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# Rediscovering an American Master: An Examination and Analysis of the Decorative Plaster Ceiling of Robert Winthrop Chanler's Whitney Studio, New York

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# Rediscovering an American Master: An Examination and Analysis of the Decorative Plaster Ceiling of Robert Winthrop Chanler's Whitney Studio, New York

## **Abstract**

Though a well-known decorative painter and muralist in the early 20th century, the artist Robert “Bob the Sheriff” Chanler was an incredible personality and creative genius who has been largely forgotten overtime. His work is representative of artistic innovation and experimentation that characterized the early 20th century, presenting a unique quality that can only be called ‘Chanleresque.’ This thesis intends to situate Chanler's interior decoration of the Whitney Studio within the body of Chanler's work in decorative interiors, screens and murals, to analyze the materials and structural system that compose the ceiling and present a proposal for the original color scheme based on the findings. The finishes present unique challenges, as they are primarily composed of metallic foils, which are then modeled with a series of glazes. Chanler's Whitney studio highlights a moment in America's artistic development that brings together the genius and patronage of Gertrude Vanderbilt Whitney with the vision of a truly unique American artist. The interior's design elements are a true American hybrid composed of influences that span from French rocaille plasterwork to ancient classical mythology, from Eastern philosophy to Native American spiritual beliefs. The plaster ceiling stands alone as a truly unique example of craftsmanship, and is one of the few surviving by Chanler. This thesis attempts to (1) provide a historical framework to understand the artistic and technological aspects and significance of the Whitney Studio, (2) identify and analyze the finishes and materials used in the original production of the ceiling and (3) propose a general conservation program for the ceiling, along with a digital reconstruction of the original color scheme and a partial mockup of the finishes originally employed. While this project is centered on the conservation of the Whitney Studio, the methodologies, techniques and approaches discussed can be used as a case-study for further conservation work in decorative plaster, metallic finishes, early twentieth century artist-designed interiors and Robert Winthrop Chanler's body of work.

## **Keywords**

Historic Preservation; Robert Winthrop Chanler; Plaster, Whitney Studio, Ceiling, Conservation, Finishes, Sheriff Bob, World Monuments Fund, Architectural Conservation Laboratory

## **Disciplines**

Architecture | Historic Preservation and Conservation | Interior Architecture

## **Comments**

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REDISCOVERING AN AMERICAN MASTER:  
AN EXAMINATION AND ANALYSIS OF THE DECORATIVE PLASTER CEILING  
OF ROBERT WINTHROP CHANLER'S WHITNEY STUDIO, NEW YORK

Lauren Elizabeth Vollono

A THESIS

In

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Partial Fulfillment of the Requirements of the Degree of

MASTER OF SCIENCE  
IN HISTORIC PRESERVATION

2010

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*Dedicated to the memory of Debra Drapala.*

*A woman whose charisma, charm and wit will forever be  
an inspiration to those whose lives she touched.*



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## 1.0 INTRODUCTION

In May, 2008, a portion of the decorative plaster cornice fell from the ceiling of the Whitney Studio in the New York Studio School of Drawing, Painting and Sculpture. The damage raised concerns about public safety and the stability and preservation of this significant historical and artistic American masterwork.<sup>1</sup> The Whitney Studio, located within a National Historic Landmark building complex, was originally part of the first Whitney Museum of American Art. The interior celebrates the legacy of Gertrude Vanderbilt Whitney, while serving as a significant link between the building's past life, as an institution that supported American contemporary artists, and its present role, as an educational forum for aspiring artists. Although numerous studies of the ceiling and studio have been conducted by architectural and engineering consultants, there has yet to be a full, in-depth analysis of the interior's importance in relation to American art patroness and sculptor Gertrude Vanderbilt Whitney (1875-1942) and as one of the major commissions of the prolific, though now forgotten decorative artist and muralist, Robert Winthrop Chanler (1872-1930).

This thesis establishes the foundation of a conservation strategy for the Whitney Studio, and provides an interpretation of the decorative plaster ceiling through historical research, art historical and material analyses, and digital and traditional reproductions. While this research provides an extensive history and background to the site and the personalities that shaped its creation, it focuses on the intention of Chanler's original design and the execution of the ceiling. Combining archival research and material analyses with current

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<sup>1</sup> National Register of Historic Places, New York Studio School of Drawing, Painting & Sculpture, New York, New York, National Register #92001877, 1991.

3D laser imaging and modeling, this thesis will lay out a strategy to reinvigorate a space that is in need of interpretation and broader public appreciation.

The University of Pennsylvania's Architectural Conservation Laboratory (ACL) began work on the project in the spring of 2009, as part of a collaboration between World Monuments Fund (WMF), the New York Studio School (NYSS) and Integrated Conservation Resources (ICR). Much of the initial work on the project was spent compiling a digital database of previous conservation, structural, design and historical reports conducted at the NYSS to better understand the progression of the ceiling damage. In the summer of 2009, the author conducted an assessment of the current conditions of the ceiling through on-site visual and tactile investigation. The assessment verified the engineering reports from June, 2008, which determined that the cornice failure was an isolated incident, and that the ceiling was intact overall.<sup>2</sup> ICR prepared an architectural drawing of the ceiling's structural framework, while the ACL recorded and digitized the plaster ceiling and its conditions. While the investigation employed traditional techniques of diagnosis and damage assessment, it also employed Geographic Information Systems (GIS) analyses to better understand the extent of the ceiling's damage. This study provided an understanding of the ceiling as an entire structural unit and provided a framework for which future recommendations could be made. An interim report on the initial observations and fieldwork of the summer session was issued in October of 2009.<sup>3</sup> While this phase of work had built on existing studies and documentation of the studio, it addressed the ultimate goal to stabilize, study, restore, and

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2 Anthony Giudice, P.E. *Whitney Studio Ceiling Assessment*. New York: Kaitsen Woo Architect, June 2008.

3 Lauren Vollono, Architectural Conservation Laboratory, *Summer Interim Report: Whitney Studio*. Philadelphia: University of Pennsylvania, Oct. 2009.



reuse this exceptional and historically significant space.

Ultimately, this thesis attempts to (1) provide a historical framework to understand the artistic and technological aspects and significance of the Whitney Studio, (2) identify and analyze the finishes and materials used in the original production of the ceiling and (3) propose a general conservation program for the ceiling, along with a digital reconstruction of the original color scheme and a partial mockup of the finishes originally employed. While this project is centered on the conservation of the Whitney Studio, the methodologies, techniques and approaches discussed can be used as a case-study for further conservation work in decorative plaster, metallic finishes, early twentieth century artist-designed interiors and Robert Winthrop Chanler's body of work. While there exists a growing body of literature concerning historic plaster work in eighteenth century and nineteenth century settings, there seems to be almost no published work on modern decorative plasterwork of the twentieth century. This is in part due to the fact that few artists tended to work within this medium, and that much of the work of this time period has been lost to alterations and failed innovative technology.

Chanler as an artist stood among his contemporaries as one of the most individual of American decorative artists of the twentieth century, his work being described by art critics as nothing short of "chanleresque." As such, this thesis explores the breadth and importance of Robert W. Chanler while also addressing the material conservation problems that arise from his unique, and often experimental, artistic techniques.



**Figure 1.1. Aerial view looking northeast from above Sixth Avenue and Houston Street with 8 W. Eighth Street highlighted, 1999 (Harris, 2003).**

## **1.1 Site Description**

The Whitney Studio is located within the larger complex of the New York Studio School of Drawing, Painting and Sculpture at 8 W. Eighth Street in Greenwich Village, New York, NY. Eighth Street bounds the property on the north, with Fifth Avenue on the east, Washington Square North on the south and Washington Square West on the west. The current building complex is an amalgamation of structures which date to various construction periods, purchased and assembled by Gertrude Vanderbilt Whitney. The Eighth Street frontage is comprised of four row-houses whose original construction dates to ca.1838 (8, 10, 12 and 14 W. Eighth Street), which are attached to corresponding carriage houses that

face historic MacDougal Alley.<sup>4</sup> The lot of the entire complex is 100 square feet, located one block north of Washington Square amidst heavy tourism and a central campus for New York University. While Eighth Street is lined with shops, restaurants and pedestrian traffic, MacDougal Alley is a gated residential street with restricted pedestrian and vehicular access.

8 W. Eighth Street was designated as a New York City Landmark and a National Historic Landmark in 1992 for its significance as the original site of the Whitney Museum

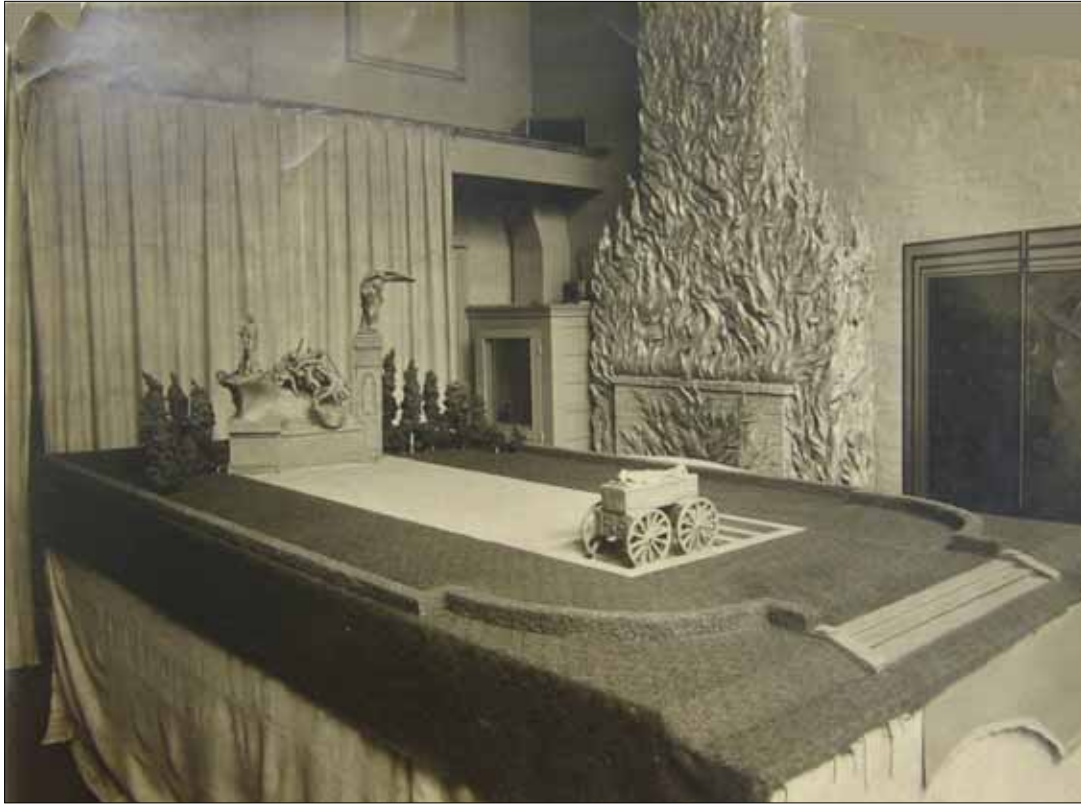


**Figure 1.2. Second floor plan of the New York Studio School with Whitney Studio highlighted (HSR, 1993).**

4 National Register of Historic Places, New York Studio School of Drawing, Painting & Sculpture, New York, New York, National Register #92001877, 1991.

of American Art, as well as its predecessor organizations: the Whitney Studio, the Whitney Studio Club and the Whitney Studio Galleries. The building itself is situated within the dedicated Historic District of Greenwich Village, in New York City. Since 1967, the property has been home to the New York Studio School of Drawing, Painting and Sculpture, a premiere art school which has been affiliated with leading artists, art historians and critics since its opening. It is an exceptional building complex which has been devoted to the appreciation and practice of art for the entire last century, uniting its contemporary art practices with a long legacy of influential American artists who have practiced and displayed their works within its walls. The School's reuse of the original Whitney Museum is a remarkable example of historical continuity, continuing a mission to propel contemporary generations of artists to create and appreciate art.

The Gertrude Vanderbilt Whitney Studio is one of the most compelling and significant interior spaces of the entire complex, as both a tribute to the site's progenitor and as a stunning artistic work by decorative artist and muralist Robert Winthrop Chanler. The room is located on the 2nd floor hayloft level of the original carriage house at 8 W. Eighth Street. The space is accessible either through an entrance on MacDougal Alley, or by walking through the Whitney Sculpture Studio structure to its west. There is a direct entrance into the space through the historic Whitney-Force stair over an open courtyard. Only one courtyard still remains in the entire complex, which exists as the original separation between the 8 W. Eighth Street row-house and corresponding carriage house that holds the Whitney Studio. The room currently houses an elaborately sculpted bronze and plaster fireplace,



**Figure 1.3. Whitney studio, Foreground features Model for War Monument, Springfield, 1928 (Smithsonian Archives of American Art (Reel 2289 #0041, Gertrude Vanderbilt Whitney Papers).**

encrusted with growing flames that move up the chimney into a bas relief plaster ceiling and surrounding cove cornice. The space is approximately 22'8" east-west by 29'0" north-south, and houses a skylight that was installed by Whitney for her artistic productions. There are also seven window openings that originally held seven stained glass windows also designed by Chanler.<sup>5</sup> Whitney's purchase of this building in 1907 marked her first acquisition of property on MacDougal Alley, and the site continued to be assembled until 1931.

<sup>5</sup> Five of these windows are located just a couple of blocks north of the School at Retro Modern Lighting, 28 E. 10<sup>th</sup> Street, New York, NY, <http://www.retromodernlighting.com/> [Accessed 29 March 2010]. The other two are in private collections, one owned by Duncan and Linda Irving and the other by Dr. Ed Allen (both of whom currently reside in Connecticut).

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## 2.0 BRIEF HISTORY OF THE WHITNEY STUDIO

### 2.1 The Site

#### 2.1.1 Mid-19<sup>th</sup> century to 1907

The carriage house that currently houses the Whitney Studio was built by A.H. Graham for Samuel McCrary in 1877. The stable, addressed 19 MacDougal Alley, is a free-standing, three-story brick building that initially housed horses on the ground level and a two story hayloft above. Original architectural features of the carriage house include the hayloft window openings in the Whitney Studio, as well as the stone lintels and corbelled brick cornice on the exterior. The other stable structures along MacDougal date to shortly after 19 MacDougal Alley, and currently reflect the changes made in their conversions into artist's studios. Their corresponding row-houses were designed in the Greek Revival architectural style, with the exception of 14 W. Eighth Street, which was built in 1853-1854 as a four-story Italianate brick town house with a rusticated basement.<sup>1</sup>

The foundations for the building complex consist of brick and rubble walls with a concrete slab on grade at the cellar levels. The structure was framed with wooden joists supported by masonry bearing walls. The large metal skylight on the north side of the Whitney Studio is located at the front and rear section roof area, which is pitched to gutters and scuppers connected to the downspout at the outside walls (MacDougal Alley).<sup>2</sup>

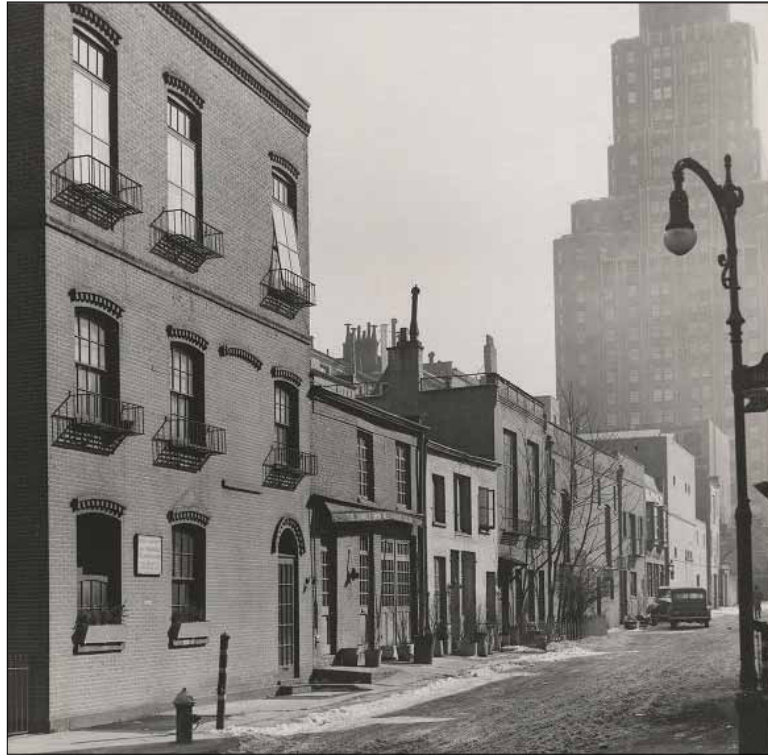
During the building's original construction period, Greenwich Village was considered

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1 National Register of Historic Places, New York Studio School of Drawing, Painting & Sculpture, New York, New York, National Register #92001877, 1991, 4.

2 Paul J. Hessel, P.E. *Property Condition Assessment Report: The New York Studio School*. Uniondale, New York: Hi Rise Engineering, P.C., Jan. 2004. Currently stored in the files of B. D. Pickering, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June 2009].





**Figure 2.1. North Side of MacDougal Alley Looking East From MacDougal Street, 1945  
(Nancy Cricco, New York University Archives).**

an urban retreat from the crowding and filth of lower Manhattan. Between 1825 to 1850, the Village developed into a thriving middle class neighborhood, particularly after a former potter's field was converted into Washington Square Park in 1826.<sup>3</sup> Within the first decade (1825-1835), the population in the region doubled, and it doubled again over the subsequent fifteen years. Row-houses, like those developed on Eighth Street, were typical of the area and were intended to be single-family residences. (Fig. 2.2) These residences characteristically featured winding side hall staircases from the basement to the attic along the east walls, with two chimneys on the west walls, and unfinished cellars.<sup>4</sup>

<sup>3</sup> Luther S. Harris, *Around Washington Square: An Illustrated History of Greenwich Village*. Baltimore, Maryland: The Johns Hopkins University Press, 2003, 7. Philip Hone was the major proponent of the change of use for the park, invested in generating a civic pride and more luxurious landscape for upper middle class residents.

<sup>4</sup> 1107 Design. *New York Studio School: Master Plan Documentation*. New York: School of the Visual Arts,



**Figure 2.2. Fourteenth Street, south side looking east from Fifth Avenue, from “New York Daguerro-typed,” Putname’s Monthly, 1853 (Harris, 2003).**

Following the opening of Central Park in 1859, many of the wealthy residents of the Washington Square area moved uptown in the succeeding decades. By the 1890s, many long-established residential areas were decimated, in favor of increased industrial development and commercialism of the area.<sup>5</sup> This transition also coincided with the branding of the area surrounding Washington Square as ‘New York’s bohemia,’ noted for its hospitable French and Italian restaurants and boarding houses that catered to a crowd of artists, writ-

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March 2006, 3.

5 L. Harris, 128.





**Figure 2.3. View of MacDougal Alley, 1907 (Getty Grant application, 2007).**

ers and other creative people.<sup>6</sup>

### 2.1.2 1907-1945: The Whitney Years

By the late twentieth century, Greenwich Village had lost its appeal with upper middle class residents and was becoming increasingly developed with tenements, businesses, and warehouses. Due to cheaper rents and seclusion from the social distractions of the center of bustling Manhattan, artists began to reclaim many of the stables scattered around Washington Square. This trend began with sculptor Frederick Triebel's studio on MacDougal Alley, and by 1906, sculptors Daniel Chester French, James Earle Fraser, Andrew O'Connor and Philip Martiny, along with painter Edwin Denning and photographer DeWitt Clinton Ward, had their studios along MacDougal Alley.<sup>7</sup> Washington Square was "a free and

<sup>6</sup> Idem.

<sup>7</sup> Also recorded at this time, only two of the structures along MacDougal Alley were still operated as stables. 1107 Design. *New York Studio School: Master Plan Documentation*. New York: School of the Visual Arts, March 2006.

sovereign republic, independent of uptown,” which offered independence from the conformity imposed by the National Academy of Design, the Metropolitan Museum of Art and the Academy of Arts and Letters.<sup>8</sup>

Whitney purchased 19 MacDougal Alley in 1907, converting the carriage house into her private sculpture studio. Because Whitney was the only artist on the street who was not also living in her studio, the stable retains a stronger sense of its original purpose, with the most significant architectural change to the structure being limited to the removal of the hayloft.

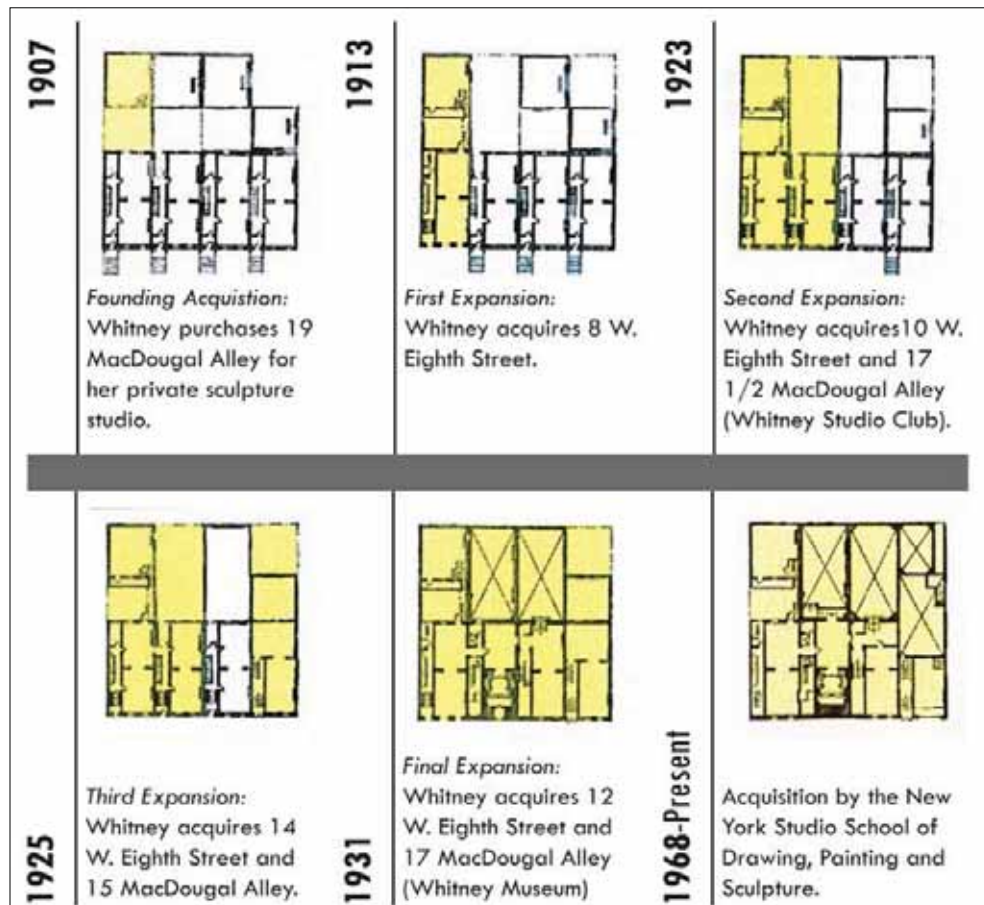
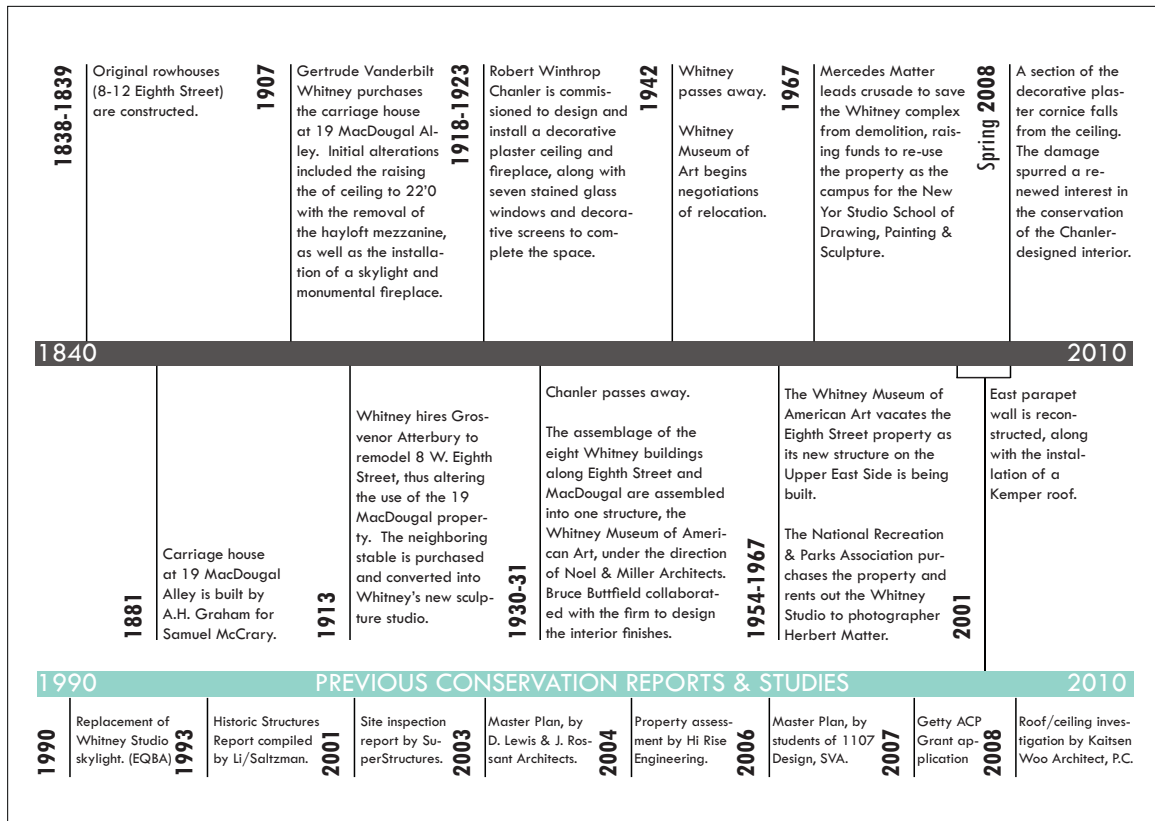


Figure 2.4. Sequence of building acquisition and ownership (L. Vollono, plans from Getty Grant, 2007).

8 L. Harris, 174.



**Figure 2.5. Timeline of 8 W. Eighth Street's development, with a focus on the conservation reports and studies that have been done on the Whitney Studio (L. Vollono, 2010).**

Whitney and sculptor Daniel Chester French began constructing the modern site in 1913, when they purchased two West 8<sup>th</sup> Street row-houses. Their renovations were minimal and the houses maintained much of the original architectural details. The carriage house behind 12 W. Eighth Street was purchased by French and renovated by architect Francke Huntington Bosworth Jr. in 1912.

During the period in which Whitney was acquiring the properties on Eighth Street, American artists were struggling to gain recognition and appreciation within artistic institutions in the United States. There was very little appreciation for “homegrown” artistry, as many of the American Art institutions focused on more academic traditions, and looked to

the European standard to evaluate the aesthetics and significance of American art. Amidst the faulting reception of American contemporary art and the encroachment of European dissents of modernism, Whitney began collecting and patronizing artists “outside the academic fold” who found it nearly impossible to exhibit their work.<sup>9</sup> Exhibition curator Lloyd

Goodrich sums up:

*The big national exhibitions of American art, controlled by academic juries, rejected the new and independent, and awarded prizes to their own kind. Few dealers would take chances on unknowns. Museums were concerned with the past, or in the present only with the safely conservative. There was no museum of the national art, as in most European countries.*<sup>10</sup>

There was a shift occurring within the art community that inspired artists, as well as patrons with the means, to establish spaces for new, innovative thinking in artistic representation. This led to the emergence of the Realist Movement, a group led by ex-Philadelphian students of the Pennsylvania Academy of Fine Arts, Robert Henri, George Luks, William Glackens, John Sloan and Everett Shinn. These painters projected images of contemporary life without academic idealization. The founding men allied themselves with acclaimed, liberal painters Arthur B. Davies, Ernest Lawson and the pioneer modernist Maurice Prendergast, and together the group began to be known as “The Eight.”

Organized and exhibited by artists without the adjudication of museum curators or art dealers, the groundbreaking International Exhibition of Modern Art of 1913 was held in the 69<sup>th</sup> Regiment Armory at Lexington Avenue and 25<sup>th</sup> Street, New York (later to be referred to as the 1913 Armory Show). This show was the first large-scale introduction of

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9 Lloyd Goodrich and Jennifer Russell. *The Whitney Studio Club and American Art, 1900-1932*. [Exhibition Catalogue] New York: Whitney Museum of Art, May 23-September 3, 1975, 1.

10 Idem.





**Figure 2.6. The Whitney Studio by Peggy Bacon, 1920s (Friedman, 1978).**

modern art to the American general public.

Whitney, having already established her sculpture studio on MacDougal Alley in Greenwich Village just six years earlier, was within the center of the artistic revolution. In 1914, she converted the adjoining house at 8 W. Eighth Street into what she called the “Whitney Studio,” where she hosted regular exhibitions of progressive and young artists. Throughout the conversion process, her assistant and close friend, Juliana Force was involved in the planning, acquisition and sponsorship of Whitney’s art activities (though Force was her married name, it suited her well, as she was historically known as a “force to be reckoned with,”- a very opinionated, intelligent art enthusiast and activist). In 1915, Whitney developed “Friends of the Young Artists”, an organization that held shows in the Whitney Studio. As was customary, these exhibits were originally established with a jury and prizes, but in

1917 this policy was changed in favor of a “no jury, no prizes” principle. Whitney stated: “There will be no jury of awards. There will be no prizes. But the money which has been offered as prizes will be spent...in purchasing works of art.”<sup>11</sup>

From this organization sprouted the “Whitney Studio Club” in 1918. Juliana Force was the appointed director of the clubhouse, located at 147 W. Fourteenth Street. Members of the club included Hopper, Du Bois, Sheeler, Coleman, Sloan, Tucker, Glackens, Dasburg, Davis, Lawson, Stella, Bluemner, Miller, Schnakenberg, Marsh, Curry, Katherine Schmidt, Fiene, Mattson, Nakian, Flannagan and Carl Walters.<sup>12</sup> The club held annual exhibitions of member’s works in the early 1920s. Growing larger over time, the Club outgrew its Fourteenth Street headquarters and moved to the larger galleries next to the Whitney Studio on Eighth Street in 1923. By 1924, these exhibits began travelling to museums in other cities. The main purpose of this group was to advocate Americans to purchase works by contemporary artists, taking no commission charges for any works sold within the galleries. Mrs. Whitney also subsidized the leading progressive art magazine *The Arts* from 1923 to 1931, under the lively editorship of Forbes Watson.

By 1930, membership in the Whitney Studio Club rose to several hundreds of artists with a waiting list of many more. The rise in membership also coincided with a greater recognition of American contemporary artists by dealers and museum curatorship. Although the Museum of Modern Art (1929) and the Philips Memorial Gallery in Washington DC (1921) focused on modern art, their scope was primarily international. Whitney saw the

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11 Whitney, as quoted in Goodrich & Russell, 4.

12 Goodrich & Russell, 4.



**Figure 2.7. Facade of the Whitney Museum of American Art, c. 1931  
(Archives of the Whitney Museum of American Art).**

need for an institution devoted primarily to American modern art, and announced in 1930 that she would open her own museum: the Whitney Museum of American Art. Juliana Force was appointed the museum's first director, and the exterior of the Eighth Street building was remodeled under a unified façade by Noel and Miller, (Fig. 2.6) with the interior galleries designed by Bruce Butterfield.<sup>13</sup> (Fig. 2.7) In stark contrast to the cold impersonality of contemporary museum institutions, the Whitney Museum offered a far more intimate and warm approach. During her years spent on Eighth Street, Whitney, with the help of Juliana Force, acquired a collection of more than six hundred works.<sup>14</sup> Her collection included over 500

13 Press release written by Douglas Ellman to T. Holmes re: sale of 10 W. 8th Street. (3/3/1953). Archives of the Whitney Museum of Art [Accessed 27 February 2009].

14 Press release written by Douglas Ellman to T. Holmes re: sale of 10 W. 8th Street. (3/3/1953). Archives of



**Figure 2.8. Entrance foyer to the Whitney Museum of American Art, c. 1931  
(Archives of the Whitney Museum of American Art).**

twentieth century American art objects, as well as a collection of historic American art dating to folk and native origins. On November 8, 1931, the Whitney Museum of Art opened its doors to the public. The opening exhibition was curated by Herman More of the Woodstock artist colony and featured work by Gifford Beal, Robert Henri, John Sloan, Thomas Eakins, Walt Kuhn, Childe Hassam, Maurice Prendergast, Peggy Bacon, Alexander Brook, Joseph Stella, Isamu Noguchi, and among others, Robert Chanler.<sup>15</sup>

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the Whitney Museum of Art [Accessed 27 February 2009].

15 "Whitney Museum will open Nov. 15," *New York Times* (24 March 1930), 43.





**Figure 2.9. Gertrude working in her sculpture studio, c. 1930s  
(Archives of the New York Studio School).**

At the opening of the Whitney Museum of American Art, Whitney's granddaughter Flora Biddle remembered touring the facility and happening upon her grandmother's new sculpture studio, which was now connected to the original 1907 studio:

*Gammo's [Gertrude's] own studio adjoining the Museum impressed me; its immense ropes and tackles, the rich, ily[sic] smells of plasticine, paint and turpentine, the tall stands holding shrouded clay forms, a handsome model to one side of a raised platform, and to the other, a studio assistant preparing a spiky metal armature.<sup>16</sup>*

While acquiring the buildings along Eighth Street and MacDougal Alley, Gertrude

<sup>16</sup> Flora Miller Biddle, *The Whitney Women and the Museum they Made*. New York: Arcade Publishing, 1999, 72.



**Figure 2.10. Fireplace in Whitney Studio, unknown date (Archives of the New York Studio School).**

had developed a bigger sculpture studio space west of the original 1907 studio. (Fig. 2.7) Deciding to renovate the existing studio at 19 MacDougal Alley into a private sanctuary, Whitney commissioned close friend and muralist Robert Winthrop Chanler to decorate the interior. Work on the Whitney Studio began in 1918, and Chanler worked on the space while Whitney was away with her daughters in White Sulphur Springs.<sup>17</sup> Chanler was acclimated to Whitney's tastes, as he had been commissioned to develop interiors for her

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<sup>17</sup> B.H. Friedman, *Gertrude Vanderbilt Whitney : a biography*. Garden City, New York: Doubleday, 1978, 397.

Westbury mansion and private studio. Likewise, Whitney was an avid collector of his decorative screens. Historian and biographer of Gertrude V. Whitney, B.H. Friedman, writes that “While Gertrude is away, Robert Chanler works in her MacDougal Alley studio, decorating it in a style as exotic as and even more unifiedly personal than that of the rooms done by him in Westbury.”<sup>18</sup> For the room, he created seven stained glass windows, filled with Boschian scenes of hybrid animals and plants. The space also featured a large screen entitled *Astrological*, with *Deep Sea Fantasy* on the corresponding side, which depicted submarine flora and fauna amidst various octopi and iridescent reds, yellows and greens. While Whitney was accustomed to these tropes from her Chanler-commissioned “undersea” themed bathroom in Westbury,<sup>19</sup> the innovative, provocative center of focus for the room was the sculpted fireplace and chimney which resembled a giant blaze across the vertical stretch of the wall.

Friedman describes the feature’s original appearance as:

*A huge fire, in molded plaster, painted mostly bright red and gold, blazes from the floor, twenty feet up the chimney, and across the ceiling where sculptural forms flatten into low relief. Half hidden among the flames are nymphs, birds, fish, reptiles, dragons, gargoyles, a fantastic world of real and imagined animals.*<sup>20</sup>

Photographic evidence confirms that Whitney hung a heavy set of velvet drapes along what is now referred to as the mezzanine of the studio, which was possibly red.<sup>21</sup> All together, the room would have been a sumptuous space, with rich materials, colors and forms permeating throughout.

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18 Ibid, 397.

19 Attempts to contact the current residents of the Vanderbilt Westbury mansion were unsuccessful, and it has not been verified whether or not this room is still extant. No known photographs exist.

20 Friedman, 397.

21 Photograph of the Whitney Studio, 1928. Archives of American Art, Smithsonian Institution. Red color notes in 1107 Design. *New York Studio School: Master Plan Documentation*. New York: School of the Visual Arts, March 2006, 11. The red color could not be verified in this research.

While there is little archival evidence documenting the Chanler commission for the decoration of the Whitney Studio, scattered receipts and correspondence provide clues as to the working relationship between “patronne” and artist. In correspondence, Chanler is described on his letterhead as “Interior Decorator and Designer in Stained Glass,” operating out of 147 East 19th Street, New York. One receipt dating to August 13, 1923, docketed expenses for Robert Winthrop Chanler in the months of July and August of 1923:

**Table 2.1. Receipt of work done by R.W. Chanler on the Whitney Studio, August 13, 1923. WMA Archives.**

<b>Work</b>	<b>Labor</b>	<b>Expense</b>	<b>Cost</b>
Week ending 7/27/23	678.37	6.04	684.41
Week ending 8/2/23	759.38	6.25	765.63
Week ending 8/9/1923	759.38	10.00	769.38
Materials Used			242.41
<b>TOTAL COST:</b>			<b>\$2,416.83</b>

This receipt marks only three weeks of out the total five years that Chanler had worked on the interior. The total estimable cost of the commission could have amounted to an amount well over \$100,000, though it must be noted that Chanler was not working exclusively on the ceiling from 1918 to 1923. Work on the Whitney Studio began with full force in 1918, but it seems that as years passed, Chanler had acquired various other commissions and worked on the studio intermittently. This may have been a result of increased workload, or it may have been due to the fact that Whitney was not physically present to observe and guide the work. Whitney was in Paris at the start of the interior’s installation, and in Fort Worth, Texas working on her Buffalo Bill Cody memorial sculpture shortly afterward. Chanler writes to her in 1919, “Dear Patronne, I am the in the studio here and there. I am working at ideas. When you are ready share [sic] let me have a moment’s consultation. It is good to wait and

be patient.”<sup>22</sup> Whitney’s contribution was very important to Chanler’s process of generating ideas for the interior, and the decoration reflected both Chanler’s and Whitney’s vision for the space.

The ceiling was a valued piece of art within the Whitney collection. Insurance records of Dunn & Fowler dating from January 28, 1931 indicate that the entire building was covered for \$44,000, with \$3,000 worth of coverage for the ceiling and fireplace and another \$3,000 for the seven windows designed by Chanler at 8 W. Eighth Street.<sup>23</sup> The coverage allotted for the entire room in 1931 was roughly equivalent to a modern-day value of \$85,000.00.<sup>24</sup> Whitney valued this space artistically, personally and monetarily. This room was separated from the rest of the very public building complex; it was a private, inner sanctuary for her. Although she displayed many of her valuable art purchases just feet away from this room, only a very limited group of people ever had the opportunity to see the room and Chanler’s work within it during her lifetime.

### 2.1.3 1945-1964: Post-Whitney, National Recreation and Parks Association Occupancy

Upon Whitney’s death on April 18, 1942, her daughter Flora Miller succeeded her as president of the board and there was a discussion among the museum’s board of merging the collection with the Metropolitan Museum of Art. After a retrospective exhibition of Whitney’s sculpture closed in mid-March of 1943, discussions regarding the future of the

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22 Gertrude Vanderbilt Whitney Papers, Archives of American Art, Smithsonian Institution. [Microfilm Reel 2361],

23 Dunn & Fowler to T.J. Regan, 247 Park Avenue. *Insurance Policy #B2310419*, 28 January 1931. Archives of the Whitney Museum of Art [Accessed 27 February 2009].

24 Calculated through *Measuring Worth* [Website] <http://www.measuringworth.com/index.html> [Accessed 18 April 2010].

Whitney Museum of American Art began. Following the death of the museum's director, Juliana Force, in 1948, the decision was made to permanently vacate the property on Eighth Street and relocate to recently purchased land uptown. Reporter John I.H. Baur wrote in the

*New York Times*:

*The old Whitney was, in its way, the perfect expression of the Museum's character during its first quarter century...it retained much of the warmth and informality of a home. Many of the galleries were small and peculiar in shape, circulation was far from*



**Figure 2.11. Front entrance to the New York Studio School, c. 1980 (Archives of the New York Studio School).**

*perfect, there were endless stairs, and, for the staff, the plan was a nightmare of inefficiency. But the general effect was one of mingled elegance and intimacy; the setting was not unimpressive, yet public and the painter felt at home...*<sup>25</sup>

The Whitney Museum would remain at 8 W. Eighth Street until 1954, until the decision was made to leave the property. At that time, the museum relocated to 20-24 W. 54<sup>th</sup> Street, but pressures began amounting as the institution continued growing. In 1963, Marcel Breuer and Hamilton Smith, with consulting architect Michael Irving, designed the most recent Whitney Museum at 945 Madison Avenue at 75<sup>th</sup> Street. According to the Whitney Museum of American Art records, the original 600 works in the permanent collection grew to about 1,300 by 1954 when the second Museum building opened, and to approximately 2,000 with the opening of the Breuer building in 1966. Currently, the permanent collection of the Whitney Museum of American Art contains approximately 18,000 paintings, sculptures, prints, drawings, and photographs, representing more than 2,600 artists.<sup>26</sup>

From 1954 to 1967, the National Recreation and Parks Association (NRPA) operated the entire Eighth Street building complex. No major work to the buildings was done at this time, existing spaces were adapted to new uses, and finishes were replaced as needed. The Whitney Studio had been leased to photographer Herbert Matter beginning shortly after the NRPA gained ownership of the building. His wife and founder of the New York Studio School, Mercedes Matter, recalled that upon the start of Matter's lease, the stained glass windows had been removed and the room had been painted off-white.<sup>27</sup>

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25 Baur quoted in 1107 Design. *New York Studio School: Master Plan Documentation*. New York: School of the Visual Arts, March 2006, 7.

26 Whitney Museum of American Art. *Permanent Collection*. [Website] <http://www.whitney.org/About/History> [Accessed 15 March 2010].

27 Files of B. D. Pickering, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June



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#### 2.1.4 1967-Present: New York Studio School of Drawing, Painting & Sculpture

The New York Studio School was founded in 1964 by Mercedes Matter and a group of disgruntled Pratt art students, as an alternative to conventional art school training. Facing eviction from its loft location at 646 Broadway, the group sought to find new space for its young institution. Matter, who was familiar with the Whitney complex because of her husband's studio, discovered that the Parks Association was leaving the building complex. Matter rallied to raise funds to purchase the building for \$750,000 from NRPA in November 1967, thus saving the building from demolition. From 1968 to the present, the building complex has served as the home of the New York Studio School of Drawing, Painting and Sculpture. The School has been described as

*...a unique institution which embodies an attitude of seriousness, dedication and commitment to the rigors of becoming an artist. The School has developed a studio and tutorial system predicated on total dedication to painting, sculpture and drawing without regard to commercial applications or the peripherals of a liberal arts curriculum. This intense focus develops each student's personal vision with a thorough examination of his or her perception.*<sup>28</sup>

The earliest known renovation of the Whitney Studio was conducted by Gene Baldwin in the early 1980s. During this time, the exterior was sandblasted, plasterboard finishing walls were installed at the basement level, the cellar was renovated and a bathroom was added to the ground level. Most importantly, it was noted that "Gilded gesso panels" and a "mural airbrushed in iridescent red and green geometric patterns" reported to be present prior to

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2009]. Following the photographer's lease of the space, Cynthia Owen rented the room from 1980 to 1982. Li/Saltzman Architects & Wesley Haynes Historic Preservation. Historic Structure Report: New York Studio School of Drawing, Painting & Sculpture. [3 vol.] New York: Li/Saltzman Architects, February 2003, V.II, 12.

28 *Proposal Summary*. Application for the Brown Foundation Inc., December 12, 2001. Currently housed in the files of B. D. Pickering, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June 2009].





**Figure 2.12. Brice Bowman (SuperStructures) measuring cracks in plaster, 2001 (Archives of the New York Studio School).**

the renovation were covered and removed at that time.<sup>29</sup>

Within the past twenty years, the Whitney Studio has been the focus of multiple renovation projects within the New York Studio School. Efforts have been made to alleviate problems with leaking from the roof and skylights as well as pointing of exterior masonry walls and parapets. In 1990-91, the skylight of the Whitney Studio was replaced at the cost of \$72,000.<sup>30</sup> In 1992, a project to point the brickwork, replace drains and gutters, and redo the roof of the staircase leading to the Whitney Studio was completed at a cost of \$154,000 and paid for with a trustee match of \$77,000 for an EQBA grant. In 1996-97

<sup>29</sup> 1107 Design. *New York Studio School: Master Plan Documentation*. New York: School of the Visual Arts, March 2006, 8.

<sup>30</sup> Paid for by trustee donations matching a larger Environmental Quality Bond Act (EQBA) grant.

the balcony of the Whitney Studio was rehabilitated and stabilized at a cost of \$10,000 and was paid for by a trustee. In 2001, the roof, parapets and exterior walls of the Whitney Studio were reconstructed for long-term preventive and stabilization purposes at a cost of \$73,000. A grant from the New York Landmarks Conservancy for \$20,000 and a grant from the National Parks Service for \$15,000 were matched by the trustees with a donation of \$38,000. The drawdown of the \$20,000 from the Landmarks Conservancy was approved upon the successful completion of the work and was paid in November 2001. SuperStructures was the firm primarily responsible for the 2001 investigation during which time they also began to evaluate existing cracks that had appeared along the curved cornice along the interior of the Whitney Studio.



**Figure 2.13. Following the cornice failure (L. Vollono, 2009).**

Because the New York Studio School currently faces its options for the renovation of the entire Eighth Street property, the Whitney Studio has become an increasingly important space to consider with any future changes. Two proposals have been submitted to the school. The first submission was a Master Plan in 2003 created by D+R / Diane Lewis + James Rossant Architects, and it was meant to address educational, public and real estate issues of the institution.<sup>31</sup> The report evaluated the institution as it currently operates and made, what is considered by some to be very drastic proposals to the existing historic fabric of the complex. Along with the removal of many rooms and corridors, the plan proposes the addition of a third floor across the entirety of the MacDougal Alley stables, adding another level above the Whitney Studio. The second proposal was submitted in 2006, as part of a design graduate course offered through the School of Visual Arts in New York. The students' report made greater use of historical research to inform proposed changes, which intended to bring the structure up to code with New York Regents compliance and to upgrade facilities, while at the same time proposing full restoration of the Whitney Studio as a space to celebrate the history of the building complex within the modern school.

In March, 2008, a two foot-square corner of the curved cornice on the south wall collapsed. The school shutdown its longtime public tours of Whitney's workspace and has since taken measures to care for the ceiling in order to prevent any further damage.<sup>32</sup> Kaitsen Woo Architects were consulted the following summer on the structural integrity of the ceiling. Wesley Haynes, a preservation specialist with the firm, told *New York Times* writer Eve

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31 D+R/ Diane Lewis & James Rossant Architects. *The Future of the New York Studio School Site: A Master Plan*. New York: Diane Lewis & James Rossant Architects, March 12, 2003.

32 Eve Kahn, "Rescuing a Landmark From Time and the Elements," *NY Times* (20 November 2008).



**Figure 2.14. Portrait of Gertrude Vanderbilt Whitney, by Robert Henri, 1916. Whitney's haute-bohemian attire suggests that this was painted in her downtown studio (Whitney Museum of American Art).**

Kahn, "The entire armature holding up the ceiling is rusted...We didn't see anything that suggested catastrophic failure, but it's just a matter of time."<sup>33</sup> World Monuments Fund and Integrated Conservation Resources immediately began collaborating to stabilize the structure, and the University of Pennsylvania's Architectural Conservation Laboratory became involved to further develop conservation strategies for the studio and plaster ceiling.

## **2.2 The Patron**

Gertrude Vanderbilt Whitney was a commanding woman, who used her wealth and influence to alter America art enthusiasts' perception of home-bred artistic worth. She supported a generation of American sculptors and painters in financial need by breaking

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33      Idem.

gender and class barriers in the expression of her artistic endeavors, both creatively and institutionally. In 1875, Gertrude was born the eldest daughter of the richest family in the United States. As historian B.H. Friedman writes, “That meant being born to hereditary celebrity at a time when “society” (established wealth, not necessarily long established) produced most of America’s stars and superstars, a time when not even the great personalities of theater and opera and literature appeared in newspapers and magazines as frequently as the often overlapping categories of business leaders and inventors.”<sup>34</sup> Raised in the public’s eye, she was educated at the Beardsley School, and married Harry Payne Whitney at the age of 21.

Following her trips to Montmarte and Montparnasse, France in the early 1900s,



**Figure 2.15. Whitney’s bedroom in her Westbury estate, by Robert Winthrop Chanler c. 1910s (Narodny, 1922).**

34 Friedman, 1.

Whitney enveloped herself in the burgeoning art communities of Paris and New York. She invested in becoming a sculptor at the Art Students League in New York and trained with Auguste Rodin in Paris. During her time abroad, Whitney first met Robert Winthrop Chanler.

She writes of the experience in her diary entry on April 2, 1906:

*...how fine he is in his way. Put aside the fact of his being a fraud and a flirt, and he is inspiring. To hear him talk about art, to hear his ideas, to see the great truths coming from him is worthwhile...he says live-live-get all you can out of life and he wishes the best of all things...I am sure that he is a genius and to know such a man and to hear him talk freely and truly about himself that is an experience, and one worth having- I can always keep him where I want him too, because 1<sup>st</sup> he is not really carried away and 2<sup>nd</sup> because he does not affect me. ..Store away what you can. Take the reassures and make them part of yourself. He is a real person, he is a natural human being, study, probe, squeeze if possible...I could talk to him with my soul laid bare, because being a natural person, he brings out the natural in others.<sup>35</sup>*

This meeting sparked a life-long friendship between the two artists, who undoubtedly shared their experiences as aristocratic Bohemians. Upon her arrival back in the States, Whitney and Chanler worked together on the interior decoration of the Colony Club, “a very exclusive ‘social, artistic, mental and physical’ club for women, founded in 1903 by J. Pierpont Morgan’s daughter Anne, Mrs. J. Borden Harriman...”.<sup>36</sup> Whitney also commissioned Chanler to decorate her Westbury mansion, turning her bedroom into a black and white “medieval court and battle scene” (Fig 2.15) and her bathroom with a sunken marble tub into the “Jules Verne nacreous grotto full of fish and marine life.”<sup>37</sup>

As a patron, Whitney supported an entire generation of American artists as they sought recognition by contemporary society. On one occasion, she purchased four, of seven paintings sold at the 1908 Macbeth Gallery exhibition of “The Eight” realist painters. John

35 Ibid, 233.

36 Ibid, 239.

37 Ibid, 307.





Figure 2.16. Whitney sculpting in her studio, 1920s (Friedman, 1978).

Sloan remarked of her purchase as “almost as revolutionary as painting them.”<sup>38</sup> Whitney valued being an artist, as she believed one had “the sublime joy of giving themselves to the world...it is in the expressing that the real joy exists and not so much in the method.”<sup>39</sup> While she led a very public life as patron and socialite, she confided her true self in the clay she modeled. In 1908, while she was fervently working, she wrote:

*I love my work because it has made me happy and given me confidence in myself, and because it stretches into the future offering me always happiness. It is not dependent on humanity, it is something that I have made for myself and that I possess and cannot*

38 Harris, 176.

39 Whitney quoted from *Travels in Foreign Countries and in the Mind* in Biddle, 40.

*lose for it is a part of myself.*<sup>40</sup>

Ultimately, art was an expression that liberated her psyche, allowing her to live outside the constraints of society and express herself through both her own work and her patronship. In

one of her journal entries, Whitney eloquently paints a picture of her psychological state:

*If one has been surrounded all one's life by a great high fence...then when...one is liberated from prison one's wings are so inconceivably weak that though one longs to fly one has abrupt falls which are painful...My wings have neither grown nor have they spread...What do the Latin races know of the inexpressible agony of the "shut-in feeling." The perverted self-consciousness of "reserve," the long, drawn out sorrow of the "unutterable?"...I would rather die than show my real feelings once deeply touched, while they share with the world that which makes them so human and understanding...<sup>41</sup>*

Whitney spent much of her life unable to access her deepest emotions, much as a result of the restrictions of her social stature. Her own artistic work, as well as her vast collection of art, reflect her desire to immerse herself with materials that would allow expression for her subconscious "reserve." Chanler, as a close friend and frequent benefactor of Whitney's patronage, created the Whitney Studio as an important private space in Whitney's life. It is, in a sense, a sanctuary for her soul.

Whitney had long been a long-time patron of Chanler's work. Aside from the commissions in her Westbury estate, the Eighth Street Studio, Whitney purchased many of Chanler's decorative screens throughout her life. A receipt from May 8, 1929 marks her purchase of Chanler's "Dance of Life" for \$10,000 from Park Avenue Galleries.<sup>42</sup>

40 Ibid, 38.

41 Ibid, 41.

42 Receipt from Park Avenue Galleries (277 Park Avenue, NY). to Mrs. Harry Payne Whitney (871 Fifth Avenue). Sale No. 1399. Archives of the Whitney Museum of Art [Accessed 27 February 2009].

### 2.3 The Artist



**Figure 2.17. Robert W. Chanler mimicking artiste, ca. 1898 (L. Thomas, 1999)**

Robert Winthrop Chanler was born on February 22, 1872, as the grand nephew of the great Jacob Astor and descendant of a long-line of influential politicians and businessmen in New York. Chanler and his seven siblings were very influential members of society, associated with Stanford White, Theodore Roosevelt, and many other famous Americans of time. Chanler was descended from a long line of prominent families in America, including the Livingstons, Astors and Stuyvesants. His parents, Margaret Livingston Chanler and thirty-five year old John Winthrop Chanler married in 1862. The family had a mansion in Dutchess County, Rokeby, which overlooked the Hudson River across the river from Woodstock. Over the next thirteen years, Margaret would bear eleven children, of which Robert was the seventh. In 1875, Margaret died from pneumonia, with

John dying shortly thereafter of the same cause, leaving their children orphaned with an extensive family inheritance. Eight of the children would survive into adulthood, and the family was termed the “The Astor Orphans,” as used in the book by Lately Thomas. As a child, Robert drew extensively and the natural features and animals of the region inspired much of his early interest in art.

Chanler began his formal artistic training in 1889, under painter “Jack” John Elliot in Rome. Elliot wrote that Chanler was too “influenced by the last person who has made some plausible remark to him. He is like a compass and people act on him like magnets, but when he is left alone he points in the right direction.”<sup>43</sup> During this time, he also studied with Jose Villegas. In 1891, he set up a large studio on the Piazza d’Espagna in Rome, most likely by the influence of Chanler’s sister-in-law’s father, the artist Luther Terry, who owned a studio nearby.<sup>44</sup> In the following decade, Chanler would travel between Rome and Paris to study with established painters. First, he studied sculpture with Mariano Benlliure y Gil in Rome, and then Alexandre Falguière in Paris. Chanler’s focus turned to painting at the Académie Julien and the Académie Colarossi and privately with the academic painter Jean Léon Gérôme.<sup>45</sup> Chanler developed his own artistic style and began to earn his own reputation as a decorative artist. He painted large wall panels and elaborate screens for wealthy friends and relatives, and his work molded together the traditions of “Oriental art”, the Old Masters and Art Nouveau.

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43 Lately Thomas, *The Astor Orphans: A Pride of Lions*. Albany, New York: Washington Park Press, 1999, 72.

44 Tom Wolf, *Woodstock Art Heritage: The Permanent Collection of the Woodstock Artists Association*. Woodstock, New York: Overlook Press, 1987, 70. It is noted that Chanler employed two servants while he held his studio on the Pizza d’Espagna.

45 Idem.



**Figure 2.18. Entrance to the International Exhibition in Chicago, featuring screens by Robert Chanler and sculptures by Henri Matisse, Aristide Maillol, and Joseph Bernard, 1913 (Martinez, 1993).**

The greatest recognition Chanler received was at the New York Armory Show in 1913. The controversial and critically acclaimed work of the show was Chanler's Parody of the Fauve Painters who Exhibited in the Armory Show, which depicted five blindly adoring aesthetes paying homage to a seated monkey, meant to mimic the painter Henri Matisse. In the work, copies of Matisse paintings litter the ground, including *Le Luxe II* and *The Blue Nude* (1907), along with a detail from Gauguin's *Faa Iheihe* (1898), all of which were displayed at the Armory Show. Ridiculing what he deemed to be the primitive qualities of modern art, Chanler turned to the satirical device of painter-as-ape, just as Goya and Chardin had done before him.<sup>46</sup> The painting is a satirical gesture that exhibits Chanler's views on the direction of the modern art movement, poking fun at the critical fascination with European modernism.<sup>47</sup>

<sup>46</sup> Wolf, 70.

<sup>47</sup> Vassar College Art Gallery, *Woodstock, An American Art Colony: 1902-1977*. Poughkeepsie, New York: Vassar

While Matisse meant to rediscover the beauty of nature through spontaneity and the free-play of instinct, Chanler based his art on the force of the object itself, meaning to enhance the form of the original, without replacing it through abstraction. After gaining popularity in New York, the exhibition moved to Chicago. Eight screens created by Chanler were used to decorate the entrance to the show in Chicago.<sup>48</sup> At the opening reception, Chanler appeared “as occupied as a cicerone” amidst ongoing arguments over the meaning of modern art.<sup>49</sup>

While Chanler was critically acclaimed in these instances, much of his artistic career was overshadowed by his public persona as a playboy. Having divorced his first wife, he entered into a celebrated marriage with the opera singer, Lina Cavalieri, who was famous for her stunning beauty and dramatic personality. The union was short, and erupted into a stormy divorce. His residence on E. 19th Street was named the House of Fantasy, and was decorated with his screens and murals, and featured his famous “Gargantuan oaken bed.”<sup>50</sup> According to the painter George Biddle, it was “here [House of Fantasy] one met much of the youthful eagerness, the post-bellum intellectual sexual emancipation, the esthetic curiosity, the Bohemianism and the promiscuity of the period.”<sup>51</sup>

While Chanler’s artistic style certainly coined him as a unique innovator in the early twentieth century, he retrospectively belongs to a group of artists who worked within the genre of *Modernist Fantasy*. As the revolution of modernism transformed the language of

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College Art Gallery [Exhibition Catalogue] January 23-March 4, 1977.

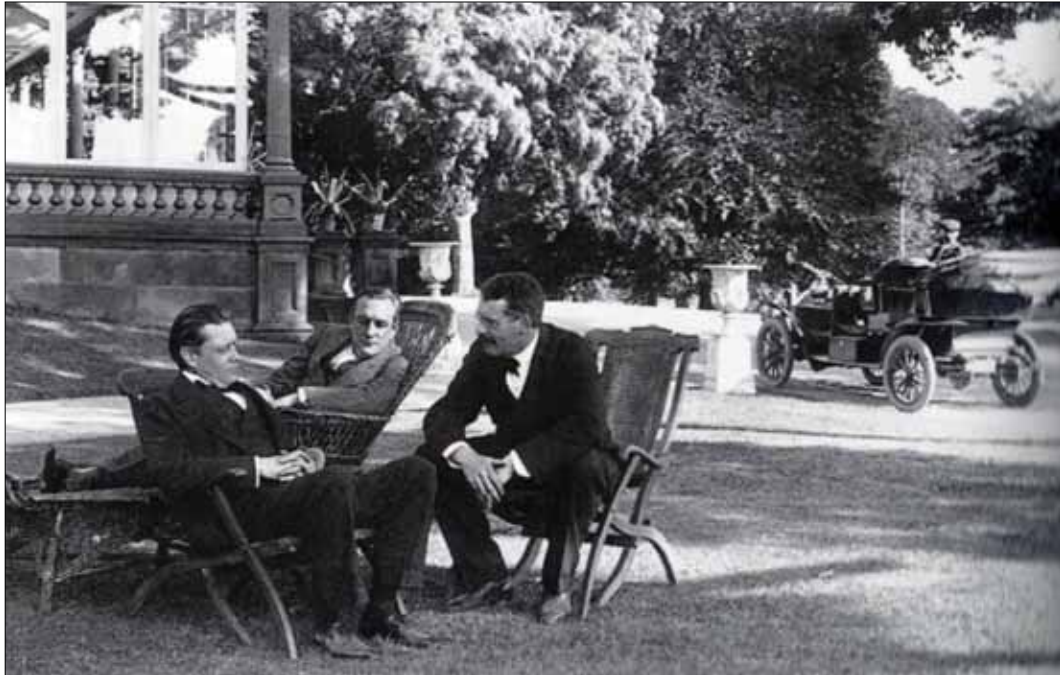
48 Milton Brown, *Story of the Armory Show*. New York: Joseph H. Hirshhorn Foundation, 1963, 171.

49 Idem.

50 Guy Pene du Bois Quoted in Wolf, 71. Chanler’s later life is described in Donald Thompson’s “A New York Saga,” *Sunday World Magazine*, 28 December 1930, 2.

51 George Biddle quoted in Wolf, 71. George Biddle’s reminiscence is originally from his *American Artist’s Story*. Boston, 1939, 204-206.



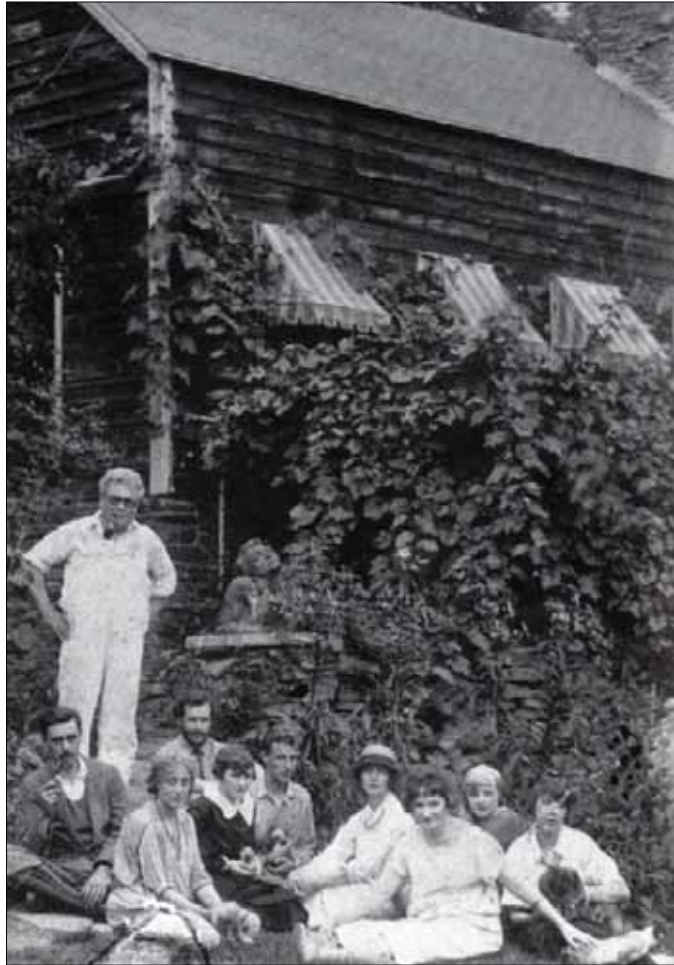


**Figure 2.19. “Sheriff Bob,” (right) on the west lawn of Rokeby discussing politics with his brothers, Willie (middle) and Lewis (left), 1908 (L. Thomas, 1999).**

art, these artists began to move away from naturalistic limitations. Largely motivated by discoveries in psychology and the exploration of the subconscious mind, objective actualities of the external world were translated into the subjective fantasies of the inner world of the mind.<sup>52</sup> Although this movement is closely linked to the formation of Surrealism in 1924 Paris, Chanler was exploring these themes in his work as early as the first decade of the twentieth century. There was no formulized movement of artists working within this genre, but other individual artists working with fantasy were Louis Eilshemius, Edwin Dickinson, Ivan Albright and Peter Blume.

Baird “Kiki” Randolph, child of Chanler’s protégé and mistress Clemence Randolph, wrote this poetic depiction of the artist’s generosity and support of fellow artists:  
*Bob’s encouragement and support of striving young artists he felt talented was well*

52 Goodrich & Russell, 16.



**Figure 2.20. Chanler (standing left) with members of the Woodstock Artists Association, c. 1925 (L. Thomas, 1999).**

*known. However, there was one requirement he insisted upon...the artist had to WORK, WORK, WORK. An absence of this requirement resulted in an absence from his circle. Those attending his gala parties in Woodstock told me of, "the hat." The parties were held on three levels of terraces but upon entering the downstairs door of the residence, one noticed a man's white brimmed hat, upside down at the center of a long table. The hat was filled with five dollar bills. With no questions asked and no loans intended, artists having a difficult time were free to reach in and secure needed assistance from the high spirited and ever encouraging Bob Chanler. His purpose, to enable the artist to 'keep working'.<sup>53</sup>*

Chanler belonged to the Whitney Studio Club, with the likes of "...The Eight, the younger

<sup>53</sup> Baird "Kiki" Randolph, "The Hat." [Typed Description] Archives of Woodstock Artists Association [Accessed 09 June 2009].



**Figure 2.21. Self-portrait, Robert W. Chanler, 1927 (Woodstock Art Association Archives).**

Realists, such sculptors as Jo Davidson, James Earle Fraser, Charles C. Rumsey, and Mahonri Young,” where his fantasist work attracted attention for their exotic birds, seductively shimmering plants and iridescent colors.

After serving as sheriff of Dutchess County earlier in his life, “Sheriff Bob” Chanler returned to upstate New York as a member of Hervey White’s Woodstock artist colony in the early 1920s. Hervey White, founder of the Woodstock Maverick artist commune, wrote of Chanler, “He could correlate his subjects in any period, the politics, sociology and art.

He could illustrate with the customs of the populace, he could give incidents for illustration of his points, then break off with a personal explanation of his conduct. He was a man of great emotion and great mind.”<sup>54</sup> Within the Woodstock community, Chanler, along with the sculptor Hunt Diedrich were powerful personalities that encouraged interest in the decorative arts among the younger artists they helped teach. Towards the later part of his life, he owned a house in Woodstock where he exhibited his work in local exhibitions.<sup>55</sup>

After 1923, Chanler no longer produced elaborately decorative screens and instead focused on portraiture.<sup>56</sup> His portraits were noted for their quick, impressionistic likenesses to their subjects, and this often resulted in “less-than-happy” sitters. Financial bankers and close friends alike were shown as the artist saw them, sometimes being depicted as “wolves, with dripping jaws” or “hideously bloated serpents.”<sup>57</sup> One sitter, Carl Van Vechten recalled the experience of being painted by Chanler:

*To be painted by Robert Chanler is a career and a social experience, almost an education...on the model stand, as big as a small stage, from a myriad of stuffs you choose you own background, you seat yourself in the flare of brilliant artificial lighting. An oval mirror is skillfully arranged so that you may watch Bob fill his vacant canvas. The ice in the cocktail pitcher continues to tinkle. Silver and magenta fish play on the gold screen behind Taylor Gordon while he moans the St. Louis Blues; Yorkshire terriers fight in one corner of the studio; in another, a poet composes verses on the top rung of a meaningless ladder; in the centre of the floor a flamboyant female is making Shanghai gestures. All the time Bob is painting, painting like hell!! He slings paint against the canvas, hurls it sadistically until you wonder why it doesn't go clean through, while he carries a running commentary explanatory of his method: “Work like hell. Never know anything. Bad painters know. Try this blue for shadow on the nose: may come out right.*

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54 Hervey White, Autobiography, Woodstock Library. Quoted from “Robert Winthrop Chanler,” Ghosts of Woodstock [Website] <http://www.woodstocknation.org/chanler.htm> [Accessed 2/2/2009].

55 Wolf, 23.

56 Wolf, 71. One of his most famous portraits is of Georges Barrere (1926), a renowned flutist known to play regularly at the Maverick concerts.

57 Thomas, 284.

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*Can't be sure. Rotten! Try red. Try green. Hell!*<sup>58</sup>

Vechten describes a compelling vignette, detailing Chanler's attempts to recreate the setting of a social gathering to portray his friends as he knew them. The group of portraits exhibited at the Valentine's Gallery in the mid-1920s was described as "a party at Bob's house."<sup>59</sup>

"Bob the Sheriff" Chanler, after a life-long passion for indulgences, succumbed to heart failure in 1930.<sup>60</sup> He died at the age of fifty eight- a gargantuan bohemian had left the art community. Chanler was buried among some of New York's most famous residents in the cemetery at Chanler vault in Trinity Cemetery at Wall Street and Broadway.<sup>61</sup>

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58 *Portraits by Robert Chanler*. [Exhibition Catalogue] Valentine Gallery (47 E. 57 St. Feb. 25- Mar. 23). No year listed. Archives of the Whitney Museum of Art [Accessed 27 February 2009].

59 *Idem*.

60 Thomas, 314. Chanler's sister Margaret attributed his death to alcohol addiction.

61 *American Guide Series , New York City Guide: A Comprehensive Guide to the Five Boroughs of the Metropolis Manhattan, Brooklyn, the Bronx, Queens and Richmond, Prepared by the Federal Writers' Project of the Works Progress Administration in NYC*. New York: Committee for Federal Writers' Publications, 1939, 297.

### 3.0 SYMBOLISM & SIGNIFICANCE

Interior spaces at the turn of the 20<sup>th</sup> century held potent value as representations of the psychological inner workings of an individual. In 1880, while studies in hypnotic research revealed that the mind was subject to divided consciousness, French Symbolism began to emerge with an attitude toward the material world that inverted outer and inner reality.<sup>1</sup> The independently wealthy American decorative artist Robert Winthrop Chanler was actively working during this period, creating panels and interior designs for patrons, and fashioning interior environments that drew inspiration from the subconscious. His body of work blended real and imaginary into a dream-like frenzy of color and form, incorporating influences of Oriental, Renaissance and Naturalist art into single compositions. This chapter will attempt to examine the symbolic mechanisms and psychological structuring of interior space in the Chanler's Whitney Studio. Composed of human figures interacting with actual and imagined creatures from land, sky and sea in a background of celestial spheres, the interior was envisioned as a private sanctuary for founder of the Whitney Museum of American Art and American sculptor, Gertrude Vanderbilt Whitney. Created at the apex of Chanler's career, from 1918 to 1923, the room unites his career-long interest in mystic symbolism with the psychology of interior space through an amalgamation of studies on animal physiology, astrological sciences, mythology and science fiction.

The figures depicted on the ceiling are mythical in nature, comprised of fire-breathing dragons, giant squid, mermaids, and land animals engaged in the hunt, all amidst a

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<sup>1</sup> Debora Silverman, *Art Nouveau in Fin-de-Siecle France: Politics, Psychology and Style*. Berkeley: University of California Press, 1989, 76.





**Figure 3.1. Fireplace in Whitney Studio by R. W. Chanler, undated (Archives of the New York Studio School).**

background of celestial orbs, planets, stars, flames and clouds. The two major anchoring points on the ceiling are the fireplace in the south-west corner and the radiating sun on the north-east corner. Both are symbols of concentrated energy, emitting rays and flames across the entire length of the ceiling. While the ceiling and fireplace were originally polychrome, interventions following Gertrude's death in 1945 resulted in the over-painting of white.<sup>2</sup>

<sup>2</sup> These interventions were intended to make the room more appealing to possible renters, one of which included the photographer Herbert Matter in the 1960s-70s. Li/Saltzman Architects & Wesley Haynes Historic Preserva-

Interpretation of historic color schemes in the room will be considered in the later chapter on paint finishes analysis.

Light was originally filtered through a south-facing diagonal skylight and seven Chanler-designed stained glass windows, all of which still exist. They take on a Boschian scheme of fantastic images of impossible creatures, each an amalgam of different animals and colors. The windows are composed of leaded stained glass that has been hand painted with enamels and enhanced by a glass layering technique called plating.<sup>3</sup> Each window's subject deals with a different realm of existence, relating to creatures that inhabit the sea, the ground and underneath it, the sky and the cosmos.



**Figure 3.2. Example of three of the original seven stained glass windows within the studio by R.W. Chanler (Retro Modern Lighting, 2006).**

tion. *Historic Structure Report: New York Studio School of Drawing, Painting & Sculpture*. [3 vol.] New York: Li/Saltzman Architects, February 2003, V.I.

3 Retro Modern Lighting, 28 E. 10<sup>th</sup> Street, New York, NY. [Phone Interview] 13 November 2009.



**Figure 3.3. Photograph taken of Chanler exhibition of screens, with highlighted works commissioned for G. V. Whitney (Left: *Flames*, Right: *Astrological Screen*), 1926 (Box OV51, Robert Chanler Papers, Smithsonian Archives of American Art).**

### 3.1 As Heard From His Peers: Contemporary Reception of Chanler's Work

Due to the limited published resources related to Chanler's artistic endeavors, this chapter will begin with an overview of the seminal criticism of Chanler's work during his lifetime, illustrating the breadth of his career and some of the known influences on his art.

During Chanler's lifetime, two monographs of his artwork were published. The first was an exhibition catalogue by art historian Dr. Christian Brinton which accompanied the Chanler show of panels at the Kingore Gallery in New York City (Fig. 3.3),<sup>4</sup> and the second was a monograph published by the museum of Russian painter and metaphysical theorist, Nicholas Roerich.<sup>5</sup> These men were intricately intertwined, as Brinton wrote the preface to

4 Christian Brinton, *Robert Winthrop Chanler Exhibition*. New York: Kingore Press, 1922.

5 Ivan Narodny, *Art of Chanler*. New York: Roerich Museum Press, 1922.

the Roerich Museum Press book, as well as authoring an exhibition catalogue of Roerich's own paintings.<sup>6</sup> Contextualizing Brinton's whole body of work in his 1999 dissertation for the University of Pennsylvania, Andrew Walker wrote:

*Unlike some of his contemporaries...Brinton did not believe modernism's expressive forms, anti-illusionism, and primitive style signaled an international aesthetic revolution that broke with all past traditions. Rather, he considered both the form and content of modernism to be a major advance in the evolutionary progress of art, and therefore connected to intellectual debates that helped to construct the interrelated ideas of "race" and "nation" during the interwar years. He allied his own critical perspective with the burgeoning efforts of art museum directors in America, and with their full support, organized numerous travelling exhibitions of Nordic, Slavic, and Teutonic modernism.<sup>7</sup>*

Nicholas Roerich certainly figured into these "burgeoning efforts." Chanler's work, as it was perceived by both Brinton and Roerich, delved into the traditions of art making on a primitively human level to expose the power and tradition of symbols.

Despite his description of Chanler as anti-academic, Brinton surveys the artist's extensive training with some of France's and Italy's leading academic instructors at the turn of the century. As described in the previous chapter, Chanler extensively studied sculpture in Rome and Paris, after which he "renounced clay for crayon and colour." The four ensuing years were divided between the Académie Julien, the Académie Carlorossi and the tutelage of arch academician Jean-Leon Gerome. "Digusted" with the instruction of atelier and academy, he traveled back to Rome and studied fresco painting of the Renaissance, which included the work of Benozzo Gozzoli. It was at this moment, Brinton recounts, that Chanler's creative sensibilities were genuinely aroused. He returned to Paris to begin his career afresh,

6 Christian Brinton, *The Nicholas Roerich Exhibition*. New York: Redfield-Kendrick-Odell Company, Inc., 1920.

7 Andrew Walker, *Critic, Curator, Collector: Christian Brinton and the Exhibition of National Modernism in America, 1910-1945*. [Dissertation] Philadelphia: University of Pennsylvania, 1999, Abstract.





Figure 3.4. Giraffes by R.W. Chanler, 1906 (Narodny, 1922).

establishing his studio in the rue Campagne-Premiere and later in the rue Dumont-d'Urville, near the Place de l'Etoile.<sup>8</sup> His initial experiment in panel painting in 1900 was entitled the Peacock Room. Inspired by the mythic descriptions of Whistler's work of the same name, the panels that comprise the interior are marked by shimmering red and gold panels and would eventually be housed in the master bedroom of his E. Nineteenth Street residence, The House of Fantasy. After taking a break from the art world to pursue a career as the Sheriff of

8 Brinton (1922), 16.

Duchess County in upstate New York, Chanler returned to Paris in 1905 to paint *Giraffes*, his most famous screen, which was first seen at the Salon d'Automne. (Fig. 3.4)

Brinton described Chanler's work as a return to the mystic symbolism of the Egyptians and the enigmatic fantasy of the East, and a look forward to what he described as "the new psychology of decoration."<sup>9</sup> Art historian Debora Silverman has written about "new psychology," as it relates to the "Psychologie Nouvelle," a reference to the heavily influenced Symbolist art making practices of late 19<sup>th</sup> century France. The aims of this movement are listed as:

1. *Idealism, a commitment to engage an essential order of reality beneath the surface of appearances.*
2. *Subjectivism, the redirection of artistic activity to an inner psychic world where "dream is indistinguishable from life".*
3. *Refinement of artistic language, aimed at expressing the inexpressible, to convey emotional states in the reader or viewer.*
4. *Appeal directly to the inner world of the audience through the suggestive power of sound and the dynamic formal elements of the visual arts.*<sup>10</sup>

Ultimately, these aims related to the psychology of the individual "reader" through the "re-definition of the interior from an accretion of material objects to an arena of self-discovery."<sup>11</sup> Brinton describes Chanler's work as harkening back to an age of artist-craftmanship, abandoning the conquests of "impressionist and science-smitten experimentalists" to look for inspiration in the expression of 'primitive man' or the *subconscious*.<sup>12</sup> The search for the deepest layer of consciousness in the mind represented the core of symbolist art.

Brinton marveled over Chanler's ability to traverse various mediums and color qualities and

9 Brinton (1922), 15.

10 Silverman, 76-77.

11 Idem.

12 Brinton (1922), 17.



observed that Chanler:

*...is not satisfied with that which ordinarily meets the eye, he reaches toward the far magic of the sky, or dives into the shining depths of the sea, bringing forth fresh treasure-troves of form and colour. Strange beasts and fabulous birds appear at his beck and call. And one after the other these gleaming aquatic monsters and gorgeous avian marvels float or fly to the surface of his creative consciousness and assume their appointed places in a given composition. It is all immensely stimulating, and typically Chanleresque.<sup>13</sup>*

The fantastic images described by Brinton relate heavily to the conception that images are indicators of psychological health and condition. French neurologist and professor of anatomical pathology, Jean-Martin Charcot (1825-1893), linked art-making practices to the disorders of hysteria and neurosis. Believing them to be treatable through exposure to images, Charcot reinforced the primacy of the visual by 'raising the image to the rank of the first order.'<sup>14</sup> Both Chanler and Charcot believed that the visual, and more specifically the *decorative* in Chanler's case, held more power and depth than all other forms of communication.<sup>15</sup>

In the same year that Brinton's catalogue was published, the Roerich Museum Press also released the book *Art of Chanler*, written by the Russian philosopher and art historian Ivan Narodny. Narodny spoke of Chanler's art as an expression of the very fundamental nature of human expression. In this sense, Chanler's decorative art works to unify culture through the symbols of primitivism that existed within every 'race,' a psychological framework that is Jungian, or understood at a deep level by all humans. Narodny's discussion is marked by language related to psychology, anti-capitalism and the comparison of human

13 Brinton (1922), 19.

14 Silverman, 92.

15 Ibid, 93.

senses to the operational functions of a machine, related to the contemporary understanding of music. Many times Narodny refers to the “metaphysics” of Chanler’s art as an opposition to the sterility and oppression of creative genius under democratic structures of life. Chanler ultimately represents a “craftsmanship” that has been lost throughout the ages, and this is reiterated through his objection to realism in favor of fantasy. “Chanler considers himself a decorative artist,” Narodny writes, “and he believes that painting’s ultimate message lies in decorative terms.”<sup>16</sup> Believing that the origins of decorative art date back to a time long before ‘primitive man’ first built temples and created gods, the decorative ultimately propitiates a communication with the spirits of Nature. The symbols used to communicate, which include sacred designs, amulets, talismans, icons, directly evoked spiritual powers. ‘Primitive man’ surrounded himself with these symbols and images, according to the author, to operate on a higher level than speech, and thus achieve the level of the decorative as Chanler envisioned it.

### **3.2 Symbolism and the Confusion of Language**

The decorative, as Chanler conceived of it, was conflated with the realm of the “sacred,” employing symbols of beauty for ethical ends to exploit the magic values of aesthetics. Narodny quotes an old Chinese book in the Lamasery of Urga which contains the passage, “He, who reached the degree of an initiated artist, should be placed among the saints, and should enjoy all the privileges of gods; for he is the high interpreter of the mysteries of Heaven, for things to be when we are gone.”<sup>17</sup> Chanler’s role as “interpreter...

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16 Narodny, 17.

17 Narodny, 19.



Figure 3.5. R.W. Chanler. *Dance of Death*, 1914 (Narodny, 1922).

of Heaven” becomes clear in the 1914 panel, *Dance of Death*. (Fig. 3.5) Shown on the left side of the panel is the erect skeletal figure of death, holding a flute to his mouth as he rests on one side of the tree of life. The tree frames the landscape in the background, while the foreground is populated with demonic, unnatural creatures that look out towards the scene in the background. In the near distance rise two mountains, one of which is topped with a figure of the Buddha, and the other an image of the Crucifixion of Christ on Golgotha. Travelling figures parade alongside these mountains to each of the two apex points. The figures only appear to be traveling up the mountain, transcendently uplifted as they reach their destination. On the lower plane to the right of the composition, figures continue to travel towards an ancient city, which contains the Acropolis and architecture of ancient religions.

This area is on the other side of the sunset, across a sea of boats and under an astrological scene of interconnecting constellations and stars.

The screen depicts the afterlife, as conceived by the East (Buddha), the West (Christ) and antiquity (Acropolis). The pictorial scheme is managed through an allusion to Peter Brueghel's depiction of the Tower of Babel, the enormous tower built in the city of Babylon that typified the confusion of languages. (Fig. 3.6) As the biblical story proceeds, the tower was built by the first generation of humans following the Great Flood, the united people aspired to build the tower to reach the realm of the heavens. The Book of Genesis marks God responding:

*Come, let Us go down, and there confound their language, that they may not understand one another's speech...*

*Therefore is the name of it called Bâbel (that is "Confusion") because the Lord did there confound the language of all the earth; and from thence did the Lord scatter them*



Figure 3.6. P. Brueghel. Detail: Tower of Babel, 1593 (ArtStor).

*abroad upon the face of all the earth.*<sup>18</sup>

These three afterlives, or rather, *conceptions* of the afterlife, stem from the confused division of language, religion and location. Though Chanler was raised in an environment of rigid Protestantism, he made no claim to the supremacy of one conception over the other, but instead displayed each conception as a caricature against the backdrop of constellations and celestial shapes. Historian Thomas Lately notes that after much soul-searching and questioning of religion, “Bob concluded the meaning of life was inscrutable.”<sup>19</sup> Thus, the panel can be read as the reclamation of humanity prior to the destruction of the Tower of Babel. This form of symbolism was envisioned as a belief in “the universal and abiding disposition of the human mind to symbolize.”<sup>20</sup> As art historian Jean Clair explains, “...Culture no longer posited language as a *link*- either analogical, as during the Renaissance, or logical, as during the classical period- but as the *dissolution* of these links in favour of a formalized and autonomous discourse, developing quite independently of any connections between man and his inner self or man and the external world.”<sup>21</sup> Thus, the only way to truly understand oneself and the environment is not through language, but through symbols.

### 3.3 Cosmology and Mythology

The Whitney Studio can be understood as a series of symbols that represent the microcosm of the universe, displayed through the sculpted plaster, stained glass and decorative panels scattered throughout the space. Three realms of existence are displayed, which

18 *Genesis* 11.1-9; tr. King James 21st Century <http://www.livius.org/ezez/etemenanki/etemenanki.html>. [Accessed 28 November 2009].

19 Thomas, 71.

20 Jean Clair et al., *Lost Paradise: Symbolist Europe*. Montreal: St. Martin's Press, 1995, 19.

21 Clair, 20-21.

include the land, the sea and the sky. The viewer/reader can be understood as being in the realm of the land, looking up to the ceiling as a 'map of the cosmos.' The cosmos is inhabited by figures both real and imaginary, including human, reptilian, aquatic, avian, and land creatures. While many interact with each other, the creatures are generally divided spatially among the ceiling; the reptilian figures appear closest to concentrated points of energy (i.e. sun, fireplace), sea creatures are depicted furthest away from them on the curved regions of the cornice, land animals are shown alongside human figures in pursuit of the hunt on the northern side of the ceiling and birds fly in diagonals across the corners of the room. (Appendix D. Figural Mapping) In place of a landscape, the figures are aligned on the ceiling like constellations, situated amidst a backdrop of clouds, stars and orbiting planets.

The aesthetic qualities and techniques employed on the ceiling harkens back to the ceilings of German Baroque-Rococo architecture, in which cosmology and the interpretation of light was a significant theme. This period in architectural history, as described by architectural historian Dalibor Vesely, was one of "divided representation," when architectural thinking was challenged by modern scientific advancement and the importance of light continued to play a very dominant, though radically modified, role.<sup>22</sup> What resulted was the discovery of the primacy of the natural world as a "ground and framework within which the achievements of modern science and technology could be reconciled with the concrete conditions of the natural world and everyday human life."<sup>23</sup> A similar recognition of humanity's

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22 Dalibor Vesely, *Architecture in the Age of Divided Representation: The Question of Creativity in the Shadow of Production*. London: MIT Press, 2004, 6.

23 Ibid, 5.



animalistic tendencies and natural spiritual connection is thematically tied to Chanler's ceiling depiction. The reference to "divided representation" in Baroque-Rococo architecture could be linked to contemporary evolutionary thought and the conflicts of religion, as Chanler dissolves animals and humans alike in the natural wonders and fantasies of the outer realms of existence (deep sea and space).

Myth and legend were continually discussed themes throughout the early 20<sup>th</sup> century, as religious fervor proved to be fading and people were searching for new venues of belief. Chanler had become increasingly disillusioned with modernity, as evidenced in his 1913 *Parody of the Fauves*, and the encroachment of World War I left many to search for meaning in the folklore of "primitive" cultures as modern civilizations destroyed themselves with technology. In 1911, Freud and folklorist D. E. Oppenheim co-authored an essay entitled *Dreams in Folklore*, which sought to connect the symbolism of traditional folklores with so-called Freudian symbolism.<sup>24</sup> This connection thus hoped to unify modern man's understanding of his own psyche across spatial and temporal boundaries, searching for the same symbols throughout life in stories made to explain existence and the meaning of life.

### **3.4 The Close Study of the "Real" through Land Animals**

Chanler's work displays closely detailed depictions of creatures, both real and imaginary, and provides an almost scientific catalogue of animal physiology. Fostering his own collection of animals and frequently visiting the newly developed zoos and aquariums of Paris and New York, Chanler reveled in the ability to study wild, exotic creatures at close

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<sup>24</sup> Essay was written in 1911, but was not published until 1958. Referenced in Alan Dundes, "Bruno Bettelheim's Uses of Enchantment and Abuses of Scholarship," *The Journal of American Folklore*, Vol. 104, No. 411 (Winter, 1991):74.

range. Given the rare opportunity of touring the House of Fantasy as, not only a social guest but a Chanler art enthusiast, magazine writer Henry Tyrrell described the 'menagerie and aquarium annex' that composed the building's basement:

*The monkey cage has a group of simians, including some of the rarest species in captivity- mangabees, ridge-tails, sloths and the like- all alive and active and wildly decorative. Adjoining this is the aviary, where talkative English ravens as large as buzzard live unhappily with toucans- medium-sized tropical birds with enormous crimson*

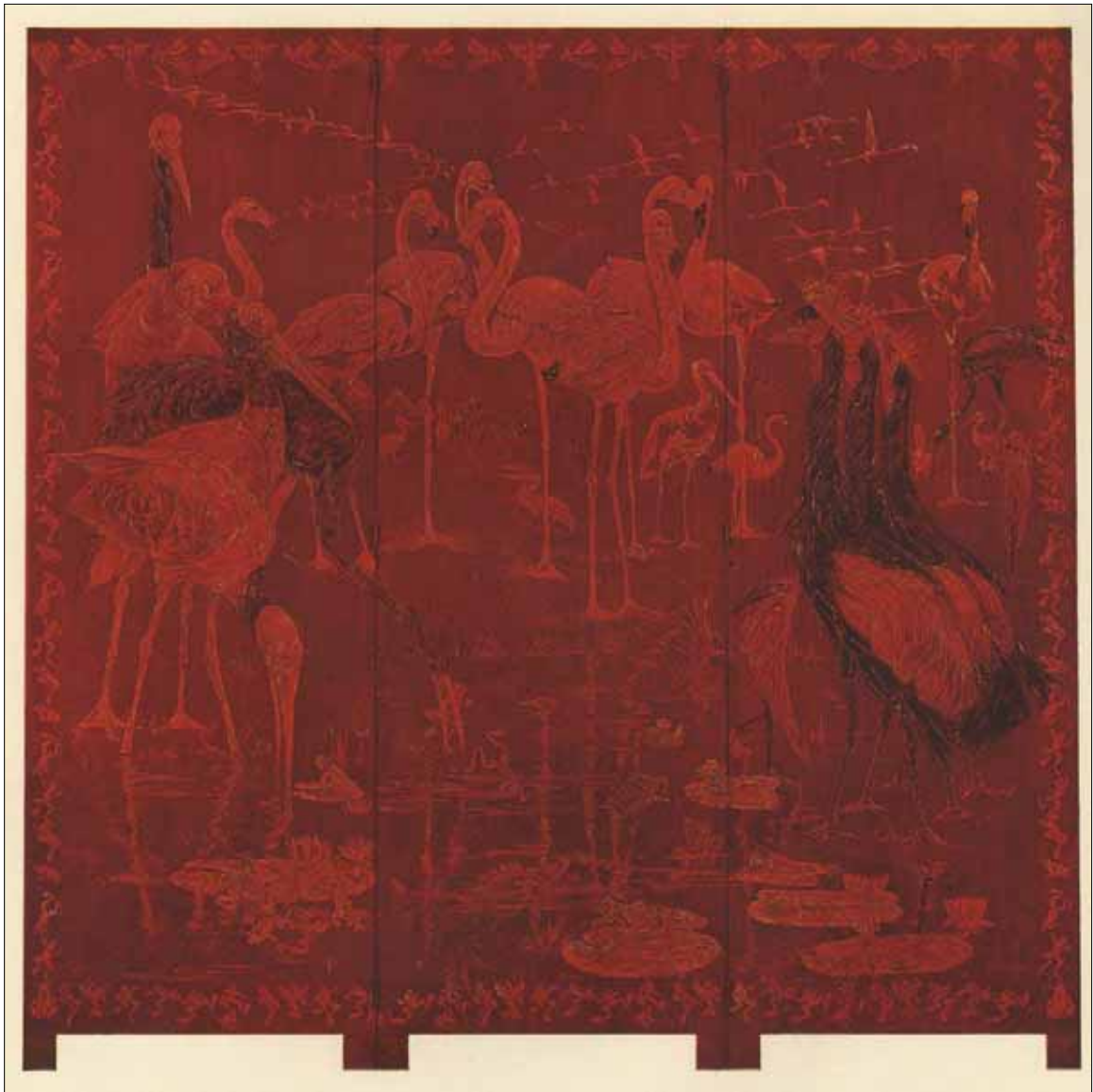


Figure 3.7. Flamingoes by R.W. Chanler, 1913 (Narodny, 1922).

*beaks like giant lobster claws. The un-arbitrated disputes of these strangely assorted birds have left the toucans champions, while the ravens more silent and crestfallen. The aquatic models are gold fish, angel fish, devil fish, seahorses, eels, frogs, turtles and horseshoe crabs, swimming about in a good-sized pool that is convenient for herons and flamingoes to pose along its margin and for the unwary visitor to fall into.*<sup>25</sup> (Fig. 3.7)

Not only was the space filled with exotic creatures, but Chanler even had an elaborate electrical lighting scheme to simulate lighting environments in the wild. The light was diffused through a vine-covered glass roof, in which the ‘moonlight effect’ elicited a silvery effulgence like the rising moon and the ‘sunrise’ emitted a roseate and crimson color that inspired the tropical birds to squawk and chatter.<sup>26</sup> When asked by Tyrrell, “and do you paint these things direct from life, Mr. Chanler?” Chanler responded “Of course I do- how else would I get them in my pictures the way they are? I like best to sketch them free-hand, but when I have an order to fill in a certain time I have to make a careful cartoon from detail studies and leave nothing to chance.” In describing his work on the panel “Flying Zebras,” Chanler explains, “Into the very cages of the animals at the zoo I went and counted their spots and stripes, and studied them- studied them. I mount fish myself, in plaster, and they are on my screens in live sinew and scale.”<sup>27</sup> (Fig. 3.8)

To compliment his diverse array of life specimens, Chanler extensively collected books related to the discovery and continued study of rare animals and plants throughout the world. His personal library, which he had donated upon his death to what is now the

25 Henry Tyrrell, “Bob Chanler’s Creepy Art,” (Publication & date unlisted). R.W. Chanler Scrapbook [Microfilm], Smithsonian Archives of American Art: 2.

26 Idem.

27 Maxine McBride, “Possibilities of Screen as Decorative Feature Interestingly Shown in Bizarre and Delight Exhibit Now Being Held,” (17 Dec., New York City). Robert Winthrop Chanler Scrapbook, Archives of American Art, Smithsonian Institution. [Microfilm Reel 4131].



**Figure 3.8. Valentina Kashouba, premiere danseuse of the Daglief Ballet, shown dancing in front of the R.W. Chanler screen, *Flying Zebras*, as part of an opening of Chanler's panels at the Grand Central Art Galleries (Knickerbocker Press (27 January 1927) in R.W. Chanler Scrapbook, Smithsonian Archives of American Art).**

Smithsonian Cooper-Hewitt National Design Museum, contains a treasure trove of resources related to historic colonial conquests of the natural landscape, the physiology of animals and birds, the understanding of movement through photography and contemporary studies of literature, fashion and typography.

The birds that stretch across the diagonals of the ceiling are reminiscent of 19<sup>th</sup> century biological science compendiums in Chanler's collection. In famous texts, such as Audu-





**Figure 3.9. Deep Sea Fantasy (Opposite: Astrological Screen) by R. W. Chanler, 1920 (Narodny, 1922).**

bon's *The Viviparous Quadrupeds of North America* (1854-1845) and Beebe's four volume *Monograph of the Pheasants* (1918-1922), these creatures are color-illustrated on massive pages, depicted as grooming their long, intricate feathers or in the process of preparing or dismounting from flight.

### **3.5 The Un-Real in the Depths of the Sea**

One may look no further than Jules Verne to see the parallels between Chanler's terrifying undersea creatures and the subaqueous monsters of *20,000 Leagues Under the Sea*. The depths of the sea are personified by Chanler as the life-sucking giant squids that spread across the ceiling and into the decorative screen panel in the Whitney Studio. (Fig. 3.9) This imaginary creature is positioned in opposition to the dragon figure on the ceiling.

Operating in the celestial realm, the dragon's fiery breath destroys its surrounding environment, while providing an element of reincarnation in the destruction. The squid instead drags its prey to the depths of the ocean and recalls the myth of Andromeda's sacrifice to the sea monster and Jules Verne's terrible underwater creature in *Twenty Thousand Leagues*

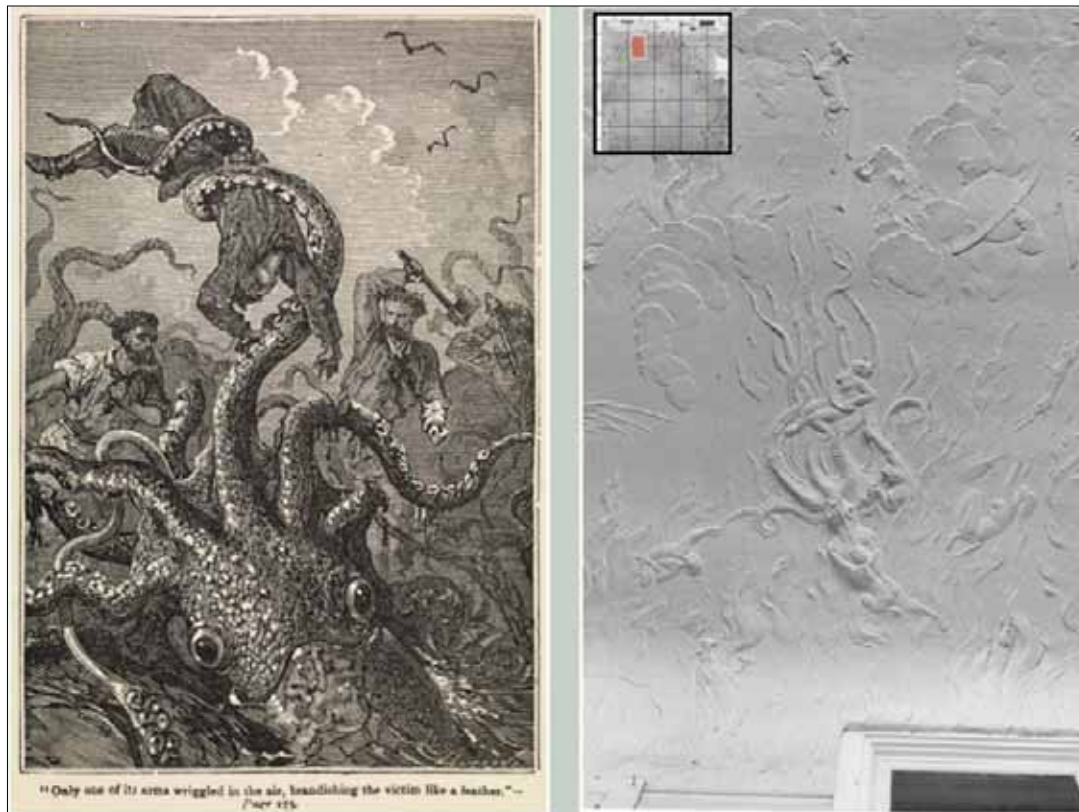
*Under the Sea*. (Fig. 3.8) The following is a passage from Verne's novel:

*I looked in turn, and could not hide a movement of repulsion. In front of my eyes moved a horrible monster, worthy of appearing in any teratological legend. It was a squid of colossal dimensions, eight meters in length. It was moving backwards at extreme velocity as it headed towards the Nautilus. It was staring with its enormous fixed eyes of sea-green hue. Its eight arms, or rather legs, were not only implanted on its head, thus giving these animals the name of cephalopods, but were twice as big as its body and waving around like the Furies' hair. We could distinctly see the 250 suckers in the form of hemispherical capsules on the inside of the tentacles. Sometimes these suckers were placed on the salon's windows and stuck there. The monster's mouth---a horny beak like a parrot's---was opening and closing vertically. Its tongue emerged oscillating from this pair of shears, and was made of a horny substance, itself equipped with several rows of sharp teeth. What a freak of nature: a bird's beak on a mollusk! Its body, cylindrical but swollen in the middle, formed a fleshy mass that had to weigh 20 to 25 tons. Its colour changed in quick succession according to the animal's irritation, and went progressively from pale grey to reddish-brown.<sup>28</sup>*

Delving further into the original English edition of Verne's 1869 novel, of which was part of Chanler's personal book collection, the literal references become more clear. Alphonse-Marie-Adolphe de Neuville's engravings of the Attack of the Giant Squid almost perfectly parallels the attack of the nude female figure on the Whitney Studio ceiling. (Fig. 3.10) The squid's outstretching limbs entangled the main figure, which is centrally placed, with corresponding figures on each side of the squid attempting to break their compatriot free. The struggles are both situated in a background of clouds, similarly located in a seaweed/flame-

<sup>28</sup> Jules Verne, *Twenty Thousands Leagues Under the Sea*, trans. William Butcher. New York, Oxford: Oxford University Press, 1998, 344.





**Figure 3.10. Comparison of “Attack of the Giant Squid,” scene (Alphonse-Marie-Adolphe de Neuville in Verne, 1870) and Whitney Studio ceiling (L. Vollono, 2009)**

like landscape.

Chanler clearly drew from Verne’s sea monster, possibly as a depiction of man’s naïve assumption of dominance in a wholly ungovernable world. As a symbolist writer, “Jules Verne often used humour to highlight those moments when man’s primordial confidence in his environment, what we call today his ecological niche, previously seen as the perfect reflection of his own subjectivity, began to give way to the pessimistic, bitter and disenchanting questioning of a world now foreign, indifferent and governed by laws quite alien to himself.”<sup>29</sup> In the unexplored depths of the sea lie the mysteries of the unknown

<sup>29</sup> Clair, 19.

subconscious, threatening to unleash a deadly attack on the arrogant faith of rationalism.

### 3.6 The Influence of Darwinism on Chanler's Animal Depictions

Post-Darwin America led to an increased interest in understanding creatures in the natural habitats, which led to the foundation of thousands of institutions throughout the world devoted to the study of animals. When attempting to reproduce an animal through painting or plaster, Chanler extensively studied the creature in person, either in his private menagerie or at the newly founded modern zoos in New York and Paris. There were many venues recently developed for animal observation, as the New York Zoological Society (now the Wildlife Conservation Society) was incorporated on April 26, 1895, the Bronx Zoo opened in 1899 with a collection of 843 specimens representing 157 species, and in 1896 the New York Aquarium opened to the public with a collection consisting of an extensive selection of native freshwater and marine fishes, as well as amphibians and aquatic reptiles.<sup>30</sup> The contemporary artist/designer's close studying of animals during this period is described by Christina Cogdell through the example of the industrial designer Norman Bel Geddes<sup>31</sup>. Geddes maintained a private aquarium of 2,000 live amphibians and reptiles, from which he conducted motion picture studies. Resting on half a dozen other tanks for which he used for breeding purposes, the tanks required their own heating and ventilation systems.<sup>32</sup> Cogdell's main thesis rests on the connection of Geddes' interest in evolution and its extension into eugenics as a motivating concern in his generation of streamlined industrial design.

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30 Vernon N. Kisling, Jr., ed., *Zoo and Aquarium History: Ancient Animals Collections to Zoological Gardens*. New York: CRC Press, 2001, 162-163.

31 Christina Cogdell, *Eugenic Design: Streamlining America in the 1930s*. Philadelphia: University of Pennsylvania Press, 2004.

32 Cogdell, 1-2.

She demonstrates the pervasiveness of America's aspiration to dominate the process of evolution through an in depth study of both the academic and popular spheres of thought in the pre-World War II period. Chanler was similarly obsessed with the conception of animals' beauty and vitality as the perfect decorative form. Though he represents these creatures in paint as free, liberated beings, Chanler controlled these creatures as their captor and simulator of their environment, forcing them into the confines of his pre-determined world and displaying them in cages alongside his decorative panels scattered throughout his House of



Figure 3.11. Flames by R.W. Chanler, 1913 (Narodny, 1922).

Fantasy.<sup>33</sup> While animals served as his muse, the ceiling fundamentally deals with animals in relation to the greater scheme of the cosmic realm, as understood through mythology and fantasy.

### 3.7 Flames: Symbol of Human Passion

The fireplace in the Whitney Studio is reminiscent of Dantean and Boschian schemes of hell, in which demonic figures are trapped amidst enveloping flames. Chanler pursued the subject in an earlier work called *Flames* in 1913, which was most likely the antecedent

for the room he created for Whitney. (Fig. 3.11) Narodny writes:

*Flames is an allegorical picture of a sacred fire, and of human passions. From one viewpoint it is the violent transformation process of the material world from one chemical compound into another; but in another sense it suggests the subconscious desires of man's ego to absorb all the pleasure of the world. In doing so, it destroys itself, until, reaching the regions of the sun-fire, the destructive phenomenon melts into a magic of cosmic regeneration- an allegoric re-incarnation theme.*<sup>34</sup>

Thus, Narodny conceives of the panel as the powers of Nature competing with the striving of the human soul, through which materials and human emotions melt at the same time. "Though a picture of an actual physical flame, it is also the picture of the spirit of flame, the abstract sensuous symbol of something primitively human."<sup>35</sup>

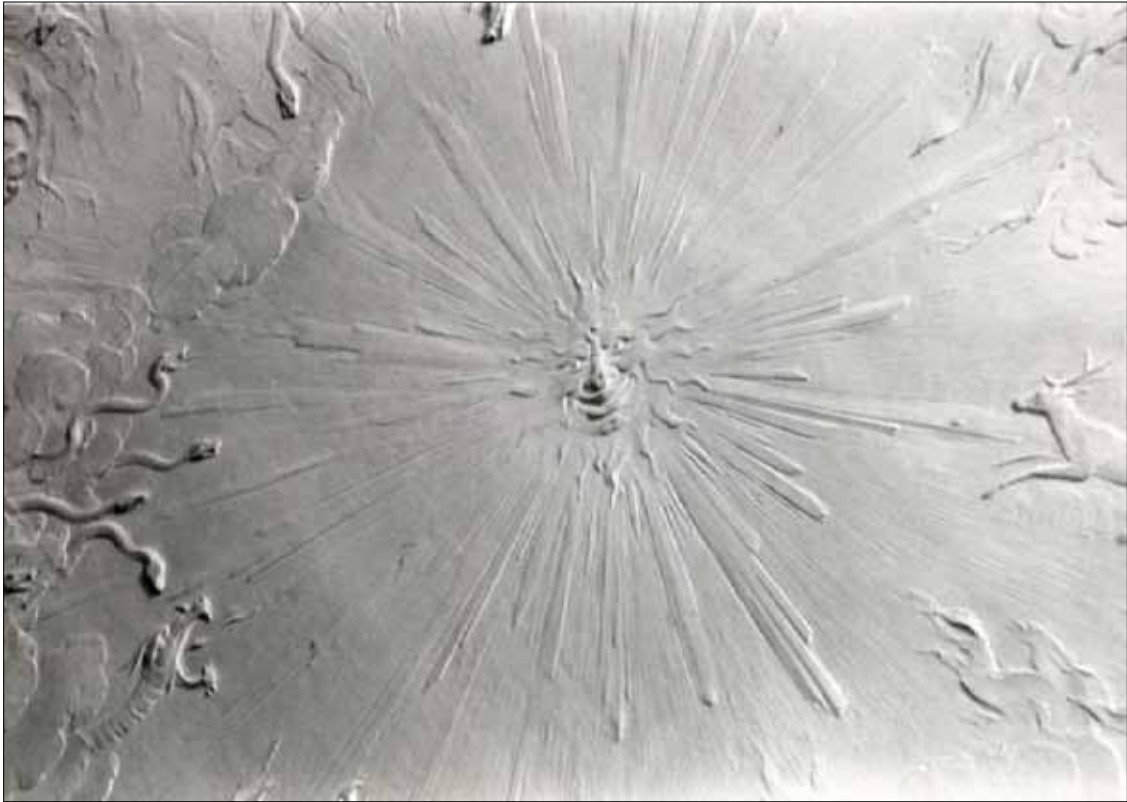
### 3.8 The Sky: Cosmic Images and the Imaginings of Camille Flammarion

With the opening of French artist Paul Helleu's constellation in Grand Central Terminal Station in 1913, the use of cosmic imagery was affirmed as a symbol of modernity. Scholar Raynsford describes the main concourse of the station as a natural heir to the mythical public spaces of the city, as confirmed by the 120 foot-high ceiling of the concourse,

33 Description of caged animals follows in Tyrrell, 2.

34 Narodny, 23.

35 Idem.



**Figure 3.12. Detail of sun figure, undated (Archives of New York Studio School).**

painted blue and inscribed with zodiac constellations and electric lights for the brighter stars.<sup>36</sup> The popularization of constellation-motifs keys back into a discussion of primitive man and the need to imprint symbols on the elements of the universe out of man's grasp. Astronomy was becoming an increasingly important subject, and scientists emerged in popular magazines and newspapers to theorize the unknown.

During Chanler's sojourn in Paris, French astronomer and author Camille Flammarion was a popular figure in both Parisian and New York public spheres as author of the seminal literary works on Spirituality, cosmic realms and theorizing of extraterrestrial life. While

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<sup>36</sup> Anthony Raynsford, "Swarm of the Metropolis: Passenger Circulation at Grand Central Terminal and the Ideology of the Crowd Aesthetic," *Journal of Architectural Education*, Vol. 50, No. 1 (Sep., 1996), 2.



there is no evidence that Chanler was familiar with Flammarion's work, the two continuously referred to spirituality in Nature to formulate their philosophies of the cosmic relationship between the stars and humankind. Among Flammarion's publications include "Voyage extatique aux regions lunaires, correspondance d'un philosophe adolescent" [*A Visionary Journey to the Regions of the Moon, Related by an Adolescent Philosopher*] (Published 1885 as *Universal Cosmology*), *Les Habitantes de l'autre monde; revelations d'outre tombe* [*The Inhabitants of the Outer World: Revelations of the Afterlife*] (1862-63), and *Les Mondes imaginaires et les mondes reels* [*Real and Imaginary Worlds*] (1864). Each of these works represents the theorization of life in outer space as it relates to human existence on planet Earth. These theories were envisioned in the Flammarion woodcut "Universum," first published in 1888



Figure 3.13. *Universum* by Camille Flammarion, 1888 (WikiCommons).



in the writer's book on meteorology for a general audience. (Fig. 3.13) The caption can be translated as "A medieval missionary tells that he has found the point where heaven and Earth meet..." Fundamentally, Flammarion believed that realms of existence operated in separate planes, but that there were access points of communication between them. This was tied into a belief that contact with deceased spirits could be channeled through a spiritualist medium, along with a belief that intelligent life existed in the outer realms of space.

In a New York Times article published in 1907, Flammarion writes:

*I believe there are denizens in Mars, and that they are superior to us, for several reasons...I dare say the Martians tried to communicate with us hundreds of thousands of year ago, when mammoths were roaming around our comparatively youthful planet. The Martians may have tried again a few thousand years ago, and never having obtained a response, they concluded that the earth was uninhabited or that its denizens did not trouble themselves about the study of the universe or the search after eternal truths.<sup>37</sup>*

He goes on to imagine his own visit to Mars and that the summer would be uncomfortable at first, but that the Martians may be amphibious or have the ability to fly and it might not phase them the same way. Relating this quote to Chanler's screen *Marching Martians* from 1922, similarities in the conceptions of Martians life become more apparent. (Fig. 3.14) The two central figures are in mid-motion, gracefully hovering across the foreground with swift movement, while maintaining balance on the balls of their feet. They maintain human form, but are rather more dynamic and fluid than humans, consumed by higher thoughts and imaginative gestures as they walk. The Martian city in the backdrop is a classicized one, conceived as an all-white city. In opposition to this world's connotation of "marching" as

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37 "Martians Probably Superior to Us: Camille Flammarion Thinks Dwellers on Mars Tried to Communicate with Earth Ages Ago," *New York Times* (10 November 1907).



Figure 3.14. **Marching Martians** by R.W. Chanler, 1922 (Narodny, 1922)

one inherently related to war, the Martians march is one of peace and enlightenment, only battled with the agitated feline creature in the lower right of the composition. While alert, the Martians are uninterested or alarmed by this creature, swiftly passing by the threat as part of life.

The concepts in Flammarion's 1872 *Lumen*, perhaps his most influential work, appear to be reflected in the cosmic map on the ceiling of G.V. Whitney's studio. The novel is a dialogue between the departed soul Lumen who has traveled across the extent of the galaxy during his afterlife, and his friend Quaerens, a curious, question-seeker. Mimicking a philosophical dialogue of Plato, Lumen describes the essential components of a human be-

ing as “1. The body, 2. The vital energy, and 3. The soul.”<sup>38</sup> These elements are reproduced in the universe as “1. atoms, the material world, inert passive; 2. The physical forces which regulate the world and which were continually transformed into one another or into others; and 3. God, the eternal and infinite spirit, the intellectual organizer of the mathematical laws which these forces obey, the unknown being in whom reside the supreme principles of truth, of beauty, of goodness. The soul can be attached to the body only by means of the vital force.”<sup>39</sup> This vital force can almost be conceived of in the Egyptian equivalent of *ka*, of which again relates to the Chanler depiction of extraterrestrial beings in Egyptian-like headdress and costume. Death, as described by Lumen, is when:

*My sight and my thought, united in prayer, together took flight into space... by some unknown force I soon found that I was approaching a magnificent golden sun, the splendor of which did not, however, dazzle me. I perceived that it was surrounded by a number of worlds, each enveloped in one or more rings. By the same unconscious force I was driven towards one of these rings, and was a spectator of the marvelous phenomena of light, for the starry spaces were crossed everywhere by rainbow bridges.*<sup>40</sup>

The celestial sphere of multiple rings and a magnificent golden sun are clearly reflected in the Chanler ceiling, as part of an outer realm of existence that is mysterious, unknown and mystical. Flammarion’s *Lumen* is credited as having “laid the groundwork for an entire tradition of modern visionary fantasy.”<sup>41</sup> Due to multiple re-printings of the essay, much is known about the relevant works that influenced Flammarion’s writing, many of which are professed by Narodny to have influenced Chanler’s artistic endeavors. The first two chapters of *Lu-*

38 Camille Flammarion, *Lumen: Part I*, 2. <http://books.eserver.org/fiction/lumen/> [Accessed 2 December 2009].

39 Ibid, Part I, 4.

40 Ibid, Part I, 5.

41 Brian Stableford, trans. “Introduction,” *Lumen*. Middletown, CT: Wesleyan University Press, 2002, xvi.

men survey ideas contained in Oriental and Occidental mythologies, while the third covers the development of theological and mystical images of the universe in the first millennium of Christianity. Succeeding chapters cover medieval theoretical conceptions of the universe to Dante and the Copernican revolution. The sixth and seventh chapters are devoted to “imaginary voyages to the moon,” including those of Francis Godwin and Cyrano de Bergerac, and the eighth chapter expands into broader cosmic voyages in the eighth chapter.<sup>42</sup>

### 3.9 ‘Painting a Portrait Through the Decorative’: Chanler’s Portrait of Whitney

Towards the end of Chanler’s career, he discarded decorative panels in exchange



**Figure 3.15. Gertrude Vanderbilt Whitney by R.W. Chanler, unknown date (Spanierman Gallery).**



**Figure 3.16. Chanler painting portrait of French Chanteuse Yvonne George (Morning Telegraph (13 December 1925) in R.W. Chanler Scrapbook, Smithsonian Archives of American Art).**

for portraiture. This seemingly uncharacteristic move begins to make sense when one understands Chanler as an artist who became increasingly pre-occupied with capturing the true essence of his sitter. Describing Chanler's 1929 portrait show at the Valentine Gallery in New York, critic T.W. writes "the canvases are more honest in their recording than are ninety percent of the honeyed hypocrisies of the portraitists who are able to snare their sitters over the tea cups in front of the news photographers...Even his closest friends do not come off with a pair of limpid blue eyes if they happen to possess a glass one."<sup>43</sup> (Fig. 3.16) Chanler ultimately conceived of his decorative work for patrons as "portraits" within themselves.

Chanler's description of his panel for Henry Clews Jr., offers insight into his own

43 T.W. "Review of Chanler's Portrait Show, Valentine's Gallery," *Creative Art* (1929). Robert Winthrop Chanler Scrapbook, Archives of American Art, Smithsonian Institution. [Microfilm Reel 4131].



understanding of his decorative work. (Fig. 3.17) When asked about the motifs on the everglade panorama with the snaky vine pattern populated with birds and beasts of the forest,

Chanler replied:

*“Oh, I call that, Henry Clews Jr. or the Dreamer’s Solitude. It is a sort of allegorical conception of my friend Clews, don’t you see not in portrait form, but a psychological representation of his mental and artistic environment. Those cranes and pelicans are the bourgeoisie, staring stolidly in presence of the artist’s spirit, which they ear (sic) neither see nor understand.”<sup>44</sup>*

With an element of humor, Chanler pokes fun at a society of people that surround his artistic friend but is unable to understand the depth and genius of his work. As a sculptor, Clews frequently criticized the aristocracy in works like *The Duchess* (1914), which depicts a woman’s skeletal body, unable to disguise her withered body and pride with the vestiges of



**Figure 3.17. Dreamer’s Solitude, or Henry Clews, Jr., by R.W. Chanler, date unknown (Tyrell in R.W. Chanler Scrapbook, Smithsonian Archives of American Art).**



her pretentious lifestyle, a fan and a string of pearls. Clews is defined by Chanler, not by his personage, but by the environment in which his subconscious operates.

Similarly, the interior decoration of the Whitney Studio can be read as a psychological portrait of Gertrude. Chanler and Gertrude permanently occupied the realm of fantasy, living in unreal worlds provided through wealth and extraordinary resources, which made them centers of activity and indispensable to their financially needy fellow artists and friends. They were in a very real sense *centers of their own universe*, perhaps only feeling truly understood in solitude. Both Chanler and Whitney, being aristocratic and bohemian, patron and artist, socialite and independent, found confidence in each other as being part of a duality that defined their lives.

### 3.10 Conclusion

While this chapter attempts to shed light on a forgotten artist, of whom its interpretation is complex and strings together several discourses on symbolism, psychology and science fiction, it is ultimately the mystery of Robert Winthrop Chanler's work that provokes such discussions. A contemporary critic of Chanler's wrote:

*There is such a thing as pushing symbolism too far, there are those who can see an occult significance in a newel post and point it out to you as a survival of an earlier and much discredited form of religious observance...Moreover, it is indubitable that symbolism enters greatly into decoration. But that an appreciation of a Chanler screen must be based upon an understanding of the outgrown symbols of the heathen world is asking too much. They are things of beauty, and as such are their own justification.*<sup>45</sup>

While this statement has hopefully been disproven or at least expanded throughout the course of this argument, it represents a general conception that has limited the scholarship

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<sup>45</sup> "Astonishing Screen by Robert W. Chanler: Work a Master Decorator Constitutes worthy Display at the Art Alliance," (Unlisted publication and date). Robert Winthrop Chanler Scrapbook, Archives of American Art, Smithsonian Institution. [Microfilm Reel 4131].

and recognition of Chanler's work over the past century.<sup>46</sup> It is the intention of this thesis to expose the "decorative" nature of these works as more than beauty, but as chosen vehicles of psychological reflection and experience.



**Figure 3.18. Robert Winthrop Chanler in his studio, c. late 1920s.  
Credit: The Sunday World Magazine (28 December 1930).**

<sup>46</sup> 19 years after Chanler's death, author William Franklyn Paris aptly observed: "How is one to write of a man who is above and beyond the conventions in thought and imagination and work and living...it is a pity that before the generation of men who knew Robert Winthrop Chanler passes away some among them does not make the attempt to put him on paper for the world to know. Someone, that is, who knows a great deal about art, both Oriental and Western, about history and religion and mysticism from the time of primitive man to our own, about aesthetics, and about psychology- and about Robert Winthrop Chanler...There is no other possible approach." This seemingly impossible task has not been met since Paris wrote these words in 1949. William Franklyn Paris, *Hall of American Artists*, Vol. VI, 1949.

## 4.0 PLASTER LITERATURE REVIEW

### 4.1 The Material Composition of Plaster

The basic components of traditional interior plaster in the United States are gypsum and lime as binders, mixed with an aggregate, generally fine sand, and often animal hair or vegetable fiber, and water. Gypsum is a naturally occurring mineral, composed of calcium sulfate di-hydrates, which varies in color from white through shades of brown and grey to black.<sup>1</sup> It is typically found in deposits between limestone strata, or in association with various other minerals, such as halite or calcite.<sup>2</sup> Gypsum deposits exist throughout the world, but the most commonly used for plaster in North America production come from Canada. The gypsum deposits in the hill of Montmartre, Paris, France have become historically well-known, inspiring the colloquial name “Plaster of Paris.”<sup>3</sup> In order to prepare gypsum for plastering, the extracted mineral must be calcined, or heated, between 150 and 160 degrees Celsius to drive off the molecular water and yield the hemi-hydrate product,  $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ . The product is then ground into a fine powder and packaged to be sold.<sup>4</sup>

In traditional American building plasterwork, gypsum is typically only added to the finish coat, as it provides a smooth finish and quick set that does not shrink upon drying. Hair and sand can be included as additives to enhance the curing process, or provide additional

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1 Fred T. Hodgson, *Plaster and Plastering: Mortars and Cements, How to Make and How to Use*. New York: The Industrial Publication Company, 1883, 17.

2 Justine M. Posluszny-Bello, *Modern Appropriations of an Historic Material: How Decorative Plaster did and did not change, 1870-1930*. [Masters Thesis] New York: Columbia University, 2007, 5.

3 William Millar, *Plastering, Plain and Decorative: a Practical Treatise on the Art & Craft of Plastering and Modeling*. London: B. T. Batsford, 1904, 36.

4 John Ashurst, *Mortars Plasters and Renders in Conservation*. London: Ecclesiastical Architects' and Surveyor' Association, 1983, 27-28.

strength or color. Plaster of Paris, or prepared gypsum, is activated upon the addition of water, causing an exothermic reaction, which is accompanied by a slight expansion in the size of the crystals. The end result is a hard, radiantly white surface.

Lime is manufactured through calcining high-purity calcitic or dolomitic limestone, in the range of 980 to 1320 degrees Celsius.<sup>5</sup> The heating process drives off carbon dioxide, transforming the calcium carbonate into calcium oxide, or “quicklime.” Water can subsequently be combined with quick lime in a large container and allow “slaking,” that converts the material into calcium hydroxide in the form of lime putty. This reaction is extremely exothermic and volatile, requiring careful attention. When mixed with water, this material can then be used for lime-based mortars and plasters, as it is converted back into calcium carbonate through a reaction with atmospheric carbon dioxide and loss of water. It takes much longer for this curing process to occur, and in some 18<sup>th</sup> century sources, plaster was left to cure for as long as a year before allowing any treatment with wallpaper or linseed oil-based paint.<sup>6</sup> Gypsum has been combined with lime to take advantage of its quick set and slight expansion upon drying.

Similarly lime was added to gypsiferous plasters to slow set. Aggregates were typically applied to every layer of plaster with the exception of the finish coat, as it was meant to have a very smooth, uninterrupted surface. These materials were meant to provide strength and minimize shrinkage, serving as a bulking agent in the mixture in order to include

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5        Posluszny-Bello, 6.

6        Mary Lee Macdonald, “Repairing Historic Flat Plaster Walls and Ceilings,” Preservation Briefs 21, United States Department of the Interior, National Park Service, Technical Preservation Services, October 1989. <http://www.cr.nps.gov/hps/tps/briefs/brief23.htm> [Accessed 5 June 2009].

less lime and allowing the plaster to be more easily applied. Most often sharp sand (angular in particle shape), was used to create a dense plaster layer. Since the plaster requires good tensile properties as a thin applied layer, additives like animal hair were included in the mixture as reinforcement.

When applied to the surface of a wall or ceiling, plaster was typically divided into separate mixes, referred to as the “coarse stuff” and the “fine stuff.” The coarse stuff, also known as the scratch coat, often consisted of sand, lime and hair and was troweled directly on the lath, pressing the mixture through the gaps in order for it to slump over and form “keys.” This layer of plaster receives its name because once applied, its surface is scratched or scored to allow the next application layer to attach onto the base. In the basic preparation of walls and ceilings, plaster is most typically applied onto a ground work of wooden lath, wire netting, base bricks or stone walls. Atop the scratch coat, there is sometimes a “brown coat”, which was applied to establish flat, plumb surfaces. Finally, the surface was covered in the “fine stuff”, or the finish coat, which was often a mixture of lime and gypsum that allowed for a very smooth and hard surface.<sup>7</sup> The finish coats are composed of finer materials, intended to have a smooth, dense, homogeneous texture.

## **4.2 Plaster Production**

The origins of plaster production stem to antiquity, where it was used as both an exterior and interior decorative and protective finish. Due to its versatile nature and the importance of the material as a fireproofing and protective element of architectural build-

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<sup>7</sup> Kay D. Weeks, “Preserving Ornamental Plaster.” Preservation Briefs 23, United States Department of the Interior, National Park Service, Technical Preservation Services, October 1990. <http://www.nps.gov/history/HPS/TPS/briefs/brief23.htm> [Accessed 20 December 2009].

ing fabric, plaster appeared throughout the world in varied circumstances and forms. The long history of the material has been meticulously documented in the classic text by William Millar, *Plastering Plain and Decorative*, (1897) which explains the origins of plaster and how it has developed into the (then) modern age.

As is the case with many crafts, the tools and methods employed in plaster production have changed little throughout time. Instead, techniques and experimental methods employed in the craft have been dominated by the aesthetics of its patrons. Cultural tastes have largely impacted the expression of plasterwork, generating the innovative ideas out of the necessities of fashion. In America in particular, the appearance of plaster craftsmanship became highly developed in the mid-to-late 18<sup>th</sup> century, in the interiors of wealthy estates like Drayton Hall and Kenmore. Much of the literature regarding plaster production has historically tended to focus on this time period, as it has long been considered by many authors to be the “pinnacle” of the American plaster craft. As plaster became less expensive through the efficiency of industrial manufacturing, and labor became increasingly more costly, the craft dwindled due to lower demand and in-situ crafted plasterwork was increasingly replaced with prefabricated plaster elements, or was only employed for very basic molding work.

The earliest published texts related to plastering were often components of much larger compendiums on the building trade. The earliest published work dates to 1812, with the publication of Peter Nicholson’s *Mechanical Exercises*, which was subsequently elaborat-



ed upon by his later publications.<sup>8</sup> Towards the mid-century, building crafts tend to become more specialized, and plastering begins to be featured in separate chapters in building texts like Shaw's *Practical Masonry* (1846), Robson's *The Mason's, Bricklayer's, Plaster's and Decorator's Practical Guide* (1859) and Burn's *Masonry, Bricklayer and Plastering* (1871).<sup>9</sup>

The plaster profession in the late 19<sup>th</sup> century grew increasingly sophisticated as it was an incredibly experimental period in plaster production and innovation. The series of World's Fairs and Expositions in the later part of the 19<sup>th</sup> century spurred an interest in temporary, ephemeral building, in which plaster emerged as an attractive material that could take the shape of anything it was molded into, while being able to imitate more expensive materials, such as polished stone.<sup>10</sup> This need, coupled with the increased mechanization of plaster manufacturing inspired a high interest in its production. Likewise, the Arts and Crafts movement emerged during this time, recognizing the loss of traditional crafts in the face of a growing dependency on mechanized production.<sup>11</sup> Plaster, as the material that could take on the guise of other materials, became a source of philosophical debate as a more crafts-minded society sought to find the "truth" of the material.

To accompany these developments, large encyclopedic books begin being published throughout this period in an attempt to promote an increasingly industrialized craft form. These texts were written for emerging plaster professionals in the hopes of continuing the

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8 Peter Nicholson, *Mechanical Exercises; or, The elements and practice of carpentry, joinery, bricklaying, masonry, slating, plastering, painting, smithing, and turning*. London: J. Taylor, 1812.

9 Edward Shaw, *Practical masonry, or, A theoretical and operative treatise of building*. Boston: B.B. Mussey, 1846. Robert Robson. *The mason's, bricklayer's, plasterer's, and decorator's practical guide*. London: James Hagger, 1859-62. Robert Scott Burn. *Masonry, bricklaying and plastering*. 1871. Reprint, Shaftesbury: Donhead, 2001.

10 Posluzny-Bello, 37.

11 George Bankart, *The Art of the Plasterer*, intro by Tim Radcliffe and Jeff Orton. . Shaftesbury, England: Donhead Publishing Ltd., 2002, 328.

high standard and knowledge of the craft. One of the earliest includes Fred T. Hodgson's *Plaster and Plastering* (1883).<sup>12</sup> Hodgson prefaces his book by noting the "very few manuals written for the plasterer," and how he hopes his work will "aid and assist the plasterer in acquiring a thorough knowledge of his trade and to enable him to obtain a fair knowledge of the chemical constituents of the materials he employs."<sup>13</sup> After outlining the various tools employed by the plasterer, Hodgson focuses his discussion on the materials of the trade.<sup>14</sup>

George Bankart, as an avid supporter of the Arts and Crafts movement, instead discusses plaster production primarily as a motor of social thought and expression. He saw the craft as representative of the moral standing of its society, stating:

*"Plaster has been so degraded that it is hardly possible to regard it as a medium of art... It tells of a man's impressions, of his environment, of his susceptibility or dullness or nerve in the receiving and imparting of impressions of sense. It becomes an element as inseparable from his nature, from his personality and individuality, as cause from effect."*<sup>15</sup>

Overall, he perceived the general trend in plaster production causing a rift between "conceiver" and "production." This divide ultimately detracted from the craft of the trade and removed the artist's hand from the entire composition.

William Millar, whose classic text was mentioned before, compiled a comprehensive guide to plasterwork based on his extensive firsthand knowledge and research of the trade. Active during the second half of the 19<sup>th</sup> century in the United Kingdom, Millar was descended from a long line of plasterers in Scotland. Representative of his craft, *Plastering*

12 Fred T. Hodgson, *Plaster and Plastering: Mortars and Cements, How to Make and How to Use*. New York: The Industrial Publication Company, 1883. It must be noted that Hodgson was advertising his book, in claiming to produce the "first" book on plaster.

13 Ibid, v.

14 Ibid, 30. Hodgson recommends that lath have no more than 3/8 of an inch key between each lath and that joists should be broken every sixteen inches.

15 Bankart, 1.

*Plain and Decorative* (1897) records and documents the standards of good practice of the time and offers a wide range of design, fabrication and application advice to its readers.<sup>16</sup> Often termed the “Plasterer’s Bible,” the book continues to serve great importance in the production of skilled plasterwork. The book is an incredible historical artifact, as it details much of the crafted work that a modern-day reader would be hard-pressed to find.

Millar’s text begins with an overview of plaster’s material components and geographic origins, and the various methods of preparing it, of which include boiled plaster, baked plaster and quick and slow setting plaster. He denounces many of the Victorian period’s fashion, such as the “strange defect in our modern method of decoration,” in which people fill entire walls and carpeting to the brim but leave the ceiling, “the crowning glory of a room,” empty and devoid of color and form.<sup>17</sup> Millar also recommends the painting of plaster, explaining that while it is at first an extra cost, that it saves the owner money in the end. Finishes work to “harden the surface of the plaster, prevent absorption and can be periodically washed with less mess and more speed than whitewash.”<sup>18</sup>

Published towards the end of the great plaster craft tradition, W. Verrall authored the *The Modern Plasterer* (1928) as part of the Caxton Publishing series on building trades.<sup>19</sup> This series of books was published in response to the “consequent need for reference material on the different trades,” and demonstrates a clear concern of the time period to extend

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16 Donhead Publishing, “New introduction to the 1998 edition of Plastering Plain and Decorative.” [Website] [http://www.donhead.com/new\\_introductions\\_and\\_reviews/plastering\\_millar\\_introduction.htm](http://www.donhead.com/new_introductions_and_reviews/plastering_millar_introduction.htm) [Accessed 10 February 2010].

17 Millar, 123.

18 Idem.

19 Donhead Publishing, “New introduction to the 2000 edition of The Modern Plasterer.” [Website] [http://www.donhead.com/new\\_introductions\\_and\\_reviews/modern\\_plasterer\\_introduction.htm](http://www.donhead.com/new_introductions_and_reviews/modern_plasterer_introduction.htm) [Accessed 16 February 2010].

the knowledge of techniques and skills, as related to building trades. Verrall's book has been considered the bridge between Millar's *Plastering: Plain and Decorative*, and *Plastering- An Encyclopaedia* by Stagg and Pegg, appealing to the modern reader in providing an in-depth understanding in the basics of traditional plastering.<sup>20</sup> This work is of particular importance because of its fourth chapter, *Ceilings: Decorative and Others*. Verrall explains that the ceiling should "not be uninspiringly flat and colourless [sic], nor should they become the focal point. If there is to be a focal point, that should be the chimneypiece, the main doorway, or some other feature of the vertical plane."<sup>21</sup> This recommendation is particularly apt for the Whitney Studio, as Chanler's ceiling is incredibly elaborate and complex, while still focusing all of the room's attention of the far more colorful and sculptural fireplace/chimney.

This literature is best understood with an overview of the historical context in which it was written. In her Masters thesis, Justine Posluszny-Bello considered the development of plaster manufacturing in the recent past through an examination of scientific innovations and patents, plaster manuals and labor unions. Her research focused on the changes in plaster production that did and/or did not take place during the time period of 1870 to 1930. A plasterer during this time period would have been familiar with all aspects of his trade, both in structural and decorative application, while possessing his own natural skills and the typical demands of his clientele. Although this was expected, a rift between workers associated with wall plastering and decorative plasterers was evident by the last quarter of

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20        Idem.

21        W. Verrall, *The Modern Plasterer*. Shaftesbury, Dorset, UK: Donhead Publications, 2000, 36.

the nineteenth century. Due to the fragmentation of the trade, plasterers began organizing among themselves based on participation in design, production, distribution and installation of plaster products. Ornamental plaster diverged into its own discrete sector of the industry and the apprentice system began crumbling in the face of mass industry.<sup>22</sup>

Trade unions began to emerge in the United States as early as the late 18<sup>th</sup> century, but gained recognition in the mid-to-late 19<sup>th</sup> century. The Civil War spurred the first influential national plaster union, alternately known as the National Plasterer's Union or the National Plasterers Organization (NPO). Their stated goals were to establish standard wages and working conditions, formulate a traveling card system to permit union members to travel from one's local jurisdiction to another, to actively exclude those unfit for membership and regulate the training of apprentices.<sup>23</sup>

Locally in 1890, the Journeymen Plasterer's Union of New York City mandated that no new apprentice would be taught plastering in the city of New York for a period of two years, as there had been previous accusations of engaging in illegal anti-apprentice maneuvering. A 1892 agreement then stipulated that no new plasterer would be admitted into the trade without five years of experience. Posluszny-Bello notes, "the undisputed effect... was that it stifled the overall number of plasterers available...[and] detracted from the number of workers who would ever learn the craft by way of the apprentice system."<sup>24</sup> This is worth mentioning, because by the time the Whitney Studio ceiling was being constructed in

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22 Posluszny-Bello, 17-18.

23 *Operative Plaster and Cement Mason's International Association* [Website] [www.opcmia.org](http://www.opcmia.org) [Accessed: October 4, 2006], as referenced in Posluszny-Bello, 20.

24 Posluszny-Bello, 20-21.

the 1920s, Chanler was possibly employing plasterers from a unionized trade, while historically, he had hired a French assistant for his decorative work. This is described by Thomas

Lately:

*To help in his commissioned artistic work, he brought from Paris a talented assistant, Francois Ladigeois, who stayed in New York, carrying out Chanler's designs, which called for the painstaking application of such exotic materials as gold leaf, aluminum and glass.<sup>25</sup>*

While Ladigeois' expertise may have been limited to surface finishes, this reference implies that Chanler may have employed other European craftspeople that he felt were the most qualified for this type of work. Due to the limited range of knowledge in plastering craft in New York, it must be considered that Chanler also employed European plasterers.

Along with social innovations in the late 19<sup>th</sup> century, there were many technological developments that were beginning to filter into the plastering trade. Millar reported that no less than fifteen patent plaster formulation existed in the United States by the end of the nineteenth century. At the same time, Dr. Reissig took the Prussian government prize for the discovery of a water resistant gypsum.<sup>26</sup> Similarly, new additives were introduced into plaster production with the invention of fibrous plaster, which is generally defined as a layer of plaster with a fiber reinforcement. Staff was one variation on fibrous plaster, in which coarse cloth or bagging, or fibers of hemp or jute are included in the mixture as strengtheners.

#### **4.3 Relevance of historic texts to the Whitney Studio**

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25 Thomas, 165.

26 Posluszny-Bello, 43-45. Dr. Reissig develop this paten through the process of immersing cleaned plaster objects into a concentrated baryta water solution for 1 to 10 days, which turning the surface into a sulfate of baryta and carbonate of lime.



A review of the contemporaneous literature related to plaster production was required in order to begin to formulate an understanding of the modes of production that may have influenced the ceiling of the Whitney Studio. Chanler, as an artist trained in sculpture, fine arts painting and decorative panels, relied on a group of assistants and trade manuals for the technical translation of his designs into plaster. Unlike many of his other interiors, which incorporated the heavy use of gesso to create relief,<sup>27</sup> the Whitney Studio interior incorporated separately cast bas relief panels with appliqué and integral sculpting. The level of sophistication required for this ceiling would have required Chanler and/or the craftsmen working with him to have extensive knowledge of plaster production methods and techniques. The following section will consider historic methods of plaster production, analyze prevalent themes surrounding the period of production, evaluate the trends and prevalence of possible techniques and postulate a relationship between the literature and the evidence found on the ceiling.

The Whitney Studio ceiling is what would be described as a floating paneled ceiling, as it is a decorative ceiling that is supported by a plaster substrate ceiling.<sup>28</sup> Noting that such ceilings require sound foundations, Millar also explains:

*These are formed by the first coat and the floating coats, the former being laid on well-seasoned and strong lathes, securely nailed, or on corrugated metal laths, or wire netting. The first and floating coats should be composed of strong-haired and well-tempered coarse stuff. It is of the utmost importance for paneled ceiling, and indeed for all kinds of plaster work where lime is used as a base for the first coating, floating and setting (more especially if the lime is of a rich or far nature), that each coat should be allowed to stand as long as possible before the next one is laid...Each coat is long*

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27 Joyce Zucker [Phone Interview] 8 February 2010.

28 Anthony Giudice, P.E. *Whitney Studio Ceiling Assessment*. New York: Kaitsen Woo Architect, June 2008.

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*exposed to the carbonic acid of the atmosphere before being covered with the next.*<sup>29</sup>

Millar describes the process of “planting,” in which small, numerous pieces are pre-cast and applied in-situ onto panels of a ceiling. At the turn of the century, he describes that fibrous plaster casts were most suitable for this type of work, as they were lighter and generally stronger than solid mouldings.<sup>30</sup> In order to fix any pieces in place, Millar explains the moulding must be “well undercut in the centre and cross-scratched on the width or bed of the moulding,” as is visible on the Whitney appliqué snake detail.<sup>31</sup> Verrall also notes that on floated curved surfaces, the difficulty of this work requires a small scale, in which sections are generally cast and then fixed into position. The cast should be done in fibrous plaster, allowing freer handling of light castings, but “in no way precludes the introduction of hand finish and modeled ornament.”<sup>32</sup>

Similarly, the ‘fixing stuff’ should contain “haired putty, gauged with an equal part of fine plaster, and sufficient size water to retard the setting as required...a portion of the gauge is stiffened with dry plaster, and used for filling in the deep undercuts in the cast and the ceiling...the softer stuff is used for the cross-scratched parts on the cast and the ceiling.”<sup>33</sup>

Plaster appliqué was a popular interior decoration treatment well into the turn of the 20<sup>th</sup> century, employed in many different ways to reflect the individual design sentiments of each commission. A 1894 article featured in *The Decorator and Furnisher* magazine dis-

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29 Millar, 127.  
30 Ibid, 130.  
31 Idem.  
32 Verrall, 50.  
33 Millar, 130.

cusses the use of French Appliqué relief to achieve new dimensions in ceiling design.<sup>34</sup> The

article details the versatility of plaster relief:

*Applied with the ease of wall paper, these beautiful traceries decorated in colors and metal, are the choicest efforts of modern decorative art...The border of the ceiling as well as the frieze, is the natural place for relief ornament, which, apart from its coloring, has a beautiful form.*<sup>35</sup>

While this example exhibits a low-cost method of applying plaster to decorative interiors, it provides a sense of the design trends and manufacturing capabilities of plaster leading



that are interspersed throughout the pattern being heraldic in their force of expression, and nothing finer can be imagined than the sumptuous frieze that accompanies the design.

Not only do Messrs. Warren, Fuller & Co. manufacture wall-paper decorations, but they thoroughly cover those features allied thereto, making contracts for the furnishing of all interior appliances, such as heating, lighting, stationary and movable furniture, with the attributes of trim, etc., from their own or other architect's drawings.

It may not be amiss to say that the work, beautifully bound in dark red cloth, with title and seal printed in gold thereon, can be had from the publishers at one dollar per copy.

NEW CEILING DESIGN IN HALBERT'S  
FRENCH APPLIQUÉ RELIEF.

MR. HALBERT deserves the thanks of decorators throughout the country for placing within their reach at so low a cost his beautiful designs in Appliqué Relief for walls, friezes and ceilings. Applied with the ease of wall-paper, these beautiful traceries, decorated in colors and metals, are the choicest efforts of modern decorative art. The new ceiling design shown herewith is a beautiful conception in the Rococo style, and is delicate enough for a boudoir. The border of the ceiling, as well as the frieze, is the natural place for relief ornament, which, apart from its coloring, has a beauty of form that is captivating. The availability of such ornament as a foundation for the use of incandescent lamps, which can be applied to the curling ends of the scrolls, or to the coquillage, is an additional merit, as this style of lighting interiors is all the rage at present. Such a combination of utility and beauty deserves the greatest encouragement.

34 **Figure 4.1. Example of Halbert's French applique relief (The Decorator and Furnisher, Jan. 1894)**  
New Ceiling Design In Halbert's French Applique Relief," *The Decorator and Furnisher*, Vol. 23, No. 24 (January, 1984), 144-145.

35 Idem.

up to Chanler's creation of the Whitney Studio. Although design sensibilities would have certainly generated much interest this kind of work, the Whitney Studio ceiling was truly unparalleled in its intricacy of individual figurative components and style of composition.

Bankart notes that when color is to be added to modeled surfaces of stucco-duro, tempera paint is to the most permanent and successful option (mixture of pigment and egg yolk).<sup>36</sup> The result, he says, is:

*...Continuous broken colour of dull surface, but luminous and pleasant in tone, reticent and unobtrusive in effect, and permanent and insoluble in nature. The author claims for this process recognition as a basis sound in principle and worthy of further study and development and advocates its further use...It is needless to say that the surface of the plaster must have its suction allayed to some extent by the application of a hot solution of shellac, or a similar preparation, before the application of the colouring matter. Wax colours, spirit fresco, and other media have been used, with but [sic] unsatisfactory results.*<sup>37</sup>

After 1900, plasterwork was meant to recall the discovery of the "true beauty" and nature of plaster. Prior to this time, Posluszny-Bello writes, "it is clear that the prevailing conception of this material was one whose principal purpose was to lend itself to imitation, duplication and repetition,"<sup>38</sup> Instead, critics like Laurence Turner begin to discuss decorative plaster as a "much abused craft" in that it pretends to be something it is not and rarely is allowed to express its own uniqueness of qualities. The debate on the "honesty of plaster" continues and matures into the late 1910s. Poslusny-Bello sees this movement culminating in 1917, with Harborough Desmond Upton's criticism, "Why not abandon this pretense and use plaster as *plaster not imitation of something else?*" (italics theirs) and Maximilian Friederang's

36 Bankart, 324.

37 Idem.

38 Posluszny-Bello, 89.

advocation “let us, above all, be sincere,” in our use of plaster.<sup>39</sup> Despite the strong advocacy for a Modernist, more-“truthful use of the material, there was no consensus on what the nature of the material is or what its qualities are inherent in its use. This ideology is important to consider, as Chanler adopted plasterwork as his primary medium for invention at the Whitney Studio. Perhaps he was trying to engage a dialogue with contemporary thoughts, attempting to locate the inner truth to craft? In attempting to understand animals in their most true forms, Chanler himself had once said, “I mount fish myself, in plaster, and they are on my screens and live sinew and scale.”<sup>40</sup> The very literal use of plaster as a molding material, shaping to the physical form of that which the artist wishes to create is perhaps the ultimate true use of the material: to provide shape for that which cannot be represented in any other way.

The craftsmanship and detail of the Whitney Studio ceiling is exceptionally rare, particularly during a time period when pre-fabricated ornamental plaster was incredibly typical and readily available. The interior is considered an artwork in its own respect, perfectly unique and tailored to the individual it was commissioned for. The stock ornament system was criticized mercilessly as an innovation that effectively resulted in a “loss of craftsmanship,” whose popularity grew through the first two decades of the twentieth century.<sup>41</sup> One of the most derisive opponents was the retired plasterer James John who criticized, “The crafts of the mason, the carpenter, the plaster are even now being finally destroyed by

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39 Posluszny-Bello, 92.

40 “Possibilities of Screen as Decorative Feature Interestingly Shown in Bizarre and Delightful Exhibit Now Being Held,” New York (December 17). Robert Winthrop Chanler Scrapbook, Archives of American Art, Smithsonian Institution. [Microfilm Reel 4131].

41 Posluszny-Bello, 26.

a system in which design is divorced from work, the present system in which the design has no hands to execute and the worker no head to think.”<sup>42</sup> The overall attitude projects the ideas that individuality remains the charm of plaster, and that the true artistry and beauty of the craft was effectively in the mass production of industrial plaster ornaments. Thus, the Whitney Studio ceiling resonates heavily with the nostalgia for a truly artist-crafted interior, both designed and crafted by the same mind.

The relationship between the artist and plasterer is complex in many of these late-19<sup>th</sup> century texts. Bankart is one of the strongest advocates for the plasterer as artist, stating:

*The ‘artist’ naturally feels whatever limitation there may be in his medium- but it is because ‘the artist; has so long been divorced from the craft of the plasterer, and because modern plasters are being so grossly misused by decorators who are not ‘artists’ that it is so necessary to insist upon this question of right and wrong use of material being upheld.*<sup>43</sup>

It is important to keep this in mind when understanding Chanler’s work as an interior designer. While extensively trained in the fine arts of painting and sculpture, his work was often very experimental and at times has the mark of an amateur. This point is clearly met in Chanler’s execution of the Buffalo Room in Coe Hall, where paint has continued to flake since just months after Chanler’s application. The room is primarily on a plaster-base, and the figures and landscape are elaborated upon with built-up gesso. Conservator Joyce Zucker hypothesizes that the gesso was applied too quickly after the plaster walls were able to cure, resulting in permanent moisture and adhesion problems with the surface coatings.<sup>44</sup>

42 James John, “Old Stucco-Duro and Plasterwork with Reference to Modern Use and Application,” *The Architect and Contract Reporter* 70 (December 25, 1903): 411. Quoted in Posluszny-Bello, 27.

43 Bankart, 328.

44 Joyce Zucker [Phone Interview] 8 February 2010. This will be elaborated in Chapter 8.



This practice would be what Bankart considers the “wrong use of material.” But, what appears on the Whitney Studio is an entirely different problem. The plaster is composed with very high craftsmanship, revealing the mark of true plasterers. While there is little documentary evidence to shed light on the working practices behind the ceiling’s production, it is evident that the plaster component was very well thought out, as the ceiling is composed of multiple relief panels that are fitted into each other, and accentuated with appliqué and in-situ generated stucco components. The ‘artist,’ offered his designs as the inspiration, but the plasterer was left to develop them into three-dimensions. Chanler perhaps learned from his mistake at Coe Hall, and made the decision to hire professional plasterers for the Whitney Studio.

## 5.0 CEILING CONSTRUCTION & FABRICATION

When the carriage house was converted into Gertrude Vanderbilt Whitney's private sculpture studio in 1907, a skylight was installed on the north wall along with an overhanging porch on the second story, the original hayloft along the south wall was removed and a chimney and fireplace were added on the west wall. In 1913, the staircase connecting the Whitney Studio to 8 West Eighth Street was constructed, and between 1918 and 1923, Chanler was commissioned to decorate the interior with a decorative plaster ceiling, fireplace surround and chimney breast, stained glass windows and decorative screens.

The ceiling in the Whitney Studio measures approximately 22'-8" east-west by 28'-0" north-south, and includes an integral plaster cove of approximately 12" in depth at its perimeter. The ceiling system consists of two assemblies; a plaster and metal lath sub-ceiling installed

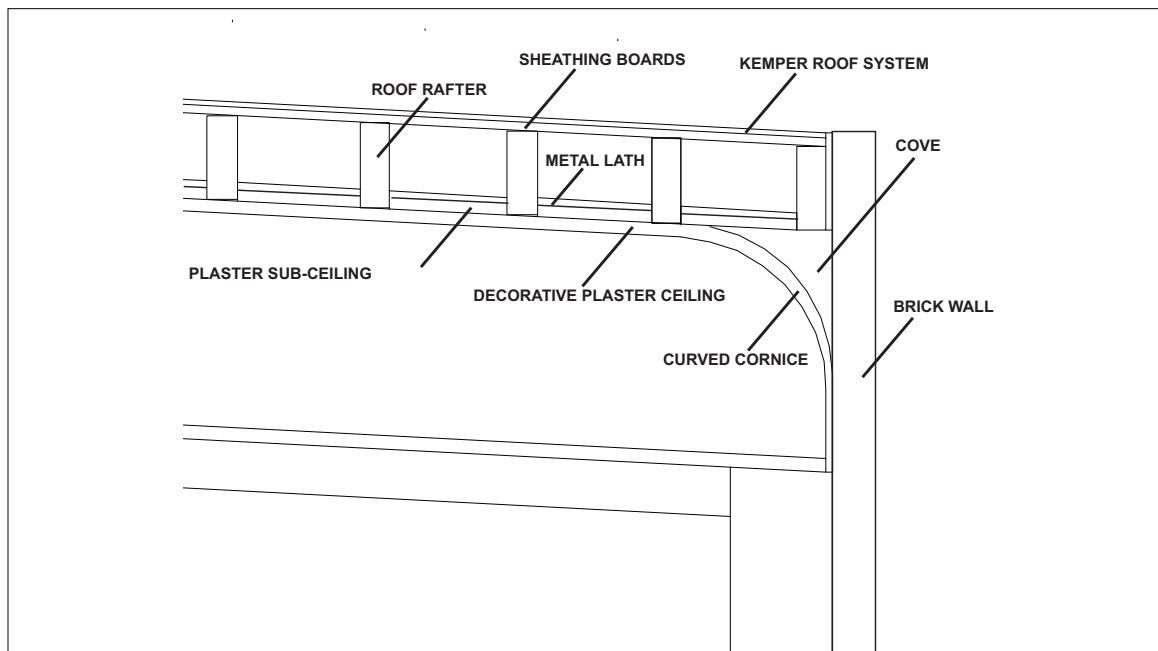


Figure 5.1. Schematic section through ceiling (Based on Kaitsen-Woo, by D. Flory & L. Vollono, 2010).

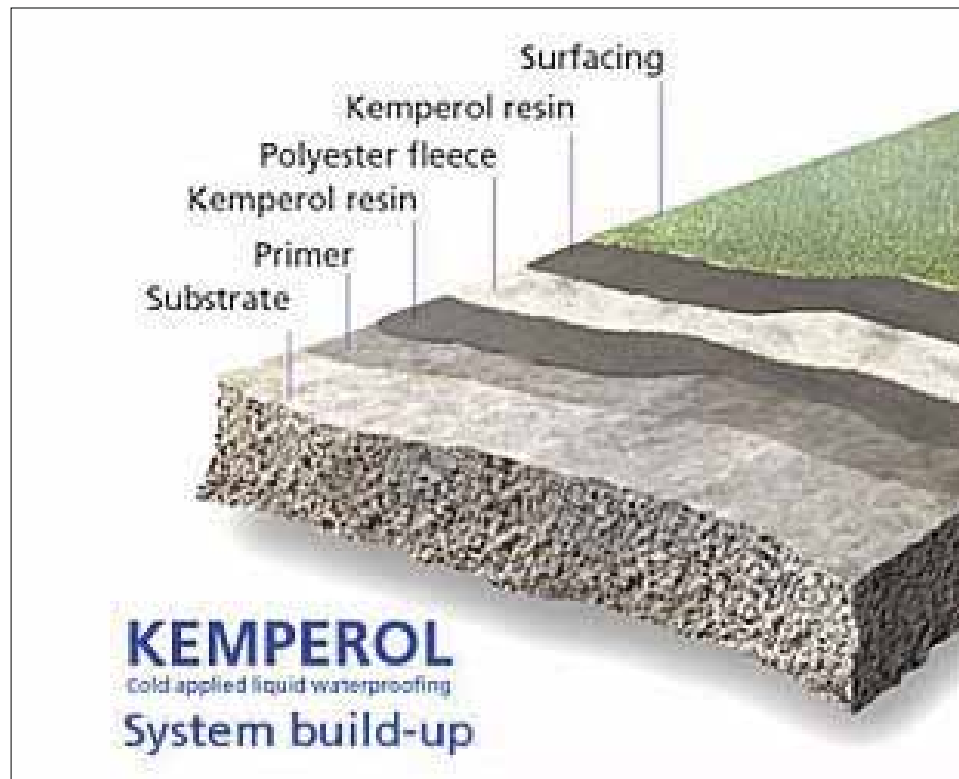


Figure 5.2 Model of Kemper Roofing system (Kemper, [http://www.kempersystem.co.uk/waterproofing\\_intro.asp](http://www.kempersystem.co.uk/waterproofing_intro.asp), 2010)

on the original ceiling rafters and the visible ornamental plaster ceiling. (Fig. 5.1) In order to describe the full construction of the ceiling based on the information that could be observed, this description will begin discussing the roof-ceiling structure from the exterior to the interior.

At the time of the Whitney conversion of the mid nineteenth century stables, the flat roof was most likely a sheet metal or composite built up roof. The current roof, installed in 2001, is a patented Kemper roof which consists of sheet metal nailed to the existing wooden sheathing boards.<sup>1</sup> The Kemper roof system employs a liquid resin called Kemperol, which

<sup>1</sup> New York Studio School of Drawing, Painting & Sculpture. Getty Foundation's Architectural Conservation Planning Grant Program Application, 2007. Currently stored in the files of B. D. Pickering, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June 2009]. The roof installation was done in conjunction with the reconstruction of the east brick parapet wall, and the restoration of the Harlequin paving pattern at the Eighth Street

is used to waterproof and surface the existing roofing material. (Fig. 5.2) The system uses a polyester fleece, which is impregnated with one, two or three-part resins to give strength, durability and tear resistance. One advantage to this system is that it can be applied over an existing roof, which was important for its use in the New York Studio School of Drawing, Painting and Sculpture.

Below the external roof are the original 2" x 9" roughsawn roof rafters, which span the building from east to west and are set into pockets in the brick side walls. Nailed into the roof rafters from below are full-dimension 2" x 4" wood panel frames with expandable metal lath that carry the flat plaster sub-ceiling.<sup>2</sup> (Fig. 5.3) Presumably the plaster sub-ceil-



**Figure 5.3. Roof probe towards the west wall, with cove to the far left, roof rafter and keyed plaster of sub-ceiling in the center (Kaitsen-Woo, 2008).**

entrance, parallel to the 1930 Noel and Miller façade. This work was funded by the New York Landmarks Commission Implementation Grant in 2001.

2 Anthony Giudice, P.E. Whitney Studio Ceiling Assessment. New York: Kaitsen Woo Architect, June 2008, 3.

ing was installed as a support for the ornamental plaster relief ceiling. Further investigation of the roofing system will need to be conducted to determine the distance between the roof rafters, as well as the dimensions of the panel frames that support the substrate ceiling.<sup>3</sup> The ornamental ceiling was installed (and probably created) in long rectangular panels, running north to south, and surrounded by a separate cove cornice around the perimeter of the interior. The cornice is attached with wooden bridges to the adjacent rafters above and applied directly to the brick walls at the bottom, keyed into the mortar joints. (Fig. 5.4) Both



**Figure 5.4. Backing of cornice segment that had fallen in May, 2008. Evidence of keying to the masonry is visible in the brick pattern imprint ( L. Vollono, 2009).**

3

Idem.



**Figure 5.5. Griffin (relief appliqué) with exposed nail used to fix piece. The over tooled background surface (in situ applied rays and ridges) continues under the pre-cast figure, with hand-applied relief-work (flames and clouds) used to conceal the edges of the appliqué (L. Vollono, 2009).**

the ornamental finish ceiling and cove cornice were applied in precast panels.<sup>4</sup>

Visual and physical investigation of the ceiling suggest that three methods were employed in the creation of the ornamental relief. The ceiling is composed of a set of bas-relief panels that were probably cast and hand modeled on a bench as individual panels and attached in sections to the supporting sub-ceiling by means unknown at this time.

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4 Idem.



Next, the joints of the panels were filled with a coat of thin plaster to conceal seams and junctures. This surface application was manipulated with a combed tool to create a ridged background. The third component of the ceiling is the pre-cast and applied-in-place relief, the former installed as appliqué fiber-reinforced elements, cast separately from molds and attached with a dab of plaster and occasional small headed iron nails to the already fabricated panels. (Fig. 5.5) These pre-cast elements tend to be of higher relief and surrounded on one side by a thicker application of gesso, as an overlapping cloud or flame to conceal their ends. Low relief figures may have been modeled entirely by hand or as a combination of pre-cast and wet-applied techniques. Further clarification of technique will become more evident as the overpaint is removed in subsequent investigations during conservation.



**Figure 5.6. Curved cornice on East wall, with removed appliqué portion (GWAS2010.P2), November 2009. Old World chameleon figure is further evidence of applied pre-cast element, surrounded by a series of applied flames to visually and physically fix the element in place (L. Vollono, 2009).**

## 6.0 CONDITIONS ASSESSMENT & DIAGNOSIS

One component of the current research has been the recording and diagnosis of the current conditions of the ceiling beginning with the south cornice collapse in March, 2008. The engineering report by Kaitsen Woo Architects had proposed that this failure was due to an isolated occurrence and was not a systemic problem of the entire ceiling.<sup>1</sup> This information needed to be verified and evaluated to avoid any further damage of the ceiling. Likewise, in order to determine an effective treatment for the ceiling's finishes and plaster substrate, a full understanding of the construction of the ceiling and its conditions is necessary. As a preface to this investigation, other plaster ceiling conservation projects including Drayton Hall and the Wagner Free Institute of Science were examined.

### 6.1 ACL Case Studies with GIS: Drayton Hall and Wagner Free Institute of Science

In 2001, the Architectural Conservation Laboratory (ACL) at the University of Pennsylvania investigated the heavily cracked decorative plaster ceiling in the Great Hall of Drayton Hall in South Carolina. The current conditions were recorded using traditional graphic survey to assessment deterioration and performance of the ceiling that was then used to inform treatment decisions.<sup>2</sup> During the course of the project, GIS was also used to further analyze the crack patterns on the ceiling to explore spatial relationships between observed plaster conditions and the supporting structural system. This innovative type of analysis was conducted with ESRI's ArcView 3.2 and the Spatial Analyst extension, and re-

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1 Anthony Giudice, P.E. Whitney Studio Ceiling Assessment. New York: Kaitsen Woo Architect, June 2008, 5.

2 Frank G. Matero, John Hinchman, Dana Tomlin and Kyu-Bong Song, "A GIS Assessment of the Great Hall Ceiling at Drayton Hall, Charleston," *APT Bulletin* 34, no. 2-3 (2003), 25-35.

sulted in statistical correlations among the present conditions using regression analysis. The results were a series of condition maps that suggested future failure or “threats” based on current patterns of condition so that conservators could isolate areas that required remedial treatment and recommend preventive measures for those areas at risk of future failure.

Utilizing Drayton Hall as the precedent for her conditions assessment of the Exhibit Hall at the Wagner Free Institute of Science in Philadelphia, Marleen Goeke further explored applications of GIS for conditions assessment in her University of Pennsylvania Masters Thesis in 2007.<sup>3</sup> The study evaluated the efficacy of GIS modeling as compared to other forms of non-destructive testing. Since the ceiling at the Exhibit Hall is a barrel vault that functions both as a ceiling and as an arch system for the roof, this was considered a good comparison to the flat first floor ceiling at Drayton Hall. The extensive cracking on the Wagner ceiling was hypothesized to have been a result of differential movements and loading patterns. Since the structural conditions of the plaster ceilings differed between Drayton Hall and the Wagner, this thesis bridged the gap between different structural systems to provide a comprehensive methodology for ceiling conditions assessment using GIS.

The methodology developed for these projects was considered in the formation of the conditions assessment for the Whitney Studio in New York. First, a conditions survey was conducted on spatially-rectified photographs and a physical investigation was made to obtain information regarding the structural system and support for the ceiling. This information was combined together within a spatial database within ESRI's ArcGIS to create a visual

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<sup>3</sup> Marleen Lauren Goeke, *Assessment and Analysis of the Plaster Exhibit Hall Ceiling at the Wagner Free Institute of Science, Philadelphia, PA.* [Masters Thesis] Philadelphia: University of Pennsylvania, 2008.

model of the ceiling for the exploration of interactions among the variables on the ceiling.

## **6.2 Methodology**

### *6.2.1 Diagnostic Process*

Deterioration is a part of the normal life of any building, in which material properties combine with environmental factors to create the requisite components that lead to building failure.<sup>4</sup> This process will continue to occur unless a successful assessment can diagnose the sources of this decay, and this information can be presented in a manner that is both understandable and acceptable to the client. Each building presents its own individual material problems and factors that create unique problems for each structure. While it is useful to understand a building within the broader realm of other projects, it must be understood that one causative factor in one plaster ceiling will not necessarily be the same cause in another despite the similarity of conditions.

In attempting to diagnose the pathologies operating within an individual space, continuous observation and monitoring are usually required. The process is iterative and builds upon its own knowledge base to create a comprehensive understanding of the causative factors of a condition. This information will eventually be used to understand which of these factors might eventually be mitigated. The development of a conditions assessment begins the process of understanding the potential complexities of deterioration mechanisms acting upon a structure.

One process of gathering information about the ceiling of the Whitney Studio was

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<sup>4</sup> Samuel Harris, *Building Pathology: Deterioration, Diagnostics and Intervention*. New York: John Wiley & Sons, 2001, 12.

to conduct a visual examination of the conditions present. Many factors can contribute to the eventual damage of building materials and systems, and thus visual indicators on the surface enabled the investigator to begin the documentation of the current condition of the ceiling. The causative factors for this damage may include material installation and composition; design and construction of the structure, the surrounding environment both interior and exterior, and past treatments and maintenance. Analytical testing and archival research inform possible causal factors, while visual confirmation will identify the severity and extent of the building's deterioration. An examination of all the possible factors will be examined alongside the likely symptomatic conditions to assist in the overall analysis and interpretation of the results.

#### 6.2.2 Conditions Assessment



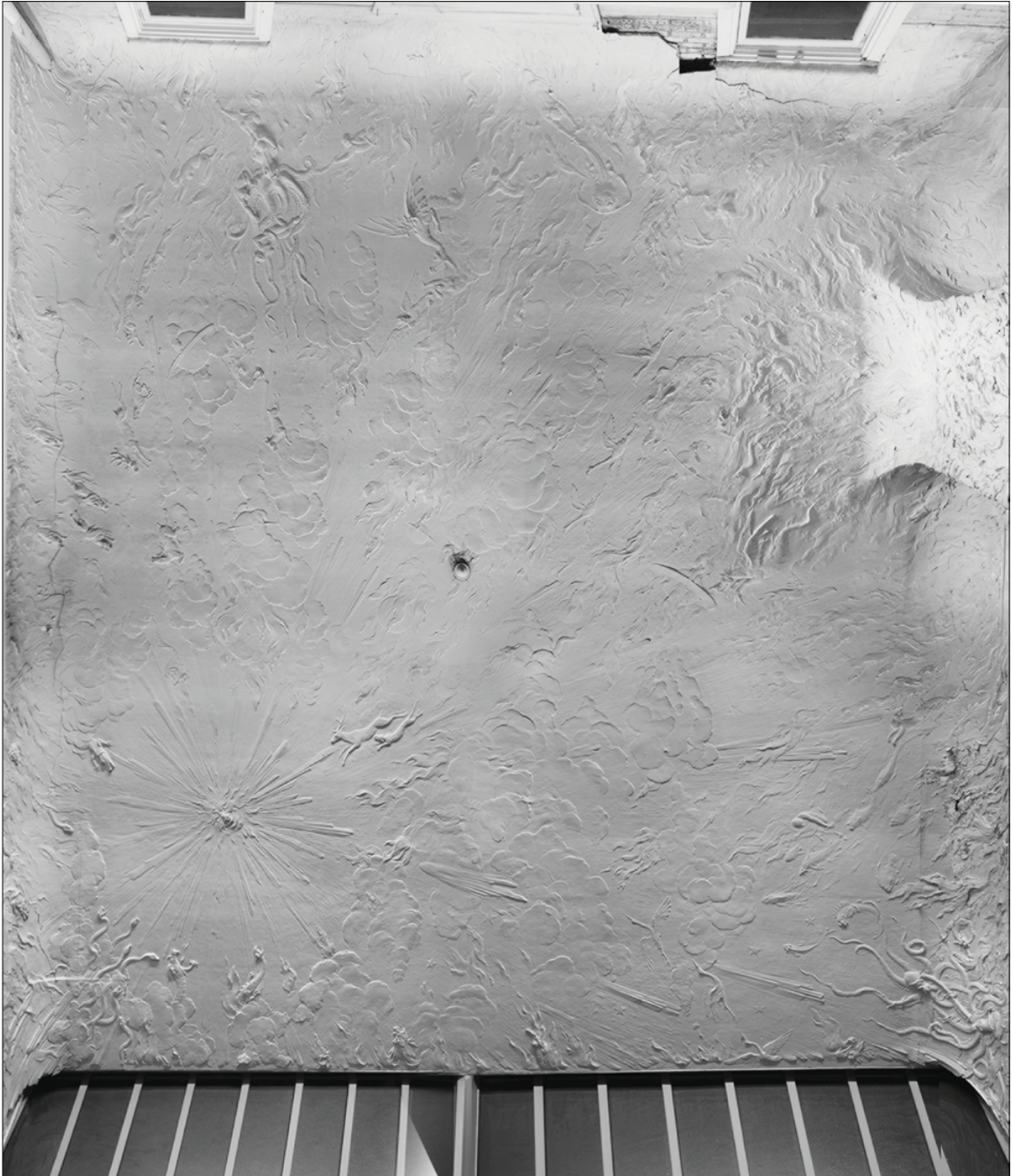
**Figure 6.1. Photographer Joe Elliott is shown photographing a portion of the Whitney Studio (ACL, 2009).**

In order to begin this process, a baseline for physical documentation was created in order to reference the data collected on the overall ceiling system. Photographic documentation proved to be the most useful tool given the complex design of the ceiling.

In preparation for conditions documentation, a rectified photographic montage of the ceiling was created from large format photographs taken in March, 2009 by Joe Elliott and John Hinchman. (Fig. 6.1) To ensure accuracy in the montage, a Leica Total Station was used to establish accurate dimensions of the overall space and ceiling plane. Laser levels were set at spaced dimensions to create a grid on the surface of the ceiling, providing a scale for the photographs taken, as well as a reference point for overlays in the montage. Each section of the gridded ceiling was photographed four times under directional raking illumination to produce a combined image that depicted the ceiling relief under optimal lighting conditions. The surveying data was imported into AutoCAD and a linear grid was developed, which corresponded exactly to the laser grid that was created for on-site photography. The grid was imported into Adobe PhotoShop CS3 as a base layer, and each photograph was rectified individually within the grid. The resulting image was a montage of the ceiling, shown in raking light to display the highest detail of the relief. The image was also spatially-rectified and could be used as a baseline to further document conditions. (Fig. 6.2)

For ease of use in the field, the photomontaged image of the ceiling was divided into smaller, manageable sections, which were then printed in black and white on 11' by 17" paper and placed into individual mylar sheets. Each sheet was then numbered sequentially





**Figure 6.2. Photomontage of Whitney Studio ceiling (J. Elliott & J. Hinchman, ACL, 2009).**

and placed within binders that were used in the field. A key map was generated to locate each 11"x17" sheet within the overall montage, and served to aid in orientation in the field and during the digitization process at the ACL.

A conditions survey of the ceiling was performed in June, 2009 by the author, the results of which were compiled in an interim report.<sup>5</sup> Work was done on scaffolding provided by Integrated Conservation Resources, over a series of five days. During the conditions survey process, every effort was made to protect the existing fabric of the ceiling and to minimize any damage caused by assessment.

First, the ceiling was closely inspected and a list of the ceiling's conditions was generated for the surveying process. Each condition was color coded and assigned a graphic pattern. Observed conditions were directly recorded on the mylar sheets using permanent felt tip markers, with the underlying photograph serving as a guide for drawing. The conditions recorded included:

1. *cracking (small, medium and large)*
2. *previous crack monitoring*
3. *detachment*
4. *pitting*
5. *staining*
6. *soiling*
7. *paint loss (including flaking and previous analysis), and*
8. *plaster loss.*

(See Appendix B. Conditions Glossary) Additionally, areas where the scaffolding could not reach the ceiling (i.e. over the stairwell) were noted and explained on the back of the surveying sheet.

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<sup>5</sup> Lauren Vollono, Architectural Conservation Laboratory. Summer Interim Report: Whitney Studio. Philadelphia: University of Pennsylvania, Oct. 2009.

Upon arrival to the ACL-UPenn, the digitization of the summer's conditions survey began. The hand-drawn surveys were scanned individually and re-stitched together as one montage. These scanned images were adjusted according to the more accurate original ceiling montage to limit distortion throughout the phases of work using Adobe PhotoShop CS3. Once together, the hand-drawn survey montage was saved as a single .jpg file. Both the original and survey photographs were then imported into AutoCAD, and layered atop each other as external references.

The image of the scanned sheets served as a reference for conditions mapping within AutoCAD. The symbols used to identify each condition within AutoCAD corresponded to the colors of the hand-drawn survey as a way to keep consistency in the work throughout the use of different media. Once all the conditions were translated into the AutoCAD drawing, the file was imported into ArcMap as a GIS and each recorded condition was assigned a unique color and hatching pattern for visual distinction, according to the established ACL Conditions Glossary used in the other ceiling reports. In this process, each condition is its own data layer within the database, and is analyzed with respect to other conditions, associated features (e.g. distance to joists) and historical data. This process facilitated the analysis of conditions and allowed researchers to develop hypotheses as to the active decay mechanisms and patterns of deterioration.

Of course, it must be understood that real time conditions assessments are only one tool to be used in understanding the pathologies and performance of a structure. It is one

method of assessment that can be combined with non-destructive and destructive testing to ultimately identify cause-effect scenarios and appropriate treatment responses.

### *6.2.3 Qualitative and Quantitative Description of Conditions*

Following the collapse of the cornice section in May, 2008, the future preservation of the Whitney Studio ceiling was an extremely important point of concern. The conditions recorded for the assessment considered the factors that could have resulted in the cornice failure, with the intention of determining the most threatened areas of the ceiling.

**Cracking** was observed throughout the ceiling, but occurred most frequently along the curved cornice and especially along the east and south walls. The cracks were divided into three classes, small, medium and large according to width and depth, and ranged in width from 1/2" to 1/16", and in depth from finish layer to substrate. Large cracks were defined as those that had penetrated deep into the plaster substrate, while medium cracks were restricted to the finish layer and along junctures points in the ceiling's fabricated plaster panels. Small cracking often appeared in map-cracking patterns, surrounding large or medium cracks as smaller fissures. Small cracks were only visible upon close inspection of the ceiling on the scaffolding. Planar discontinuities were recorded as +/- when shifts in plane around a crack were observed. The most serious cracking in size and concentration was observed in the cove cornice and especially at its interface with the ceiling and wall.

**Detachment** is defined as either the separation of the finish layer of decorative plaster from the scratch coat, or of the plaster from the structural support. This most often

occurs in regions of the ceiling where the structural support is not carrying the weight of the ceiling panel equally. Plaster detachment is often a blind condition that requires the use of a tap test to record where plaster sounded hollow due to discontinuities. While the documentation of this condition is subjective, efforts were made to standardize the recording of detachment throughout the assessment process. All conditions were recorded by the same assessor, using the same technique for each ceiling section that could be assessed. Unfortunately, portions of the ceiling on the far end of the south wall and above the stair well on the northwest corner of the room could not be evaluated because of a lack of safe access.

Pitting and staining were observed in areas related to the infiltration of water. **Pitting** was defined as the formation of small and large shallow cavities on the surface of the



Figure 6.3. Detail of Pitting on Fireplace, 2006 (Archives of the New York Studio School).

plaster and was observed in association with areas of the plaster that had deteriorated into a powdery surface. Pitting and powdering are most likely the result of the combined dissolution and re-crystallization of gypsum salts within the plaster matrix. (Fig. 6.3) **Staining** in this context was identified as a dark reddish-brown discoloration most likely attributed to the corrosion of the expanded metal lath used in the sub surface plaster ceiling and the isolated iron nails used in the attachment of the relief ornament. Both pitting and staining imply that water has migrated from the back of the plaster onto the surface both causing and carrying the stain to the surface.

**Plaster Loss** is the most serious condition of the ceiling, as it disrupts the aesthetic continuity of the ceiling, while threatening the safety of occupants of the room, as well as the future preservation of the ceiling. Loss most often occurred in small fragments, resulting from a combination of other conditions present on the ceiling. Loss ranged from full-scale failure of the panel system, as with the fallen cornice fragment, to partial loss in which surface layers of plaster had cleaved off with paint surfaces. **Paint loss** was documented as both the peeling and flaking of paint from the plaster decorative surface. This condition most often occurred in combination with others but is the result of intrinsic intra-layer failure of the numerous paint layers.

**Soiling** is considered a minor condition on the damage scale to the ceiling yet it greatly alters the understanding and appearance of the ceiling as it obscures many of the original details. This condition was defined as a grey discoloration on the surface of the decorative plaster attributed to extrinsic factors. This occurs most frequently on vertical



elements of the ceiling, such as the curved cornice, or regions that have particularly deep relief and can be attributed to the deposition of particulate dust. Soiling also appears as a striped pattern running east to west and is related to the joist pattern above. This phenomenon has been observed in other plaster ceilings and may be related to air flow and moisture gradients behind the plaster ceiling resulting in greater and lesser attraction of air-borne particulates on the flat surface of the ceiling.

While crack monitoring had been placed in the room in 2001 as part of the roof replacement work by SuperStructures, there were no visible signs of treatment or replacement during the ceiling's assessment. The detached cornice panel from 2008 was retained and examined in the current study. Any evidence of previous interventions, such as "telltales" for crack monitoring or paint exposures/investigations, were noted on each of the condition sheets for documentation.

Unfortunately, the conditions assessment must be considered in isolation, as the framing and secondary plaster ceiling were not exposed or documented during the ceiling investigation. The information to date regarding the ceiling's structure has been noted in *Chapter 5. Ceiling Construction*. In order to fully understand the plaster ceiling conditions, a fuller knowledge of the structural system that supports it is required. It is recommended that an investigation and documentation of the ceiling superstructure be conducted using the reflected ceiling montage to record the relationship between the framing and other pertinent framing- wall and roof features and junctures.

### **6.3 Analysis of Existing Conditions**



**Figure 6.4. Ceiling cornice prior to cornice loss, November, 2006 (Archives of the New York Studio School).**

Of the conditions mapped, the most threatening to the ceiling's stability are displacement and cracking. These conditions indicate previous and possibly current movement within the ceiling, where induced pressure was released in visible points of failure (e.g. cracking). As can be observed in the ceiling cornice failure from 2008, loss is precipitated by extensive cracking through the plaster substrate. Diagonal cracks radiate through the southeast and southwest corners of the cornice. (Fig. 6.4) While these telegraph normal stress lines and do not appear to be moisture related, the southwest radial crack extends to the section of failed plaster cornice.

Pitting and staining are also of serious concern because these conditions are dependent on water infiltration in order to occur. The regions where pitting and staining are most

frequent should correlate to areas of the roofing system that experienced heavy leaks.<sup>6</sup> Thus, these conditions appear largely on the south end of the room, to which the roof slopes, as well as the area surrounding the chimney opening. Water infiltration has largely been mitigated with the re-pointing of the parapet walls and replacement of the roof in 2001. The damage that has already occurred is serious and has resulted in loss of detail on the decorative surface of the plaster, especially surrounding the fireplace.

Using ArcMap to analyze the conditions on the ceiling, surface areas and percentages of the ceilings condition were calculated quantitatively to provide a relative assessment of each condition.. Approximately 81% of the ceiling appears undamaged. Where damaging conditions were recorded, the largest condition represented on the ceiling was pitting of the plaster, which composed 7% of the entire surface area of the ceiling. This was primarily concentrated in the ceiling around the upper fireplace, and was often coupled with staining. Conversely, loss of original plaster and paint finishes were less than 1% of the total ceiling.

Conditions mapping with ArcGIS also provided different methods of visualizing conditions in order to locate particularly problematic areas of the ceiling. Spatial Analyst is an extension of ESRI's ArcGIS that can be used to convert vector data to raster data, providing unique analysis methods to represent spatial relationships by compiling different data sets of relevant information, such as distance and elevation, to highlight given areas. While Spatial Analyst is used extensively at larger scales such as for urban analysis it can be an

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<sup>6</sup> Although it has been documented that leaks occurred in the roofing system, the exact location where has not been fully documented.

extremely valuable tool for architectural conservation. Used mainly for “distance” and “density” analysis, the software can be used to identify areas of condition concentration. Using Spatial Analyst to map the density of cracking across the ceiling’s span, it became apparent that the most concentrated areas of cracking occur along the east and west cornice sections, appearing especially dense in the corners of the room.

#### **6.4 Existing Factors: Analysis of Possible Pathologies**

Throughout the building’s history, the Whitney Studio has been affected by various factors that have contributed to its current state of deterioration. In an attempt to understand the full range of possible pathologies, each factor must be considered within its relevance to the conditions observed.

Load displacement of the upper masonry walls is a possible cause for some of the cracking observed in the ceiling and especially where the cornice meets the walls. This may relate to the Whitney’s building alterations beginning with the 1907 conversion of the carriage house into an artist studio. This renovation resulted in the removal of the hayloft level of the room and installation of the great north skylight, both of which would have affected the structural load bearing capacity and response of the entire building. A steel reinforcing beam along the south wall was installed with the removal of the hayloft joists, but the entire east-west span of the two story room now remains untied except at the very top with the roof joists.<sup>7</sup> This conversion was also followed by the installation of a fireplace, skylight and overhanging veranda, which required re-framing of the original carriage house ceiling

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<sup>7</sup> The date of the steel beam installation is unknown, but a photograph of the room from 1928 shows the beam, with a curtain hung over the side. Most likely the beam coincided with the removal of the hayloft.

structure. Also, the carriage house was later connected to its nearby structures, to Gertrude's first floor Sculpture Studio to the east and to Juliana Force's apartment complex through the installation of an enclosed staircase on the second floor. These renovations in the beginning of the twentieth century may have had an impact on the structural stability of the building initially and possibly still today. The building is restricted from movement on its east side, as it shares a party wall with its corresponding studio, and is further restricted by the staircase that connects to the studio on the northeast corner. Continuous monitoring of the cornice cracks would confirm the nature of the movement and is essential before repairs are made to the ceiling.

Damage due to moisture is another factor that has been documented through previous repair and is visible in the conditions of staining and pitting on the ceiling's surface. The skylight located in the room was reconstructed in 1997, and the east parapet wall was rebuilt in 2001 along with the installation of the Kemper roof system.<sup>8</sup> All of these renovations were undertaken because of extensive leaking through breaches in the building's envelope. The 1993 Historic Structures Report notes extensive water damage in the Whitney Studio, noting a "horizontal crack along the east wall, crack above the west bay of the south wall [which precipitated the failure in 2008], and hairline cracks in each corner indicate moisture damage."<sup>9</sup> The Kaitsen Woo engineering study of the Whitney Studio cited the location of the roof's built-in gutter system above the south cove as a threatening concern, as the gutter

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8 Anthony Giudice, P.E. *Whitney Studio Ceiling Assessment*. New York: Kaitsen Woo Architect, June 2008, 2.

9 Li/Saltzman Architects & Wesley Haynes Historic Preservation. *Historic Structure Report: New York Studio School of Drawing, Painting & Sculpture*. [3 vol.] New York: Li/Saltzman Architects, February 2003, V.II, V-2.

trough showed signs of periodic backing up.<sup>10</sup> The ceiling probe conducted in 2008 also revealed that keying in plaster panels along the south west corner of the room had almost completely disintegrated from localized water infiltration.<sup>11</sup> While this condition is noted to date prior to the 2001 roofing installation, the plaster's connection to its supporting lath is weakened in this region. These problems are compounded by the fact that the space between the ceiling and the roof membrane is unvented, resulting in the entrapment of moisture behind the ceiling.

Inherent problems with the installation of the ceiling might also be a factor in the ceiling's deterioration. It has been observed that the cornice cove is only supported by ceiling joists on its upper end, and is then keyed into mortar joints on its vertical edge. The space between the two fastening points is unsupported. The plaster cove sections are reinforced with burlap, and this is the only support within the cornice. Also, the nails that fasten the panels and panel lath into the rafters are corroded, and corrosion of the lath may be cracking the support plaster.

Demolition of a nearby building on MacDougal Alley is another possible influence on the failure of the plaster cornice fragment. New York University began a demolition/renovation project at 22 Washington Square North, a property which backs out onto MacDougal Alley.<sup>12</sup> The construction work included the use of jack hammers, whose vibrations could be felt in each of the buildings along MacDougal Alley.<sup>13</sup> Stress caused by the pulsation of sur-

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10 Anthony Giudice, P.E. *Whitney Studio Ceiling Assessment*. New York: Kaitsen Woo Architect, June 2008, 4.

11 *Ibid*, 3.

12 New York University, "22 Washington Square North: Notes from November 7, 2008," [Website] <http://blogs.nyu.edu/blogs/tls204/22wsnalerts/> [Accessed 18 April 2010].

13 Chris Esposito [Personal Interview] 20 March 2009.



rounding construction could have contributed to the ceiling's overall failure, but it is certain that the cause of damage to the ceiling goes beyond vibration alone.

### **6.5 Summary Diagnosis**

Water penetration from the roof and parapets over a long period of time has allowed a range of deterioration mechanisms to occur to individual building materials (plaster, lath, wood) ultimately affecting larger construction systems (ceiling). Water was trapped in the space between the ceiling and roof, resulting in heavy deterioration of the ferrous lath, nail fasteners and plaster. Moisture began corroding the metal fasteners that held the lath panels to the roof rafters, weakening the junctures in the ceiling system. Weakened ceiling segments were then free to move in certain areas, while other portions remained immovable, such as the panels along the west wall bordering the sculpture studio, and the juncture between the Whitney-Force concrete stair and the second floor studio space. The corroding ferrous lath also resulted in staining of the plaster. This moisture problem was further exacerbated by the lack of ventilation in the ceiling-roof space, and environmental conditions, such as surrounding building construction and demolition. The cornice panels experienced the most severe cracking damage due to their brittle nature and the fact that their only tensile reinforcement is the burlap that was embedded into the plaster panel during fabrication. Attached indirectly to the joists above and the masonry wall below, they are easily damaged by movement of the joists and the masonry walls.

### **6.6 Recommendations**

In order to identify the key factors causing the cornice and ceiling to crack and especially if these conditions are active, a monitoring program should be employed. Each of the factors discussed above combined in some form resulted in the failure of the cornice panel in 2008. Assuming moisture ingress has been corrected, structural monitoring of targeted cracks in combination with environmental monitoring would be the next step.

Water is the main culprit behind the ceiling's deterioration and there should be major efforts to limit the ceiling's exposure to moisture infiltration. The roofing system and window openings should be routinely inspected to ensure that there are no broken seals in the building envelope. Likewise a ventilation system should be installed to allow the space between the ceiling and roof to dry. Once installed, the air should be monitored with a digital thermohygrometer to measure relative humidity and water vapor in the air. This monitoring system should record both daily and seasonal changes in the interior and exterior environments, and will provide a further understanding in the temperature and humidity variances in the space. These systems can contain remote leads, and sound alarms when the reading is either too high or too low. Quantification of the temperature and humidity within the space will allow for a monitoring program that can continue through the change of seasons.

A more extensive crack monitoring program should also be employed to determine if the cracking on the ceiling is still active. While the previous "telltale" markers on the largest cracks on the east wall are a cost effective way to determine the overall expansion of a crack, they do not provide quantitative data to understand the expansion and contraction of the cracks in an annual cycle. With the installation of crack monitors, the movement of

cracks can be quantitatively analyzed. The monitor is installed over a crack with overlapping acrylic plates with inscribed millimeter grids. If movement occurs within the crack, the crosshairs of each grid shift either vertically or horizontally, thus allowing the movement of the crack to be tracked over time. Other forms of electronic monitoring systems are also possible; the final selection will depend on cost and access.

The corroded metal fasteners that tie the plaster lath frames to the roof rafters should be inspected for degree of failure and if necessary replaced and/or augmented with stainless steel fasteners, and the cove area should be reinforced with a more sufficient support system to prevent further induced stress. This will require exposure of the ceiling system from behind, through the temporary removal of the roofing system for access. The cove cornice should also be removed, strengthened and reattached if possible in a manner allowing its isolation from the ceiling or walls.

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## 7.0 FINISHES ANALYSIS: COE HALL

### 7.1 Case Studies: Interiors at Coe Hall, Planting Fields

In order to gain a fuller understanding of Robert W. Chanler's working technique and applied finishes, case-studies proved invaluable. The most major and comprehensive conservation project related to Chanler's body of work is the work conducted by the New State Historic Bureau of Historic Sites in the Breakfast Room at Coe Hall, in Oyster Bay, New York.<sup>1</sup> Chanler begun and concluded his work on the Buffalo mural and Mae Coe's bedroom in 1920, in the midst of his work at the Whitney Studio, and the two interiors present many of the same conservation challenges and techniques. In some respects, the Whitney Studio may reflect 'lessons learned' from his earlier commission at Planting Fields.

Coe Hall, built within the greater estate of Planting Fields, was a 65-room manor built for English-born insurance and railroad executive William Robertson Coe and his wife Mai Rogers, the Standard Oil heiress, in the early quarter of the 20<sup>th</sup> century.

#### 7.1.1 Breakfast Room, Coe Hall

In 1910, W.R. and Mai had purchased Col. William "Buffalo Bill" Cody's Irma Lake Lodge in Wyoming. For at least three generations prior, Buffalo Bill was known to many Americans through the great American West adventures told in Ned Buntline's Dime Novels. The family spent summers at the ranch on Carter Mountain, which overlooked Shoshone National Forest. Coe continued to purchase properties in Wyoming, including Cody's TE Ranch, Anderson's Palette Ranch, the Greybull Ranch and Hoodoo Ranch. At one point, Coe owned

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1 Planting Fields. "Robert Chanler," [Website] <http://www.plantingfields.org/ourstory/add/aad2.cfm> [Accessed 08 February 2010].



Figure 7.1. Breakfast, Coe Hall, designed and fabricated by R.W. Chanler, c. 1920 (L. Vollono, 2010).

over 200,000 acres of Wyoming land for raising cattle, thoroughbred racehorses and feed crops.<sup>2</sup>

The Coe family commissioned Robert Winthrop Chanler in 1920 to “bring a piece of their beloved Wyoming” to the breakfast room of their home at Planting Field in Oyster Bay, NY.<sup>3</sup> The ‘Buffalo Room’ was named after its elaborately tooled and painted plaster murals of the Great Plains, which Chanler painted with depictions of vast Buffalo herds and



**Figure 7.2. Gertrude Vanderbilt Whitney shown in front of her heroic sized memorial statue The Scout-Buffalo Billy Cody, late 1923- early 1924 (Jack Richard Photo Studio, NHL Nomination).**

<sup>2</sup> “Westward Coe!” Pamphlet generated for Press. Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].

<sup>3</sup> Idem.



Native Americans horseback riders. The room was cherished by the Coe Family, with W.R. Coe's son, Robert remembering the artist in later years:

*Bob Chanler's work was imaginative and sometimes mysterious- strange animals and beasts whirling around in violent colors but this was tempered by the use of subtle and strong shadings and splendid composition. He had the robust approach of some of the Renaissance artists and he certainly was not handicapped by timidity. He most certainly was one of the most vigorous and vital painters in America during this century.*<sup>4</sup>

While Chanler worked at Coe Hall, Gertrude Vanderbilt Whitney was involved with her own artistic endeavors related to Buffalo Bill. She was commissioned to sculpt the memorial statue, *Buffalo Bill- The Scout* in Cody, Wyoming, of which she funded approximately \$50,000 out of pocket. (Fig. 7.2) The statue was dedicated on July 4, 1924.<sup>5</sup>

The Buffalo Room is composed of a four wall mural with a painted groined ceiling, which was set with a rough plaster layer, finish coat and a worked gesso layer which comprises the relief throughout the room. The murals in the Buffalo Room were executed in washes of paint which contain both oil and animal protein (e.g. glue), over a surface composed of gesso. (Fig. 7.3) The exterior walls of the room are built from blocks of Indiana limestone, which are attached to a 24" thick brick supporting wall with asphalt covering. After an air space in the wall, there is a hollow brick wall, with either wooden board or metal lath attached to the brick and plastered on the interior surface.<sup>6</sup> All figural elements, including the animals and Native Americans, were originally water-gilded over bole and then treated with a glaze over-paint. In the early 1980s, the paintings were heavily restored and much

4 Robert Coe, "Chanler, Coe, Cody and Cannes," *Planting Fields Arboretum* [Archives], 2. Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].

5 National Register of Historic Places, Buffalo Bill Statue, Cody, Wyoming, National Register # 74002319, 1974.

6 Sherman Art Conservation Studio, "Conservation Report for the Restoration of the Chandler (sic) Murals in the Buffalo Room at Coe Hall," Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].



**Figure 7.3. Macro photos of small detached sections of the paint that show the sandy finish plaster selectively attached to the back side of the gesso (J. Zucker, 2007).**

of the original mural was over-painted, with many areas of the lower wall portions and the entire sky being completely re-painted. This restoration was done primarily in acrylic paint, as well as a reddish-yellow toned synthetic varnish.<sup>7</sup> The Buffalo Room was originally built with four large French windows, with two-sided exposure to the elements that created highly unstable temperature and humidity conditions.<sup>8</sup>

The major condition that appears across the surface finish is continuous flaking. This problem appeared early in the site's history and continues to threaten the preservation of the wall murals. A few years following Chanler's completion of the Buffalo Room, the site's foreman wrote:

7        Idem..

8        "Westward Coe!" Pamphlet generated for Press. Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].

*The plaster work at the Oyster Bay house was done by a firm of very high standing and is supposed to be really good work. It is Mr. Coe's understanding that your men applied the rough coat of plaster and prepared the walls for your painting and that it is your plaster that is now peeling off the paint.*

*Mr. Coe feels that before making such a large expenditure in the Breakfast Room he would like to be assured by Mr. Chanler that the work you now do will be permanent. If it is going to peel off continually and a continual and be a continual source of expense, he would rather have it all taken off now.<sup>9</sup>*

Given the early evidence of this problem, conservators have hypothesized that the problem is inherent in the substrate as a product of its installation, and any conservation will be a maintenance plan that involves continually re-attachment of the surface to its plaster sub-



**Figure 7.4. Evidence of flaking on a detail of a buffalo. This figure also illustrates Chanler's technique of glazing over a gilded, gessoed surface. Buffalo Room, Coe Hall (L.Vollono, 2010).**

9 To Mr. Rudolph Guerther, 147 East 19<sup>th</sup> Street, NYC [Letter] (19 August 1924). Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].

strate, averaging about every six to twelve months.<sup>10</sup>

The most current conservation work being done on the Buffalo Room is headed by Joyce Zucker, painting conservator at the Peebles Island Resource Center, New York State Office of Parks, Recreation and Historic Preservation. This project began in the late 1980s, when Zucker was asked to assess the damage on the wall paintings due to environmental issues and previous conservation campaigns. Prior to her involvement, there were three documented conservation campaigns at the Buffalo Room, all which proved to be unsuccessful at resolving the issues of paint flaking and cohesion between the finish and plaster substrate.<sup>11</sup> Zucker determined that the interior suffered from severe efflorescence, particularly on the south wall with the flaking of the finish, caused by the combination of an unknown leak and inherent faults in the material. The walls have suffered from extensive water damage, as was noted in the 1981 Historic Structure Report. The west wall was observed to be wetter than the other three, and that the murals were unstable below the northwest corner of the groin vault. In 1984, it was noted that the walls had appeared drier, and protective plexiglass had since been installed over the damaged corner.<sup>12</sup>

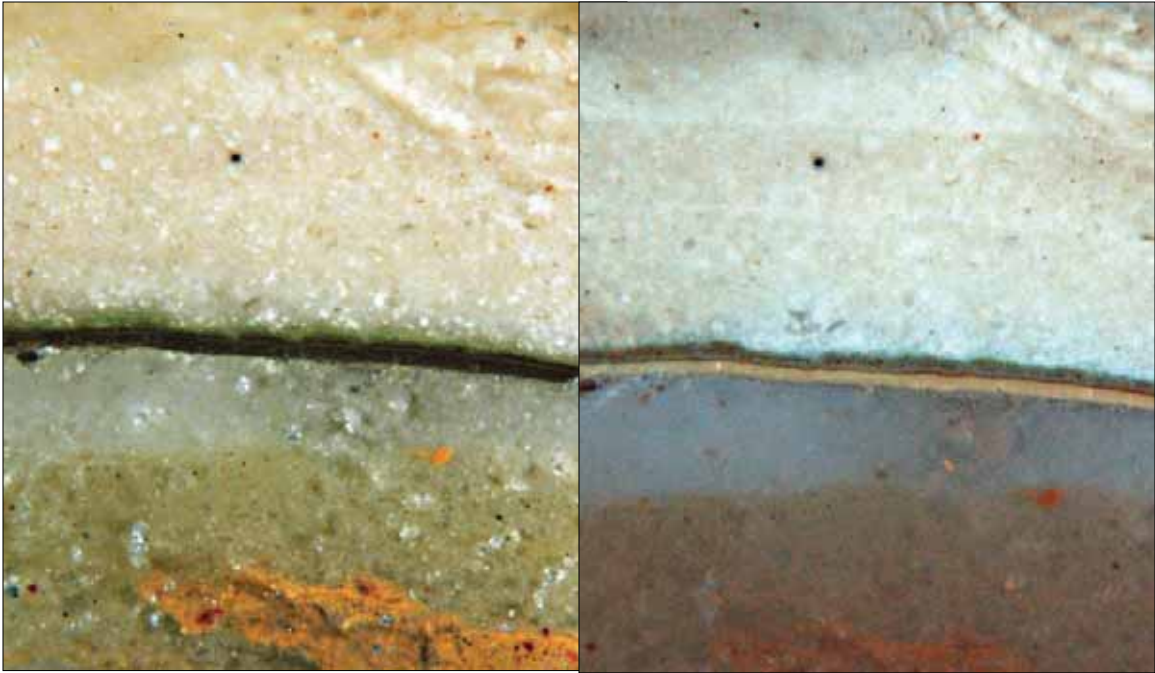
Analysis of the paint samples in 1998 revealed interesting discoveries about the application techniques for the painted surface in the Buffalo Room. The gross visual appear-

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10 Idem. Zucker also posited a hypothesis that the gesso was perhaps applied to the plaster surface before it was fully cured, offering poor cohesion and presenting a continuous problem in conservation of the work. Also, the gesso may have too much animal skin glue in its composition. Ultimately, the material problems rest on issues of craftsmanship in Chanler's work.

11 Joyce Zucker [Phone Interview] 08 February 2010. The room had been treated three times in 25 years; twice by Gustav Berger in the early 1980s, and again by a Long Island practitioner, Sherman Art Conservation in Glen Cove.

12 The Preservation Partnership (New Bedford, MA), *Coe Hall at Planting Fields: An Analysis of the Moisture Problems in the Buffalo Room*. [Report] May, 1984. Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].



**Figure 7.5. Cross sections from an area of the mural that was plastered over. The layers in the middle are the “paint layers”. This area should not have been effected by the restoration attempts of the 1970’s and 80’s. Left: Normal, Right: UV Fluorescence (J. Zucker, 2006).**

ance of each sample was noted with a stereomicroscope and representative particles from each layer were analyzed with Fourier transform infrared microspectroscopy (FTIR) microscopy.<sup>13</sup> When observing the paint sample of a Buffalo over a layer of gilding, two coatings were apparent over the metallic layer. The surface coating was clear and was found to contain poly(vinylacetate), while the lower coating was yellow and was found to contain the presence of oil. The sample from the background paint (without gilding), revealed a clear surface coating over a thin brown paint-glaze layer. The paint-glaze lies over at least two off-white ground layers, which lay over a fine white matrix, composed of calcium carbonate, calcium sulfate and an unidentified mineral. Laboratory tests determined that the paint

<sup>13</sup> James Martin, [Letter] to Joyce Zucker. (June 4, 1998). Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].



binder was characteristic of a protein, based on its solubility in water, but the paint layers were so thin that further testing could not verify this.

Testing for a proper conservation treatment is still in process, as the substrate-surface cohesion is a complex problem that has not yet been adequately solved. Material analysis of the base paint composition, conducted by James Martin of Orion Analytical, LLC, concluded that the primary paint layer was not purely distemper, as the conservation had originally assumed. Instead, Martin founded traces of oil paint in the base. Gas chromatography would be necessary to verify these components to prove that there is indeed oil and tempera based paint in the base coating.<sup>14</sup> Likewise, environmental issues complicate the conservators' understanding of the space as it behaves like an exterior space. Four storm windows have been installed to replace the original French windows, an operation that has cost around \$300,000, but the room is still 'unprotected' from the outside on 3 sides. Environmental monitors have been installed, as well as a dedicated HVAC system, but changes in staff and equipment have resulted in erratic and un dependable readings.<sup>15</sup> Testing continues as in-lab mock-ups are being used to evaluate different consolidation treatments which include Isinglass, TOX (can be applied in water and solvent), Ohm polyvinyl acetates, B72 and Aquazol.<sup>16</sup>

#### 7.1.2 *Mai's Bedroom, Coe Hall*

There was originally another Chanler interior in Coe Hall, Mai Coe's bedroom, which

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14 Idem. "James Martin" on Orion Analytical, LLC website <http://www.orionanalytical.com/aboutorion.html> [08 February 2010]

15 "Cunningham-Adams, Fine Arts Painting Conservation, "Climate Monitoring and Analysis: Buffalo Room, Coe Hall," Archives at Coe Hall, Planting Fields [Accessed 22 February 2010].

16 Joyce Zucker, [Phone Interview] 08 February 2010.





**Figure 7.6. Mae Rogers Coe's bedroom, designed and fabricated by R.W. Chanler, 1920 (Narodny, 1922).**

was completed at the same time as the Buffalo Room in 1920. (Fig. 7.7) The interior reflected the luscious gardens of its surrounding landscape, complete with exotic plants and birds set against a background of stretching seas and silver-finished skies. Unfortunately Mrs. Coe had suffered from a contracted illness, and died just three years after it was finished. When William Robertson Coe remarried for his third wife, Caroline, she replaced most of the interior canvas with more conventional paneling.<sup>17</sup> Planting Fields, with Coe Hall included, was donated to the State of New York and was used as an educational institution. In 1960, the organization expressed plans to expunge or cover over the original decorative scheme with white paint, and it was at that point that W.R. Coe's son, Robert Coe, obtained

17 James Kindall, "A Plush-Boudoir Welcomes the Curious," *New York Times* (3 March 2010).



**Figure 7.7. Polly Wood-Holland, creating the Chanler interior of Mae Coe's bedroom at Coe Hall (K. Kmonicek, New York Times, March 2010).**

the remaining canvasses and installed them as a dining room in his home in Cannes, which later perished in a fire.<sup>18</sup> Although all that remains of the original interior is the former bedroom space within Coe Hall, some charred pieces of painted canvas and two historic color photographs of the original interior remain. Muralist Polly Wood-Holland has recently recreated the original appearance of the Chanler interior within Coe Hall.<sup>19</sup> (Fig. 7.8) Wood-Holland is a Broadway scenic artist, who worked on the recreation of the interior for four months. She had substituted modern materials where time and cost were prohibitive, adopting silver and gold paints and glazes for the original metallic foils that surfaced the

18 Robert Coe, "Chanler, Coe, Cody and Cannes," *Planting Fields Arboretum*, 2. Archives at Coe Hall, Planting Fields [Accessed 22 February 2010]. The property was donated to the State of New York in 1949 and was used as an educational institution for what eventually became Stony Brook University.

19 The room opened at Coe Hall on April 1, 2010, along with a small exhibition of Chanler's life and work.

bodies of water and ceiling of the room.<sup>20</sup>

Wood-Holland's reconstruction provides insight into the color palette and techniques of the artist's interior work. While evidence is relatively limited for the room, the space evokes a vibrancy that can only be imagined in photographs, and one can truly appreciate the immense skill and intuitive mind that originally conceived of the space. The vibrant colored creatures and plants that permeate throughout the space completely immerse the viewer in Chanler's imagination. The metallic finish that serves as the backdrop for the walls and ceilings provides a unique reflection of light that also would have been very much a part of Gertrude Vanderbilt Whitney's original studio.

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20 Polly Wood-Holland [Personal Interview] 22 February 2010.

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## 8.0 INSTRUMENTAL ANALYSIS: FINISHES & PLASTER

### 8.1 Testing Methodology for Finishes Analysis of the Whitney Studio

In order to conduct a thorough paint investigation of a historic site, information to be collected includes period and/or an artist's individual practices regarding colors and materials, methods of application and written and photographic documentation, along with analytical data regarding the microstructure and elemental, chemical and mineralogical composition of the materials used. To conduct an informed, interpretative examination, there must always be a careful balance between documentary sources (where they exist) and material analyses. The preceding chapters focused on the historical narrative of the Whitney Studio within its surrounding building complex and greater cultural history, the artistic intentions and motivations behind Robert Winthrop Chanler's work, the overall understanding and fabrication of decorative plasterwork in the early 20<sup>th</sup> century and the general evolution and condition of the Whitney Studio to the present. This chapter seeks to formulate and understand a methodology for the characterization and identification of the decorative finishes on the Whitney Studio, utilizing various analytical methodologies to obtain information about their structure, elemental composition, appearance, formulation/application and deterioration.

An investigation of previous paint studies was conducted to determine the techniques that would be most useful for the ceiling's substrate and surface finishes. The types of instrumental testing addressed in this chapter include optical light microscopy, which includes imaging with reflected, transmitted, and fluorescence microscopy, and scanning electron mi-

croscopy with energy dispersive X-Ray fluorescence spectroscopy (SEM-EDS) on thick cross sections and thin sections. These were the available techniques.

While many of the interior's features, including the fireplace, woodwork and brickwork, have been the focus of previous paint studies, the primary purpose of this paint investigation was to determine the original decorative scheme of the ceiling through visual observation of the samples. Color, stratigraphy, application and identification of schemes were determined through the observation of cross sections under reflected light microscopy. The visual examination of materials, along with historic documentation and in situ stratigraphic examination allowed for the interpretation and conjectural reproduction of the original color scheme illustrated in the following chapter.

As will become evident in the discussion of the previous paint studies, these observations and conclusions are dependent on an extremely small area of the ceiling to make generalizations about the entire design. The potential misinterpretation of the materials must always be noted and considered when proposing any recreation of original schemes.

## 8.2 Previous Paint Studies

The Gertrude Vanderbilt Whitney Studio has been the focus of previous paint studies beginning in 1993 as a portion of the HSR for the New York Studio School,<sup>1</sup> a report by Alan M. Farancz Painting Conservation Studio in 1999<sup>2</sup> and a proposal by Derek Bernstein in 2001.<sup>3</sup> While these studies have been inconclusive on their own, this information has been

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1 HSR, 1993. Noted in the introduction of the Paint Analysis (Appendix G. Paint Study, 1993).

2 Alan M. Farancz Painting Conservation Studio, *Document concerning the Relief Plaster Ceiling, Sculptural Fireplace*, 3 March 1999. Files of B. D. Pickering, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June 2009].

3 Derek Bernstein, "Proposed Scope of Work for Chanler Restoration," August 23, 2001. Files of B. D. Picker-

incorporated into the entire interpretation of the ceiling to provide the clearest conceptualization of the original interior.

The earliest known paint study was attached as an appendix to the Historic Structures Report (HSR) produced for the New York Studio School of Drawing, Painting and Sculpture by Wesley Haynes Historic Preservation and Li Saltzman Architects in 1993. The paint analysis, done at the request of Li Saltzman Architects, focused on what were deemed the building complex's most significant interiors: the Whitney Studio and the formal entrance foyer.<sup>4</sup> Thirty-five samples were collected from the major architectural features of both spaces, extracted with complete stratigraphies and examined under cross-section with a stereo-binocular microscope. The goal of the study was to provide a color chronology of each cross-section, identification of the original finishes and color matching of the appropriate finishes. Colors were matched under fiber-optic light to the Munsell Book of Color (1976 edition) and corresponding colors in the Benjamin Moore system. The study focused on the ground level elements of the space, along with the fireplace. The most recent paint layers were identified as "latex paint", and the earliest layers included a series of glazes, along with metallic foils and powders.

The paint finishes study included in the Haynes report provided an interpretation for the space around the ceiling and fireplace in the Whitney Studio. (See Appendix G. Paint Study, 1993) The study found that the brick walls were always painted in shades of white, the second layer having yellowed considerably more than the others. The wood framing

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ing, the New York Studio School of Drawing, Painting and Sculpture [Accessed 18 June 2009].

<sup>4</sup> HSR, 1993. Noted in the introduction of the Paint Analysis appendix.



within the room, including the window sill and baseboards, were originally finished with a varnish, tinted Moderate Reddish Brown (Munsell: 2.5 YR 3/4) and subsequently painted in shades of tan. The wooden staircase that ascends into the Whitney Studio was originally treated with a clear, un-tinted varnish, possibly used as a primer to smooth the wood surface, and soon after covered with white paint. The rear doors of the studio, that face onto the open courtyard, were painted Moderate Reddish Brown (Munsell: 2.5 YR 3/4) on the exterior face and a Light Grayish Yellowish Brown (10YR 6/2) on the interior face. The inner face color closely matches the tan layer described in later treatments on the wood framing.

Since this 1993 report acknowledges the limited sample number of its study, the interpretations of the fireplace and ceiling are more speculative, as these decorative elements are far more complex than the rest. The brick fireplace was studied, determining that the applied bronze sculpture surrounding the hearth was originally sealed with a clear sealant<sup>5</sup> and silver leaf was applied over particular areas to enhance the appearance of the “flames.” The plaster flames, which rise out of the chimney above the mantel, were found to contain several glaze treatments in red and dark green to undercoat a gold-flake bronzing powder. The figures within the fireplace were applied with a water-based pink “flesh tone” over which the bronze powder and colored glazes were applied as highlights. The study also found attempts at an earlier restoration of the fireplace, in which a tan or white paint was applied over the original scheme and reapplied with a metallic foil. The study con-

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5 This was probably an oil size for the leaf.

cluded that the overall effect of the fireplace was to have gold and silver flames, in which reds and green suggested the center.<sup>6</sup> Although a few samples were taken from the ceiling, no interpretation was offered for this portion of the room.

A second analysis of the plaster relief ceiling in the Whitney Studio was conducted by the Alan M. Farancz Painting Conservation Studio in 1999 and revealed a startling conclusion. The study determined:

*It appears that the information about the ceiling, contained in written form from the past, has been interpreted and is not relevant. We have found that the ceiling is only one color. This may be due to the fact (sic) that there were stained glass windows on the (sic) south side of the room. This could point to the fact that the ceiling was meant (sic) to reflect (sic) the coloration of the light from the windows. We also believe that the fireplace may have been aluminum leafed and toned to the appearance of a gilded surface.<sup>7</sup>*

The team worked on scaffolding and examined the ceiling for structural cracks as they took paint samples to prepare for cross section analysis. Layers were exposed on the surface in ½ inch to 2 inch square areas to open a layered window down to what the conservators thought was the first layer of paint. Overall, the team determined that there were four layers, including the “original”, with two white paint layers on the top and a thick dirt/soot layer. The report concluded that there was a monochrome finish on the ceiling, and suggested that the stained glass played a pivotal role in the understanding. While these paint findings are suspect, the role of the stained glass windows on the original appearance and interpretation of the space is undeniable. In their analysis of the fireplace, Alan Farancz Painting Conservation Studio had determined that the fireplace had two white layers and

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6 Ibid, 10-11.

7 Alan M. Farancz Painting Conservation Studio, 3 March 1999.

a black that existed over the decorative paint scheme, which was originally treated with aluminum metal leaf, toned to the appearance of gilding. The study concluded that the removal of the overpaint would be very complex procedure, as the metal leaf is very thin, the size used was oil-based and the surface is multi-faceted.

In 2001, Derek Bernstein (561 1<sup>st</sup> Street, Brooklyn, NY) submitted another proposal of work for the restoration of the Chanler designed interior of the Whitney Studio. The first section of his proposal outlines the historic information known about the studio, with projected phases of work that include documentation, construction (exterior), construction (interior) and restoration. He proposed the removal and rebuilding of the parapet walls and chimney down to the roof line(which was completed later that year), replacement of all waterproofing with lead coated copper flashing, removal of all bitumen coatings, along with the re-pointing of the east and west walls to repair all crack necessary to ensure a watertight building. Then, the team would proceed with plaster repair, and crack filling. Bernstein proposed the removal of the white paint, noting that test strips on the fireplace revealed that there were no dry pigments and no extensive use of color. This report again asserts that the ceiling was monochrome, and that only the fireplace was treated with tinted glazes over metallic foil.<sup>8</sup>

Overall, previous reports had proposed that the fireplace was the most elaborately colored portion of the room, with the ceiling containing an overall solid color across its surface. The 1993 report provided the most concise data, detailing a complete methodology

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8 Derek Bernstein, August 23, 2001.

that reflected different areas of the room to provide a comprehensive whole. The ceiling and fireplace were the focus of the 1999 and 2001 reports, the methodologies were less formed and more focused on acquiring a commission for the final product.

## **8.2 Metallic Finishes and Treatments**

In an attempt to further understand the techniques of metal foil application during Chanler's lifetime, contemporaneous reference materials were consulted. One of the most useful texts was Fredrick Scott-Mitchell's *Practical Gilding, Bronzing, Lacquering and Glass Embossing* (1915), which details the tools, preparation, application and finishing methods of the gilder's trade.

Preparation of the surface prior to gilding requires special attention, as the texture of the surface greatly affects the appearance of the metal application. For painted surfaces, the gilder must make sure that the surface is thoroughly dry and without tackiness before applying foil, lettering, etc, or else the surplus metal will adhere to other parts than intended. Flat paint was noted as the best to use for a gilded surface, as gloss would tend to remain tacky. When the surface was painted and prepared to the desired texture, the gilder would then prepare the surface with a pounce bag, or square piece of coarse calico or linen and a handful of finely powdered and dried whiting or French chalk, to ensure that surplus leafing be "skewed" off without adhesion to the background.<sup>9</sup> Scott-Mitchell also explains the benefits of gilding on hand-made gesso surfaces, as there are "various reflecting surfaces distributed all over the work, and numerous shadows usually enriched by colour

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<sup>9</sup> Frederick Scott-Mitchell, *Practical Gilding: Bronzing, Lacquering and Glass Embossing*. London: Trade Papers Publishing Company, 1915, 11.

treatment, support and intensify the effect of gilding.”<sup>10</sup> A combed background to gilding, either bronzed or metal leafed, could be given superb effects by artistically applying colored “lacquers” (glazes), subdued by water scumbling to give “enhanced value to simple coloured ornament.”<sup>11</sup> In his discussion of metal foil application on interior ceilings and walls, Scott-Mitchell notes “promiscuous application of metal should be avoided, as a meaningless display of gold of glittering metal is vulgar.”<sup>12</sup>

Metal foils adhere to the surface being gilded through the aid of a mordant, or any vehicle/media used as an adhesive coating for attachment. Interior work was most often gilded with a water-size, which can include gelatine glue and water. Spirit lacquers are mentioned as post-gilding treatments to decorate the applied surface, and consist of pure spirits of wine and shellac, with or without colorants.<sup>13</sup> Oil size is one of the most pervasively used mordants, which offers a tacky surface for the leaf to attach to before hardening. All surfaces used for oil sizing must be non-absorbent, or the “size would ‘strike’ out beyond the limits desired; it would also soak into the material and lose the tack by which the gold should be secured.” Scott-Mitchell stresses the importance of creating a non-absorbent surface for leafing, stating that gilders should apply an egg size (“glair”) or light “pounce” of whiting of before gilding over a painted surface.<sup>14</sup>

Further study of metallic finishes has been conducted more recently by architectural paint conservator Frank Welsh. In his 1988 article, Welsh detailed the history of use and

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10 Ibid, 25.

11 Ibid, 26.

12 Ibid, 34.

13 Spirits of wine is a solution of ethanol in water in a high concentration.

14 Scott-Mitchell, 65.

evolution of metallic finishes throughout the late 19<sup>th</sup> and 20<sup>th</sup> centuries.<sup>15</sup> Metallic finishes present a series of problem for historic paint analysis, in not only examining, testing and identifying the particular metal used, but also in interpreting the method of application and the decorative effect intended. Welsh defined metal surfaces into two categories: Precious (Gold, Silver and Platinum) and Non-Precious (Copper, Aluminum, Alloys [Bronze; Brass]). All of these metals are converted into either powder or leaf form in order to be applied. In previous studies on Chanler's work, aluminum foil is listed frequently as an important material in his color palette. Welsh notes:

*Aluminum paints gained a strong market in the early 20<sup>th</sup> century because of 4 important properties. The first is the leafing property of the flakes in a vehicle, which made the paints very opaque---they had excellent hiding power. Second, they were very good scalers and stopped the bleeding through of resinous material beneath them. Third, they were very moisture resistant on wood. Fourth, aluminum paints were resistant to sulfur compounds and would not tarnish. They were also heat resistant.*<sup>16</sup>

Aluminum, sometimes described as white metal, closely resembles silver without the tendency to tarnish over time. The metal's color is slightly greyer and colder than silver, and in the early 20<sup>th</sup> century it was sold in book of twenty-five leaves, varying from 3in to 6in square.<sup>17</sup>

Understanding the potential materials of the ceiling and the thinness and complexity of observing metallic foils in cross section provided very important insight for the analysis of samples. Prior studies had claimed that there was no color or metal on the ceiling, because the examined samples were not representative of this treatment. It was important to devise a partial yet representative examination and sampling strategy to ensure accurate find-

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15 Frank Welsh, "Architectural Finishes in the Late 19<sup>th</sup> and Early 20<sup>th</sup> Centuries: 'The Great Imitators: Aluminum and Bronze,'" *The Interiors Handbook for Historic Buildings*. Washington, DC: Historic Preservation Education Foundation, 1988, 37-43.

16 Welsh, 39.

17 Scott-Mitchell, 44.



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### **8.3 Paint Sampling Methodology**

The goal of this finishes investigation was to utilize the existing paint reports to confirm past findings, to determine the stratigraphic history of the original and subsequent schemes, determine the composition of the original finishes on the Whitney Studio ceiling, to diagnose existing finish failures with respect to materials, techniques, and environment, and to present a recreation of the ceiling's original decorative scheme. The location and identification of architectural paints and finishes is an increasingly evolving area of study, and the results of each report are somewhat subjective and require constant confirmation and reproducibility of results. There is no single methodology for finish identification, but instead factors that conservator Andrea Gilmore has identified as "significance of the paint finish being studied, whether the paints are to be conserved or recreated, the complexity of the paints with respect to their media and pigments, and, of course cost."<sup>18</sup> As the finishes are a complex combination of foils, glazes and paint that are varied throughout the entire ceiling, a representative portion of the ceiling approximately 4' x 4' was selected to initiate the examination. This was based on the accessibility provided by the scaffolding and the number of samples that could be processed within the time period available.

The ceiling was evaluated following the conditions assessment to determine the region of the ceiling that would yield the most promising results for paint analysis. The northwest corner of the ceiling surrounding the sun was chosen for its incorporation of both unique

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18 Andrea Gilmore, "Analyzing Paint Samples," in *Paint in America*, ed. Roger W. Moss. Washington, DC: Preservation Press, National Trust for Historic Preservation, 1994, 174.

(e.g. sun) and recurrent elements (e.g. creatures, rays, clouds) on the ceiling panels and curved cornice. This region has suffered the least amount of damage and the central sun serves as a major focal point for the room. In order to fully assess the different elements of the ceiling's finishes, it was decided that each major figural component on the ceiling would be sampled, along with its corresponding background features, which includes the combed ridge background, rays and flames. Prior to sampling, full-size reproductions of the area were printed and located within the larger ceiling matrix to document sample locations.

In order to remove the samples, a disposable scalpel was used to puncture the surface and the blade was rotated to remove the finish stratigraphy along with a portion of the plaster substrate. Each sample was then placed into a coin-sized manila envelope that



**Figure 8.1. On-site paint exposure with a scalpel, conducted by Frank Matero (L. Vollono, 2009).**

was positioned underneath the sample site. Each sample was given an identification number, marked on the full-size image maps and noted on a sampling sheet, with a description of the region being sampled and any corresponding photographs taken to document its position. Along with paint sample extraction, on-site exposures were conducted in an attempt to reveal paint information and sequencing. In-situ exposure with a scalpel is one of the most common methods of paint investigation; a scalpel is used to cut into and reveal layers in cross section as a stratigraphy or to reveal each layer surface as a series of stepped exposures. (Fig. 8.1) The latter is a particularly useful method for revealing glazes, as they are thin and can be difficult to identify in cross section because of their surface texture and gloss.<sup>19</sup>

## **8.4 Instrumental Analysis**

### *8.4.1 Optical Light Microscopy*

Optical light microscopy allows for the study of stratigraphy and individual layer characteristics, constituents and ratios of a layer, possible application methods and deterioration evidence. A Leica MZ16 stereomicroscope was used for preliminary bulk or gross sample examination, noting physical characteristics such as color, plaster texture and general stratigraphy of embedded cross sections. Cross sections were later observed with an Olympus CX 31 compound microscope in transmitted and reflected light with fiber optic attachments. A compound microscope contains a two lens system to enable higher magnification and resolution, producing clear quality photomicrographs.

Cross-sections analysis can be used to obtain information about the sequence of fin-

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19 Gilmore, 176.

ish layers, the thickness of each layer, color, texture, particle size and shape, opacity, and transparency of the constituents. SEM-EDS analysis may also be used on cross-sections to provide further information regarding elemental composition and microstructure. It is always best to include the substrate as part of the cross-section to ensure that all layers are present.

#### 8.4.2 Cross Sections

Samples were examined at the University of Pennsylvania's Architectural Conservation Laboratory (ACL) under a compound light microscope to determine the best candidates for cross-section analysis (i.e., samples with full stratigraphy and attached substrates). The samples were then placed into 1 cubic centimeter resin cubes. The cube trays were prepared with Buehler Resin Release Agent™, with a printed label placed at the bottom of each cube to identify each sample. The labels were printed on computer paper with a laser inkjet printer, in order to ensure that the ink did not run with the application of the resin. Each cube was filled to about 1/2 centimeter with BioPlast™, a proprietary polyester/methacrylate resin polymerized with a methyl ethyl ketone peroxide catalyst, and left to cure overnight. The following day, the paint samples were placed into each cube section, with the most recent layer oriented towards the bottom of the cube, and the substrate facing the top. After placement, a final layer of BioPlast™/catalyst was added to each cube, submerging the sample within the resin. Once the samples were dry, cross sections of each cube were cut with a Buehler Isomet™ low speed saw, fitted with a diamond tip- Series 15 LC Isomet Wavering Blade™, using Stoddard Solvent as the lubricant for the blade. Once

cut, the samples were then polished on a Buehler Ecomet with an 8" wheel TEXMET™ 1000 Buehler Polishing Cloth. Samples were polished without the use of alumina polishing powder, as many of the samples were to be analyzed with SEM-EDS for aluminum metal leafing. Water was replaced with Stoddard Solvent in the polishing process, to preserve possible distemper layers in the stratigraphy if they were present. Cross-sections were viewed under quartz halogen reflected light using a compound microscope and photomicrographs of each sample were taken with a Nikon™ DS-F11 camera. Stratigraphies were recorded and layers were identified and described based on color, sequence within the stratigraphy and identifying characteristics.

Each paint sample extracted from the ceiling contained a plaster substrate, with a white layer applied directly on the plaster surface. This represents the first applied layer, which was largely a background or preparatory layer for the subsequent finishes. Cross-sections vary throughout the ceiling following this layer, with some elements containing very thin metal foils, others containing applied glazes, some a combination of the two, and others only the primer layer. A red scumble (Munsell: 5YR 6/6) was detected in the mouth of the sun figure, along with various greens on the dragon (Munsell: 10Y 7/4), alligator (Munsell: 7.5GY 4/4) and snake (Munsell: 2.5GY 5/4). A mauve color (Munsell: 10RP 4/2) was also found on the cornice panel from the south wall. Following what has been considered the original "decorative scheme" the cross-section stratigraphy is predominantly uniform. The next treatment after the original was an off-white paint (Munsell: N 9.25), which contains a dirt layer on top of it. The presence of soot or soiling on the surface of a layer indicates



**Figure 8.2. Paint exposure on snake applique, revealing layers of green and metallic leafing, 7.1x mag, reflected light (L.Vollono, 2010).**

that it was exposed for a period of time, confirming that it was a final finish. The subsequent application was tan (Munsell: 10YR 8/2), which was then covered with a thick resinous “varnish” or glaze coating. The following two layers are modern paints of which the previous treatment was off-white and the most current is white. These treatments are thicker in cross-section and appear more level and uniform throughout the ceiling. (See Appendix H. Cross Section Microscopy)

#### 8.4.3 Paint Exposures

Using the bulk samples collected in the laboratory at the University of Pennsylvania, paint exposures were conducted on various elements within the Whitney Studio. Each reveal was conducted mechanically with a scalpel under a stereoscope. The study focused on the





**Figure 8.3. Paint exposure on fallen cornice panel, revealing mauve color in creasing, 7.1x mag, reflected light (L.Vollono, 2010).**

detached snake applique, cornice panel, and fallen flames from the fireplace.

The snake fragment contained traces of a deep green (Munsell: 2.5GY 5/4), which appeared sporadically across the element. (Fig. 8.2) Through exposure, a thin metallic layer was visible above the fragmented green, proving that this decorative element contained traces of both color and metallic foil. Despite these discoveries, the modern paint was incredibly tenacious and resulted in frequent spalls of decorative finish.

The fallen cornice piece fragment contained traces of a deep mauve (Munsell: 10RP 4/2) in the creases of its relief sections. (Fig. 8.3) This color appears throughout the sample, but appears to be inconsistent throughout the panel. This may be evidence of earlier problems of cohesion between the paint and plaster substrate, resulting in the flaking and loss of



**Figure 8.4. Paint exposure on fireplace flame, revealing layers of green, metallic leafing and bronzing powder, 7.1x mag, reflected light (L.Vollono, 2010).**

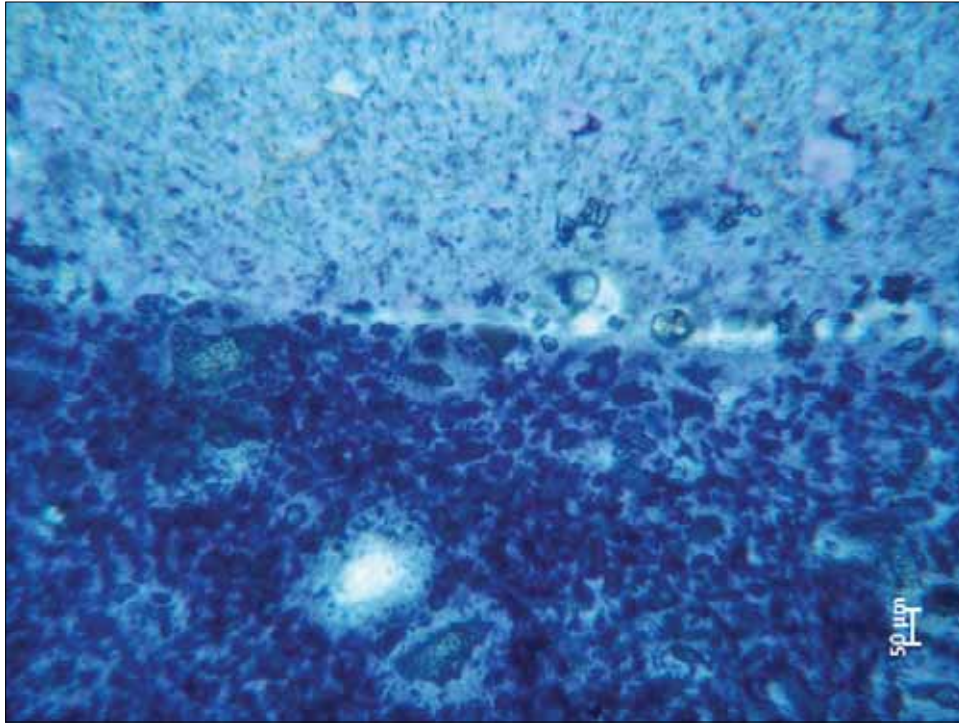
much of the original finishes.

Due to the stronger, denser nature of the flame “plaster” material, paint exposures proved much more successful on this fragment. The flame, as part of the entire chimney, was originally treated with a green and/or red base, and then applied with an oil adhesive for gilding. Aluminum leaf was then applied over the flame, and treated with a bronzing powder to provide the effect of glowing flames throughout the entire surface. This treatment of the flames extends into the ceiling panels, and it can be assumed that it carried out on each of the flames on the ceiling’s surface. Confirmative exposures should be done in these areas.

(Fig. 8.4)

#### 8.4.4 Thin Sections

Thin section mounts of each plaster type sampled were prepared by Leonard Can-



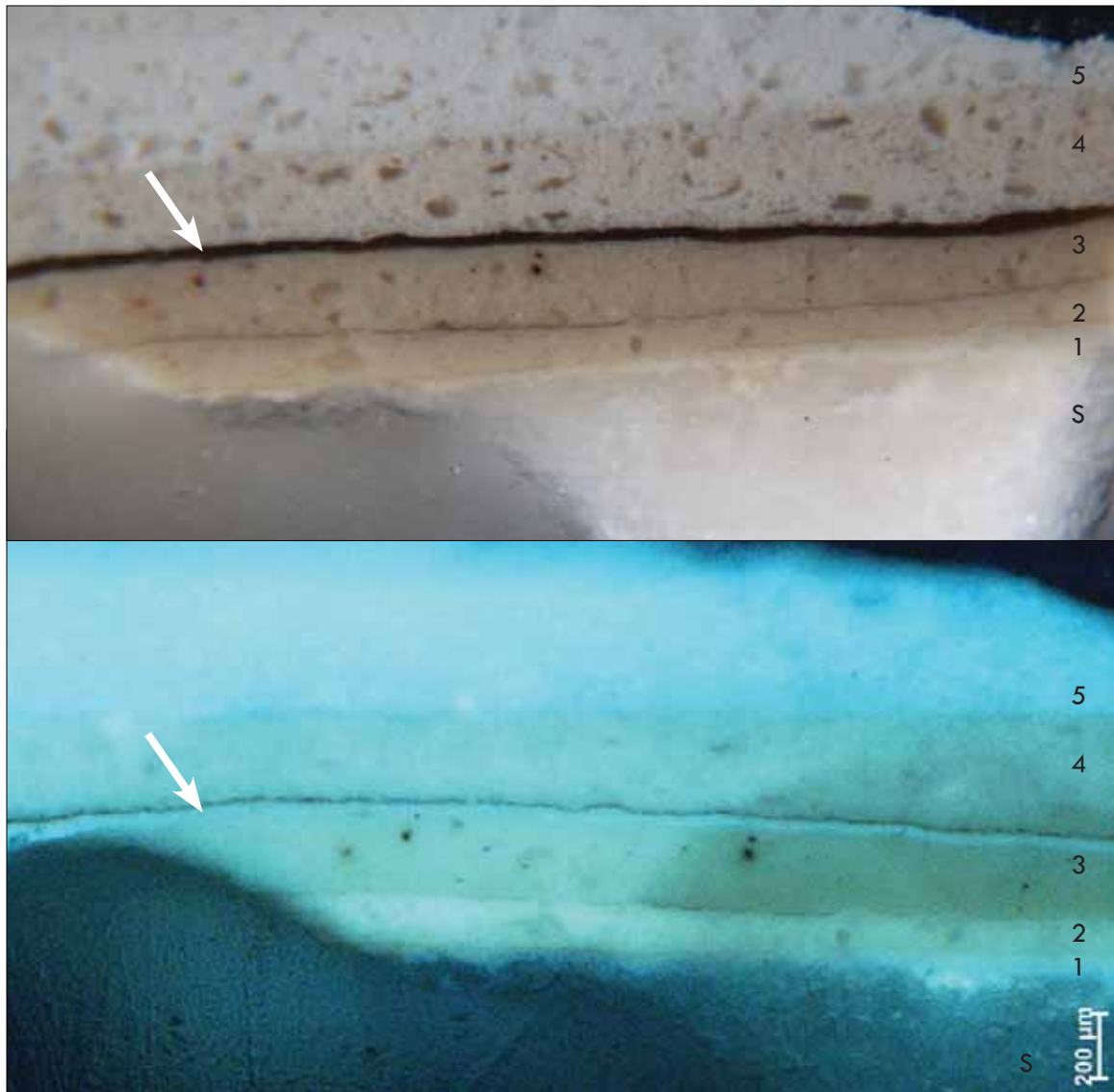
**Figure 8.5. Thin section (GWAS2010.P1) of finish coat and scratch coat interface of decorative plaster, 100x mag, plane polarized light (L.Vollono, 2010).**

none of American Petrographics Inc. in Roslyn Heights, NY. Below are the samples used for thin section analysis:

**Table 8.1. Samples sent out for petrographic thin sectioning.**

Sample No.	Description
GWAS2010.P1	Section of fallen cornice relief, featuring finish coatings (possible metallic finish), finish plaster, reinforcement, scratch coat, application adhesive materials and segments of masonry backing.
GWAS2010.P2	Applique plaster component, with fibrous reinforcement
GWAS2010.P3	Portion of a sculpted frame, taken from the decorative chimney.

Samples were vacuum-impregnated with blue dyed epoxy, cut and polished in oil to approximately 30-40 microns thick, and cover-slipped. Slides were viewed with Olympus CX 31, compound microscope under transmitted light. Petrographic thin sections enable the identification of features relating to microstructure of a material, such as porosimetry, grain



**Figure 8.6. Cross section (GWAS01.2010.1) revealing glazes between schemes 1-3 under UV light, 200x mag, Top: reflected, Bottom: BV filter, fluorescence (L.Vollono, 2010).**

size, shape, color, and proportion as well as mineralogical identification.

Analysis of thin sections verified the inclusion of lime and gypsum in the three plasters. Close examination of the fireplace plaster sample also confirmed the presence of a cementitious material.<sup>20</sup> The exact composition of this additive should be tested in future

<sup>20</sup> John Walsh, E-mail message to Lauren Vollono, 24 April 2010.

studies.

#### 8.4.5 Fluorescence Microscopy

Fluorescence microscopy is a useful method of studying materials that display auto-fluoresce in their natural form or after being treated with fluorescing chemicals known as fluorochromes (secondary fluorescence). The technique was invented in the early part of the 20<sup>th</sup> century, but its impact was not fully recognized until decades later. Secondary fluorescence was developed in the 1930s by Haitinger, through the application of fluorochrome stains to identify specific tissue, bacteria or materials.<sup>21</sup> Although this technique was originally developed for the biological sciences, it can be particularly useful in characterizing binding media. The basic principle behind fluorescence microscopy is to allow excitation light to irradiate the specimen, and then separate the weaker re-radiating fluorescent from the much brighter excitation light using special filters.

Selected cross section samples were observed using an Alphabot 2 Microscope with Episcopic-Fluorescence Attachment EF-D and Darklite Illuminator. This instrument had been retrofitted to enable pseudo-dark field capabilities, in which the samples are illuminated on a dark background with tangential light or under transmitted light with a block filter to provide a black background, which is optimal for visualization. These samples were made to fluoresce in a natural form (primary or autofluorescence), without treatment with fluorochromes. Fluorescence is a type of photoluminescence, which is a phenomenon that occurs when a specimen absorbs and re-radiates light. Filtered ultra-violet light radiates a

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21 Mortimer Abramowitz, *Fluorescence Microscopy: The essentials*. New York: Olympus America, Inc., 1993, 2.



sample, and the resulting light is then filtered in the microscope so that the fluorescence can be observed. The radiating ultra-violet light is the *excitation light* and the light observed on the specimen is *emitting light*. Filters are used to provide the strongest possible fluorescent radiation in the microscopic image while creating a dark field and preventing damage to the eyes. Fluorescence microscopy may be used to observe a material's autofluorescence.

Fluorescence was particularly important in analyzing thin and thick resinous layers that appeared within each paint cross section. In plain light, these layers appeared to be invisible or singular. (Fig. 8.6) Once examined under UV light, glaze layers were identified where they were barely visible (schemes 1 and 2) or as two separate layers (scheme 3), one of which fluoresced a bright white and the top layer remained a darker black.

#### 8.4.6 SEM-EDS Testing

A scanning electron microscope (SEM) can be used to produce images up to 100,000 times magnification through the exposure of a sample to an electron beam in a vacuum system. The image produced can be used to observe minute surface features based on the interaction of electrons with the textured surface a material. By bombarding a sample with an electron beam (primary electrons), secondary electrons from an atom's inner shells are ejected from the sample and create a pattern which can produce a high resolution that is capable of revealing the morphology of the sample. If outfitted with a sensor for wavelength dispersive (WDS) or energy dispersive spectroscopy (EDS), the wavelength of generated characteristic x-rays can be measured and serves to identify the elemental composition of the material. The sensor reads these energy waves as "peaks" or bands within a digital



spectrum.<sup>22</sup>

For both imaging and elemental analysis, SEM-EDS is an important analytical procedure for surface finishes, as it allows for a visual examination of a material's physical microstructure, while identifying its elemental composition at the same time.

#### *8.4.6.1 Sample Preparation*

Cross-sections that were previously observed for optical light microscopy were studied and chosen for SEM-EDS, based on the representative nature of the sample. The selected samples included GWAS01.2010.02, GWAS01.2010.03, GWAS01.2010.09, GWAS01.2010.18, GWAS01.2010.24, GWAS01.2010.25, GWAS01.2010.28 and GWAS02.2010.36. These samples included the basic substrate and preparatory layers as well as colored glazes, metallic treatments and paints. These samples were removed from the glass slides used for previous observation under the compound microscope by reheating the Cargille Meltmount, cleaning off residue and adhesive with acetone and securing the slides on circular aluminum stages with black carbon tape. In order to ensure identification of each sample, a graphite pen was used to mark each cross section in the upper left corner of its surrounding BioPlast resin component. Carbon tape was applied to the base of each sample to create a conductive seal between the specimen and stage. Samples were then coated with a gold and palladium sputter coat to assure conductivity and stimulation from the electron beam. This coating was problematic, because there were instances in which we wished to identify gold as one of the possible metals in the surface treatments. Ultimately,

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<sup>22</sup> Lauren Reynolds Hall, "Characterization, Analysis and Interpretation of the Finishes Of Kiva E, Long House, Mesa Verde National Park," Masters Thesis. University of Pennsylvania: Graduate Program in Historic Preservation, 2007: 81.

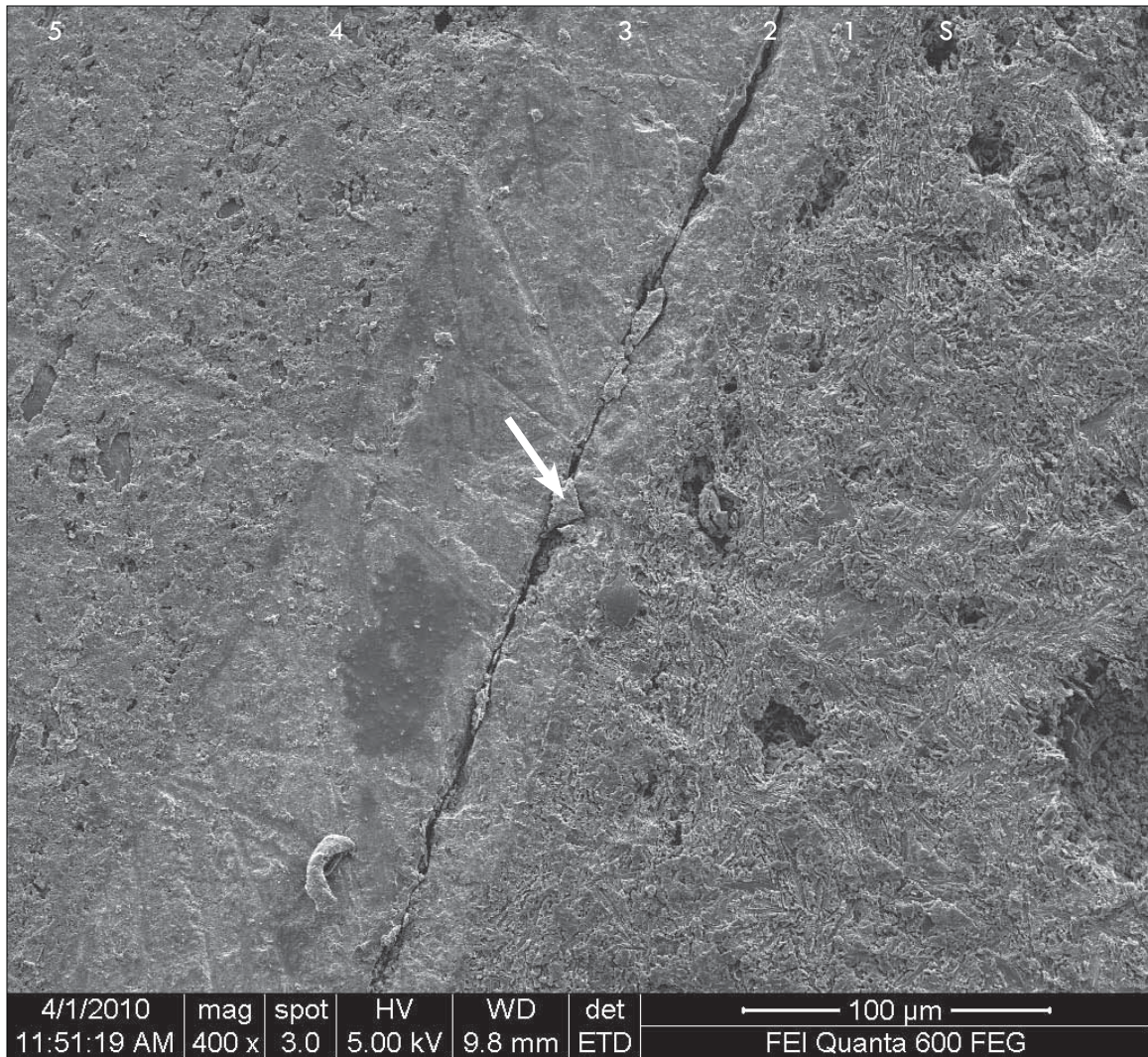


**Figure 8.7. Team of analysts, comprised of Tiffani Simple, Lolita Rotkina and Dr. Elena Charola, using SEM-EDS to analyze samples (L.Vollono, 2010).**

it would have been better to use a carbon sputter-coating that would not interfere with the analysis, but this option was not available in the testing center where the samples were analyzed. Any future testing of these samples should utilize a non-metallic coating to further analyze the metallic finishes.

#### *8.4.6.2 Analysis and Observations*

Analysis was performed at the University of Pennsylvania's Regional Nanotechnology Facility at the Laboratory for Research on the Structure of Matter, Edison Building. An FEI Quanta 600F scanning electron microscope coupled with electron dispersive spectroscopy was operated by Lolita Rotkina. (Fig. 8.7)



**Figure 8.8. SEM-EDS Sample from dragon's snout (GWAS01.2010.09), with flaking metallic leafing highlighted, 400x mag (L.Vollono & L. Rotkina, 2010).**

SEM-EDS was performed to verify the type of metals that were applied more generously across the figural elements, and the metallic substances that were exclusive to the sun figure in the center of the ceiling sampling portion. The testing also focused on to the identification of the chemical composition of pigments/colorants in the original layers and the later campaigns of overpaint. It was also important to surmise information regarding the composition of the preparatory paint layer on the plaster and the later campaigns of

over-paint.

SEM examination revealed that the metallic foils were weakly bonded to the preparatory layer underneath. (Fig. 8.8) In many instances, samples that were known to contain metallic foils exhibited detachment or loss of the metallic leaf. Noting this phenomenon, it is possible that the weak cohesion between the metal and adhesive structure may have resulted in extensive flaking of the original decorative scheme. It is also possible that the subsequent thicker overpaint applied directly over this scheme might have aimed to cover-up a surface detachment problem with the gilding. The plaster substrate appeared well formed and stable under high magnification, with the preparatory/primer layer well-bonded to it.

The silver-colored metallic foil was identified as aluminum leaf throughout the samples, and the metallic substance applied to the sun figure was comprised of a bronzing powder of copper-zinc alloy. While glazes over the metal could not be identified with the scanning electron microscope, further testing with Fourier Transform Infrared Spectroscopy (FTIR) would enable the analysis of the organic materials within those layers.<sup>23</sup>

EDS analysis of the plaster substrate identified high quantities of carbon, sulfur, oxygen and calcium, suggesting the combination of gypsum (S, Ca) and lime (Ca) in the original formulation also confirmed in the thin sections. The white paint layer directly on top of the plaster substrate was found to contain high quantities of lead, and a small amount of zinc suggesting a lead white ( $[\text{PbCO}_3]_2 \cdot \text{Pb}[\text{OH}]_2$ )/zinc white (ZnO) paint. The colors noted in the original decorative scheme appear red on GWAS01.2010.03, tan on GWAS01.2010.24,

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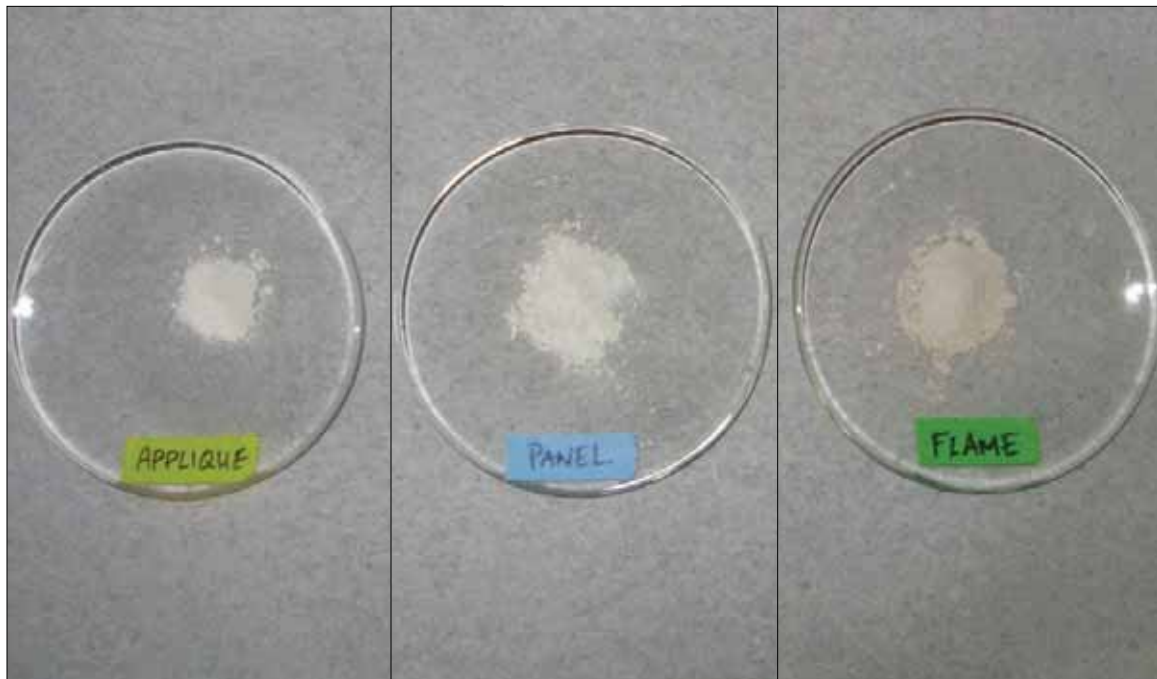
23 FTIR testing was initially scheduled as part of this research, but issues with time and communication resulted in the postponement of this procedure. Medium analysis should be included in the second phase of this research.



green on GWAS03.2010.28 and reddish purple on GWAS01.2010.36. The reddish color contained a high level of calcium, with traces of lead, sulphur and phosphorus, along with pockets of iron, silicon and potassium, possibly suggesting an iron oxide tint (FeO).<sup>24</sup> The tan color exhibited high calcium and sulphur, with smaller quantities of carbon and oxygen, probably from the white base. The green color contained high calcium and iron content, with smaller peaks of lead, magnesium, silicon and aluminum suggesting terre verte or green earth [K[(CaI, Fe<sup>III</sup>), (Fe<sup>II</sup>, Mg)] (AlSi<sub>3</sub>, Si<sub>4</sub>) O<sub>10</sub>(OH)]. The reddish purple color was identified as containing calcium and sulphur, also probably from the white base. Further testing should be conducted to determine if this layer contains an organic lake. (Appendix I. SEM-EDS)

#### 8.4.7 Chemical Spot-testing for Plaster Characterization

Chemical spot-testing is a useful method for determining the constituents of a mate-



**Figure 8.9. Ground plaster samples for analysis with chemical spot testing (L.Vollono, 2010).**

24 It can also be an organic red lake or glaze.

rial through simple procedures that can be done either in the field or as a substitute for more expensive procedures. Reactions between samples and reagents yield changes in color or effervescence. These tests can often be challenging, as impure samples can result in different test results. Test should be repeated to ensure accuracy.

More information needed to be obtained in regards to the composition of the plaster elements of the Whitney Studio. Three plaster samples were chosen, from the fallen cornice fragment, the snake appliqué and the fireplace flame. Each sample was tested both for the presence of carbonates suggesting lime, and for gypsum. All reactions were observed under 115x magnification with a Leica MZ15 stereomicroscope. A small portion of each plaster element was ground with a clean mortar and pestle, and placed onto a Pyrex™ petri dish. (Fig. 8.9)

For each sample, the powder was placed onto a microscope slide and treated with one drop 1:1 nitric acid ( $\text{HNO}_3$ ) diluted in deionized water. Observing the sample under the microscope, effervescence of the powdered plaster when in contact with the nitric acid confirmed the presence of carbonates. The slides were then warmed on a hot plate to evaporate the acid, and observed under the microscope. The presence of characteristic pinnate crystals upon evaporation of the liquid, confirmed the presence of gypsum.

**Table 8.2. Results of chemical testing for plaster identification.**

<b>Element</b>	<b>Carbonate</b>	<b>Gypsum</b>
Applique	Yes	Yes
Panel	Yes	Yes
Flame	Yes	Yes

Each sample confirmed the presence of both lime and gypsum. While this was veri-



fied for each sample, the constituents of each plaster type were varied and contained different ratios to the whole.

#### 8.4.8 X-Ray Powder Diffraction for Plaster Characterization

X-ray Diffraction (XRD) is a technique described by Philadelphia Museum of Art conservator Andrew Lins as “determining the fingerprint for crystalline structures.”<sup>25</sup> This technique is utilized to study the atomic structure of crystalline substances by noting the patterns produced by x-rays directed through the crystal. X-ray powder diffraction (XRPD) can be used to identify particular phases of inorganic and organic crystalline material, such as pigments, grounds, metals, corrosion products, ceramics, etc. The technique measures the amount of diffracted x-radiation on a crystalline solid at given angles, revealing a pattern that can be recorded on photographic film, or by digital sensors. Bragg's Law determines the basic calculation:

$$n\lambda = 2d \cdot \sin \theta$$

*n* = integer giving the order of reflection

*λ* = the wavelength of the incident radiation, in Angstroms

*d* = the spacing between the planes in the atomic lattice

*θ* = the angle between the incident ray and the scattering planes

The sample should be finely ground, with a randomly oriented assortment of particles between 1 and 5 diameters in diameter, so when exposed to a beam of monochromatic x-radiation, the incident angles of diffraction generate a characteristic pattern, called “d-spacings,” which are unique to each material. Since each crystalline substance in nature manifests a unique series of d-spacings, an unknown can be compared to a series of known

samples (most easily through computer software), and a match can be determined upon analysis. In 2002, there were approximately 150,000 reference patterns that had been generated for this purpose.

#### *8.4.8.1 Sample Preparation*

The plaster used in the flame material, as compared to the cornice panel, was composed of much harder, stronger material. Chemical testing revealed that both samples contained gypsum and lime, but further analysis was used to determine other constituents in the flame given its extreme hardness. Both the cornice and flame plasters were prepared for XRD testing.

A mortar and pestle was used to ground the plaster into a powder, and then dispersed into a solution with distilled water. Left on a stirring plate overnight, then mixture was then filtered through No. 6 Filter paper. The fines in the filter paper were placed into the oven, and the dry powder was collected for XRD sampling.

At the UPenn Laboratory for Research on the Structure of Matter (LRSM), each powder was applied to a frosted slide in an acetone slurry mixture, to allow the powder crystals to assemble randomly.

#### *8.4.8.2 Analysis and Observations*

Testing confirmed the presence of lime and gypsum in the cornice and flame samples. (Appendix J. X-Ray Diffraction) Additionally, the flame was found to contain Potassium Aluminum Silicate ( $K_{1.25}Al_{1.25}Si_{0.75}O_4$ ), which suggest the presence of a cement additive or possibly the use of Keene's cement, which is obtained primarily from heating gypsum above

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## 9.0 INTERPRETATIONS & CONCLUSIONS

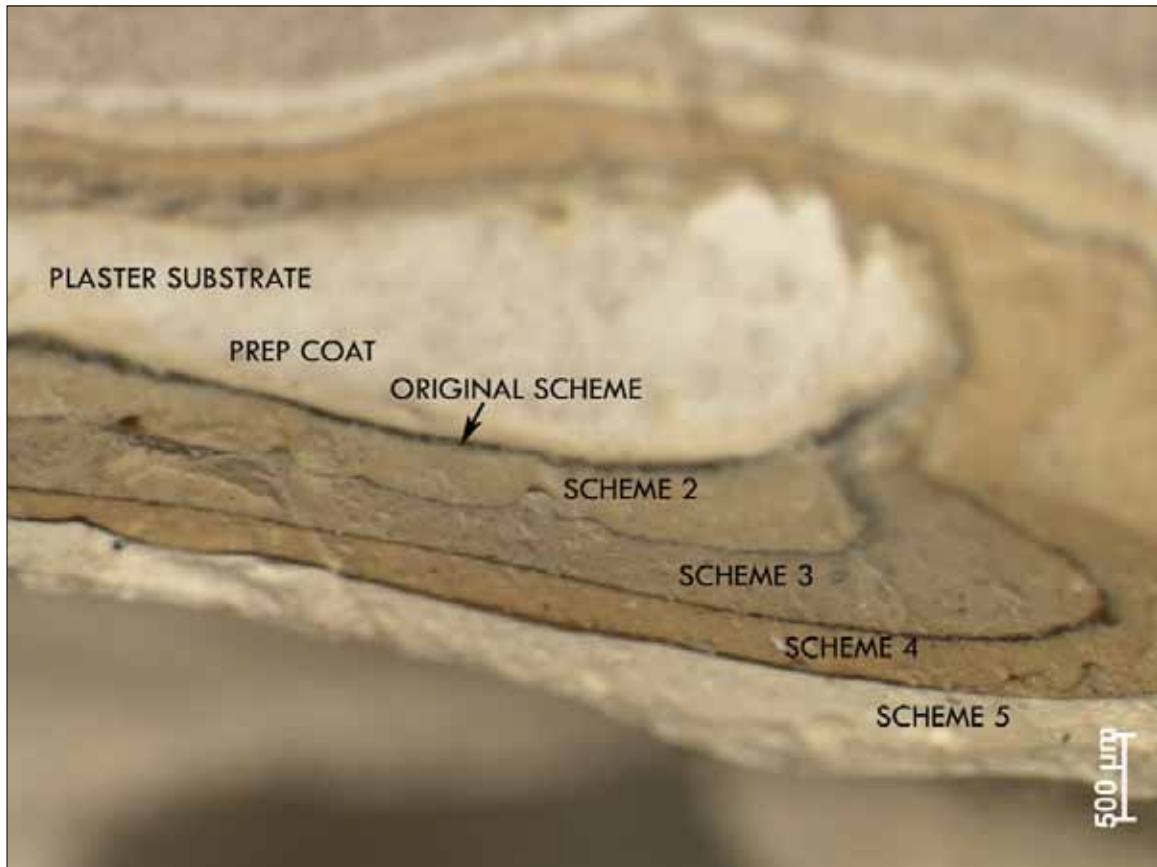
### 9.1 Interpretation of Schemes

The synchronic application of surface finishes for any given time period is referred to as a scheme. A scheme may employ a number of finish layers to achieve the desired effect. The original painted scheme of the Whitney ceiling was the primary focus of this investigation. Presumably the first scheme was in place for all if not most of the years Gertrude used the studio after its 1918 re-modeling during which time Chanler's ceiling was installed. As determined through cross sectional paint analysis and bulk sample exposures, the ceiling was painted and repainted at least five times: the original scheme followed by four re-paintings. The first scheme was polychromatic; all other schemes appear to be monochromatic, however this will need to be verified with more extensive sampling and analysis.

#### 9.1.1 *Original First Scheme*

Before paint was applied, the decorative plaster ceiling would have been primed with a size, most likely glue, shellac or oil-based. The entire ceiling was originally painted with a base coat of white lead/zinc white (medium unknown). This served to give a uniform appearance to the various modeled and applied plaster elements of the ornamental ceiling. Figural relief components were then highlighted with metallics, glazes, and scumbles.

The dominant sun figure was originally embellished with the application of a copper alloy "bronzing powder" paint (GWAS01.2010.03), and given highlights of color such as a



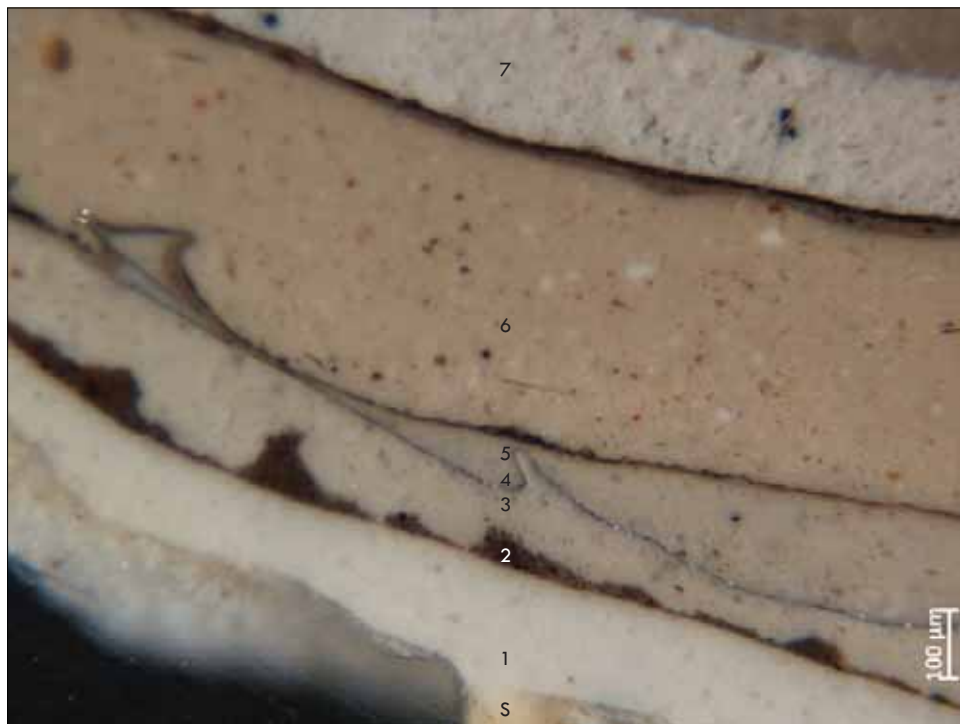
**Figure 9.1. Stereoscopic view of snake applique, with exposed schemes, 5x mag, reflected light (L.Vollono, 2010).**

rusty reddish brown within the mouth (GWAS01.2010.05). The radiating rays and combed ridges extending from the sun were left off white, as no evidence of paint or foil application was found in the analysis of the cross sectioned paint samples from these elements.

Surrounding the sun figure, there are many reptilian figures emerging from a series of clouds that surround this portion of the ceiling. The dragon (GWAS03.2010.08, GWAS01.2010.10), serpents (GWAS01.2010.14, GWAS03.2010.28) and alligator (GWAS01.2010.21) all contain traces of green paints, which seem to have been applied and wiped away in their application, as evident by their irregularity in thickness throughout

the cross sections. Many of the thick appliqué figures were finished with an oil mordant aluminum leaf. It is highly probably that the other reptilian figures were treated in a similar manner (different colored undercoat), but this will need to be confirmed with further sampling.

Through observation of samples along the east cornice, and exposures on the cornice panel that fell from the south wall, it can also be assumed that a further decorative treatment was included on the outer-lying elements of the room. A dull purple was found in the inner grooves of the cornice panel, suggesting that the curved cornice was colored and may have transitioned into the blanket of off-white across the main background of the ceiling. Likewise, a tan color was detected on a flatter, thicker element on the eastern cornice



**Figure 9.2. Cross section GWAS03.2010.28, displaying both original paint and metallic foil layers, 100x mag, reflected light (L.Vollono, 2010).**

(GWAS01.24.2010), along with the dull green colors that were apparent during on-site paint exposure surrounding the removal of the snake appliqué.

Samples from the removed appliqué snake suggest several possible interpretations of the original scheme. One possibility is the green color was first applied as an undercoat and then afterwards, primed out with an opaque white colored paint and re-finished with a metallic leaf. This sequence appears to suggest a change of plan as the opaque cream layer would have obscured the green under-layer and would not have allowed it to serve as a colored undercoat to the leaf. A second possibility is the white paint over the green is a touch up of the background and the green was an intentional undercoat for the aluminum leaf. Evidence of the ceiling's original paint scheme has only been conclusive in areas where the paint was applied thickly within corners and crannies of the figures, or where the metallic leaf had been preserved. Similar to the paint adhesion problems at Chanler's mural work at Coe Hall, Planting Fields, it is probable that the original decorative scheme was first over-painted because it was not remaining adhered to the plaster substrate and lead-white base, resulting in flaking and loss of material. This could also explain the difficulty of obtaining accurate paint samples for the previous analyses, as much of the original treatment may have already been lost. These are all working hypotheses, but were important to consider in conducting the paint investigation.

This original scheme would have most likely been treated with very thin glazes to give the finished scheme a unified appearance. This was not easily detected in cross section. Documentary evidence for a glaze coat is found in a letter that Chanler wrote to Whitney



describing the work's progress dating January 19, 1918:

*The ceiling is finished and the fireplace is beautiful. The mantle is fair simple and will not bother you for sure my wish is working off the heads...I have had Rudolph glaze the ceiling together and now it is no longer patchy.<sup>1</sup>*

The glaze would have both unified and highlighted the ceiling and fireplace in variable thickness of the glaze application and when applied over the aluminum leaf, would have rendered it slightly golden in color. It is possible different colored glazes were used on the various figures.

#### 9.1.2 Subsequent Schemes

Following the original decorative treatment of the Whitney Studio ceiling, subsequent paint schemes appear to be monochromatic and applied over the entire surface of the room. Each of these succeeding layers was found on every paint sample taken.

The second scheme, which was placed directly on top of the first scheme appears to be very similar to the white lead-based paint that prepped the entire ceiling originally. On many samples there is a thin black resinous layer that denotes the separation between the second and third schemes. The third paint applied is composed of a peach-tan color. After this layer is a very thick black resinous layer (varnish), which observed under UV light appeared to be two separate layers. This thick varnish layer may contain a further decorative application.<sup>2</sup> This layer should be analyzed more closely with FTIR testing to determine the

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1 Gertrude Vanderbilt Whitney Papers, Archives of American Art, Smithsonian Institution. [Microfilm Reel 2361].

2 Cassie Myers [Personal Interview] 6 April 2010.

compositions of these two layers.<sup>3</sup>

The next layers represent the two most modern cream and off-white schemes. These paints are incredibly tenacious and cannot be removed due to the friable nature of the layers beneath them. This has resulted in difficulty of revealing original paint schemes through exposure with a scalpel, because the paint tends to detach at the plaster surface.

## 9.2 Interpretation of Color and Style

As mainly a decorative screen painter, Chanler employed a heavy use of “lacquer” in his work, while also utilizing a heavy impasto technique which gave each surface a very sculptured, textured effect.<sup>4</sup> This technique was transferred from his decorative screens to his interior work. Through gaining an understanding of Chanler’s representative work, the original style and colors on the ceiling can be conjectured.

Possibly the most important source of information for the room is the decorative screen that was originally placed in the Whitney Studio and would have corresponded to the design and decoration of the room. The screen, called *Deep Sea Fantasy / Astrological Screen* was included as a color plate in Ivan Narodny’s *Art of Chanler*, and displays creatures with vivid pinks, blues and greens, with streaks of silver across a black background. (See Appendix F. Original Decorative Objects Within the Studio) The use of a silver metallic very much corresponds to what is visible on the buffalo in the breakfast room at Coe Hall;

3 If there was a lake or another organic colorant added to the varnish, LC-MS or HPLC supported by a good spectral database will be able to identify it. Dr. Alberto de Tagle, E-mail message to Lauren Vollono, 20 April 2010.

4 Robert Coe, “Chanler, Coe, Cody and Cannes,” *Planting Fields Arboretum* [Archives] Accessed 22 February 2010. Lacquer, in this sense is used as clear and or colored varnish, applied with organic lakes.

an accent that is shown through the colored treatment above. The ceiling considered in the context of the elaborately gilded fireplace, color stained glass windows and prominent decorative screen in the room, would have completed the entire ensemble but lighter in tone and palette, while also allowing the fireplace to be the focal point of the room.

### **9.3 Decorative Scheme Mock-up**

After paint samples were obtained from the ceiling during an investigation on November 16, 2009, it was determined that the original paint layers were too strongly adhered to the later finishes to be mechanically exposed with a scalpel. Realizing that exposures of the original paint scheme in-situ would be a far more complex issue than could be considered within the scope of this thesis, it was decided to explore other technologies as a way to present the original paint scheme for the ceiling.

Due to the intricacy of the surface on the decorative plaster and its location on a ceiling approximately thirty feet above floor level, traditional methods of acquiring a mold of a ceiling segment would be challenging. Handheld laser scanning was explored as a viable option because of its capabilities for high detail, its compact features suitable on a small scaffolding, and because of its non-contact ability to capture detail.

Creaform's HandyScan™ REVscan laser scanner was utilized for the purpose of generating scans of the entire sampling region of the ceiling, surrounding the sun figure. This technology has very important aspects for museums and heritage preservation, as it can be used to represent artworks for multimedia presentation, virtual museums on the internet,

digital archiving, production of replicas, damage assessment, restoration both virtually and in-situ, reconstitution and reconstruction processes.<sup>5</sup> By laser scanning the surface of the ceiling, we could explore options of color restoration on the ceiling through digital reproductions and mold fabrication. HandyScan™ scanners operate with 3 “eyes”; the one in the middle projects a cross shaped pattern with a laser, while the two on the sides of the machine are video cameras that observe how the laser lines fall on the 3-D surface being scanned, calculating where it must be by comparing the two angular views and reconstructing the surface automatically.<sup>6</sup> The scan is read with LED lights that illuminate surfaces that have been applied with reflective “targets,” which serve as positioning references for the scanner as it is in process. At the Whitney Studio, over 2,000 Handy Scan™ Regular Positioning Targets, were used to create the base registration matrix for each scan. Because of the fixed target points, the scanning equipment can be moved in any direction during the scan, offering flexibility in angles and registration.

The representative portion of the ceiling was scanned in January, 2010, and measured approximately 4' x 4'. The VXScan Express software allowed scans to be taken in 12"x12" cubic squares, and the registration system of targets automatically placed these scanned squares into their geo-spatial location through “automatic volume positioning”.<sup>7</sup> The average HandyScan™ model can take 18,000 separate measurements per second, scan-

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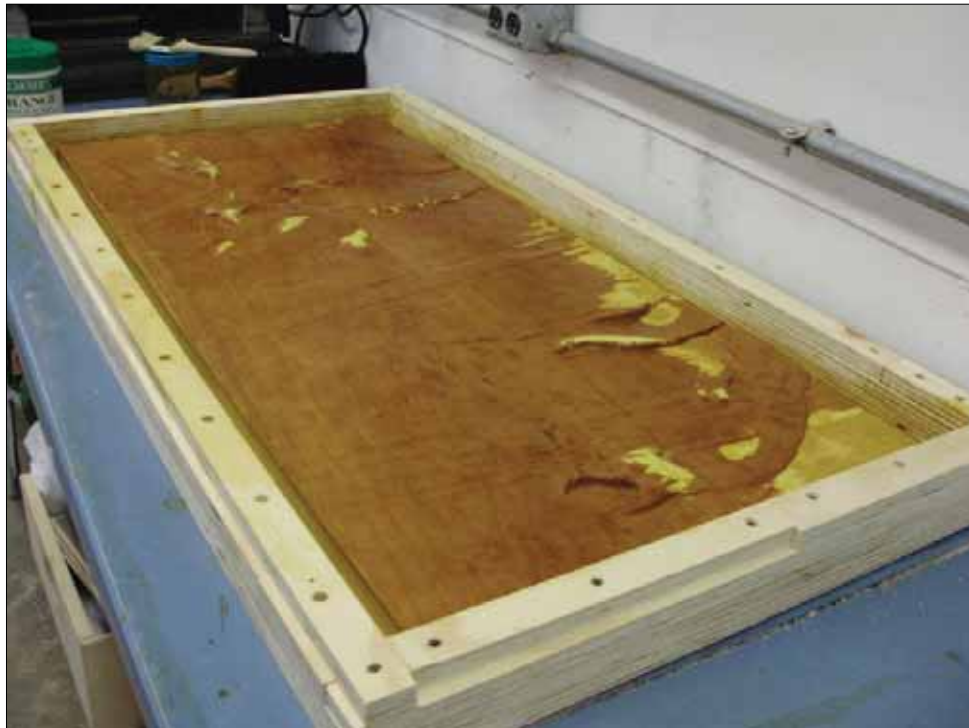
5 “Creaform Handy Scanners,” [Website] <http://www.creaform3d.com/en/handyscan3d/products/viuscan.aspx> [Accessed 15 April 2010].

6 “3D Laser Scanning,” [Website] [http://www.computersculpture.com/Pages/Index\\_Scanning.html](http://www.computersculpture.com/Pages/Index_Scanning.html) [Accessed 16 April 2010].

7 Idem.

ning at 0.1mm resolution, enough to create a highly detailed model. The VXScan Express software then decimates the model, using larger triangles in flatter areas to reduce polygon count and avoids bogging down the computer while preserving detail where needed by leaving triangles small in complicated areas.

Once scans were taken, the data was imported into GeoMagic Studio software at the School of Design, University of Pennsylvania. In .stl format, the scans were stitched together, and based on available paint information and completeness of the scan, a representative segment of the ceiling was chosen for replication. Using GeoMagic, the scans were smoothed over, with any holes filled in with the tools in the software. Working closely with



**Figure 9.3.** Milled portion of the Whitney ceiling scan, made on the CNC machine (L. Vollono, 2010).

Salvatore Dipaolo, Digital Fabricator at the Fabrication Laboratory in the School of Design, the cropped file (20"x40") was imported into Rhinoceros™ and prepared for fabrication on the CNC (Computer Numerical Control) mill. The scan was cut into a 2" thick, 20"x40" board of cherry wood, which was attached to two sheets of plywood for backing. The entire cutting process was completed over the course of a week.

The piece was then placed into a built frame that supported the wood, while creating flat edges for the molding process. In order to prepare the surface of the cut cherry wood, patches were filled with Durham's™ Rock Hard Water Putty, and the entire surface was sealed with three to four coats of shellac. Smooth-On™ Mold Max™ Stroke was used to take the mold, as it is a brushable tin silicone rubber that self-thickens to reproduce elements



**Figure 9.4.** Author applying B-I-N Shellac Base to each plaster mold (Y. Hernandez, 2010).





Figure 9.5. Author applying oil size for aluminum gilding (S. Rogers, 2010).

with a high amount of detail.<sup>8</sup> The rubber was prepared according to the material specifications, and brushed onto the relief surface, which had been applied with Ease Release 200™ releasing agent. One gallon of the rubber was applied with three coats, and then a mother mold of gypsum plaster was pour around the remaining edges to provide stability and structure during the mold making process.

Three plaster molds of gypsum plaster, with burlap reinforcement were produced. Each mold was sanded to remove milling marks, and then sealed with two coats of Zinsser

<sup>8</sup> "Mold Max Stroke: Brushable Tin Catalyzed Rubber," [Technical Brief] [http://www.smooth-on.com/tb/files/Mold\\_Max\\_Stroke\\_TB.pdf](http://www.smooth-on.com/tb/files/Mold_Max_Stroke_TB.pdf) [Accessed 16 April 2010].



**Figure 9.6. Top: figures with corresponding Munsell color matches. Below: Finished interpretative scheme of the original Whitney Studio ceiling. (L. Vollono, 2010).**

B-I-N™ Shellac-Base Primer Sealer, before being applied with two coats of Behr Antique White Flat Acrylic latex paint matched to the original base coat. (Fig. 9.4)

Paints were mixed to match the Munsell Color references, and applied to the dragon and snake figures prior to gilding. Once dried, Old World™ oil size was applied to the snake, dragon and griffin and left to set for an hour. (Fig. 9.5) After the aluminum leafing was applied and left to dry for 72 hours, the surface of each figure was abraded using

steel wool, wire brushes and ScotchBrite™ with acetone and ethanol. Using a combination of glazes, the surfaces of the figures and backgrounds were toned to reflect evidence found in exposures and cross section analysis. Using the findings of the original scheme from documentary sources, stratigraphic and material analyses and comparative case-studies of Chanler's other work, the mock-up was prepared to interpret the original appearance of the Whitney Studio ceiling.

#### **9.4 Conclusions**

The original decorative scheme of the Whitney Studio is a critical aspect to understanding the room as a psychological and aesthetic haven for Gertrude Vanderbilt Whitney. This interior is also a highly significant work of the American decorative artist, Robert Winthrop Chanler, and is a rare example of his decorative architectural work that relates to the formation of contemporary American art appreciation in the early 20<sup>th</sup> century.

The Whitney Studio is an extremely valuable aesthetic work, significant for its artisanship and associations with patron and artist. It is a link between the current building's operation as a graduate institution for aspiring artists and its historic precedents as the Whitney Studio, Whitney Studio Club and Whitney Museum of American Art. The decorative ceiling and fireplace by Robert Winthrop Chanler are an extension of this narrative, and serve as an access point for modern viewers to contemplate the grandeur and significance of artistic endeavors in the 1920s.

While elements of the interior space have changed over time, the room is primarily

significant as the private saloon of Gertrude Vanderbilt Whitney in the 1920s and 1930s. While the room should continue to play an important role in the public programming of the School as a lecture and critique space for the New York Studio School, there should be no activities in the space that could potentially threaten the historic fabric of the interior. Thus critiques in the space should be respectful of the walls, and pin-ups should be limited to the detachable paneled surface on the east wall.

A concerted effort should be made to develop and maintain a monitoring program to ensure that there is no further damage to the decorative interior. Preventative conservation is the most successful type of maintenance for a historic interior, and will guarantee the continued use and preservation of the Whitney Studio.

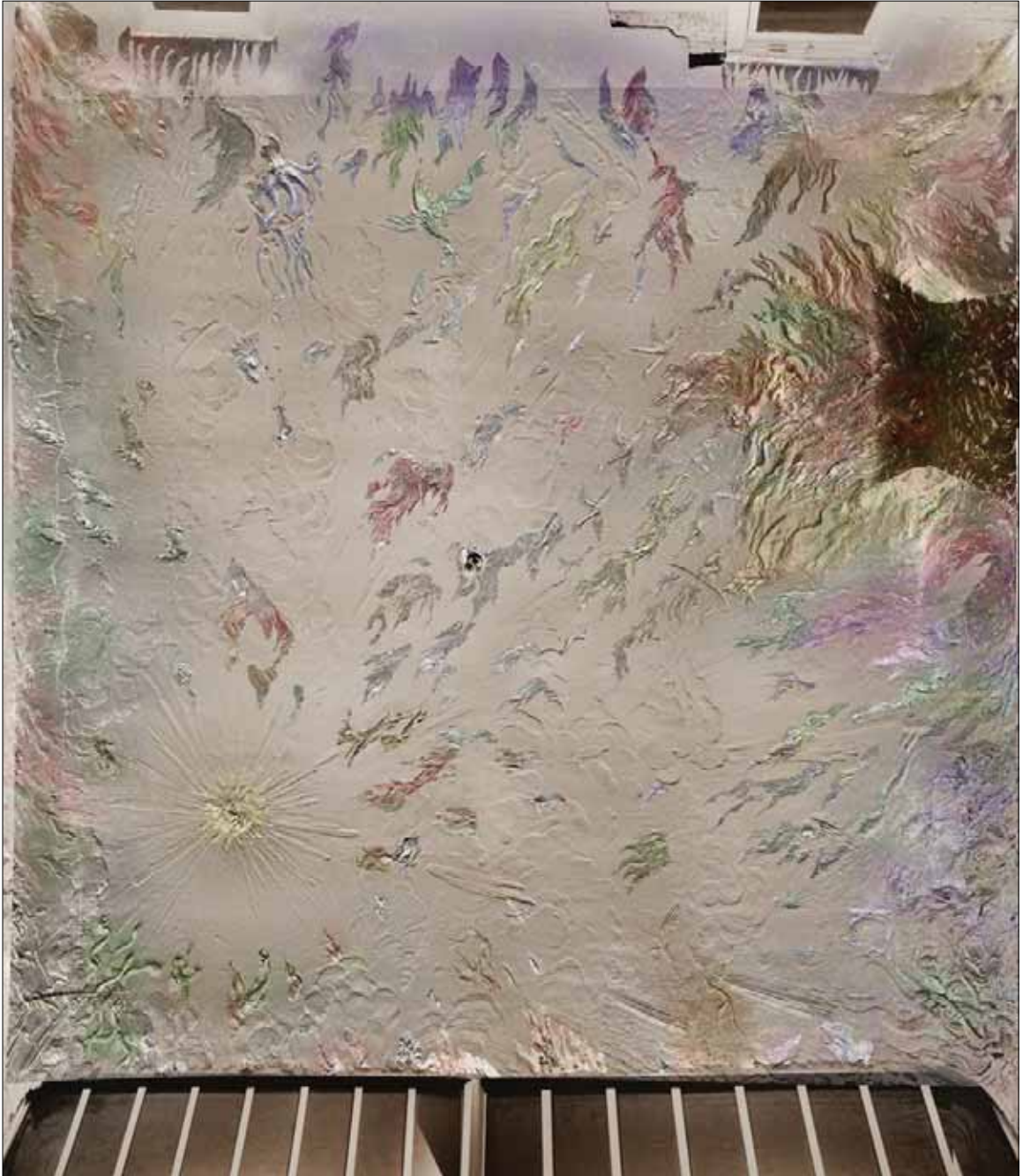


Figure 9.7. Reconstruction of original decorative scheme on Whitney Studio ceiling (L. Vollono, 2010).



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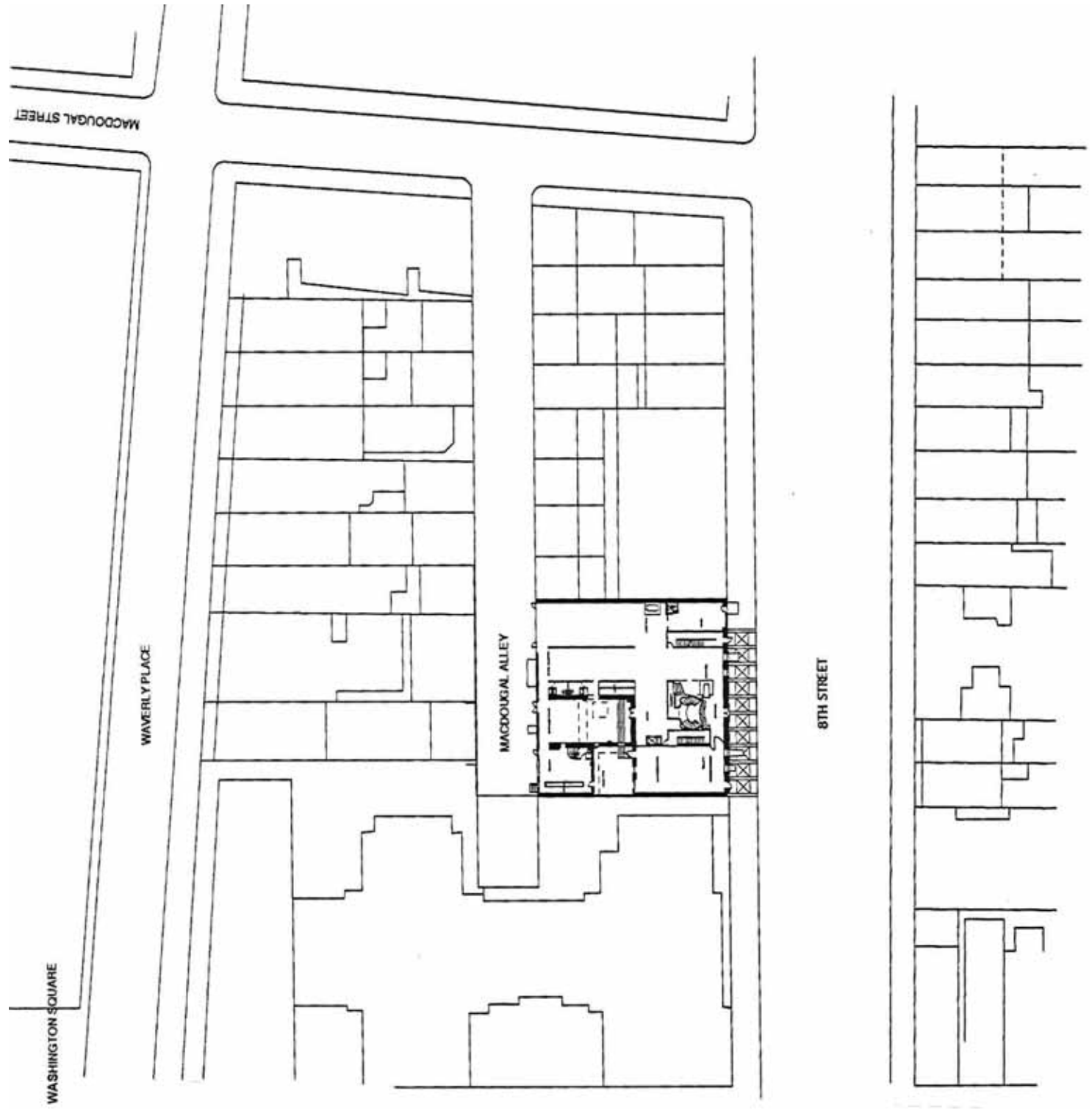
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Washington, DC 20001  
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- Archives of Woodstock Artists Association & Museum  
28 Tinker St,  
Woodstock, NY 12498
- Archives at Coe Hall, Planting Fields  
1395 Planting Fields Road  
Oyster Bay, NY 11771
- Files of B. D. Pickering  
New York Studio School of Drawing, Painting and Sculpture  
8 West Eighth Street  
New York, NY 10011-9002

APPENDIX A.

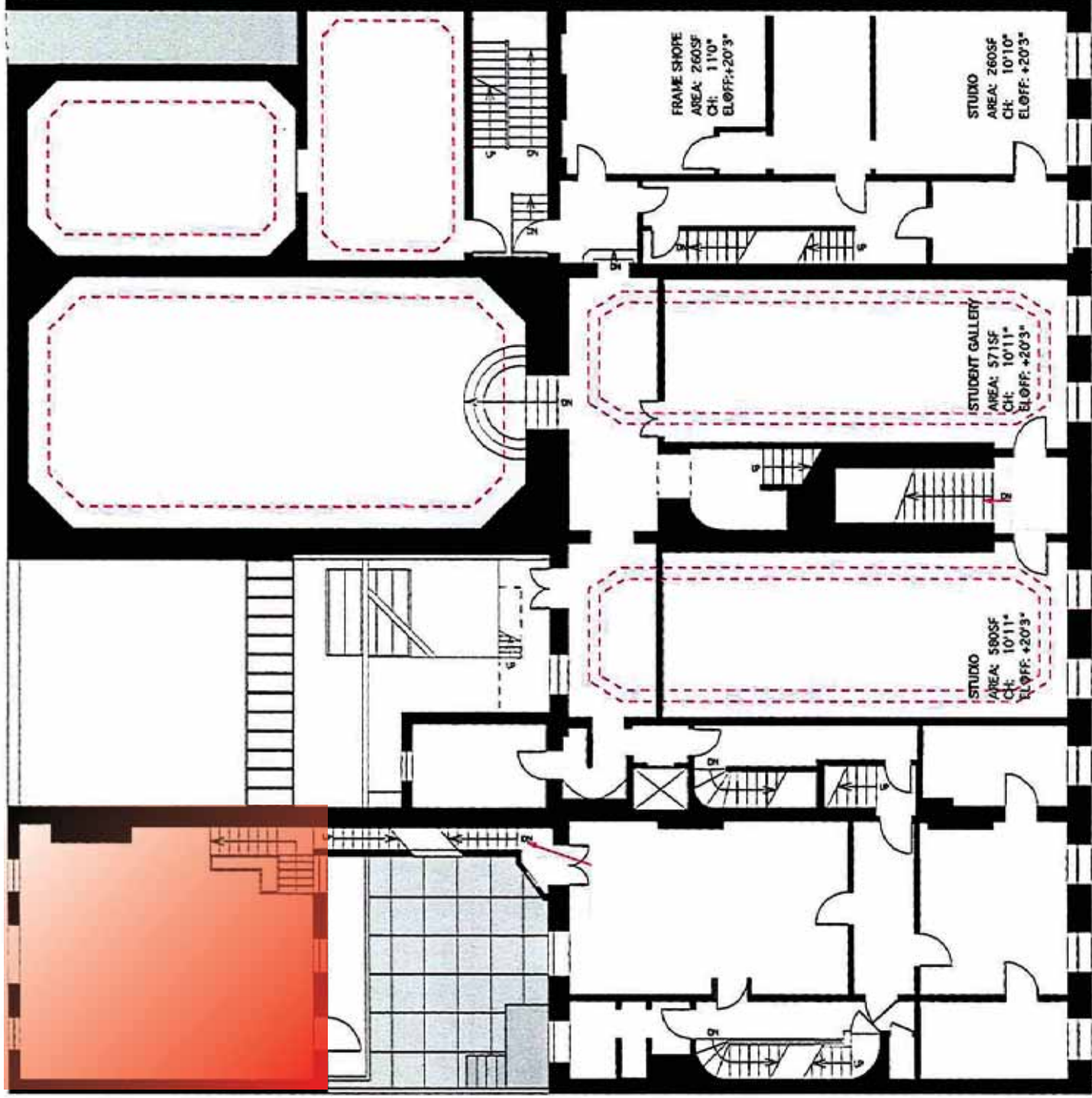
ARCHITECTURAL DRAWINGS & CONDITION MAPS



# D FLOOR PLAN, HIGHLIGHTING WHITNEY STUDIO

BY DIANE LEWIS + JAMES ROSSANT ARCHITECTS, 2003.

DRAWN AT SCALE- 1/8"  
NOT SCALED

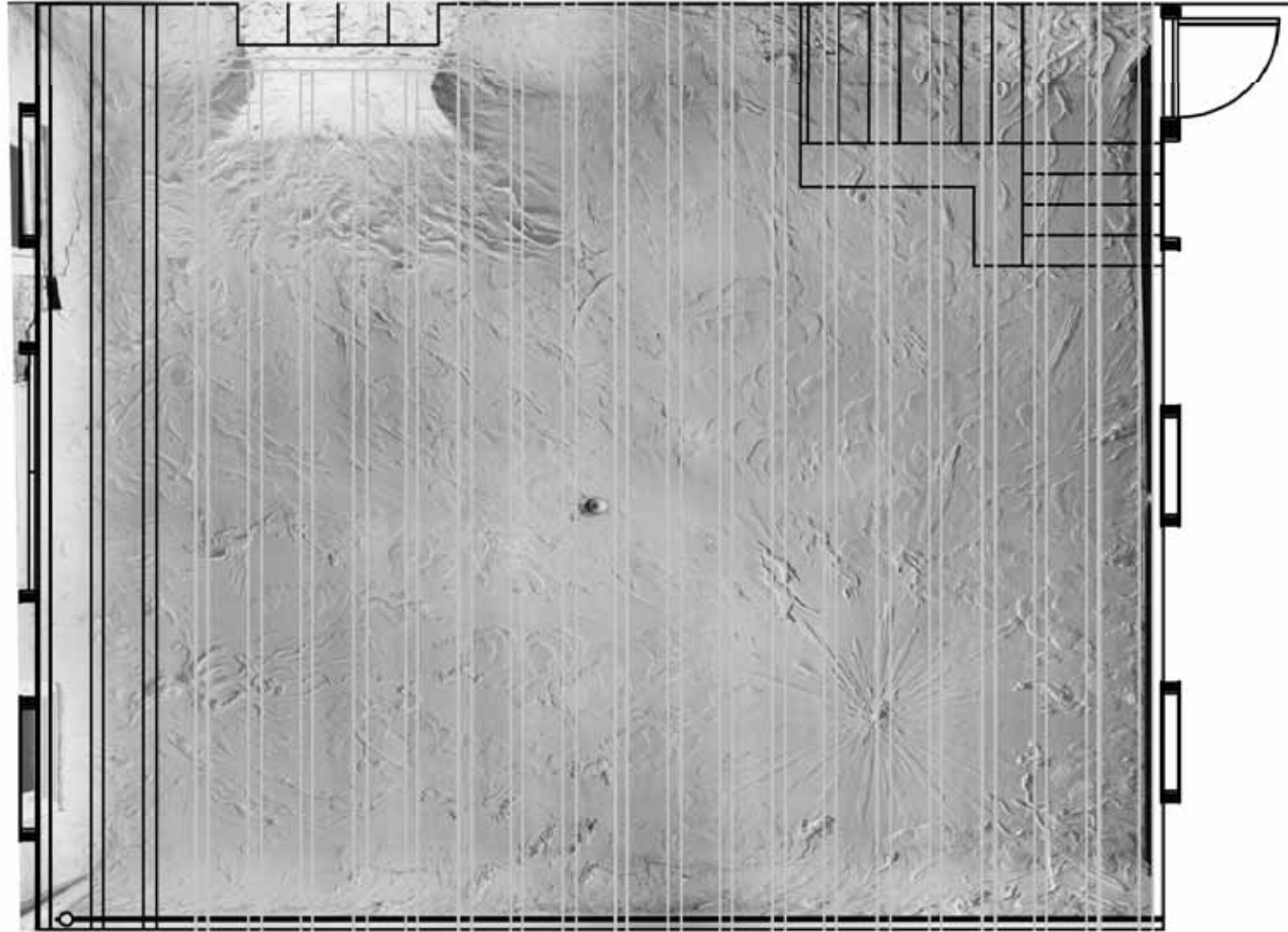




# STRUCTURAL FRAMING PLAN

LORY, ICR & L. VOLLONO, A.C.L.

0 1 2 4 feet

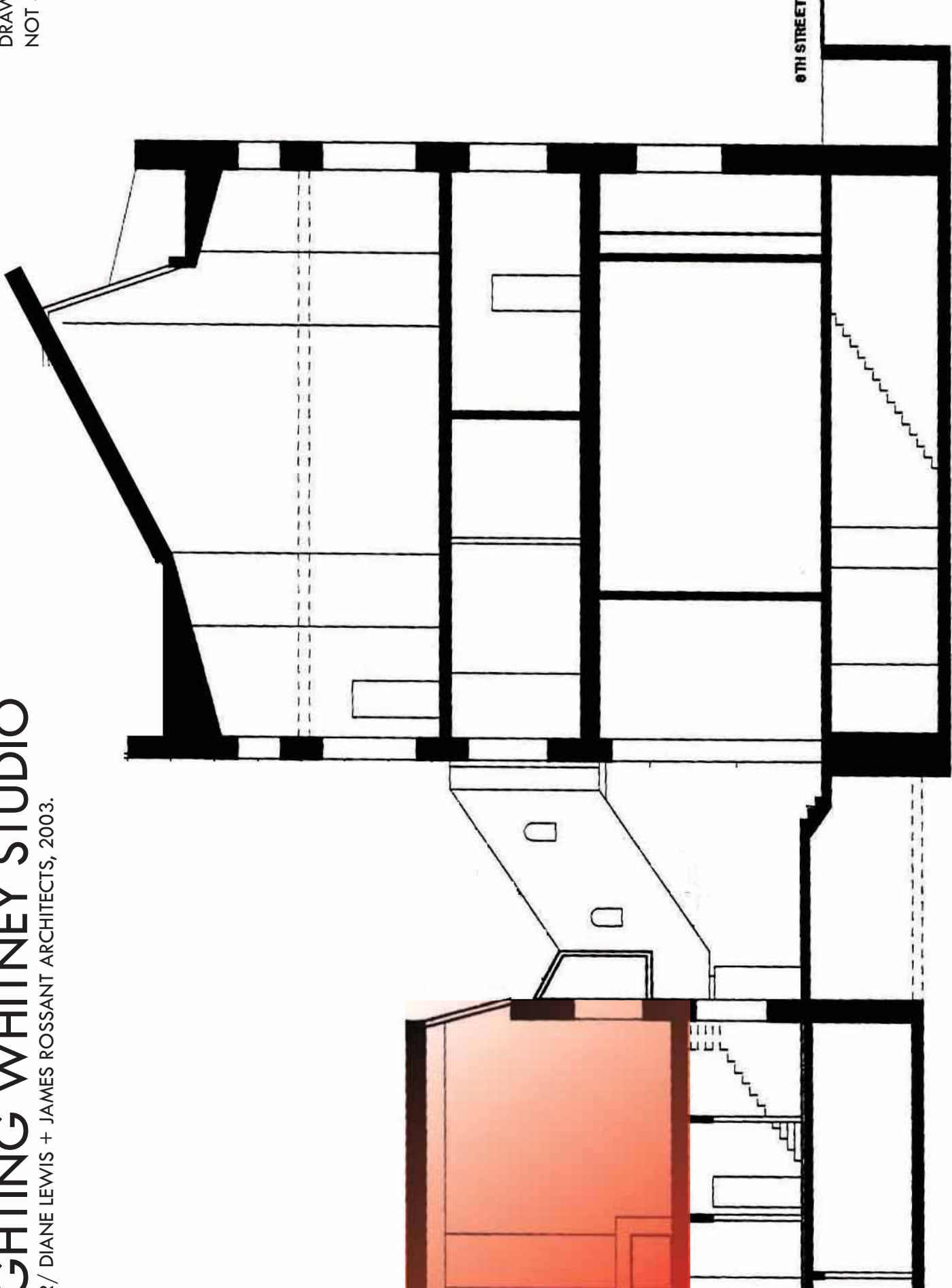


# CUT THROUGH 8 W. EIGHTH STREET,

## IGHTING WHITNEY STUDIO

/ DIANE LEWIS + JAMES ROSSANT ARCHITECTS, 2003.

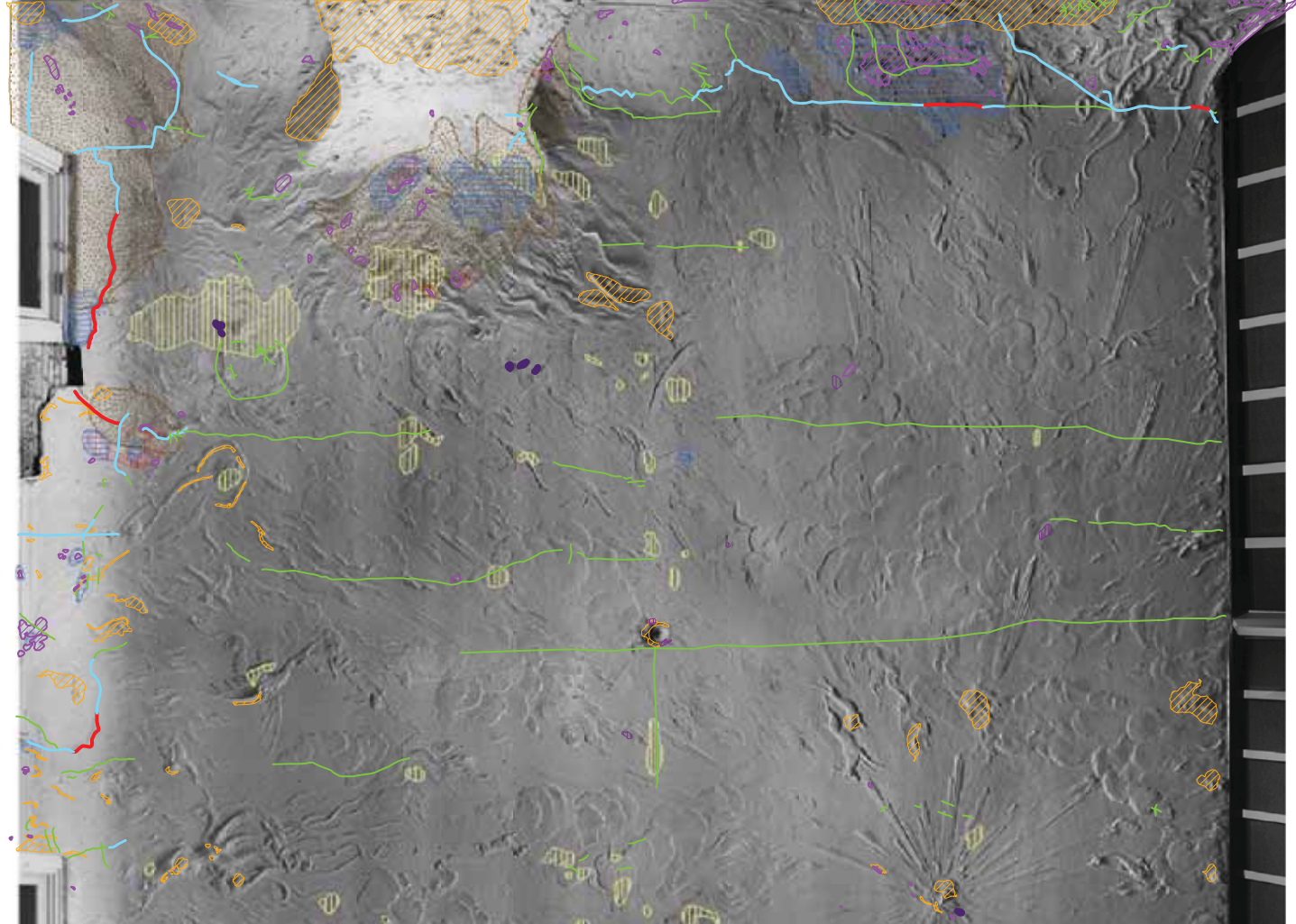
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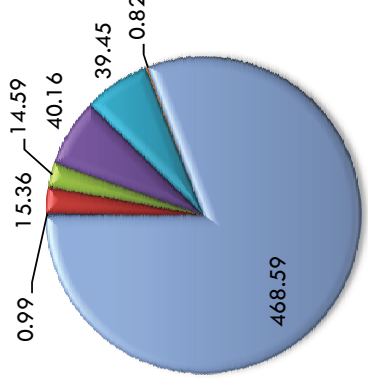
8 W. EIGHTH STREET



# ALL CONDITION

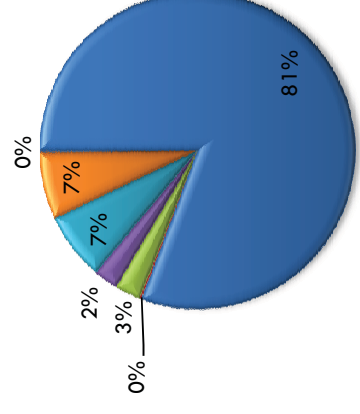


## Surface Area of Conditions (sq. feet)



- PLASTER LOSS
- DETACHMENT
- STAINING
- PITTING
- SOILING
- PAINT DETERIORATION
- UNDAMAGED CEILING

## Overall Condition of Whitney Studio Ceiling



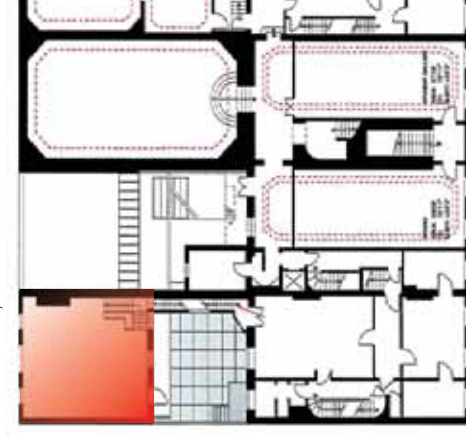
- UNDAMAGED CEILING
- PLASTER LOSS
- DETACHMENT
- STAINING
- PITTING
- SOILING
- PAINT DETERIORATION

### LEGEND

- Large Cracks
- Medium Cracks
- Small Cracks
- Previous Paint Exposures
- ▨ Paint Loss
- ▨ Paint Flaking
- ▨ Soiling
- ▨ Pitting
- ▨ Staining
- ▨ Detachment
- ▨ Plaster Loss

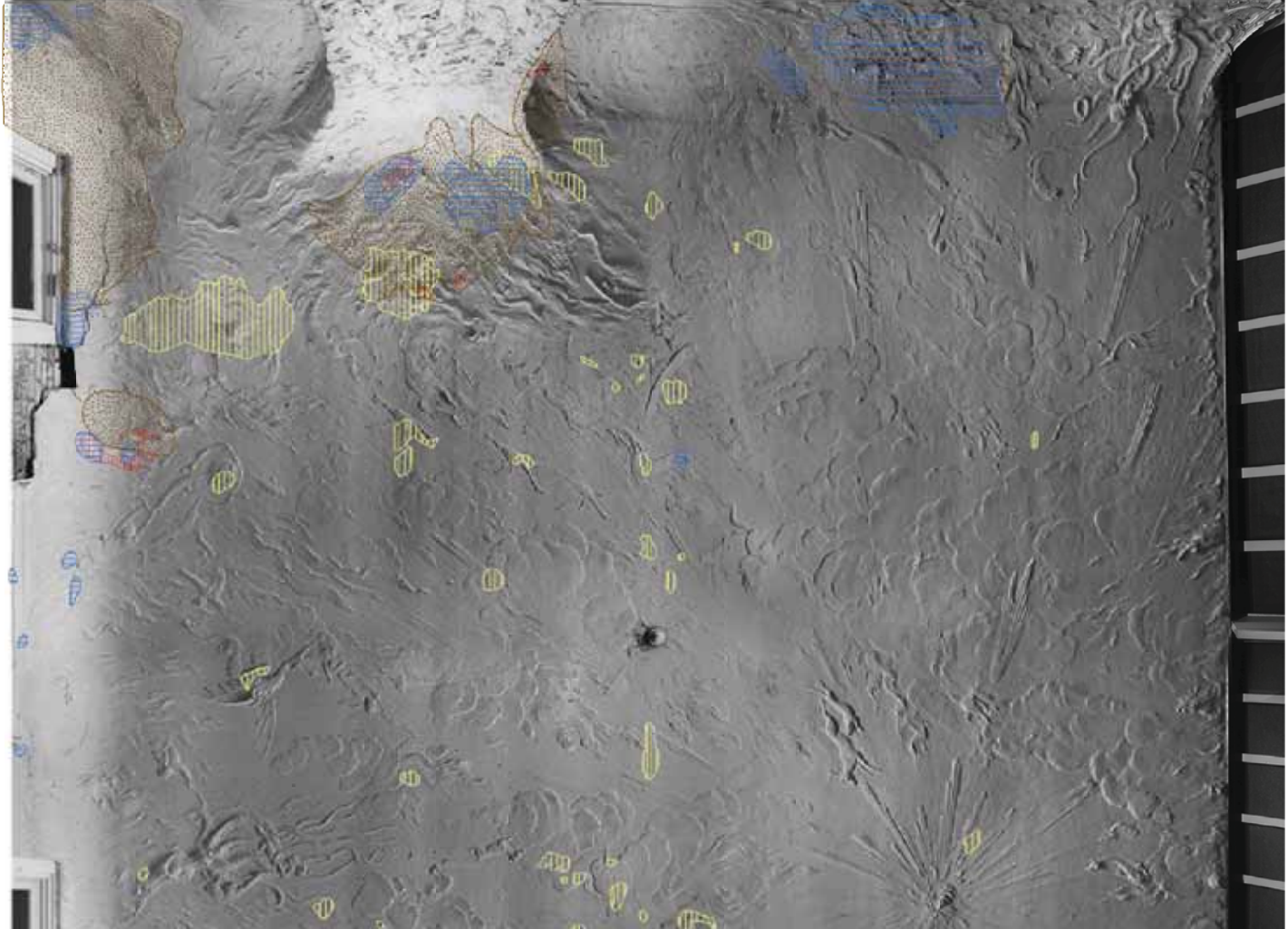
### SITE PLAN

NEW YORK STUDIO SCHOOL  
DRAWING BY D+R / DIANE LEWIS + JAMES ROSSANT ARCHITECTS

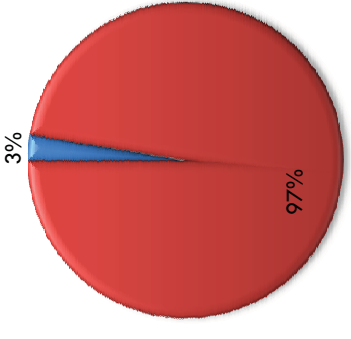




# THREATENING CONDITIONS, WITHOUT CRACKING



### Surface Area of Water Staining

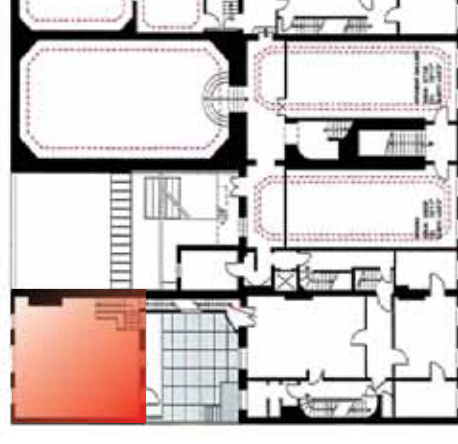


■ STAINED  
■ UNSTAINED

**LEGEND**

- Pitting
- Staining
- Detachment
- Plaster Loss

SITE PLAN  
NEW YORK STUDIO SCHOOL  
DRAWING BY D+R/ DIANE LEWIS + JAMES ROSSANT ARCHITECTS



APPENDIX B.

CONDITIONS GLOSSARY

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

**Cracking**

**DEFINITION**

Cracks appear in plaster most often as fissures, clearly visible by the naked eye, resulting from the separation of one part from another. Cracks on average ranged in width from 1/2" (b) to 1/16" (d), and ranged in depth from finish layer to entire substrate (a).

**SITE IDENTIFICATION**

The cracks are divided into three classes of size: small, medium and large. Large cracks display deep penetration through the plaster substrate to the support. Medium cracks are restricted to the finish layer and occur along juncture points, or regions of the cornice that experience a lack of structural stability. Most often, small cracking occurred in map-cracking patterns, surrounding medium or large cracks. These cracks were only visible upon close inspection on the scaffolding.

**GRAPHIC**

- Large Cracks
- Medium Cracks
- Small Cracks

**PHOTOGRAPHS**



(a) abnormally large crack along cornice failure



(b) large



(c) medium



(d) small



GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

***Detachment***

**DEFINITION**

The separation of the finish layer of decorative plaster from the scratch coat (a) or from the structural support (b). Since this condition is not visible, a tap test was conducted throughout the ceiling to document where plaster sounded hollow due to discontinuities.

**SITE IDENTIFICATION**

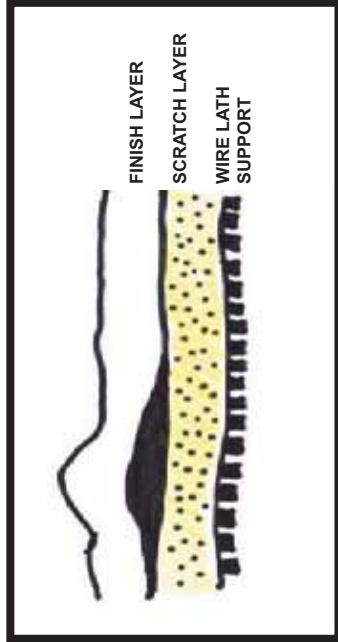
Detachment most often occurs in areas where the structural support is not carrying the weight of the entire ceiling panel. Areas of detachment are often small.

**GRAPHIC**

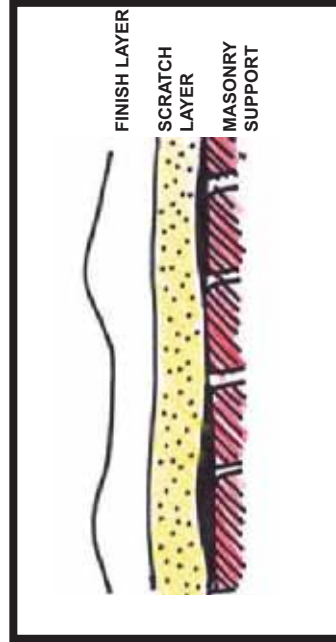


Detachment

**PHOTOGRAPHS**



(a) Detachment of finish layer from scratch layer



(b) Detachment of scratch layer from structural substrate

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

***Pitting***

**DEFINITION**

The formation of small and large shallow cavities on the surface of plaster.

**SITE IDENTIFICATION**

Pitting is a serious problem, particularly in the portion of ceiling above the fireplace. From the ground, these regions appear white, and upon close inspection are completely powdered.

**GRAPHIC**



Pitting

**PHOTOGRAPHS**



(a) large



(b) large



(c) medium



(d) small

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

**Staining**

**DEFINITION**

Discoloration associated with intrinsic metallic elements in the plaster construction, from metal lath, nails, etc.

**SITE IDENTIFICATION**

Areas of staining were identified through the visual appearance of darker, rust-colored stains on the plaster and/or paint surface. The discoloration could not be removed with a facing brush and had migrated throughout the plaster substrate.

**GRAPHIC**



Staining

**PHOTOGRAPHS**



(a) plaster staining with wire mesh exposed



(b) staining surrounding nail hole



(c) staining due to prior treatment



(d) stained plaster behind peeled paint

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

**Plaster Loss**

**DEFINITION**

The loss of plaster and paint ranging in size from total loss (a) to isolated paint failure (b).

**SITE IDENTIFICATION**

Loss occurs in small fragments throughout the ceiling due to a combination of other conditions. Most frequent plaster loss occurred alongside paint loss, both of which were often precipitated by the same cause.

**GRAPHIC**



Plaster Loss

**PHOTOGRAPHS**



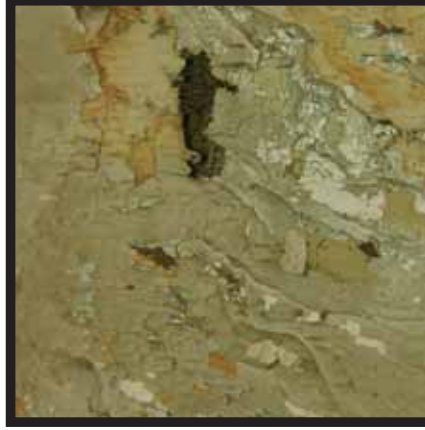
(a) cornice failure



(b) vulnerable plaster due to paint loss



(c) loss due to extensive pitting



(d) erosion of metal fasteners

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

**Soiling**

**DEFINITION**

Discoloration on the surface of the plaster detailing due to extrinsic factors, such as dust, fireplace ash, etc.

**SITE IDENTIFICATION**

Soiling occurs most frequently on areas of high relief. These include sections along the cornice, in the corners of the room, and on high projecting figures of the ceiling plaster.

**GRAPHIC**



Soiling

**PHOTOGRAPHS**



(a) soiling along high relief



(b) soiling trapped in the corner next to the fireplace



(c) soiling on long stretches of relief.



(d) soiling along very three-dimensional portion

GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

**CONDITION**

**Paint Loss**

**DEFINITION**

The peeling (a) and flaking (b) of paint from the plaster decorative surface.

**SITE IDENTIFICATION**

Paint loss occurs most often in combination with other conditions on the ceiling.

**GRAPHIC**

-  Previous Paint f
-  Paint Loss
-  Paint Flaking

**PHOTOGRAPHS**



(a) peeling reveals bronze toning



(b) extensive paint flaking




(c) evidence of former paint reveals

(d) segment of paint loss



GERTRUDE VANDERBILT WHITNEY STUDIO, NEW YORK STUDIO SCHOOL  
**CEILING PLASTER CONDITIONS GLOSSARY**

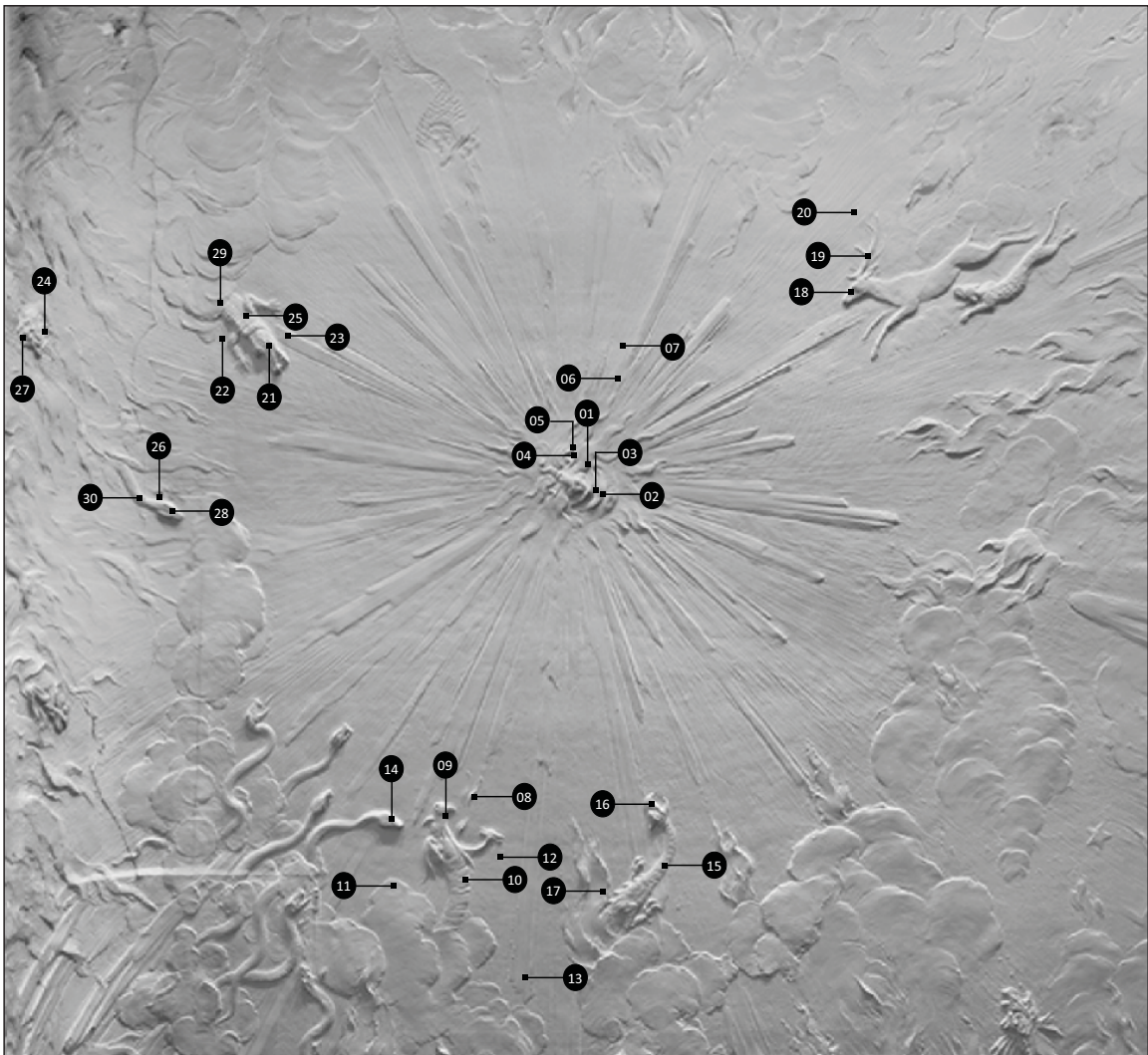
<b>CONDITION</b>	<b>PHOTOGRAPHS</b>	
<b><i>Previous Crack Testing</i></b>		
<b>DEFINITION</b>	Previous placement of markers, called "teillales," to test crack movement.	
<b>SITE IDENTIFICATION</b>	Markers were found along the east wall of the ceiling cornice.	
<b>GRAPHIC</b>		

APPENDIX C.

SAMPLE MAPPING & TESTING MATRICES

APPENDIX C. SAMPLE MAPPING & TESTING MATRICES

GERTRUDE VANDERBILT WHITNEY STUDIO  
PAINT FINISHES: SURROUNDING SUN FIGURE



APPENDIX C. SAMPLE MAPPING & TESTING MATRICES

GERTRUDE VANDERBILT WHITNEY STUDIO  
PAINT FINISHES: SURROUNDING SUN FIGURE

Sample (GWAS 01.2010- #)	Description	Analytical Testing
1	Sun, right cheek, plaster substrate & finish	Cross Section, UV
2	Sun face, bottom right lip	Cross Section and SEM/EDS
3	Sun face, open mouth right	Cross Section and SEM/EDS
4	Sun face, right pupil of the eye	Cross Section
5	Eyebrow edge, right side of the sun	Cross Section
6	Ray background, above sun	Cross Section
7	Combed ridge background, above sun (aura)	Cross Section
8	Tongue of dragon	Cross Section
9	Snout of dragon	Cross Section and SEM/EDS
10	Neck of Dragon	Cross Section
11	Cloud beyond Dragon (off-page)	Cross Section
12	Combed ridge background, side of dragon	Cross Section
13	Ray background	Cross Section
14	Serpent's head	Cross Section
15	Griffin body/neck	Cross Section
16	Griffin beak	Cross Section
17	Cloud	Cross Section
18	Deer snout	Cross Section and SEM/EDS
19	Deer antler	Cross Section
20	Combed ridge background	Cross Section
21	Edge of mouth on alligator	Cross Section
22	Combed ridge background, side of alligator	Cross Section
23	Ray in front of alligator	Cross Section
24	Hair of head figure on cornice (off-page)	Cross Section and SEM/EDS
25	Body of alligator	Cross Section and SEM/EDS
26	Plaster from snake, used to hold in place	Cross Section
27	Lip of head figure on cornice (ref: 24)	Cross Section
28	Head of snake (ref: 28)	Cross Section and SEM/EDS
29	Cloud behind alligator	Cross Section
30	Body of snake (re: 24)	Cross Section

APPENDIX C. SAMPLE MAPPING & TESTING MATRICES

GERTRUDE VANDERBILT WHITNEY STUDIO  
 PAINT FINISHES: FIREPLACE

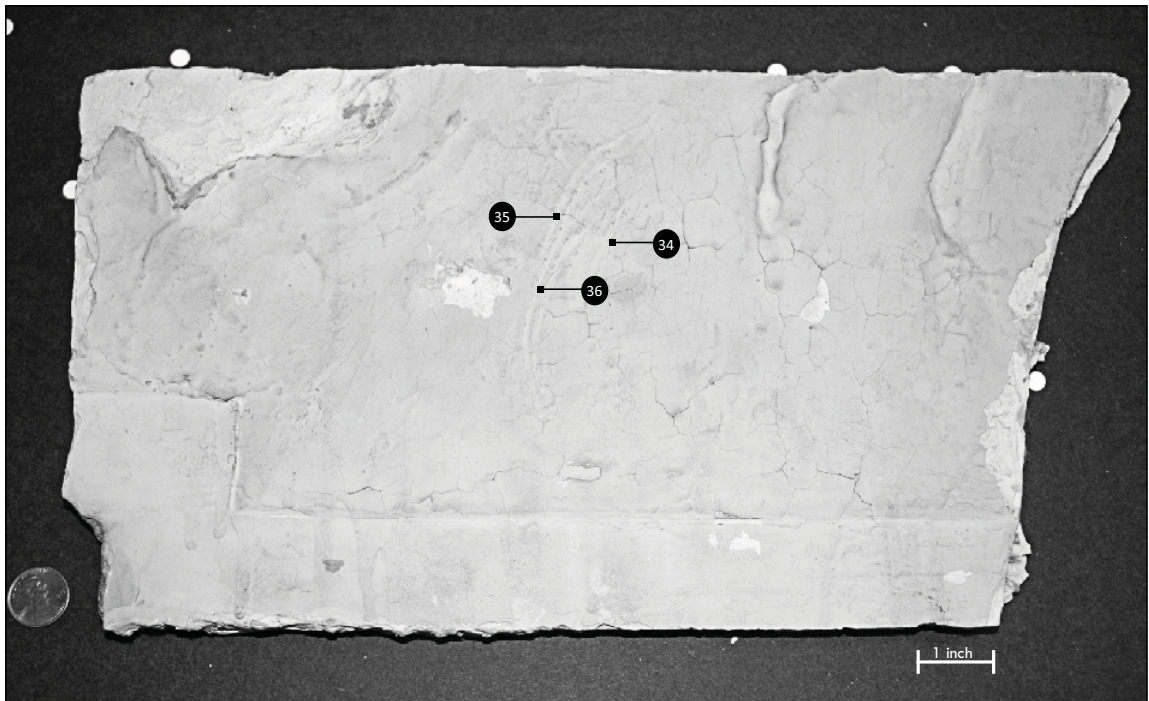
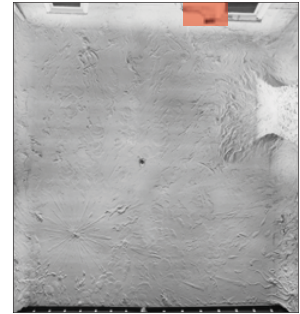


Sample (GWAS 01.2010- #)	Description	Analytical Testing
31	Side of fireplace, towards bar off flame	Cross section
32	Snake above fireplace - plaster substrate	Cross section
33	Flame above fireplace - plaster substrate	Cross section



APPENDIX C. SAMPLE MAPPING & TESTING MATRICES

GERTRUDE VANDERBILT WHITNEY STUDIO  
 PAINT FINISHES: CORNICE PIECE

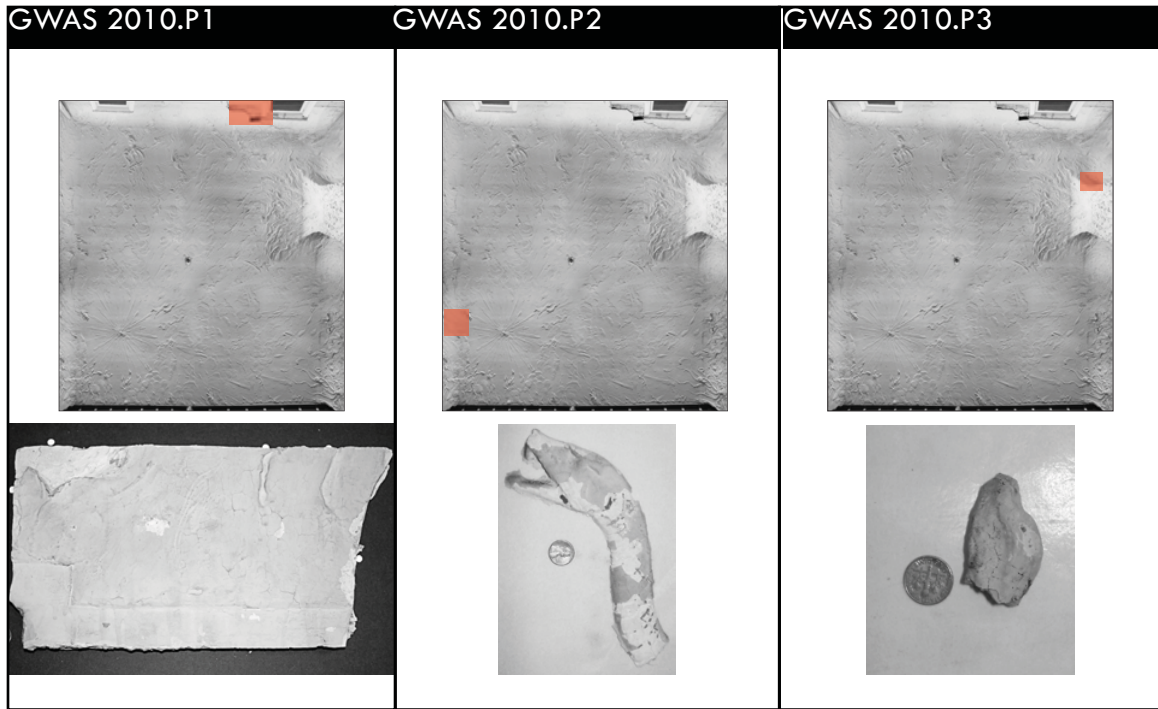


Sample (GWAS 01.2010- #)	Description	Analytical Testing
34	Flame, flat surface	Cross Section
35	Crease	
36	Crease	Cross Section and SEM/EDS



APPENDIX C. SAMPLE MAPPING & TESTING MATRICES

GERTRUDE VANDERBILT WHITNEY STUDIO  
 PAINT FINISHES: CORNICE PIECE

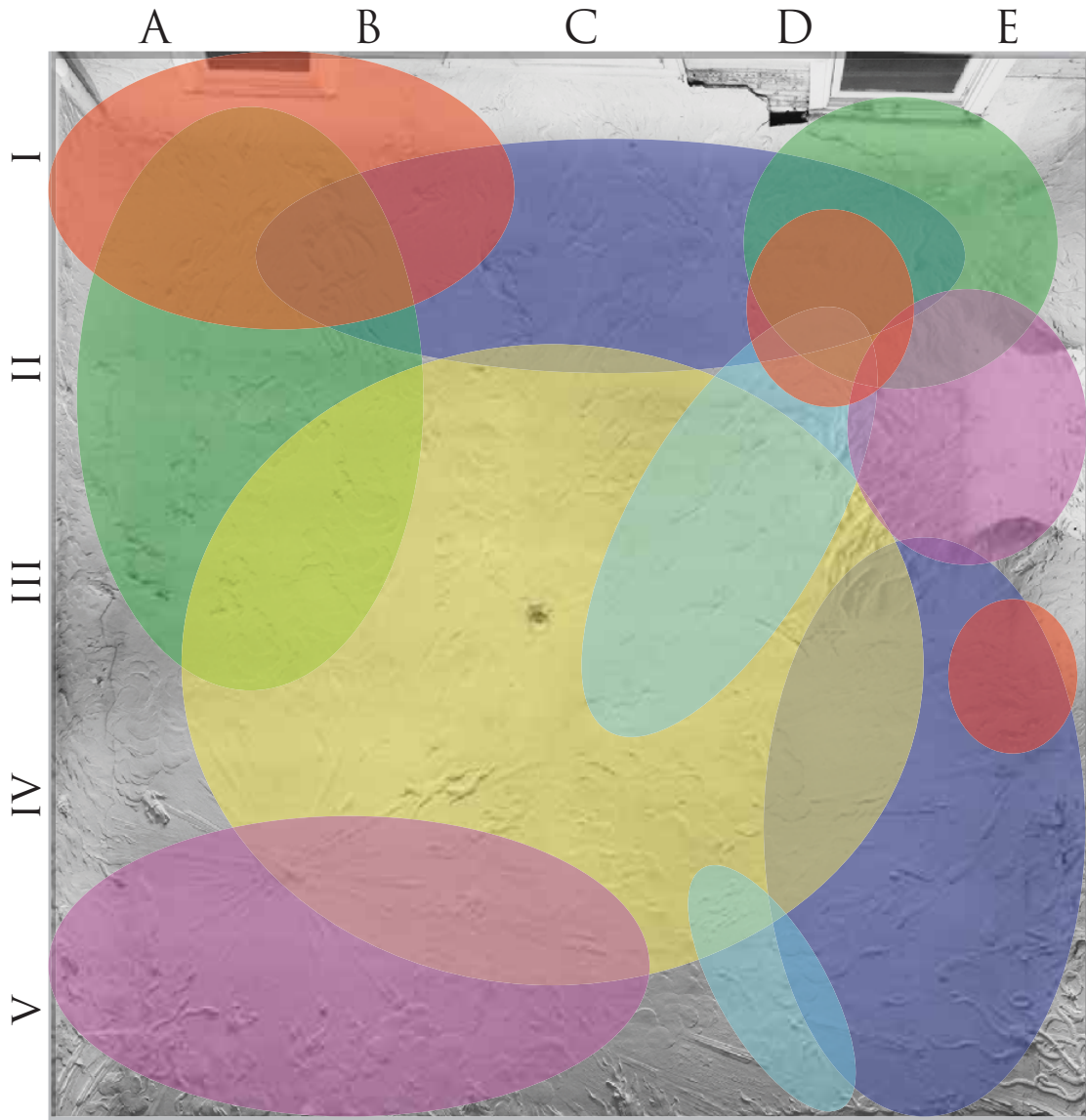


Sample (GWAS 2010- #)	Description	Analytical Testing
P1	Section of fallen cornice relief	Thin Section & XRD
P2	Applique plaster component, with fibrous reinforcement	Thin Section
P3	Portion of a sculpted frame, taken from the decorative chimney.	Thin Section & XRD

APPENDIX D.

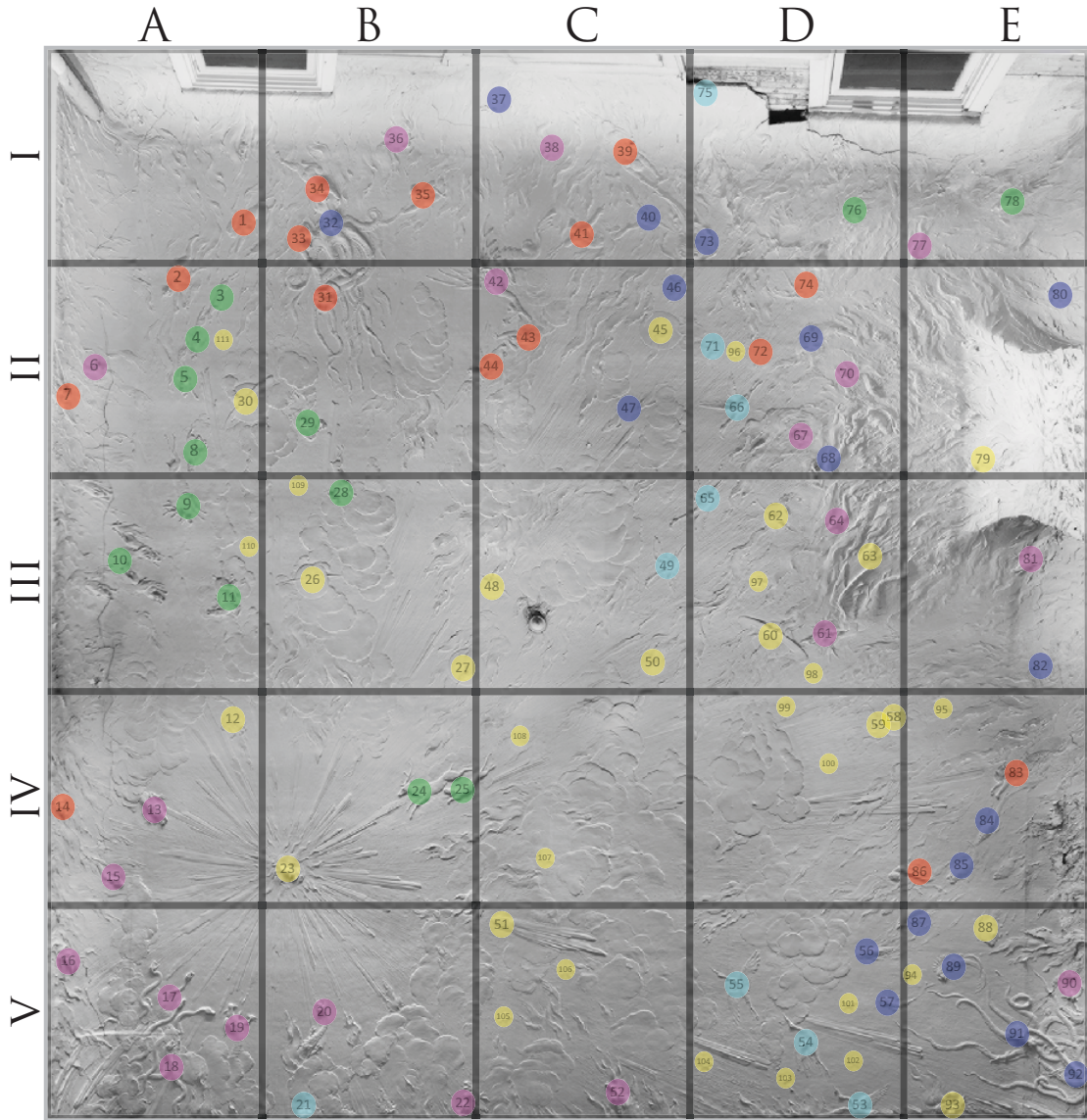
FIGURAL MAPPING

GERTRUDE VANDERBILT WHITNEY STUDIO  
MASSING OF FIGURES



- = Astrological Symbols
- = Land / Hunting Creatures
- = Sea Creatures
- = Avian Creatures
- = Reptilian Creatures
- = Human Figures

GERTRUDE VANDERBILT WHITNEY STUDIO  
 MAP OF FIGURAL REPRESENTATIONS



- = Astrological Symbols
- = Avian Creatures
- = Land / Hunting Creatures
- = Reptilian Creatures
- = Sea Creatures
- = Human Figures

APPENDIX D. FIGURAL MAPPING

GERTRUDE VANDERBILT WHITNEY STUDIO  
TABLE DETAILING FIGURAL REPRESENTATIONS

ID	Location	Description	Related
1	I-A	Nude woman running	
2	II-A	Nude woman running	
3	II-A	Running dog	
4	II-A	Running dog	
5	II-A	Running leopard	
6	II-A	Griffin's head spewing fire	
7	II-A	Male figure with outstretched arms. Along Cornice.	
8	II-A	Lioness(?) running, about to pounce upon antlered deer.	9
9	III-A	Antlered deer, about to be pounced by lioness (?)	8
10	III-A	Set of four running dogs, amidst encroaching flames.	11
11	III-A	Hurt feminine deer, about to be attacked by running dogs	10
12	IV-A	Highly textured scaled fish, spewing fire towards to the sun.	
13	IV-A	Highly textured alligator, high relief, with outstretched limbs towards the sun.	81
14	IV-A	Disembodied head, with flame-like hair and an open mouth.	
15	IV-A	Writhing snake, emerging from the clouds.	
16	V-A	Chameleon, emerging from clouds	
17	V-A	Series of four writhing, fanged snakes emerging out of the clouds towards the sun. Surrounded by rays and clouds.	18
18	V-A	Two slightly smaller fanged snakes, below open air of clouds, towards skylight.	17
19	V-A	Open-mouthed dragon, spewing fire, with only head and neck visible, emerging from the clouds. Looking up towards the sun.	
20	V-B	Open-mouth griffin, surrounded by flame and clouds, looking up towards the sun.	
21	V-B	Owl-head, amidst clouds.	75
22	V-B	Full-bodied dragon, with wings and fish tail (?)	
23	IV-B	Sun, emitting rays that extend throughout the entire ceiling.	
24	IV-B	Antlered deer, running alongside a leopard (?), in the direction of the sun	25
25	IV-B	Leopard (?) running alongside deer, in the direction of the sun.	24
26	III-B	Ringed planet, amidst clouds.	
27	III-B	Planet/moon, amidst flames and rays.	

APPENDIX D. FIGURAL MAPPING

28	III-B	Female deer running towards sun, about to be consumed by a large disembodied cat's head (lion).	
29	II-B	Large disembodied lion's head, amidst clouds, about to consume a running female deer.	
30	II-A	Ringed planet, amidst clouds.	
31	II-B	Nude woman, trapped within a giant octopus' tendrils	32-35
32	I-B	Giant octopus, entangling a woman and being attacked by surrounding men.	31, 33-35
33	I-B	Nude man, attacking octopus. Almost demonic looking, the man is reaching out for the trapped woman. Only upper body is visible.	31-32, 34-35
34	I-B	Nude man, attacking octopus. Full length of body exposed, grabbing onto the giant head of the octopus.	31-33, 35
35	I-B	Nude man, attacking octopus., Emerging from cloud, the man, is hanging onto on of the tendrils.	31-34
36	I-B	A winged creature. Refer to other photos to further understand.	
37	I-C	Sea horse.	
38	I-C	Possible griffin, or snake.	
39	I-C	Nude male, with outstretched arms grabbing onto the tail of a much larger than life-size sting ray.	73
40	I-C	Swordfish.	
41	I-C	Nude male, enveloped by a flame, attacking a dragon.	42-44
42	II-C	Open-mouthed dragon, about to consume a frightened, nude woman.	41, 43-44
43	II-C	Nude woman, about to be consumed by a giant dragon. Being saved by an overhead demonic-winged figure. Bottom half covered in clouds, while upper half is surrounded by flames. Arms stretched out over head.	41-42, 44
44	II-C	Demonic-angel winged figure. Saving woman from dragon.	41-43
45	II-C	Planet/moon, amidst flames and rays.	
46	II-C	Fish, may be being chased by the ray.	
47	II-C	Pair of dolphins (?) amidst clouds. Part of larger group.	
48	III-C	Ringed planet, amidst flame.	
49	III-C	Bird, part of flock, flying towards the direction of the sun in a diagonal.	65-66, 72
50	III-C	Planet/moon, amidst flames and rays.	
51	V-C	Comet.	
52	V-C	Fire-breathing crocodile.	



APPENDIX D. FIGURAL MAPPING

53	V-D	Bird, part of flock, flying towards the direction of the giant octopus.	
54	V-D	Bird, part of flock, flying towards the direction of the giant octopus.	
55	V-D	Bird, part of flock, flying towards the direction of the giant octopus.	
56	V-D	Fish (?)	
57	V-D	Dolphin-like fish	
58	IV-D	Ringed planet, amidst clouds and flames.	59
59	IV-D	Ringed planet, amidst clouds and flames.	58
60	III-D	Thick-ringed planet, amidst flames.	
61	III-D	Flying dragon.	
62	III-D	Ringed planet, amidst flame.	
63	III-D	Comet.	
64	III-D	Fanged snake.	
65	III-D	Bird, part of flock, flying towards the direction of the sun in a diagonal.	49, 66, 72
66	II-D	Bird, part of flock, flying towards the direction of the sun in a diagonal.	49, 65, 72
67	II-D	Perhaps an open-mouthed griffin. Just head and neck.	
68	II-D	Unknown figure. Fish-like	
69	II-D	Shark	
70	II-D	Writhing snake, emerging from flame.	
71	II-D	Bird in the distance.	49, 65-66
72	II-D	Arrow, shot to kill on of the flying birds.	66, 74
73	I-D	Sting-ray.	39
74	II-D	Nude woman, holding bow and arrow. Flung shot towards flying flock of birds.	66, 72.
75	I-D	Owl-head, amidst clouds.	21
76	I-D	Running dog, behind bow & arrow woman	74
77	I-E	Writhing snakes amidst flames.	
78	I-E	Running dog	
79	II-E	Sea-horse.	
80	II-E	Hammer-head shark (?)	
81	III-E	Alligator	13
82	III-E	Sea-horse.	

APPENDIX D. FIGURAL MAPPING

83	IV-E	Mermaid	
84	IV-E	Swordfish.	
85	IV-E	Flounder.	
86	IV-E	Nude man, arms hugging a flame, towards what appears to be moving water, with fish swimming below.	
87	V-E	Catfish, reached for by the nude man.	86
88	V-E	Fish	
89	V-E	Dragon fish.	
90	V-E	Dragon, amidst flames. Located on the cornice.	
91	V-E	Giant octopus, entangled with another giant octopus.	
92	V-E	Giant octopus, entangled with another giant octopus.	
93	V-E	Unknown figure. Entangled within flame.	
94	V-E	Star.	
95	IV-E	Star.	
96	II-D	Star.	
97	III-D	Star.	
98	III-D	Two stars.	
99	IV-D	Star.	
100	IV-D	Star.	
101	V-D	Star.	
102	V-D	Star.	
103	V-D	Slightly smaller star.	
104	V-D	Star.	
105	V-C	Star.	
106	V-C	Star.	
107	IV-C	Stars, doubled on top of each other,	
108	IV-C	Planet/moon, amidst flames and rays. Two of them are right next to each other.	
109	III-B	Star.	
110	III-A	Star.	
111	II-A	Star.	

APPENDIX E.

NATIONAL REGISTER NOMINATION FORM

APPENDIX E. NATIONAL REGISTER NOMINATION FORM

NPS Form 10-900 NATIONAL HISTORIC LANDMARK NOMINATION OMB No. 1024-0018  
USDI/NPS NRHP Registration Form (Rev. 8-86)  
NEW YORK STUDIO SCHOOL OF DRAWING, PAINTING AND SCULPTURE Page 1  
United States Department of the Interior, National Park Service National Register of Historic Places Registration Form

**1. NAME OF PROPERTY**

Historic Name: Whitney Museum of American Art

Other Name/Site Number: New York Studio School of Drawing, Painting and Sculpture; (Formerly: Whitney Studio; Whitney Studio Club; Whitney Studio Galleries).

**2. LOCATION**

Street & Number: 8 West 8th Street\* Not for publication:\_\_\_

City/Town: New York Vicinity:\_\_\_

State: NY County: New York Code: 061 Zip Code: 10011

\* Incorporating 8, 10, 12, and 14 West 8th Street.

**3. CLASSIFICATION**

Ownership of Property	Category of Property
Private: <u>X</u>	Building(s): <u>X</u>
Public-local: ___	District: ___
Public-State: ___	Site: ___
Public-Federal: ___	Structure: ___
	Object: ___

Number of Resources within Property	Noncontributing
Contributing	_____ buildings
<u>8</u>	_____ sites
_____	_____ structures
<u>6</u>	_____ objects
<u>14</u>	_____ Total

Number of Contributing Resources Previously Listed in the National Register: 14

Name of related multiple property listing: N/A

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4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this \_\_\_ nomination \_\_\_ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property \_\_\_ meets \_\_\_ does not meet the National Register Criteria.

Signature of Certifying Official

Date

State or Federal Agency and Bureau

In my opinion, the property \_\_\_ meets \_\_\_ does not meet the National Register criteria.

Signature of Commenting or Other Official

Date

State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I, hereby certify that this property is:

- \_\_\_ Entered in the National Register \_\_\_
\_\_\_ Determined eligible for the National Register \_\_\_
\_\_\_ Determined not eligible for the National Register \_\_\_
\_\_\_ Removed from the National Register \_\_\_
\_\_\_ Other (explain): \_\_\_

Signature of Keeper

Date of Action

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**6. FUNCTION OR USE**

Historic: Recreation & Culture  
Other

Sub: Museum  
Artists' Studios

Current: Education  
Recreation & Culture

Sub: School  
Museum

**7. DESCRIPTION**

Architectural Classification:  
Moderne & Classical Revival  
(Nos. 8-12 W. 8th Street)  
Italianate (14 W. 8th Street)

Materials:  
Foundation: Stone  
Walls: Brick;  
Stucco & Sandstone  
Roof: Metal & Tar Paper  
Other Description: \_\_\_\_\_



## APPENDIX E. NATIONAL REGISTER NOMINATION FORM

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### Describe Present and Historic Physical Appearance.

The New York Studio School of Drawing, Painting and Sculpture is located at 8 West Eighth Street, within the dedicated Historic District of Greenwich Village, in New York City. The property, 100' wide, is a complex of buildings that encompasses four town houses (originally 8, 10, 12, and 14 West Eighth Street) fronting on the south side of West Eighth Street, and four structures attached to the backs of the town houses (Fig. 1). These four structures, each with its own entrance onto the north side of MacDougal Alley, were brick stables in the nineteenth century.<sup>1</sup> They were converted to working studios for artists in the early 1900s.

Until 1954, the site was the home of the Whitney Museum of American Art and its predecessor organizations: the Whitney Studio, the Whitney Studio Club, and the Whitney Studio Galleries. Since 1967 the property has housed a leading art school affiliated with influential artists, critics, and art historians. Thus the Eighth Street buildings represent an unrivalled commitment to American art, both in validating it as a significant expression of our national life and in perpetuating that expression through excellent professional teaching. The Studio School's adaptive use of the former Whitney complex makes for a rare example of historical continuity, since both institutions' functions and intents are so similar.

The houses that were once 8-12 West Eighth Street were constructed in 1838-1839 as separate but adjacent buildings. They were made of brick and were four stories high. Numbers 8 and 10 were conceived as town house dwellings for individuals, and No. 12 was to be an investment property rented out to businesses.<sup>2</sup> It was first taken by Sumner & Naylor, a firm that originally made kitchenware and then branched out into "metal roofers and galvanized rust-proof iron."<sup>3</sup> Although the fenestration of No. 12 was different from Nos. 8 and 10, the style of the row houses was Greek Revival, with restrained detailing at the cornices, windows, and doorways.

Number 14 West Eighth Street is of a later style and date. It is a four-story Italianate brick town house with a rusticated basement, built in 1853-1854. This house was built for Alexander Robertson Walsh, a prosperous hardware man who lived next door at

<sup>1</sup> New York City Landmarks Preservation Commission, "Greenwich Village Historic District Designation Report," Vol. 1 (New York, 1969), pp. 127-128. New York fire atlas and real estate maps dated 1881, 1890, and 1901 also show brick stables attached to all four buildings.

<sup>2</sup> *Ibid.*, p. 163.

<sup>3</sup> *Ibid.*

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No. 16.<sup>4</sup> Mary Robertson Walsh, one of Walsh's sisters, married Henry James, Sr., making Alexander Walsh the uncle of William, Henry (who was born in nearby 21 Washington Place), and Alice James.<sup>5</sup>

Later on, a brick stable was added to the back of each house. At the rear of 8 West Eighth Street, A.H. Graham erected a three-story stable in 1877. The address was 19 MacDougal Alley.<sup>6</sup> Number 19 retains its stone lintels and a dentilled brick cornice. Above the original door for the carriage, two hayloft doors are extant. Except for a few randomly placed openings, the structures attached to Nos. 10 and 14 West Eighth (presumably numbered 17 1/2 and 15) have large blank wall areas and are three stories high. They were stables in 1879. The stable attached to 12 West Eighth Street was No. 17 MacDougal Alley, and it is marked as a stable on an 1881 map. Today, the exteriors of the MacDougal Alley structures essentially reflect their conversions to studio spaces, which occurred between 1901 and 1910 (Fig. 2).

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<sup>4</sup> *Ibid.*

<sup>5</sup> Leon Edel, *Henry James: The Untried Years (1843-1870)*, (New York, 1978), pp. 39-40.

<sup>6</sup> The numbering of the stables and then studios of MacDougal Alley is so confused that it renders research on the structures difficult if not impossible. Because the stables were subsidiary structures attached to town houses with numbers of their own, they were not numbered on any nineteenth-century New York City real estate or fire atlas map. (Indeed, maps dated as late as 1922 do not carry house numbers for any structure on MacDougal Alley.) However, beginning in 1901, the New York City directories began to list addresses in MacDougal Alley for artists with studios there. Again, these numbers do not show up on the street maps. This first numbering system would make 8 West Eighth street attached to 19 MacDougal Alley, 10 West Eighth Street to No. 17 1/2, 12 West Eighth Street to No. 17, and 14 West Eighth Street to No. 15. At some point, this numbering shifted--for example, the former 23 MacDougal Alley is now No. 6, and No. 19 is now 17 1/2. To avoid further confusion, the first numbering system will be used: Nos. 19, 17 1/2, 17, and 15, going from east to west. Since these four addresses have been absorbed by the Studio School complex, the newer numbers no longer exist. Therefore, it seems more logical to use the numbers that obtained when the structures had separate addresses.



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In 1907, Gertrude Vanderbilt Whitney (1875-1942),<sup>7</sup> the sculptor and art patron, took over the stable at 19 MacDougal Alley for the purpose of converting it into a studio. It is not known who remodeled the structure for Whitney, but she left the work area a large, plain open space, raising the ceilings and keeping the beams, rafters, and planked wooden floors of the stable.<sup>8</sup> She installed up-to-date lighting and an arsenal of equipment. The sculptor Malvina Hoffman, who was an apprentice in a studio two doors away, remembered Whitney's studio as having a great "array of modeling tools and glistening saws and chisels that hung over the workbenches, turntables that really turned, stands that did not wobble."<sup>9</sup> The most memorable feature of the second floor, which contains the dramatic hayloft windows, came into being in 1918, when Whitney engaged the painter and muralist Robert Winthrop Chanler (1872-1930) for a decorative commission. Chanler embellished the fireplace and chimney with a magnificent piece of painted sculpture: tongues of flame, molded in plaster and painted in red and gold polychrome leap upward to simulate an enormous blaze. The flames curl and twist to the ceiling, whereon they become abstract swirling bas-reliefs from which delicately modeled dragons, deities, nymphs, birds, and sea creatures peep out. Both the fireplace and ceiling survive, but they have been covered in a heavy layer of white paint (Fig. 3). Chanler also designed seven stained glass windows as an accompaniment,<sup>10</sup> but they were removed and sold many years ago.

While Gertrude Whitney was alive, this studio remained her private working quarters, and the rooms were not used by the museum after her death save possibly as a storage area. Today, the Studio School has a kitchen, the development office, and a life class for sculpture in the ground floor. The room with the Chanler fireplace is used for receptions, lectures, and other social functions.

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<sup>7</sup> For biographical information about Whitney, see B.H. Friedman, *Gertrude Vanderbilt Whitney* (Garden City, 1978). An excellent summary of Whitney's career as a sculptor is contained in Janis Conner and Joel Rosenkranz's *Rediscoveries in American Sculpture: Studio Works, 1893-1939* (Austin, Texas, 1989), pp. 169-176.

<sup>8</sup> Avis Berman, *Rebels on Eighth Street: Juliana Force and the Whitney Museum of American Art* (New York, 1990), p. 76. This volume, which details the history of Whitney Museum while it was housed in the Eighth Street buildings, is the principal source on the subject, and it will henceforth be referred to as ROES.

<sup>9</sup> Malvina Hoffman, *Yesterday is Tomorrow* (New York, 1963), p. 73.

<sup>10</sup> Friedman, p. 397.

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In May of 1912,<sup>11</sup> the distinguished sculptor Daniel Chester French (1850-1931) bought 12 West Eighth Street, which also included 17 MacDougal Alley. He planned on using the Alley studio and the basement of 12 West Eighth Street as workspace while renting the remaining rooms in the town house to tenants. The building was remodeled by the architect Francke H. Bosworth, Jr. (1876-1949), who later became Dean of the College of Architecture at Cornell University.<sup>12</sup> In her biography of her father, Margaret French Cresson remembered

a casting room in front, an office for his secretary, a not-too-good reception room (...it wouldn't encourage people to linger), and then a really magnificent studio. At the back there was a smaller studio, with a flight of steps running up to it, almost like a stage and the whole place was so big that one could get a real sense of distance and almost visualize the effect of a statue outdoors.<sup>13</sup>

The steps, the double studio, and the sense of space have been preserved to this day.

Both 17 MacDougal Alley and 12 West Eighth Street were incorporated into the Whitney Museum complex after Gertrude Whitney bought the property from French in 1930. The museum very appropriately used French's former studio as its main gallery for the display of sculpture (Fig. 4). Today, French's old studio is a workspace for sculpture students (Fig. 5). The rooms belonging to 12 West Eighth Street are now given over to studios and classrooms.

In July of 1913, Gertrude Whitney bought 8 West Eighth Street, the town house attached to No. 19 MacDougal Alley, to convert it into galleries and offices. It would be used for what we would now call an alternative space. The galleries opened in 1914 and were named the Whitney Studio.

In August of 1913, the interior of 8 West Eighth Street was remodeled by Grosvenor Atterbury (1869-1956), a socially prominent architect whom Whitney had known since at least 1908.<sup>14</sup> His important New York commissions include Forest Hills Gardens (1913), one of the most exclusive residential enclaves in Queens,

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<sup>11</sup> Michael Richman, letter to Avis Berman, December 30, 1980; see also Reel 26, Daniel Chester French Papers, Manuscript Division, Library of Congress.

<sup>12</sup> Henry F. Withey and Elsie Rathburn Withey, *Biographical Dictionary of American Architects* (Los Angeles, 1956), p. 67.

<sup>13</sup> Margaret French Cresson, *Journey into Fame: The Life of Daniel Chester French* (Cambridge, Massachusetts, 1947), p. 218.

<sup>14</sup> *ROES*, p. 77-78. The purchase and renovation of 8 West Eighth Street are discussed on pp. 105-106.



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the Russell Sage Foundation headquarters (1914), the restoration and refurbishing of the interior of City Hall (1902 and 1920), and the first American Wing of the Metropolitan Museum of Art (1924). An excellent residential architect, Atterbury kept the layout simple and functional, taking into consideration that the building, although four stories high, was just 25' wide. The outside was painted a tawny pink, with a dark green door and casements. The ground floor was divided into two exhibiting rooms, plus a small back hall where Juliana Force (1876-1948), the manager of all of Whitney's art activities and the future director of the Whitney Museum, sometimes sat during visiting hours. A public staircase led to another gallery taking up the front half of the second floor. The rear half of the second story became Force's office, and the third floor was set up as a workroom for artists. Atterbury's renovation, keeping the galleries small and intimate and leaving the original casements, mantelpieces, and fireplaces, enunciated from the outset a hallmark of all Whitney art organizations on Eighth Street: the galleries were consistently designed to retain the welcoming atmosphere of a private home. (Throughout the Studio School, most of the carved marble mantelpieces and surrounds survive.)

Atterbury's most ingenious addition was the passage linking 8 West Eighth Street to 19 MacDougal Alley. It not only connected the two buildings, but preserved Whitney's privacy. Force's second-floor office contained the sole entrance to an enclosed exterior staircase (Fig. 6) that led upstairs and downstairs to both floors of Whitney's studio. Only the two women, the Whitney children, and close friends were allowed access to this flight of steps, which was invisible from the galleries and public reception areas. In the coming years, the hidden staircase would take on symbolic overtones. To the painter Stuart Davis, it stood for "Mrs. Whitney... very quietly but very efficiently behind the scenes doing a lot to help young American artists long before she founded the museum in 1930."<sup>15</sup>

This exterior staircase not only survives, but is very much in use today. Juliana Force's office is now the office of the Dean of the School, and the steps provide a quick route to the reception room and development office. The door at the foot of what was Gertrude Whitney's side of the staircase has a charming *trompe l'oeil* exterior of another flight of stairs (Fig. 7). It was painted in 1927 by Robert Locher (1888-1956), an urbane illustrator and interior designer who worked for both Whitney and Force.<sup>16</sup> Locher was very much a part of the avant-garde scene through his long relationship with the artist Charles Demuth.

<sup>15</sup> Stuart Davis, transcript of radio broadcast, 1953, Whitney Museum of American Art Archives (H.1/f42).

<sup>16</sup> Betsy Fahlman, "Modern as Metal and Mirror: The Work of Robert Evans Locher," *Arts*, Vol. 59 (April 1985), pp. 112.

## APPENDIX E. NATIONAL REGISTER NOMINATION FORM

The Studio School uses the 8 West Eighth Street galleries as offices, studios, and public galleries.

In 1923, Whitney obtained the lease to 10 West Eighth Street and its Alley studio; two years later, she took over 14 West Eighth Street and its adjoining studio. In each case, only minor alterations were made. Both buildings became part of the Whitney Studio Club, another enterprise designed to assist struggling artists. In 1930, in preparation for establishing the Whitney Museum of American Art, Whitney bought 12 West Eighth Street and 17 MacDougal Alley from Daniel Chester French. Therefore, the original exteriors of 8-12 West Eighth Street were basically unmodified until 1930, when Whitney decided to unite the town houses in order to contain the museum.

In 1930-1931 an extensive redesign of the interiors and exteriors was undertaken by the architectural firm of Noel & Miller, in which Whitney's son-in-law, G. Macculloch Miller (1887-1972) was a partner. Auguste L. Noel (1886?-1964), who is credited with the design of the museum, was a graduate of the Ecole des Beaux-Arts and an apprentice with Carrère & Hastings.<sup>17</sup> The Whitney Museum seems to have been his first major commission, and in the future Noel's most important other jobs apparently flowed out of the firm's connection with the Whitney family. Noel designed the Whitney Museum's second home (1954) at 22 West 54th Street and the original building (1955) of the National Museum of Racing in Saratoga Springs, whose first president and principal benefactor was Cornelius Vanderbilt Whitney (Gertrude Whitney's son).

Although 8-14 West Eighth Street were joined on the inside, only 8, 10, and 12 were united with a single exterior facade, presumably for architectural symmetry. (The main entrance is at the center of No. 10.) An attempt was made to retain and enhance the character of the buildings, and the result was a handsome adaptation combining modern and historical elements. The brick was covered with a salmon-pink stucco that was set off by lintels, band courses, and moldings of white stone.<sup>18</sup> Reeded motifs were added to balance the fenestration, but the dominant feeling was of a straightforward modern skin (Fig. 8) that suggests the simplification and streamlining of the 1930s. The facade of 8-12 has been heavily vandalized with spray-painted graffiti, and it is in need of restoration, cleaning, and repair.

The main entrance to the museum was classical. The entablature and pilasters were Greek Revival, and made of white marble. A large bas-relief of a white metal eagle, a guardian figure designed by the painter Karl Free (1903-1947), the museum's

<sup>17</sup> "Auguste L. Noel, Architect, Dead," *New York Times*, March 15, 1964.

<sup>18</sup> "Whitney Art Museum Finished; First Exhibition is in November," *New York Herald Tribune*, September 20, 1931; "Museum Remodeling and Restoration," *Architectural Forum*, Vol. 46 (June 1932), pp. 605-607.



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curator of watercolors, crouched protectively above the door. The aluminum outer doors and moldings were set into red Numidian marble (Fig. 9). The two inner doors, designed by the Woodstock ceramist Carl Walters (1883-1955), were made of molded glass and divided into sixty sections containing reliefs of figures and animals. Both sets of doors have been removed (the pair designed by Walters is now in the collection of the Whitney Museum), but the rest of the entrance, including the eagle, survives. The exterior of 14 West Eighth Street retains the brick face it had from the 1850s, but a storefront has been inserted on the ground floor, and alterations were made to accommodate a retail space.

The sidewalk in front of the entrance is a patterned walk made of pigmented concrete poured in place with masonry fragments to reveal a "concrete-terrazzo-type" appearance. The walk was installed as a part of the preparation for the opening of the Whitney Museum in 1931. According to a 1989 report by the New York Landmarks Conservancy's Technical Preservation Services Center, this is a rare paving technique, and the only one in New York of which the center's staff was aware.<sup>19</sup> They calculate that "approximately 72% of the gray triangular slabs, 33% of the pink triangular slabs, and 60% of the pink border are completely intact. However, up to 80% or more of the entire walk is in salvageable sections."<sup>20</sup> As the walk is a construction rarity and of historical interest, the New York Landmarks Conservancy staff recommended that the walk be retained and saved.

The contract for the interior decoration, which would be required for galleries and offices on the first three floors, living quarters for the curators on the fourth floor, and a duplex apartment for Juliana Force on the fourth floor and part of the third,<sup>21</sup> went to Bruce Buttfeld, a decorator who collaborated with Force on the design. The museum was supposed to look like a private home with most of the furniture removed.

The entrance court held a cast of the free-standing *Arlington Fountain* (1913) by Gertrude Whitney. A floor and double staircase, patterned in black, green, and pink terrazzo marble and divided by thin brass inlays, curved upward to lead the eye to sculptural niches containing nudes by John Gregory (1879-1958) (Fig. 10). The sculptures and original light fixtures have been removed from the lobby, but otherwise the area is the same. The floor and marble staircase are intact.

<sup>19</sup> Neal Vogel, New York Landmarks Conservancy report, January 11, 1989, New York Studio School files.

<sup>20</sup> *Ibid.*

<sup>21</sup> *ROES*, p. 289. See pp. 289-291 for more details about the remodeling of the Eighth Street buildings.

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The lobby led to twelve galleries. At least two were painted white and accessorized with blue rugs and curtains, two more were yellow, two were painted in a dusty-rose pink, two were lined with cork, and one was gray (Figs. 11 and 12). Fitted with curtains, settees, and benches, the exhibition spaces exploited the small scale and intimacy of their old-fashioned surroundings. The galleries were connected by passages and stairways whose walls were stencilled with eagles, stars, and stripes. This wall treatment can still be seen on a staircase off the lobby, but the condition of the stencilling and pigment is poor. Also in this area are several cast-iron fixtures that echo the stars and stripes motif.

The plan also called for a library in No. 12, a director's office in No. 8, various small offices for the rest of the staff in No. 14, and a room for viewing prints. Because of the structural dissimilarities of the four town houses and four stable-studios from which the Whitney was being carved--the floor levels were uneven and the ceiling heights were not uniform--the interior layout was discontinuous. Only on the first floor were doorways cut into walls; the upstairs galleries were kept as small rooms whose size and shape conformed to the walls of the old houses and which were reachable by narrow stairways. In most of the galleries, alterations were minimal.

Juliana Force's enlarged and refurbished apartment, which stretched across the combined 100 feet of 8-14 West Eighth Street, was considered so extraordinary that it was featured in three magazines in four years.<sup>22</sup> These articles encouraged readers to view the decor and layout as reflections of Force's standing in the art world and as expressions of her originality. Indeed, once viewed in this astonishing setting, Force was never forgotten. As the critic Mary Fanton Roberts wrote in 1934,

...these rooms give you an impression of her varied interests, her dramatic temperament, her artistic integrity, and the force of character which has made her one of the foremost women of her generation.<sup>23</sup>

The apartment had a succession of public rooms: a row of spacious parlors and recessed alcoves cut from the original buildings were rejoined with wide, flat archways (Fig. 13). This panorama of rooms was exuberantly furnished with Regency shell chairs, Victorian papier-mâché tables, tufted velvet *fauteuils*, and Belter sofas--all of which were regarded with withering

<sup>22</sup> Augusta Owen Patterson, "The Decorative Arts," *Town & Country*, Vol. 85 (February 15, 1931), pp. 50-53, 83; Helen Appleton Read, "An Experiment in the Rococo," *House & Garden*, Vol. 62 (October 1932), pp. 36-7, 62; Mary Fanton Roberts, "Upstairs in a Museum," *Arts and Decoration*, Vol. 41 (June 1934), pp. 42-44.

<sup>23</sup> Roberts, p. 44. For an extensive description of Force's apartment, see *ROES*, pp. 304-308.



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reproach by the reigning arbiters of taste. Against this arch backdrop, Force's art collection--Ingres, Sheeler, Audubon, Henri Rousseau, Picasso, Brancusi, Rufino Tamayo, Preston Dickinson, Glenn Coleman, and many nineteenth-century folk painters--was shown in an unembarrassed and harmonious manner. This extravagant environment was conducive to advocacy as well as hospitality. As the art historian Lloyd Goodrich put it,

Those parties [that Force gave] were more than just sociability. Many of the people invited to them had importance in the art world. They helped to establish the fact that the first museum of American art was not a down-at-the-heels, bedraggled operation, but an upper-level one. More than one project for the good of American art was settled over the coffee and scotch in her Victorian drawingroom.<sup>24</sup>

Juliana Force's apartment has been broken up into studios for students. Some fragments of the original ceiling moldings, paint and wallpaper borders have survived.

The museum interior was altered in 1939 and 1940 by Noel & Miller. Four galleries were added, the front entrance and stairways were broadened and the lighting system was overhauled. No more major changes were made to the exterior and interior of the building by the Whitney Museum, which moved uptown in 1954.

From 1954 to 1967, the building was occupied by tenants who had no interest in its physical appearance or historic nature. Walls, doors, and fixtures were ripped out, decorative treatments painted over, and little to no attempt was made to keep the building in repair. The New York Studio School, which bought the property in 1967, has restored and repaired when it could. The School has restored some of the wood floors and one gallery. Despite the depredations of 1954-1967, the Eighth Street complex retains the atmosphere of creativity and artistic energy that has distinguished it for more than 50 years.

The six contributing objects are the sidewalk (see p. 10), the sculpture in the courtyard garden by Gertrude Vanderbilt Whitney, the fireplace and ceiling by Robert Chanler (see p. 6), the original hand-stenciled wallpaper from the Whitney Museum of American Art (see p. 11), the entry foyer (see p. 10), and the trompe l'oeil door painting by Robert Locher (see p. 8).

<sup>24</sup> Lloyd Goodrich, interview with Avis Berman; Hermon and Lloyd Goodrich, quoted in *Juliana Force and American Art* (New York, 1949), p. 32.

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**8. STATEMENT OF SIGNIFICANCE**

Certifying official has considered the significance of this property in relation to other properties: Nationally: X Statewide:      Locally:     

Applicable National Register Criteria:    A X   B X   C        D     

Criteria Considerations (Exceptions):    A        B        C        D        E        F        G     

NHL Criteria:    1, 2

NHL Theme(s):    XXIV.    Painting and Sculpture  
   K.    Supporting Institutions

  XXVII.   Education  
   G.    Adjunct Educational Institutions  
   1.    Museums, Archives and Botanical Gardens

Areas of Significance:	Period(s) of Significance	Significant Dates
Art	1907-1941	1907, '13, '23, '25, '30-31
Social History	1914-1941	Above plus '33, '34, '39-40

Significant Person(s):    Gertrude Vanderbilt Whitney  
   Daniel Chester French  
   Juliana Force  
   Charles Sheeler  
   Edgard Varèse  
   John Sloan  
   Robert Winthrop Chanler  
   Robert Locher  
   Thomas Hart Benton  
   Theodore Roosevelt.

Cultural Affiliation:    N/A

Architect/Builder:    Auguste L. Noel  
   G. Macculloch Miller  
   Grosvenor Atterbury  
   A.H. Graham.

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**State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.**

The New York Studio School building is culturally significant for several distinctive but interrelated reasons. It was the original site of the Whitney Museum of American Art, which was both the first museum to be exclusively devoted to American art of the twentieth century and the greatest single sponsor of non-academic artists in the country. The property also functioned as a hive of working and living spaces for a number of esteemed American painters, sculptors, and composers. Gertrude Whitney, Daniel Chester French, Charles Hawthorne, Alexander Phimister Proctor, Charles Sheeler, Edgard Varèse, Carl Ruggles, Thomas and Maria Oakey Dewing, and Philip Guston have all resided and/or worked within what is now the New York Studio School.<sup>1</sup>

Furthermore, via the Whitney Museum's predecessor organizations--the Whitney Studio, the Whitney Studio Club, and the Whitney Studio Galleries--which were variously located in Nos. 8, 10, and 14 West Eighth Street, the New York Studio School building was the locus of an unrivalled program of exhibitions and philanthropy that shaped the fortunes of two generations of American artists. For example, John Sloan, Guy Pène du Bois, Reginald Marsh, Andrew Dasburg, and John Flannagan were given their first solo shows anywhere; Reuben Nakian was subsidized for five years and Stuart Davis for fifteen months.<sup>2</sup> All of this occurred when these artists, now celebrated, were poor and unknown and had nowhere else to turn. These activities, as well as hundreds of other instances of patronage, were the result of a partnership between two extraordinary women: Gertrude Vanderbilt Whitney and Juliana Rieser Force. Whitney supplied the money and the original idea--to advocate the new and support the unknown--and Force provided the energy and practicality that turned Whitney's vision into a series of workable enterprises that championed American art. The first director of the Whitney museum, Force was the dynamo that powered the institution from day to day. The two women worked together from 1907 until Whitney's death in 1942, and Force carried on until her own demise in 1948. They should be equally credited for changing the social history of American art and transforming the pattern of American taste. The offices, studios, and galleries of the Eighth Street buildings comprised their base of operations.

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<sup>1</sup> See *ROES* for other artists who have also lived and worked on the property.

<sup>2</sup> See *ROES*, pp. 122-124, 181-184, 252; *Juliana Force and American Art*, pp. 68, 70, 73.



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The tiny, dead-end street known as MacDougal Alley has been associated with art and art-making for over ninety years.<sup>3</sup> The sculptor Frederick Triebel (1865-1944) is credited with discovering MacDougal Alley and being the first artist to live there.<sup>4</sup> In 1899, after a long stay in Rome, he relocated to New York, where it occurred to him that a stable might be converted into an ideal studio. Triebel eventually came across MacDougal Alley, south of West Eighth Street and closed off to the east by Fifth Avenue. The street once sheltered the horses and carriages of Washington Square, but now housed Italian peddlers and their wagons. Because he could speak Italian and win over the peddlers, Triebel was able to rent a vacant stable at a low price.<sup>5</sup>

By 1901, Triebel had remodeled 6 MacDougal Alley and established a studio there.<sup>6</sup> Enough artists followed him that within five years only two of the original structures were still used for horses and wagons (Fig. 14). In 1906 the artistic population in the Alley was so large and distinguished that *The Craftsman* published an article on the subject.<sup>7</sup> Among the artists mentioned by *The Craftsman* were Daniel Chester French, the most sought-after American sculptor of his time; James Earle Fraser (No. 3), creator of the equestrian statue of Theodore Roosevelt at the main entrance of the American Museum of Natural History, and of the buffalo and Indian head nickel; Andrew O'Connor, a sculptor best known for the bronze doors of the first St. Bartholomew's Church; Edwin Deming (No. 5), a painter and sculptor of Western subjects; Philip Martiny (No. 7), an architectural sculptor who was responsible for much of the decorative carving for the Library of Congress; Charles Hawthorne, a pillar of the Provincetown art colony; and the photographer DeWitt Clinton Ward, who used Deming's studio.

Daniel Chester French's first studio in MacDougal Alley was No. 11 (which was attached to 20 West Eighth Street). In the city directories, he is first listed as being in MacDougal Alley in 1910, although *The Craftsman* places him there in 1906.

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<sup>3</sup> See *ROES*, pp. 75-77, and Avis Berman, "MacDougal Alley: New York's Art Alley de Luxe," *Architectural Digest*, Vol. 47 (November 1990), pp. 178+, on the history of MacDougal Alley. Because of a transcription error, both publications incorrectly give the address of Daniel Chester French's studio as 7 instead of 17 MacDougal Alley.

<sup>4</sup> Adelaide N. Cooley, *The Monument Maker: A Biography of Frederick Ernst Triebel* (Hicksville, New York, 1978), p. 15.

<sup>5</sup> P.T. Farnsworth, "The Artists' Colony in MacDougal Alley," *The Craftsman*, 11 (October 1906), pp. 57-58.

<sup>6</sup> *Trow's General Directory of the Boroughs of Manhattan and Bronx*, 65 (1901-1902).

<sup>7</sup> Farnsworth, pp. 57-69.



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Needing more room, in May of 1912 French bought 12 West Eighth Street, which also included No. 17 MacDougal Alley. French's predecessor in No. 17 had been the sculptor Alexander Phimister Proctor (1860-1950), a gifted animalier whose commissions include the massive bronze buffaloes on the Q Street Bridge in Washington, D.C., the tigers on the Sixteenth Street Bridge (also in the capital), and the Elephant House of the Bronx Zoo.<sup>8</sup> While Proctor was in No. 17, Malvina Hoffman (1887-1966) served a brief apprenticeship with him. Within a few years, Hoffman would launch a spectacularly successful career culminating in the execution of around 100 examples of the world's ethnic groups for the Field Museum of Natural History in Chicago.<sup>9</sup>

The clay models for many of French's finest monuments, including those for the Manhattan Bridge, the Brooklyn Museum, the Dupont Circle fountain and his masterpiece, the seated Lincoln for the Lincoln Memorial,<sup>10</sup> were made on the premises of No. 17. French used the basement of 12 West Eighth Street for his work, but he rented out most of the rooms as living quarters to people in the arts. As he wrote to a friend on January 17, 1912,

Did I tell you that I am now considering the purchase of a house, No. 12 West 8th Street, to convert into a studio for myself and other studios for painters? It runs through to MacDougal Alley, which is a great advantage.<sup>11</sup>

French's records show that his tenants numbered, among others, Juliana Force, the art critic Forbes Watson and his wife, the painter Agnes (Nan) Watson, and the painters Maria Oakey Dewing and Thomas Wilmer Dewing.<sup>12</sup>

The New York City directory of 1905-1906 lists Charles Hawthorne's address as 15 MacDougal Alley. By making deductions from available information and close readings of the New York City fire atlases and real estate maps of the time, No. 15 had to have been attached to 14 West Eighth Street. Hawthorne (1872-1930) was a portraitist and genre painter. His most notable

<sup>8</sup> James M. Goode, *The Outdoor Sculpture of Washington, D.C.: A Comprehensive Historical Guide*, (Washington, D.C., 1974), pp. 299, 437. For more about Proctor, see Alexander Phimister Proctor, *Sculptor in Buckskin: An Autobiography* (Norman, Oklahoma, 1971).

<sup>9</sup> A résumé of Hoffman's accomplishments is to be found in Conner and Rosenkranz, pp. 53-62.

<sup>10</sup> This information is gleaned from Michael Richman's *Daniel Chester French: American Sculptor* (New York, 1976).

<sup>11</sup> Daniel Chester French, letter to Newton MacIntosh, January 17, 1912, Reel 2, Daniel Chester French Papers.

<sup>12</sup> Business records, Reels 5 and 26, in *ibid.*

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subjects were domestic interiors and character studies of Provincetown fishermen. Founder and director of the Cape Cod School of Art, he divided his time between New York and Massachusetts. As a teacher, he influenced a number of younger American artists, including Edwin Dickinson. Hawthorne's studio was taken over by Blendon Campbell (1872-1969),<sup>13</sup> a painter who became close to Gertrude Whitney and was responsible for finding her a studio in the Alley. The Whitney Museum used No. 15 as a delivery and shipping entrance. Today, the New York Studio uses it as a welding studio.

One of James Earle Fraser's students was Gertrude Whitney, heiress and aspiring sculptor. Chafing at the restrictions of her preordained role as a socialite, she was determined to reinvent her life and find a new identity as an artist and art patron. To this end, she had studied with Fraser and exhibited her work sporadically. In 1906, she had a studio on West 40th Street near Bryant Park, but it was too close to fashionable shops and restaurants. Her society acquaintances had gotten into the habit of dropping in and disturbing her work. Fraser suggested that Whitney move near him in Greenwich Village, which society thought too rough to visit. Blendon Campbell, a friend of Fraser's, learned that the stable at No. 19 might become available and told Whitney about it. She took it, remodeled it, and in 1907, moved in.<sup>14</sup>

In 1907, too, Whitney would meet Juliana Force--then Juliana Rieser--and hire her as an assistant. Force worked her way up, becoming in the process Whitney's literary and sculpture agent, studio manager, exhibition organizer, and, ultimately, director of her various art organizations and philanthropies. Through Gertrude Whitney, Force became one of the foremost women executives of her day;<sup>15</sup> from 1922-1943 and 1945-1948, she would live in ever-grander apartments above the Eighth Street buildings.

Working and being stimulated by having so many artists around her, Whitney could not help but notice how few exhibition spaces were available for struggling, non-academic artists to show their work. (Whitney, a follower of Rodin, was conservative in her own work, but she was immensely liberal in her sympathies.) In July of 1913, she bought 8 West Eighth Street, the town house attached to No. 19 MacDougal Alley, to convert it into offices for herself

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<sup>13</sup> Blendon Campbell, letter to Rosalind Irvine, July 1949, Whitney Museum of American Art Archives (H.1/f38).

<sup>14</sup> Blendon Campbell, interview with Rosalind Irvine, March 22, 1949, Whitney Museum of American Art Archives (H.1/f38).

<sup>15</sup> Allene Talmey, "Whitney Museum," *Vogue*, February 1, 1940, pp. 94-95, 131-133; Roberts, pp. 42-44; "Juliana Force, 1881 [sic]-1948," *Journal of the American Association of University Women*, 42 (Winter 1949), p. 103.



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and Force and galleries for group and individual shows. The women named it the Whitney Studio.

The Whitney Studio opened in December of 1914 with two exhibitions for the benefit of French war relief. Some of the artists who contributed were Robert Henri, James Earle Fraser, Daniel Chester French, George Bellows, William Glackens, Walt Kuhn, and Paul Manship. In December of 1915, during a show called "The Immigrant in America," Theodore Roosevelt paid a visit to the Whitney Studio and was given a tour of the galleries.<sup>16</sup> The most important exhibition sponsored by the Whitney Studio in its fledgling years was the retrospective accorded the American Realist painter John Sloan (1871-1951) in January of 1916. Until then, Sloan had sold only one painting and he had never been given a show of his own. As he wrote to Gertrude Whitney,

The dealers in the city are not inclined to show more than one or two pictures at any one time--most of them not at all--and I feel that a collection shown together would be, at least, an artistic success, and might attract considerable public notice.<sup>17</sup>

The exhibition garnered excellent reviews, and Sloan was asked to join the Kraushaar Galleries--which represents his work to this day.

Whitney and Force were always looking for ways to mix fun and work, and in February of 1918, they devised the Indigenous Exhibition, which was in essence, a painting bee. Twenty artists were invited to create works of art on the Eighth Street premises. Among the contestants were Sloan, Stuart Davis, George Luks, Guy Pène du Bois, Chanler, Glenn Coleman, Glackens, and Gifford Beal. The stunt turned into a party, but several significant pictures were produced; Sloan's and du Bois's canvases ended up in museum collections. The Indigenous Exhibition worked out so well that it was repeated in March of 1918 for sculptors. Gaston Lachaise, Elie Nadelman, Jo Davidson, Paul Manship, John Gregory, Hunt Diederich, James Earle Fraser, Mahonri Young, and Whitney herself participated.<sup>18</sup>

The esprit of the Indigenous Exhibitions had immense appeal for Whitney and Force. They decided to form a club for the care and encouragement of young and uncredentialed artists who could not get representation in commercial galleries. Outlining the genesis of the club, Whitney wrote,

<sup>16</sup> ROES, pp. 118-120.

<sup>17</sup> John Sloan, letter to Gertrude Whitney, January 7, 1916, Whitney Museum of American Art Archives (H.1/f4).

<sup>18</sup> Both Indigenous Exhibitions are fully described in ROES, pp. 150-154.

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I have often asked artists and students where they went when they were not working, what they did in the evenings and what library they used. The answers opened up a vista of dreariness which appalled me, revealing a terrible lack in our city's capacities.<sup>19</sup>

This new enterprise, which was devoted to abolishing dreariness and nurturing artists, was christened the Whitney Studio Club, and Force became director. From the first, Force's motto was, "Show, show, show,"<sup>20</sup> and there were at least ten exhibitions per season.<sup>21</sup> The Club was first located in a brownstone at 147 West Fourth Street, but in the spring of 1923 Whitney took over the lease of the town house at 10 West Eighth Street, next door to the Whitney Studio, and the Club was moved to there. (Whitney bought the property in 1927.)

One of the most important shows the Club ever had took place in February of 1924. The Club organized the first exhibition of American folk art. It is considered a landmark in American cultural history, as all scholarly studies in the field have acknowledged. The event marked the first time in America that naive engravings, portraits by untutored artists, a cigar-store Indian, and a ship's figurehead were put before the public as authentic works of art and vigorous evidence of a creative impulse in which Americans ought to take pride. Although a *New York Times* critic categorized what was seen as "odds and ends of not very early decorative art,"<sup>22</sup> the exhibition helped bring about a new respect for the vernacular.

Besides giving shows, the Club also ran a life class, which cost twenty cents to attend. This was a real boon to struggling artists who couldn't afford a professional model. The sketch class was extremely popular, and prints by Peggy Bacon (*The Whitney Studio Club*, 1925) and Mabel Dwight (*Life Class*, 1931) both recreate humorous scenes of artists (including Edward Hopper and Jan Matulka) crowded around a model. Bacon (1895-1987) was a constant presence at the Club because her husband, the artist Alexander Brook (1898-1980), was its assistant director from 1923-1927. Dwight (1876-1955) had once worked as a receptionist for Force.

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<sup>19</sup> Gertrude Whitney, unpublished essay, 1917, Reel 2372, Gertrude Vanderbilt Whitney Papers, Archives of American Art.

<sup>20</sup> Edward L. Bernays, letter to Avis Berman, August 21, 1979.

<sup>21</sup> A nearly complete checklist of all exhibitions held between 1914 and 1949 in the Eighth Street buildings is given in *Juliana Force and American Art*, pp. 64-66.

<sup>22</sup> "The World of Art: Art in Exhibitions and Books," *New York Times Magazine*, February 17, 1924.



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In the summer of 1923 Force invited Charles Sheeler and his wife to move into a rent-free apartment at the top of 10 West Eighth Street. The Sheelers lived there for eighteen months; Sheeler (1883-1965) was establishing his reputation as an outstanding Precisionist painter, and he was already a superb photographer. Two canvases--*Stairway to Studio* (1924; coll. Philadelphia Museum of Art) and *Washington Square (MacDougal Alley)* (1924; coll. Davison Art Center, Wesleyan University)--were directly inspired by his residence there. Respectively, they depict the hallway of No. 10 and the view from the artist's top-floor studio. Sheeler was given a show at the Whitney Studio in 1924.

With more space to work with, Force could also spread the Whitney manna to innovators in other arts. The more she did, the more indefatigable she became in using her gift for getting things done. In 1921 she heard about the plan of Edgard Varèse (1885-1965), the avant-garde composer who was determined to build a following for modern music in New York. Varèse and Carlos Salzedo, a harpist and teacher, wanted to establish a society for the performance, appreciation, and faithful interpretation of vanguard music, which in those days meant work ignored by the musical establishment and therefore denied an audience. They called their organization the International Composers' Guild. Recognizing that the Guild's aims were similar to their own, Force persuaded Whitney to support the Guild and Varèse. In April of 1921 Varèse began receiving a stipend of \$200 a month; this lasted until 1927. The Guild soon asserted itself as primary forum for the discussion and performance of modern music, and in the autumn of 1921 Force secured an allowance for Varèse's colleague Carl Ruggles (1876-1971), who received it until November of 1925. During the 1923-1924 season, Force offered the Guild space in 10 West Eighth Street to meet and practice. Varèse, Ruggles, and their fellow composers made the Whitney building their headquarters until 1927, when the Guild was disbanded.<sup>23</sup>

The Whitney art activities expanded again in 1925 when Whitney took over 14 West Eighth Street. Exhibitions could and did become more comprehensive, but by the fall of 1928, the Club had outgrown itself. Over 400 men and women had joined, and there was a long waiting list. Furthermore, dealers were now more receptive to younger, nonacademic artists. As Force said, "The pioneering work for which the Club was organized has been done."<sup>24</sup> Whitney and Force's influence on American art in the 1920s can not be overestimated. The Museum of Modern Art had not been born, the Metropolitan Museum of Art was cool to artists without established reputations, and the government and

<sup>23</sup> ROES, pp. 174-175, 196-197, 248-249. Whitney and Force's patronage of Varèse and the Guild is also extensively recalled in Louise Varèse's *Varèse: A Looking-Glass Diary, Vol. 1 (1883-1928)* (New York, 1972).

<sup>24</sup> Juliana Force, press release, September 1928, Whitney Museum of American Art Library (microfilm).

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corporations were not involved with art patronage. For the young and unknown, the Whitney Studio and Studio Club were their only hope.

The Club was renamed the Whitney Studio Galleries, and became mainly an exhibition space. The unwieldy membership apparatus was dropped. However, the Galleries were a stopgap measure, and the women quickly realized this. By October of 1929, Gertrude Whitney owned more than 600 works of American art, most of which were in dead storage, and she came to feel that the collection and the activities surrounding it had grown too cumbersome to manage. Force was deputized to go to the Metropolitan Museum of Art to meet with Edward Robinson, the museum's director, and offer him the collection, plus \$5 million for a wing to house it. This proposal was flatly rejected, and Whitney decided to establish a museum of her own, with Force as director.

By 1929, starting a museum in New York for contemporary art was not a novel act. Albert Gallatin had opened the Gallery of Living Art on the premises of New York University in 1927. In 1929 Solomon R. Guggenheim had begun to collect art for the specific purpose of presenting it to a public institution. Most important of all, Abby Aldrich Rockefeller, Lillie P. Bliss, and Mary Sullivan founded the Museum of Modern Art, which was to open on November 8, 1929. These three great undertakings had in common an international scope and an emphasis on Europe. There was still no institution devoted exclusively to twentieth-century American art. This was the "amazing gap,"<sup>25</sup> as Force later put it, that she and Whitney wanted to be first to mend.

On January 3, 1930, Force held a press conference (Whitney had just sailed for France) and announced the founding of the Whitney Museum of American Art. First making it clear that the Whitney would attempt to survey and examine three centuries of the fine arts in America, she then went on to explain a crucial difference between the new museum and other institutions. The Whitney would not fall victim to the cold, unfeeling relationship that so often existed between artists and museums:

Ever since museums were invented, contemporary liberal artists have had difficulties in "crashing the gate." Museums have had the habit of waiting until a painter or sculptor had acquired a certain official recognition before they would accept his work for their sacred portals. Exactly the contrary practice will be carried on in the Whitney Museum of American Art.<sup>26</sup>

<sup>25</sup> Henry McBride, "The Palette Knife," *Creative Art*, 6 (February 1930), supp. 33.

<sup>26</sup> "Mrs. Whitney Plans Art Museum Here," *New York Times*, January 4, 1930.



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The Eighth Street facilities were upgraded and enlarged by Noel & Miller in 1930-1931. Three of the curators hired were artists-- Hermon More, Edmund Archer, and Karl Free--and they lived in studios on the premises. Beauford Delaney (1901-1978), an African-American artist who later gained renown for his portraits and lyrical abstractions, had been given a show by Force in 1930. She offered him a position as a museum guard, with free studio and living space in the basement. Delaney worked at the museum for about three years. Depending on what was required, his duties were those of a guard, gallery attendant, telephone operator, and caretaker.<sup>27</sup>

On November 18, 1931, when the museum opened to the public, it was without apology. Force declared to her critics, "There may be pictures here that you do not like, but they are here to stay, so you may as well get used to them."<sup>28</sup> Over 4,000 visitors arrived on the first day.

In 1932, Thomas Hart Benton (1889-1975), the most conspicuous muralist in the country as well as the dominant painter of the American Scene movement, was in danger of losing his house on Martha's Vineyard unless he could come up with a substantial sum of money. Juliana Force offered to lend him \$3,000 of her own money, interest-free, which helped him save his property. Benton could not repay Force, so to absolve him of his financial obligation, she let him paint a set of murals especially designed for the museum's library (located in the former 12 West Eighth Street). Benton created *The Arts of Life in America* (1932), one of his most important mural cycles, for the Whitney Museum. The paintings were installed by Benton and his students, one of whom was Jackson Pollock.<sup>29</sup> The murals hung in the building until the end of 1953. By then Benton's work had gone out of fashion, and the museum did not want to take the paintings uptown. All but one panel were acquired by the New Britain Museum of American Art and the Chrysler Museum of Art. Probably because it was too difficult to pry off the wall, a triangular panel painted by Benton was left in the Eighth Street building on a section of the wall next to a pair of windows. Between 1954 and 1967, these windows were often left open and the panel was subjected to the ruinous effects of rain and sunshine. A few fragments, grey and dirty, remain as a reminder of Benton's efforts.

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<sup>27</sup> Joseph Delaney, interview with Avis Berman; *ROES*, p. 279; for information about Beauford Delaney, see *Beauford Delaney: A Retrospective* (New York, 1978).

<sup>28</sup> Edward Alden Jewell, "The Whitney Museum of American Art Opens Its Doors," *New York Times*, November 22, 1931.

<sup>29</sup> The entire genesis of the Benton murals is explained in *ROES*, pp. 319-325.

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Because of her experience as an art administrator and her private benefactions that had helped subsidize destitute artists during the Depression, Force was appointed New York regional chairman of the Public Works of Art Project (PWAP), the first New Deal program that employed artists. From December 8, 1933, through March 3, 1934, the New York regional PWAP was housed in the Whitney Museum. By then the disruptions caused by picketing artists made it necessary to move the offices to the Civil Works Administration headquarters in the Municipal Building.

During the 1930s, the museum organized numerous exploratory and imaginative exhibitions. The biennials of paintings, sculpture, watercolors, and drawings gave artists from all over the country opportunities to send in work. Exemplary discoveries of neglected artists were made, and contemporary and historical art was presented in enlightened juxtapositions. The 1934 retrospective of Maurice Prendergast's work was the first ever held by a New York museum. In 1935, an exhibition of Robert Loftin Newman, a then-forgotten nineteenth-century Romantic artist, received great acclaim. Also in that year, the Whitney became the first museum to mount a show of American abstract art. "Abstract Painting in America" examined two generations of American artists. The first encompassed the painters who had shown in or had been directly influenced by the Armory Show; the second consisted of their heirs--younger, emerging painters who were addressing not only Cubism, but Surrealism, Constructivism, and Neo-Plasticism.<sup>30</sup> This serious and knowledgeable exhibition was eclipsed by the Museum of Modern Art's landmark "Cubism and Abstract Art" (1936), so the Whitney never quite got the credit it deserved.

Another significant event was a comprehensive exhibition of Shaker furniture, costumes, drawings, prints, manuscripts, books, and photographs of buildings, opening in November of 1935. Organized by Faith and Edward Deming Andrews, authorities on Shaker culture whose research Force had been subsidizing since 1932, "Shaker Handicrafts" was the most important show of Shaker art and culture that had been held in New York to date. Because of the exhibition's impact, Holger Cahill, national director of the Works Progress Administration's Federal Art Project, decided that a permanent record of the genius of Shaker craftsmanship should be made via the WPA's Index of American Design.<sup>31</sup>

One of the Whitney's original curators was Lloyd Goodrich (1897-1987), who went on to become an eminent historian of American art. At the museum, he fruitfully pursued his interest in nineteenth-century American art, leading the Whitney to assemble major exhibitions of Eakins, Homer, and Ryder. There was so much groundwork to be done on earlier American art that when the Whitney mounted a Robert Feke exhibition in 1947, it was the first one ever held in the United States.

<sup>30</sup> *Ibid.*, pp. 374-377.

<sup>31</sup> *Ibid.*, pp. 384-385.



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In 1954, the Whitney Museum moved to 22 West 54th Street, and the cultural aims that it embodied were not renewed on Eighth Street until the New York Studio School bought the property in 1967. Like the Whitney organizations, the Studio School was founded by artists for artists, and its spirit had been similarly independent. The school has consistently sought to expose students to working painters, sculptors, and critics who not only teach methods and materials, but also communicate what it means to be an artist by personal example. Over the years, the Studio School's faculty has included Mercedes Matter, Hans Hofmann, George McNeil, Philip Guston (who also had a studio in the building), Wayne Thiebaud, Milton Resnick, Meyer Schapiro, Elaine de Kooning, William Tucker, Alex Katz, and Jack Tworikov.

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Previous documentation on file (NPS):

- Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
- Previously Listed in the National Register.
- Previously Determined Eligible by the National Register.
- Designated a National Historic Landmark.
- Recorded by Historic American Buildings Survey: # \_\_\_\_\_
- Recorded by Historic American Engineering Record: # \_\_\_\_\_

Primary Location of Additional Data:

- State Historic Preservation Office
- Other State Agency
- Federal Agency: Archives of American Art, Smithsonian Institution
- Local Government: New York City Landmarks Preservation Commission
- University: University of Oregon at Eugene
- Other Specify Repository: Whitney Museum of American Art

**10. GEOGRAPHICAL DATA**

Acreage of Property: Less than one (1) acre.

UTM References: Zone Easting Northing

A 18 584600 4509330

Verbal Boundary Description:

The nominated property encompasses Block 551, Lots 8, 10, 12, and 14 between Fifth Avenue and MacDougal Street on West 8th Street.

Boundary Justification:

The boundaries are those that have been associated historically with the nominated property: the former 8, 10, 12, and 14 West 8th Street, and the former 19, 17 1/2, 17, and 15 MacDougal Alley.

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**11. FORM PREPARED BY**

Name/Title: Ms. Avis Berman, Writer & Art Historian  
Organization: Consultant, New York Studio School of Drawing, Painting  
and Sculpture  
Street/#: 116 West 75th Street, #3A  
City/Town: New York  
State: New York  
ZIP: 10023  
Telephone: (212) 362-8099  
Date: December 2, 1991

NATIONAL PARK SERVICE/WASO/History Division: April 2, 1992

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NPS Form 10-900-a  
(8-86)

OMB Approval No. 1024-0018

United States Department of the Interior  
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section number 0 photographs Whitney Museum of American Art Page # 1

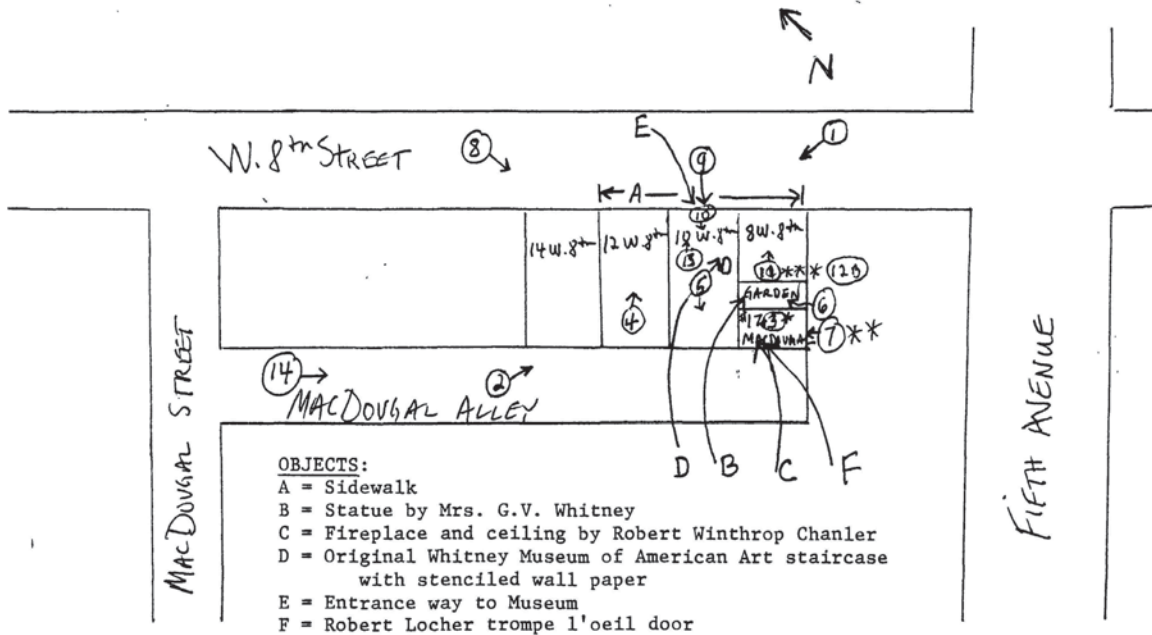


FIGURE # SHOWN IN CIRCLE WITH ARROW POINTING IN DIRECTION OF VIEW (≠ CAMERA SHOT)

\*③ FIGURE 3 POINTS TOWARD WEST AT FIREPLACES (2ND FLOOR) FRONT. FIGURES 3A-3C ARE FROM THE CEILING (2ND FLOOR)

\*\*⑦ FIGURE 7 WAS SHOT FROM WHITNEY STUDIO BUILDING AT #17 MACDOUGAL ALLEY, INSIDE.

\*\*\*⑪ + ⑫ ARE TAKEN ON THE 2ND FLOOR OF 10W.8<sup>th</sup> ST. FROM APPROXIMATELY THE SAME SPOT.

FIGURE 12 IS AN UNKNOWN LOCATION, BUT WE BELIEVE IT IS ON THE 3<sup>rd</sup> FLOOR OF 12W.8<sup>th</sup> ST.

APPENDIX F.

ORIGINAL DECORATIVE OBJECTS  
WITHIN THE STUDIO

- STAINED GLASS WINDOWS
- DECORATIVE SCREEN



## APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

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### WINDOW 1

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"  
CREDIT: Retro Modern Lighting, New York, NY [<http://www.retromodernlighting.com/>]



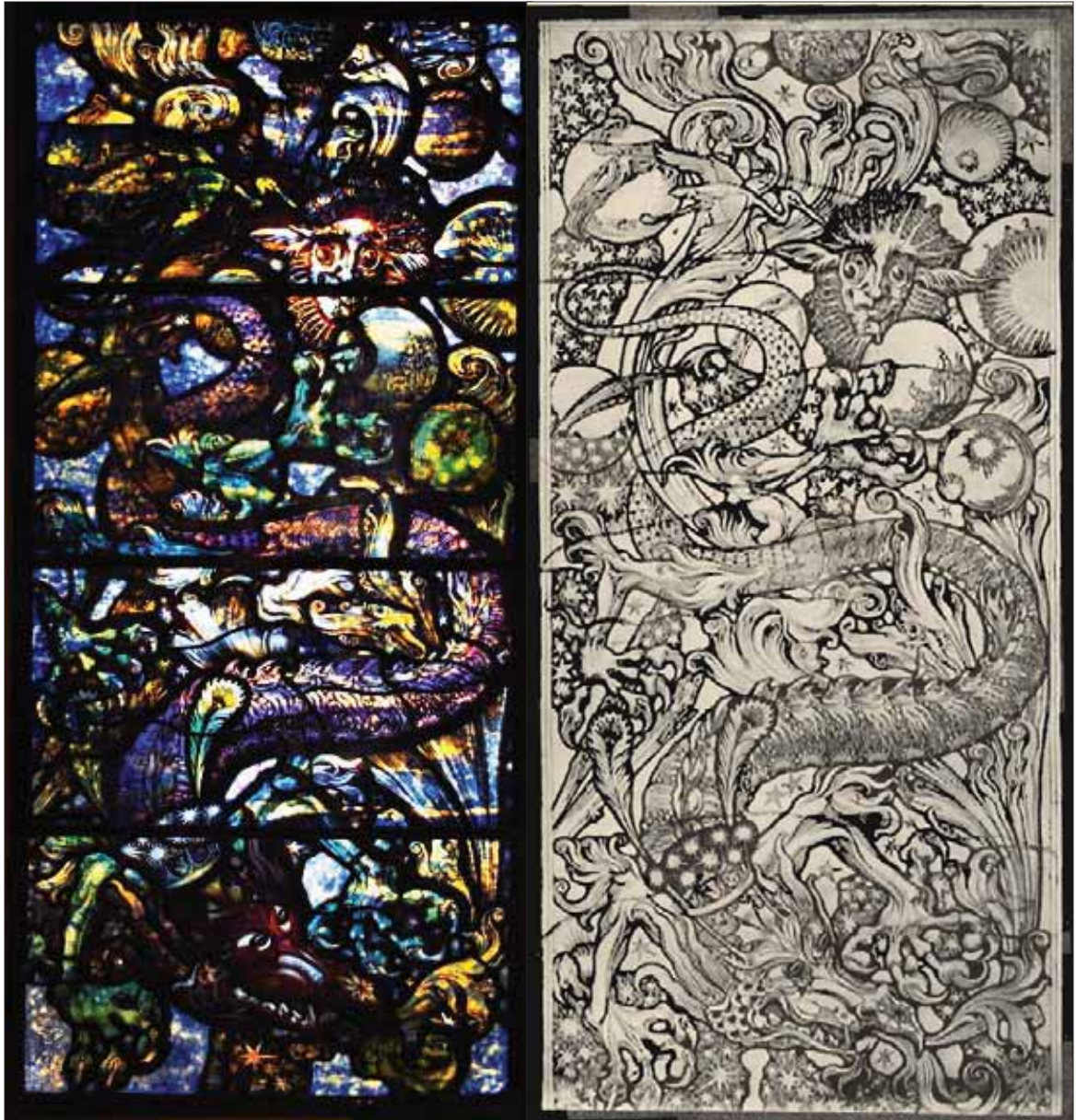
## APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

### WINDOW 2

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"

CREDIT: Left: Retro Modern Lighting, New York, NY [<http://www.retromodernlighting.com/>]

Right: Narodny, Ivan. *Art of Chanler*. New York:Roerich Press, 1922.





## APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

### WINDOW 3

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"

CREDIT: Left: Retro Modern Lighting, New York, NY [<http://www.retromodernlighting.com/>]

Right: Narodny, Ivan. *Art of Chanler*. New York:Roerich Press, 1922.



## APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

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### WINDOW 4

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"  
CREDIT: Retro Modern Lighting, New York, NY [<http://www.retromodernlighting.com/>]





APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

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WINDOW 5

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"

CREDIT: Retro Modern Lighting, New York, NY [<http://www.retromodernlighting.com/>]





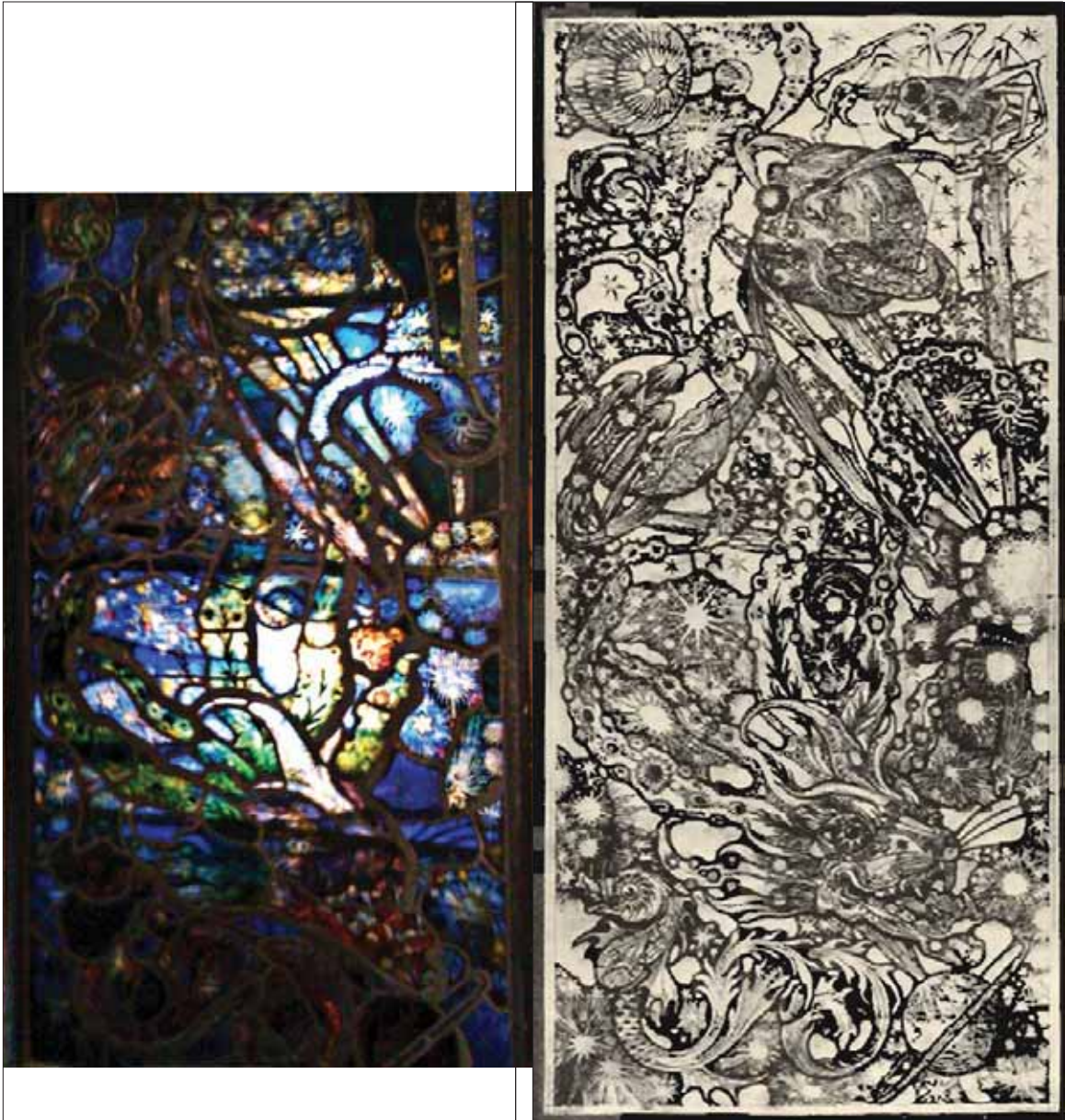
APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

WINDOW 3

Robert Winthrop Chanler, 1918. Dimension: Height: 5'9.8", Width/Length: 2'9.8"

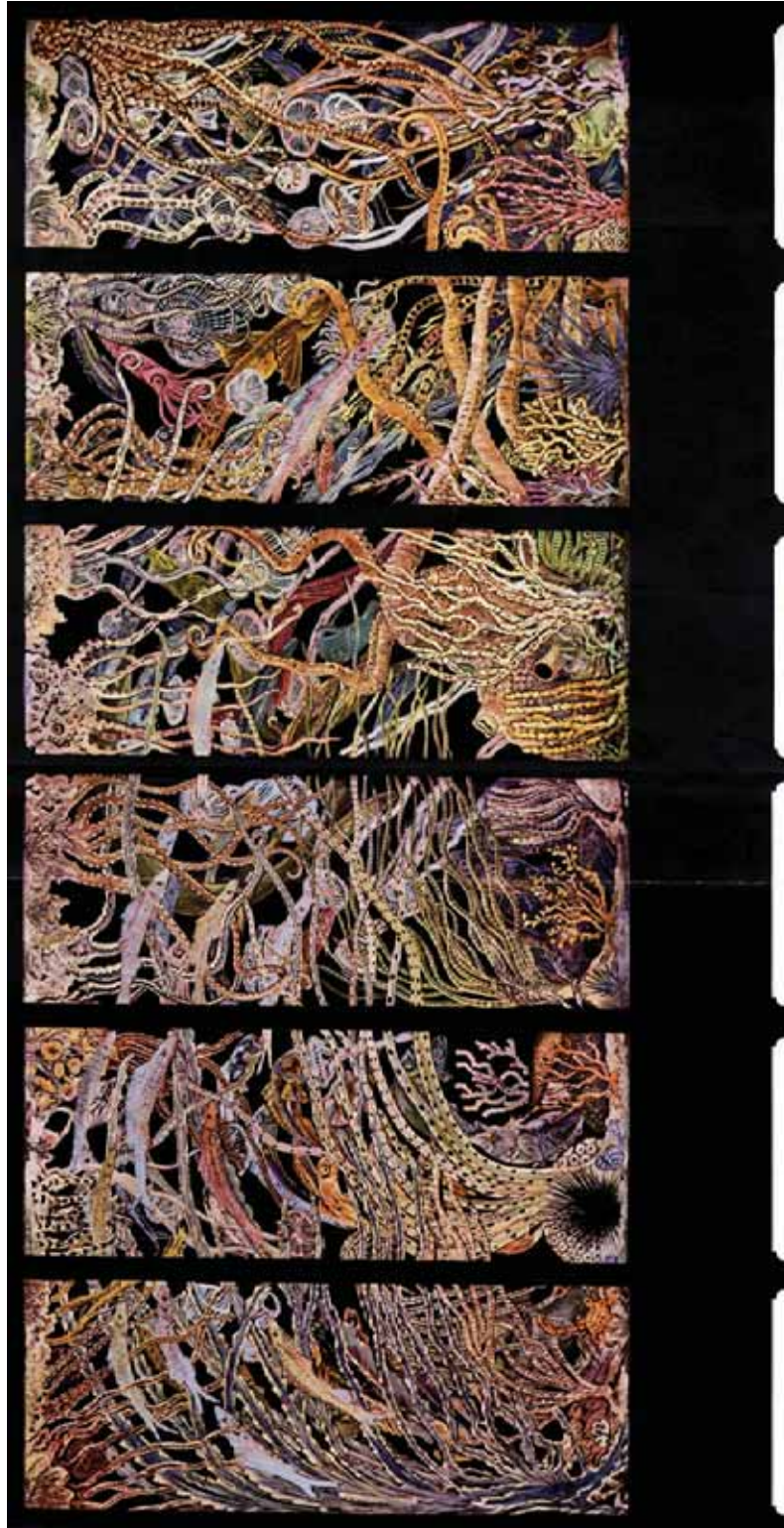
CREDIT: Left: Detail of Stained Glass window in Private Collection.

Right: Narodny, Ivan. *Art of Chanler*. New York:Roerich Press, 1922.



APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

SCREEN: DEEP SEA FANTASY





APPENDIX F. ORIGINAL DECORATIVE OBJECTS WITHIN THE STUDIO

SCREEN: ASTROLOGICAL SCREEN, CROPPED (OPPOSING SIDE: DEEP SEA FANTASY)



APPENDIX G.

PAINT STUDY: FEBRUARY, 1993  
(WESLEY HAYNES HISTORIC PRESERVATION, HSR)

GERTRUDE VANDERBILT WHITNEY STUDIO  
 TABLE DEVELOPED FROM PAINT STUDY: FEBRUARY, 1993 (WESLEY HAYNES HISTORIC PRESERVATION, HSR)

Sample	Location	Substrate	Layer Above Substrate	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6
18	Brick wall	Red Brick	White Oil Paint	Dark Grayfish Yellow* (5 Y 6/4)	White oil	White Latex	White Latex	
19	Window Sill	Wood	Moderate Reddish Brown* Tinted Varnish (2.5 YR 3/4)	Light Gray- ish Yellowish Brown* (10YR 6/2)	Tan (2)	White (5-6)		
20	Baseboard	Wood	Moderate Reddish Brown* Tinted Varnish (2.5 YR 3/4)	Light Gray- ish Yellowish Brown* (10YR 6/2)	Tan (2)	White (4)	Glossy Black	
21	Light Frame	Metal	Light Gray- ish Yellowish Brown* (2.5 YR 3/4)	Tan Oil	Heavy Dirt	White	Off-White	
22	Stair Baluster	Wood	Clear Varnish	White Oil	Tan Oil	Glossy Black	White Paint (2)	Slate Gray
23	Stair Newel post	Wood	Clear Varnish	White Oil	Tan Oil (4)	Black	White Paint (1)	Glossy Black
24	Stair Handrail	Wood	Clear Varnish	White Oil	Tan Oil (4)	Black	White Paint (1)	Glossy Black



APPENDIX G. PAINT STUDY, 1993

25	Exterior Door, exterior face	Wood- extremely weathered	Moderate Reddish Brown* (10R 3/4) - very weathered	White					
26	Exterior Door, interior face	Wood	Light Gray- ish Yellowish Brown* (10YR 6/2)	White					
27	Base of Cornice	Plaster	Grayish Yel- low* (2.5Y 8/4)	Light Brown* Glaze (5YR 5/6)	Pale Orange Yellow* Glaze (10YR 8/2)	Light Yellow	Dark Red- Brown Glaze	Off-white Latex (2)	
28	Coved Cornice, fish sculpture	Plaster	Grayish Yel- low* (2.5Y 8/4)	Bronze pow- der- bright gold flakes with green flecks	Off-white (2)	Moderate Yel- lowish Brown* glaze (10YR 5/4)	Off-white Latex (2)		
29	Fireplace- flame sculp- ture	Bronze	Clear Sealer	Silver leaf (tarnished)	White latex (4)				
30	Fireplace- flame sculp- ture	Bronze	Clear Sealer	Silver leaf (tarnished)	White latex (4)				
31	Fireplace- elephant head sculp- ture	Bronze	Clear Sealer	Silver leaf	Tan	Silver leaf	White Latex (3)		

#### INTRODUCTION

The buildings presently occupied by the New York Studio School of Drawing, Painting, and Sculpture were originally built as four townhouses. During the early 20th century, Gertrude Vanderbilt Whitney commissioned the architects Noel & Miller to remodel the townhouses into a single building to showcase her contemporary art collection. The Whitney Museum of Art was housed in this building until 1954. At that time, the museum moved uptown. In 1967, the New York Studio School purchased the building from the National Recreation Association, using it as an art school.

The most important circulation space in the building is the foyer, an elliptical-shaped room surmounted by a low dome. A restrained classicism is further emphasized by a pair of round-arched niches let into the curved walls. A pair of low, curving stairs wrap around the sides and rear of the room. The wooden stair balusters are carved into a stylized floral stem motif, linking the interior of the foyer with the Art Moderne style in vogue at the time of its construction.

The most important "private" space within the building is the Whitney Studio, which was originally built as a carriage house behind the townhouse at 8 West 8th Street. Now incorporated into the building, the two-story space serves as a lecture hall. In the early 20th century, it was Mrs. Whitney's sculpture studio. The studio was transformed from a mere space to a work of art itself with the completion of a monumental sculptural fireplace surround and decorative ceiling. The plaster and bronze work by Robert Chandler suggests flames leaping up from the fireplace opening. Tongues of fire are transmuted into animals and grotesques. As the flames reach the ceiling, the imagery changes from fire to water, and ocean creatures are set in relief in a wave-like pattern on the ceiling. The farthest reaches of the ceiling depict celestial images of planets and stars.

Both the foyer and Whitney Studio are the subject of historic investigation as part of a program of rehabilitation for the Studio School building. In order to determine as much as possible about the finishes of these spaces, paint analysis was undertaken at the request of Li-Saltzman Architects. Small samples were removed from extant architectural features and studied using the most current and professional methods for historic paint analysis.

**PROCEDURE**

Thirty five (35) samples were removed from original painted architectural elements in the foyer and the Whitney Studio. Special attention was paid to the sculptural fireplace in the studio, but its complexity and importance cannot be fully addressed in the limited sampling requested in this study. Included in the study were samples taken from the plaster ceilings, plaster walls, and window and door enframements.

The samples were removed with an x-acto blade, and contained portions of the substrate as well as complete paint layers on each feature. Samples were taken to the laboratory and examined in cross-section under a stereo-binocular microscope at ten to thirty power magnification. Information derived from the laboratory work included:

- color chronology of each cross-section,
- identification of original finishes,
- color matching of appropriate finishes.

Color matching was done under a fiber-optic light with daylight-simulating filters. Colors were matched to the Munsell Book of Color (1976 edition) and corresponding colors in the Benjamin Moore system have been enclosed in this report to aid in recreating the historic colors of the Studio School. The Munsell color number follows the recommended color for restoration in the descriptive summary of the original finishes for each room.

The color name chart devised by the National Bureau of Standards has been used as a guide to color names for significant paint layers in this report. They are referenced by the initials NBS following the color name.

**INVENTORY OF SAMPLES**

The following is a list of all paint samples removed for laboratory investigation.

Foyer

1. Wall
2. Niche wall
3. Niche floor
4. Wall behind inscription at base of stair landing
5. Niche wall above closet door west of main entry
6. Wall jamb of niche over closet door west of main entry
7. Door jamb to closet west of main entry
8. Coved frame of doorway between foyer and lobby
9. Jamb of doorway between foyer and lobby
10. Frieze below domed ceiling
11. Ceiling
12. Stairs - top hand railing
13. Stairs - half-round molding on sides of handrail
14. Stairs - baluster (see sketch)
15. Stairs - baluster (see sketch)
16. Stairs - baluster base (see sketch)
17. Stairs - baluster (see sketch)

Whitney Studio

18. Brick wall in southeast corner of room
19. Sill of window at top of stairs entering studio
20. Baseboard at top of stairs into studio
21. Metal light frame
22. Stair baluster
23. Stair newel post
24. Stair handrail
25. Exterior door, stile, exterior face
26. Exterior door, stile, interior face
27. Base of sculpted, coved cornice
28. Coved cornice in southeast corner; tail of fish sculpture
29. Fireplace - flame sculpture on fireplace surround
30. Fireplace - flame sculpture at top of mantel
31. Fireplace - elephant head on north jamb
32. Chimney - flame sculpture 1 foot above mantel shelf
33. Chimney - sculptural figure on south jamb
34. Chimney - sculptural figure on north jamb
35. Chimney - sculptural flame near ceiling

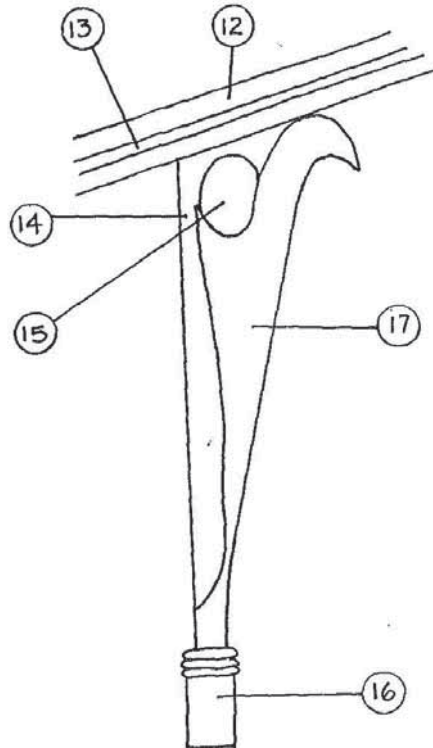


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SAMPLE LOCATIONS

Sketch of baluster in foyer showing sample locations. Not to scale.





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## TYPICAL CHROMOCHRONOLOGIES

FoyerWalls (samples 1,4,6)

Plaster substrate

Light greenish gray (NBS) oil paint

Munsell 5 BG 7/1

Pale green (NBS) oil paint

Munsell 10 GY 7/2

Dark green (NBS) oil paint

Very pale green (NBS) oil paint

White latex paint (3 layers)

Niche Floor (sample 3)

Wood substrate, with rough, open grain

white oil paint

glossy black oil paint

white latex paint (2 layers)

green paint

Niche Walls (sample 2,5)

Plaster substrate

White oil paint (primer)

Dark green (NBS) oil paint (thick layer)

Munsell 5 G 3/4

Very pale green (NBS) oil paint

Munsell 2.5 G 8/4

White latex paint (3 layers)

Door jamb to closet (sample 7)

Steel substrate (not removed)

Moderate reddish brown (NBS) primer

Moderate green (NBS) oil paint

Munsell 5 G 5/4

Moderate green oil paint

White oil paint

Glossy black latex

Coved door frame between foyer and lobby (samples 8,9)

Plaster substrate

White oil-base primer

Light greenish gray (NBS)

Munsell 5 BG 7/1

Moderate green (NBS) oil paint

Munsell 5 G 5/4

Moderate green oil paint

White latex paint (3 layers)

(Door frame, but not jamb, has a more recent layer of green applied over the most recent layer of white paint)

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FoyerFrieze (sample 10)

Plaster substrate  
 White oil-based primer  
 Very pale green (NBS) oil paint Munsell 2.5 G 8/2  
 Tan oil-based primer  
 Aluminum leaf  
 Whites (3 layers)  
 Pale lilac-gray

Ceiling (sample 11)

Plaster substrate  
 White water-based paints (4 layers)  
 Moderate yellowish pink (NBS) glaze Munsell 10 R 7/6  
 White latex paint (2 layers)

Stairs - handrail (sample 12)

Wooden substrate  
 Glossy black paint

Stairs - handrail molding; part of baluster (samples 13, 14)

Wood substrate  
 Metallic silver-gray paint

Stairs - oval ornament in baluster (sample 15)

Wood substrate  
 Some evidence of dark brown varnish and of green paint  
 Streaky colors and raised grain evidence of chemical stripping  
 Glossy black paint

Stairs - baluster base (sample 16)

Wood substrate  
 Some evidence of dark brown varnish; incomplete layer  
 Glossy black paint

Stairs - baluster with curling "leaf" motif (sample 17)

Wood substrate  
 White oil-based paint  
 Off-white oil-based paint  
 White latex

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Whitney StudioBrick wall (sample 18)

Red brick substrate

White oil paint

Dark grayish yellow (NBS) oil paint Munsell 5 Y 6/4

White oil paint

White latex (2 layers)

Window sill (sample 19)

Wood substrate

Moderate reddish brown (NBS) tinted varnish Munsell 2.5 YR 3/4

Light grayish yellowish brown (NBS) paint Munsell 10 YR 6/2

Tan oil-based paint (2 layers)

White paint (5-6 layers)

Baseboard (sample 20)

Wood substrate

Moderate reddish brown (NBS) tinted varnish Munsell 2.5 YR 3/4

Light grayish yellowish brown (NBS) paint Munsell 10 YR 6/2

Tan oil-based paint (2 layers)

White paint (4 layers)

Glossy black paint

Light frame (sample 21)

Metal substrate - bright brass?

Light grayish yellowish brown (NBS) paint Munsell 2.5 YR 3/4

Tan oil-based paint

Heavy dirt layer

White paint

Off-white paint

Stair baluster (sample 22)

Wood substrate

Clear varnish

White oil-based paint

Tan oil-based paint

Glossy black paint

White paint (2 layers)

Slate gray

Stair newel post and handrail (samples 23,24)

Wooden substrate

Clear varnish

White paint

Tan paint (4 layers)

Black paint

White paint

Glossy black paint

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Whitney StudioExterior door, exterior face (sample 25)

Wood substrate - extremely weathered  
 Moderate reddish brown (NBS) paint Munsell 10 R 3/4  
 very weathered surface  
 White paint

Exterior door, interior face (sample 26)

Wood substrate  
 Light grayish yellowish brown (NBS) Munsell 10 YR 6/2  
 White

Base of cornice (sample 27)

Plaster substrate  
 Grayish yellow (NBS) oil-based paint Munsell 2.5 Y 8/4  
 Light brown (NBS) glaze Munsell 5 YR 5/6  
 Pale orange yellow glaze Munsell 10 YR 8/2  
 Light yellow paint  
 Dark red-brown glaze  
 Off-white latex paint (2 layers)

Coved cornice - fish sculpture (sample 28)

Plaster substrate  
 Grayish yellow (NBS) oil-based paint Munsell 2.5 Y 8/4  
 Bronze powder - bright gold flakes with green flecks  
 Off-white paint (2 layers)  
 Moderate yellowish brown (NBS) glaze Munsell 10 YR 5/4  
 Off-white latex paint (2 layers)

Fireplace - flame sculpture (samples 29, 30)

Bronze substrate  
 Clear sealer over bronze  
 Silver leaf (tarnished)  
 White latex paint (4 layers)

Fireplace - elephant head sculpture (sample 31)

Bronze substrate  
 Clear sealer over bronze  
 Silver leaf  
 Tan paint  
 Silver leaf  
 White latex (3 layers)

Whitney StudioChimney - flame sculpture above mantel (sample 32)

Plaster substrate

Dark reddish brown (NBS) glaze Munsell 2.5 YR 2/4

mingled with Blackish green (NBS) glaze Munsell 5 G 2/2

Bronze powder - bright gold flakes with green flecks

Tan paint

Silver leaf

White latex paint (3 layers)

Chimney - sculptural figures (samples 33, 35)

Plaster substrate

Moderate yellowish pink (NBS) water-based paint

Munsell 10 R 7/4

Bronze powder - bright gold flakes with green flecks

Dark reddish brown (NBS) and Blackish green (NBS) glazes  
applied together

Silver leaf

White latex paint

Chimney - sculptural figure (sample 34)

Plaster substrate

Size or yellowish-white primer?

Silver leaf

Tan paint

Silver leaf

White latex paint



OBSERVATIONS AND CONCLUSIONS

In the foyer of the Studio School, the walls were originally painted a light greenish gray (NBS), in a flat finish, oil-based paint. The sculptural niches over the stairs were accented in a dark green (NBS) flat-finished oil-based paint. The slightly recessed niches over the doors leading off the side of the foyer at the lower level were also emphasized with this contrasting color, although the jambs were not. The door frames of both the metal door leading to a closet off the foyer and the doorway to the reception area were painted a moderate green (NBS) in a semi-gloss oil-based paint. The domed ceiling was painted white for most of its existence, except for one period (well beyond the original finish period), when it was glazed a salmon pink. The original white ceiling paints were water-based, and flat in finish. The frieze encircling the room was originally painted a very pale green (NBS) in a flat oil-based finish. The original colors of the foyer are repeated in the green, gray and white of the marble and terrazzo floor.

The stairway, which has an unusual and very decorative Art Deco motif in the leaf-like forms of the balusters, was apparently stripped of accumulated paint layers prior to its most recent repainting. The stripping removed evidence of the built-up paint layers on all stair parts. In most samples tested, there was no finish other than the one presently visible. On a few samples, traces of varnish appeared embedded within the wood fibers, but there can be no conclusive results about the use of varnish on the staircase.

The Whitney Studio's brick walls were always painted in shades of white, the second layer having yellowed considerably more than others. The window sill and baseboard which are part of the architectural elements which frame the room were originally finished with a varnish, tinted moderate reddish brown (NBS). They were subsequently painted several shades of tan over the course of three painting cycles. The wooden staircase which ascends into the Studio was also originally finished with a clear, untinted varnish. This was soon covered with white paint, because there is no visible dirt layer between the varnish and the white paint. The varnish may have been applied as a "primer" to smooth the wood to get a very even gloss finish on the white balusters and newel post.

The rear doors to the Whitney Studio which open out onto the courtyard are in poor condition. The exterior face is extremely weathered, but the moderate reddish brown (NBS) paint embedded in the surface of the wood is probably original. The inner face has a first paint color of light grayish yellowish brown (NBS), a tan color which matches the tan used on the window sills and baseboard as a second finish. If the doors had an earlier finish on them, it was not apparent in this sample.

The sculptural fireplace wall and ceiling are clearly the most complex elements of the room, both for their original finishes and for the restoration efforts which will be needed to undo the harsh effects of overpainting the entire sculpture in white latex paint.

The brick fireplace itself has bronze sculptures applied to it. The bronze was originally sealed with a clear sealant, which has protected the bronze from deterioration. It also isolated the bronze from other metals, as silver leaf was applied to highlight parts of the "flames". The plaster flames which rise out of the chimney stack above the mantel have several glazes applied to them, in red and dark green, as an undercoat to a gold-flake bronzing powder, which was probably rubbed in places to allow the rich undercoat to shine through. The figures on the fireplace have a water-based pink "flesh tone" over which bronze powder and colored glazes were applied as highlights.

There is evidence on most of the sculptural samples of a later repainting which covered the pieces with a single coat of tan or white paint, and then reapplied silver leaf. This appears to be an attempt to restore the sculptural work. Perhaps the silver leaf had tarnished and worn unacceptably, and needed to be reapplied. No date can be given for this work based on materials and this sampling.

The original effect of the fireplace is clear, however. The bright gold and silver flames, with reds and dark greens suggested in the center, just as they are in real flames, must have been a stunning sight. The recovery of this work of art is very important for the interpretation of the Whitney Studio.

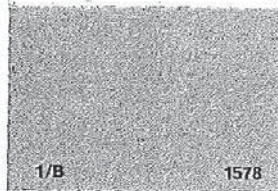
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COLOR MATCHES

Foyer

Foyer walls: Light greenish gray (NBS) Munsell 5 BG 7/1  
Benjamin Moore 1/B 1578



Foyer niches: Dark green (NBS) Munsell 5 G 3/4  
Benjamin Moore 5/F 602



Door frames: Moderate green (NBS) Munsell 5 G 5/4  
Benjamin Moore 5/F 601



Foyer frieze: Very pale green (NBS) Munsell 2.5 G 8/2  
Benjamin Moore 1/A 638



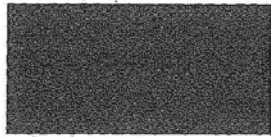


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Whitney Studio

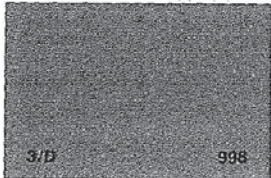
Tinted varnish: Moderate reddish brown (NBS) Munsell 2.5 YR 3/4  
Benjamin Moore 5/E 1225 (approximate)



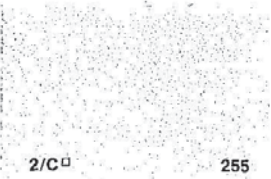
Exterior door: Moderate reddish brown (NBS) Munsell 10 R 3/4  
Benjamin Moore 5/F 1204



Interior door: Light yellowish brown (NBS) Munsell 10 YR 6/2  
Benjamin Moore 3/D 998



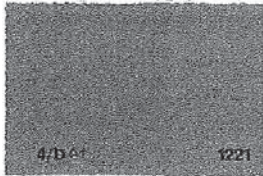
Cornice base: Grayish yellow (NBS) Munsell 2.5 Y 8/4  
Benjamin Moore 2/C 255



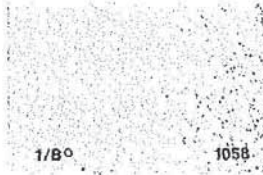
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Cornice glazes: Light brown (NBS) Munsell 5 YR 5/6  
 Benjamin Moore 4/D 1221



Pale orange yellow (NBS) Munsell 10 YR 8/2  
 Benjamin Moore 1/B 1058



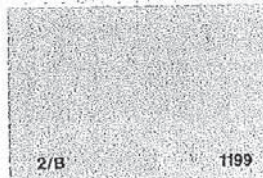
Flame glazes: Dark reddish brown (NBS) Munsell 2.5 YR 2/4  
 Benjamin Moore 5/F 1302 (approximate)



Blackish green (NBS) Munsell 5 G 2/2  
 Benjamin Moore 5/E 714



Figure base: Moderate yellowish pink (NBS) Munsell 10 R 7/4  
 Benjamin Moore 2/B 1199



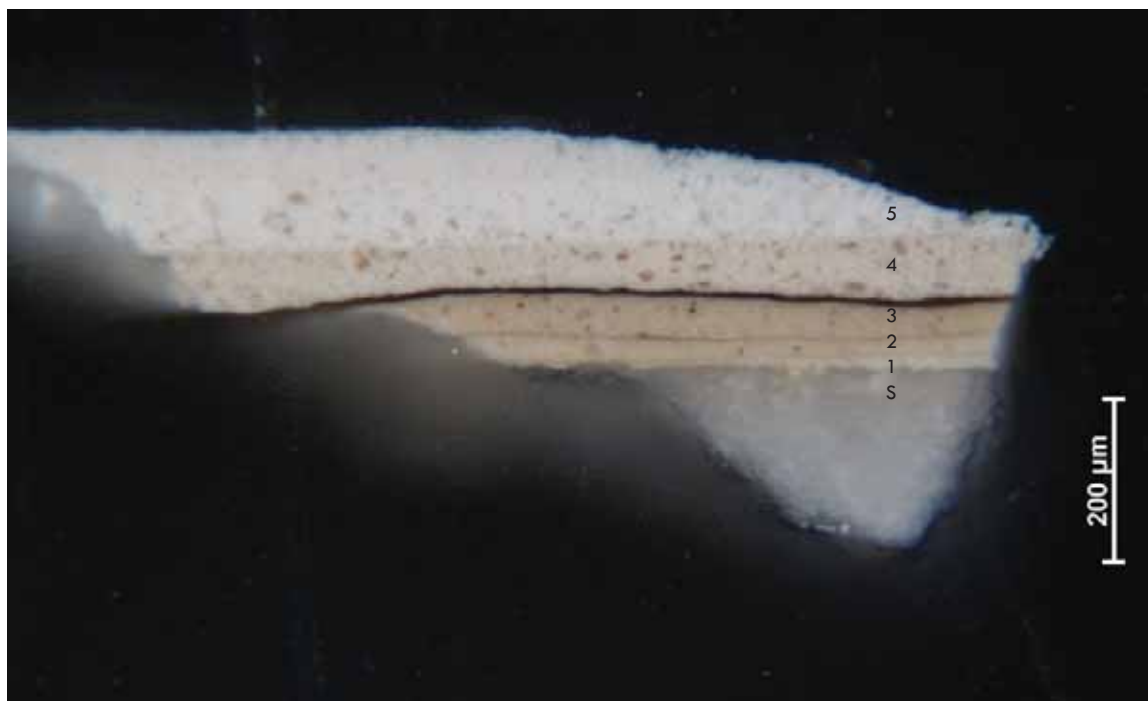


APPENDIX H.

CROSS SECTION MICROSCOPY  
WITH REFLECTED AND UV LIGHT

## APPENDIX H. CROSS SECTION MICROSCOPY

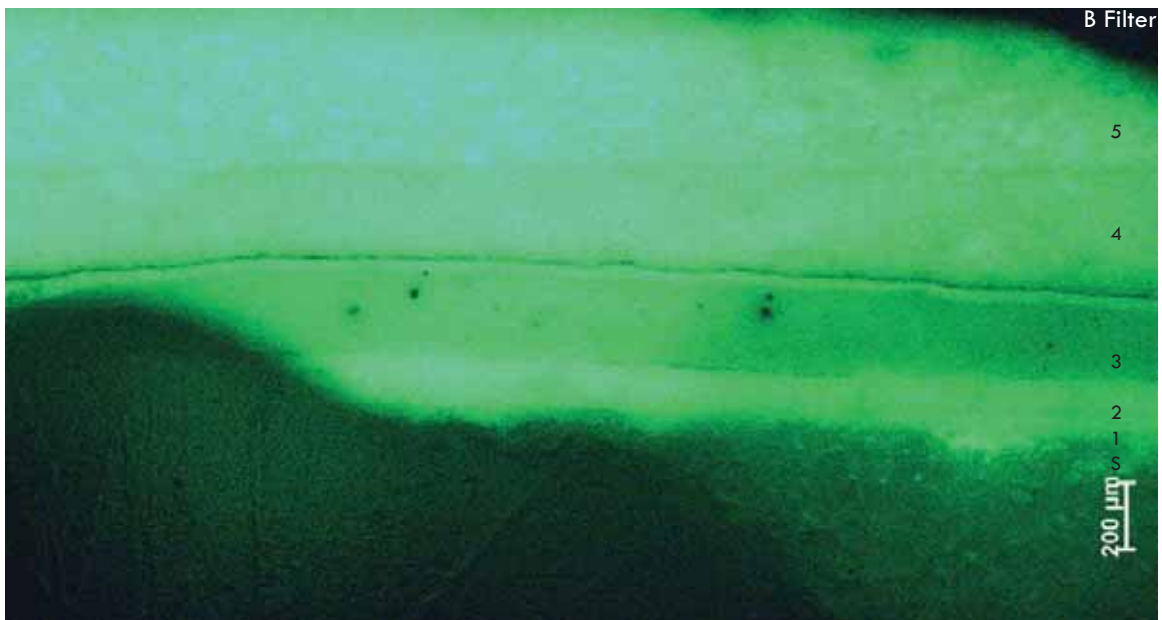
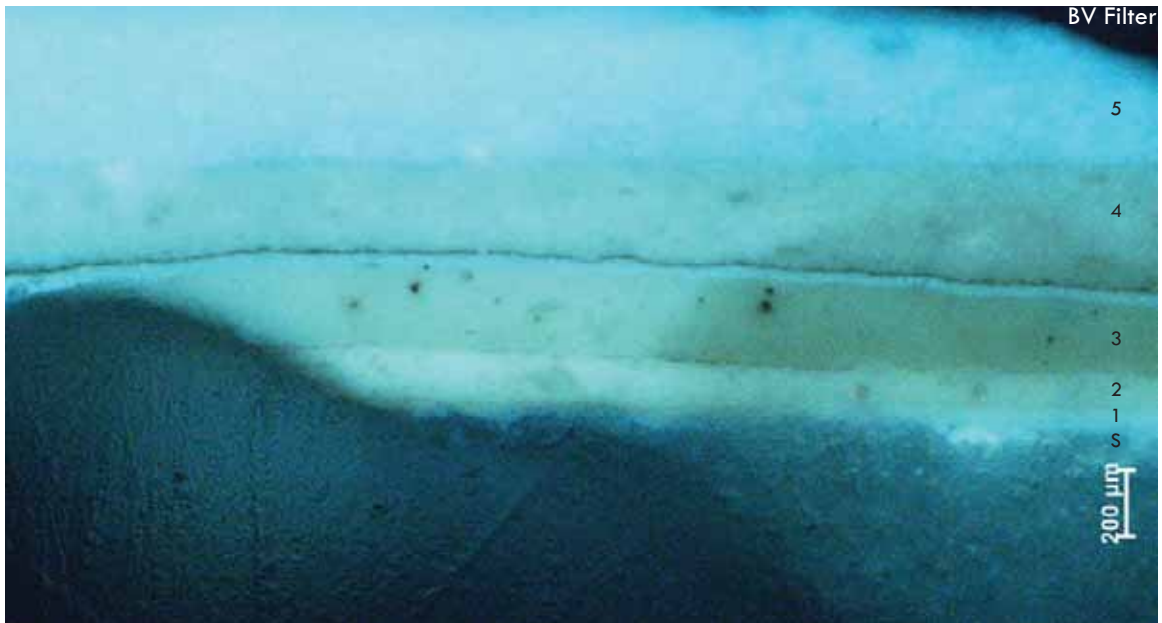
SAMPLE #: GWAS01.2010.01	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Sun, right cheek	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.01	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Sun, right cheek	MAGNIFICATION: 200x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR



APPENDIX H. CROSS SECTION MICROSCOPY

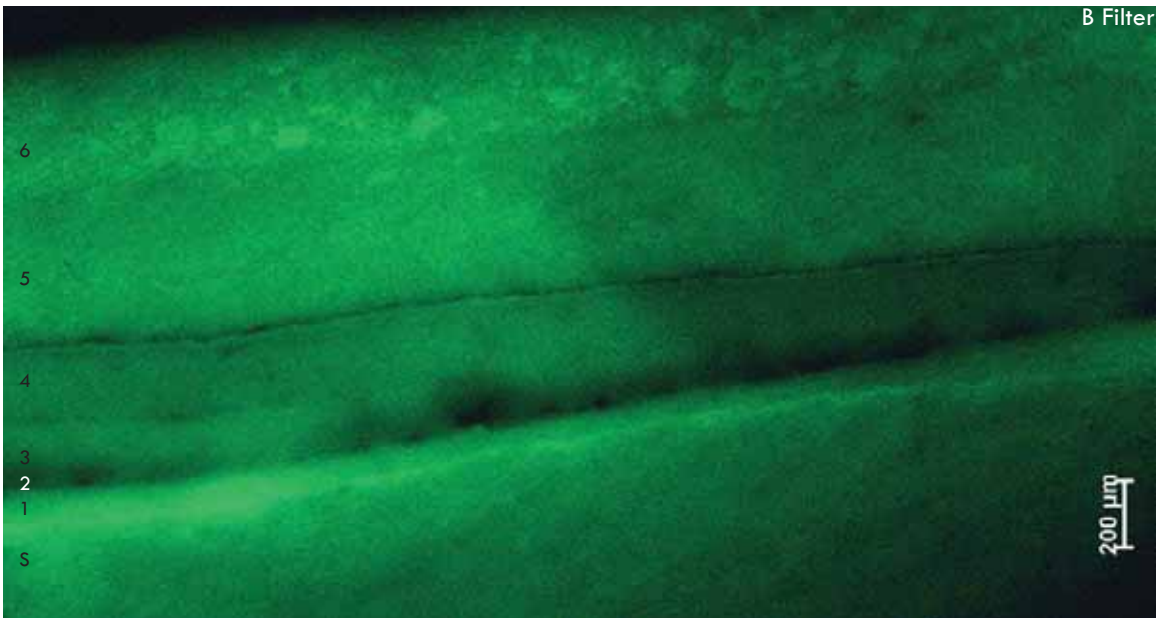
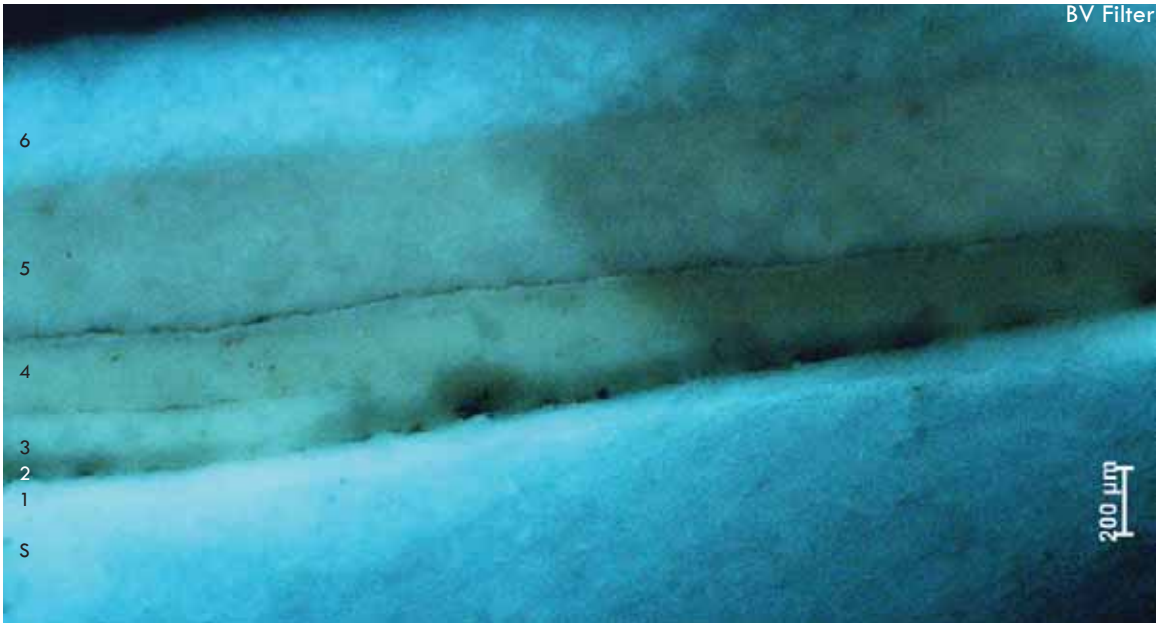
SAMPLE #: GWAS01.2010.02	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Sun face, bottom right lip	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Gold	Bronzed metal application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

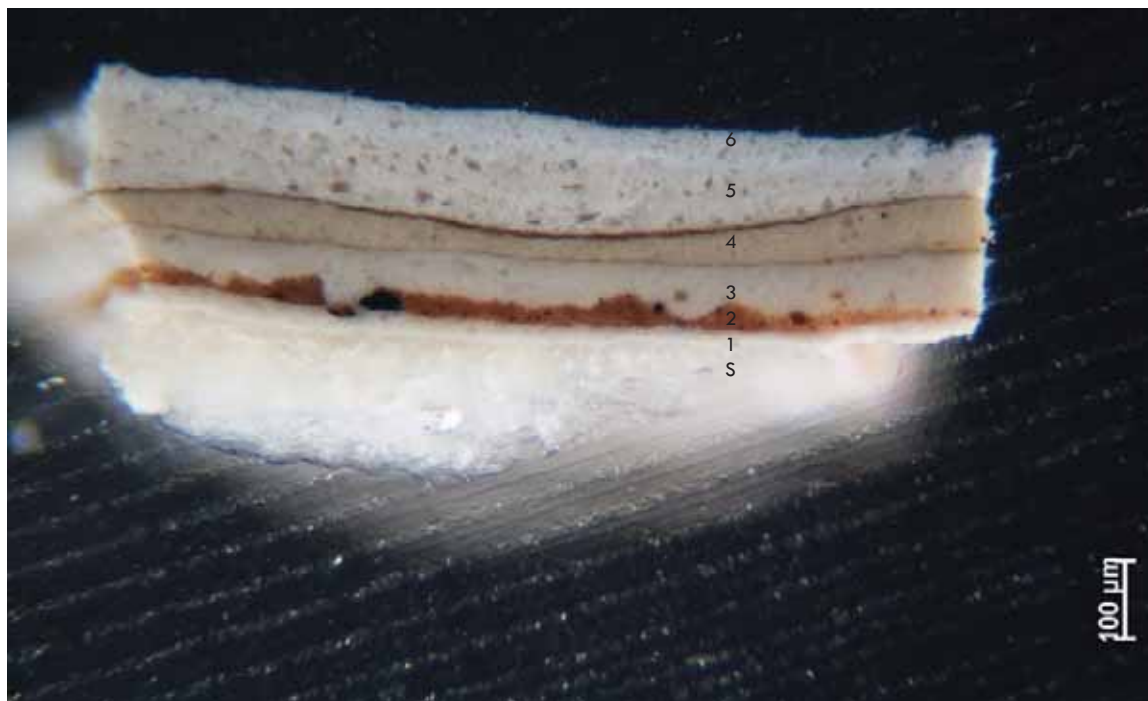
SAMPLE #: GWAS01.2010.02	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Sun face, bottom right lip	MAGNIFICATION: 200x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR





## APPENDIX H. CROSS SECTION MICROSCOPY

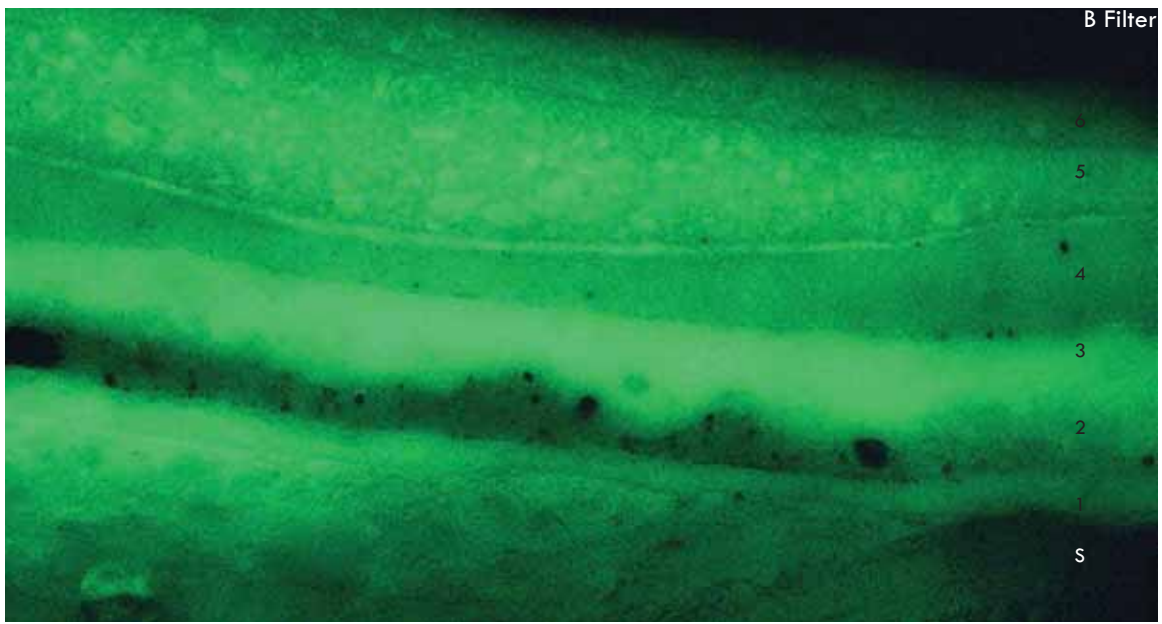
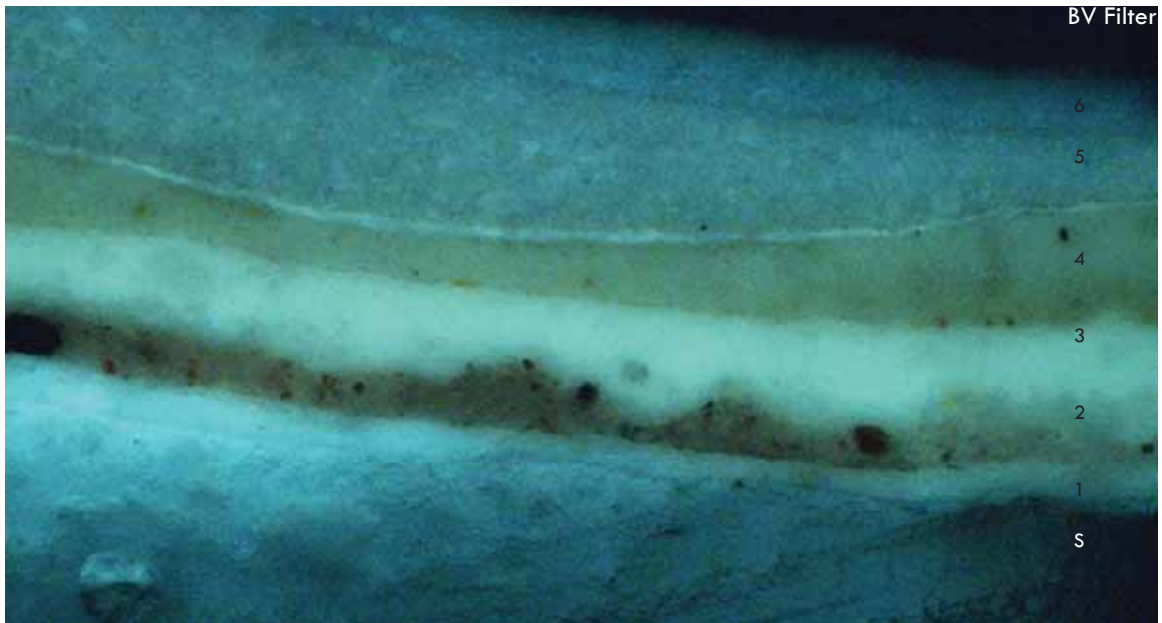
SAMPLE #: GWAS01.2010.03	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Sun face, open mouth right	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Reddish Yellow (5YR 6/6)	Glaze application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.03	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Sun face, open mouth right	MAGNIFICATION: 200x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR



APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.04	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Sun face, rt. pupil of the eye	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.05	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Eyebrow edge, rt. side sun	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.06	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Ray background, above sun	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR

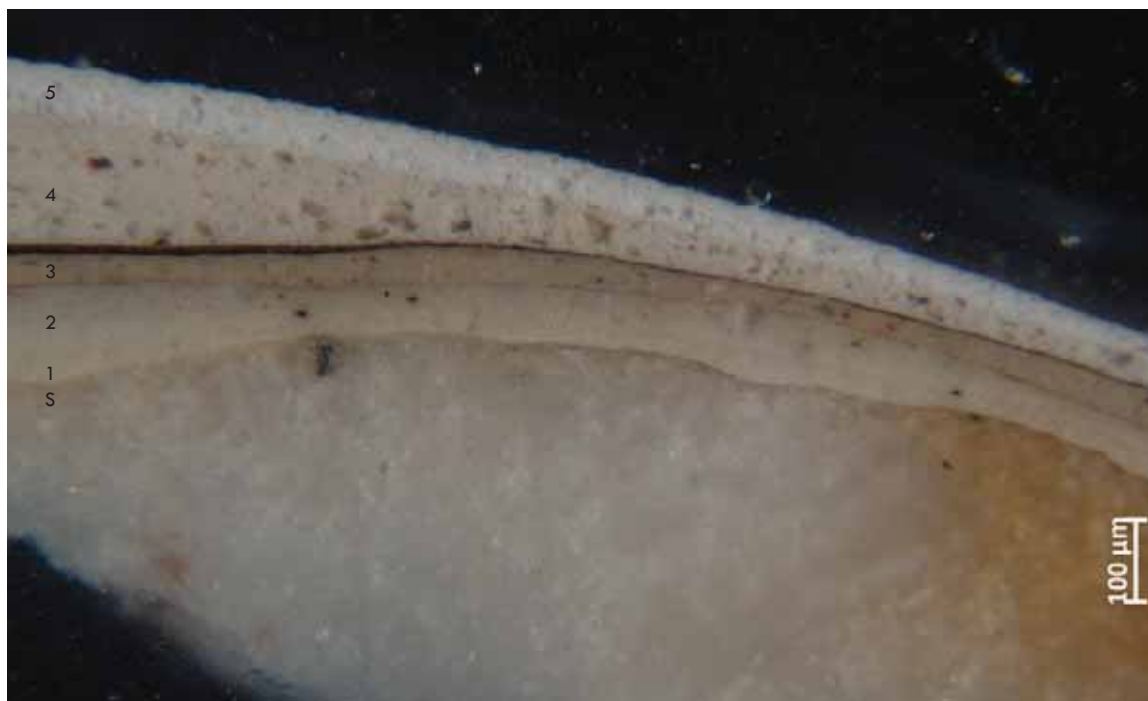


LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.07	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Combed ridge, above sun	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.08	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Tongue of dragon	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Dark green (10Y 7/4)	Glaze application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

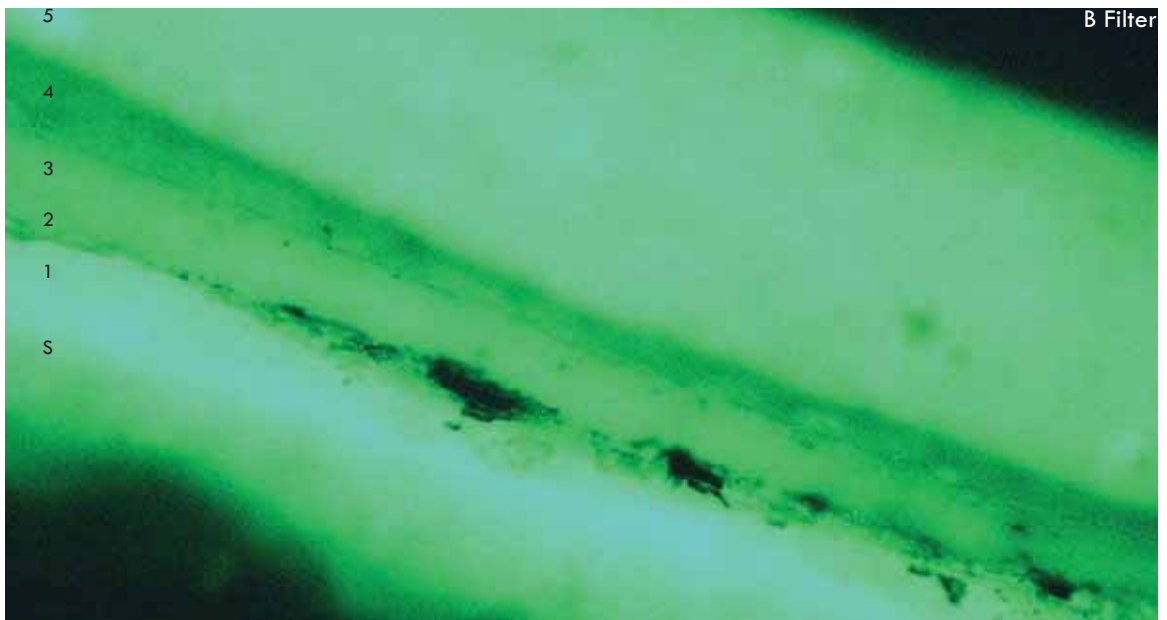
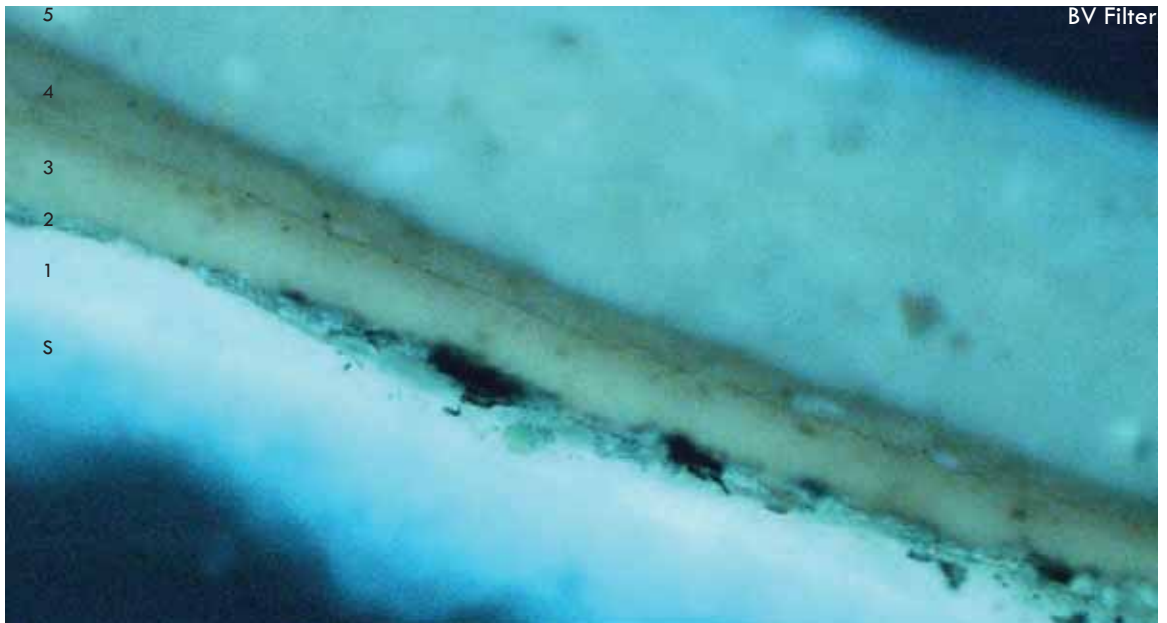
SAMPLE #: GWAS01.2010.09	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Snout of dragon	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Silver	Metal foil application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.09	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Snout of dragon	MAGNIFICATION: 200x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR



APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.10	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Neck of Dragon	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.11	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Cloud beyond Dragon	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.12	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Combed ridge, dragon	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.13	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Ray background	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

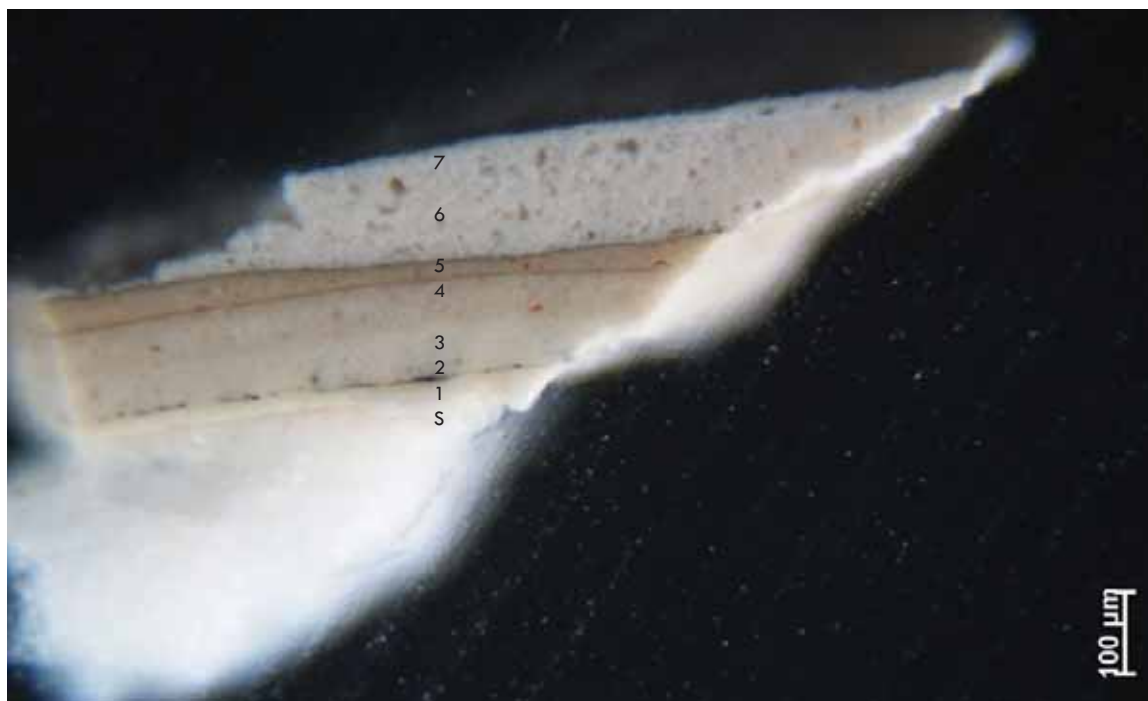
SAMPLE #: GWAS01.2010.13	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Ray background	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.14	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Serpent's head	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR

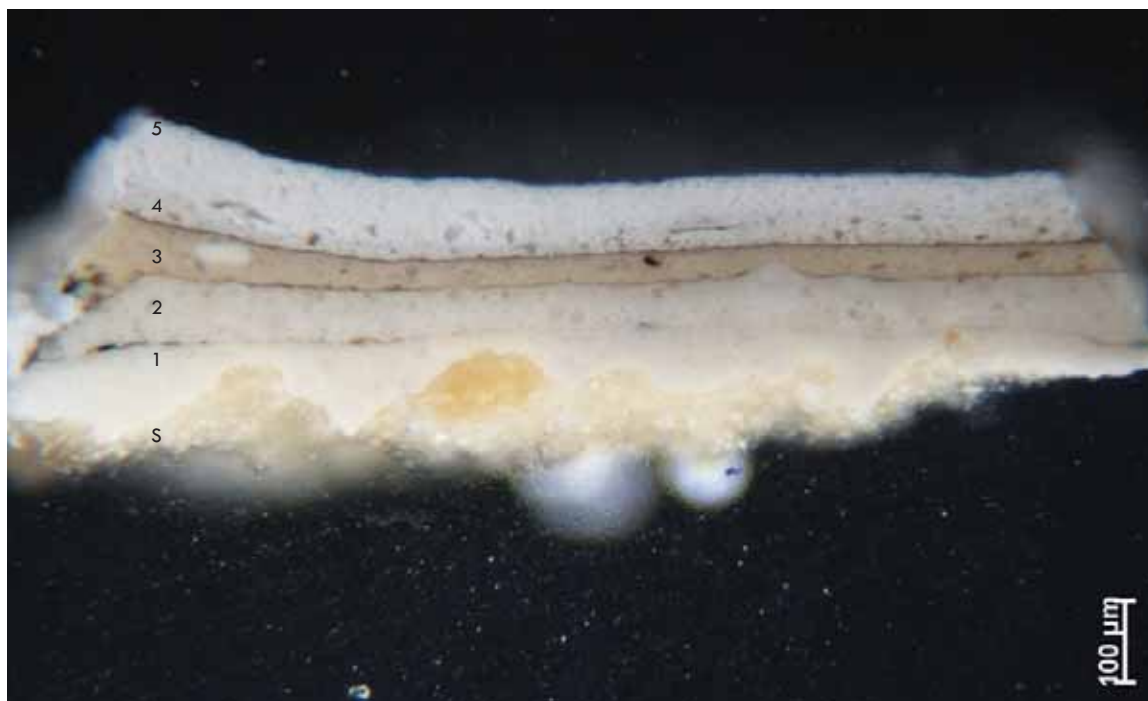


LAYER	COLOR	DESCRIPTION
7	White	Top layer, Latex paint
6	Off-white	Latex paint
5	Darkened Varnish / Tan	Lead-based paint
4	Dirt layer / Off-white	Lead-based paint
3	White	Lead-based paint
2	Darkened Varnish	
1	White	Lead-based preparatory paint
S	Plaster	Substrate



APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.15	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Griffin body/ neck	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.17	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Cloud	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	Orange Varnish / White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

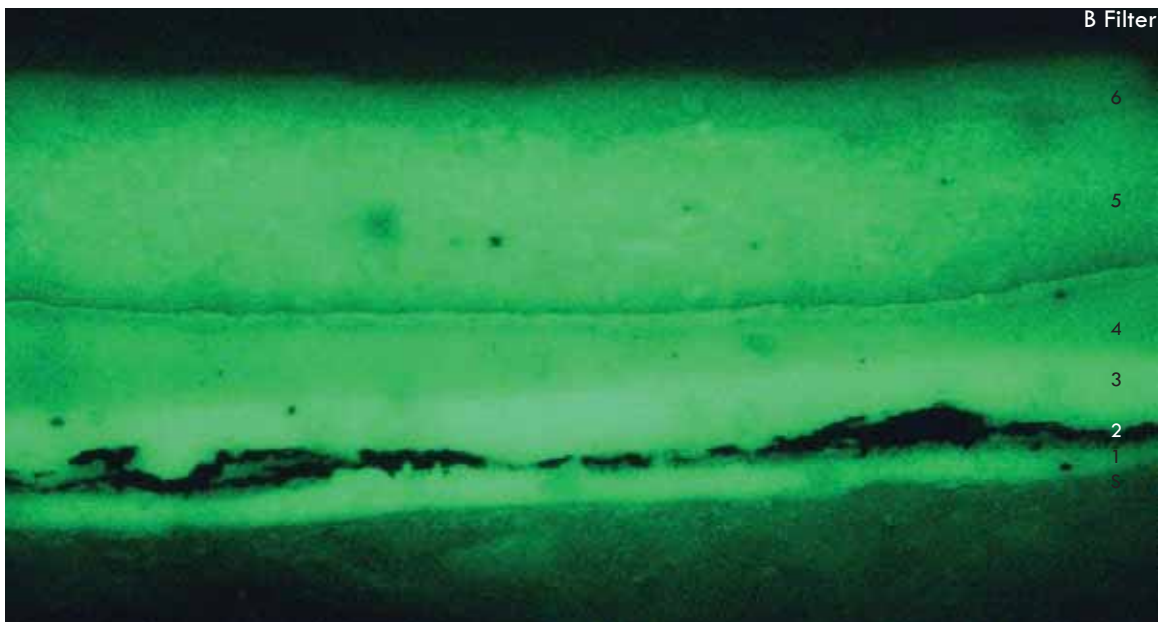
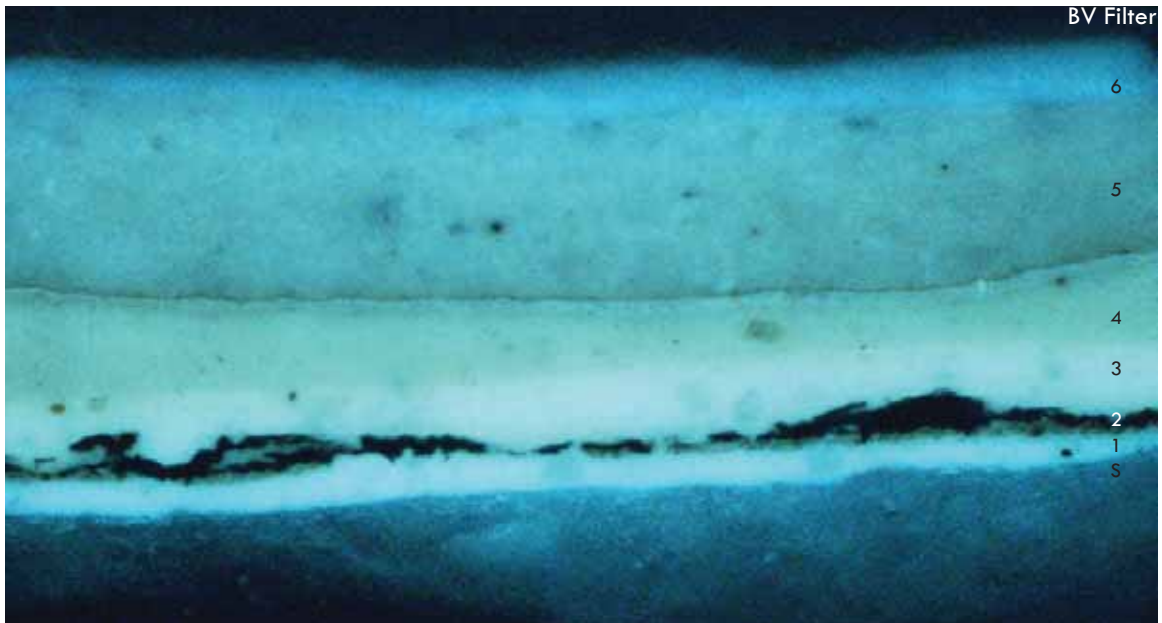
SAMPLE #: GWAS01.2010.18	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Deer snout	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Silver	Metal foil application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.18	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Deer snout	MAGNIFICATION: 200x
MICROSCOPE: Alhabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.19	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Deer antler	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Silver	Flaky metal foil application
1	White	Lead-based preparatory paint
S	Plaster	Substrate



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.20	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Combed ridge	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.21	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Edge of mouth on alligator	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White (N 9.5N/)	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan (10YR 8/2)	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Dark green (7.5GY 4/4)	Paint
1	White (N9.25/)	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.22	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Combed ridge, alligator	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.23	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Ray in front of alligator	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.024	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Hair of head figure, cornice	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Tan	Glaze application
1	White	Lead-based preparatory paint
S	Plaster	Substrate



APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.25	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Body of alligator	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
6	White	Top layer, Latex paint
5	Off-white	Latex paint
4	Darkened Varnish / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Silver	Metal foil application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.26	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Plaster from snake	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

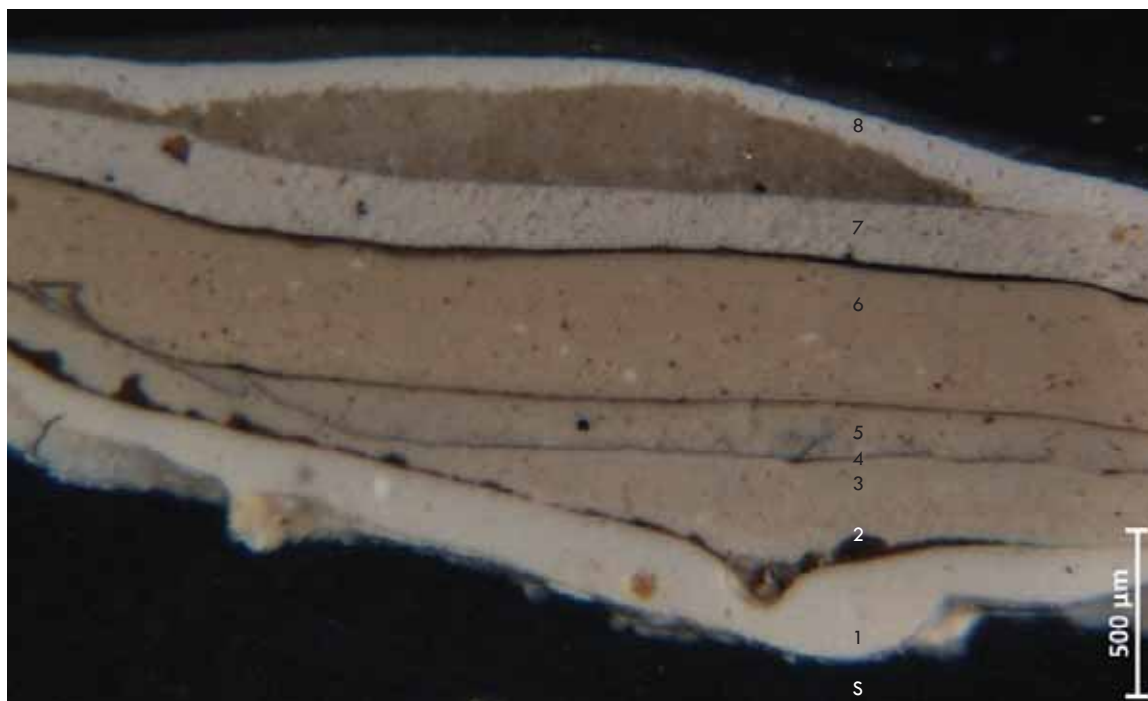
SAMPLE #: GWAS01.2010.27	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Lip of head figure on cornice	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

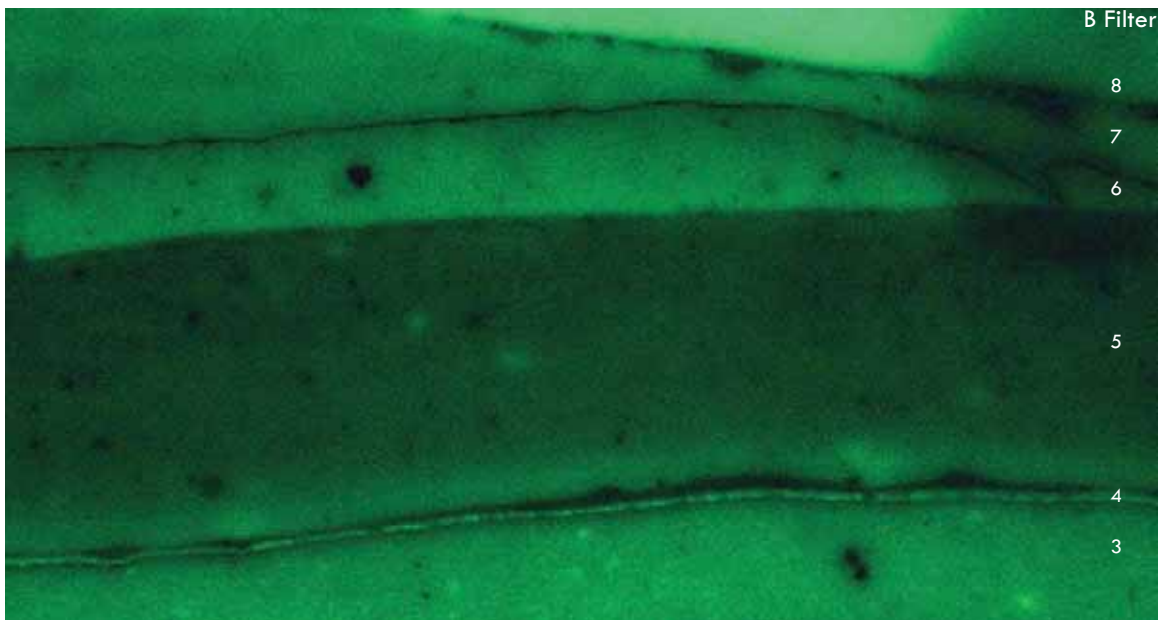
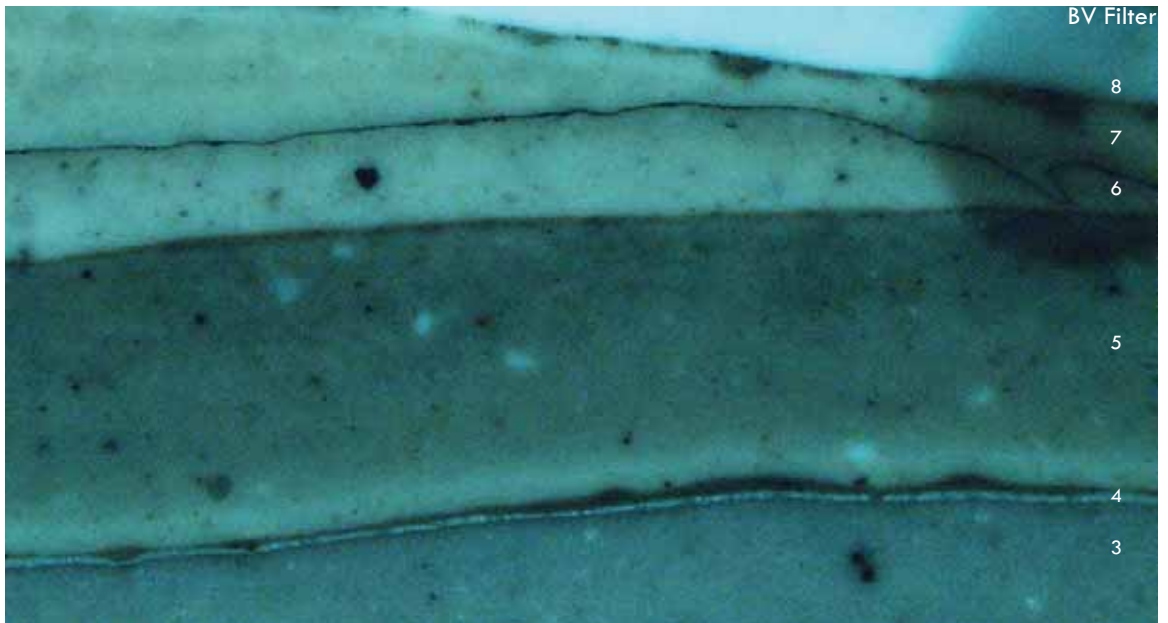
SAMPLE #: GWAS03.2010.28	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Head of snake	MAGNIFICATION: 40x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
8	White (N9.5N) / Cleavage	Top layer, Latex paint
7	Off-white	Latex paint
6	Darkened Varnish / Tan	Lead-based paint
5	Dirt layer / Off-white	Lead-based paint
4	Silver	Metal foil application
3	Off-white	Lead-based paint
2	Dark green (2.5GY 5/4)	Glaze application
1	White (N9.25)	Lead-based preparatory paint
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.28	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Head of snake	MAGNIFICATION: 00x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR





APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.29	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Cloud behind alligator	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Dirt layer / Off-white	Lead-based paint
1	White	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

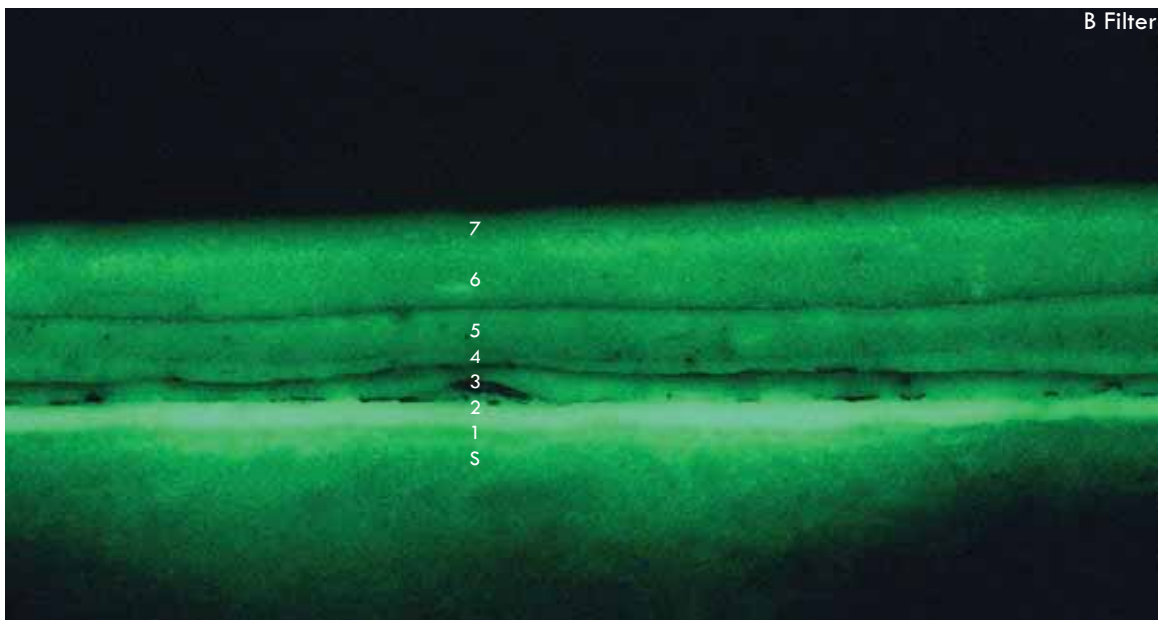
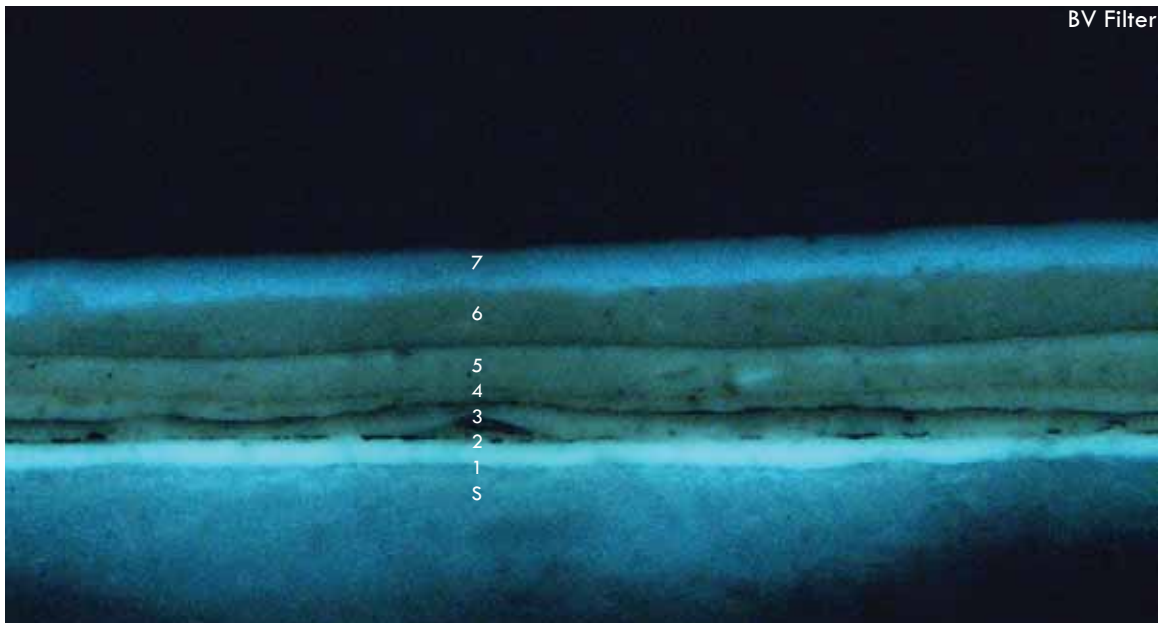
SAMPLE #: GWAS03.2010.30	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Body of snake	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
7	White	Top layer, Latex paint
6	Off-white	Latex paint
5	Darkened Varnish / Tan	Lead-based paint
4	Dirt layer / Tan	Lead-based paint
3	Dirt layer / Off-white	Lead-based paint
2	Silver	Metal foil application
1	White	Lead-based preparatory paint
S	Plaster	Substrate

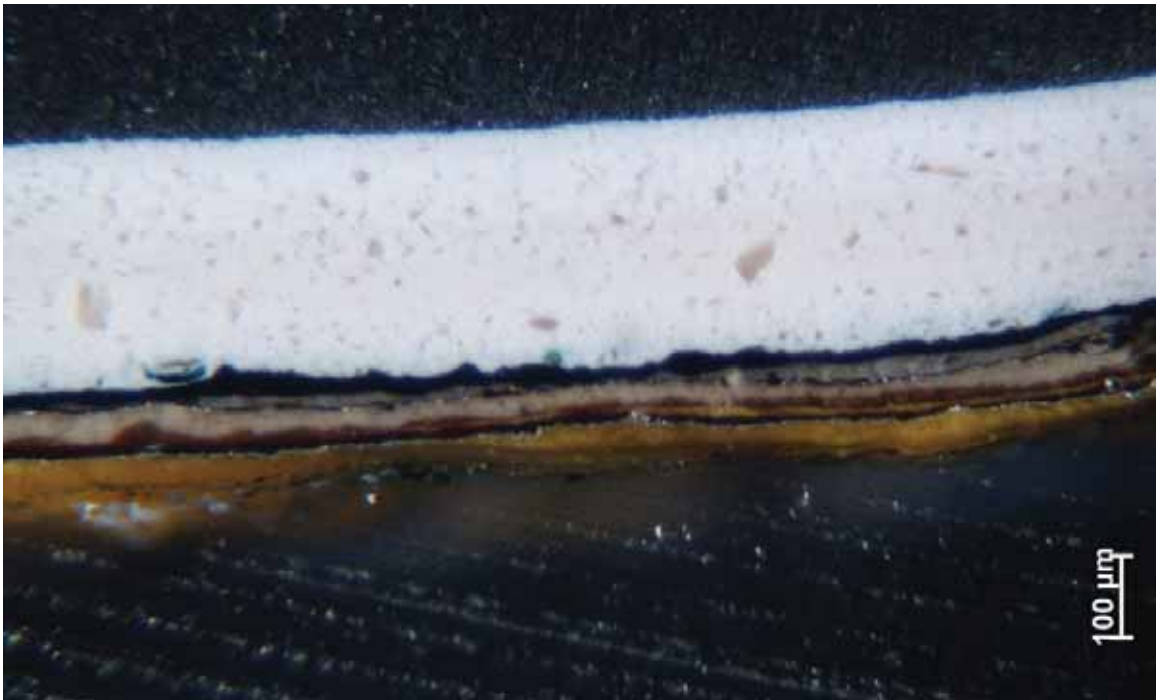
APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.30	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Body of snake	MAGNIFICATION: 100x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.31	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Side of fireplace - metal	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



## APPENDIX H. CROSS SECTION MICROSCOPY

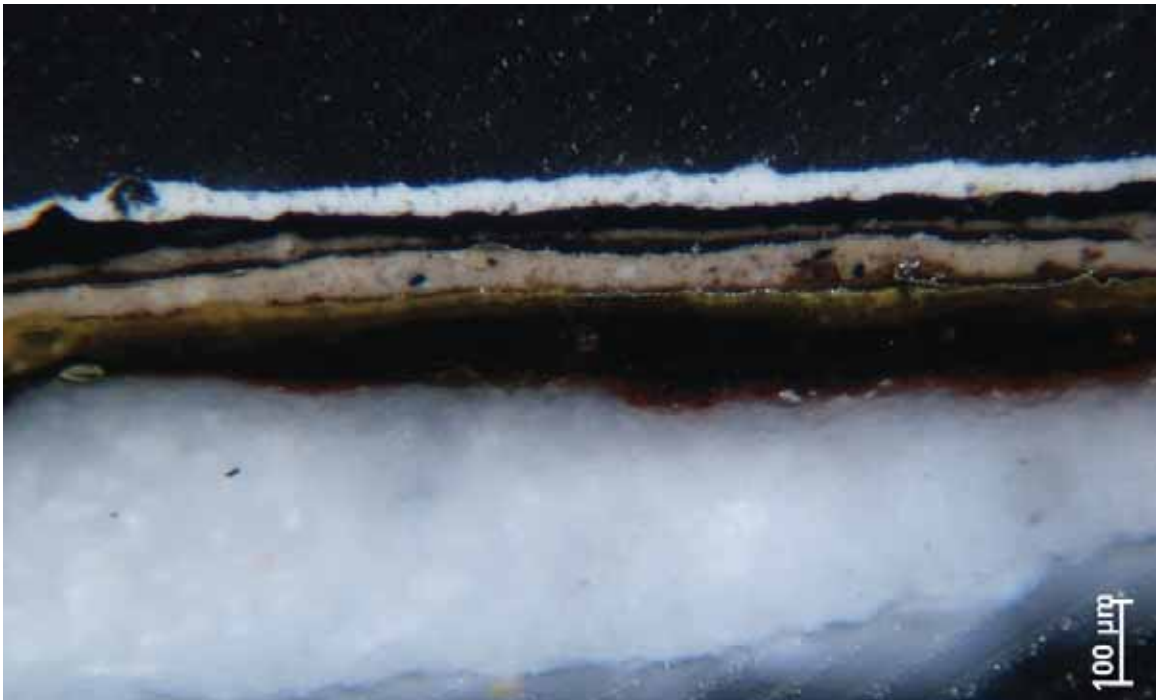
SAMPLE #: GWAS01.2010.32	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Snake above fireplace	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR





## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS01.2010.33	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: December, 2009
DESCRIPTION: Flame above fireplace	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



## APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.34	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Cornice Piece	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Brown	Thin glaze
1	Off-white	Lead-based preparatory paint
S	Plaster	Substrate

## APPENDIX H. CROSS SECTION MICROSCOPY

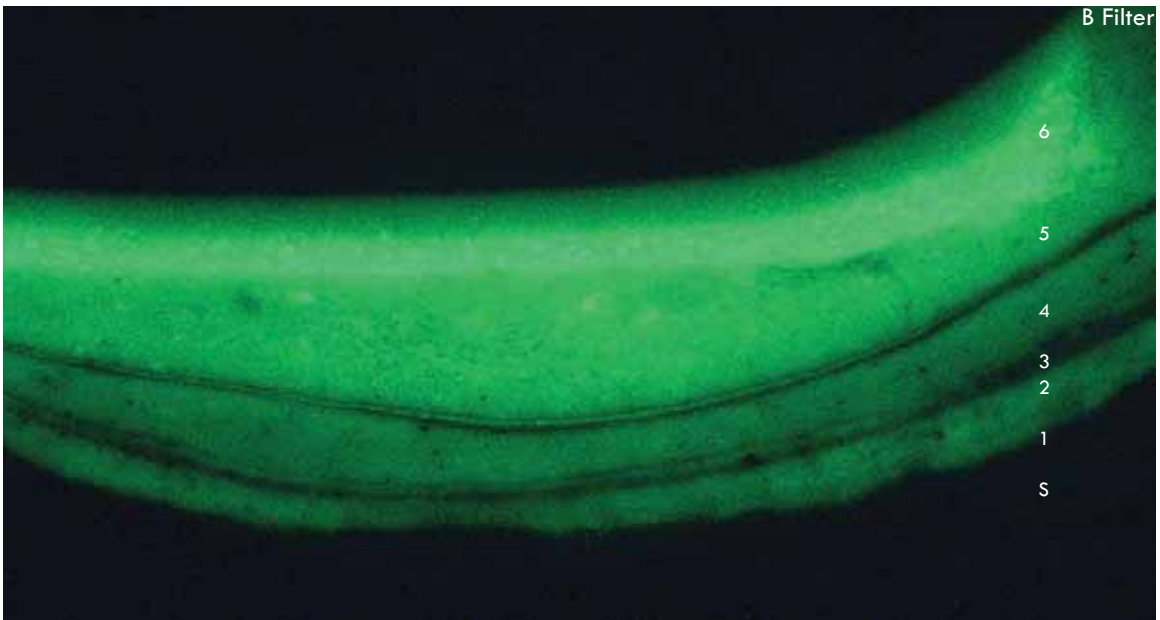
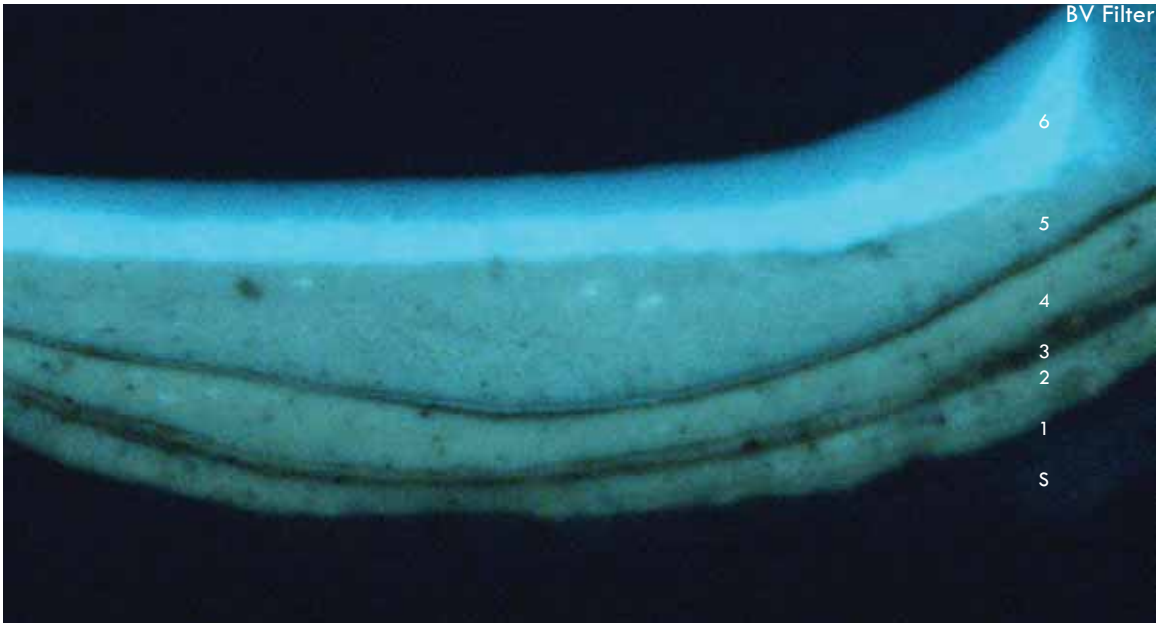
SAMPLE #: GWAS03.2010.36	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: March, 2010
DESCRIPTION: Cornice Piece- Crease	MAGNIFICATION: 100x
MICROSCOPE: Olympus CX 31	CAMERA: Nikon DS-F11
LIGHT SOURCE: Reflected Quartz Halogen	SOFTWARE: NIS Elements BR



LAYER	COLOR	DESCRIPTION
5	White	Top layer, Latex paint
4	Off-white	Latex paint
3	Darkened Varnish / Tan	Lead-based paint
2	Brown	Thin glaze
1	Mauve (10RP 4/2)	Glaze
S	Plaster	Substrate

APPENDIX H. CROSS SECTION MICROSCOPY

SAMPLE #: GWAS03.2010.36	DATE SAMPLED: November 16, 2009
ROOM: G.V. Whitney Studio	DATE ANALYZED: April, 2010
DESCRIPTION: Cornice Piece- Crease	MAGNIFICATION: 100x
MICROSCOPE: Alphabot 2 Microscope	CAMERA: Nikon DS-F11
LIGHT SOURCE: Hg Arc Lamp	SOFTWARE: NIS Elements BR

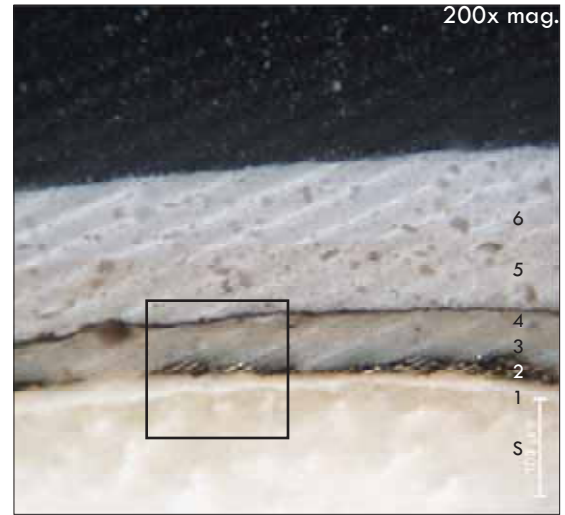
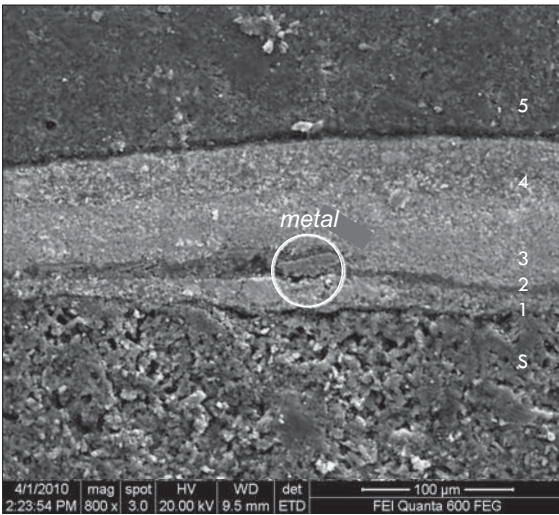


APPENDIX I.

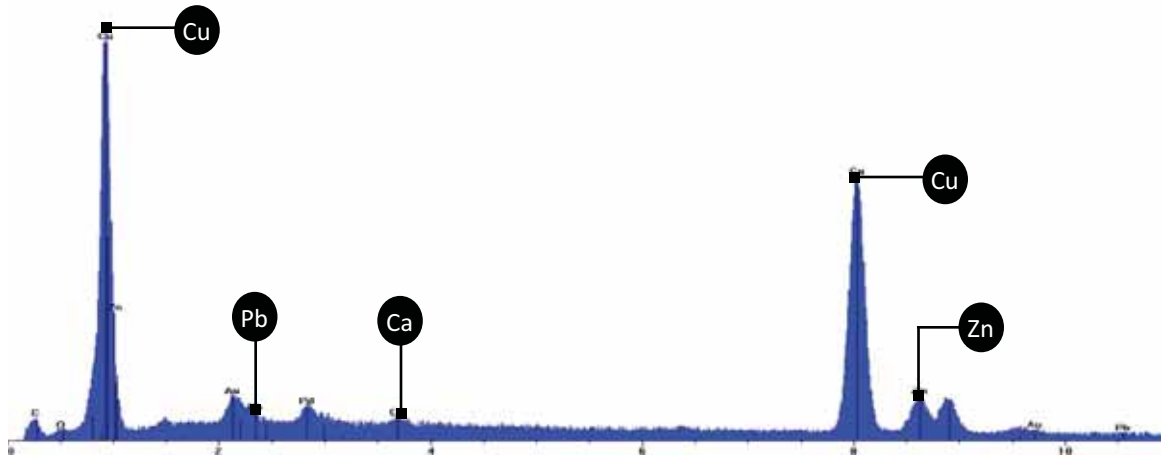
SEM-EDS  
WITH SECONDARY IMAGING



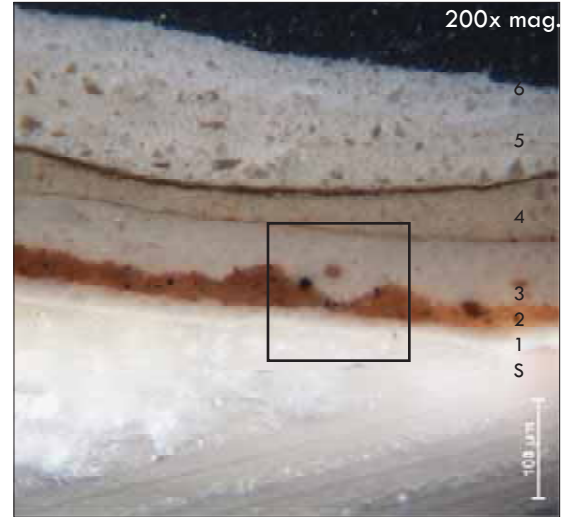
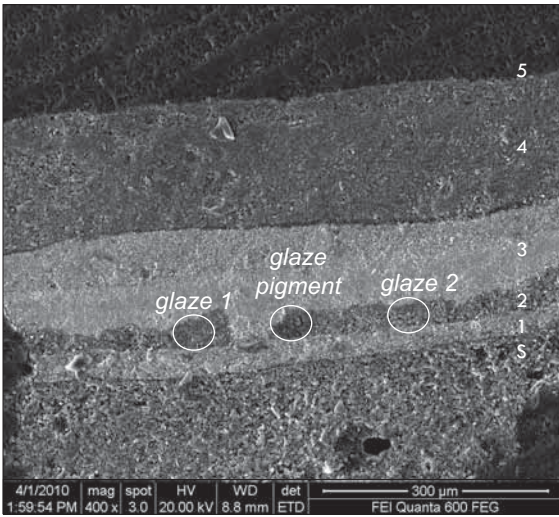
SAMPLE #: GWAS01.2010.02	DATE ANALYZED: April 1, 2010
DESCRIPTION: Sun face, bottom right lip	ANALYZED BY: L. Vollono & L. Rotkina



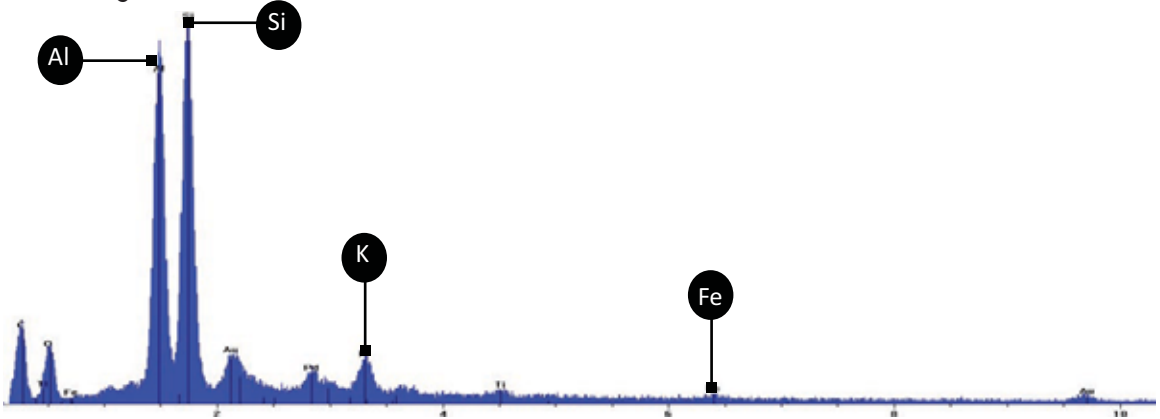
Metal



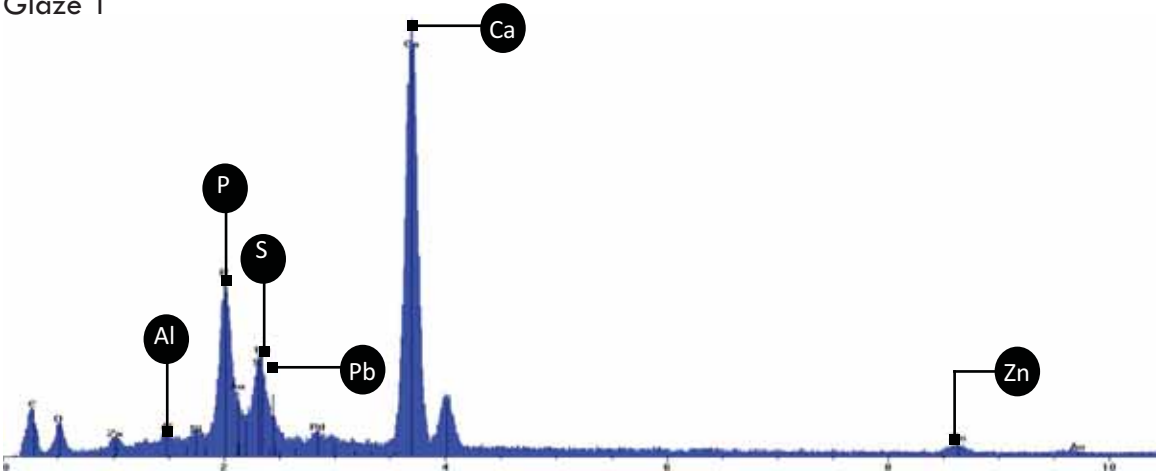
SAMPLE #: GWAS01.2010.03	DATE ANALYZED: April 1, 2010
DESCRIPTION: Sun face, open mouth right	ANALYZED BY: L. Vollono & L. Rotkina



Glaze Pigment

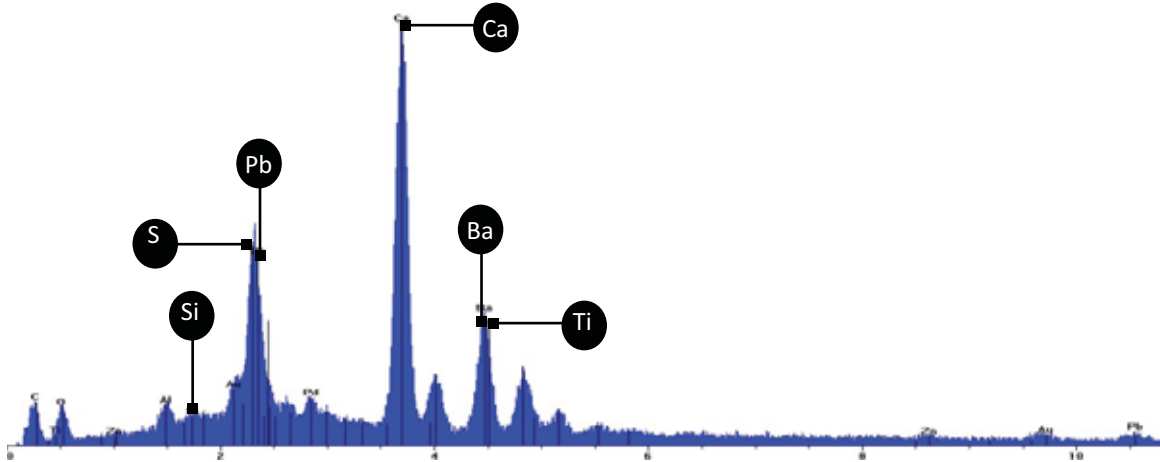


Glaze 1

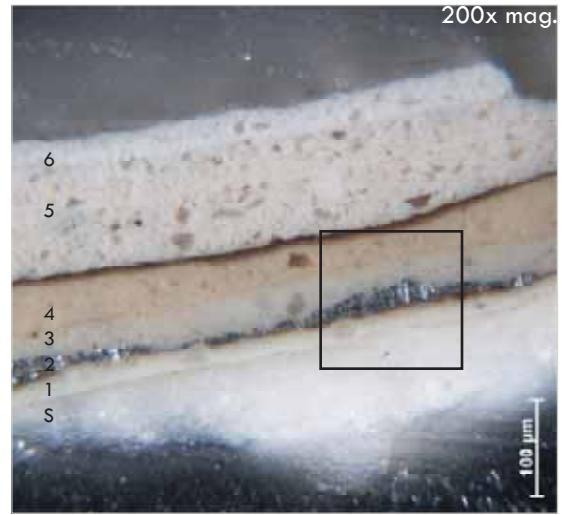
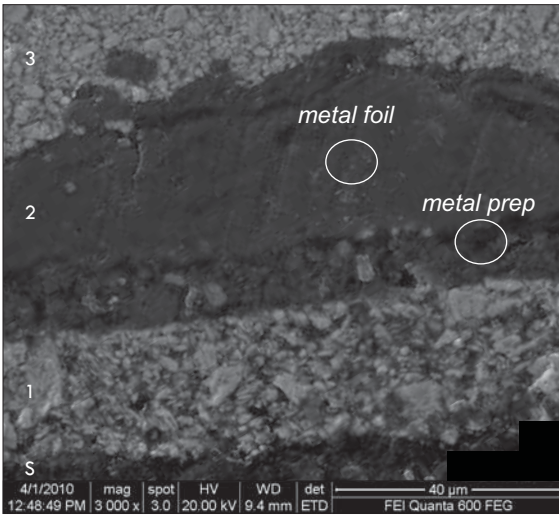


SAMPLE #: GWAS01.2010.03	DATE ANALYZED: April 1, 2010
DESCRIPTION: Sun face, open mouth right	ANALYZED BY: L. Vollono & L. Rotkina

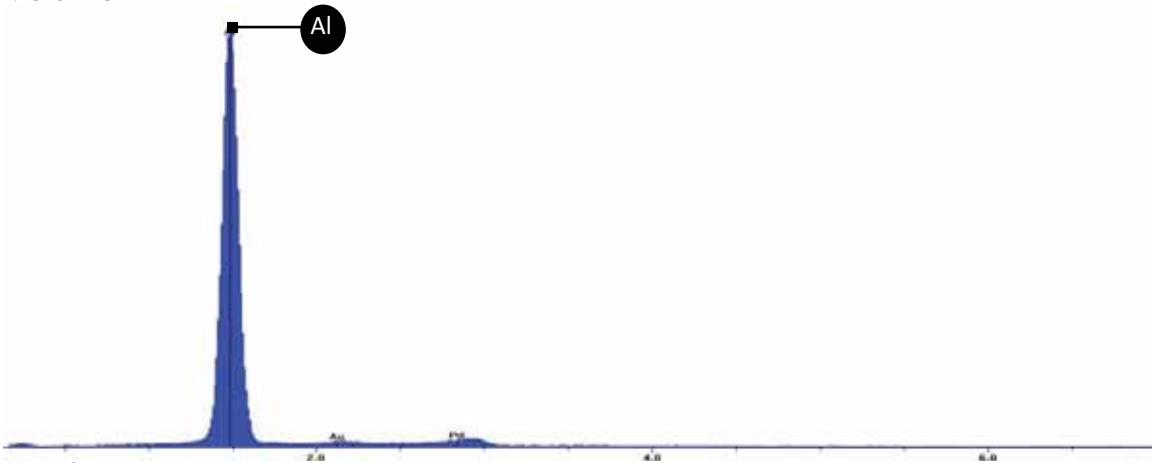
Glaze 2



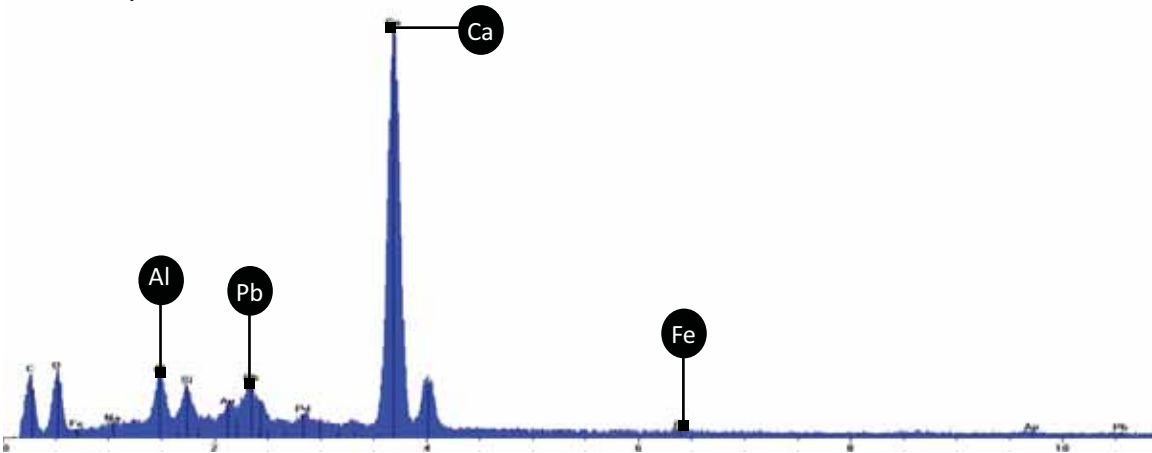
SAMPLE #: GWAS01.2010.18	DATE ANALYZED: April 1, 2010
DESCRIPTION: Deer snout	ANALYZED BY: L. Vollono & L. Rotkina



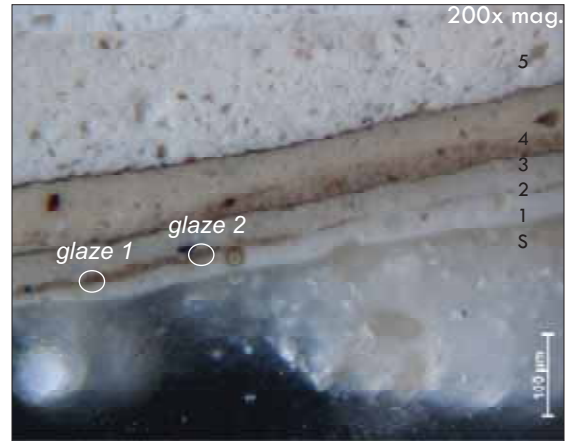
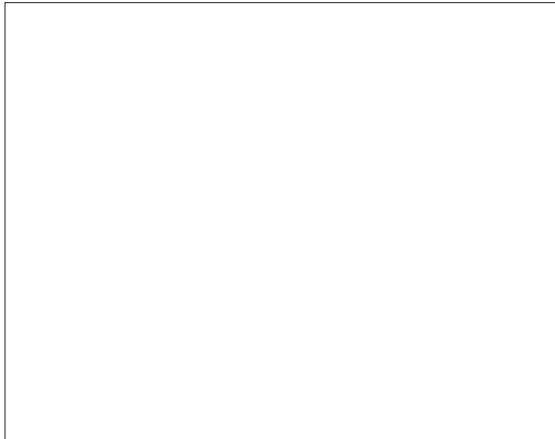
Metal Foil



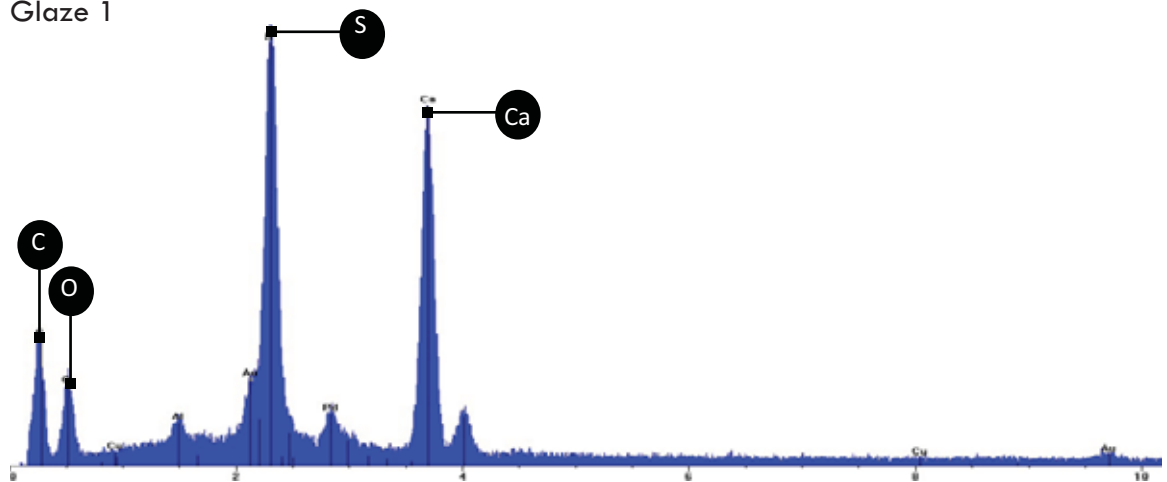
Metal Prep



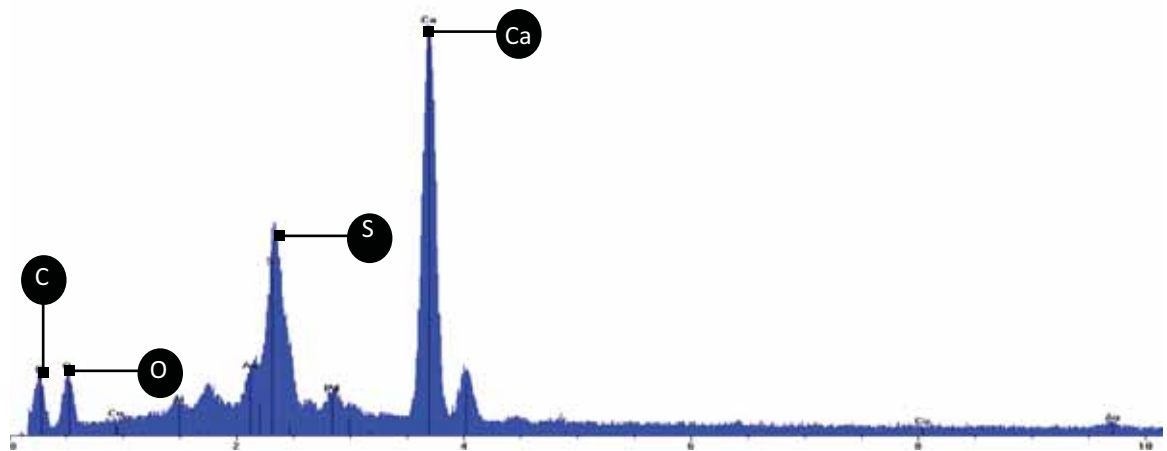
SAMPLE #: GWAS01.2010.24	DATE ANALYZED: April 1, 2010
DESCRIPTION: Head figure on cornice	ANALYZED BY: L. Vollono & L. Rotkina



Glaze 1

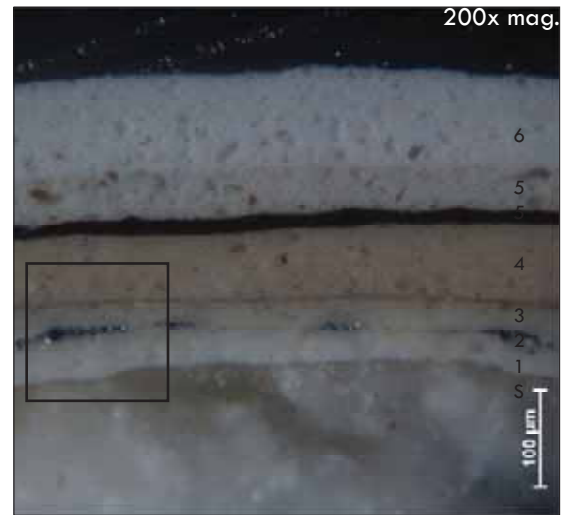
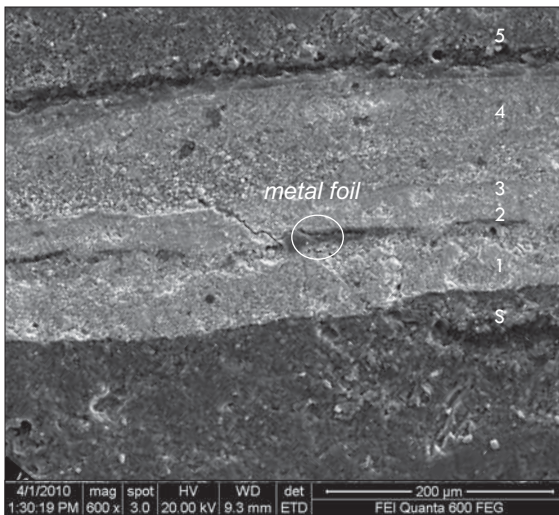


Glaze 2

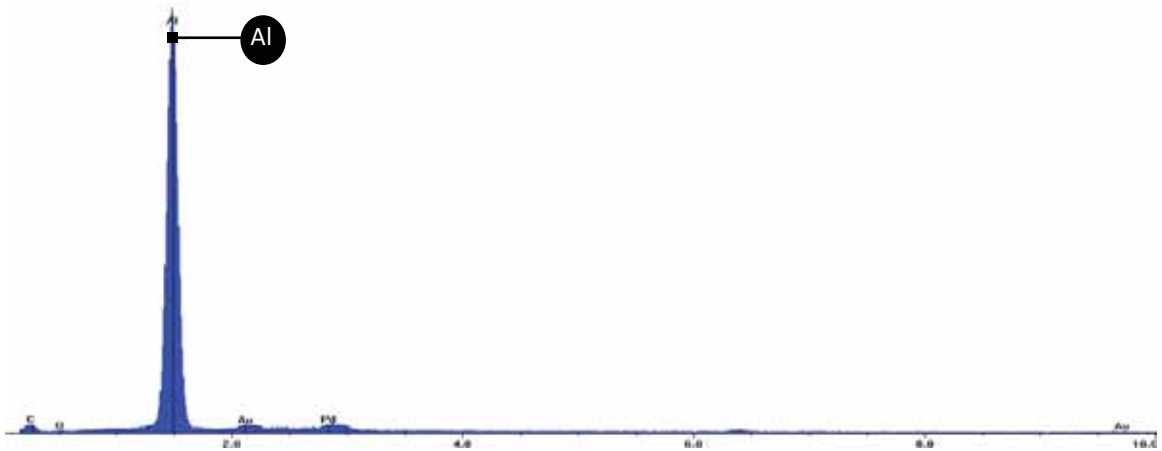




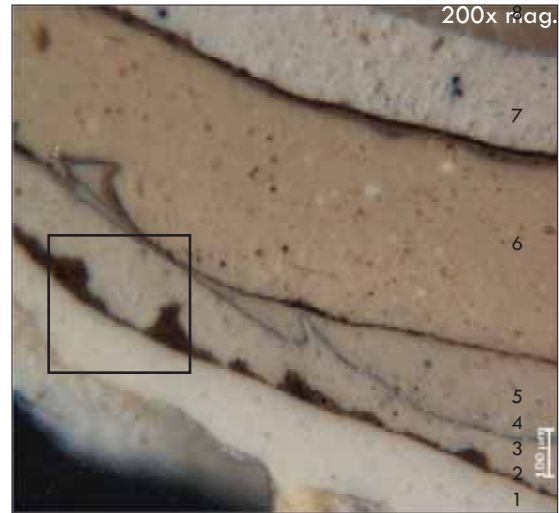
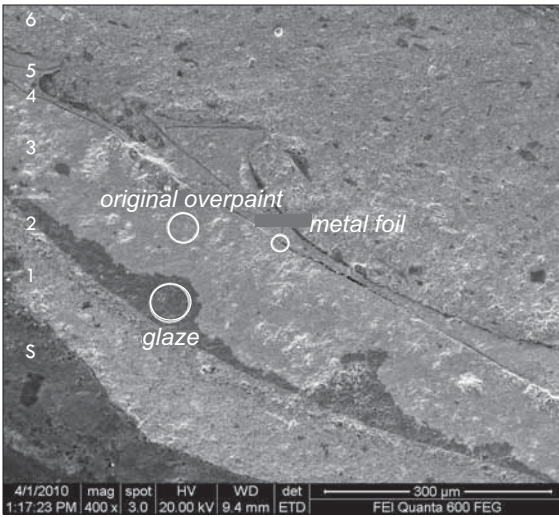
SAMPLE #: GWAS01.2010.25	DATE ANALYZED: April 1, 2010
DESCRIPTION: Body of alligator	ANALYZED BY: L. Vollono & L. Rotkina



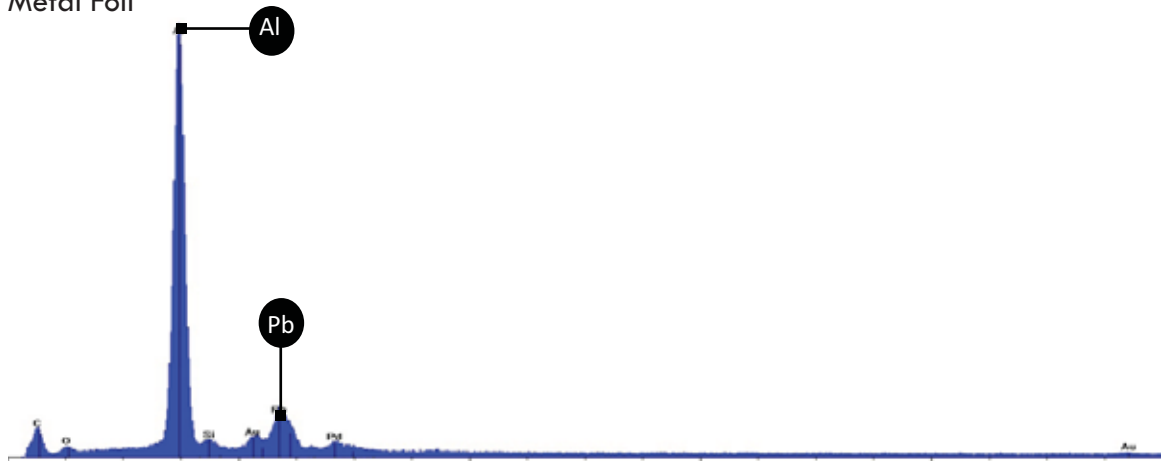
Metal Foil



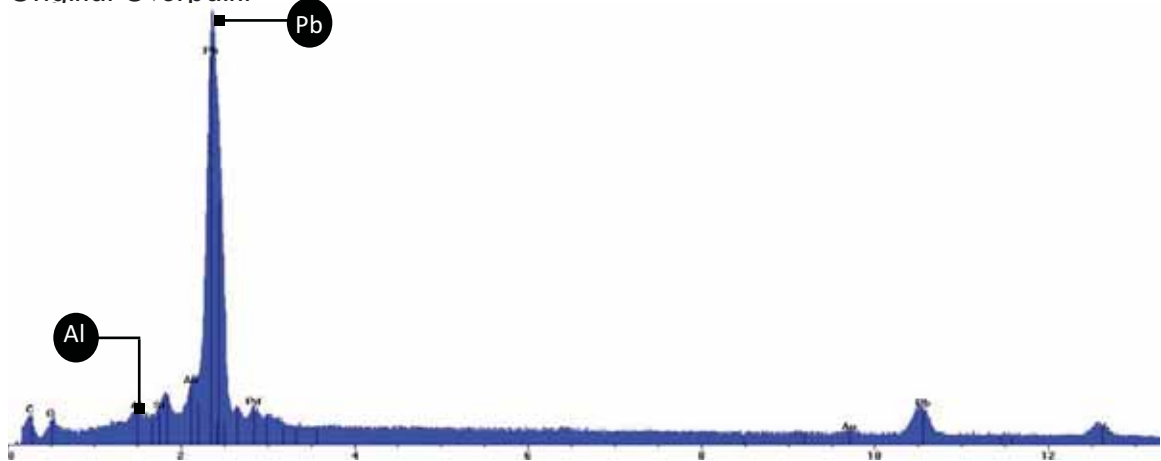
SAMPLE #: GWAS01.2010.28	DATE ANALYZED: April 1, 2010
DESCRIPTION: Head of snake	ANALYZED BY: L. Vollono & L. Rotkina



Metal Foil

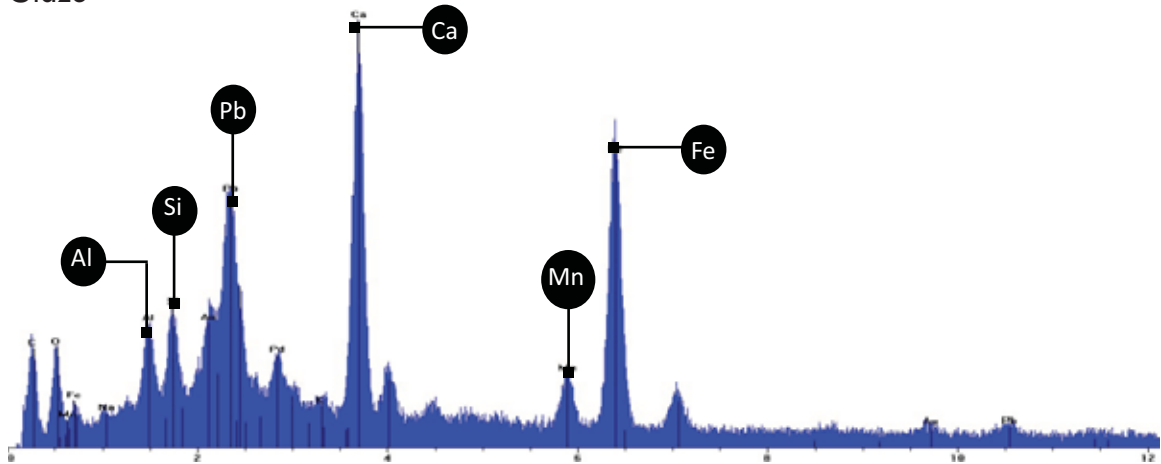


Original Overpaint

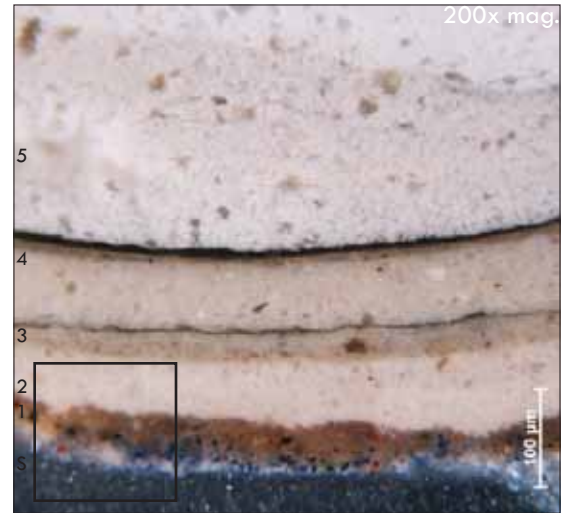
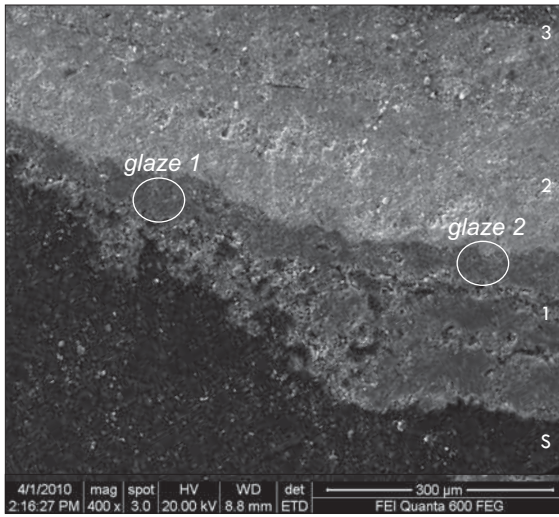


SAMPLE #: GWAS01.2010.28	DATE ANALYZED: April 1, 2010
DESCRIPTION: Head of snake	ANALYZED BY: L. Vollono & L. Rotkina

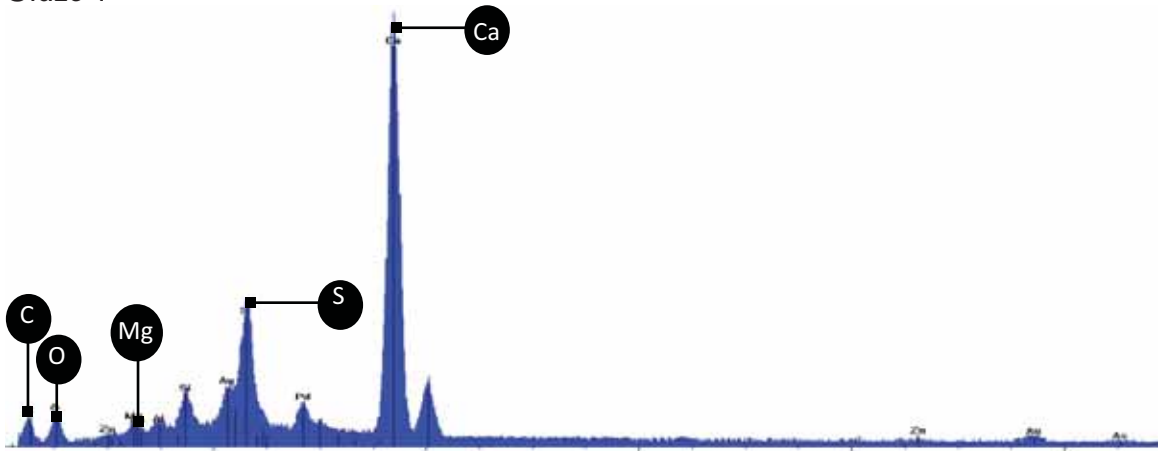
Glaze



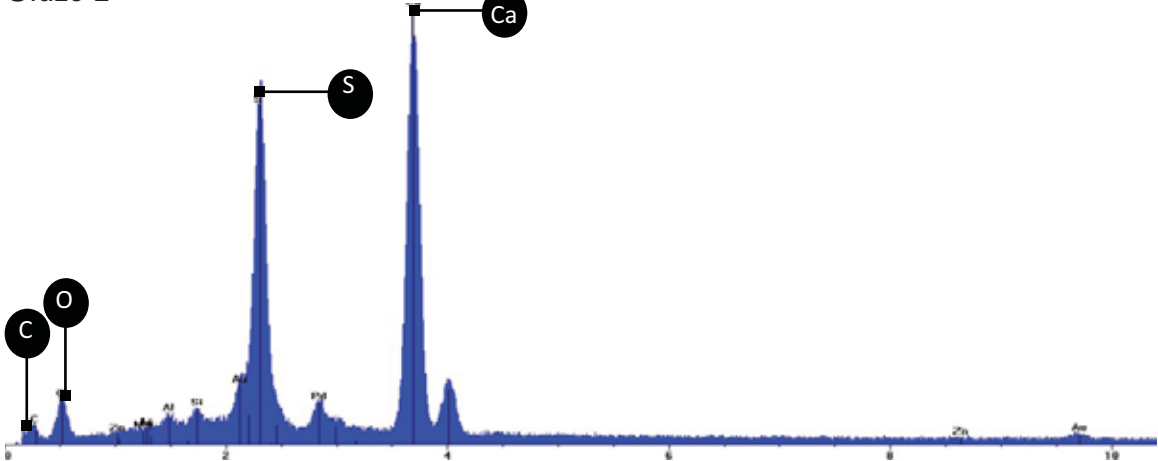
SAMPLE #: GWAS01.2010.36	DATE ANALYZED: April 1, 2010
DESCRIPTION: Head of snake	ANALYZED BY: L. Vollono & L. Rotkina



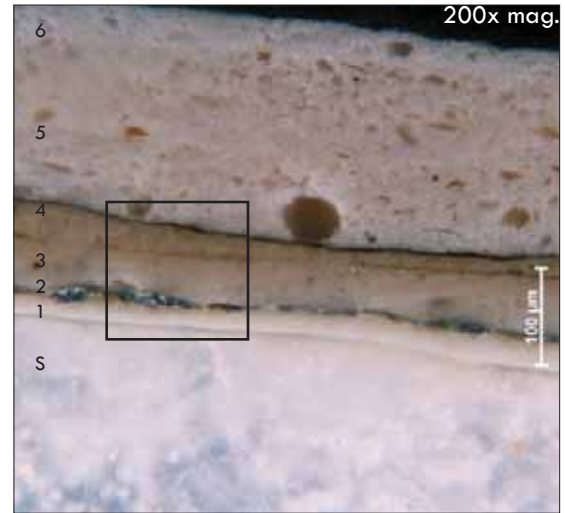
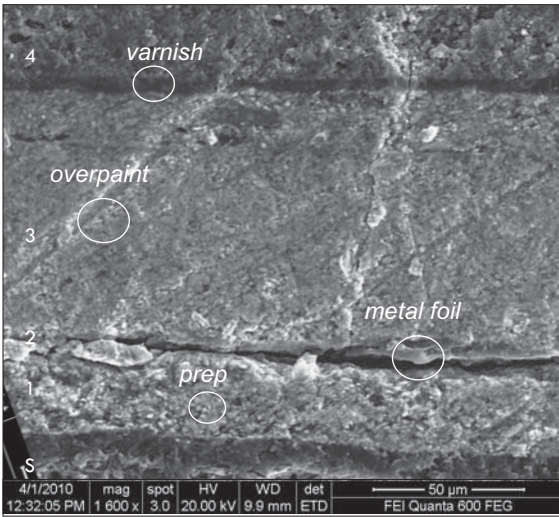
Glaze 1



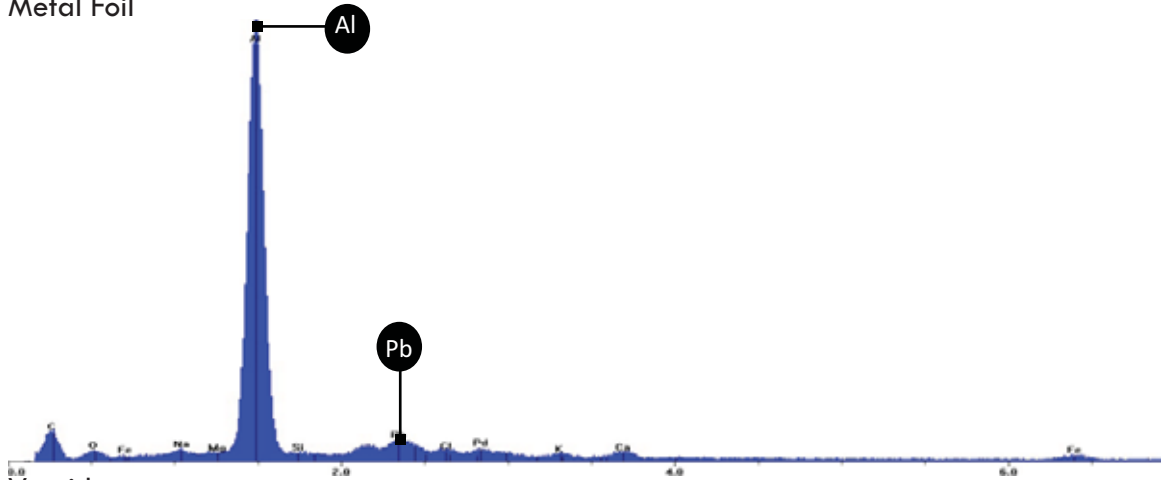
Glaze 2



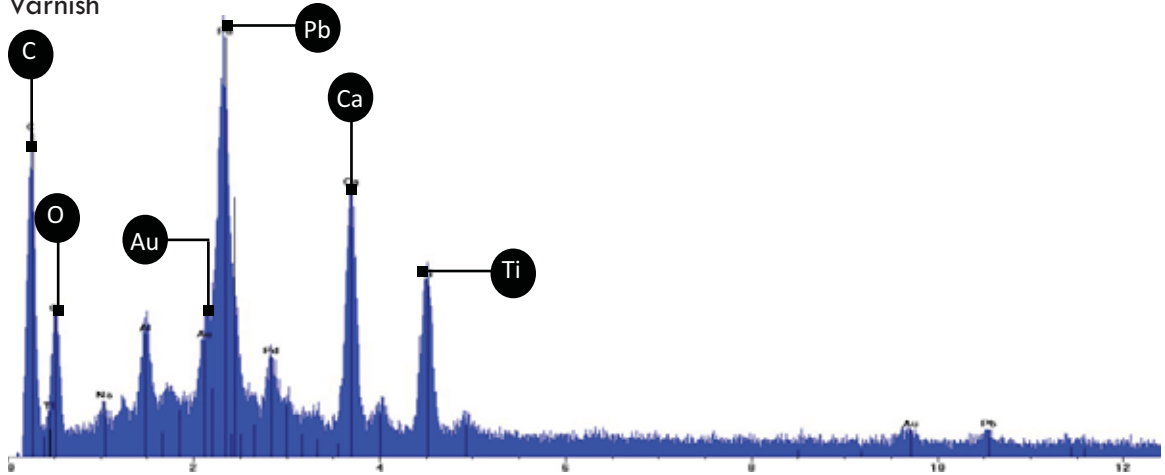
SAMPLE #: GWAS01.2010.09	DATE ANALYZED: April 1, 2010
DESCRIPTION: Snout of dragon	ANALYZED BY: L. Vollono & L. Rotkina



Metal Foil

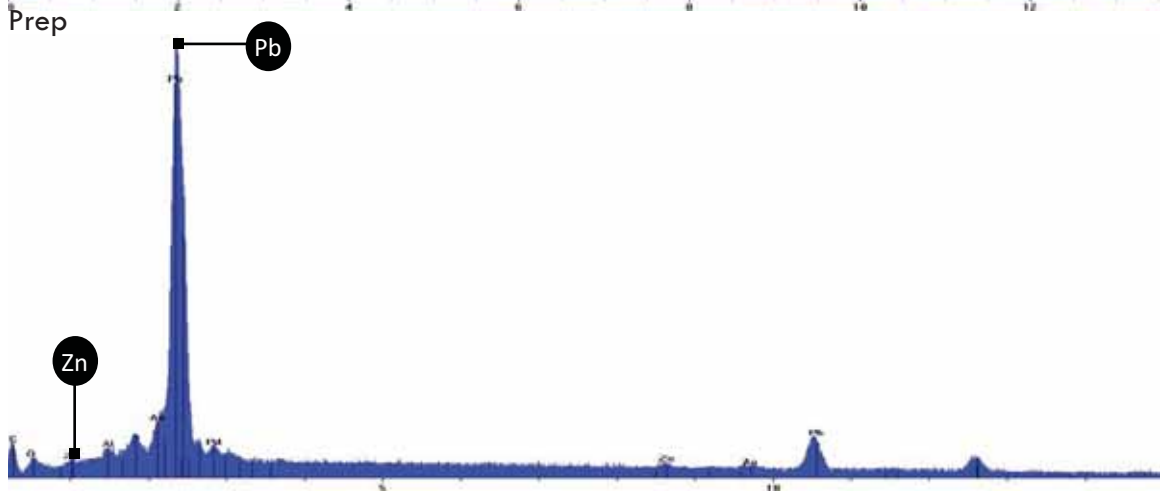
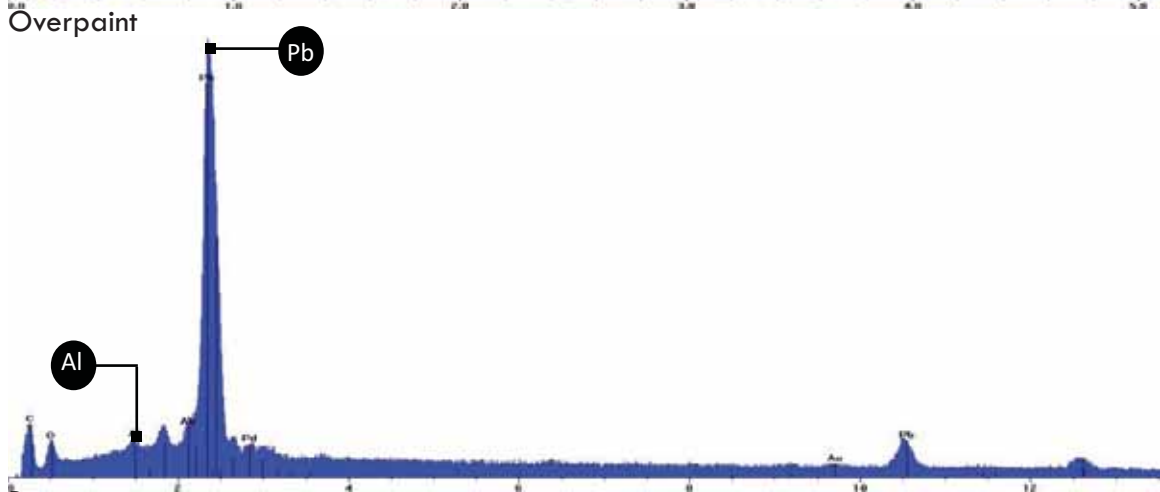
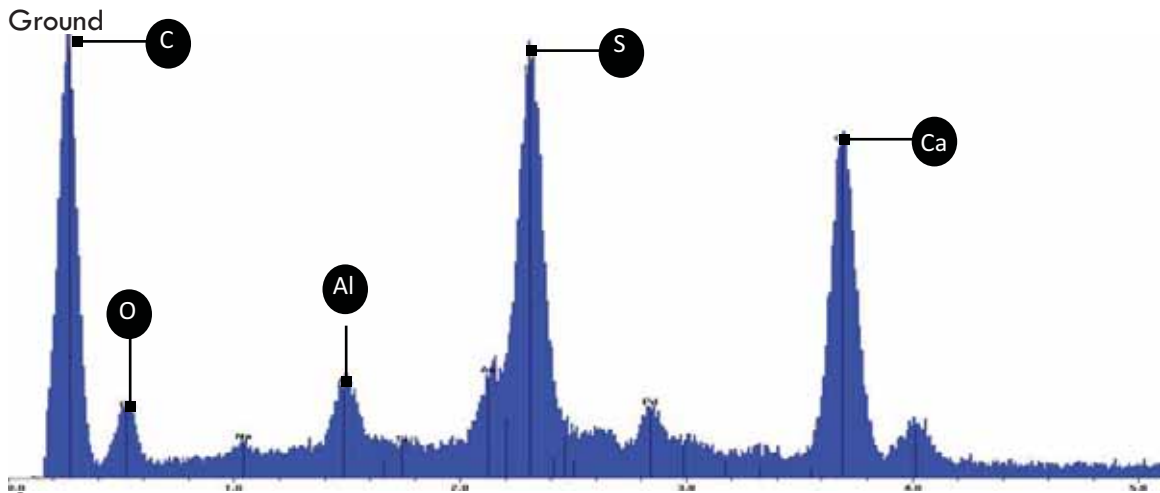


Varnish





SAMPLE #: GWAS01.2010.09	DATE ANALYZED: April 1, 2010
DESCRIPTION: Snout of dragon	ANALYZED BY: L. Vollono & L. Rotkina

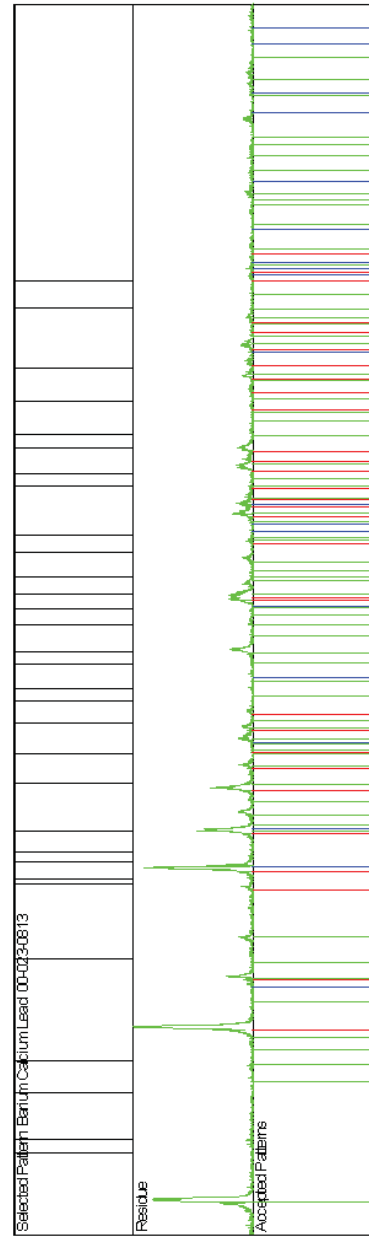
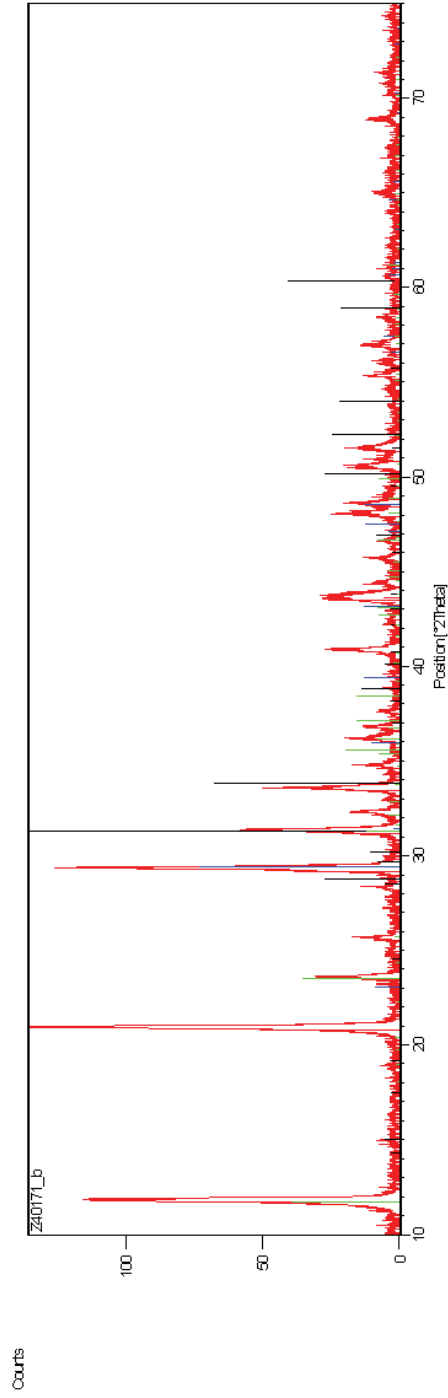


APPENDIX J.

X-RAY DIFFRACTION

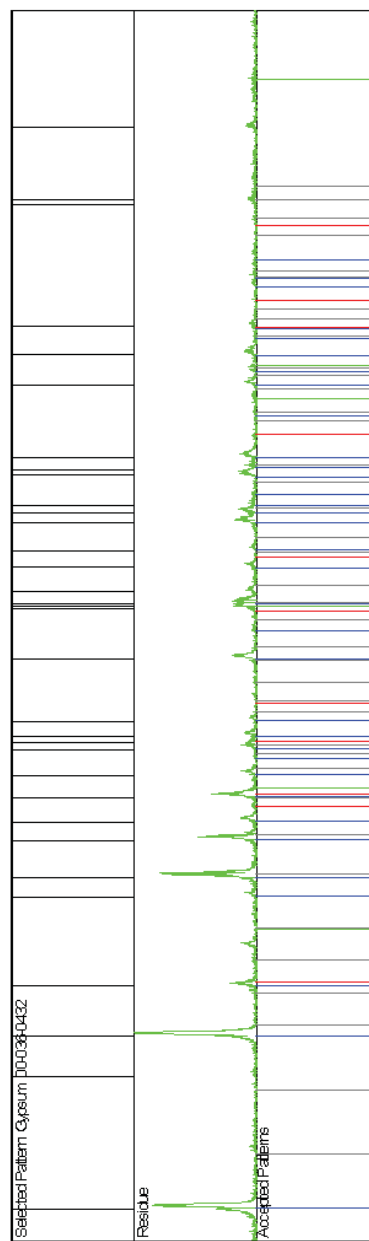
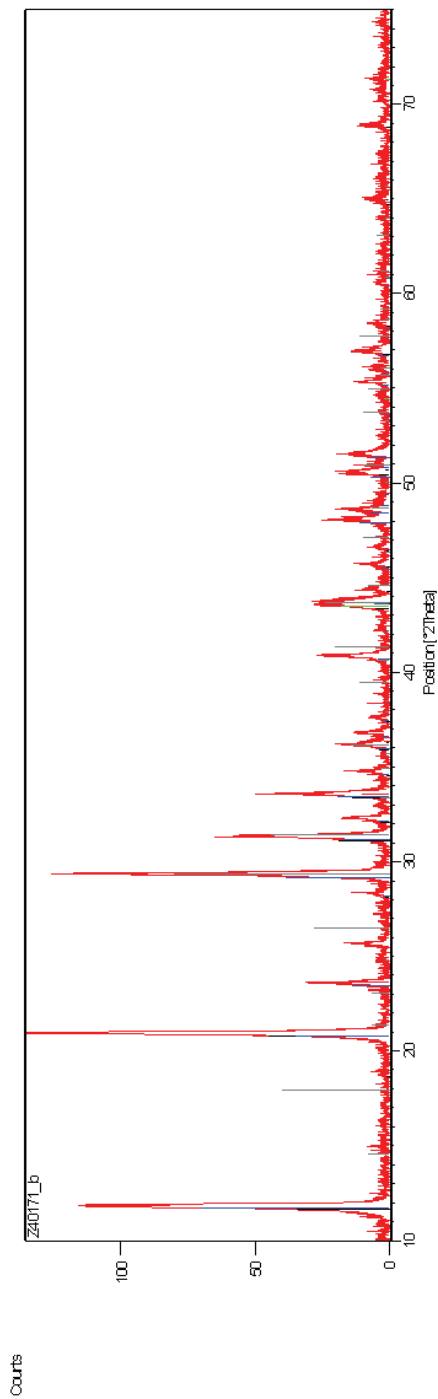
Ref. Code	Compound Name	Chemical Formula
00-006-0046	Gypsum	$\text{CaSO}_4 + 2 \text{H}_2\text{O}$
00-005-0586	Calcite	$\text{CaCO}_3$

Date: 4/20/2010 Time: 3:56:10 PM File: Z40171\_b User: MSE\_Guest



Ref. Code	Compound Name	Chemical Formula
00-021-0816	Gypsum	$\text{CaSO}_4 + 2 \text{H}_2\text{O}$
01-086-2343	Calcite	$\text{CaCO}_3$
00-032-0731	Potassium Aluminum Silicate	$\text{K}_{1.25}\text{Al}_{1.25}\text{Si}_{0.75}\text{O}_4$

Date: 4/13/2010 Time: 6:27:19 PM File: Z40171\_b User: MSE.Guest



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