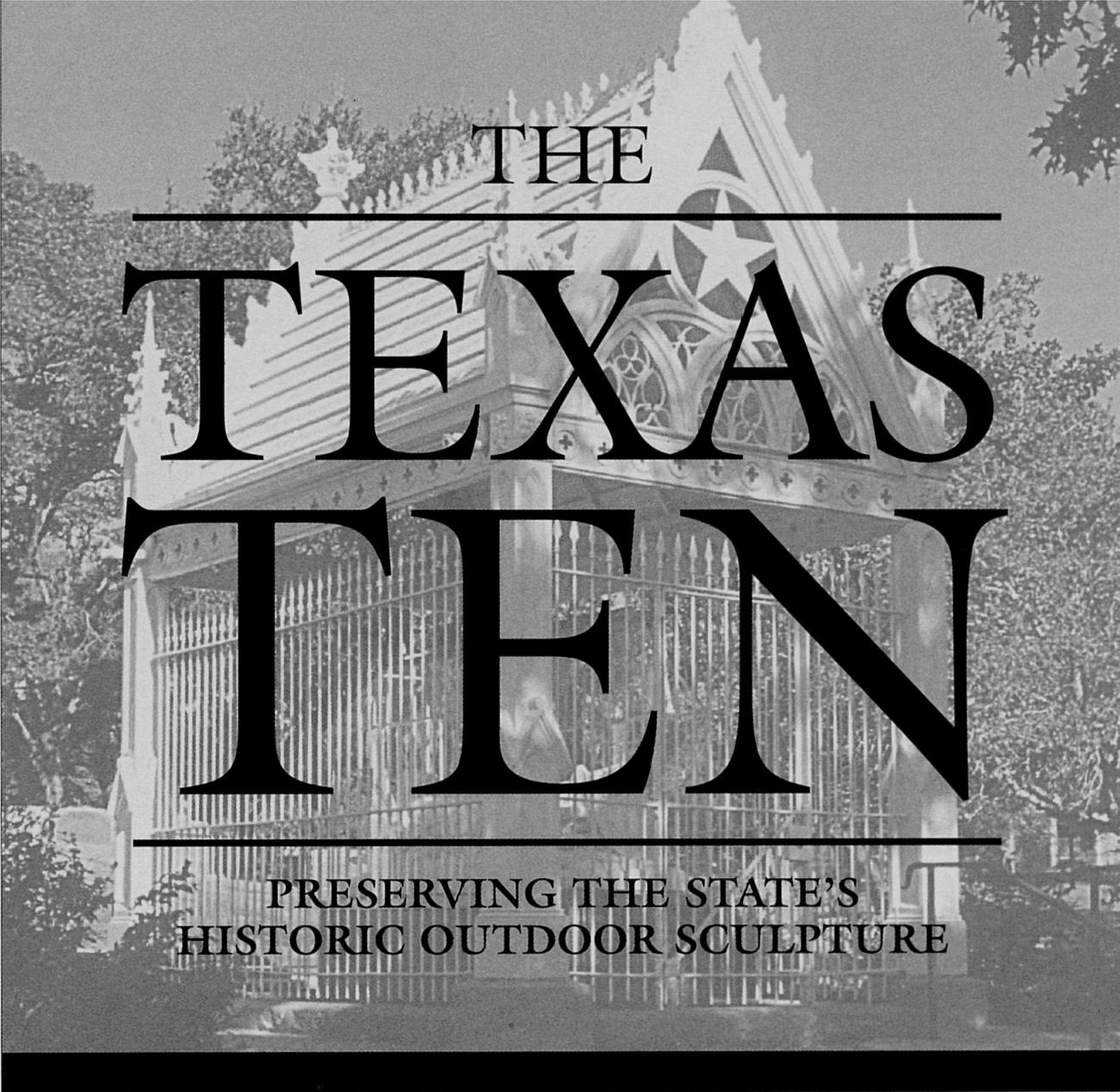


TEXAS HISTORICAL COMISSION



THE
TEXAS
TEN

PRESERVING THE STATE'S
HISTORIC OUTDOOR SCULPTURE

FINAL REPORT

Texas Historical Commission
Conservation Treatment
for Ten Historic
Outdoor Sculptures

Funded by a Federal Grant under *the*
Intermodal Surface Transportation
Efficiency Act of 1991

This report provides the reader with an opportunity to learn about recent conservation projects carried out on some of Texas' most important outdoor sculptures. It also documents those projects for future generations and educates readers about proper maintenance methods for outdoor sculpture. It is not a handbook for performing conservation work on similar projects; that work is best performed by professionals.

At the time the Federal program called the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was introduced, a state-wide survey of all the outdoor sculpture in Texas had commenced with the aid of Save Outdoor Sculpture! (SOS!), a joint project of Heritage Preservation and the Smithsonian's National Museum of American Art. The statewide survey of outdoor sculpture was a cooperative project among several SOS! grant recipients: Dallas/Fort Worth: Adopt-A Monument/Urban Strategies of Tarrant County'; San Antonio: City of San Antonio Planning Department; and Austin: Art in Public Places Program. The remainder of the state, including Houston and El Paso, was surveyed by the Texas Historical Commission (THC) under the direction of Hillary Summers. Her tireless efforts helped train scores of volunteers throughout the state on how to read a sculpture and fill out the SOS! inventory forms, assemble this information and set up a database with the aid of many University of Texas student interns. The ISTEA program arrived at a perfect time. Hillary proposed the idea of applying for a grant under the ISTEA program to conserve ten outdoor sculptures using data collected from the SOS! project. We were successful in gaining funds for this project. When the survey phase of the SOS! project was completed, Hillary left to pursue other projects.

To help the THC administer the ISTEA project, Mark Van Gelder was hired. His training as a conservator clearly prepared him to understand the principles and goals of the projects.

It is the intent that the projects described in this report and the video titled "Maintaining A Heritage: Outdoor Sculpture in Texas" demonstrate the need to preserve Texas' outdoor sculpture and that these are a catalyst for communities to become aware of their own works of art and their need to properly conserve them.

I want to take this opportunity to thank the staff of the SOS! project, especially Susan Nichols, Director; ISTEA program coordinator, Brenda Harper; Texas Land Office media staff; and all the THC staff members who helped through their technical expertise and support to make these two projects possible, -k

Gerron S. Hite
Texas Historical Commission Architect

TEXAS HISTORICAL
COMMISSION
Division of Historic Preservation

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This report discusses a recent, grant-funded project at the Texas Historical Commission (THC) which provided professional conservation treatment for 10 historic outdoor monuments located in various cities in Texas.

In 1989, a national Save Outdoor Sculpture (SOS!) program was created to develop an inventory of all of the publicly accessible outdoor sculpture in the United States. As part of the SOS! program, survey information was recorded for more than 1,400 sculptures and monuments in Texas by volunteers from around the state. The survey information for Texas was entered into a computer database at the THC in Austin.

The SOS! project increased local awareness of the need to preserve outdoor sculpture, and the survey information helped the THC identify monuments which had significant problems requiring professional conservation treatment. In 1994, the commission received a Federal grant, funded under the Intermodal Surface Transportation Efficiency Act (ISTEA), to preserve and restore a selection of important, but deteriorating, older outdoor monuments around the state.

In contrast to artists or experts in various crafts and fabrication trades, conservators are specially trained in the preservation of existing historic works which requires a different approach, different methods and materials, and different ethical constraints than the creation of new works. To ensure that the historic monuments chosen for this project received conservation treatment of the highest quality, a professional conservator

was hired to coordinate the project and formulate bidding criteria. Conservators who specialize in the treatment of outdoor sculpture, and are also Fellows or Professional Associate members of the American Institute for Conservation of Historic & Artistic Works (AIC), were invited to submit bids for the specified projects.

The THC's ISTEA grant provided 80 percent of the funding for the conservation work discussed in this report, with the required match of 20 percent of the cost provided by the local organizations indicated in each section of this report. The bids were opened in April 1995, and all of the conservation work was completed by April 1999.

Please note that the appropriate conservation treatment for each historic object is unique, and is carefully tailored by a trained conservator to address the specific requirements of a particular situation at a given time. Therefore, unless it is otherwise specifically stated, the treatment techniques and materials discussed in this report should not be adopted for use in other situations without further guidance from a conservator.

This report is intended primarily to inform interested individuals about the results accomplished by this project, and thus encourage similar efforts toward continuing the preservation of our common cultural heritage. It has been arranged in two parts following the introduction: Part 1 presents the historical background of each monument, and describes the pre-conservation condition of each monument and how the conservation work was accomplished; Part 2 discusses the need to continue to maintain these monuments, recommendations for their long-range maintenance program and how to clean stone and bronze.

BACKGROUND DISCUSSION

Outdoor monuments are not necessarily permanent fixtures in our communities. Though made of materials that are considered permanent, such as granite and bronze, they are subject to the natural forces of a harsh environment through weathering, biological growth and acid rain. Neglect, graffiti and vandalism accelerate and compound the process of deterioration.

Additional factors that adversely affect monuments are the general lack of funds to properly maintain these works of art and misunderstandings about the early signs of deterioration. Historically, it was rare that fundraising campaigns for a new monument included funds for long-term maintenance. Unfortunately, the public, as well as the owners of these monuments, lacked the knowledge to detect the early signs of the deterioration of historic materials. Some considered the corrosion of metal, as in the case of green discoloration of bronze, stains and loss of material as little more than signs that these monuments were getting "old." It was only when some major change or material loss occurred that steps were taken to deal with this deterioration. This is not the recommended approach; instead a long-range maintenance plan as described in Part 2 is needed to prevent the deterioration of these vulnerable treasures.

Stone is used throughout history for outdoor monuments. Historically, stone monuments were generally made of marble or granite while limestone and sandstone were used to a lesser extent. Stones are classified according to their geological origin: igneous, sedimentary, and metamorphic. Igneous rocks such as granite are generally very hard and less vulnerable to deterioration associated with air pollutants. Sedimentary rocks include sandstone and lime-

stone. Marble, a metamorphic rock, weathers and the bonds between grains are loosened and the surface becomes "sugary."

Most stone deterioration is a natural process. Three major weathering agents - chemical, physical, and biological - each require different management strategies. Chemical weathering deteriorates stone at a higher rate with the presence of pollution which exists either as acid rain or as airborne gases and particles. Physical weathering includes frost (freeze/thaw cycles), abrasion from sand and dust and disintegration of the mineral structure. Biological weathering is caused by vegetation, lichen and vines on the monument. Vandalism, of course, is an unnatural factor that exposes the stone to further deterioration.

The breaking down of the surface, especially on marble, increases the surface area, allowing acid rain to remain longer and attract more airborne pollutants. Also, biological growth found in the stone, as well as sulfides from automobile exhaust, contribute to dark staining. The roots of the biological growth also help to further break down the stone. Treatments of the stone by conservators must address the issues of consolidation and waterproofing without stopping the natural movement of water vapor through the stone.

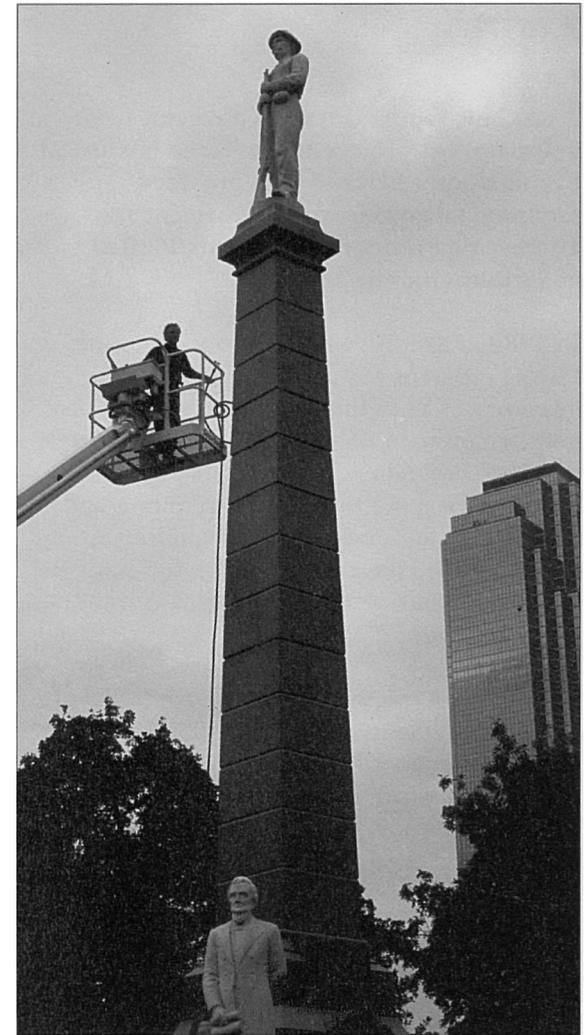
Bronze, a long established material for outdoor sculpture, is a copper alloy. A typical statuary bronze is about 85 percent copper and 5 percent each of tin, zinc, and lead. Unprotected bronze is subject to corrosion from wind, abrasion, dirt, bird droppings, graffiti and chemical compounds in the atmosphere. The green patina that is a product of corrosion was once thought to protect the bronze, however, it is known today that while it does

not contribute to the deterioration, neither does it offer any protection to the surface.

Following World War II, the use of sandblasting to clean bronze was popularized. The hardness of the sand, the sharp edges of the sand grains and the high pressures used concerned conservators because of the amount of bronze removed during the process. In the 1970s, a method using spherical glass beads under low pressure was developed to remove surface corrosion. Glass beads are initially less abrasive than sand, but because of the high cost, they are used more than once. After initial impact, they become hard, and their broken edges are similar to sand grains. In the early 1980s, conservators moved to less invasive cleaning methods by using pulverized walnut or pumpkin seed shells under low pressure along with non-ionic detergent.

After surface cleaning, the bronze may be repatinated to approximate the original surface. A protective coating must be used to isolate the bronze from the harsh environment. The original organic coatings applied by the foundry deteriorate with time and exposure. The coatings used today include waxes, which should be reapplied at intervals ranging from six months to two years, and lacquer, which requires removal and re-application from three to over five year intervals. Lacquer coatings are more durable than wax; however, all coatings are affected by human and environmental elements.

Other metals used in outdoor sculpture include steel, zinc, stainless steel, painted steel, corten steel, cast iron, lead and copper. ^



Confederate Monument, Pioneer Park Cemetery, Dallas

SPIRIT OF THE CONFEDERACY



PROJECT TITLE

Spirit of the Confederacy

ARTIST

Louis Amateis

DATE

1908

MEDIA

Bronze, cast in Washington, DC by Roman Bronze Works foundry

LOCATION

Houston, Texas; in the southwest corner of Sam Houston Park

DIMENSIONS

Sculpture: (H): 12' (W): 5' (D): 5' 6"

Base: (H): 4' (W): 6' (D): 6'

OWNER

City of Houston

CONSERVATION FIRM

Jensen Foundation For Art Conservation
Education & Research, Inc., Omaha, NE

COOPERATING ORGANIZATIONS

Houston Municipal Arts Commission
Daughters of the Confederacy, Chapter 186

COST OF CONSERVATION WORK

\$18,500

**CONSERVATION TREATMENT
COMPLETED**

1996

GENERAL DESCRIPTION

The sculpture is a twice life-size cast bronze statue of a winged male figure holding a palm frond, laurel branch and a sword. The sculpture is mounted on a pedestal base consisting of irregularly shaped, rock-faced granite blocks mortared together. A small bowl form was constructed from pieces of granite immediately in front of the sculpture's bronze base. The bowl has a drainage hole, but its origin and purpose are unclear. A bronze plaque mounted on the base, front and center, indicates the chapter of the Daughters of the Confederacy that commissioned the work and the reason for erection of this Confederate memorial.

The artist, Louis Amateis (1855-1913), was born in Turin, Italy, and emigrated to the U.S. in 1883. The father of sculptor Edmond Amateis, he headed the Department of Fine Arts, and founded the School of Architecture at George Washington University, in Washington, DC. His works include bronze doors for the west entrance to the U.S. Capitol; the "Monument to the Defenders of the Alamo," Austin, Texas; and the "Monument to the Heroes of the Texas Revolution," Galveston, Texas.

MONUMENT CONDITION BEFORE CONSERVATION

Tile bronze sculpture and granite base were structurally sound, with a few minor exceptions. Loss of bronze, indicating thinned metal from casting flaws, was observed at approximately eight holes on the back sides of the wings. At least two cracks in the bronze also appeared to be the result of thin walled casting. A circular hole in the bronze base resulted in loss of the letter 'n' in "Washington." The sword,

positioned with the tip down, was bent backward (toward the figure) and in the process suffered a crack at the bend and dislocation of the tab at the tip of the sword from its shallow anchoring hole in the base. Pitting was not severe, although somewhat more extensive on horizontal surfaces that retained water.

Bronze anchoring rods were originally used in four places around the bronze base, but two of these anchoring rods were missing and one was replaced with a ferrous bolt which had subsequently corroded.

Corrosion of bronze surfaces was overall and extensive as indicated by the visually disfiguring green and black oxidation products typical of copper sulfide and sulfate corrosion resulting from extended outdoor exposure. Upper regions showed evidence of corrosion. Lower regions were rubbed to a polished surface due to accessibility to the public. Some of the lower regions were also affected by repeated spray from the adjacent pond fountain.

Encrustations from materials, left inside the bronze after casting, were seeping through porosity in the bronze sculpture, accumulating on exterior surfaces beneath the folded arms, on details of the laurel branches in the left hand and on the knuckles of the right hand. Numerous but small graffiti was scratched into the bronze of both the plaque and the figure where accessible to the public.

Wide joints between the stones were filled with what appears to be mortar. The granite blocks and joints appeared generally sound, but many of the granite pebbles which originally were impressed into the outer surface of the mortar in the broad stone joints and in the bowl located in front of the bronze base were missing.

Joint material was missing from beneath the bronze base in a number of places, allowing daylight to show through beneath the sculpture. The front of the granite pedestal and the mortar-like joint material between the granite blocks were generally stained green due to corrosion product runoff.

CONSERVATION TREATMENT PERFORMED

Preliminary photodocumentation of the sculpture was followed by preparation of patina samples on lower areas of the bronze for client review and approval. Three samples were prepared, two in brown and one in black and green. Due to the fact that no original patina could be found to determine the original color, representatives of the Houston Municipal Arts Commission selected and approved the brown patina sample which retained distinctive green undertones of the weathered bronze surface.

Treatment continued with overall cleaning which removed general soiling. Extensive polishing of the surfaces due to public handling and climbing contributed to the density and resilience of the corrosion products remaining on the cast surfaces.

Removal of materials left in after casting from beneath the crossed arms met with limited success. Surfaces were abraded with brass wheels, however, the dense materials were not completely removed and were subsequently colored by patinating through them to the bronze.

Repairs to the bronze sculpture were conducted prior to patination. The sword was straightened but the small tab beneath the sword snapped off immediately during the first gentle move of the

sword. When aligned as fully as possible, the sword was secured by welding a small mound immediately behind the sword tip. The crack was closed by the realignment of the sword and the crack was bonded with epoxy and painted appropriately.

Holes in the back of the large wings were closed in by welding and with epoxy. Similarly, the hole in the base through the letter "n" was also filled with epoxy and inpainted with acrylic paints.

The ferrous anchor bolt was removed and brass rods and washers that reproduce the appearance of the original anchors were placed in the back and left anchoring holes and anchored with epoxy.

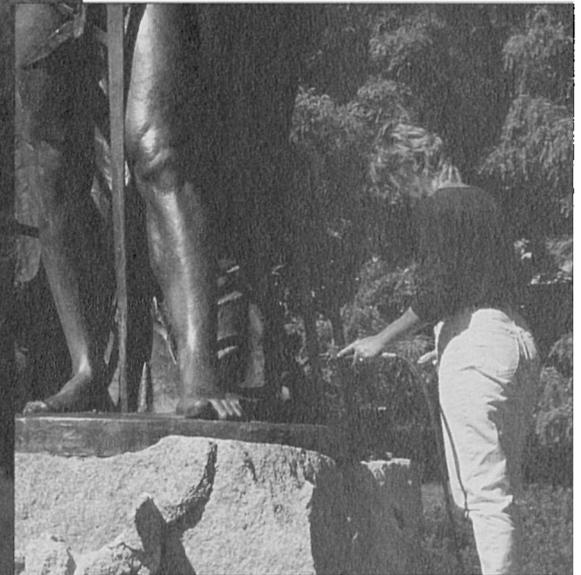
Treatment of the bronze continued with application of patina. The patinated and repaired bronze surfaces were rinsed with clear running water to remove excess chemicals and were allowed to air dry. A triple layer of protective Incralac lacquer was applied and lacquer coatings were coated with a final protective coating of paste wax, applied by hand and buffed to a uniform but fairly low sheen.

Stone cleaning and stain removal continued throughout the bronze conservation treatment. Mortar was applied to fill losses along the bronze base, *ir*

*Shown right:
bronze sculpture and granite base,
before treatment*



*Shown below:
during treatment*



DICK DOWLING



PROJECT TITLE

Dick Dowling

ARTIST

Frank Teich

DATE

Unveiled: March 17, 1905

MEDIA

Sculpture: white Carrara marble

Base: gray granite

LOCATION

Houston, Texas; Hermann Park, in a triangle near the intersection of Hermann Park Loop, North MacGregor and Holcombe Boulevards

DIMENSIONS

Sculpture: (H): 8' (W): 2' 6" (D):

Base: (H): 20' (W): 10' (D): 10'

OWNER

The City of Houston

CONSERVATION FIRM

Laboratory for Conservation of Fine Arts,
Teaneck, NJ

COOPERATING ORGANIZATIONS

Houston Municipal Arts Commission
The Dick Dowling Irish Heritage Society

COST OF CONSERVATION WORK

\$23,000

CONSERVATION TREATMENT COMPLETED

December 1996

GENERAL DESCRIPTION

A full sculpture of the Confederate hero, Dick Dowling, carved from one block of white Carrara marble, stands atop an inscribed gray granite pedestal, which is mounted on a granite base. The monument was dedicated on March 17, 1905, and stood in front of City Hall on Market Square until 1940, when it was moved to Sam Houston Park. In 1958 it was moved again to its present location in Hermann Park.

Dowling has a large mustache, and is dressed in a Confederate lieutenant's uniform with a cap on his head. His right arm is bent across his chest, and he holds a pair of binoculars in his right hand. His left hand originally rested on the hilt of a Confederate saber. Based on historic photographs, the saber had a wide finger guard and rested with its angled blade against an existing protrusion on Dowling's left calf (prior to conservation, a replacement sword made of wood wrapped in duct tape was held vertically with a small mound of concrete on the base directly below Dowling's left hand). He is stepping forward on his left foot, with his right leg supported from behind by a tree stump that rises to the height of his jacket hem.

A relief carving of a cannon on wheels is in the top front part of the pedestal, beneath Dowling's feet. Shamrocks are carved at each of the top corners above the inscriptions, and volute shaped reliefs are located in the center above the inscriptions on each side of the pedestal.

MONUMENT CONDITION BEFORE CONSERVATION

The marble surface was very weathered and granular due to extended outdoor exposure.

particularly on protruding areas such as Dowling's head, where much of the fine sculptural detail was lost. Surface cracks showed in the marble, and a number of sculptural elements were damaged, vandalized or missing. For example, the broken brim of the Confederate cap and a portion of the left thumb were missing, and Dowling's left foot was broken into approximately seven pieces. Some damages were extensively repaired in the past. For example, the left hand had been broken at the wrist and repaired using an iron pin and a cement-like material; the iron pin had then corroded inside the marble, releasing reddish stains. The monument was moved on at least two occasions, resulting in a number of chips on the pedestal and base, especially along the stone interface edges.

The original saber, and later wooden substitute swords, were stolen repeatedly (a 1958 Houston Post article is entitled, "Dowling's 5th Sword Missing)." A small fragment of the original saber tip remains on the base platform. There were concrete patches on the sides of the marble platform just below the figure, and the tip of the substitute sword was secured with a small mound of concrete. Concrete was also used for patching some of the losses in the marble.

The stone surfaces were soiled with grime. The marble statue was covered with black and green biological growth, particularly on those surfaces not exposed to the direct sunlight. There were red-brown stains in many spots on the marble and the granite pedestal. The cause of the reddish staining was not readily apparent, but could be the result of contamination with metallic impurities during storage when the monument was disassembled and moved in the past.

The monument was washed with water annually

on St. Patrick's Day by Mr. Larry Miggins of the Dick Dowling Irish Heritage Society, and his family.

CONSERVATION TREATMENT PERFORMED

The Marble Statue

All concrete patches and repairs were removed mechanically from the sculpture using hand tools, such as scalpels and chisels. A polyester resin-type repair at the base behind Dowling's left foot was in good condition and was therefore left unchanged.

The powdering surface of the stone was consolidated before any other treatment.

It was determined that the problem of biological growth on the marble was not considerable enough to justify the use of disinfectants. Dry fragments of the biological growth were lifted from the surface using hand tools.

The marble statue was cleaned with water under low pressure (below 100 psi at the surface) and soft natural bristle brushes. Heavily soiled areas were cleaned additionally using an appropriate poultice. The stone and crevices were also injected with a special stone strengthener.

The loose fragments of the marble were treated in the same way as the rest of the sculpture, matched, assembled and reattached, based on the existing drawings by Frank Teich, old photographs of the monument and visible evidence indicating the proper arrangement of the pieces. Special pins, epoxies and fillings were used to repair and reattach these fragments.

The missing sword was replaced with an artificial stone replica, based on the artist's sketch,

photographs of related Confederate swords and old photographs of the monument. The model of the sword was made of auto filler Bondo. The tip of the replica of the sword was matched with the remains of the original sword tip at the base, the hilt was positioned under the palm of Dowling's left hand, and the side of the scabbard was secured to the original protrusion on Dowling's left calf using an aluminum pin. If needed, the mold used to create the replacement sword can be reused to produce additional replacements in the future.

The Granite Base

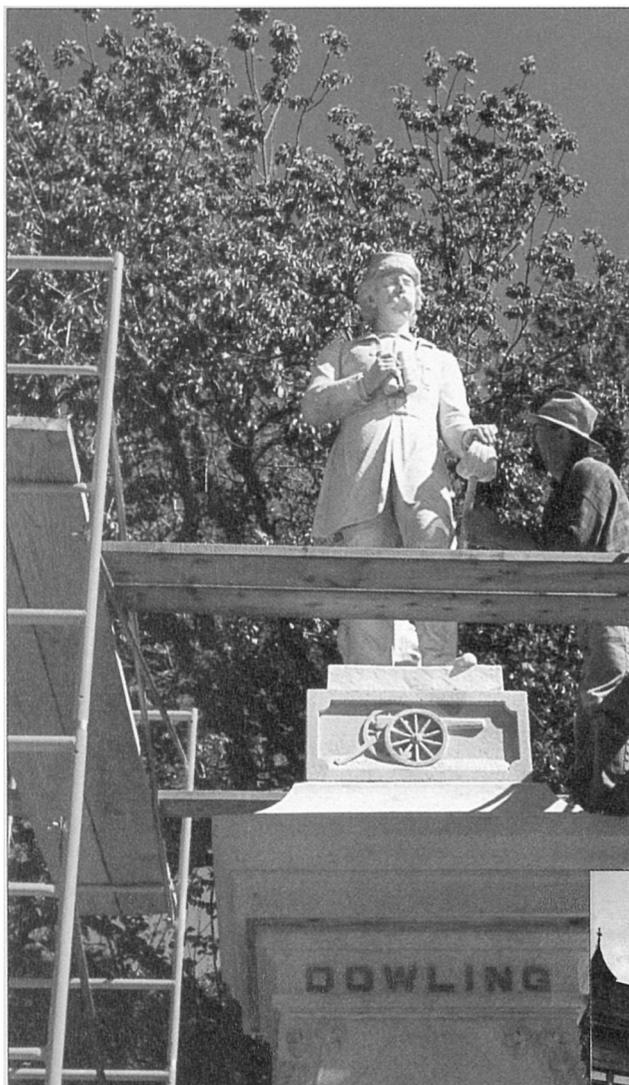
Damaged mortar was removed from the joints using hand tools, and the base was repointed. The granite was cleaned initially using pure water under low pressure and then a thoroughly tested 5 percent solution of hydrofluoric acid was applied locally to remove heavy accretions on the unpolished surfaces.

Tests Performed

Minimum and maximum ambient temperature and relative humidity) measurements were recorded during all phases of the treatment procedure where application of cleaning solutions, consolidants and adhesives were performed.

Residual salt level in a sample of marble from an inconspicuous place in the base was determined to be approximately .02 percent.

Absorption level of the original stone was determined to be 18 percent of water by weight, and absorption level of the artificial stone used for reconstruction of losses was 22 percent. "A"



*Shown above:
monument during treatment*

Top right: before treatment

*At right: detail from turn-of-the-century
postcard, showing monument
in front of City Hall*

AL HAYNE MONUMENT

PROJECT TITLE

Al Hayne Monument

ARTIST

Evaline Sellers & Lloyd Brown

DATE

1893

MEDIA

Sandstone, red granite and bronze

LOCATION

Fort Worth, Texas; In a traffic median adjacent to Main Street, Lancaster Avenue and Highway 30

DIMENSIONS

The monument is approximately 25' high overall and approximately 8' across on each side at the base.

OWNER

City of Fort Worth Parks and Recreation

CONSERVATION FIRM

Laboratory for Conservation of Fine Arts, Teaneck, NJ

COOPERATING ORGANIZATIONS

Fort Worth Preservation Task Force, Historical and Cultural Advisory Board

COST OF CONSERVATION WORK

\$34,000

CONSERVATION TREATMENT COMPLETED

March 1997



GENERAL DESCRIPTION

The monument is carved sandstone with a rusticated base and a cluster of polished red granite columns supporting a bronze portrait bust under a Gothic-arched hood. The overall design of the monument and its decorative carvings of gargoyles and abstract floral motifs reference the Texas Spring Palace (1889-90). A self-taught local artist, Lloyd Brown, was the sculptor. The original marble bust of Alfred S. Hayne (b. 1849, London - d. 1890, Ft. Worth) was replaced with a bronze casting by Kvaline Sellors in 1934.

The Texas Spring Palace was built in 1889 (near the site of the present monument) for annual exhibitions promoting Texas agricultural products. The elaborate, two story wooden structure (225' x 375') featured influences of Oriental and Moorish styles, and was decorated by local Women's groups using flowers, seeds and grasses. On May 30, 1890, a fire completely destroyed the crowded building during a formal ball attended by over 7,000 people. Al Hayne returned to the burning Palace to rescue an unconscious woman still trapped inside. The only fatality of the fire, he died the next day of burns suffered in the rescue effort. The Spring Palace was never rebuilt, but in 1893 the Women's Humane Association dedicated this monument to the memory of Hayne's heroism and courage.

The Al Hayne Monument is scheduled to be disassembled in preparation for demolition of the nearby elevated section of Interstate Highway 30, and subsequently reinstalled near the monument's present location. Additional stabilization is needed to disassemble, move and reassemble the monument safely.

MONUMENT CONDITION BEFORE CONSERVATION

Extensive losses occurred to the surface of the sandstone, with partial or complete loss of many decorative elements. The exposed sandstone was significantly weathered, and black sulfide crusts formed in protected areas. At least one somewhat misguided restoration was attempted. Concrete was applied which is now cracked and falling away from the deteriorated sandstone. Exposed portions of damaged pipe protruding from the left and right sides of the base are non-functioning remains of the monument's original design as a fountain, and water stains were evident below the plumbing. The granite columns appeared in fair condition, and the bronze bust, although exhibiting uneven surface oxidation and accretions, did not seem seriously deteriorated.

CONSERVATION TREATMENT PERFORMED

Bronze Portrait Bust

The bronze portrait bust was temporarily removed from the monument prior to the treatment. Water was used to clean away loose products of corrosion and accretions.

The next step of the treatment had a crucial effect on the stability of bronze. The procedure aimed at chemically converting the existing porous products of corrosion into the protective layer of Cuprite. Cuprite is a mineral that is reddish-brown, relatively hard, and tightly adheres to the surface of bronze, effectively protecting the metal from the surrounding environment. It is created naturally on the surface of objects of copper and copper alloys in a clean environment. The procedure carried out was a well tested and proven method used on bronze

sculpture in Europe. The monuments there, treated fifteen years ago, appear to be in very good condition today. Following this procedure four coats of Inralac as a protective layer were applied by spraying. Finally, a clear cold paste wax coating was applied and buffed. The bust was reinstalled in its original place. A cherry picker was provided by the City of Fort Worth to facilitate this task.

Sandstone and Granite

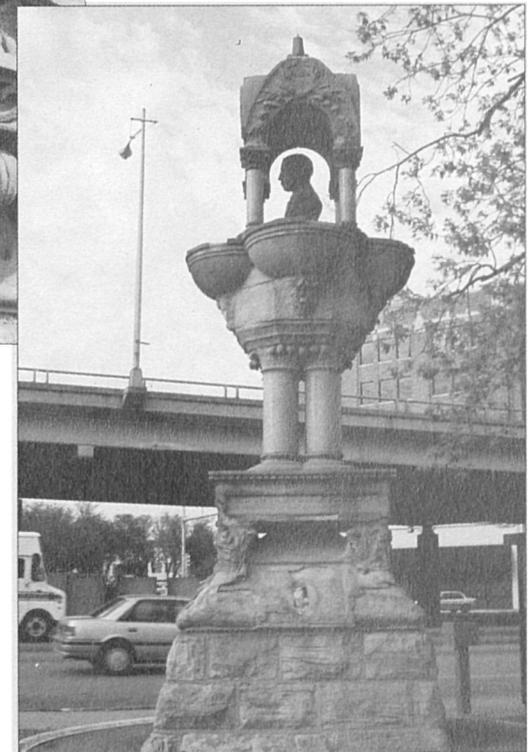
All loose parts of the monument were disassembled and secured aside. After testing the stone in inconspicuous areas for approximately six weeks, the powdering surface of the stone was consolidated before further treatment, using ProSoCo, Inc. Stone Strengthener OH. Loose pieces of the original monument were treated in a similar way. Loose and excess concrete was removed from joints in the lower part of the monument. It was unsafe for the construction of the object to remove damaged pointing concrete from the upper parts of the monument. This should be carried out later, when the object is being disassembled for the relocation. Concrete patches applied during prior treatments were also thoroughly removed.

At this point sandstone could be safely cleaned using potable water under low pressure and soft natural bristle brushes. Thick layers of dirt, accretion and metallic staining were not removable with pure water only; therefore, hydrofluoric acid was used with excellent results. All polished granite elements were carefully protected during this procedure to avoid severe damage. They were coated with hot bees wax by brushing and then wrapped in plastic foil.

After cleaning (with the original patina preserved), when the pores of stone were open.

desalinization was carried out. The stone was thoroughly wetted and cellulose poultice was applied locally to extract excess of salts. The stone was impregnated using Stone Strengthener H. Special attention was paid to having the stone reinforced as well as possible and to its careful hydrophobization. The mode of application was similar to the one described above in reference to the Stone Strengthener OH.

Following the cleaning, desalination and reinforcement, loose elements secured aside at the beginning of the treatment were reinstalled using epoxy resin. The elements were properly set in place based on the existing old photographs of the monument and visible evidence indicating the proper arrangement of the pieces. Filling of losses in stone and reconstruction of the decorative elements were carried out based on available historic documentation and remaining fragments. The tone and texture of the fillings match the original. Reconstructions of the existing gargoyles and other decorations were made using a mold and artificial stone. Repointing was carried out using white portland cement and pure sand in a 1:8 ratio combined with black pigment. "A"



*All photos shown right:
before treatment*

CONFEDERATE MONUMENT



PROJECT TITLE

Confederate Monument

ARTIST

Frank Teich

DATE

1896-97

MEDIA

Marble and granite

LOCATION

Dallas, Texas; In Pioneer Park Cemetery next to the Dallas Convention Center

DIMENSIONS Overall (H) Is 60'. The five figures are each 9'. The central obelisk is 51' 6". The bases for the four corner figures are each 10' tall (figure + base = 19').

OWNER

Park and Recreation Department, City of Dallas

CONSERVATOR

John Dennis, Dallas, Texas

COOPERATING ORGANIZATIONS

United Daughters of the Confederacy, Dallas Chapter 6, and the Adopt-A-Monument Program, Dallas

COST OF CONSERVATION WORK

\$40,320

CONSERVATION TREATMENT

COMPLETED

February 1997

GENERAL DESCRIPTION

The monument consists of a small plaza containing five marble statues of historical figures relating to the Civil War. The central figure is an idealized Confederate soldier, facing south, atop a 51 1/2 foot granite column. Four statues depicting Confederate heroes (Robert E. Lee, Andrew "Stonewall" Jackson, Albert Sidney Johnston, and Jefferson Davis) stand facing outward at the corners of the plaza on 10 foot tall granite bases. The central granite obelisk stands on a pyramidal base structure decorated with carvings of crossed sabers, a marble roundel bas-relief bust of "Old Tice," and various commemorative inscriptions.

The monument is located in Pioneer Cemetery, close to the entrance of the Dallas Convention Center and the City Hall. It was formerly located in the north corner of Old City Park, at Pocahontas and Park Streets in Dallas. It was moved to its present location in 1961 for construction of the Thornton Freeway and rededicated on Jan. 28, 1962. It is probably Dallas' oldest outdoor sculpture.

MONUMENT CONDITION BEFORE CONSERVATION

The exposed surfaces of the marble were worn to a granular, "sugary" appearance from gradual dissolution of the surface as a result of being unprotected in the slightly acidic, outdoor urban environment. Rubbing the grainy surface of the marble with a finger would dislodge surface material easily. Weathering of the marble resulted in a general loss of fine detail overall, especially on the soldier at the top of the column, and there were small cracks in many of the more thinly carved areas. The marble figures were discolored to varying degrees.

and the recessed areas of the carvings exhibited typical forms of black sulfate staining. In addition to damage from vandalism described below, small abrasions and minor losses were found on the surfaces of all the sculptures. The roundel bust of "Old Tice" was also weathered, and was disfigured by a loss of material in the flat background area to the left of the head.

The four lower statues of the monument were significantly vandalized in 1948, and subsequently repaired by the Dallas Park and Recreation Department. According to a Jan. 11, 1948, newspaper article, the monument was described as having crayon and lipstick graffiti overall. The figure of Johnston had a large heart carved in it, along with various initials. Davis was missing his left index finger and half of his nose, with initials on his brow and back. Half of Jackson's saber was broken off. The figure of Lee had the nose broken off, a crack in the ear, the word "Bailey" carved into the back, and "Shoemate" on the belt.

Some of the 1948 repairs were visible and disfiguring and other repairs were no longer in place. Losses due to vandalism on the figures at the time of the current conservation treatment were as follows:

Albert Sidney Johnston - Loss to the sword scabbard midway between the base and the point where the scabbard attaches to the left leg.

Stonewall Jackson - The lower half of his hat brim was missing, and there were several losses along the lower edge of the coat. The section of the scabbard between the left knee and the base, and the element attaching the scabbard to the strap at the figure's back were missing.

Robert E. Lee - The nose, the first three digits of the right hand, the front end of the sword guard, and the sword scabbard from the left knee to the base were all missing. There were a number of smaller losses along the lower edge of the coat.

Jefferson Davis - The nose was a crude restoration. The tips of the two front digits of the right hand were missing, and there were several losses to the coat lapel and to the bottom edge of the coat.

Although structurally sound, polished areas of the granite had lost some of their contrast from slight weathering over the years. A minor loss occurred to the central element with the star, under the roundel bust of "Old Tice" and another small loss of granite on the left, lower rear corner. The accessible elements were generally stained and dirty, mostly from being walked on by the public. Several groups of lettering displayed a decaying whitish paint. Orange staining on the granite was apparently caused by sand that contained ferrous elements in the old sand mortar used for pointing.

The pointing of the granite and marble joints was cracked, stained, loose or missing in most areas. The monument was repointed in the past using a synthetic, somewhat oily caulking material similar to glazing compound. This originally light-colored caulking had deteriorated and discolored to almost black in many areas.

CONSERVATION TREATMENT PERFORMED

The treatment of the monument consisted of four, fairly straightforward phases as noted below. An eight-foot-high fence was put up around the monument during the cleaning and

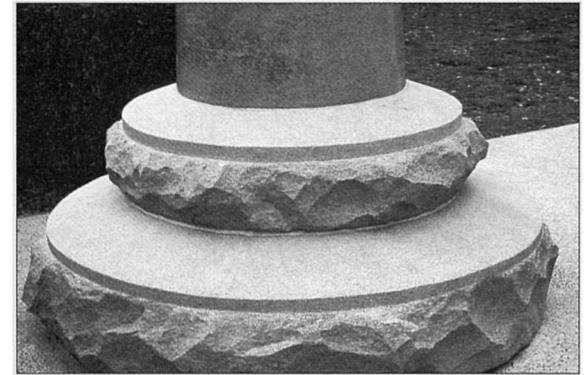
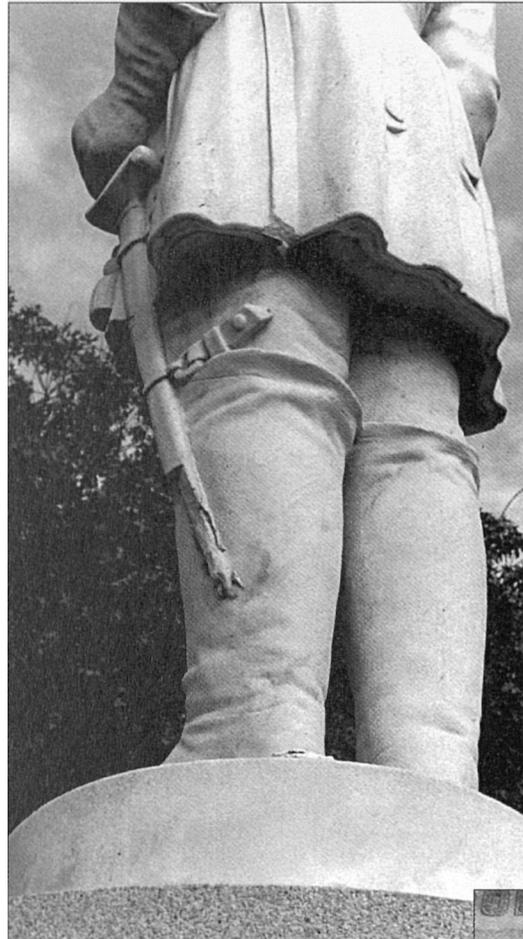
consolidation phases. Access to the soldier at the top of the column as well as the column itself was provided by the use of a 68 foot boom lift.

1. All exposed surfaces of the granite and marble elements were cleaned preceded by testing on several small areas of representative stains. All stones were thoroughly rinsed, using 300 psi pressure wash for the granite, and normal hose pressure for the marble.

2. The top layer of caulking was removed mechanically from all joints to an intact layer of the cement mortar beneath. Loose areas of the mortar were also removed to provide a structurally sound base for repointing. All joints were repointed using traditional pointing tools and finished just below surface using a mason's sponge.

3. All marble surfaces were consolidated with ProSoCo, Inc., Conservare OH Stone Strengthener. The consolidation proved quite successful. The marble's surfaces readily repel water, there is no visible staining, and the surfaces do not exfoliate when rubbed with a finger. Though this was rather dramatic, and for all practical purposes a non-reversible treatment, it was deemed appropriate for these marbles because of their rather advanced state of surface deterioration.

4. Old, inappropriate fills were removed mechanically. Losses were filled or cast in place. Many of the smaller losses were modeled in place, then finished mechanically after hardening. The two sword scabbards and the hat brim were cast using plaster waste molds, the positive initially modeled in water clay. A

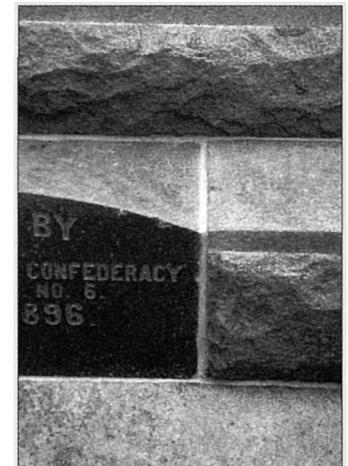
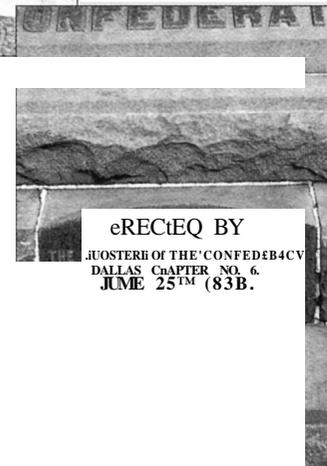


Shown above: loss to the sword scabbard, before treatment

Above right: comparisons showing before and after treatment

Near right: before treatment

Far right: after treatment to repoint the joints





*Shown above:
detail, during treatment*

Right: after treatment

*Far right: after treatment,
missing scabbard replaced*



MOSES AUSTIN



PROJECT TITLE

Moses Austin

ARTIST

Waldlne Tauch

DATE

1937

MEDIA

Bronze and Fredericksburg red granite

LOCATION

San Antonio, Texas; southwest corner of
City Hall Grounds, 100 Military Plaza

DIMENSIONS

Statue with octagonal pedestal (H) 10'
base(H)3'1" x (W) 4'7"

OWNER

City of San Antonio, Texas, Department of
Parks and Recreation

CONSERVATION FIRM

The Jensen Foundation For Art Conservation
Education & Research, Inc., Omaha, NE

COOPERATING ORGANIZATIONS

City of San Antonio, Department of
Parks and Recreation

COST OF CONSERVATION WORK

\$5,500

CONSERVATION TREATMENT COMPLETED

November 1996

GENERAL DESCRIPTION

The heroic size bronze portrait figure of Moses Austin (b. Connecticut, 1761 - d. Missouri, 1821) stands on an octagonal bronze pedestal mounted atop a red granite base. Four alternating sides of the octagonal pedestal bear bas-relief panels depicting episodes from Moses Austin's life, with the remaining four sides containing explanatory inscriptions. Moses Austin, the father of Stephen F. Austin, is dressed in a waistcoat, boots and a large cape. He holds a broad brimmed hat in his left hand, and in his extended right hand is a rolled document (an agreement petitioning the Spanish authorities to grant him permission to settle 300 families in Texas). The figure faces west towards the entrance to the Governor's Palace. The monument was erected with funding allocated by the Texas Centennial Commission to commemorate 100 years of Texas Independence. The architect, Donald Nelson, designed the overall monument.

MONUMENT CONDITION BEFORE CONSERVATION

Prior to conservation treatment, the bronze sculpture was examined and found in excellent structural condition. No holes, cracks, casting flaws or missing elements were observed; joints between the bronze sculpture and polished granite base were closed with a lead gasket. However, the unprotected bronze surfaces had deteriorated due to outdoor exposure in an urban environment, resulting in disfiguring overall streaky green and black copper corrosion. No traces of any surface coating on the bronze were observed. Some brown colored patina was visible on several of the bronze bas-relief panels on the pedestal. It is unlikely

that this patina is original to 1937, but rather is the result of a more recent uneven cleaning and restoration attempt. Small pebbles had collected in the space between Moses Austin's left hand and hat, apparently from people throwing them at the sculpture. The bronze casting did not appear to be damaged from the pelting with pebbles, but the accumulated pebbles and soil held moisture against the metal surfaces.

Runoff from the bronze had caused surface staining of the adjacent polished granite of the pedestal and extensive soiling of the honed granite plaza, distracting from the appearance of the sculptural composition. The monument was generally quite dusty and dirty overall.

CONSERVATION TREATMENT PERFORMED

The Bronze Statue and Plaques

Surface washing of the sculpture was performed using dilute detergent (Orvus® - 1 percent solution), medium grade Scotch Brite pads and running water to lift and remove loosely adhering soil, products of corrosion and some mineral investment accretions (a result of metal left in the bronze) from recessed areas of the casting. This level of cleaning did not eliminate the irregular coloration and streakiness of the surface appearance. Soil and pebbles were removed from the space between Moses Austin's left hand and hat.

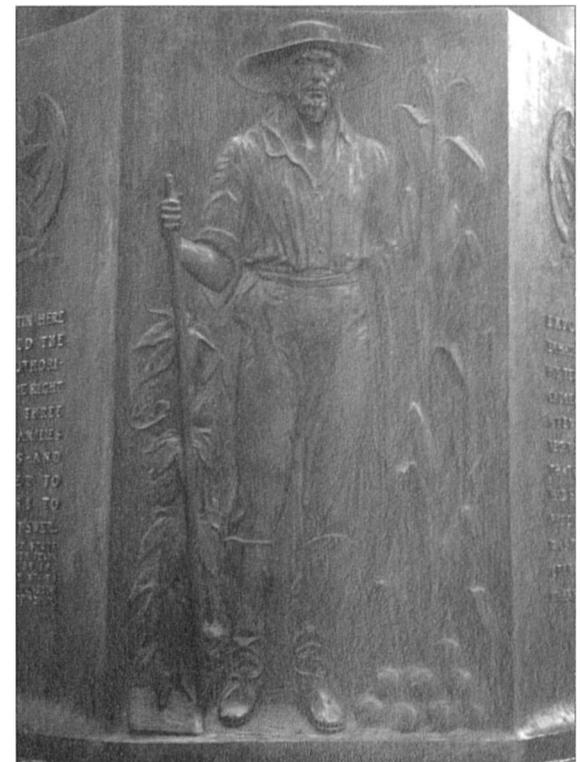
One application of patina sufficed to cover irregularities and streaks in the corroded patina layer and produced a uniform "cocoa" brown. Excess patina chemicals were rinsed from bronze surfaces and the bronze was dried prior to application of the protective coating. The initial brush coating of Inralac lacquer was followed by two sprayed coats of Inralac. After curing

overnight, the surface was coated with Johnson Paste Wax applied by hand and buffed to a low sheen.

The Polished Granite Base

The granite base was fully protected during treatment of the bronze statue and plaques. Stains on the polished granite base proved immovable using pressure washing, light mechanical cleaning, mild detergent solutions and organic solvents. Cleaning of stains and soiling from the honed granite of the plaza was affected by low pressure washing. The resulting cleaning brightened the stone and complemented the restored sculpture with its uniformity. >

Shown below: bas-relief panel, after treatment





*Shown far left:
during treatment*

*Left and above:
bronze bas-relief panel,
comparisons of before and
after treatments*



GENERAL ALBERT SIDNEY JOHNSTON

PROJECT TITLE

General Albert Sidney Johnston

ARTIST

Ellsabet Ney

DATE

1902

MEDIA

Marble on polished red granite base

LOCATION

Texas State Cemetery in Austin, Texas;
between East 7th and East 10th Streets
and Comal and Navasota Streets

DIMENSIONS

Sculpture: approximately (H): 2' (W): 3' (L): 8'
Base: (H): 2' 1 3/4" (W): 3' 3" (L): 7' 11 1/2"

OWNER

State of Texas, General Services Commission

CONSERVATION FIRM

The Jensen Foundation For Art Conservation
Education & Research, Inc., Omaha, NE

COOPERATING ORGANIZATIONS

United Daughters of the Confederacy #105,
Austin

COST OF CONSERVATION WORK

\$7,365

**CONSERVATION TREATMENT
COMPLETED**

October 1996



GENERAL DESCRIPTION OF THE MONUMENT

The recumbent statue of General Albert Sidney Johnston (over his 1867 grave in the Texas State Cemetery) depicts the dying hero as he was carried on a litter from the battlefield. The General is dressed in uniform, and draped in the Confederate flag, with his right arm over his chest. His eyes are closed and his head is supported by rushes, wrapped in a Lone Star flag. Elisabet Ney's original full scale plaster model for the sculpture is housed at her former studio in Austin, along with the gold-stripped sleeves from Johnston's uniform that she borrowed from his family in order to recreate his exact dimensions. The statue was carved by Italian stonecutters in white marble obtained from Seravezza, Italy, and is signed by the artist beneath the right side of the General's head. The solid rectangular pedestal supporting the marble sculpture is Texas pink granite obtained from nearby Marble Falls. The vertical sides of the granite are polished, the upper honed edges are beveled, and the engraved inscriptions at either end are chiseled by hand. A small, circular bronze medallion is mounted on the granite beneath the figure's head, and a larger, rectangular bronze plaque is mounted at the head end of the sculpture on the marble flooring that surrounds the granite pedestal. The marble floor slabs are enclosed by a rough hewn, rock-faced granite curb, which supports a painted steel Victorian Gothic chapel, with walls formed by spike-tipped vertical bars.

At some time postdating the sculpture and original installation, a peaked vitrine constructed of Plexiglas with a mild steel framework was mounted over the sculpture. The painted steel framework rests on the top edge of the granite

pedestal and had a bead of caulking compound along the contact line.

MONUMENT CONDITION BEFORE CONSERVATION

The severe rusting and structural deterioration of the Plexiglas enclosure's mild steel frame had advanced to the point of failure and resulted in a number of other condition problems. Openings along the enclosure's seams had allowed a considerable amount of airborne soil to be deposited on the surface of the marble and to accumulate in recessed pockets of the sculpture. Extensive sprinkling of small ferrous stains covered the marble sculpture. These stains did not correspond to the rusted structure of the vitrine, and may pre-date placement of the cover, possibly being the result of iron particles from remnants of steel wool left on the surface after a cleaning attempt. Flakes of rusted steel from the deteriorated framework were scattered on the sculpture's surface as well, causing additional stains on horizontal surfaces. Mineral accretions and other types of staining were observed in the deepest recesses.

Small, but deep voids in the white marble had been filled, during the period of creation, with a white, cement-like material. Most of the fills were located near the foot of the sculpture, but were observed filling the stone pits throughout the sculpted surface.

At least two dozen cracks of various lengths and widths appeared in the marble, originating at the baseline and radiating upward through the figure, sometimes encircling sculptural forms. The cracks totaled approximately 300 linear inches on the marble surface. Most of the cracks did not appear to compromise the structural integrity of the sculpture, other than possibly

the two widest cracks, one of which ran for 16 inches at the back of Johnston's head, and a 30 inch long crack that ran up into Johnston's right arm.

The tip of the flag was broken, presumably fairly recently or when the Plexiglas cover was installed, as indicated by the contrast in color between the break-face and adjacent marble surface.

Many areas of the polished granite base and marble flooring below were streaked and penetrated by heavy rust stains which corresponded directly to points of contact along the deteriorated lower rim of the vitrine structure. The surrounding granite curbstones were stained as well, due to similar corrosion of the mild steel chapel. The carved lettering on the granite base was difficult to read as a result of the staining and the naturally variegated coloration of the stone and the relatively shallow carving.

Both the bronze medallion mounted on the granite base and the bronze plaque on the marble floor of the chapel are apparently of mid-to late 20th-century fabrication, with a high contrast surface treatment (brightly polished lettering on a dark brown field) which were possibly created using coating systems, rather than chemical patination.

CONSERVATION TREATMENT PERFORMED

This conservation work on the Albert Sidney Johnston marble sculpture and its granite base proceeded in conjunction with a major renovation of the Texas State Cemetery grounds which included off-site conservation treatment and reinstallation of the metal chapel structure enclosing the sculpture, fabrication of an

improved Plexiglas vitrine with a stainless steel frame and landscaping the area surrounding the tomb. Treatment of the sculpture was conservative and designed to stabilize it without intrusion.

The failed vitrine was carefully removed in two sections (upper followed by lower) and the exposed sculpture was documented photographically.

A dry brush was used to lift and sweep away a large volume of loosely deposited soil. A clear water rinsing further removed soil.

Cleaning of the marble continued with application of a poulticing gel, ProSoCo, Inc. brand T-942. The ammoniated gel cleaner was followed by neutralizer. Thorough rinsing brightened the sculpture considerably by removal of soiling, staining and some rust stains. Stains in the deep recesses remained, as did much of the ferrous staining, but the tonality was lightened.

Rust stains were completely removed from the granite curbstones surrounding the installation using multiple applications of ProSoCo brand Restoration Cleaner applied by spray and rinsed. Cleaning of the granite base was limited to hand polishing of the honed stone inside the hand chiseled lettering at either end and along the beveled edge. A considerable amount of the ferrous discoloration was removed by the cleaning, rendering the inscriptions more uniform and legible. Stains remain in the polished surface of the granite, but the remaining stains are preferable to a bleached and streaky appearance which would result from further acid cleaning.

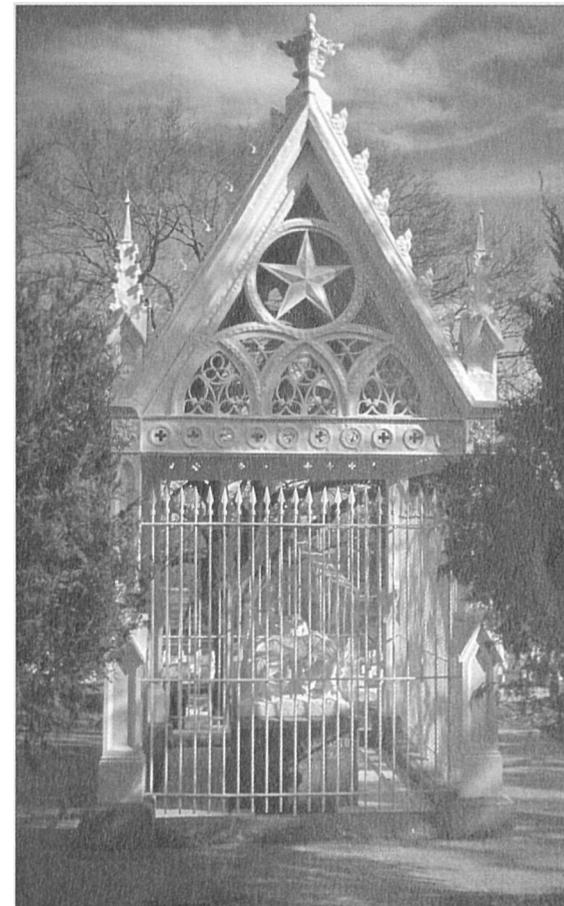
After examining the sculpture and reviewing the original plaster in the Elisabet Ney Museum in

Austin, Texas, it was concluded that the cracks in the marble are probably not active, but rather the result of past settling due to irregularities in the carved form. The cracking through the right sleeve and hand of the recumbent figure are almost identical in the marble and in the plaster model. A large break in the original plaster affecting the upper end of the sculpture concludes in the vicinity of the crack which originates in the marble beneath the figure's head. The striking similarities in the crack patterns support the theory that the hand carved, large horizontal underside of both the marble sculpture and plaster model are not perfectly flat. Both have sagged over time and rest against the support, causing hairline fractures. Iron hardware was apparently not used between the two stones.

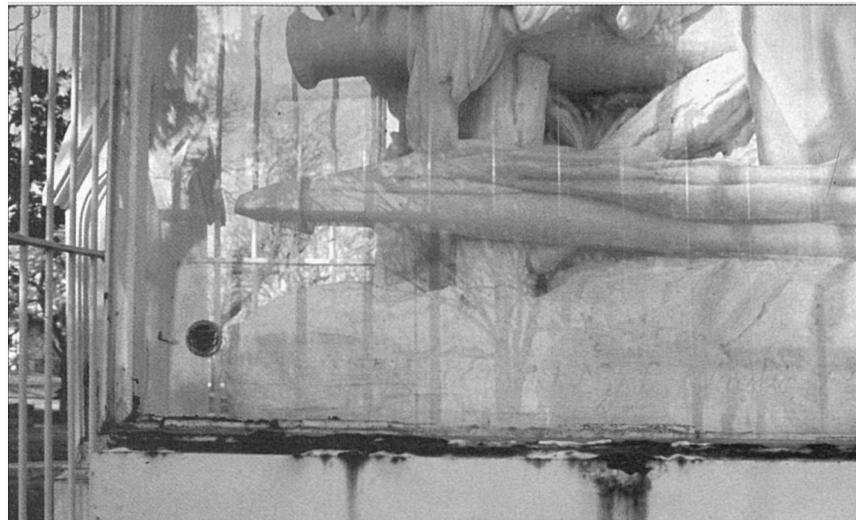
After cleaning, fine hairline cracks were sealed. Areas of staining in the stone are replicated in the colors of the inpainting. Location of the cracks is intended to remain visible, to facilitate monitoring for movement within the stone.

The missing tip of the flag standard was not found, and the lost piece was not restored for several reasons. Too little room remains to allow completion of the tip with a vitrine positioned on the granite base. If the upper surface of the chipped stone was filled and toned, without extending the tip to a point to allow space for the vitrine, viewers may think the original had been styled that way. Furthermore, since the marble sculpture is far more complete than the original plaster model in the Elisabet Ney Museum, which is missing the entire finial, any present reconstruction would be based on conjecture.

The old fills in voids of the marble (flaws in the stone matrix) date from an earlier period and are thought to be the work of the original stone carvers. They were therefore not altered. V



Above: after treatment



Shown above: during treatment
Above right and right: comparisons of
before and during treatment

TREUE DER UNION MONUMENT

PROJECT TITLE

Treue der Union Monument

ARTIST

Unknown

DATE

1866

MEDIA

Limestone

LOCATION

Comfort, Texas; intersection of Highway 27 and High Street

DIMENSIONS

(H):18'(W):9'6"(D):9'6"

OWNER

Comfort Heritage Foundation, Inc.

CONSERVATION FIRM

Kuhn Construction and Masonry (Karl H. Kuhn and assistant, Reyes Moreno), Boerne, TX

ARCHITECT

Daniel Ochoa, III; AIA, San Antonio, TX

COOPERATING ORGANIZATIONS

Comfort Heritage Foundation, Inc.

COST OF CONSERVATION WORK

\$30,000

CONSERVATION TREATMENT COMPLETED

August 1996



GENERAL DESCRIPTION

The memorial was dedicated on Aug. 10, 1866, at the site of a common burial of 36 mostly German colonists who were killed on Aug. 10, 1862, because they chose to remain "True to the Union." A group of 66 men from three counties around Comfort were given 30 days by the governor of Texas to leave the state since they were opposed to slavery and unwilling to join the Confederate Army. The party was headed for Mexico when they were attacked at dawn near the west prong of the Nueces River by Confederate cavalry troops. When the survivors withdrew, leaving the wounded, the Confederate commander ordered that the wounded be shot, and all the victims were left unburied. Following the war, relatives and friends of the victims, along with some of the survivors, gathered the scattered remains in a casket made of native cedar by a number of local wood craftsmen and formally buried them at the site of the True to the Union Monument. The mass gravesite is marked and outlined by a narrow cradle curbstone of handcarved native limestone which also dates to 1866.

The True to the Union Monument is the only Civil War monument to the Union located in Confederate territory outside of National Cemeteries and Battlefields, and it is one of the oldest limestone monuments in Texas (excluding individual gravestone markers in cemeteries). The monument was listed in the National Register of Historic Places in 1978 and became a State Archeological Landmark in 1996. The flag pole located at the site was erected in 1962. In 1991 the U.S. Congress passed a proclamation that establishes the monument as one of only six mass-burial sites in the United States which may fly the flag at half-mast in perpetuity.

MONUMENT CONDITION BEFORE CONSERVATION

The monument was weathered on the north side. The lettering on the monument was almost unreadable. The Comfort Heritage Foundation installed plaques mounted on limestone at ground level inside the chain and pillar fence on all four sides of the monument.

The monument is much as it was when completed in 1866. The original chain posts (12) ringing the monument were made of limestone but were replaced with concrete replicas in 1974. The changes to the original chain posts included the replacement of the chain and chain hooks which do not appear to match the original in early photographs. In 1988 three bronze plaques mounted on limestone bases, duplicating the three name panels on the monument, were installed and intended to serve as substitutes until the original limestone panels are restored to their original crispness and clarity. More recently, the monument has received well-intentioned efforts at rehabilitation and preservation, with application of an additional veneer layer of concrete on the base stones and application of several layers of coatings over the entire monument, including an acrylic latex paint which is almost entirely removed.

CONSERVATION TREATMENT PERFORMED

Patching and Restoration of the Nine Stones Removed from the Site

The upper nine stones were removed from the site and transported to an enclosed building where they were carefully inspected and the restoration procedure was planned. The exact size of each stone was carefully recorded, including precise locations, sizes, and shapes of

the carvings on the four vertical panels that have names and inscriptions. The exact shape of each letter and number was also individually traced onto separate sheets of paper, making notes regarding the depth and angles of the Roman-styled inscriptions. Missing letters were reconstructed using examples taken from the same tablet.

After carefully recording the information needed to reconstruct the severely worn letters and numbers on the four panels, deteriorated portions of the panel surfaces were removed. This procedure was repeated on each of the panels either in whole or in part depending on the extent and severity of the damage. During this step, templates of the panel moldings made previously were used to reproduce damaged or missing portions of molding.

Surfaces removed were then rebuilt layer by layer until the original depth was achieved. A similar process was used to restore or reconstruct the moldings. The layering was accomplished using the same methods, materials and techniques used in patching.

Letters and numbers were next recarved on the newly restored panel surfaces using simple tools, including wood chisels, a plastic hammer, an electric grinder and sandpapers of varying grits. The finer grits were used for final touches to the shapes of the letters and numbers.

Finally, consistent with numerous occasions marking special observance events over the many years, the letters and numbers were highlighted using a dark, water-based coloring pigment and fine artist brushes.

Patching and Rebuilding of the Monument

A small, rounded mound of concrete poured on the crown of the top course earlier was removed to prevent ponding of rainwater. This mound was replaced with a squat, roughly pyramid-shaped cap to allow rainwater or condensation to run off readily. It is speculated that the mound was added when the concrete collar was poured around the base in the 1950s, or possibly in 1962, when additional patching of the collar and twelve concrete fence posts was undertaken.

A penetrating sealer was applied to the monument after the stones were erected at the monument site. The product, EUCO Weather Guard, was applied in accordance with the manufacturer's instructions.

Six mil PVC was placed between the base material and the poured-in-place concrete foundation as a moisture barrier.

Four inch unbleached natural-fiber sisal rope was used between the concrete pad and the bottom layer of the carved limestone blocks. They were laid in a diamond pattern about 8 to 12 inches on-centers prior to the setting of the stones in a mortar bed. In time, the sisal will crumble, leaving a pattern of inter-connecting channels for ventilation. Any water or moisture entering the area is channeled to the exterior.

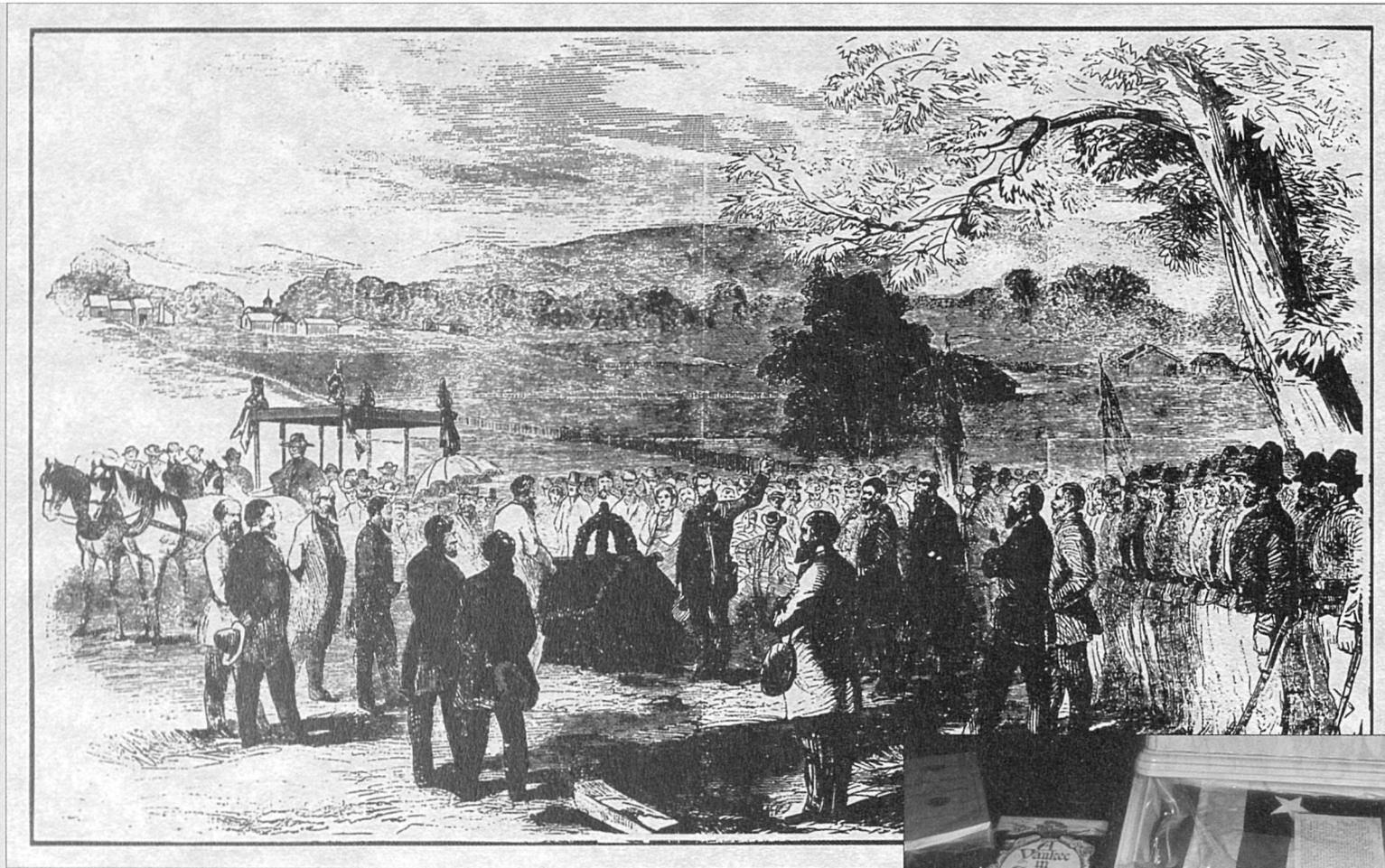
Mortar used on this project was Master Blend Thin-Set Mortar by Custom Building Products.



Shown above right: before treatment

Far right: during treatment

Right: detail of carved inscription

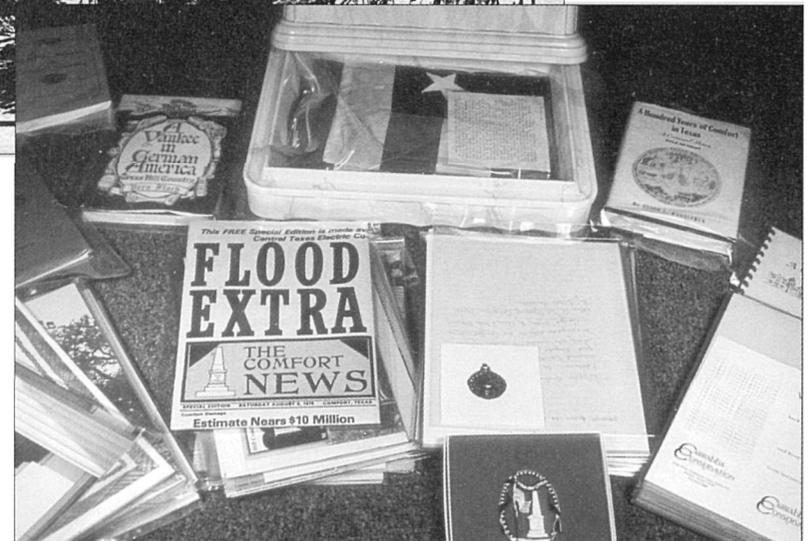


ADDITIONAL INFORMATION

A time capsule was added to the monument during reassembly. The capsule was entombed in existing space in the center of the second and middle courses of base stones on July 25, 1996. •

Above: funeral and mass burial on August 20, 1865 in Comfort, Texas (artist's sketch from Harper's Weekly, 1996)

Right: items in the time capsule, July, 25, 1996



GEORGE O'BRIEN MILLARD

PROJECT TITLE

George O' Brien Millard

ARTIST

Pompeo Copplni

DATE

1912

MEDIA

Bronze, Roman Bronze Works, NY;
pink granite pedestal

LOCATION

Beaumont, Texas; In Pipkin Park at Riverside Drive

DIMENSIONS

Sculpture: approximately (H): 7' (just over life size)
Base: approximately (H): 9' (W): 6' (D): 6'

OWNER

City of Beaumont, Texas

CONSERVATION FIRM

The Jensen Foundation For Art Conservation
Education & Research, Inc., Omaha, NE

COOPERATING ORGANIZATIONS

City of Beaumont Planning Department

COST OF CONSERVATION WORK

\$7,500

CONSERVATION TREATMENT

COMPLETED

October 1996



GENERAL DESCRIPTION

The honorary portrait statue of George O'Brien Millard depicts him dressed in a suit and knee-length coat, standing with his right leg slightly forward and his left hand in his pocket.

According to the book *From Dawn to Sunset*, by the monument's sculptor, Pompeo Coppini, Millard was "a former beloved member of the school board and a benefactor of the public schools of [Beaumont]." The bronze sculpture is mounted on a large granite base, with a raised inscription on the back surface and a bronze name plate mounted on the front (a former attachment above the name plate is now missing). The monument was originally installed "in front of the high school with part of the funds subscribed by the children of Beaumont."

MONUMENT CONDITION BEFORE CONSERVATION

A section of ornamentation previously mounted above the name plate on the front of the base was missing. The bronze surfaces were significantly disfigured overall by pale green, dark green and black oxidation products typical of copper sulfide, sulfate and possibly chloride corrosion resulting from unprotected long-term outdoor exposure. The bronze appeared to be somewhat pitted, probably due to the monument's proximity to the port of Beaumont. The plaque on the front of the granite pedestal had rust staining on the surface from its corroding attachment bolts. The granite was in generally good condition, but there were many small chip losses along exposed edges, and there was deterioration along some of the stone joints.

Structurally, the sculpture and pedestal were in sound and stable condition. No holes or cracks

were located in the bronze or stone. Stone joints were observed to be cold, that is, without mortar. No lead was observed in the joints between the seated stones. Caulking compound in the joint between the bottom two stones appeared to be a repair material.

Surface conditions of both metal and stone were unstable. Corrosion of the cast surface was extensive and over all surfaces. Some significant loss of material was observed in cast surfaces.

Staining in the pink granite of the pedestal was observed. The source was presumed to be corrosion product run-off from the sculpture. Several corners and edges of the granite exhibited chip losses. Lower perimeters on the stone were stained from ferrous metal, probably from lawn mowing and grass trimming equipment.

On the front of the pedestal, holes in the granite suggest a former, large plaque might at one time have been mounted. Beneath the holes, a small plaque is mounted, giving the name of the figure 'GEORGE O'B MILLARD'. The plaque was mounted with two bolts, both ferrous and with squared heads. Ferrous staining ran over the cuprous plaque from corrosion of the bolts. When removed, it was observed that the plaque was created from rolled stock, possibly brass, and cast letters, possibly bronze, were attached by brazing. Mounting bolts were seated in lead wool inside the stone cavities.

CONSERVATION TREATMENT PERFORMED

Conservation treatment performed did not include replacement of the missing element(s) formerly attached to the front of the granite

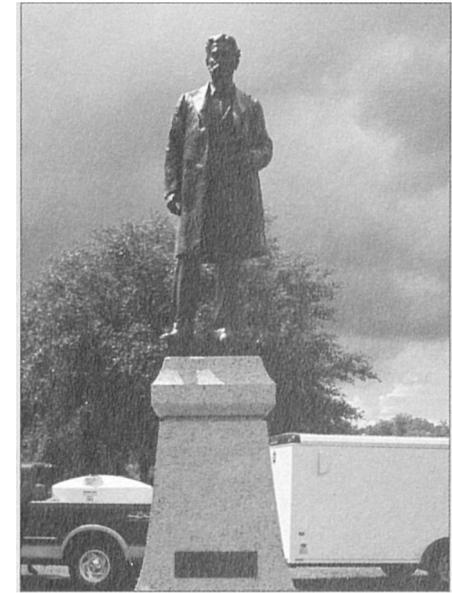
base above the bronze name plate. Sufficient historical evidence for the originally intended appearance of the missing attachment was not obtained for installation of an accurate replacement element.

Surfaces of the sculpture were cleaned by medium pressure washing, resulting in removal of loosely adhering products of corrosion. The metal was not cleaned to bright, shiny cast surfaces, but some loosely adhering products were removed. Cleaning of the metal produced a somewhat mottled surface appearance, consistent with the corrosion pattern exhibited before cleaning. Patina was produced by applying solutions of ferric nitrate followed by solutions of potassium sulfide to metal warmed by torches. Surfaces were rinsed between applications in order to remove patina chemicals not fully bonded with the metal. Two clear coatings of Incralac (acrylic) lacquer were applied to the patinated metal. A small number of details which would not accept patina coloration were selectively inpainted with Liquitex acrylic paints. Inpainted details include edges of buttons and the left temple and forehead. In these areas, the metal generally accepted one of the patina chemicals, but would not accept both patination formulas. Therefore, for consistency of patina, some slight adjustment of color, through inpainting, was needed. A third and final coating of Incralac was applied by spray. When dried, a clear coating of protective Johnson Paste Wax was applied and buffed by hand to a uniform luster.

Stone cleaning was affected through application of Enviro Strip #2. The alkaline paste dissolved and lifted the green copper stains from the metal. Stains and poultice were removed by pressure washing, after which surfaces were neutralized and rinsed again. Stain removal

required repeated application, especially to the lower surfaces, where people stood on the stone and where drainage was slowed by caulking in the joint. Cleaning resulted in complete removal of the caulking, which, because it was not original, was not replaced. Ferrous stains on the lower perimeters of the granite accompanied the major areas of stone chipping and were thought to be the result of damage by lawn mowing equipment. ProSoCo brand Ferrous Stain Remover was used to dissolve and lift the stains with pressure washing equipment. Seven repetitions of the stain removal procedure were necessary to completely remove the ferrous stains. Chip losses from corners and edges of the granite were compensated by filling with Cathedral Stone Company brand Jahn Restoration Mortars, custom mixed on site to match the slightly pink tone of the granite. Further color and patterning was imparted by inpainting with Liquitex acrylic paints.

The restored plaque was coated on front and back with Inralac. The clear coating was chosen for protection of the back, rather than a black bituminous coating, because summer temperatures are intense and any coating might soften and drip. The plaque was replaced using stainless steel, threaded anchors. The existing lead wool was tapped to form threads and the replacement bolts turned in place. After the carriage bolts were turned, a final tap on each head set the bolts. A rounded head on the bolts was selected in order to discourage people from removing the bolts. The bolt heads were painted brown with Liquitex acrylic paints to blend their appearance with the patinated plaque, 'k



Shown above and upper right: after treatment

Right: before treatment



CHARLES NOYES MONUMENT



PROJECT TITLE

Charles Noyes Monument

ARTIST

Pompeo Coppini

DATE

1919

MEDIA

Bronze and granite

LOCATION

Ballinger, Texas;
Runnels County Courthouse grounds

DIMENSIONS

Cowboy (H): 6'; horse (H): 5', base (H): 8';
base (W): 7', base (D): 9'

OWNER

Runnels County

CONSERVATOR

The Jensen Foundation For Art Conservation
& Research, Inc.
13824 C Plaza, Omaha, NE

COST OF CONSERVATION WORK

\$7,000

CONSERVATION TREATMENT

COMPLETED

October 1998

GENERAL DESCRIPTION

The base of the monument consists of three pieces of solid Texas granite taken from Burnet County's Granite Mountain near Marble Falls. The upper block contains 156 cubic feet and weighs 31,200 pounds. The center block contains 74 cubic feet and weighs 14,800 pounds. The base block contains 132 cubic feet and weighs 26,400 pounds. The monument is a life-size bronze sculpture of Charles Noyes and his horse. The text of the Texas Historical Marker reads: "Charles H. Noyes, 21, died when his horse fell while rounding up cattle on the Noyes ranch. His father and mother, Gus and Lula Noyes, erected (the) monument as a tribute to their son and all Texas cowboys. Pompeo Coppini of Chicago studied horses two years before sculpturing (the) statue."

MONUMENT CONDITION BEFORE CONSERVATION

Prior to conservation treatment, the bronze and granite of the Charles Noyes Monument were structurally sound and stable. Characteristics which required attention for stabilization were surface phenomenon including corrosion of the bronze and slight soiling of the stone. Both conditions were products of bronze and stone weathering without the benefit of regular maintenance cleaning.

The color of the bronze is primarily black and green, intermixed. Streaks were evident where rain water ran off the bronze repeatedly, creating narrow channels in the bronze casting. Brown colored tones were evident in some daylight, mixed throughout with the green and black colors of corrosion.

CONSERVATION TREATMENT PERFORMED

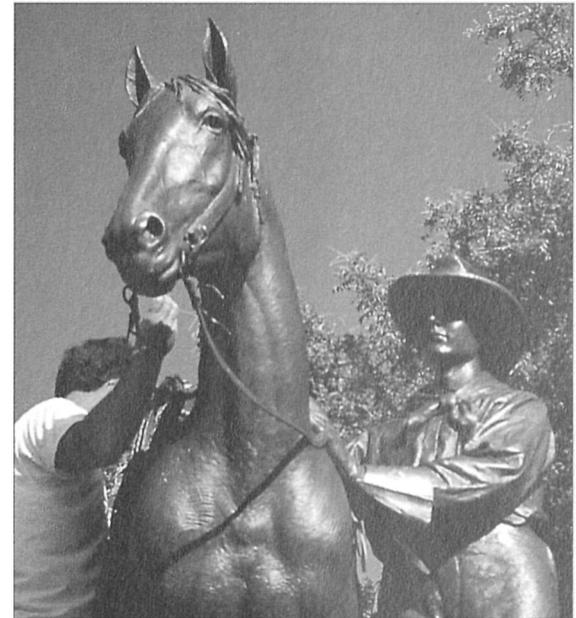
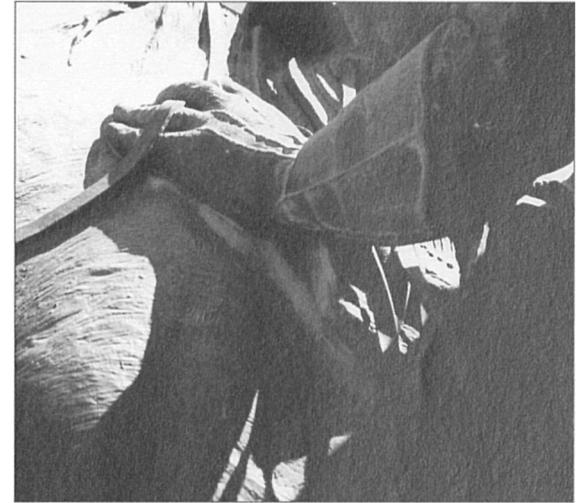
Treatment began with low pressure washing to remove general accumulations from soiling. One percent Orvus® detergent was applied to wet the surfaces of bronze and stone and to aid in soil removal. Surfaces were rinsed at low pressure to remove soil and detergent.

Cleaning continued with medium pressure washing to remove loosely adhering products of corrosion.

Cleaning of the stone was enhanced by applying Sure Klean Limestone & Masonry Afterwash. The product was applied and rinsed in three cycles, producing a brighter stone and removing soil and stains.

Chemical repatination of the bronze was undertaken to return the bronze to a uniform appearance. Surfaces were examined and no evidence of unaltered, pristine patina was identified. Instead, the existing shades of brown, remaining evident on the sculpture but mixed with green and black colored products of corrosion, were reproduced. The resulting tone of brown is uniform and evenly applied.

The bronze sculpture was thoroughly washed following chemical repatination to remove chemical residue. Surfaces were air dried. Clear Inralac lacquer was applied by brush in one coat, followed by two spray coats. Clear paste wax was applied over the lacquer for additional protection 'k



Above, top: staining and corrosion of the bronze, before treatment

Above: during treatment

SPIRIT OF THE AMERICAN DOUGHBOY



PROJECT TITLE

Spirit of the American Doughboy

ARTIST

E.M. Viquesney

DATE

Unveiled: ca. 1928

MEDIA

Sculpture: bronze; Base: poured concrete

LOCATION

Canyon; Northwest Corner of the
Randall County Courthouse Square

DIMENSIONS

Sculpture: (H): 7' Base: (H): 5' 1"
(W): 8'2" to 3'1"

OWNER

Randall County, Texas;
Ted Wood, County Judge

CONSERVATION FIRM

Laboratory for Conservation of Fine Arts,
Teaneck, NJ

COOPERATING ORGANIZATIONS

Randall County Commissioners Court

COST OF CONSERVATION WORK

\$12,000

**CONSERVATION TREATMENT
COMPLETED**

April, 1999

MONUMENT MAINTENANCE

With any historic resource, work does not end with the restoration or conservation of the sculpture or object. The key to the preserving of outdoor sculpture is long-range maintenance. Many individuals should be involved in the development and implementation of a maintenance plan, including the conservator who performed the initial conservation work, administrators, committee members or owners of the sculpture, as well as technicians or volunteers who will perform the actual work.

In the *Guide to the Maintenance of Outdoor Sculpture* by Virginia N. Naude and Glenn Wharton, various processes for developing a long-range maintenance plan are described. These authors recommend initially conducting an inventory of the sculpture(s) followed by a condition survey. With this information, the long-range maintenance plan can address the following items: staff training, cyclical maintenance, condition monitoring, documentation, financial management, conservation treatments and public education.

In many cases the inventory of the sculpture was accomplished through a state wide inventory of all outdoor sculpture initiated with the aid of Save Outdoor Sculpture! (SOS!), a joint project of Heritage Preservation and the Smithsonian's National Museum of American Art. Data from this survey is available on the Smithsonian Institution's National Museum of American Art web site at: www.nmn.si.edu or by contacting the Smithsonian at 800/422-4612 or 202/634 1422. Copies of survey forms are available at the THC, History Programs Division, at 512/463-5853.

The Condition Survey continues to collect data beyond the inventory phase of the project with the help of a conservator and the owner or administrator of the sculpture. The four parts of a Condition Survey as recommended by the *Guide to the Maintenance of Outdoor Sculpture* are:

1. Technical descriptions and conditions assessment of each sculpture - included are identification of materials, information on fabrication, assessments of past maintenance practices, determination of surface conditions and descriptions of structural integrity. Also important are comments about the effects of previous routine care, repairs or treatment.
2. Maintenance recommendations for each sculpture - these recommendations are based on the history, condition and location of the sculpture, the resources of the owner and the relative needs of the sculpture in the context of the whole collection. The maintenance recommendations should include information on routine care and periodic treatment.
3. Assignment of priorities to recommended activities - the conservator assigns priorities based on the technical information gathered. These priorities will later be assessed in relation to art, historical, fund-raising and other priorities.
4. Estimate the resources required - the labor costs of the various maintenance options proposed are expressed either in monetary figures or in hours of work required for conservators, technicians and other specialists. An estimate of hours is particularly useful if the recommended work will not take place immediately. Supplies and equipment costs are also included.

EXAMINATION

Examination of each sculpture or monument in the spring and fall is very important. Changes from the previous examination are identified and actions can be taken to reverse deterioration of historic fabric. Keeping detailed notes and photographs aids in evaluating the condition of the monument. Sometimes these changes occur over a long period of time and are only detected by examining a series of photographs taken over a period of time.

LONG-RANGE MAINTENANCE

Long-range maintenance planning gives the owner the opportunity to establish goals and a way to judge the way to maintain the sculpture. A well-written plan helps in securing funds as it demonstrates to the potential donors project goals and how those goals will be accomplished. The plan should include provisions for dealing with emergencies such as damage due to storms or vandalism. These provisions should address what should or should not be done, what emergency repairs should be made and who will do the conservation work.

In a long-range maintenance plan recommended by the *Guide to the Maintenance of Outdoor Sculpture*, stating the history and purpose of the sculpture and defining the maintenance goals is important. The image of the sculpture's owner is reflected by the successful achievement of these goals and the administrative structure affects the approach taken to carry out the plan. Numerous questions need to be answered, such as: Who will keep the records of the maintenance? Who will do the maintenance? Will it be done by in-house employees or contracted out? Will the project be required to be bid? Will the in-house staff be trained as part of the

project to continue the maintenance? The keeping of records is very important. *The American Institute for Conservation Code of Ethics and Standards of Practice* set criteria for written documentation as well as photographic documentation required for each sculpture. The requirements include documentation of existing conditions, documentation during actual conservation work, as well as final description and photographs. Black and white photographs are preferred because they have a longer life than color prints. Finally, maintenance priorities must also be considered and they should include time and cost estimates and a prioritized work schedule.

CLEANING OF STONE SCULPTURE

Routine cleaning of stone should include washing with water, mild detergent and soft brushes, followed by thorough rinsing.

Moisture isolation is a key issue in stone maintenance. A moisture proof barrier must always be placed between the stone and the ground to prevent rising damp. Good drainage is essential, and mortar in joint lines must be kept sound.

Check The Stone's Condition Before Cleaning

Do not clean a stone if its condition is questionable and it has:

Si A friable or "sugary" surface

^ A grainy surface that readily falls away

a Any other condition that indicates the stone is delicate, brittle or otherwise vulnerable.

Check all stone surfaces. If there is question as to the stone's condition, DO NOT attempt to clean it, as the surface could be irreparably damaged.

Stone Cleaning Process

1. Mix a solution of one heaping tablespoon of Orvus® (a detergent that comes in either liquid or paste form) to one gallon of clean water. Orvus®, commonly used with horse and sheep husbandry, is available from feed stores.

2. Pre-wet the stone thoroughly with clear water, to make sure that the detergent solution is not absorbed directly into the dry stone.

3. Thoroughly wash the PRE-WETTED stone using NATURAL BRISTLED, WOODEN HANDLED BRUSHES of various sizes. The use of plastic handles of colors other than white is not recommended, as color from the handles may leave material on the stone that will be very difficult to remove.

4. Wash all surfaces. Rinse thoroughly, with lots of clean water.

REMEMBER!

- Pre-wet the stone with clear water prior to cleaning, and keep the stone wet during the entire washing process.

c DO NOT allow the detergent solutions to dry on the stone while cleaning.

Q NEVER use abrasives, high-pressure washes, acids or bases, solvents, household cleaners, wire brushes, or sand or abrasive blasting equipment to clean stone!

Cyclical Cleaning of Marble and Granite

Cyclical maintenance of stone differs from one sculpture to another. Generally, it requires periodic washing, occasional stain reduction, mortar upkeep, and renewal of consolidation and waterproofing agents, if applied.

The cleaning described here is aimed at maintaining the appearance of the stone by removing

dirt, grime and biological growth. Such cleaning can extend the time between major conservation treatments. Another advantage to the cleaning is that staff sees the monument on a regular basis and can alert administrators to any unusual changes in its condition. With proper training this process can be handled by conservation technicians.

The cyclical cleaning should consist of washing the surface of the stone with water and Orvus® and gentle brushing with soft natural bristle brushes if necessary. A plain garden hose with a fan-shaped spray-tip can be used for application of plain clean water. Apply water to the stone at the minimum effective pressure not to exceed 100 psi at the surface. Generally, begin at the bottom and gradually work up, applying Orvus® and water with the soft natural bristle brushes, and scrubbing gently to remove any surface deposits. Take great care to avoid scratching or otherwise damaging the surface, which can interrupt the continuity of the hydrophobic coating applied to the stone. Do not allow the surface to dry before all dirt is removed and the entire stone is well rinsed with clean water.

Cleaning Marble and Limestone

When cleaning marble or limestone, one tablespoon of household ammonia can be added to the above mixture; this helps remove some greases and oils. DO NOT use ammonia on or near any bronze or other metal elements.

Lichens and Algae

Lichens and algae can be removed by first thoroughly soaking the stone and then using a wooden scraper to gently remove the biological growth. This process may need to be repeated several times to remove the material.

Stains

Some stains in porous stones cannot be removed. DO NOT expect the stones to appear new after cleaning.

Frequency of Cleanings

DO NOT clean marble, limestone or sandstone more than once every 18 months. These stones may occasionally be rinsed with clean water to remove bird droppings and other accretions.

Clean granite as needed.

CLEANING AND MAINTENANCE OF BRONZE SCULPTURE

Coating Upkeep

The cyclical maintenance of bronzes requires periodic washing and renewal of the wax coating. If a lacquer is applied, it needs regular touch-up and periodic replacement by a conservator. The frequency of washing and coating renewal is determined by the type of coating system selected, the condition of the bronze, the severity of the environment, and the funds and personnel available. Lacquer coatings often must be replaced after five to ten years.

Bronze Cleaning

Using a solution of one heaping tablespoon of Orvus® detergent (either liquid or paste) to one gallon of clean water, thoroughly wash the PRE-SOAKED bronze surface using natural bristled brushes with wood handles of various sizes.

DO wash ALL exposed surfaces.

DO use only Orvus® detergent on bronze.

DO pre-wet the bronze with clean, clear water prior to cleaning, and keep the sculpture wet during the entire washing process. DO NOT

allow the detergent mixture to dry on the surface during the washing.

BE THOROUGH, WASH ALL SURFACES.
Rinse with lots of clean water.

DO NOT use abrasives, acids or bases, household cleaners, wire brushes, or sand or abrasive blasting equipment to clean bronze sculpture.

Allow the bronze to air dry completely after washing and prior to waxing. Water which collects in areas can be removed with sponges.

Wax the thoroughly dried bronze sculpture, applying the wax with a parts brush or a sash brush. If needed, cover the metal ferules of the brushes with tape to avoid scratching the bronze metal. Among the recommended brands of waxes are Johnson Paste Wax, Minwax, and Butcher's Bowling Alley Wax. Apply a thin, continuous layer of wax to all exposed surfaces. Take care to avoid wax build-up in pits and crevices. After a section is waxed, immediately go over that section with a buffing brush (a wooden handled shoe brush is best) to even out the wax, and remove areas of build up. After the wax has set, it can be buffed with shoe brushes and clean, lint-free cloths (old T shirts are great).

Bronzes can be washed and waxed every six months. Be thorough and methodical. The wax can be removed using VM&P naphtha, as needed. Avoid wax build-up as it will turn white and become disfiguring. Keep records of washings and waxings.

GRAFFITI REMOVAL

The quick removal of graffiti from an outdoor monument is important, however, improper

removal can result in damage and disfigurement to the historic fabric. The long-range maintenance plan should address this potential problem. Preservation Brief no. 38, *Removing Graffiti From Historic Masonry* by Martin Weaver and published by the U.S. Department of the Interior, National Park Service, is a good source of material to consult when developing a maintenance plan.

KEEP A RECORD OF THE CLEANING

Simple treatment records should include the date of cleaning, materials used, and change in condition since last cleaning (such as missing parts, graffiti, and any other damage). Keep these records at a central location where the condition of the stone can be monitored over time

MATERIALS AND SUPPLIER

Butcher's Bowling Alley Wax is available through Ace Hardware stores.

Orvus®, a non-ionic detergent that comes in either liquid or paste form, is commonly used in association with horse and sheep husbandry and is available in feed stores. "^

With proper maintenance, outdoor sculptures will be around for a long time for our enjoyment to both teach us and to provide us with a sense of place.

The accomplishment of this task involves conservators and other professionals, administrators, support personnel, volunteers and educators. Each person brings their expertise to work toward the common goal of preserving outdoor sculpture through a well planned approach.

Documentation is important for future conservators to examine previous conditions as well as past treatments. This documentation also helps teach the public the importance of this work and how it is accomplished. *





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3. Gayle, Margot, David W. Look, AIA, and John G. Waite, *Metal in America's Historic Buildings: Uses and Preservation Treatments*, Washington, DC, National Park Service, 1980.

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8. Montagna, Dennis R., *"Conserving Outdoor Bronze Sculpture: The Thaddeus Kosciuszko Monument, Washington, DC,"* *Preservation Tech Notes*, Washington, DC, National Park Service, 1989.

9. Naude, Virginia N. and Glenn Wharton, *Guide to the Maintenance of Outdoor Sculpture*, American Institute for Conservation of Historic and Artistic Works (AIC), Washington, DC, 1993. *



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