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Cabin John Carries Legacy of Builder's Vision, City's Need for Water

By Linda Wheeler

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The Cabin John Bridge in Maryland is celebrated for its graceful arch and loved for its quaint one-lane road, a reminder of the days when horses were the mode of transportation. Unusually well built almost 140 years ago, the bridge is just being given its first major overhaul.

Although Maryland can tout the scenic span -- which crosses Cabin John Parkway east of the Potomac River -- as a landmark, the District has a stake in its history, too.

Part of an elaborate system of aqueducts and reservoirs stretching from the Great Falls of the Potomac River to McMillan Reservoir in the Howard University neighborhood, the bridge is a key link in Washington's water system.

When a devastating fire on Christmas Eve 1851 destroyed much of the Library of Congress, lawmakers were motivated to finance municipal water for the District. Their concern was in fighting fires rather than providing healthy drinking water.

Montgomery C. Meigs of the U.S. Army Corps of Engineers was chosen to design and build the system. His plan submitted to Congress in 1853 indicates that he also understood the needs of the 58,000 residents who drew water from sewage-contaminated public wells. Meigs wrote that his proposed system would deliver water "unrivaled for purity and salubrity" but went on to reassure Congress about fire safety:

"The height at which water of the Great Falls can be delivered in the Capitol, fourteen feet above the upper floor, is, I think quite sufficient to secure the safety of the building, and of the invaluable collection therein contained."

District historian Philip Ogilvie is convinced that Congress was not concerned about the water needs of ordinary citizens. "Congress couldn't care less about the District residents," he said. "The fire was the stimulus for getting water, but it wasn't for drinking. It was for fighting fires."

Ogilvie said that the Capitol already had clean drinking water piped from the Smith Farm spring, where McMillan Reservoir is now located, and that the White House had water brought from a spring at nearby Franklin Park. As it was, residents had to wait until the early 1870s for the administration of Gov. Alexander "Boss" Shepherd before they would have in-house water, Ogilvie said.

Although Washingtonians appreciated the new luxury, Meigs's plan did not include filtering river water. He had figured that the sediment would settle out if allowed to stand for several days in wide reservoir basins.

It didn't.

Washington water was described in newspapers as "murky, "brownish" and "not a drop fit to drink," according to a biography of Meigs by David W. Miller. Fifty years would pass before it was filtered.

Although Meigs may have failed on the taste tests, he succeeded wonderfully with his design. The corps remains responsible for Washington's aqueduct, and only recently have major repairs been necessary, said Nathan H. Cole, chief of the civil, structural and mechanical section of the Washington Aqueduct Division.

"Meigs was man with grandiose ideas," Cole said. "He wanted to create the best system. He created a landmark."

When the 220-foot bridge -- also known as the Union Arch -- was dedicated in 1863, it was the world's longest masonry span and held that distinction for nearly 40 years. "Can you imagine today building something that is a world record?" Cole asked.

Meigs also built it well. Cole said an outside expert was brought in to evaluate the bridge's integrity when a sandstone block fell from the parapet in 1975. The bridge was in very good condition, the consultant told the corps.

Until 1975, the 17-foot-wide bridge had carried two lanes of MacArthur Boulevard in Glen Echo. When the stone fell onto the Cabin John Parkway below, the corps reduced the road to one lane to lessen the strain. At that time, a six-foot iron fence was added to create a barrier between cars and the parapet. Since then, the corps has continued routine maintenance on the bridge and all other parts of the system, Cole said.

Before running from the kitchen tap, raw water comes into two conduits at Great Falls, and the bridge carries one conduit over the Cabin John Valley. Some of the water is treated at Dalecarlia Reservoir in the District and transferred to a city holding facility. The rest travels on the Georgetown Reservoir, where it is allowed to settle out and is sent to McMillan Reservoir, where it is treated and piped to another city distribution facility.

Water from the system is also sold to Arlington and Fairfax counties.

The corps determined in recent years that the bridge needed a new roadway deck, a complete replacement of the parapet stone and extensive caulking of granite abutments. The bridge was closed July 30. Cole said that the asphalt surface has been replaced with a more durable concrete and that pointing of the granite block continues.

The parapet sandstone had to be replaced because many blocks had deteriorated and stone already removed had been replaced with painted concrete blocks, a practice not in keeping with historic preservation laws.

Because the bridge is a historic landmark, the corps is required to maintain as much of the original material as possible and choose replacements that closely match the original.

In the case of the parapet, the very first one was built of logs and timber but replaced in 1872 with sandstone, which was far more successful at keeping wagons and horses on the bridge. The corps decided to stay with the stone but had difficulty finding something close in color.

"We looked all over the country, all over the world," Cole said. "Meigs got his from the [nearby] Seneca quarry, but that is closed now. We finally found the right stone in Kenals, Utah."

Late last week, the wall was about half-finished.

After the aqueduct was dedicated Dec. 5, 1863, in an elaborate ceremony involving Cabinet secretaries and the city's mayor and council, the bridge became a tourist attraction. Visitors marveled at the great span, and a photographer stationed at the site took souvenir pictures for sightseers to take home.

Meigs, who would also work on an expansion of the Capitol and later build the Pension Building, understood Washington politics and expressed concern that a change of administration might end his work on the aqueduct. If he were removed from the job, his contribution might not be recognized subsequently.

As the bridge was under construction, Meigs had granite plaques inserted into the abutments. One reads: "M.C. Meigs. Chief Engineer. Washington Aqueduct. A.D. 1859 FECIT."

The Latin word "fecit" translates "he made it."

At the other side that year, Meigs placed a plaque that listed major participants in the project, including Jefferson Davis, then secretary of war. In 1861, Davis resigned to become president of the new Confederate States of America.

A year later, Interior Secretary Caleb Smith saw the inscription and ordered Davis's name removed. According to biographer Miller, Davis was indignant about Smith's action and said the effort was meant to eliminate from history his part in construction of the bridge. In 1908, Davis's name was restored to the bridge by order of President Theodore Roosevelt.

Meigs didn't settle for just the plaques on the bridge. According to Miller, Meigs placed his name on gatehouses, bridges, a culvert and a sluice tower. At Georgetown Reservoir, the rise of each of 39 steps inside a pipe vault was designed to read "M C Meigs."

The inscription, "Washington Aqueduct, M.C. Meigs" was stamped on many pieces of iron and brass, and he designed elegant water hydrants with his name prominently displayed.

In 1858, when it appeared that he might lose supervision of the project, Meigs had 24 copper plates made

with his name and the title "chief engineer" and put them in masonry and under blocks of stone. Meigs thought that the plates would stay "clean and legible for centuries," according to Miller's biography.

His premonitions were borne out when he was transferred to Fort Jefferson, Fla., on Sept. 18, 1860. Early the next year, President Abraham Lincoln appointed him quartermaster general of the Army.

Although that was the end of Meigs's work on the aqueduct, he would remain involved with it for 30 more years, usually criticizing proposed changes to his design but also endorsing needed expansions.

The Cabin John Bridge, under construction in 1861, was built to supply water to fight fires after a devastating blaze a decade earlier.

At the Georgetown Reservoir, the round structure is the remnant of a building once used to route water farther into the District.

By 1915, the 220-foot Cabin John had only recently lost its distinction of being the longest masonry bridge in the world.

Masons work on granite blocks along the side of the Cabin John Bridge. Iron stairs at the Georgetown Reservoir carry the name of the bridge designer.

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