Historic Congressional Cemetery
2009 Burial Vault Conservation Projects

If you own a brick home built around the turn of the century – the last century – you have probably had to pony up for a repointing of the old mortar joints. As painful as that bill is, not repointing when the sun starts shining through the wall could be much more painful. So it is at Congressional with our old brick burial vaults.

These historic structures represent state-of the-art burial practices in early 19th Century America. At one time Congressional Cemetery had over 50 such tombs; today we have just 27, which means we have lost half of these structures, most likely due to the lack of maintenance. Without regular maintenance – by which we mean every 50 to 70 years – they will succumb to the forces of nature. The time is well past due for work on these vaults.

The good news is that in 2008, Congressional Cemetery received an anonymous private grant to support the restoration of three of these historic structures. The bad news is that it turns out, it wasn't enough. We need your help.

Before: May 1, 2009

After: September 1, 2009

What is a brick vault?

A brick vault is just that: a vault made of bricks. Imagine an upside down U made of bricks. It's an ancient building form. In fact, it's an incredibly sturdy building form that reinforces it own structure by leaning on itself. Fortunately so, because that seems to be the only thing holding these vaults up: themselves!

Congressional's vaults are partially below ground, generally with a short four to five step stairway from the iron door to the brick floors. The doors or front walls have holes to allow air movement to prevent excess growth of mildew or molds. The backsides of most vaults have the corresponding air vent to assist in air movement.

Inside the vaults, there is a wide variety of 'interior designs'. Some have open shelves that hold several caskets, some have several crypts into which single caskets are placed, and some are just large rooms where caskets were placed atop each other. Most of the older vaults, like those we are repairing this year, are the open room plan.

Some vaults hold as few as a single person; some hold many. One of this summer's vault projects held 22 individuals from an extended family. Unfortunately, these families have long since moved away and there are no known descendants to care for the sites.

For decades they have been in ever worsening condition and, bit by bit, capstones have slid to the ground, façade walls fallen over, ceiling vaults cracked, and the iron doors broken into. It's a sad story as far as caring for America's heritage is concerned.

Lime Mortars

Most historic brick structures were built using lime based mortars that have the wonderful quality of “breathing” at more or less the same rate as the old bricks. The mortar bonds with the bricks to hold the structure together. A certain degree of softness in the mortars is desirable to allow the structure to wick moisture out of the bricks and respond uniformly to the expansions and contractions caused by weather fluctuations.

The problem with lime based mortars is that they can succumb to the nitric and sulfuric acids carried in modern rainfall. As the rain dissolves the calcium carbonate, the bonding quality of the mortar disappears and the sand in the mortar simply blows away. The photos here illustrate the loss of mortar in one vault over just five years. Stronger mortars will eventually destroy the bricks themselves.

That’s the phenomenon we’ve been responding to at Congressional. The historic brick burial vaults that imbue the cemetery with much of its character are suffering from the effects of acid rain. As seen in the photo below, a major portion of the brick wall has fallen from the rear facade of this vault.

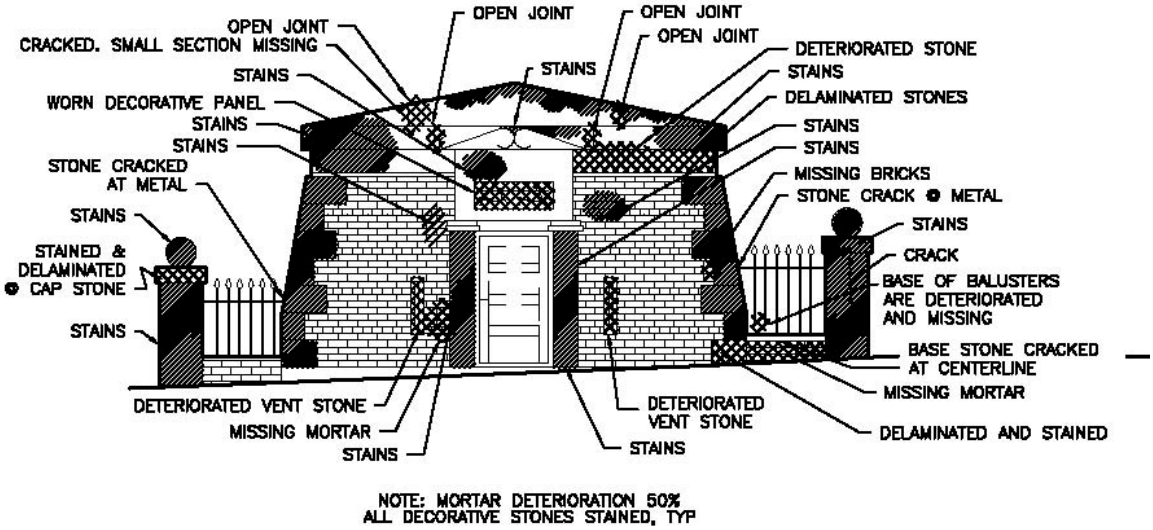
Sandstone

Another key material that makes up these vaults is sandstone, the same sandstone from the same quarry as the stone from which the U.S Capitol Building was made. The Aquia Creek Sandstone is a beautiful stone but it's a soft stone that has not stood the test of time. Many of the capstones that line the low rise walls adjoining these structures have degenerated back into a looser sedimentary state - crumbled beyond recognition.

They need to be replaced.

Planning

Restoration work starts with careful planning. Each of our burial vaults was the subject of an extensive engineering evaluation in 2003/2004. The result was a set of recommendations for treatment.



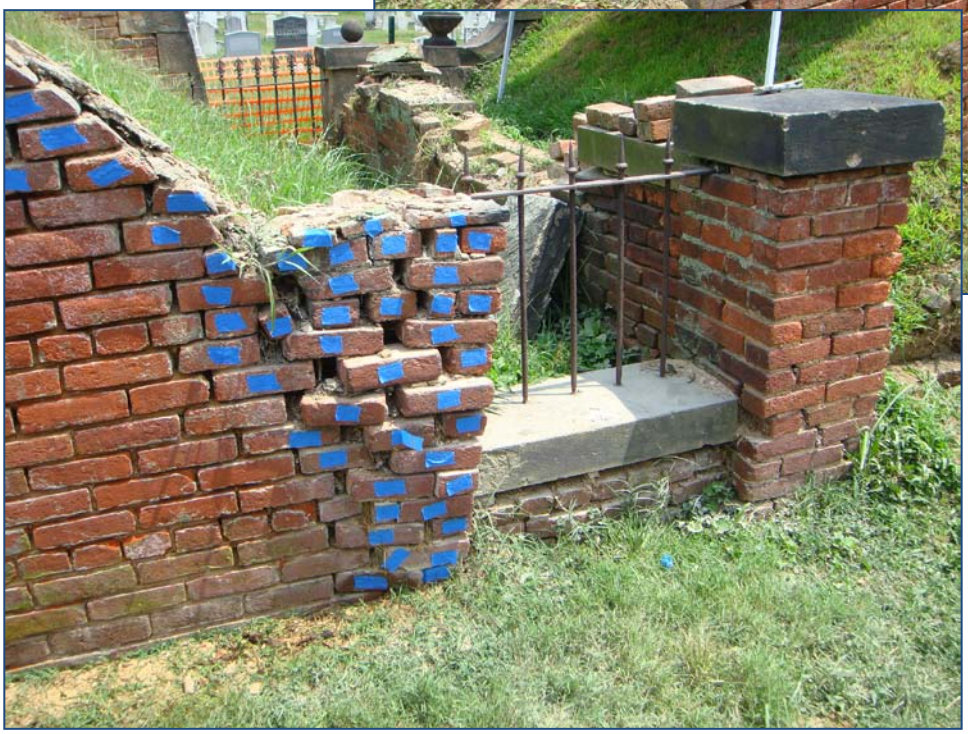
EAST ELEVATION

Raising the funds to do the work took a lot longer than the study.

Restoration Work

We take restoration seriously at Congressional Cemetery and adhere to the Secretary of Interior's Standards for Historic Restoration. That means doing it right and hiring only the best conservators and restoration firms. Among the bidders for this project was Worcester Eisenbrandt, Inc., a Baltimore firm with a world class reputation. With a very reasonable bid and a solid resume, Worcester Eisenbrandt was our unanimous selection.

The west façade of this vault, shown below, was so bad that most of the wall had to be taken down and rebuilt. To make sure all the bricks fit back in where they were supposed to, like a jigsaw puzzle, W-E labeled each brick.

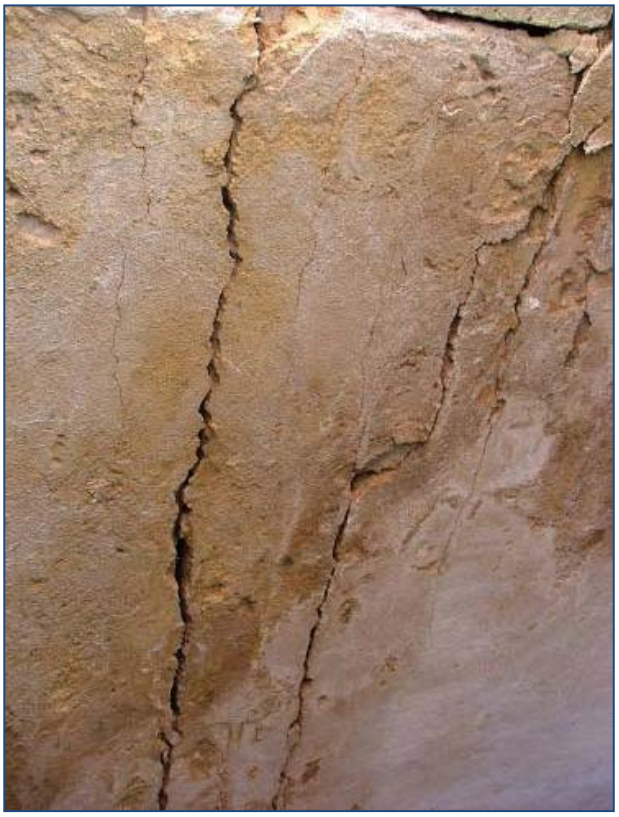


Where the wall is solid enough, the outer layer of mortar is scraped away and a new layer of mortar – of the same chemical composition – is pressed into the gap between the bricks.

Unforeseen Problems

Although there is evidence of some modest restoration work done on the vault exteriors, there is no indication that a thorough structural evaluation has ever been done before. Given the poor state of the facades, we decided an interior inspection was imperative.

When we opened the iron doors, which had not been opened in decades, what we found was disconcerting. Disconcerting in two respects. First, we found large cracks across the ceiling parging (a plaster-like coating) and grass roots dangling from the ceiling – a clear indication that the roof had been compromised. Water and roots indicate significant structure problems ahead.



Second, we found that the caskets placed some 150 years ago had, as expected, deteriorated significantly. Restoration of the structure required access to the interiors. Working in the interiors meant that the caskets and remains had to cleared out of the way so conservators could get to the problems.

Smithsonian Assistance

Respectful treatment of human remains is a priority at every cemetery. Faced with the need to move substantially decayed remains to maintain the structure in which they are housed is a task not lightly undertaken or assigned to the faint of heart. Fortunately, our neighbor, the Smithsonian Institution Natural History Museum, has experts who do just this sort of thing.

The Anthropology Department of the Smithsonian studies 19th Century North American health and morbidity standards, and burial practices. Our situation offers the anthropologists and archeologists a great opportunity to advance the state of knowledge about 19th Century American life and death. Congressional has excellent biographical data, which when matched with the physical remains, creates great science.

So when we repair old brick vaults, we ask the Smithsonian to take on the task of moving the remains. The Cemetery gets the work done so restoration efforts may proceed; the Smithsonian gets access to important primary source material for the advancement of science.

In the photo on the right, volunteers and scientist gather for instruction from Dr. Douglas Owsley, who is down inside the tomb. In the lower photo, the interior is cleared of casket debris and remains.

Roof Issues

We have no records of how these brick vaults were constructed. They date back to the 1820s and most likely were built by private contractors, not by the cemetery management.

The roofs of the vaults are covered with up to a foot of dirt and sod. We are not sure of the reason. Inspection of the interior ceiling indicated that the exterior roof would have to exposed to find the source of the problem.

What we discovered was that *there is no mortar left between the bricks of the vault itself. It's just dirt*.

We've seen this problem before and, if unrepaired, leads to the collapse of the vault.

This condition was found in two of the three vaults and is expected to show up on the third as well. The dirt has to be removed and replaced with mortar, and then a top coating of parging material layered on to seal the vault roof.

We Need Your Help

Our budget for the vault restoration project was approximately $75,000. We expected a few restoration issues would likely arise and held a budget reserve aside to pay for these costs. Every project has a few unexpected matters that add to the overall cost. Unfortunately, we've already found those little surprises, and committed the funds to repair them.

When we realized the roof required some work, we anticipated minor repointing issues, not a wholesale crisis. We are now faced with an added $20,000 of costs for the repair of the vault roofs. It's not in our budget.

Please consider supporting the on-going restoration efforts at Congressional Cemetery, America's first national cemetery. Every dollar of support is needed and welcome. Please make checks payable to *Congressional Cemetery* and note it's for the Restoration Fund.

Mail checks to

Restoration Fund
Historic Congressional Cemetery
1801 E Street, Southeast
Washington DC 20003

Thank you,
Patrick Crowley, Chairman
Historic Congressional Cemetery