



Our Mother of Sorrows Grotto

on the campus of Mount Mercy University

Cedar Rapids, Iowa

built by visionary artist and builder

William H. Lightner

between 1929 and 1941

William Lightner's
Our Mother of Sorrows Grotto Preservation
and Restoration 2010-2014

Conservators:
Don Howlett & Lisa Stone, Preservation Services, Inc.

This Project was partially funded by an ARTWORKS Grant from the National Endowment for the Arts 2012-2014 and a 2011 Iowa Arts Council Major Organizations Grant. Matching funds were provided by Mount Mercy University, The MMU Art Club, The Linn County Rock and Mineral Society, The Friends of the Grotto, Rinderknecht, Inc. , and many many donations from alums, neighbors and local businesses. Please see our web site and brochures for a more complete listing:
www.mtmercy.edu/grotto



The restored Our Mother of Sorrows Grotto
May 2014



Lightner was a respected architect, artist, and builder responsible for many outstanding buildings in Eastern Iowa including Warde Hall on the Mount Mercy Campus. A professional boxer and skilled carpenter early in life, Lightner went on to become a partner in his family's contracting business, Lightner Brothers' Construction and later president of the Master Builders of Iowa and a Presidential appointee to The National Building Standardization Committee during the 1950s. For Lightner, however, the multi-structure Our Mother of Sorrows Grotto became his life's work and his artistic masterpiece.



William H. Lightner traveled more than forty thousand miles throughout the United States and Mexico looking for building materials. He contacted suppliers around the world in search of more than three hundred unusual varieties of stones and mosaic glass used in creating the structures. Over twelve hundred tons of stones were used, and his personal cost exceeded forty thousand dollars (in 1930s). The four structures remaining reveal Lightner's visionary sense of design, as well as providing a multitude of geological specimens, including coral from Hawaii, petrified wood, lapidolite, white quartz, blue azurite, and rose quartz from Colorado and the Black Hills of South Dakota.

Existing Conditions

- Efflorescence (lime, calcium, rust build up)
- Organic growth and pollution damage
- Deteriorating mortar
- Cold Joint delamination
- Footings and foundations (mostly solid)
- Mosaic tile and stone inlay de-lamination
- Landscaping issues





- Above left note rust stains on mosaic as well as poor condition of temporary replacement globe. To the right see calcification efflorescence and missing mortar and stone on roof.



- Note deteriorating mosaic on lower arch above water and missing Italian mosaic tiles on railings.

Staff

Project Director: Jane Gilmor, Professor of Art

Curator/Preservation-Restoration Professionals

Don Howlett, Lisa Stone of Preservation Services,
Neshkoro, Wisconsin and The School of the Art Institute of Chicago

Technically skilled labor:

Technical Specialties/Structure Savers of Cedar Rapids

Trained assistants: David Van Allen, Jonathan Berger

Untrained volunteers to organize materials

Conservator: Don Howlett, Preservation Services Inc.



The Process:

Completed in Five 2 -5 week long work session
between Fall 2012 and Spring 2014

Creating a Preservation Plan, mapping the grounds and structures, grant applications

In summer 2010 Conservationists Don Howlett and Lisa Stone of Preservation Services, Inc. were hired to spend a week on campus surveying the physical condition of the Grotto, speaking with administration, faculty and students, presenting a lecture and final oral report to the campus community. Within 30 days they sent their final recommendations in a 38-page illustrated Preservation Plan (downloadable at www.mtmercy/grotto)

Jane Gilmor began applying for grants to help fund the project in Fall 2010 and received major grants from the Iowa Arts Council for 2011 and The National Endowment for the Arts ARTWORKS Program, 2012-2014

Preservation Plan

Our Mother of Sorrows Grotto

Mount Mercy College, Cedar Rapids, Iowa
July 2010



Preservation Services, Inc.

Don Howlett and Lisa Stone
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820. 566-4292 * dstone@centurytel.net

The 2010
Preservation Plan by
Lisa Stone and Don
Howlett of
Preservation
Services, Inc. in
Wisconsin served
as the guide for grant
applications and the
next three years of
work to preserve and
restore the Grotto

Deteriorated mortar

Deteriorated mortar occurs primarily on the top of the arch, due to moisture entry from cracks accelerated by organic growth. Moisture has been gravity fed down to the cold joints between north and south arch faces (the areas with the phrases), causing deterioration to areas of the words and the cold joints above. There is a serious area of dead mortar on the south face of the arch, west side. Howlett used a small amount of urethane foam on the southwest side of the top of the arch to temporarily fill a void where water was entering and to lock in loose rock embellishment.



1. Letters on north arch face; left and right areas show deteriorated mortar.



2. Area of dead mortar



3. Deteriorated mortar joint above "BLESSED"



4. Extensive dead mortar on southwest arch face.



5. Deteriorating mortar at cold joint.

Detached embellishment materials.



6. Loose black stones on left have become detached from top of cross.



5. Failed Rockite used to attach tiles.



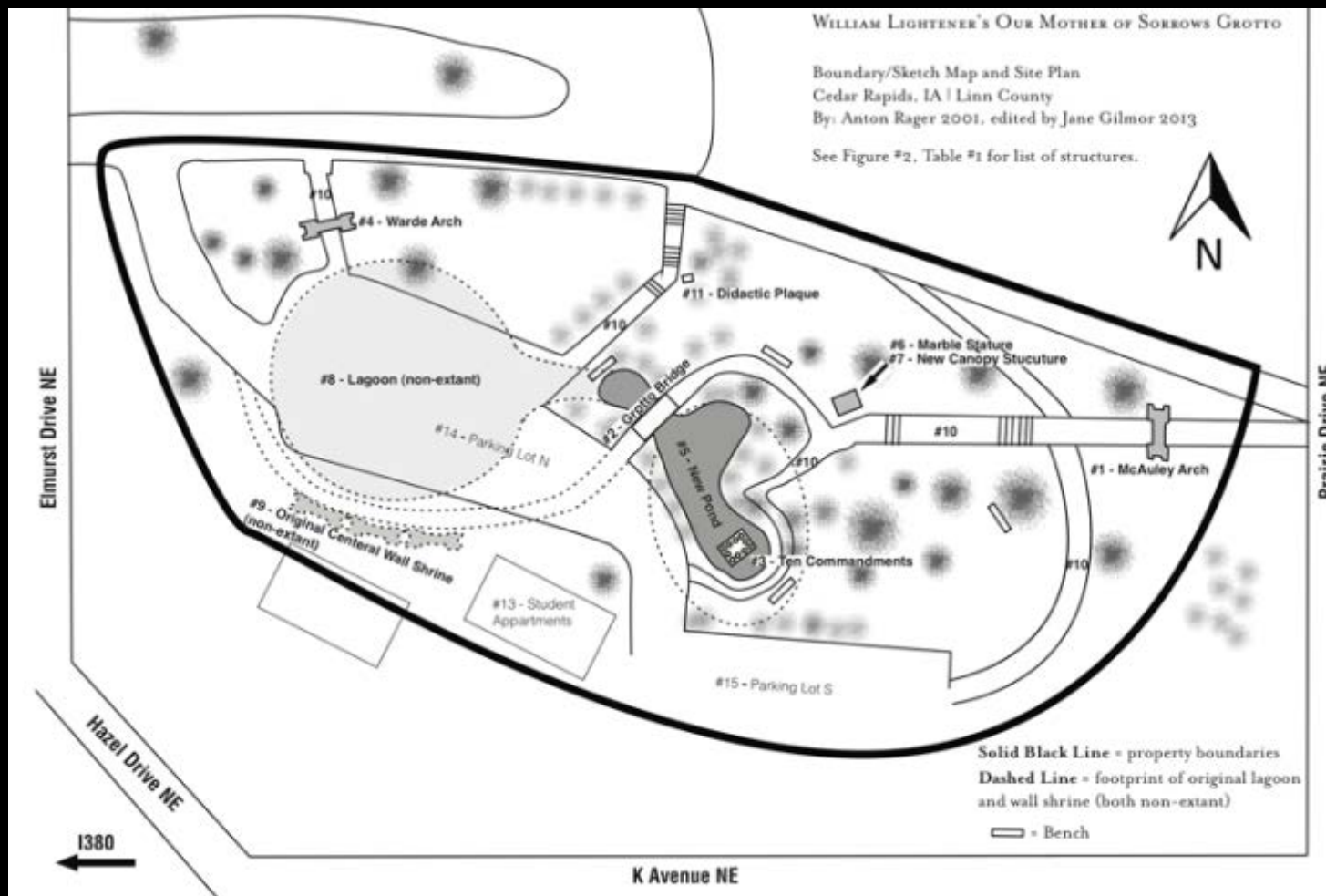
7. Detached tile and mirror, condition evident on all four ums.



8. Pipe on north west side.

Sections of iron pipe project from the center of the north faces of the arch walls about 18" down from the top wall edge (pipes protrude from the McAuley arch as well. It's not clear if these were installed for drainage or if they held electric or gas lamps at one time.

The Preservation Plan provided detailed images and discussions of existing damage and proper procedures for repair and restoration.



The Preservation Plan called for the creation of a detailed site map of Our Mother of Sorrows Grotto. Above note the existing structures and non-extant lagoon and large wall shrine (removed in early 1970's)

The Process:

Cleaning of all structures including

- Remove organic matter

- Remove efflorescence, rust, lime

- Remove deteriorated mortar and loose materials (stones and glass tiles) and

- Rockite* a sub standard material used in previous repairs

THE PROCESS: RESTORATION

Repair cold joint delamination

Drill relief holes at calcification points

Tuck point where needed, replace old mortar

Metal Pins inserted to repair supporting structure where needed

Repair and replace stone inlay and Italian mosaic glass squares

Repair and replace stone inlay text phrases on arches

Apply migratory corrosion and rust inhibitors where needed

Apply final Sealant

**FOLLOW THE PROGRESS ON EACH STRUCTURE:
BEFORE DURING AND AFTER PHOTOS**

The BRIDGE: before

Note the serious deterioration of mortar and stone on the bridge deck floor and the cracking and loss of tiles on the arch under the deck (both sides). Many of the original stones are missing from the Bridge railings as well



The BRIDGE: before



The BRIDGE: During restoration

A thorough cleaning was the first step. In most cases this used a gentle hand brushing method, but the bridge railing called for a jet spray to wash away loose mortar and old repairs.



The BRIDGE: During restoration



The materials used for cleaning and sealing the Grotto come from a specific company in Germany where the most recent research on proper preservation techniques have been done. Above see glass tiles recovered from loose surfaces.

Technical Specialties Systems, Cedar Rapids
assist in beginning the project, Summer 2011
Certified in restoration of historical structures



The BRIDGE: During restoration



Conservator Don Howlett and trained Assistant David Van Allen inspect damage to mosaics on lower arch of bridge

The BRIDGE: during restoration



Gently grinding down old mortar

The BRIDGE: during restoration



David Van Allen restoring Italian Mosaic tiles on Grotto Bridge railings



The BRIDGE restored



The BRIDGE restored



The Ten Commandments: before restoration



The Ten Commandments: removing the old globe globe



Brian Halstead of Technical Specialties help Don Howlett remove the old temporary globe (not made by Lightner)

The Ten Commandments Scaffolding up



The Ten Commandments: the new globe



Conserator Don Howlett, of Preservation Services, Inc. creating the new globe using Original and replacement Italian Mosaic glass tiles. Winter 2013

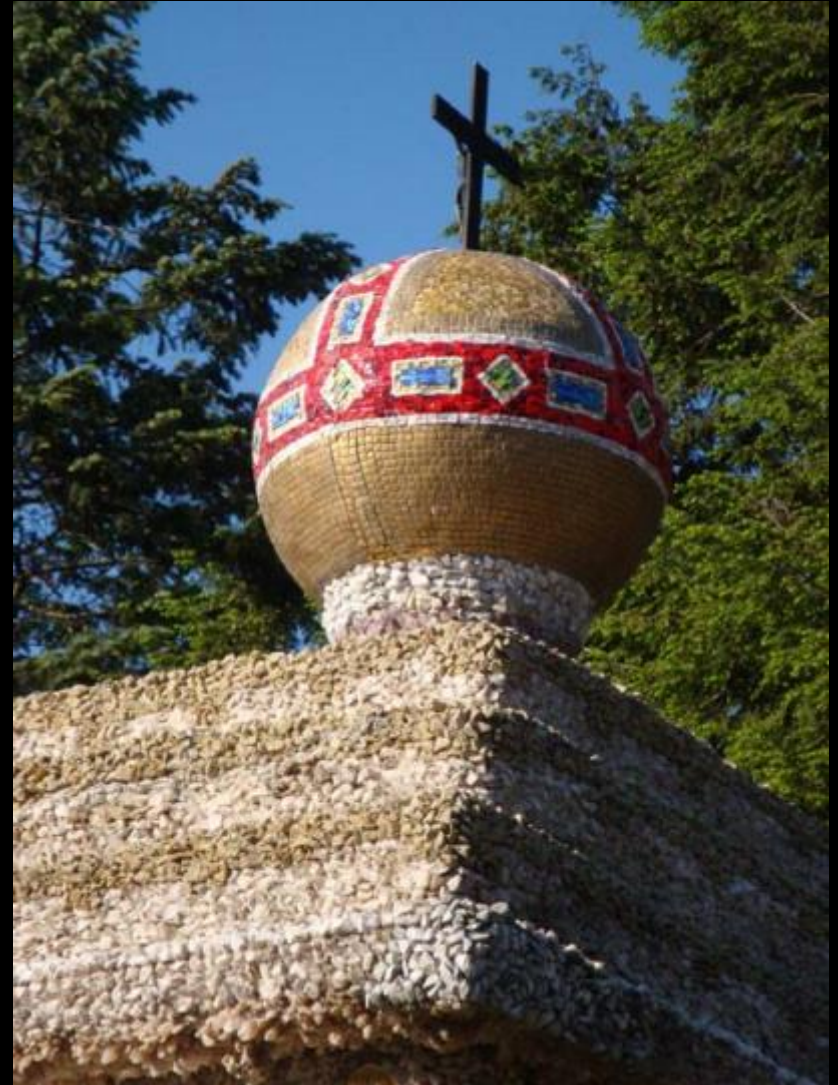
The Ten Commandments installing the restored globe, Spring 2013



The Ten Commandments installing the restored globe



The Ten Commandments installing the restored globe



The Ten Commandments: more restoration



The Ten Commandments during restoration



Deteriorated mortar and loose stone inlay removed. Metal screening used for support as new mortar is applied and new stones inlaid.



The Ten Commandments during restoration



The Ten Commandments during



The Ten Commandments: after corner and stone inlay repair



The Ten Commandments:

After stone inlay and column capital restorations



The Ten Commandments

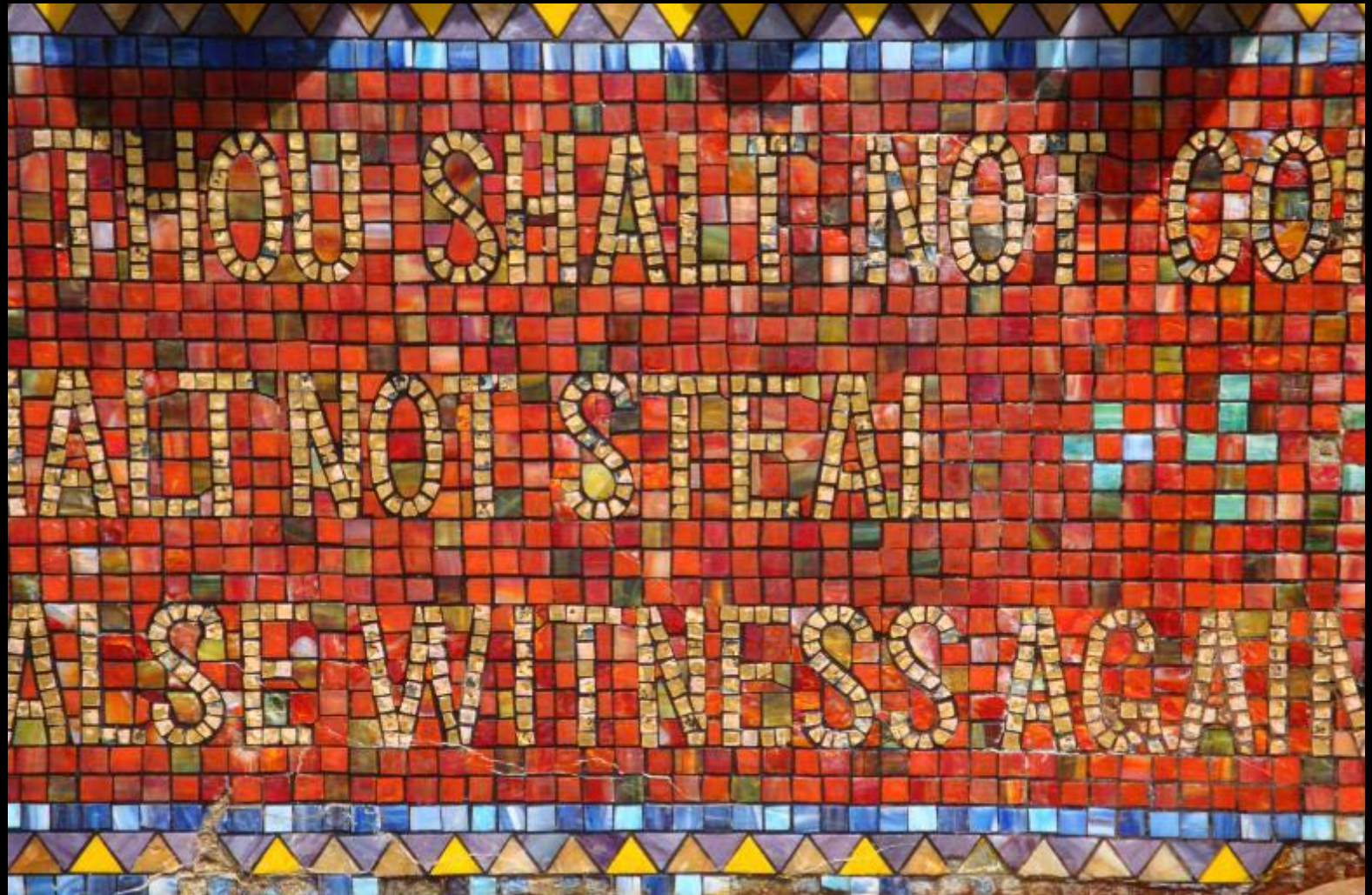
restoring Italian mosaic tiles



The Ten Commandments glass mosaic tile restoration



The Ten Commandments: Italian mosaics restored



The Ten Commandments Restored May 2014



WARDE ARCH

before restoration



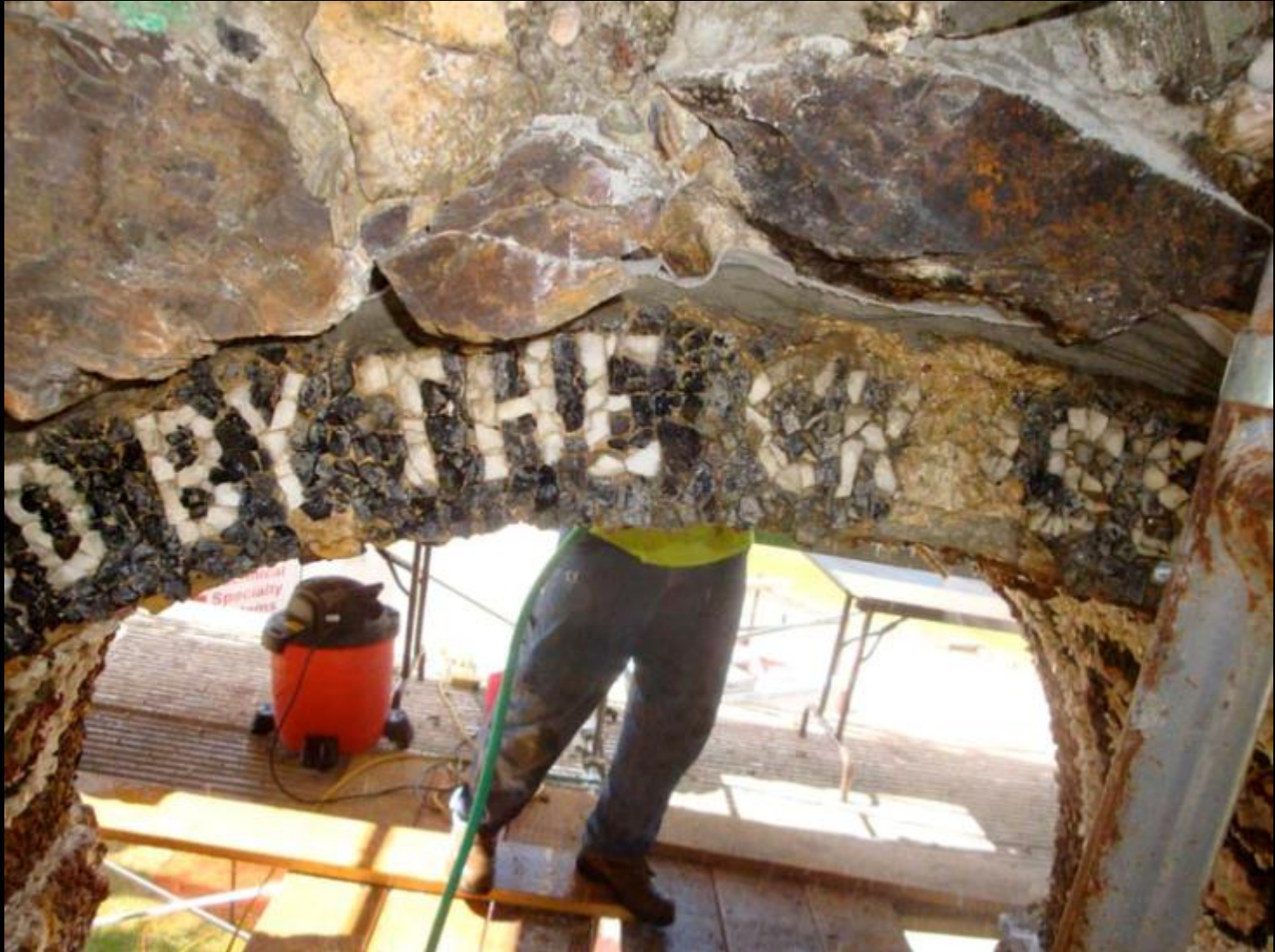
WARDE ARCH: scaffolding during restoration



Warde ARCH: during restoration



Warde ARCH: during restoration



WARDE ARCH: initial cleaning



WARDE ARCH: during restoration



WARDE ARCH

after restoration Fall 2012



WARDE ARCH: after restoration details



McAULEY ARCH

Before restoration



McAULEY ARCH:

restoration of letters using
stones them Keim pigments



McAULEY ARCH:

Trained assistant Jonathan Berger cleaning, restoring
Jardinaire tiles work, and sealing



McAULEY ARCH

after restoration May 2014





The restored Our Mother of Sorrows Grotto
completed May 2014

For more information on William Lightner's Our Mother of Sorrows Grotto restoration process visit the Preservation Services, Inc., web site: <http://www.preservationservicesinc.com/wordpress/?p=11>

the Mount Mercy University Grotto web page:
www.mtmercy.edu/grotto

or

contact the Mount Mercy University Busse Library Archives 319-363-8213

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