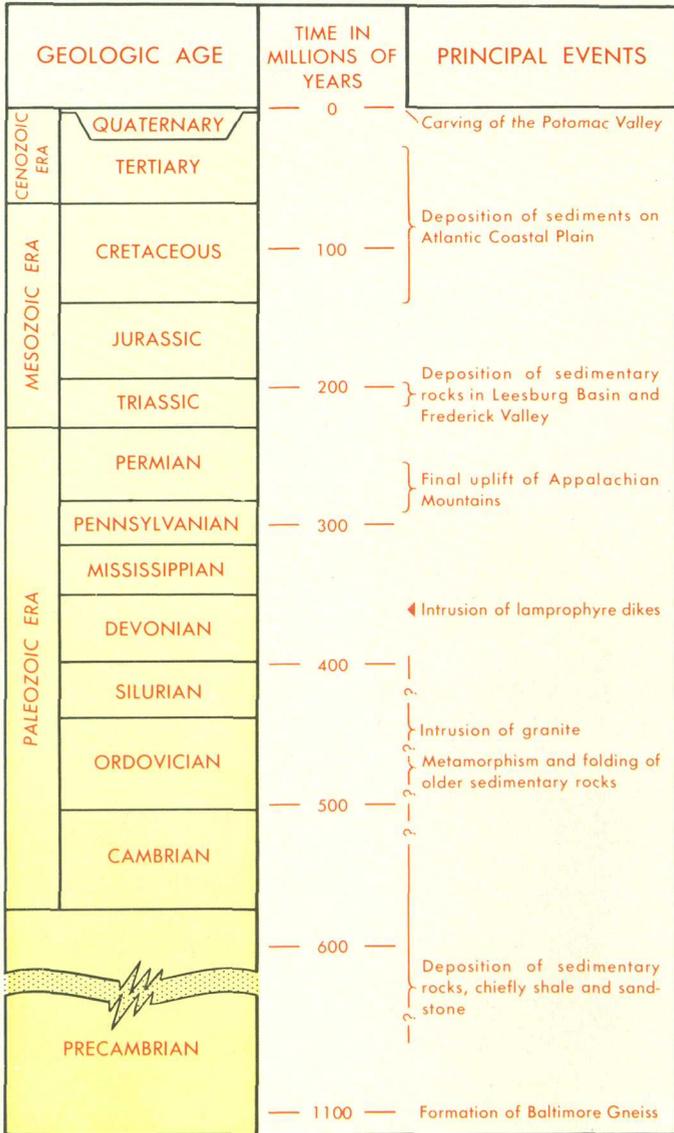
Samples of stones used in the Nation's Capital. Marble could be obtained from nearby quarries and was used frequently beginning in the 1850's. Limestone and granite were little used before this century.



Marble.

The Piedmont Plateau lies west of the Coastal Plain. The Piedmont rocks in and near Washington, D.C., are resistant crystalline schists and gneisses intruded by igneous rocks and veins of quartz and pegmatite. The best ex-

posures of these crystalline rocks are in valleys where the rocks have been stripped of soil cover by erosion. Most of the crystalline rocks on the uplands are weathered to saprolite, a decomposed, porous, spongy, red-



GEOLOGIC TIME CHART

brown clay-rich material, as much as 200 feet thick. The final product of weathering, seen near the surface throughout much of the Piedmont, is a sticky, micaceous, sandy and silty clay, generally having a reddish color.

The rocks of the Triassic Lowland province, deposited about 200 million years ago, are red shales and red and gray sandstones and conglomerates, which weather to a reddish soil. Near Washington these sedimentary rocks are as much as 5,000 feet thick and have been intruded by trap rock (resistant fine-grained diabase dikes and sills and basaltic flows). At the western edge of the basin sediments are a series of alluvial fans which are now lithified. These are made up of rounded to angular masses of limestone, quartz, and quartzite that range in size from sand grains to boulders

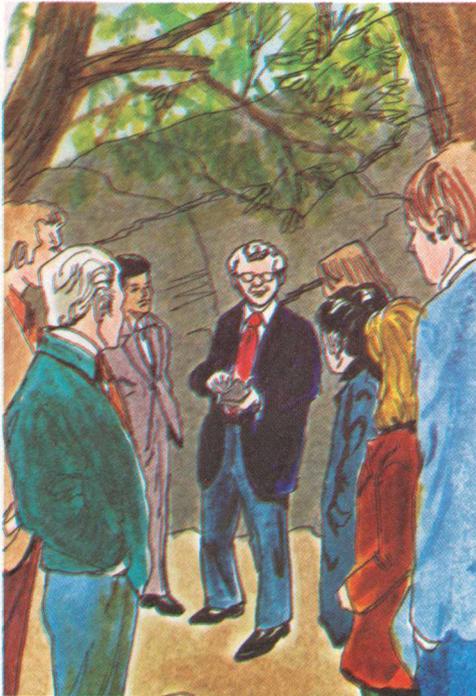
as much as 1 foot in diameter that are cemented by calcite.

The Blue Ridge province, lying west of the Triassic Lowlands, is a region of north- and northeastward-trending valleys and ridges underlain by folded metamorphic and igneous rocks. Near Washington, D.C., the rocks consist predominantly of granite, greenstone (metamorphosed from basaltic lava flows), and quartzite. Sharp north-trending ridges, formed by steeply dipping resistant quartzite, rise more than 1,000 feet above sea level.

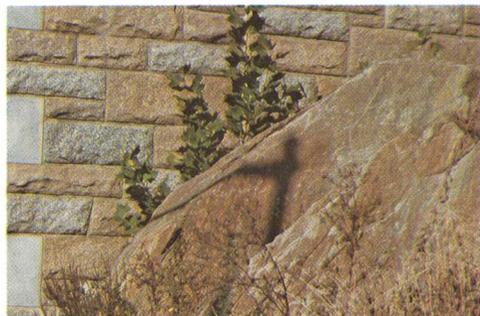
The earliest building stones used by the settlers were the schists and gneisses of the Piedmont which were quarried from outcrops along the Potomac River. These rocks, known locally as "Potomac bluestone," are still quarried west of the city in Montgomery County, Maryland.

In colonial days the first solid ground on the marshy north shore of the Potomac, now just north of the Lincoln Memorial, was an outcrop of Piedmont rocks which jutted into the river. This promontory served as the starting point for surveys establishing property lines for the early settlers. On several old maps, it is labeled "Key of all Keys," and for many years it bore a surveyor's benchmark. Its more popular name was Braddock's Rock reportedly because General Braddock and his red-coated soldiers, accompanied by Lt. Col. George Washington, landed there in 1755 on their way to Fort Duquesne.

In time Braddock's Rock became a quarry. It is said to have furnished stone for the foundations of both the White House and the Capitol. Later, stone from Braddock's Rock was used



in the construction of the Chesapeake and Ohio Canal. About 1832, when the canal was extended below Georgetown to connect with the Washington City Canal, most of what remained of the original outcrop of Braddock's Rock was blasted away. The riverside swamps have long since been filled and the land has been raised above the level of the original surface. All that remains of Braddock's Rock can be seen enclosed in a circular granite-lined well south of the grounds of the old Naval Hospital and adjacent to the approach ramps to the Theodore Roosevelt Bridge. An iron grill covers the top of the well, and a ladder 16 feet long leads down to the rock which is usually covered by several inches of water.



Braddock's Rock .

Many other quarries supplied both schist and gneiss from the Piedmont province to the city. One of the most important was the Little Falls Quarry on the Maryland shore of the Potomac just beyond the District of Columbia.

Much of the stone for the foundations and the backing for the marble of the Washington Monument came from this quarry. An engraved stone from the Little Falls Quarry appears among the various commemorative stones from all over the world that line the interior walls of the monument.

One of the oldest houses remaining in the Washington area, the Old Stone House at 3051 M Street NW., in Georgetown, is made of this rock. The house was built in 1765 by Christopher Lehman, a cabinetmaker. A good example of pre-Revolutionary archi-



Old Stone House.

ture, this historic house is now open to visitors.

The foundations of an even older building, constructed of this same crystalline rock about 1760, have been preserved intact in a brick warehouse at 1000 Wisconsin Avenue. The present structure, known as the Dodge Warehouse after its early owners, and the adjoining small building are among the few late 18th century commercial buildings of Georgetown that are still standing.

The most impressive stone structures that were built in Georgetown were in the canal works. These were predominantly of Piedmont crystalline rock. They included the walls and locks of the Chesapeake and Ohio Canal, the bridges over it, and the abutments and piers of the Aqueduct Bridge which carried canal boats across the Potomac River to the Alexandria Canal on the other side.

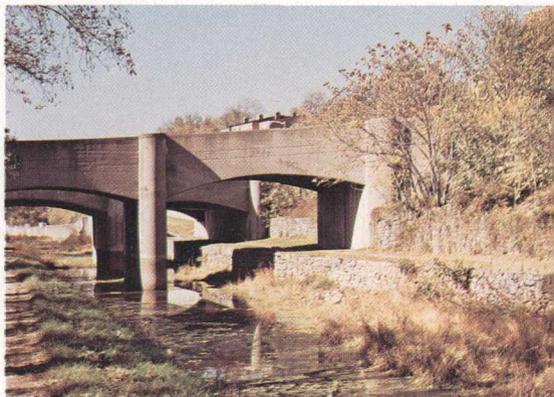
The Aqueduct Bridge was begun from the Virginia side of the Potomac in 1833, the same year work started on the Alexandria Canal. After much delay and mishap, rock bottom for the first pier was reached in December 1834, and 8 months later this pier was completed. In 1840, the last of the bridge's eight huge piers was finished with stone from the Little Falls Quarry a few miles upstream from the bridge. The massive double-arched abutment on the Maryland shore was constructed of the same stone by the Chesapeake and Ohio Canal Company.

In a belated move toward economy, the superstructure of the bridge was built of wood instead of iron, with wooden trusses supporting the load

between the piers. The bridge was opened on the 4th of July 1843, just 10 years after the work begun.

During the Civil War, this strategically located bridge was controlled by the Union Army. The aqueduct was drained and the bed was used as an ordinary bridge. After the war the superstructure was rebuilt several times, first with wood and then with iron. The bridge was used for a time as a railway bridge by the Washington and Old Dominion Railroad. The bridge was abandoned in 1923, and in 1962 the piers were blasted out to a depth of 12 feet below the waterline. Only the massive north abutment and a part of the pier nearest the Maryland shore remain and can still be seen upstream from Key Bridge.

In Georgetown the walls and locks of the Chesapeake and Ohio Canal, and one of the original bridges crossing it, are preserved. The bridge, built in 1831, carries Wisconsin Avenue (formerly High Street) across the canal. It is of local crystalline rock faced with blocks of Aquia Creek sandstone, another of the important building stones in early Washington.



Canal building stones.

Aquia Creek sandstone was also a popular construction material for public buildings between 1790 and 1840. It was used for the White House, the older parts of the Capitol, the Treasury Building, and the Old Patent Office, now the National Portrait Gallery. This rock, of Lower Cretaceous age, is an unusual stone composed principally of quartz sand, pebbles, and clay pellets, cemented by silica. The sandstone received its name from Aquia Creek in Stafford County, Virginia, near where it was quarried. The stone is unique because only here are the Coastal Plain sediments in the vicinity of Washington cemented sufficiently to be useful as a building stone. This stone is also called Vir-

ginia freestone, a term applied to sandstone that splits with equal ease in any desired direction and dresses easily because of the incomplete cementation of the sand grains. Aquia Creek sandstone, although easier to work and more esthetic than the Piedmont rocks, was ill-suited for use as building stone because it was full of troublesome flaws. Its popularity resulted simply from the lack of other readily available building material in the Washington area. Furthermore, the quarries were situated near water transportation, the best available at that time, about 40 miles from Washington on the Virginia shore of the Potomac. Thus, the poor quality of the stone was overlooked.



Old quarry site near Washington, D.C.

In February 1807 Benjamin Latrobe, second Architect of the Capitol, gave a detailed account of the Aquia Creek sandstone in an address to the American Philosophical Society. He listed the components of the stone as sand:

. . . generally sharp; clay, in nodules, . . . rounded pebbles of quartz, sandstone, and granite; . . . pyrite or lumps of marsh mud mixed with sulphat (sic) or sulphuret of iron, efflorescing in the air; nodules of iron ore in sand . . . [which] . . . dissolve in air and water, and stain the stone disagreeably . . .; wood . . . from trunks and branches of trees of large size, to small twigs . . . at places entirely carbonized, or the wood carbonized and the bark fibrous so that it appears as a net, or the bark fibrous and the wood friable, or the wood replaced by pyrite, which effloresce in air . . . the color of the stone varies from white to a dark rusty tint . . . the degree of hardness is very various. When moderately

hard, its fracture is rough and irregular, when very hard, concave and even, when breathed upon, it has a strong earthy, and somewhat hepatic smell.

Latrobe pointed out that the size of the sandstone blocks sent to Washington was limited to 4 tons because of transportation difficulties. The best quarry was 2 miles southwest of Aquia Creek, where the rock contained no joint “. . . horizontal or perpendicular, and columns of any size, not exceeding 15 feet in diameter, might be got out of it, if they could afterward be removed . . .” The stone was used successfully in the construction of the Capitol and other early public buildings, but it was soon found that the stone was poorly cemented, and much of it had to be painted or replaced soon after it was installed.

Aquia Creek sandstone was also used in the boundary stones of the District of Columbia. The cornerstone marking the southern limit of the Federal City was set in place by Major Pierre Charles L’Enfant, the planner



Montgomery County, Maryland, quarry near Little Falls on the Potomac River.



of the city of Washington, at Jones Point, Alexandria, Virginia, in April 1791. This stone and all but a few of the 40 original boundary stones of the 10-mile-square District may be seen at or near their original locations. The sides are engraved to show the jurisdiction of the United States and of the States of Virginia and Maryland, the year, and the magnetic declination of the compass. Some of these stones are badly weathered, even though they are only 4 feet long by 1 foot square and therefore small enough to have been cut from the hardest and soundest part of this "exceedingly various" Aquia Creek sandstone.

The best places to see the stone as it was used indoors are in the older parts of the Capitol and the Old Patent Office, between 7th and 9th Streets and F and G Streets NW. The sandstone gallery of the Old Patent Office, with its plain squat columns, is particularly impressive. In the Capitol Building, Aquia Creek sandstone may be seen in the walls and columns of the rooms adjoining the rotunda. Latrobe's graceful Little Rotunda tobacco column colonnade in the Senate wing on this floor is especially attractive. Downstairs, the simple Doric sandstone columns of the crypt have a brownish cast, while the famous cornstalk columns in a nearby entrance hall are decidedly gray. Latrobe was especially proud of his original design for these six small cornstalk columns, but even for these he was unable to obtain unflawed stone from the Aquia Creek quarry.

An outstanding example of Aquia Creek sandstone still in use outdoors is the original section of the Old Patent Office. This part of the building,

with its pedimented Doric portico copied from the Parthenon and built between 1836 and 1840, was designed by W. P. Elliott and was executed by Robert Mills, who served for a time as Architect of Public Buildings. The rest of the building, which was built during the 1850's and 1860's, is of marble from Cockeysville, Maryland, in the Piedmont province. On each facade there is a marble portico to match the older sandstone portico on the south. The warm brownish tones of the sandstone contrast with the cold grays and whites of the marble. On the whole, the flaws in this sandstone are minor. They have been repaired, and the facade and the great portico look reassuringly sound.

The part of the Treasury Building built by Mills—the middle of the east facade along 15th Street NW., with its long Ionic colonnade, and the central corridor—was completed in 1842. The other wings, which are of Maine

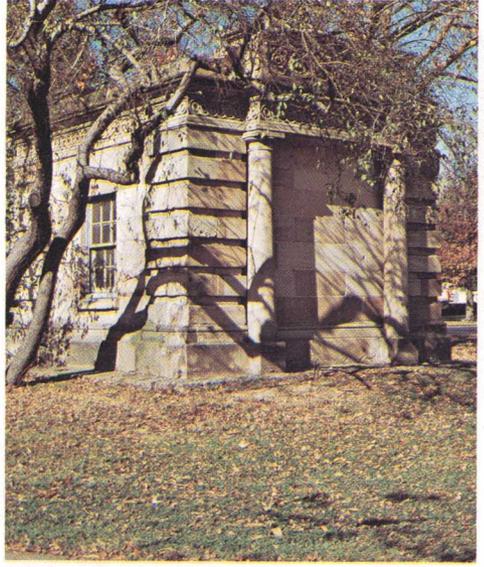


District Boundary Stone, Westmoreland Circle.

granite, were built between 1855 and 1869. The columns of the later wings are granite monoliths, quarried on Dix Island, Maine, and brought to Washington in sailing vessels. Each of these 30-ton columns was set in place by block and tackle and a team of 16 oxen. The columns were designed by Thomas U. Walter, who was also the Architect of the Capitol, and under whose stewardship the great iron dome and wings of the Capitol were built. For years the east facade of the Treasury with its sandstone columns stood in incongruous contrast to the gray granite of the newer wings. Finally, in 1907, the sandstone facing and the columns of the east front were replaced by granite from Milford, Massachusetts, which closely resembles the Maine granite. The weathered sandstone drums of the original columns were placed in the landfill for the new ground of the Lincoln Memorial.

Poor-quality Aquia Creek sandstone was used in the Capitol gatehouses and gateposts built by Charles Bulfinch about 1829. These structures show how "treacherous" this stone can be when exposed to the elements. They were moved from the Capitol grounds in 1874. Some are on Constitution Avenue near the Washington Monument; one gatehouse and three gateposts are located at 15th Street and Constitution Avenue NW., and another gatehouse farther west at 17th Street NW. Two more of the gateposts are in Fort Totten Park in northeast Washington.

"Calico Rock," the common name for Potomac marble, is the most striking building stone quarried near Washington, D.C. This stone was de-



Capitol Gatehouse.

posited in a series of alluvial fans in the western edge of the Triassic Lowland province along the eastern slope of the Blue Ridge Mountains in Maryland and Virginia. It is predominantly limestone and quartz pebbles and multicolored fragments from sand grains to cobbles, as much as 12 inches across, cemented together in a calcareous matrix. Samples of Calico Rock from various localities show marked differences in color. John Latrobe, Benjamin Latrobe's son, gave an account of cutting and polishing a piece of this stone with



Sandstone.

his father and being delighted with its markings and variegations of pure white, blue-gray, and black. Another writer describes this stone as "red, white, brown, gray, and green, with every intermediate shade." The Calico Rock in the Capitol is predominantly gray, but the gray matrix shades to a rich reddish brown. The inclusions are gray, beige, yellow, black, white, brown, orange, and reddish brown in an indescribable variety of combinations. White calcite veins accentuate the effects of the different colors.

Potomac marble was first reported in 1815 by Benjamin Latrobe who was then at work restoring the burned Capitol. The following year a supposedly inexhaustible supply was discovered on either side of the Potomac River north of Leesburg, Virginia. Latrobe described this stone as a very hard but beautiful marble answering every expectation "not only of its beauty but of its capacity to furnish columns of any length, and to be applicable to every purpose to which colored marble can be applied."

Arrangements were made for quarrying Potomac marble for the interior of the Capitol. The 20-foot columns for the Old Hall of Representatives (now Statuary Hall) were to be "procured each in a single block should transportation be found convenient." Until the Chesapeake and Ohio Canal was finished, the huge blocks were brought overland from quarries near Point of Rocks, Maryland, 46 miles west of Washington. This was a tremendous task, but transportation was not the only problem. The beautiful conglomerate proved to be extremely difficult to

work. The hard pebbles tended to break away from the softer embedding matrix, so the stone had to be carefully fashioned with saws and abrasives. An apparently perfect block often contained flaws and would fall to pieces when worked. Latrobe became so discouraged by the difficulties and delays that he suggested substituting Aquia Creek sandstone as a poor second choice. The city commissioners refused to accept a substitute, however, and the work continued. The columns of the Old Hall of Representatives were not finished until 1818, a year after Latrobe had been replaced as Architect of the Capitol by Charles Bulfinch. These columns are worth studying both for the stone itself, with its varied and richly colored inclusions, and for the long story of frustration the columns reveal. Instead of the monoliths envisioned by Latrobe, the columns are made up of drums of irregular lengths. No two columns are divided in the same way; each seems to have been treated as an individual problem. Black patches of wax cover voids where pebbles broke, serving as a further reminder of the painstaking labor expended on these colorful columns.

During the "brownstone era," from about 1840 to about 1880, red Seneca sandstone was extremely popular in Washington. This stone of Triassic age crops out along the Potomac River in the Triassic Lowland province from Seneca to just east of Point of Rocks, Maryland. Red Seneca sandstone ranges from reddish brown through cinnamon to a deep purplish brown. It is brightly colored and fairly

easy to carve when cut but darkens and hardens on exposure to air. Seneca sandstone is generally fine grained and uniform; it is not shaly and does not scale when exposed to weather. However, for best results this stone must be laid parallel to the bed-

ding plane. If laid on edge the stone tends to flake or chip away along the bedding.

Several quarries supplied this red sandstone to the city. The best known is situated about 20 miles up the Potomac on the Maryland shore just



Statuary Hall , U.S. Capitol.

west of Seneca Creek. The remains of the quarry and of the adjacent Seneca Basin, where canal barges were loaded with stone for shipment up or down the canal, may still be seen. The ruins of a quarry building, which housed saws and machinery for finishing the stone, stand nearby. This building belonged to the Seneca Sandstone Company, which began operations in 1850 and supplied stone for many buildings in Washington. About 1875, the popularity of brownstone began to diminish, and business declined. In 1889 floods washed out the canal, and the quarries remained idle for 2 years. Soon after the canal reopened and operations were resumed, the better-quality stone was depleted. The stone that remained had a tendency to "shale off so," and the company and its quarries closed.

The masonry locks of George Washington's "Potowmack" Canal at Great Falls, Virginia, are largely constructed of this Seneca red sandstone as are many of the locks, lockhouses, and

other structures of the Chesapeake and Ohio Canal which were built between 1828 and 1850. The three-arched aqueduct that carries the C&O Canal over Seneca Creek is built of this stone cut near the site, as are the capstones on the Union Bridge that carries the aqueduct and MacArthur Boulevard over Cabin John Creek.

Seneca sandstone was also used for some of the backing for the marble of the Washington Monument. The first important government building to be constructed of the sandstone was James Renwick's turreted main building of the Smithsonian Institution with its carved detail. The sandstone quarried for the Smithsonian building was described originally as lilac gray; now it is a dark red. This building, in the romantic style, was constructed between 1847 and 1857. Seneca sandstone is also prominent in the Capitol floors and Rotunda door frames.

Old quarry building site at Seneca Creek, Montgomery County, Maryland.



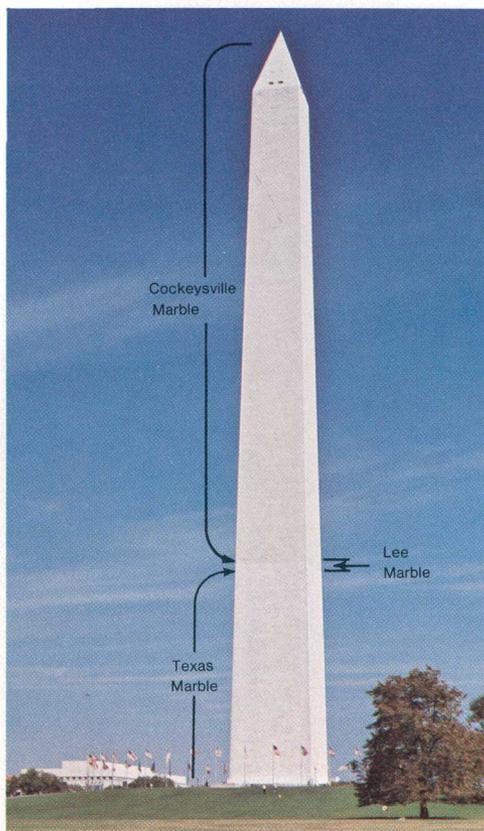
Marble subsequently replaced sandstone as the most popular building stone in Washington. The first marble came from quarries in the Piedmont province at Cockeysville and Texas, Maryland, just north of Baltimore. The Cockeysville marble is fine grained and rich in magnesium. It is a clear white stone with a few pale streaks or bands which give an effect of pale gray. The Texas marble is white and coarser grained and is nearly pure calcium carbonate. Some specimens of both marbles contain veins and pockets of mica and pyrite. On exposure, the pyrite tends to oxidize which causes discoloration of the stone.

Both Texas and Cockeysville marble were used in the construction of the Washington Monument. But construction problems, not the scarcity of building materials, offered the principal difficulty in erecting this national landmark.

According to the city plan drawn up by Pierre L'Enfant, the site for the Washington Monument was at the intersection of an east-west line through the center of the Capitol and a north-south line through the center of the White House. This site was quickly abandoned when it was found to be impossible to establish an adequate foundation for the monument at that point. Instead the monument was built east of the original location; a small granite marker stands on the original L'Enfant site. The first 152 feet of the monument, built between 1845 and 1854, is faced with Texas marble. When funds were depleted, work stopped. When construction was about to resume in 1876, the builders

discovered that the foundations were inadequate and the monument was sinking and tilting. To stabilize and straighten the monument, wider sub-foundations were constructed to a depth of nearly 37 feet.

In 1879 work recommenced on the upward projection of the monument, and four courses of white marble from Lee, Massachusetts, were laid above the Texas, Maryland marble. However, Lee marble proved too costly, so the upper part of the monument was finished with Cockeysville, Maryland marble. The three marbles used in the monument can be distinguished by color differences.



Arrows indicate use of three different kinds of marble.



The U.S. Capitol.

Cockeysville marble was also used for the monolithic columns of the Capitol extensions erected between 1851 and 1865. The white Maryland marbles were the first building stones to be shipped in quantity into Washington by rail. After 1840, as the expanding railway system increased the accessibility of stone from other parts of the country, the use of local building stone declined although Seneca sandstone continued to be shipped down the Chesapeake and Ohio Canal until the 1890's.

The Federal Government contracted for marble from a quarry in Hawkins County, Tennessee, in 1848. Marble from "Old Dougherty" or "National" quarry, one of the first areas in the country where marble was quarried commercially, was used in many buildings in Washington, most notably in three interior stairways in the wings of the Capitol built around 1855. Marble from Lee, Massachusetts, was also used in the two wings of the Capitol



in the mid-1850's. The columns of these wings are made from Maryland marble. At the same time, granite quarried at Dix Island, Maine, was shipped by sea to Washington, D.C., and was used for facings and columns in the Treasury Building. Granites from New England, Georgia, and North Carolina and marbles from Vermont, Tennessee, and Georgia were used for government buildings almost exclusively after the Civil War until the First World War.

At the turn of the century, limestone of Mississippian age (about 345 million years old) from near Bedford, Indiana, was introduced. The first government building to be faced with this stone was at 18th and F Streets NW. It now houses the General Services Administration and until 1974 was also the headquarters of the U.S. Geological Survey. Indiana limestone continues to be the most popular of the building stones of official Washington.

Minnesota granite, rarely seen in Washington's government buildings before World War II, is now being used with increasing frequency. This material serves as steps and trim around the Museum of History and Technology, is used in fountains in

the Ellipse on Constitution Avenue, and as facing for the ground floor in the Civil Service Building. Some of these granites are believed to be the oldest rocks in North America; their age, as determined by the U.S. Geological Survey, is about 3.5 billion years.

Among other building stones used in Washington is white marble from Carrara, Italy, which has been used in statuary such as the Peace Monument at Pennsylvania Avenue on the west side of the Capitol. The Italian government made a gift of 3,000 tons of

three different types of marble from the Carrara district for use as facing for the Kennedy Center for the Performing Arts. Travertine marble from Italy is used as facings and trim for office buildings, such as those on the south side of Pennsylvania Avenue, between 17th and 18th Streets NW. Currently a popular type of facing for many office buildings consists of fragments of quartz and other rock imbedded in concrete. While these pre-cast units cannot be properly classed as building stones, they do indicate a trend in building materials.

Kennedy Center for the Performing Arts.



GEOLOGICAL DESCRIPTIONS OF A SELECTION OF WASHINGTON'S PRINCIPAL BUILDING STONES

SANDSTONE

Virginia—Aquia Creek, Stafford County. Brown to light-gray. Rounded, coarse to fine grains of quartz. Cemented with silica and containing scattered pellets of clay as much as 1 inch in diameter. Cretaceous age. Example: Crypt and Rotunda of the U.S. Capitol Building.

Maryland—Seneca Creek, Montgomery County. Red, reddish-brown, and gray. Coarse- to fine-grained angular quartz; some fragments of feldspar and mica. Fine-grained. Most durable building stone. Triassic age. Example: Original Smithsonian Institution Building.

LIMESTONE

Indiana—Bedford, Lawrence County. Light tan buff to nearly white. Rounded grains of calcite. Shell fragments also present. Firm and compact. Mississippian age. Example: Washington National Cathedral, Department of the Interior Building, and all buildings in Federal Triangle along north side of Constitution Avenue from Department of Labor at 14th Street NW. to Federal Trade Commission Building.

Alabama—Colbert County. Similar to Indiana limestone. Has large isolated shells and other fossils. Mississippian age. Example: Interior gallery walls of the National Gallery of Art.

GRANITE

Massachusetts—Milford, Worcester County. Light pinkish to greenish gray. Medium to coarse textured. Flakes of biotite mica produce a black spotted look. Some banding, attributed to flow structure, makes the granite locally gneissic. Precambrian age. Example: First Division Memorial, 17th and State Place NW.

Connecticut—Stony Creek, New Haven County. Large pink feldspar crystals in a gray mass of smaller crystals. Coarse-grained. Precambrian age. Example: Exterior of Freer Gallery.

Vermont—Barre, Washington County. Gray to white. Medium to fine grained. Contains about 65 percent feldspar, 27 percent quartz, and 8 percent biotite mica. Ordovician age. Example: Steps to the west front of the Capitol.

Minnesota—St. Cloud District, Stearns and Sherburne Counties. Red (oxidized) potassium feldspar crystals average about one-quarter inch in diameter, about 75 percent of the rock. Quartz hornblende and biotite comprise

the remainder of the rock. Medium to coarse grained. Precambrian age. Example: Exterior and first floor of Civil Service Building.

Minnesota—Redwood and Renville Counties. Three types of stone occur here: greenish-gray medium-grained biotite gneiss; pale-pink biotite granite or quartz diorite; and a granite gneiss with distinct banding, black knots of biotite and large isolated feldspar crystals. Precambrian age. Example: Fountains on the Ellipse at Constitution Avenue.

North Carolina—Mount Airy, Surry County. Very light gray, almost white. Medium texture. Biotite granite. Biotite is unequally distributed; some rock contains almost no biotite. Precambrian or Paleozoic age. Example: Arlington Memorial Bridge.

MARBLE

Maryland—Texas, Baltimore County. White. Coarse-textured calcite marble. Precambrian age. Example: Basal 152 feet of the Washington Monument.

Maryland—Cockeysville, Baltimore County. White to light gray. Dolomitic marble. Contains phlogopite. Medium texture. Precambrian age. Example: Upper 390 feet of the Washington Monument.

Massachusetts—Lee, Berkshire County. White to light gray. Medium fine texture. Ordovician age. Example: Exterior of Senate and House wings of the Capitol.

Tennessee—Knox and Blount Counties. Pink, light pink and gray. Fine textured. Stylolites, known locally as crowfeet, in beds. Wavy, thin, dark lines formed as result of solution under pressure. Ordovician age. Example: National Gallery of Art.

Tennessee—Hawkins County. Dark chocolate to red with white streaks and masses. Coarse. Has some fossils. Ordovician age. Example: Stairways in the Senate and House wings of the Capitol, Tennessee Memorial Stone.

Vermont—Rutland County. Snowy white. Fine grained. Other types: light blue gray and black with highly contorted stylolites. Some white varieties saccharoidal (sugarlike). Ordovician age. Example: Daughters of the American Revolution Memorial.

Georgia—Pickens County. White. Blotched with black and gray. Coarser grained than Vermont white marble. Called "White Cherokee marble." Precambrian age. Example: East-central front of the Capitol.

Colorado—West Elk Mountains, Gunnison County. White with gray markings. Fine grained. Contains scattered grains of pyrite. Excellent building stone. Mississippian age. Example: Exterior of the Lincoln Memorial.

Missouri—Carthage district, Jasper County. White to light gray with bluish gray tint. Coarse grained. Some stylolites are present. Because these weather more rapidly than the rock, stylolites are generally not used in the finished product. Mississippian age. Example: Interior of Commerce Department Building.

BUILDING STONES OF WASHINGTON FIELD TRIP

This field trip is a walking tour of the various kinds of building stones used in the Nation's Capital. The tour covers an area roughly bounded by Pennsylvania Avenue on the north, the Jefferson Memorial on the south, the U.S. Capitol on the east, and the Lincoln Memorial on the west. The numbers are keyed to the locations on the accompanying map.

-
- 1** *Name:* Zero Milestone.
Location: Ellipse, north edge.
Building Stone: Milford, Massachusetts granite.
Remarks: Designed by Horace W. Peaslee, the Zero Milestone is a substitute marker for a column planned by L'Enfant. The column was to be

placed 1 mile east of the Capitol, "from which all distances of places through the continent were to be calculated." Today's marker provides a point from which distances may be measured on highways of the United States which radiate from Washington.

-
- 2** *Name:* Butt-Millet Fountain.
Location: Ellipse, northwest edge.
Building Stone: Tennessee marble.
Remarks: The fountain was designed by Daniel Chester French and Thomas Hastings. With a bas-relief

symbolizing Art and Chivalry, it memorializes Major Archibald W. Butt, military aide to Presidents Roosevelt and Taft, and Francis D. Millet, painter and a member of the National Commission of Fine Arts, who lost their lives on the *Titanic*, April 15, 1912.

-
- 3** *Name:* First Division Memorial.
Location: 17th and State Place.
Building Stone: Milford, Massachusetts pink granite.
Remarks: Reaching a height of 60 feet, including a 35-foot monolithic shaft weighing 56 tons and a 15-foot statue of Victory, the memorial stands in dedication to the men of the First Division. Designed by Cass Gilbert and executed by Daniel Chester French, the memorial was dedicated October 4, 1924.

First Division Memorial.



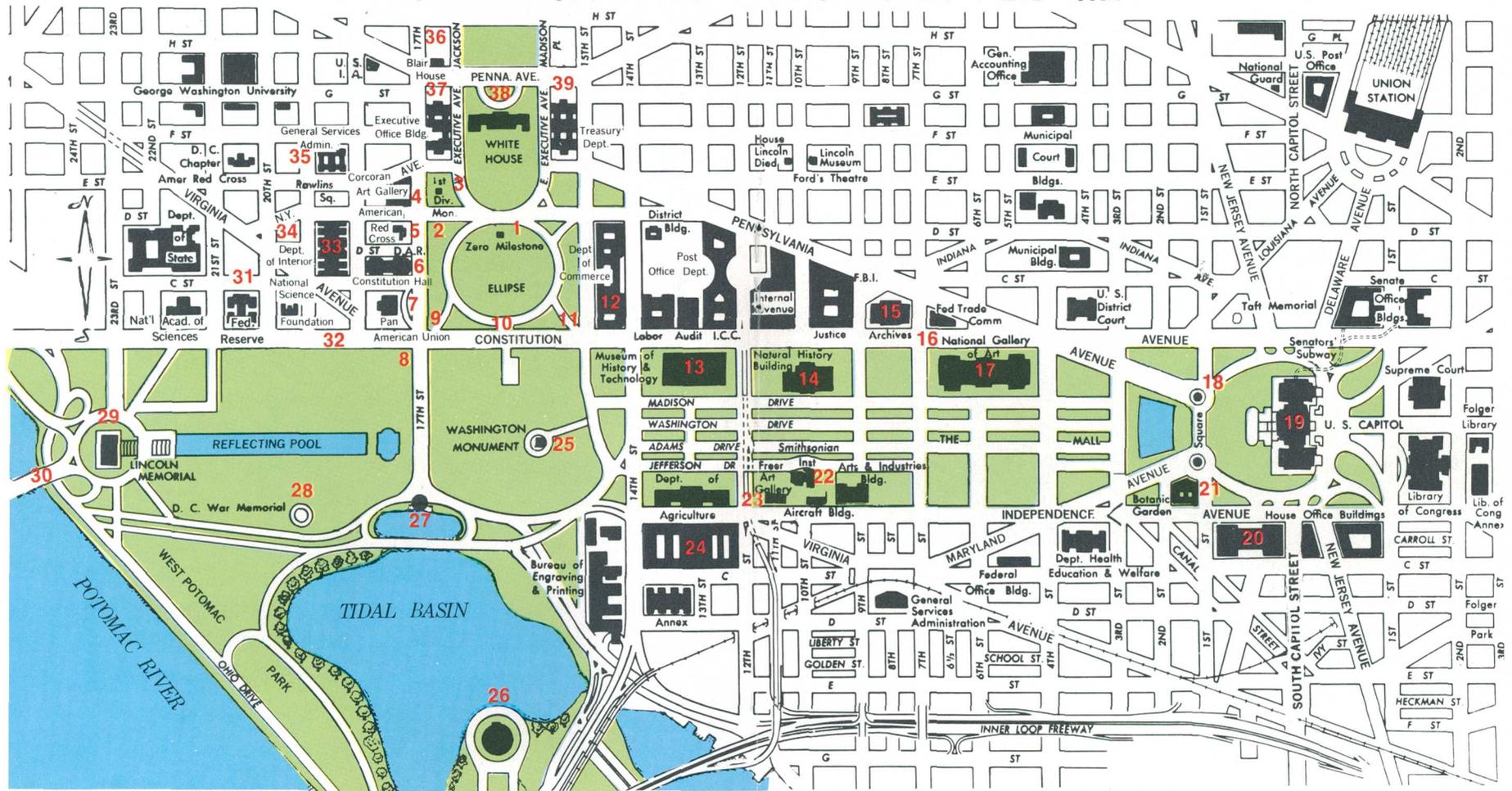


Zero Milestone.

Butt-Millet Fountain.



BUILDING STONES OF WASHINGTON FIELD TRIP



- | | | | |
|--|--|---|---|
| 1 Zero Milestone. | 10 Two Fountains. | 20 Rayburn Building. | 30 Arlington Memorial Bridge. |
| 2 Butt-Millet Fountain. | 11 Gate Post. | 21 Botanic Gardens. | 31 Federal Reserve Building. |
| 3 First Division Memorial. | 12 Commerce Department Building. | 22 The original Smithsonian Institution. | 32 South Interior Building. |
| 4 Corcoran Gallery. | 13 Museum of History and Technology. | 23 Freer Gallery of Art. | 33 Department of the Interior Building. |
| 5 Red Cross Building. | 14 Museum of Natural History. | 24 Department of Agriculture. | 34 Civil Service Commission. |
| 6 Daughters of the American Revolution Building. | 15 National Archives Building. | 25 Washington Monument. | 35 General Services Administration. |
| 7 Pan American Union Building. | 16 Apex Building/Federal Trade Commission. | 26 Jefferson Memorial. | 36 Renwick Gallery. |
| 8 Lock House. | 17 National Gallery of Art. | 27 John Paul Jones Memorial. | 37 Executive Office Building. |
| 9 Second Division Memorial. | 18 Peace Monument. | 28 District of Columbia World War Memorial. | 38 The White House. |
| | 19 The U.S. Capitol. | 29 Lincoln Memorial. | 39 Treasury Building. |

- 4 **Name:** Corcoran Gallery.
Location: 17th Street and New York Avenue NW.
Building Stones: Exterior, Georgia marble; foundation, Milford, Massachusetts pink granite.

Remarks: The Corcoran Gallery was designed by Ernest Flagg, was completed in 1879, and was enlarged according to Charles A. Platt's design in 1927.

- 5 **Name:** Red Cross Building.
Location: 17th and E Streets NW.
Building Stones: Vermont and Missouri marbles.

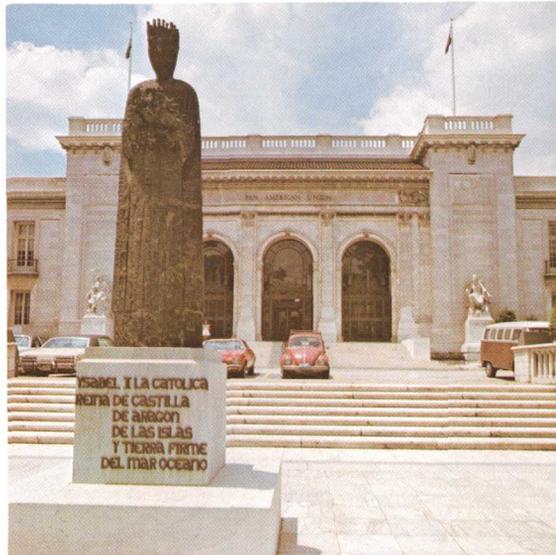
Remarks: The main building facing 17th Street was occupied by the Red Cross in 1917.

- 6 **Name:** Daughters of the American Revolution Building.
Location: 1776 D Street NW.
Building Stones: Vermont marble and Alabama limestone.
Remarks: Along with the Administration Building stand two other

buildings, Memorial Continental Hall, situated on the west side of 17th Street, and Constitution Hall, in the northwest corner of the square. The buildings were designed by Edward Pearce Casey.

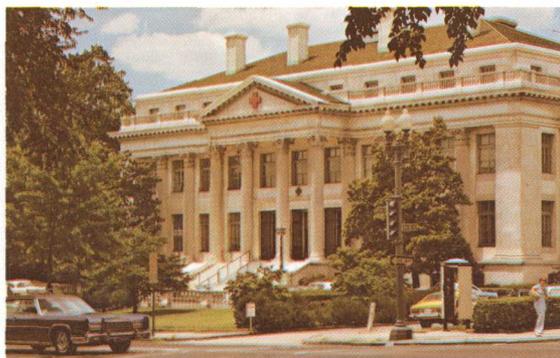
- 7 **Name:** Pan American Union Building (Organization of American States).
Location: 17th Street and Constitution Avenue NW.
Building Stones: Exterior, Georgia marble; steps and foundation, Tennessee marble (two types); steps at rear of patio, green Italian marble; balustrades in Aztec Garden, Georgia marble.
Remarks: Designed by Albert Kelsey and Paul Cret, the building blends the architectural styles of North and South America. The building was begun May 11, 1908, and dedicated April 26, 1910.

Pan American Union Building.

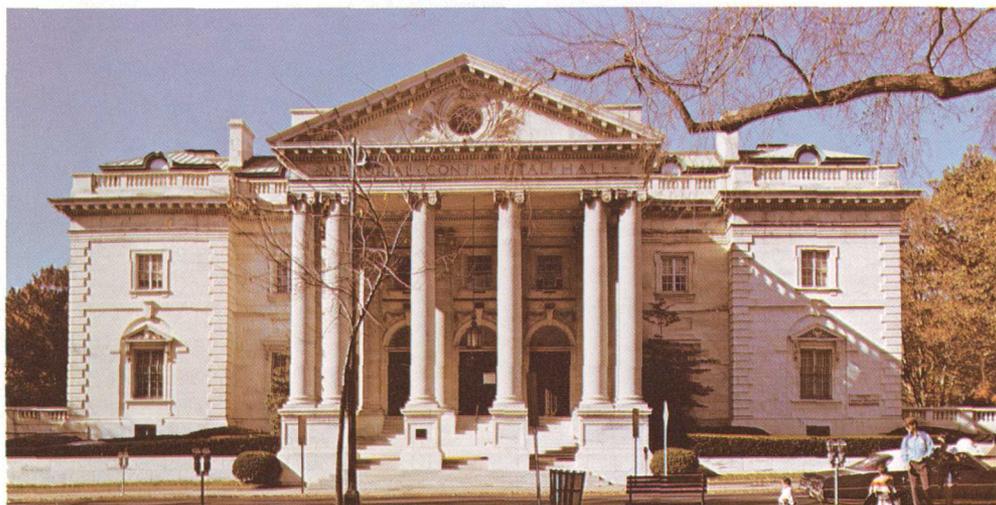
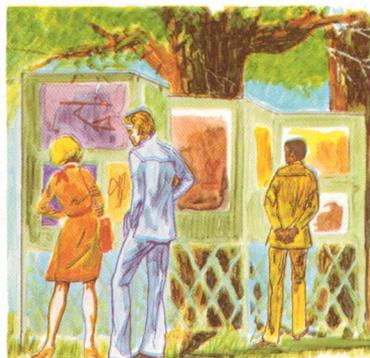




Corcoran Gallery.



Red Cross Building.



Daughters of the American Revolution Building.

- 8** *Name:* Lock House.
Location: 17th Street and Constitution Avenue NW.
Building Stone: Crystalline rocks, Piedmont of Maryland.
Remarks: The site of Lock House

was once the western end of the Washington City Canal, where Tiber Creek emptied into the Potomac River. The structure was built in 1833 when the extension of the C&O Canal was completed and joined the two canals.

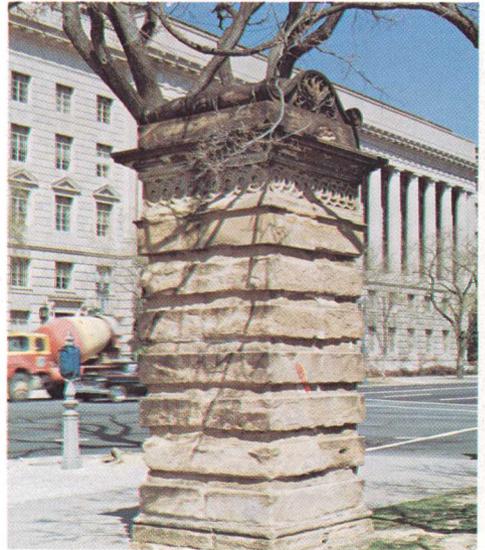
- 9** *Name:* Second Division Memorial.
Location: Ellipse, southwest edge.
Building Stone: Granite-gneiss, Minnesota.

Remarks: An example of some of the oldest rock so far dated by the U.S. Geological Survey—3.5 billion years.

- 10** *Name:* Two Fountains.
Location: The Ellipse at Constitution Avenue NW.
Building Stone: Granite-gneiss, Minnesota.

Remarks: These fountains, each made of a single stone, show the structure of the original rock to advantage. Built in 1967. Note the large light-red feldspar crystals.

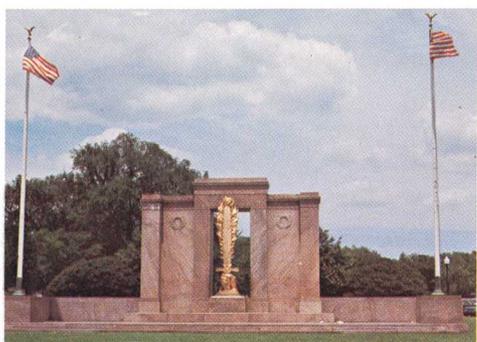
- 11** *Name:* Gate Posts.
Location: Southwest and northwest corners of 15th Street and Constitution Avenue NW., and southwest corner of 14th Street and Constitution Avenue.
Building Stones: Aquia Creek sandstone, Virginia.
Remarks: These posts, originally at the Capitol, were constructed about 1829 after a design by Charles Bulfinch. On the post on the northwest corner of 15th Street and Constitution Avenue NW. are two lines chiseled into the stone about 3 feet from the bottom which indicate the heights of flooding in the 1930's and 1940's.



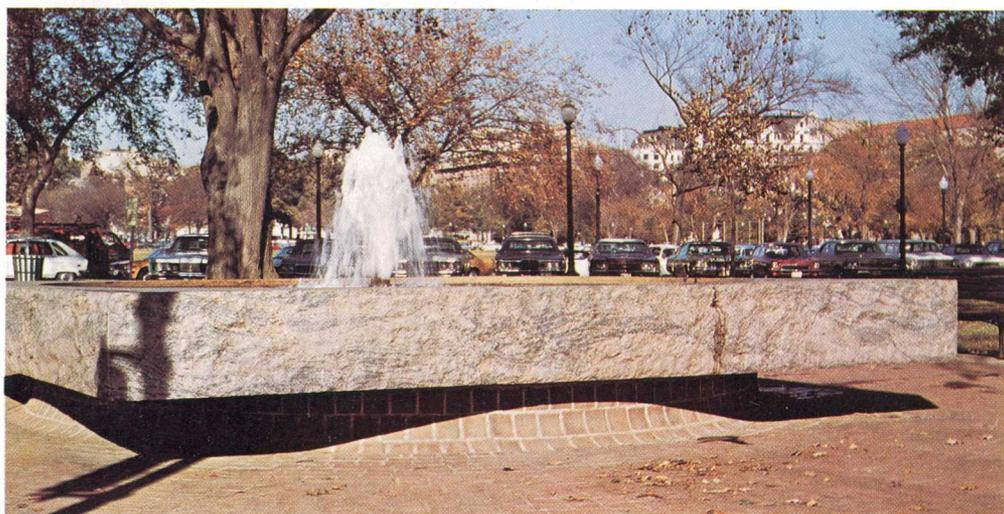
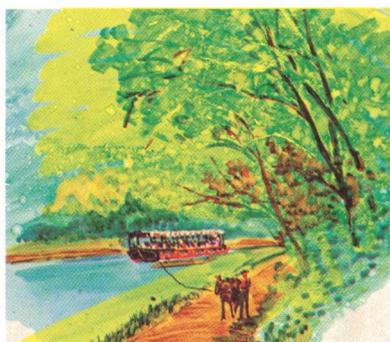
Gate Post.



Lock House.



Second Division Memorial.



One of the Two Fountains.

12 *Name:* Commerce Department Building.

Location: 14th Street between E Street and Constitution Avenue NW.

Building Stones: Exterior, first and second floors, Stony Creek granite, Connecticut; interior, Georgia and Missouri marble.

Plaster for walls from gypsum deposits near Medicine Lodge, Kansas.

Remarks: Submitting preliminary plans March 5, 1928, the architects, York and Sawyer of New York, designed the building with a net floor area of 1,092,800 square feet and 5 miles of corridors.

13 *Name:* Museum of History and Technology.

Location: Constitution Avenue between 12 and 14th Streets NW.

Building Stones: Exterior, mainly Tennessee light-pink marble; curbs and fountain steps, Minne-

sota pearl pink granite. Note the light-red irregularly shaped feldspar crystals.

Remarks: Dedicated January 22, 1964, and built at a construction cost of \$35,414,052, this 7-acre structure contains 50 exhibition halls.

14 *Name:* Museum of Natural History.

Location: 10th Street and Constitution Avenue NW.

Building Stones: Exterior, ground floor, Massachusetts pink granite; two main floors, Vermont white granite; attic floor, Mount Airy,

North Carolina white granite.

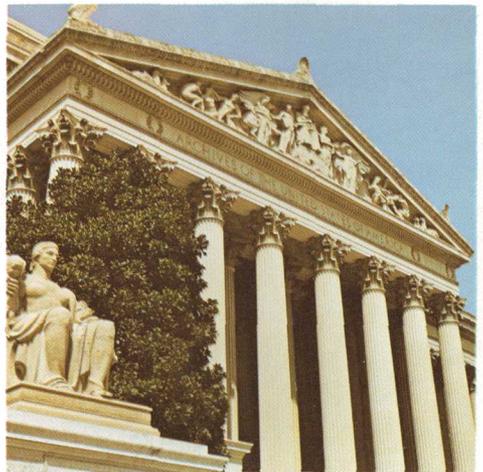
Remarks: Construction of the building was completed in 1911. Designed by Hornblower and Marshall, the building is four stories high and originally had 4 acres of space. Wings were added in 1963 and 1965.

15 *Name:* National Archives Building.

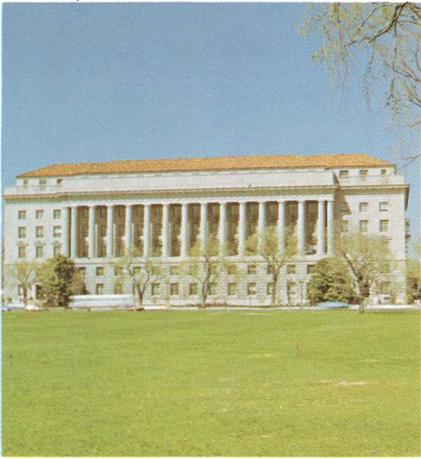
Location: Pennsylvania Avenue and 8th Street NW.

Building Stones: Exterior, Milford, Massachusetts granite and Indiana limestone; interior, Missouri golden vein marble; foyer, Tennessee marble.

Remarks: Part of the Federal Triangle, this building was designed by J. R. Pope and was completed in 1938.



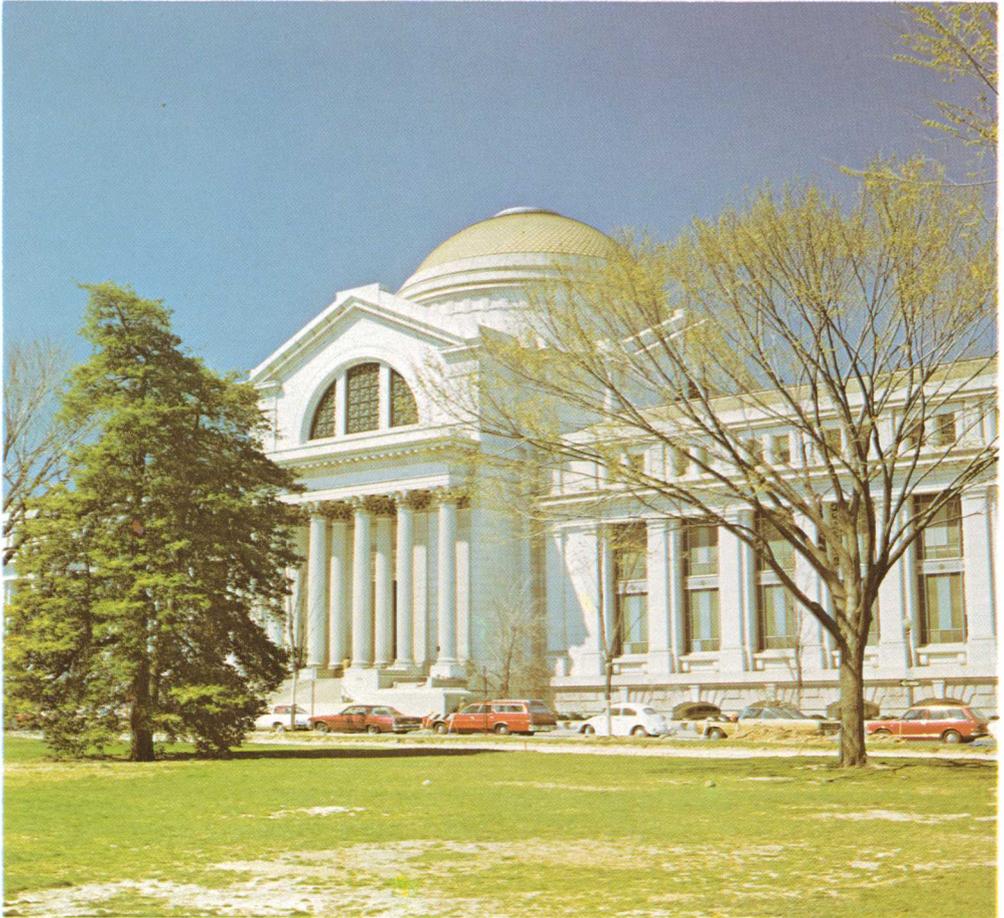
National Archives Building.



Commerce Department Building.



Museum of History and Technology.



Museum of Natural History.

16 *Name:* Apex Building/Federal Trade Commission.

Location: Pennsylvania Avenue and 6th Street NW.

Building Stones: Exterior base, Milford, Massachusetts granite; exterior, Indiana limestone; inte-

rior, Harrisonburg, Virginia marble.

Remarks: This building, designed by Bennett, Parsons, and Frost, was completed in 1937 and serves as the apex of the Federal Triangle.

17 *Name:* National Gallery of Art.

Location: 6th Street and Constitution Avenue NW.

Building Stones: Exterior, Tennessee light-pink marble; floors, Vermont verde antique marble; columns in Rotunda, Carrara, Italy, brecciated marble; rest-rooms, Missouri marble; fountains at each end, Jasper County, Missouri, Ozark travertine marble;

walls of galleries, Alabama limestone.

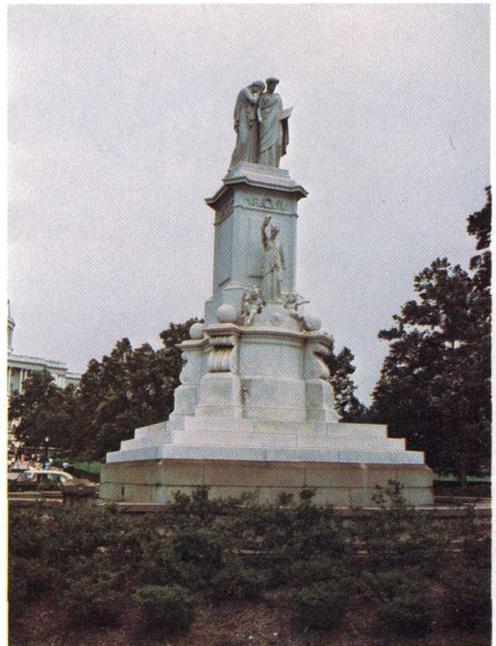
Remarks: Completed in 1941, the gallery was designed by J. R. Pope. The exterior was designed with pink marble at the base which becomes lighter pink toward the nearly white dome. Structure is seen to best advantage during a light rain which wets the marble and brings out the color.

18 *Name:* Peace Monument.

Location: Pennsylvania Avenue at the west front of the Capitol.

Building Stone: Carrara, Italy, marble.

Remarks: Designed by Admiral David Porter, executed in Italy by Franklin Simmons and Edward Clark, brought to America and dedicated in 1878, the 44-foot monument stands in memory of members of the Navy who died in the line of duty from 1861 to 1865. The figures at the top of the monument are 8¾ feet high and represent America weeping upon the shoulder of History. Facing the Mall is a 6-foot figure of Victory with Mars and Neptune at her feet, representing, respectively, the Marine Corps and the Navy. Facing the Capitol is the Statue of Peace.



Peace Monument.



Apex Building/Federal Trade Commission.



National Gallery of Art.

19 *Name:* Capitol.

Location: Capitol Hill.

Building Stones: Center building, Virginia Aquia Creek sandstone; Senate and House wings, Lee, Massachusetts dolomitic marble; Rotunda floor, Seneca, Maryland sandstone; columns of wings, Cockeysville, Maryland white marble; center steps, Rockville, Minnesota granite; west elevation steps, Mount Airy, North Carolina granite; west elevation balustrade, Vermont marble; interior balustrades and columns of stairs leading to House and Senate galleries and wall of Marble Room, Tennessee marble; east front exterior, Georgia White Cherokee marble (covering original Aquia Creek sandstone); 24 exterior columns, Georgia marble; interior columns, Statuary

Hall, Old Senate Chamber and foyer, Potomac marble or Calico Rock from near Point of Rocks, Maryland; columns in Crypt and those with corn and tobacco leaves, Virginia Aquia Creek sandstone; columns, ground floor east front addition, Colorado brecciated marble.

Remarks: President Washington laid the southeast cornerstone of the main building September 18, 1793, on the site chosen by L'Enfant. Dr. William Thornton drew the original design, and Stephen H. Hallet, James Hoban, George Hadfield, and Benjamin Latrobe each had subsequent turns at directing the work. The north wing was completed in 1800; the south wing in 1807. Both wings were burned by the British 7 years later.

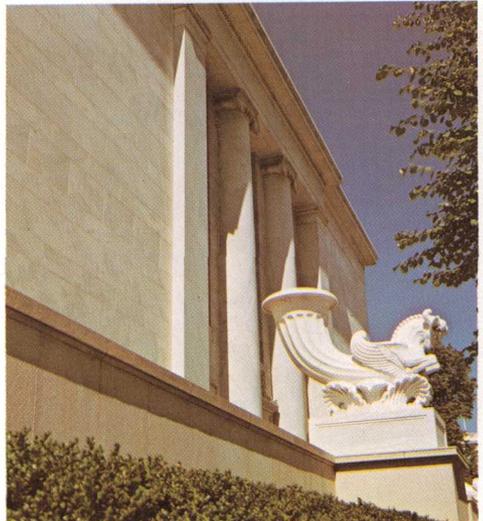
20 *Name:* Rayburn Building.

Location: Independence and 1st Street SW.

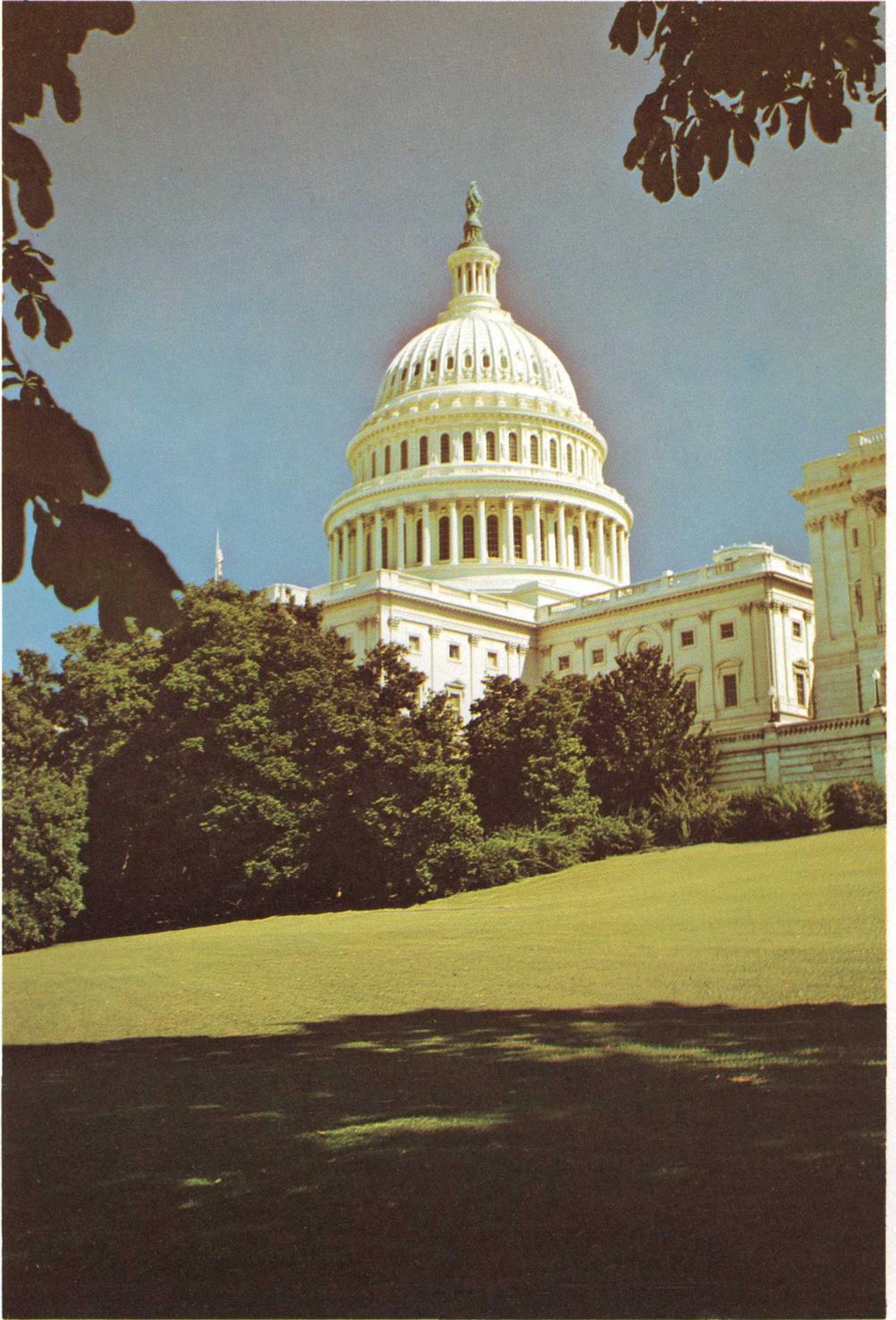
Building Stones: Exterior walls, Georgia White Cherokee marble and Vermont marble; interior walls and trim, Vermont marble; perimeter base, New Hampshire pink granite; east and west courts and paving borders, pink granite (note large regularly shaped pink feldspar crystals); inner court, base of Salisbury, North Carolina pink granite with Indiana limestone above.

Remarks: Working 10 years on the project, William H. Livingston designed the structure and furniture of the building which contains 169 suites for Congressmen. The nine-story building was completed in April 1965.

It has a subway to and from the Capitol, a 1,600-car garage, and full press and television accommodations.



Rayburn Building.



The U.S. Capitol.

21 *Name:* Botanic Gardens
Location: First Street and Maryland Avenue SW.
Building Stones: Indiana limestone; patio, Pennsylvania sand-

stone.

Remarks: The present conservatory was built when the Botanic Gardens was relocated on the Mall in 1933.

22 *Name:* Smithsonian Institution Main Building, and Arts and Industries Building.
Location: 1000 Jefferson Drive SW.
Building Stones: Main Building, Seneca, Maryland sandstone; Arts and Industries Building, New York marble and brick.
Remarks: The Smithsonian Insti-

tution was founded in 1829 with a bequest of James Smithson, a British mineralogist and chemist, who had never been to this country. What is now the administrative headquarters is the oldest of the several Smithsonian buildings on the Mall and was designed by James Renwick in the Gothic Revival style.

23 *Name:* Freer Gallery of Art.
Location: 12th Street and Jefferson Drive SW.
Building Stones: Exterior, Stony Creek, Connecticut granite; inter-

rior, Tennessee white marble.

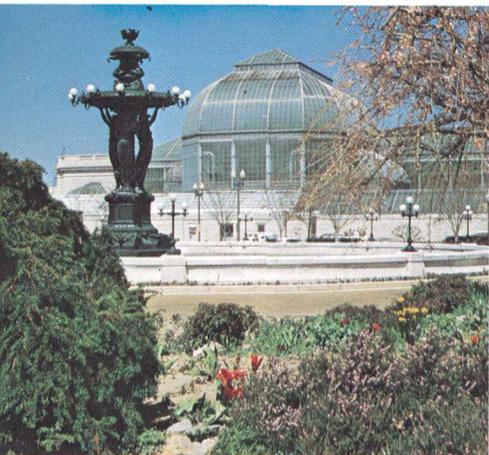
Remarks: Designed in 1921 by Charles A. Platt to house the art collection of Charles A. Freer.

24 *Name:* Department of Agriculture, North Building.
Location: Independence Avenue and 12th Street SW.
Building Stones: Central part, Georgia white Cherokee marble; wings, Vermont marble; foundation, Massachusetts granite; interior, Tennessee marble.

Remarks: The main administration building between the east and west wings was designed by Rankin and Kellogg of Philadelphia. The entire building has a floor space of 300,000 square feet.



Department of Agriculture.



anic Gardens.



Freer Gallery of Art.



The original Smithsonian Institution.

25 *Name:* Washington Monument.

Location: On the Mall, 15th and Constitution Avenue NW.

Building Stones: Exterior, upper part, Cockeysville, Maryland marble; lower part, Texas, Maryland marble; four courses in between, Lee, Massachusetts marble; interior backing, Seneca, Maryland sandstone and Maryland crystalline rocks; foundation, Little Falls, Maryland crys-

talline rocks.

Remarks: Designed by Robert Mills and begun in 1848, the monument stands at 555 feet 5½ inches and is the tallest masonry structure in the world. Because of delays and complications, which included the theft of books and records of the Monument Society, the construction spanned 37 years and was not completed until 1885.

26 *Name:* Jefferson Memorial.

Location: On the Tidal Basin.

Building Stones: Exterior columns and walls, Vermont white marble; foundation, Elberton, Georgia granite; circular terraces, Georgia granite; floors, Tennessee pink and gray marble; interior dome, Indiana limestone.

Remarks: Designed by John Russell Pope, the memorial cost \$3 million and was dedicated April 13, 1943, on the 200th anniversary of Jefferson's birthday. The memorial forms the south part of the cross with the Capitol, the Lincoln Memorial, and the White House.

27 *Name:* John Paul Jones Memorial.

Location: Independence Avenue and 17th Street SW.

Building Stone: Vermont marble.

Remarks: The work of sculptor Charles Henry Niehaus, the 10-foot statue, set in a rectangular pylon, was unveiled April 17, 1912.

28 *Name:* District of Columbia World War Memorial.

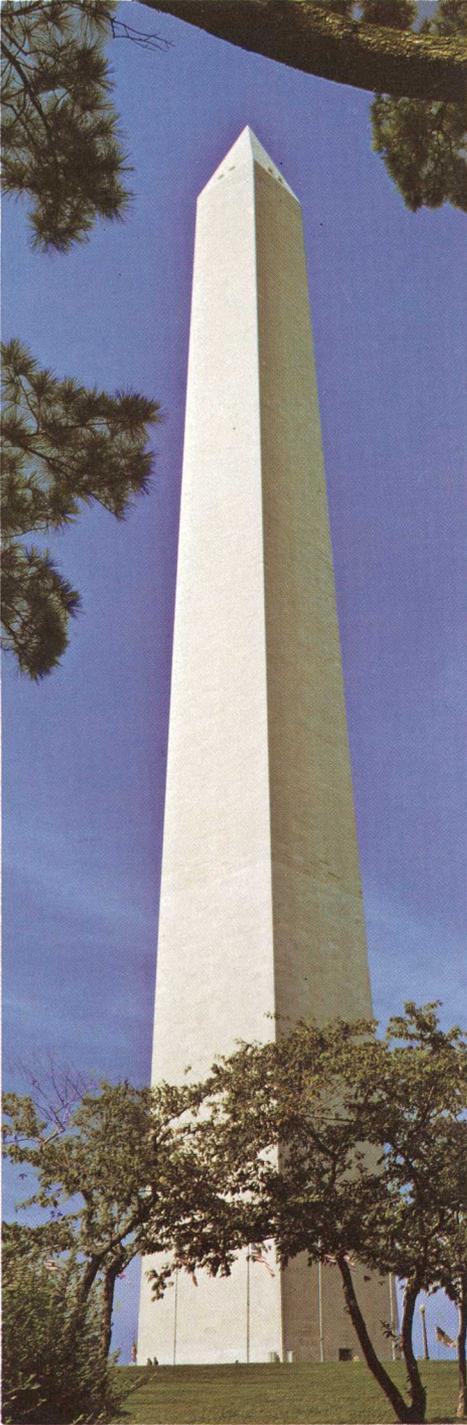
Location: On the Mall south of 19th Street NW., West Potomac Park.

Building Stone: Vermont marble.

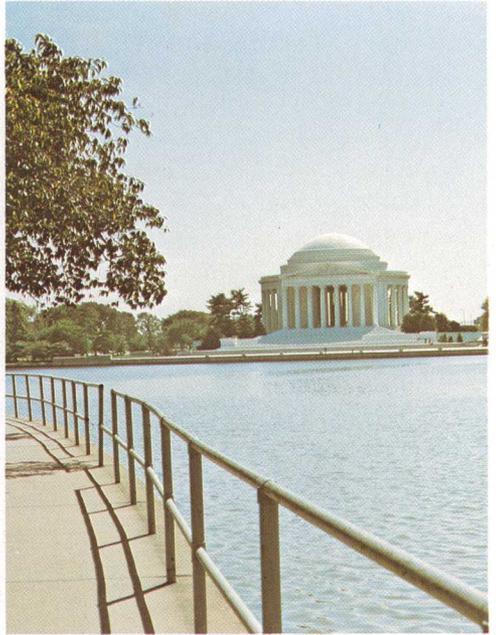
Remarks: Designed by Fred Brocke, Nathan Wyeth, and Horace Peaslee, the memorial was a gift of the citizens of Washington to honor the District's war dead.



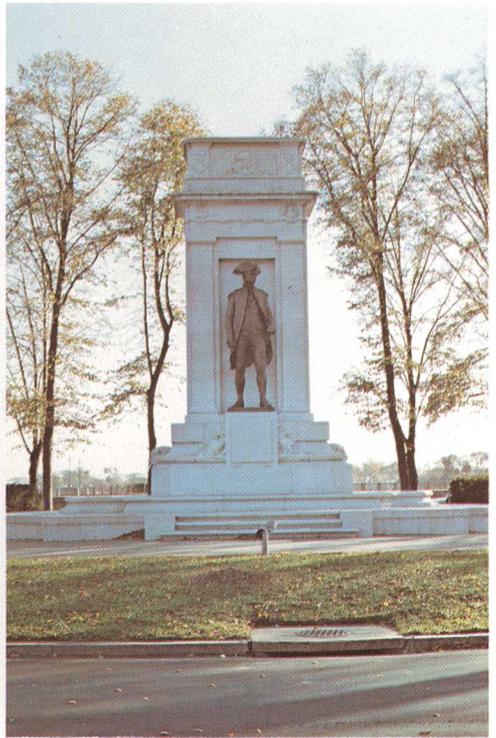
District of Columbia World War Memorial.



Washington Monument.



Jefferson Memorial.



John Paul Jones Memorial.

29. Name: Lincoln Memorial.

Location: Between Independence Avenue SW. and Constitution Avenue NW. in West Potomac Park at 23d Street NW.

Building Stones: Reflecting pool, North Carolina granite; foundation steps, Massachusetts granite; memorial building, Gunnison County, Colorado, Yule marble; statue, Georgia marble; base of

statue and floors, Tennessee marble; columns and lintels, Indiana limestone.

Remarks: The structure was designed by Henry Bacon, and the Statue of Lincoln was by Daniel Chester French. Completed in 1922, the memorial terminates the main axis of the Mall and counterbalances the Capitol above the Washington Monument.

30 Name: Arlington Memorial Bridge.

Location: Crosses the Potomac at the Lincoln Memorial.

Building Stones: Piers, Georgia granite; facing of spans, granite from Georgia, Vermont, North Carolina, New Hampshire, and Maine.

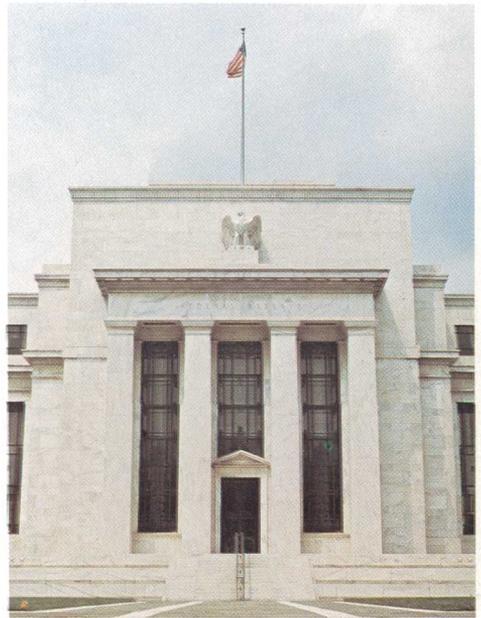
Remarks: A bridge was proposed at this point as early as 1851. The present bridge, begun in 1932 and completed after 6 years, is now one of Washington's major traffic routes. It closely resembles one suggested by an earlier commission in 1901.

31 Name: Federal Reserve Building.

Location: Constitution Avenue, between 20th and 21st Streets NW.

Building Stones: Exterior, Georgia marble; foundation, Massachusetts granite; fountains, Pennsylvania black diabase granite; interior, marble from Georgia, Maryland, Missouri, New York, Tennessee, Vermont, Belgium, France, and Sweden and Kansas limestone.

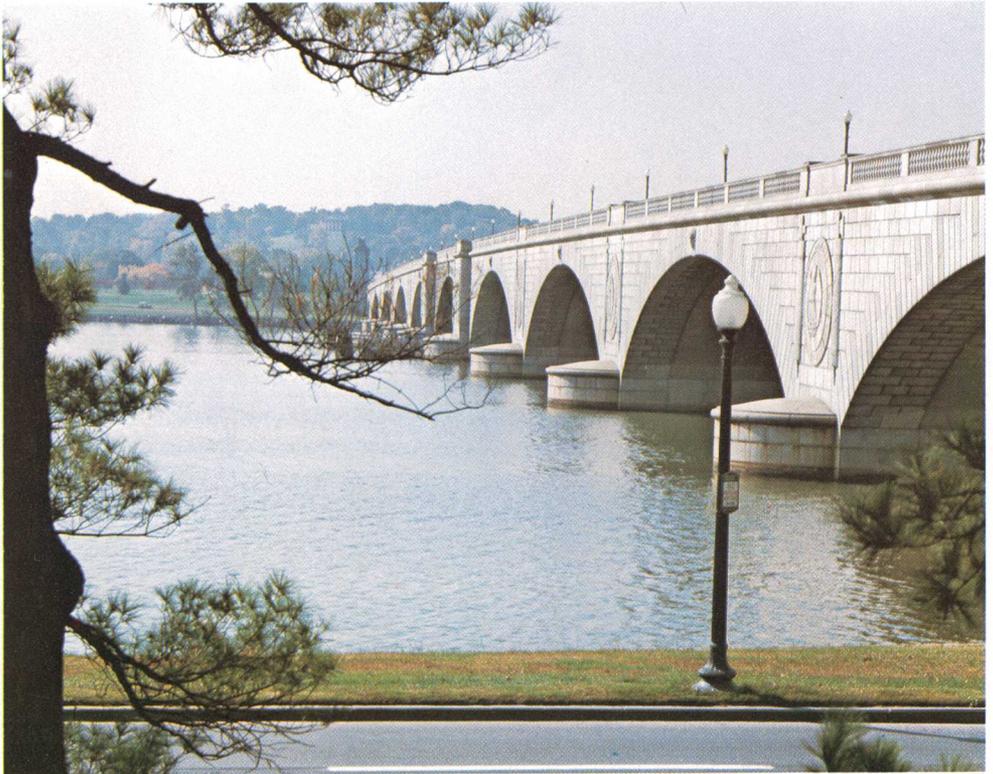
Remarks: Designed by Paul P. Cret and begun in 1936, the building features an impressive staircase.



Federal Reserve Building.



Lincoln Memorial.



Arlington Memorial Bridge.

32 *Name:* South Interior Building, formerly Bureau of Indian Affairs.
Location: 1951 Constitution Avenue NW.
Building Stones: Exterior, Georgia and Tennessee white marble, North Carolina granite, and Indi-

ana limestone.

Remarks: Built in 1933 and originally occupied by the Public Health Service, this 245-room office building was designed by J. H. de Sibour. The building is of Neoclassical design.

33 *Name:* Department of the Interior Building.
Location: C Street between 18th and 19th Streets NW.
Building Stones: Foundation and steps, Milford, Massachusetts granite; exterior, Indiana limestone; interior, Knoxville, Ten-

nessee marble.

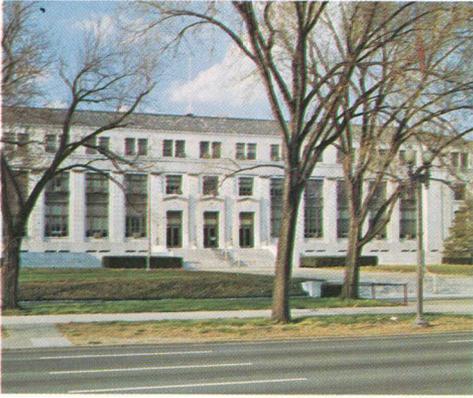
Remarks: Occupied in 1937, this 5½ acre, 1,178,769-square-foot structure was designed by Waddy Wood in accordance with specifications of the then Secretary of Interior Harold Ickes. It was built at the cost of \$3 million.

34 *Name:* Civil Service Commission Building.
Location: 1900 E Street NW.
Building Stones: Base and first floor, Cold Spring, Minnesota, flame-finished granite; upper exterior, Indiana limestone.

Remarks: Built by John McShain, Inc., the structure was begun in 1960 and completed in 1963. North of the Civil Service Commission Building is the E Street expressway. The tunnel is lined with red granite from Oklahoma. Note regular size of feldspar and inclusions of xenoliths.

35 *Name:* General Services Administration Building.
Location: F Street between 18th and 19th Streets NW.
Building Stones: Exterior, Indiana limestone; interior, Maryland marble.

Remarks: Completed in 1917, the structure originally served as the headquarters building of the U.S. Department of the Interior but now serves as headquarters of the General Services Administration.



South Interior Building.



Department of the Interior Building.



Civil Service Commission.



General Services Administration.

36 *Name:* Renwick Gallery (formerly U.S. Court of Claims and Corcoran Gallery).

Location: 17th Street and Pennsylvania Avenue NW.

Building Stones: Exterior, Belleville, New Jersey sandstone, replaced in part with synthetic stone, 1970.

Remarks: Designed by James Renwick and completed in 1859, this

building was originally constructed by William Corcoran to house his art collection which proved to be too large for the structure. The government took possession of the building during the Civil War. At one time, it housed the U.S. Court of Claims. Recently it was restored to become the Renwick Art Gallery, part of the Smithsonian Institution.

37 *Name:* Executive Office Building (Old State-War-Navy Building).

Location: 17th Street and Pennsylvania Avenue NW.

Building Stones: Exterior, granite from Richmond, Virginia, Maine, and Massachusetts; subbase-

ment, Maryland sandstone.

Remarks: Begun in 1871 and completed in 1888, this structure was the largest office building in the world. Its architect, A. B. Mullett, used 900 Doric columns in the building. The exterior of the building was cleaned during the Kennedy Administration.

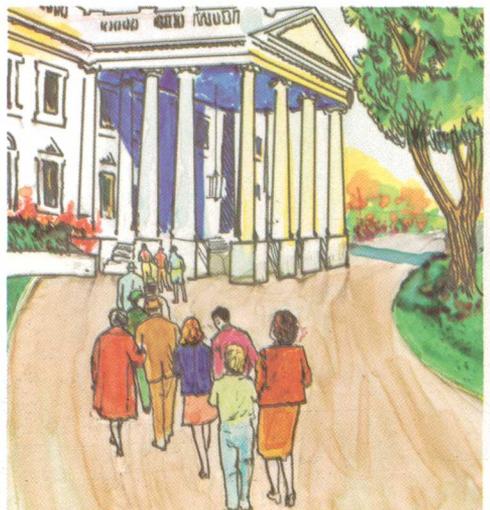
38 *Name:* White House.

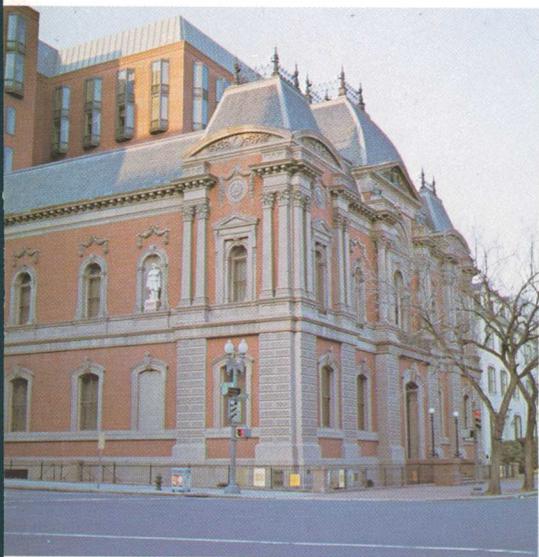
Location: 1600 Pennsylvania Avenue NW.

Building Stones: Exterior, Virginia Aquia Creek sandstone refinished with Maryland marble and other marbles; fence base, north side, Montgomery County, Maryland crystalline rocks; fence capping, Aquia Creek sandstone recently repaired and replaced by stone removed from east front of Capitol after renovation.

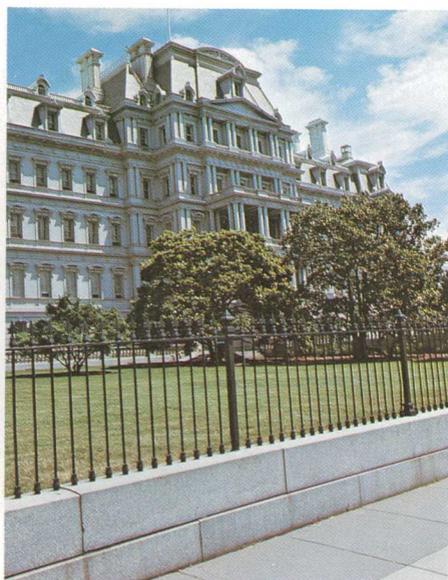
Remarks: Designed by James Hoban and begun in 1792, the White House was the first public building to be erected in Washington. First occupied in 1800 by President and Mrs. John Adams, it was rebuilt after being burned by the British in 1814. The

interior was rebuilt again in 1948–52 by the Commission of the Renovation of the Executive Mansion.





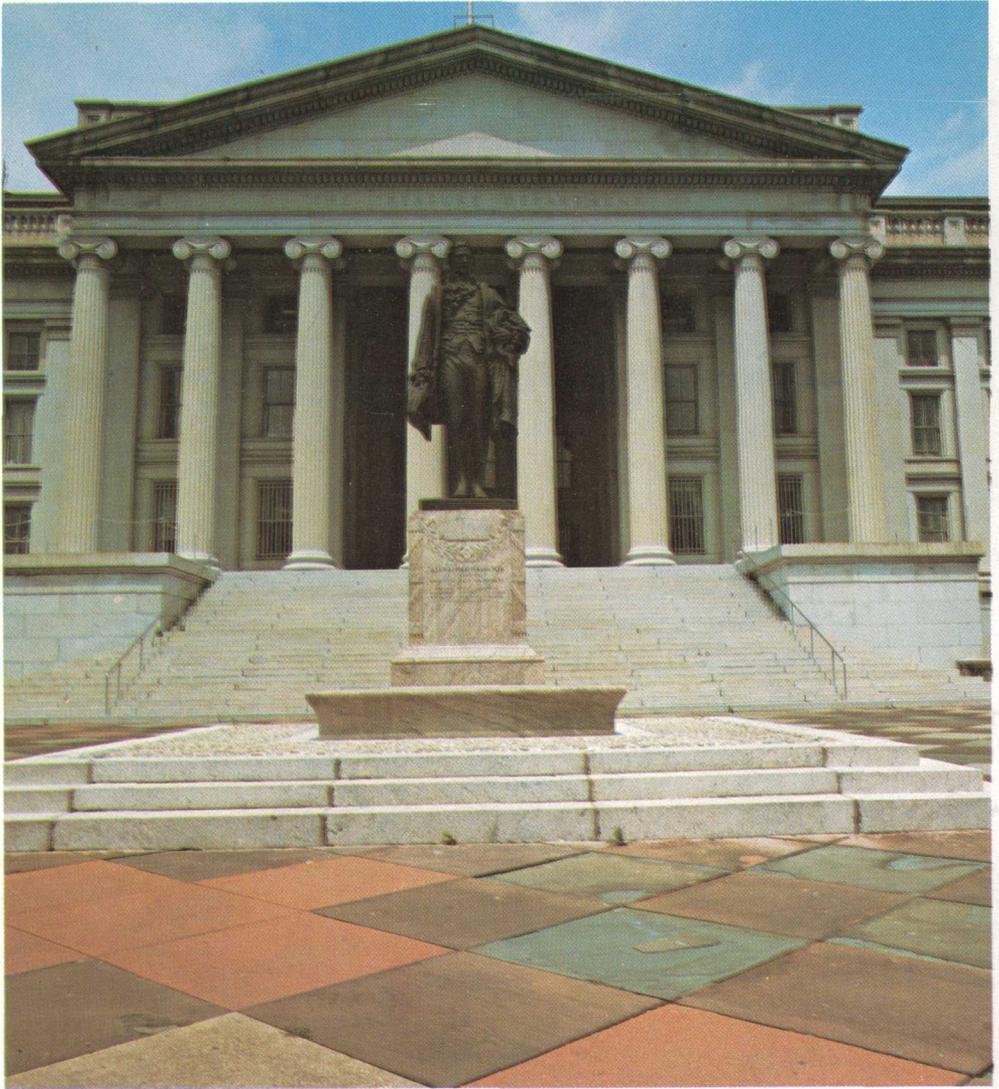
Renwick Gallery.



Executive Office Building.



The White House.



Treasury Building.

- 39** *Name:* Treasury Building.
Location: 15th Street and Pennsylvania Avenue NW.
Building Stones: Exterior, the original part along 15th Street was originally built of Virginia Aquia Creek sandstone, replaced in large part by Dix Island, Maine granite; remainder, Dix Island,

Maine and Milford, Massachusetts granite; foundation, Maryland crystalline rocks.

Remarks: The present building is the third one to house the Treasury Department; two earlier buildings were destroyed by fires. Designed by Robert Mills, it was begun in 1839; the final portion was completed in 1869.

(By Charles F. Withington)



As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.



Thomas S. Kleppe, Secretary
U.S. Department of the Interior

V. E. McKelvey, Director
Geological Survey

