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**BIGELOW MEMORIAL CONSERVATION ASSESSMENT  
WORCESTER, MASSACHUSETTS**



**Timothy Bigelow Memorial**

**Focus of this assessment: Marble monument and slate headstones**

The *Timothy Bigelow Monument* is located on Worcester Common, in front of City Hall. The immediate area around the monument is a small cemetery with 21 headstones dating to the late 18th century, and a painted iron fence with five sides forming a pentagram shape.

The focus of this assessment is the marble memorial and the 21 historic headstones surrounding the monument. The painted iron fence is not a focus of this assessment because it is not original to the cemetery nor of the same period as the monument. Further historical research is required to determine preservation/restoration procedures for the fence.

The headstones, made of slate, date to the late 18<sup>th</sup> century. The Bigelow Memorial, erected inside the cemetery, dates to 1865. Conservator Barbara Mangum, a cemetery specialist in Boston, explains that cemetery plot owners occasionally gifted their unused plots to provide locations for 19<sup>th</sup>-century monuments. (see the Milk Row Cemetery in Somerville, MA).

**Site visit:** 08/13/2020  
**Architect:** Snell, George. (1820-1893)  
**Execution:** Wentworth and Co., Boston  
**Granite:** Granite Railway Company

**Title:** *Timothy Bigelow Memorial*, (sculpture)  
**Other titles:** *Colonel Timothy Bigelow Memorial*, (sculpture), *Bigelow Memorial*, (sculpture)  
**Date:** 1860. Dedicated April 19<sup>th</sup>, 1861  
**Inscriptions:** On the front of the sculpture:  
TIMOTHY BIGELOW  
On the right side of the sculpture:  
Born Aug, 12, 1739 Died March 31, 1790  
On the back of the sculpture:  
In memory of the colonel of the 15<sup>th</sup> Massachusetts Regiment of the Continental Army in the War of Independence, this monument is erected by his great-grandson, Timothy Bigelow Lawrence in 1861  
On the left side of the sculpture:  
Quebec/Saratoga/Valley Forge/Monmouth/Verplanck's Point/Yorktown  
unsigned  
**Materials:** Memorial: Tuscany marble  
Base: Granite  
**Dimensions:** Sculpture: approximately 20' x 6'9" x 6'9"  
Base: approximately 9' x 9'  
**Location:** Worcester Common, Worcester MA 01608  
**Smithsonian Inventory of American Sculpture #:** 8763000

**Description:** The memorial consists of a gothic spire rising above a structure of four decorative gables, mounted on a square pedestal engraved with the names of battles in which Colonel Bigelow served. Columns flank the gabled area; ram's heads and the Bigelow family crest adorn the cornice areas.

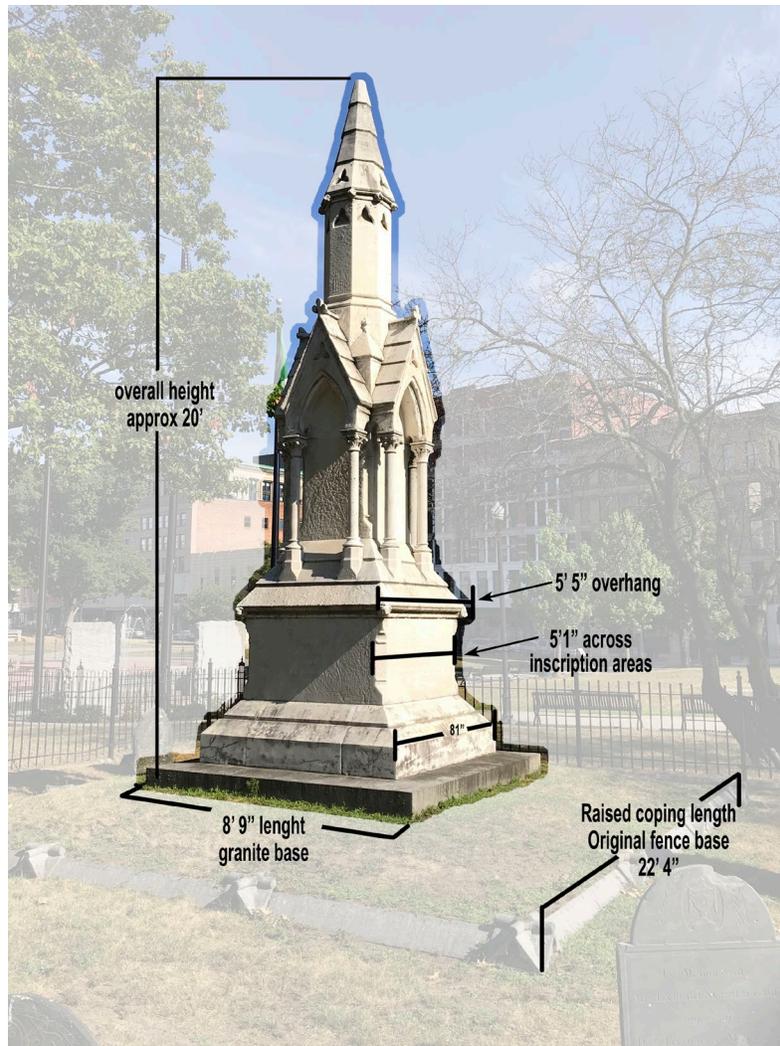
**Historic Notes:** The memorial was commissioned by Timothy Bigelow Lawrence, great-grandson of the Revolutionary war hero Colonel Timothy Bigelow (1739-1790). A time capsule buried beneath the monument contains documents pertaining to colonial history and the life of Timothy Bigelow. Captain Bigelow led Worcester's Minute Men through Concord to Cambridge, MA on April 19<sup>th</sup>, 1775. In 1777, Bigelow became Colonel of the 15<sup>th</sup> Massachusetts Regiment, which served under George Washington at Valley Forge, West Point, Yorktown, Verplanck's Point, and Saratoga.

Originally the monument was 25' tall but the upper courses of stone were replaced at some point with shorter stones. An updated plaster model of the memorial is owned by the Colonel Timothy Bigelow Chapter of the Daughters of the American Revolution (140 Lincoln Street, Worcester MA 01605).

IAS files contain a copy of the Worcester Parks and Recreation Dept./Massachusetts Historical Commission Form C "Monument" questionnaire which includes a condition assessment; and a September 1986 Dennis and Craine Associates condition assessment.

## **SECURITY**

There is a modern chain and lock around the small gate on the west side of the fence, and only staff have access to the key. The chain is rusting and should be replaced with stainless steel or titanium lock.



**Bigelow Memorial Dimensions**

## CONDITION

The multi-tiered marble memorial was unfortunately previously aggressively over-cleaned by sandblasting and the entire surface has lost much detail and has an uneven profile. This past damage has introduced areas for biological growth to form and has allowed water to infiltrate the marble matrix, causing damage upon freezing. The surface has a “sugared” appearance. The previous treatment has also caused cracking, particularly at the bottom courses of the stone.

There is also light surface soil on all surfaces, some small areas of black sulfate formation, and dark staining associated with the cracks.

Although there was a general weathering of the Tuscan marble, there is no doubt that the sand blast attempt at cleaning caused most of the damage. It is also not known if the surface was also treated with an acidic cleaner. Unfortunately, the previous aggressive treatment cannot be reversed, and the monument can be best preserved by gentle washing, followed by patching of small losses, cracks, and deteriorated mortar joints. These repairs are to be done with an appropriate lime mortar that matches the softness of the marble (no cement, no synthetic materials). There are already some recent repairs with fills. These fills are not the perfect color match, but they are structurally sound and should be left as is.

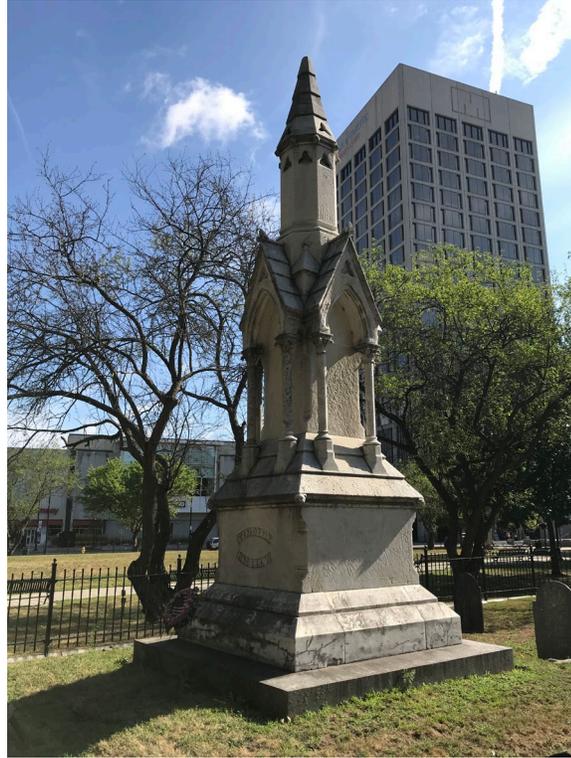
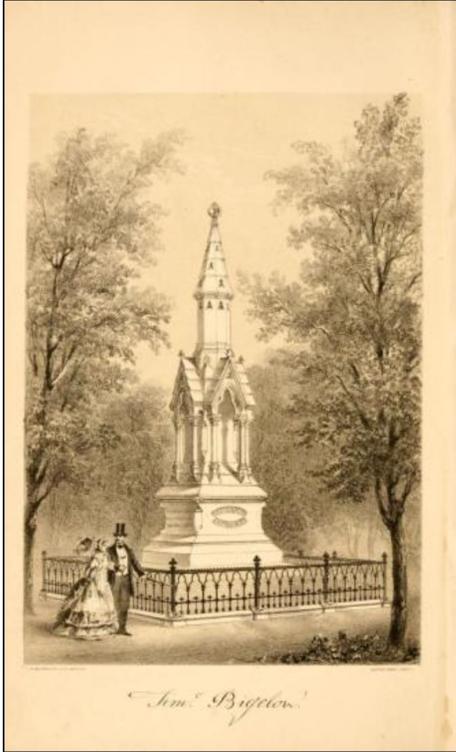
**Historic photo:**



Historic 1909 postcard photo.  
Note the design of the top spire has a different design than today, and the earlier fence design, construction, and size.



Timothy Bigelow Memorial: detail of the second gothic-style spire. The original spire was replaced sometime after the monument's first installation in 1861. The reason for the replacement is unknown.



**Left:** earlier pre-1909 image showing original and taller spire. **Right:** current spire.

### Monument coping and sixteen attachment locations for the original fence

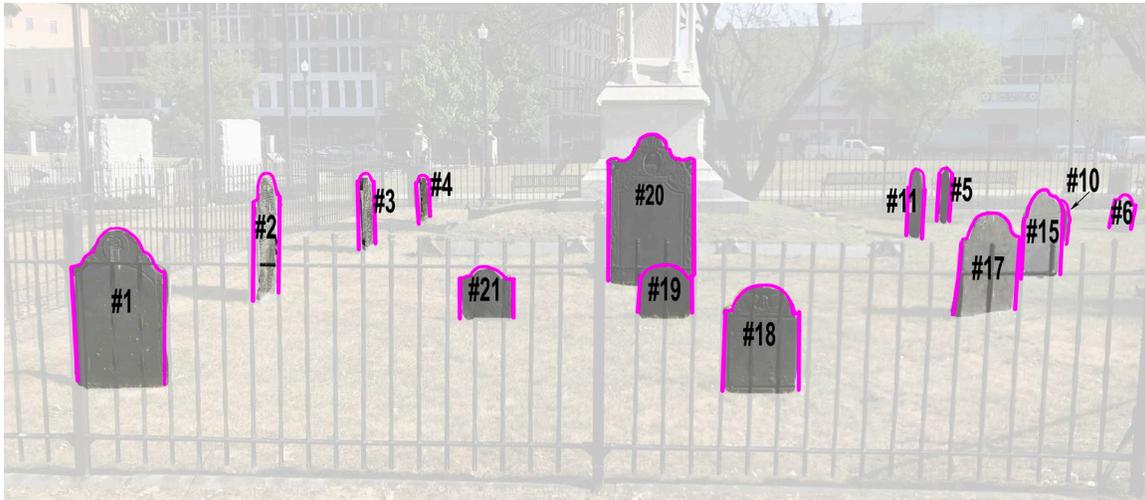
There is a granite coping surrounding the memorial in a square shape approximately 5.5 feet from the monument. The coping contains 16 stones in a cross shape every 5.4 feet with shallow holes in the middle, a number of them with iron staining. Instead of being locations for flags, recent research indicates these are the attachment locations for the previous painted iron fence (see 1909 postcard image). Some of the holes have been filled with various fill material to prevent water pooling.



**Cross-shaped granite stones:** used to set the painted iron posts of the original fence.

### CEMETERY HEADSTONES

The small cemetery surrounding the Bigelow Monument has 21 slate headstones dating to the 18<sup>th</sup> century (see diagram below with headstone numbers.). The stones are worn and have some weathering. All of stones have surface soil and biological growth, with some lichen (a slow growth bio-matter composed of a fungi and algae).



Headstones facing north, starting in southwest corner and numbering clockwise around the monument.



Headstones facing west. Headstone #12 will be straightened.

One of the smaller of the headstones (#12) is tilted backward, and there appears to be a previous attempt at straightening it (there is a small amount of stone rubble on the forward side). Another headstone (#19) appears to have been previously re-set into concrete. All the headstones should be very gently cleaned with distilled water and the small leaning stone returned to its upright position.



**Left:** Headstone #12 tilted back. Bird droppings on the surface, some past attempt at straightened with small chunks of stone.

**Right:** Headstone #19 with concrete reinforcement indicating that the headstone was previously straightened. Concrete is visible under tape measure. Leave this headstone as is.



**Left:** Headstone #15, showing area of stone loss, most likely from an initial direct hit.  
**Right:** Headstone #15 detail of loss and showing some biological growth, requiring washing and stabilization. Stabilization can be carried out with Paraloid B-72 clear acrylic resin.



**Cracks in marble:** north-facing view



**Detail:** multiple intersecting cracks in marble on the southwest corner of the base



**Left:** crack, discoloration and bio-growth in marble base under the inscription

**Right:** discoloration from bio-growth on marble especially on columns

## TREATMENT DIRECTIONS for TIMOTHY BIGELOW MEMORIAL

### MARBLE

1. Photograph conditions before treatment in high-resolution digital JPEG files each image labeled with monument name, date, brief description, and "BT" (indicating before treatment).
2. Gently wash all surfaces of the marble monument, first using just water, then with Professional's Edge Nilodor Urine Digester to reduce biological growth. Biocide D/2, sold by Biological Solutions, Inc. **Note that municipal water may be used to wash the monument but allow the water to run until it is clear.**
3. Repeat the washing step with Orvus™ (sodium lauryl sulfate) and water, followed by repeated gentle water rinse.
4. Clean the horizontal cracks in the marble with a small brush and water. After drying, fill cracks less than 1/8" wide with grout made of dispersed hydrated lime manufactured by US Heritage Group ([usheritage.com](http://usheritage.com)) or Voidspan Technologies ([Voidspan.com](http://Voidspan.com)), Cathedral Stone's Jahn pre-mixed marble mortar, or approved equal. Prepare a sample fill no longer than 8". Once approved, fill all cracks with the hydrated lime grout. A plastic syringe is useful to apply the mortar.
5. For filling cracks and losses between 1/8" and 3/8", use fine cleaned marble dust mixed with St. Astier Natural Hydraulic Lime (available from [Limeworks.us](http://Limeworks.us)) or approved alternative. A small flexible steel spatula is useful for application.

**GRANITE COPING and original granite attachment points for the original fence**

1. Photograph conditions before treatment in high resolution digital JPEG files each image labeled with monument name, date, brief description, and "BT" (indicating before treatment).
2. Gently wash all surfaces of the granite with Professional's Edge Nilodor Urine Digester to reduce biological growth, or use Biocide D/2, sold by Biological Solutions, Inc.
3. Wash again with Orvus™ (sodium lauryl sulfate) water, followed by water rinse.  
**Note that municipal water may be used to wash the granite.**

**HEADSTONES**

The goal of cleaning the headstones is to remove surface soil, biological growth and stains from the surface of the stone without damaging the stone substrate. Care must be taken not to over clean the headstones. No caustic materials, abrasives, or cleaning with materials and methods not specified here are permitted.

1. Photograph conditions before treatment in high resolution digital JPEG files each image labeled with monument name, date, brief description, and "BT" (indicating before treatment).
2. Brush the stones with small soft brushes to remove loose dirt and biomatter.
3. Clean the headstones by first wetting the stone completely with deionized or distilled water brought to the site (do not use local municipal water).
4. Using Nilodor Bio-Enzymatic Urine Digester 10% in distilled water using soft natural bristle brushes or soft nylon bristle brushes to remove biomatter. Biocide D/2, sold by Biological Solutions, Inc. may be substituted. Rinse headstones.
5. Wash headstones again with 4% Orvus WA Paste in the distilled water, again using very soft brushes, and thoroughly rinse with the deionized or distilled water.
6. After drying, stabilize the upper loss area and broken edge of Headstone # 15 loss area using 7% Paraloid B-72 in acetone, applying only to damaged area with a soft natural bristle brush.

7. Straighten and re-set headstone #12 by removing 4 inches of grass around headstone and reserve. Remove current small stones that have not effectively supported the headstone. Gently dig downward and remove soil surrounding the headstone 8 to 12" downward, or until the bottom edge of the headstone is visible. Reserve the earth using a short 2" x4" piece of wood to support the headstone upright. Fill the lower half portion of the void with clean crushed washed stone with 1/2" wide pebbles. The angle of the stone should closely match the surrounding headstones (not necessary directly upright). Fill the remaining void with crushed washed pea stone leaving 2" to return the previously removed earth and grass.
8. Photograph all headstones front and back after treatment in high-resolution JPEG digital format and label each image as "AT" for after treatment.
9. Prepare written report.

### Project Standards

*All work must comply with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties and adhere to the Code of Ethics established by the American Institute for Conservation of Historic and Artistic Works (AICHAW).*



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