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THE MATERIALS AND TECHNIQUES OF RELIEF ELEMENTS IN JOHN SINGER SARGENT'S *TRIUMPH OF RELIGION* MURALS

Angela Chang

Abstract

Recent conservation of John Singer Sargent's *Triumph of Religion* mural cycle (1890-1919) at the Boston Public Library included a significant objects conservation component to treat over 600 relief elements included in the mural design. This paper discusses Sargent's sculptural materials and techniques and highlights one cleaning treatment demonstrating an intention to balance relief elements with their surrounding murals. Completed in January 2004 by the Straus Center for Conservation, this conservation project provided a unique opportunity to study the artist's experimental sculptural materials and techniques. On most of the sixteen marouflaged canvases, Sargent applied decorative relief elements to highlight areas of the design, to animate the surface, and to help incorporate the painted murals into the surrounding architecture. Ranging from low relief to near sculpture in-the-round, the relief materials included painted and gilded plaster, papier-mâché, metals, wood, glass, and Lincrusta-Walton (a nineteenth-century wall covering material). Although Sargent was known almost exclusively as a portrait painter prior to creating the murals, it is thought that he did execute these sculptural details himself. Unlike the complex condition of the oil-painted canvases affected by past restorations, the relief elements appeared largely untouched. Structural problems in many of the relief elements revealed the experimental design and inexperience of the artist with sculptural materials. Treatments focused on stabilizing materials and mounting, and removing heavy grime and dust. This large-scale project required a multi-disciplinary approach to stabilize and clean the mixed media compositions, while considering the surrounding architectural ornaments and lighting created by the artist.

Introduction

John Singer Sargent considered his *Triumph of Religion* murals at the Boston Public Library to be his most important work. Commissioned by the library's architects McKim, Mead and White to decorate the Special Collections Hall, Sargent spent twenty-nine years, 1890-1919, creating his murals and the space in which they were presented. Now called Sargent Hall, the barrel-vaulted room is adorned with sixteen oil-painted canvases filling the upper reaches of the room, gilded architectural moldings, massive wooden bookshelves, a decorative paint scheme, and bronze light fixtures, all designed by the artist (Fig. 1). The murals, mounted with the marouflage technique using a lead white and oil adhesive, depict the history of Western civilization as a progression of religious ideas, beginning with ancient deities and culminating in a modern belief in spiritual individuality. Sargent painted two other mural cycles, one at the Museum of Fine Arts, Boston, and the other at Widener Library at Harvard University, but the *Triumph of Religion* was the most ambitious.

Figure 1. Sargent Hall, southeast view. Photograph courtesy of Bill Kipp 1999.

The viewer's experience was of utmost concern to the artist. Visitors entered the tall, narrow hall (84 feet long, 23 feet wide, 26 feet high) from a staircase along the east wall. The lower edges of the murals were located almost 18 feet from the floor. Supplementing natural light from three skylights, Sargent added six electrified bronze sconces of his own design mounted below the murals, creating a dramatic effect within the cavernous room. Ornate gilded architectural moldings reflected light around the murals and complemented gold details on their surfaces. Sargent further enhanced his mural design with the application of relief elements on the painted canvases. Ranging from low relief to near sculpture in-the-round, the relief materials included painted and gilded plaster, papier-mâché, metals, wood, glass, and Lincrusta-Walton. These elements emphasized details of the design and animated the surfaces with light effects. Sargent's experimental mixed media approach was highly unorthodox, particularly for an artist who had never previously exhibited sculpture.

Questions about whether Sargent executed this work himself were addressed by his close friend and architectural consultant, Thomas Fox, who stated that "Not only all the finished work itself, but all the preliminaries both mechanical and artistic he preferred to do himself alone… There was no squaring off and laying in on canvas by assistants, neither was there any enlarging by pointing up from a small model of any full size sculptural work" (Fox, n.d.). Sargent's own comments in 1894 revealed his meticulous approach: "I must add that an essential feature of the work is the use of ornament in relief of which there is a considerable amount and which would have to be adjusted to the canvases by myself before they are [nailed] to their place..." Over a 29-year working period, Sargent developed his skills in adapting sculptural materials: he experimented with various materials for similar effects, he changed media to solve aesthetic and technical problems, and he improved the effectiveness of layering these media onto his murals.

Sargent's four installation phases in 1895, 1903, 1916, and 1919 demonstrated a marked progression of this development.

In January 2004, the Straus Center for Conservation completed a 15-month project to stabilize and clean the Sargent murals, as well as to consult on other aspects of restoring the Hall (Fig. 2). These included improving environmental conditions and reinstating Sargent's decorative paint scheme and lighting plan. The six-member team of conservators and conservation scientists worked in consultation with an advisory committee of Sargent scholars, other conservators and conservation scientists, and a curator, who met throughout the project to discuss treatment issues and review results. One prevailing concern was achieving a balanced cleaning for these varied surfaces. While the cleaning of the paintings was complicated by past restorations, the relief elements were in better condition, having endured minimal intervention.

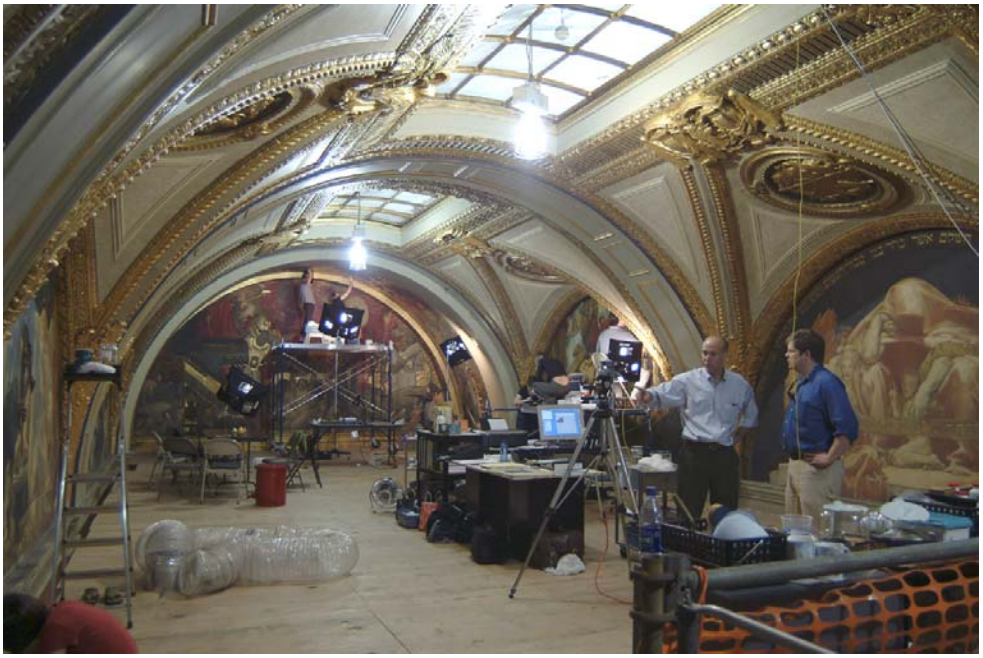

Figure 2. Staging for 2003 conservation treatment.

This project provided a unique opportunity to study Sargent's experimental sculptural materials and techniques. Observations made about the artist's methods in applying relief elements follow, with a subsequent discussion of a cleaning of plaster relief intended to maintain an appropriate aesthetic balance with its surrounding mural.

Early Experimentation with Sculptural Materials

Sargent painted his murals in his London studio and made many adjustments after their installation at the library. The first of four installations occurred in 1895 and included the lunette,

frieze, and vault at the north end of the hall, entitled *Israelites Oppressed*, *Frieze of Prophets*, and *Pagan Gods*, respectively (Fig. 3). For these murals, Sargent rendered specific forms and identifying accoutrements in cast plaster (Figs. 4, 5). While they appeared similar, these elements varied in their composition, quality of casting, and method of attachment.

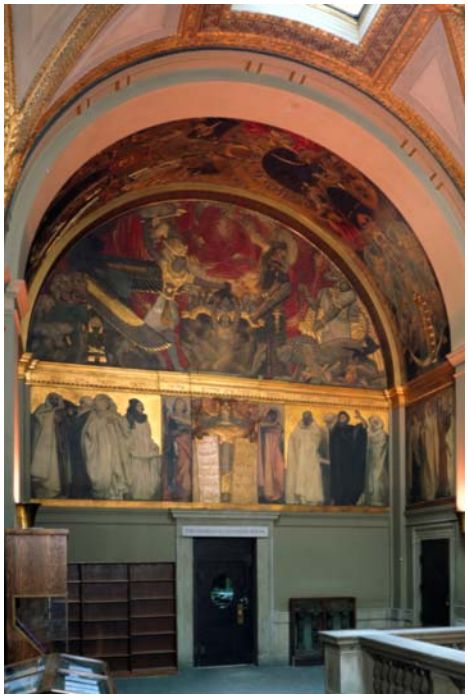

Figure 3. Sargent Hall, north view. Lunette, frieze, and vault installed in 1895. Photograph courtesy of Bill Kipp, 1999.

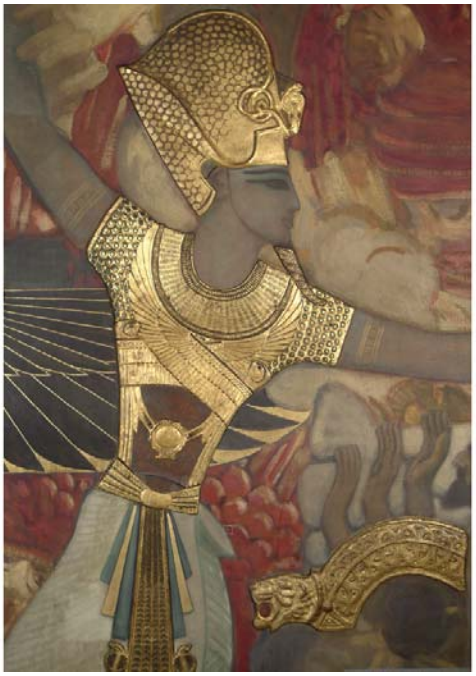

Figure 4 (left). *Israelites Oppressed*, detail. Pharaoh figure. Gilded and painted plaster relief elements.

Figure 5 (right). *Israelites Oppressed*, detail. Genie figure. Gilded and painted plaster relief elements.

Both lime plaster and Plaster of Paris were used in different consistencies, and various bulking agents such as horsehair were added. The verso of some plaster elements had a smooth, even surface suggesting the use of a thin, poured plaster, while others exhibited a lumpy texture with fingerprints from pressing a thick mixture into a mold (Fig. 6, 7). The most complex cast from this installation was the life-size Moses at the center of *Frieze of Prophets* (Fig. 8). This figure appeared to have been first modeled in clay or plasticene on a wooden board, before being cast in plaster. Sargent employed the plaster surface as another support for paint and gold. On Moses' tablets, the plaster surface was treated with a paint or ground layer followed by toning and oil paint layers.

Figure 6 (left). *Israelites Oppressed*, verso of plaster element with a smooth, poured texture.

Figure 7 (right). *Israelites Oppressed*, verso of plaster element with a lumpy, pressed texture.

Figure 8. *Frieze of Prophets*, detail of Moses figure in painted and gilded plaster.

For almost all of the relief elements, surfaces were gilded, toned, and/or painted. Gilding techniques included oil and water gilding, gold paint, and toned aluminum and silver leaf.

Sargent reinforced many plaster elements with armatures or backing materials. Some broad or long and narrow elements such as the sections of the serpent and the bows in *Pagan Gods* were cast with iron wire armatures. In several instances, the expansion of the armature as it corroded caused structural damage to the plaster (Fig 9, 10). Other elements were reinforced with backings made of paper, fabric, or perforated metal sheets. In his most unusual and elaborate combination of materials, Sargent painted and layered painted fabric, plaster, and metal sheet in a cast form to depict the lions surrounding the pagan god Moloch (Fig. 11).

Figure 9 (left). *Pagan Gods*, detail of archer and serpent with bows and serpent in cast plaster.

Figure 10 (right). *Pagan Gods*, detail from archer's bow showing back of bow with damage from armature.

Sargent's application of so many variations in media and techniques in these early murals demonstrated his experimentation with adapting sculptural elements into his mural design. Other examples include cut-glass "jewels" mounted in ready-made brass bezels adorning the pagan goddess, Astarte, in *Pagan Gods* (Fig. 12). Around Moloch, the rays of the sun were made from silver-gilded wood beading, probably manufactured for framing. Segments of wood beading were cut and attached with small nails. The rays terminated in 50 water-gilded, carved wood hands.

The quality and condition of numerous elements pointed to the artist's inexperience with sculptural materials. The quality of the plaster casts varied, with many pieces exhibiting warping and cracks. Other structural damage resulted from the methods of attaching the plaster elements to the murals. A great variety of nails and fasteners were used, often causing significant breaks and cracks in the brittle plaster. In some cases, nails appeared to be hammered in without pilot holes. Sargent left some of this damage as is; in other cases he added more nails to secure the fragments in place. Other fastening methods included nail heads and bent nails used as brackets,

and twisted and looped wires.

Figure 11. *Pagan Gods*, Moloch figure. Gilded details in relief, including sun (oil gilded plaster), rays (silver gilded wood), hands at end of rays (water gilded wood), and lions (painted and gilded plaster backed with fabric or metal sheeting).

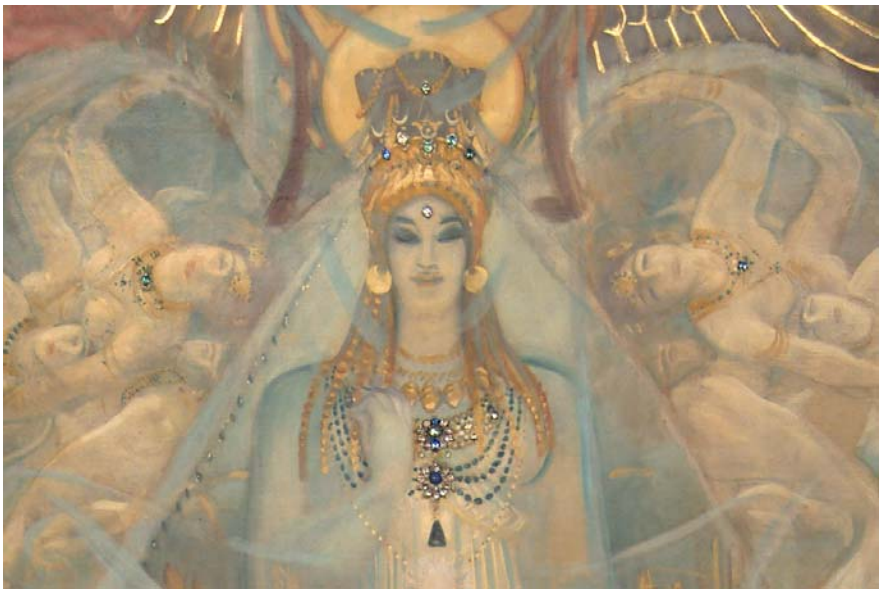

Figure 12. *Pagan Gods*, Astarte figure, detail. Glass "jewels" mounted in brass bezels.

A Shift from Plaster to Papier-mâché Techniques

In the second installation of the murals in 1903, Sargent completed the *Dogma of the Redemption* panel and *Frieze of Angels* on the opposite end of the Hall (Fig. 13). The Byzantine-style ensemble focused on the *Crucifix* sculpture with Christ flanked by Adam and Eve bound by a red cloak. The overlapping on the cornice by the sculpture from above and the angels' wings from below demonstrated Sargent's interest in physically incorporating the murals into the architecture. Sargent created the painted plaster *Crucifix* in consultation with his friend, sculptor Augustus Saint-Gaudens, and the help of his plaster molder in London.

Figure 13. Sargent Hall, south view. Lunette, *Crucifix,* and frieze installed in 1903. Vault installed in 1916.

Crucifix was first formed in clay or plasticene, and then cast in six sections (Fig. 14)**.** Sargent painted the surfaces with thin glazes of color, leaving areas of the plaster showing through as highlights. Areas depicting flesh were painted directly onto the plaster, whereas red and gilded areas were first sized with glue.

In the surrounding mural, Sargent shifted from plaster to papier-mâché as his primary relief material. With papier-mâché, Sargent rendered the faces and hands of the Trinity figures, the orphrey, and the instruments of the Passion held by the angels (Figs. 15-17). These elements were built up in a mold with two or three plies, coated with a shellac-like glaze, painted, and gilded. With papier-mâché, Sargent eliminated many of the problems he encountered with plaster in the previous installation. The light, flexible material took a sharp impression of fine details, and the thin casts blended well into his paintings. Flat borders were cast as part of the elements, allowing a generous tacking edge.

Figure 14. *Crucifix*. Executed in painted and gilded plaster with an iron halo.

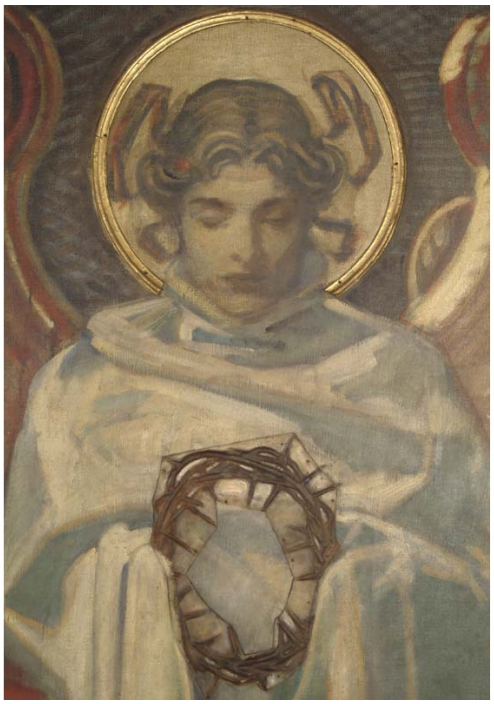

Figure 15 (left). *Dogma of the Redemption*, detail. Trinity face in painted papier-mâché.

Figure 16 (right). *Frieze of Angels*, detail. Angel with halo and crown of thorns in painted papier-mâché.

Figure 17. *Frieze of Angels*, detail of relief elements in papier-mâché.

Lincrusta-Walton

In his third installation in 1916, Sargent completed the south vault above *Crucifix* and connected the ends of the hall with three lunettes on each the east and west walls. Abandoning plaster and papier-mâché almost completely, Sargent added Lincrusta-Walton to his repertoire of materials.

Lincrusta-Walton, a nineteenth-century commercial English wallcovering material, was invented by the creator of linoleum, Frederick Walton in 1877, at the height of a Victorian interest in domestic furnishings and a taste for decorative wallpaper. It offered an affordable imitation of fancier wallcoverings such as tooled leather, plaster, or ceramic tile, and was touted for its washability. Lincrusta was manufactured using a paste of linseed oil, gum, resins, wood pulp, and zinc oxide spread onto a canvas or paper backing and machine-embossed with iron or steel rollers (Fig. 18).

This process created an inexpensive material that could reproduce intricate designs in low relief. The surface could then be painted, stained, or gilded (Woods 1994). Lincrusta is still manufactured in England with the same nineteenth-century processes.

In a shift from using relief elements to depict specific elements in his mural design to applying them to broader, undefined areas, Sargent boldly incorporated Lincrusta-Walton into his murals to create lighting effects. Fragments of Lincrusta used by Sargent were embossed with "SUNBURY WALL COVERING", referred to its manufacturing site at Sunbury-on-Thames (Lynn 442). He chose a corrugated pattern depicted in Figure 18 and trimmed pieces to fit small details, borders, and broad fields of the composition (Fig. 19). He gilded and painted these elements before and after affixing them to the surface with a glue-paste lining adhesive and brads. Hanging Lincrusta involved soaking, pasting, and tacking the edges to prevent them from curling. Sargent oriented the Lincrusta pattern either diagonally, or horizontally. In discussing

illumination in 1915, he indicated that his use of Lincrusta to alter lighting was experimental: "…I have been working with the idea of a small quantity of light, and not direct light from the sky but reflected from below… I have been using a ribbed material for my gilding, in order to catch this light…" (Sargent, Mar. 19, 1915, 2, letter to Josiah Benton) This effect, ultimately created with bronze light fixtures designed by Sargent, combined with the variable light from the skylights to create shimmering details in the murals.

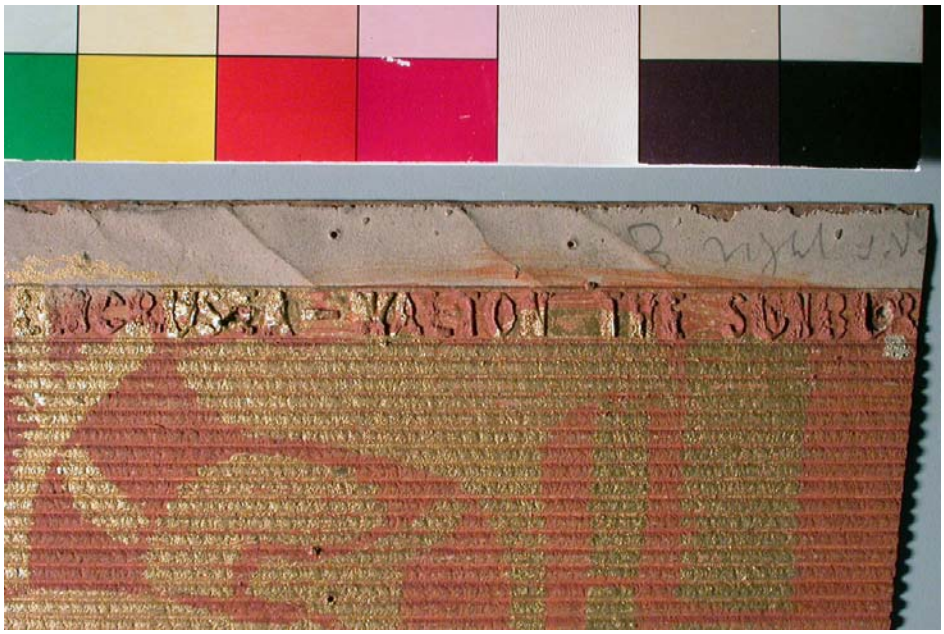

Figure 18. Lincrusta-Walton, detail of edge showing layers: paper backing; white, undecorated Lincrusta-Walton mixture; and embossed, painted, and gilded layer.

Figure 19. *Messianic Era*, installed in 1916. Sections of trees, banners, and foreground in painted and gilded Lincrusta-Walton.

Experimentation with metal reliefs

In his third installation phase Sargent also installed relief elements made of various metals in addition to Lincrusta. A 1916 shipping inventory described some of these elements as "metal casts, galvano plaster," referring to the copper electrotypes, or galvanos, formed in a plaster mold. (Sargent gallery memoranda, 3, n.d.) Sargent probably did not execute such a technical process himself, but it is notable that he selected a working technique that afforded him control of an original that would be reproduced in fine detail.

In front of the Madonna, a panel of candlesticks measuring three feet high and four and a half feet wide was comprised of 28 pieces of copper in three sections: a stepped red base, a background panel, and numerous attached elements depicting the bases of the candlesticks. These pieces were all made of electrotyped copper (Fig. 20). The panel was plated with silver on the front and zinc on the verso, while the smallest elements depicting the base for the white crescent were plated with gold overall. The smaller elements were attached to the panel with fasteners resembling the brass clasps now used on mailing envelopes: a ribbon of metal soldered at the center with ends that laced through a hole and were flattened.

Figure 20. *Madonna of Sorrows*. Swords and candle "screen" (at bottom third) in painted electrotyped copper.

Figure 21. *Madonna of Sorrows*, detail. Candle screen verso showing columnar deposition pattern of electrotyped copper in raking light.

Columnar deposition of metal visible on the verso, reproduced details in repeating forms, and the purity of copper core indicated the use of an electrolytic process (Fig. 21). X-ray fluorescence (XRF) spectroscopy identified zinc plated on the back of the pure copper substrate, and silver or gold plated on some of the display surfaces [1]. The surfaces were painted or coated to continue the mural design and to accentuate the relief patterns.

The swords representing the Virgin's sorrows piercing her heart were thinly formed with a white metal and filled from the back with lead, presumably for reinforcement. Silver and tin were identified in the white metal with XRF, suggesting a silver-plated tin. Because only one small element of the swords could be safely removed for examination, their method of their manufacture could not be confirmed.

Sargent created a second, major relief element in gilded copper. The *Coronation of the Virgin*, a medallion four feet in diameter, was placed at the height of the curved vault above *Crucifix* (Fig. 22). Positioned in a recess in the vault amid architectural plaster decoration and papier-mâché panels, the medallion stood as its own architectural form, rather than embellishing a painted mural. It was formed in two joined sections, with a surrounding inscription band in the same medium. The copper sections were mounted with nails and staples. The manufacture of this element was not well understood, owing to its fixed placement.

Figure 22. *Coronation of the Virgin*, from *Mysteries of the Rosary* at the top of the south end of the Hall.

Cleaning Moses' Tablets in Context

The cleaning of *Frieze of Prophets* and its central plaster Moses relief demonstrated the challenges encountered in the 2003 conservation treatment in balancing the aesthetics of Sargent's complex *Triumph of Religion*. A careful interpretation of archival materials combined with consideration for the murals' current condition supported treatment decisions to reinstate losses in some areas, while reducing original toning in another.

Examination of archival images taken after the 1895 and 1919 installations showed the Moses tablets as the brightest element at the north end of the Hall, against the more muted *Frieze of Prophets* (Fig. 23). Comparison of these archival images with before-treatment images suggested that an original glaze on the gilded background of the frieze had since been removed in a previous restoration, creating a highly reflective background. The painted figures, even after cleaning, appeared to recede against the gold (Fig. 24).

Difficulty in cleaning the plaster tablets held by Moses also upset the appearance of the frieze. Cross-section examination of samples taken from the tablets confirmed that an original brown toning layer was present overall, including under the red-painted inscription. The layer was too thin to sample for media analysis. An initial surface cleaning with Shellsol® 340HT followed by a 1.5% tri-sodium citrate solution rinsed with deionized water removed wax residues and general grime (Fig. 25). Care was taken in cleaning the toned surface, which became sensitive after repeated passes of the citrate solution. After the initial cleaning, however, the tablets appeared dull in relation to the figures of the frieze as well as the reflective gold background (Fig. 26).

In consultation with the advisory committee, it was decided to reinstate the glazing in the gilded background and to reduce the original toning in the tablets to harmonize with the frieze. An umber-toned glaze (Golden MSA Conservation Paints) was applied in the background, and the toning on the tablets was reduced with the 1.5% tri-sodium citrate solution and rinsed with deionized water. The immediate effect was subtle, but it was enough to adjust the overall balance of the tablets, figures, and background (Fig. 27).

This treatment demonstrated the difficulty in balancing the cleaning of these multiple components with varying treatment histories and conditions. Close examination of archival images combined with an interpretation of the relief elements and murals as a whole helped to guide aesthetic treatment decisions.

Conclusion

Sargent adapted common decorative and architectural materials to add sculptural details to his highly original mural scheme. Like the signature impasto of his easel paintings, these details imparted texture and animation to his design through their added dimension and variable light effects. Bridging the murals with the architecture, the relief elements contributed to a theatrical presentation, emphasizing the artist's interest in the viewer's experience of an artistic ensemble.

Sargent was inventive and quick in adapting new materials and techniques. With each

installation, he demonstrated a marked progression in the integration of these ornaments, improving the quality of fabrication and the sophistication of his sculptural techniques. In his last installation in 1919, he added just two plaster relief elements to the *Church* panel. Instead of the bulky forms from his earlier works, these were relatively thin elements with a textile backing (Fig. 28). Their graceful execution pointed to Sargent's growth in understanding the nuances of cast plaster. His eagerness to experiment with the details of this monumental program yielded a remarkably modern work in mixed media.

Several factors complicated a thorough understanding of the murals' condition during the 2003 conservation project: both mural painting and sculptural techniques were unprecedented in the artist's oeuvre, and past restorations were poorly documented. A multi-disciplinary approach combined with a careful assessment of archival images and documentation was critical to balancing treatment decisions for the component parts of Sargent Hall.

Acknowledgements

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Suppliers

Golden MSA Conservation Paints:
Golden Artist Colors, Inc., 188 Bell Road, New Berlin, New York 13411-9527, USA

Shellsol® 340HT (now called Shellsol® D-38):
Conservation Support Systems, P.O. Box 91746, Santa Barbara, California, 93190, USA.

Endnotes

1. Areas were examined in situ using a Rontec ArtTAX mXRF Spectrometer equipped with an electronically cooled X-Flash detector, which contains a silicon drift detector and high-speed, low-noise electronics with a resolution of 160eV at a count rate of 10kcps. X-rays were produced by a low power tube with a molybdenum target. The beam was focused by polycapillary optics to a spot size of 70mm x 50mm. The analysis area was purged by a stream of helium. Analysis was carried out at 50kV for 200s. Bronk et al. (2001) have published a detailed description of this instrument:

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