Finish Notes

The newsletter of architectural finishes investigation from Frank S. Welsh company

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WELCOME TO OUR NEWSLETTER

Our previous issues have generated much interest in conservation microscopy and spectrophotometric color evaluations. Following up on that we devote this issue to related projects, especially to the use of spectral data for precision color matching. A portion of this issue is also devoted to whitewash recipes.

Restoring "Tara"

by Tommy H. Jones

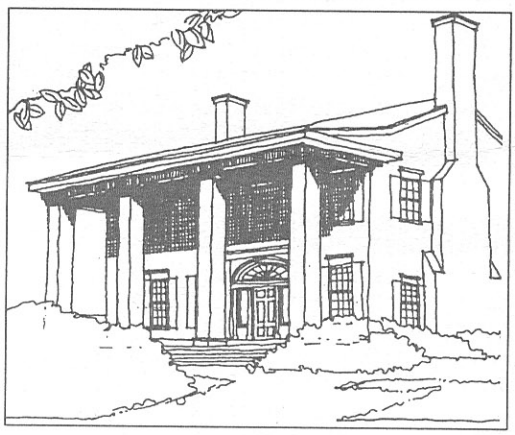
"Tara," potentially one of the top tourist attractions in Atlanta, does not exist, much to the dismay of the many visitors to the city who want to see this quintessential, if mythical, symbol of the "Old South." For better or for worse, Margaret Mitchell's wildly popular novel *Gone With the Wind* and the movie version that followed have, for over fifty years, provided much of the popular imagery about Atlanta, the South, and the Civil War.

Built in Hollywood, 1938

Built in December 1938 on Selznick Studios' production lot in Culver City, California, the "Tara" of Hollywood fame was a temporary, three-sided structure of 2 x 4s, plywood, and faux brick panels of plaster. Except for the trim of the front entrance and the paneled window casings on the first floor, none of the interior of the house was finished, since all interior shots were filmed on sound-stage sets.

In spite of the temporary materials with which the set was constructed, great care was taken to insure the illusion of not only a real house but an authentic, antebellum house at that. In 1937, Mitchell enlisted the help of Wilbur Kurtz, a close friend and noted Atlanta historian (particularly of the Civil War period), in documenting surviving antebellum houses in Clayton County, the locale for "Tara." This research was an ultimately futile effort to persuade Hollywood to make "Tara" look like a typical Clayton County house: "ugly and sprawling but comfortable looking," in Mitchell's words.

Kurtz was hired by Selznick and listed as "historian" on the film credits. Kurtz was largely responsible for the many authentic details that appeared in the design and construction of the sets and props that were used in the filming. Among such details were the false pegs that were used to create the illusion of mortise-and-tenon joints on the steps of the breezeway, and wooden window glazing strips used instead of putty in two windows that were to appear in close-up scenes.



"TARA" from *Gone with the Wind* has had its last surviving elements restored.

Set was Distressed for Filming

The set was filmed in its "original" and pristine condition only in the opening scene, undergoing various alterations during the course of filming. In particular, for the scenes shot after the war, the entire set was "distressed" by breaking out windows, dirtying up the paint and in general pillaging the set.

Dismantled and Moved to Atlanta

After filming was completed in the spring of 1939, the "Tara" set was left standing and re-used, with little alteration, in other film productions, including the 1950s television series "Yancy Derringer." By 1959 when it was bought, dismantled and brought to Atlanta as part of a scheme to reconstruct it as the centerpiece of a "Tara" theme park in Clayton County, the set had deteriorated badly from twenty years of exposure to the elements. When funding fell through for the theme park, the set disappeared into a series of warehouses for another twenty years until it was bought by Mrs. Betty S. Talmadge in 1979. Mrs. Talmadge's circa 1840 house near Lovejoy, Georgia, which she and former Georgia Senator Herman Talmadge restored in the 1940s, is thought to have been part of Mitchell's inspiration for the Wilkes' "Twelve Oaks" plantation.

In 1989, the Atlanta History Center mounted a major exhibit commemorating the fiftieth anniversary of the premiere of the film. Entitled "Gone With the Wind: The Facts Behind the Fiction," the exhibit showcased original costumes, set pieces, designs and photographs as well as excerpts from Wilbur Kurtz' daily journal of the filming. The centerpiece of the exhibit was the original "Tara" front door with its sidelight and fanlight, restored for the exhibit courtesy of Mrs. Talmadge.

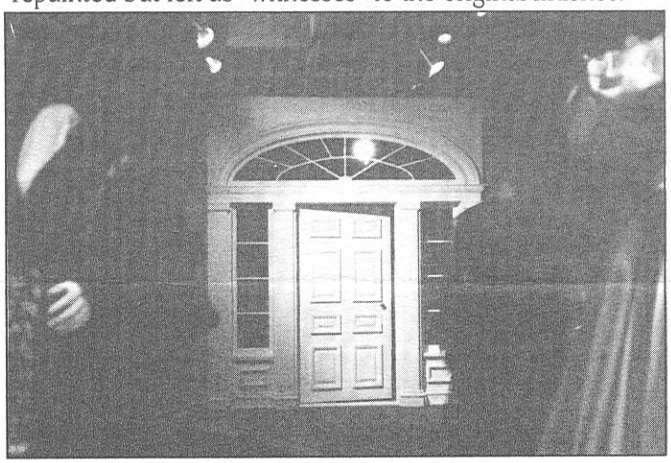
Reassembly and Restoration

As part of the restoration, Tommy H. Jones, who is director of restoration for the Georgia Trust for Historic Preservation, had to first sort, tag, and catalog the disassembled set pieces, which, although apparently identified and numbered in 1959, had lost all semblance of order during the course of three or four increasingly careless moves. The surviving set elements include the windows, doors, shutters, and banisters from the side porch and breezeway; and a few elements from the detached kitchen. The framing, roof, faux brick siding, and monumental brick columns on the front porch were destroyed in 1959.

Nearly all of the elements to the entranceway were located, although rot had taken its toll on the soft fir which was used for all of the millwork on the set. However, the use of epoxy consolidants allowed the retention of most of the historic fabric, including much of the wood paneling. The finished pieces, assembled into separate door, sidelight, and fanlight units were then reconstructed in the exhibit hall.

Original Paints Analyzed

To complete restoration, samples of the original interior and exterior finishes (the set had never been repainted) were sent to Frank S. Welsh, who has worked with the Georgia Trust on a number of occasions. His analysis showed the exterior of the set to have been finished with a flat, white, titanium dioxide, oil-based paint (Munsell reference value close to 5 Y 9/0.5), and the interior was a light gray color (Munsell reference value close to 5 B 6/1.5.) These colors were used for repainting the set, using custom-matched Pratt and Lambert alkyd paints. The original flat finish, which had been used to minimize reflective light during filming, was also recreated. A two-inch strip on the interior and exterior were not repainted but left as "witnesses" to the original finishes.



The entrance after installation and repainting. The swing of the door had been reversed for the filming of another movie, thus preserving much of the original paint on the door. Small bands on the interior and exterior were not repainted but retained as "witnesses" to the original, deteriorated finishes. The ceiling height of the exhibit area did not allow installation of the cornice, which was also restored.

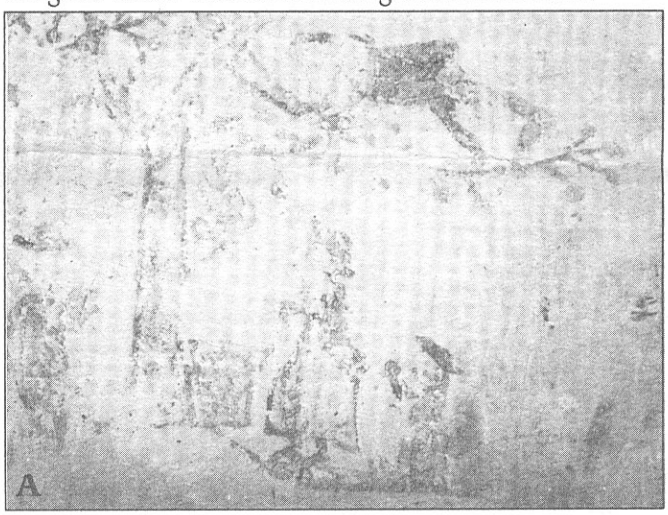
A fine example of the art and craftsmanship of Hollywood set design and construction the 1930s, "Tara" is also a symbol of how powerful the images of Hollywood could be in shaping popular perception of real places and events. Whether or not the entire set is ever actually reconstructed, it remains a cultural artifact of considerable historic significance.

Tommy Jones is the Director of Restoration at the Georgia Trust for Historic Preservation in Atlanta, Georgia.

Colonial Graffiti at Reynold's Tavern

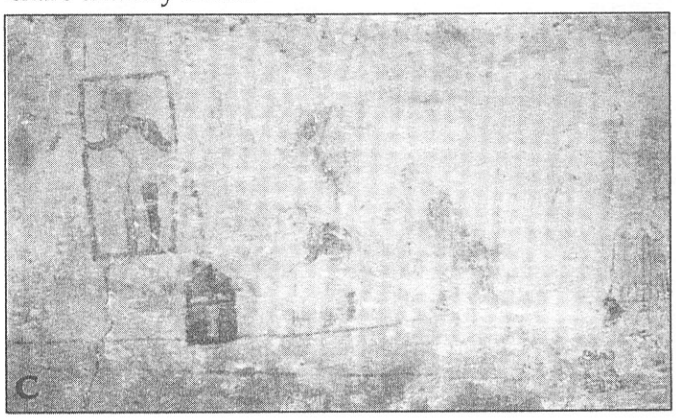
Paint archaeology at the 1740s Reynold's Tavern in the center of Annapolis, Maryland uncovered what might just be the original American graffiti. During renovation of this colonial era inn, reddish brown painted figures appeared under the many layers of flaking paint and whitewash on the chimney breast over the mantelpiece in the third floor east room. Architect Stephen Harris contacted Frank Welsh to come and see it.

Many hours were needed to carefully scrape away all the paints covering the entire chimney breast to reveal three groupings of colonial era figures and objects reminiscent of allegorical themes or children's stories. In one grouping (**A**) there is an apple tree on a hill with a man in the tree shaking the apples out to a mother and a daughter below who are collecting them into barrels.



The major element in the second grouping (**B**) is by far the most interesting. It is a colonial militia man in full uniform with three-cornered hat, sword worn at the waist, and holding a musket. In the third grouping (**C**) there is a small house by a road with several men walking on it, being chased by a woman brandishing a broom. Above the house is another man. All were painted in red iron oxide onto bare plaster.

To protect and preserve this historic American graffiti we designed a removable Plexiglas box that rests on the mantle shelf and shields the entire chimney breast.



Whitewash Recipes

In our Fall, 1993 issue of Finish Notes (Vol. 1, No. 2) we asked for help in collecting a variety of recipes for making whitewash. We had a fairly good response and present several of them here. Some date to the early 19th century and others to the early 20th century. Some are for exterior usage and others are for interior.

I. Whitewash Used at the White House

"Receipt [sic] for Making White wash such as used on the Presidents house

"Take half a bushel of unslacked lime, and slake it with boiling hot water, covering it over during the process. Strain it and add a peck of salt dissolved in hot water; three pounds of ground rice boiled to a thin paste put in boiling hot, half a pound of powdered Spanish whiting, and a pound of clean glue dissolved in water; Mix and let it stand for several days. Then keep it in a kettle on a portable furnace and put it on as hot as possible with a painters or whitewash brush."

—from John Agg Papers, c. 1830; Special Collections Department, Duke University Library

Contributed by Betty Monkman, Associate Curator, The White House, Washington, D.C.

II. Whitewash for Barns

Used successfully in the barn restoration at Fosterfields, Morristown, New Jersey in 1983

1. Dissolve 1 1/2 pounds rock salt in 1 gallon of water
2. Mix 10 pounds of hydrated lime and 5 quarts of water, forming a paste
3. Combine 1. and 2., mix well, and paint.

Note: An alternate formula that may be used at the contractor's discretion involves the addition of rye flour to the above.

Contributed by Michael Mills, Princeton, NJ

III a. Whitewash for Exterior Surfaces

Interestingly, the same recipe as given above for the White House was included, with minor changes, in a 1919 publication (cited below) as the whitewash to use for exterior surfaces.

III b. Whitewash for Interior Walls and Ceilings

"A. B., New Bedford, Mass. writes - I should like to have some information regarding interior whitewashing. I whitewashed some ceilings with good slaked lime that was slaked two or three days before. The first coat worked all right, but the second coat crawled and spotted all over the sidewalls, and yet the third coat was again all right. In another case I had the ceiling peeling a day or two after it was dry. Can you account for this?

"Answer - Always slake your lime with boiling water and cover the tub or barrel with sackcloth or burlap to keep in the steam. When the lime has all broken up keep it covered with water; never let it dry up for then it becomes useless. After you have thinned down your slaked lime to the right consistency for application add two table-spoonfuls of salt to each pail of the wash, also one pound of flour, previously mixed with hot water, stirring it in thoroughly. This will give good binding property to the wash and keep it from peeling, nor will it rub off when dry. If the wash is to be thin one-half pound of flour to the pail will be sufficient, especially when it is to go on a sandy wall.

"If the whitewash works poorly or comes out spotted, one ounce of potash alum dissolved in water and added to a pail of whitewash will correct the trouble, but too much alum is liable to make the whitewash scale. A good, hard drying whitewash that will not crack or peel can be made by slaking thirty pounds of builders' lime with hot water, keeping it steam for at least twelve hours. When diluted add to the wash two pounds of zinc sulphate and one pound common salt previously dissolved in water. It is not good practice to use glue as a binder for whitewash, and at any rate if the glue is not first class or has not been dissolved thoroughly, it will make the wash crawl and spot as you have stated. If you have to whitewash any surface, wall or ceiling that has been greasy it is best to wash it first with vinegar before applying the whitewash. It is an important point that brushes and pails, etc., are clean, and the wash should be strained."

—from Nineteen Ninety-five Paint Questions Answered, 1919, (*Painters Magazine*, 100 William Street, New York, NY. Trade Pub. Co. Ltd., London, WC England)

Contributed by A. Richard Fitch, Easton, MD

IV. A Brilliant Stucco Whitewash

"Many have probably often heard of the brilliant and lasting whitewash upon the east end of the President's house at Washington city. The following is the correct receipt [sic] for making it:

"Take clean lumps of well-burnt lime (say five or six quartz,) slack the same with hot water, in a tub, (covered to keep in the steam,) pass it in the fluid form through a fine sieve; add one fourth of a pound of whiting or burnt alum, pulverized; one pound of good sugar; three pints of rice flour, made into a thin and well boiled paste, and one pound of clean glue, dissolved by first soaking it well, and then putting it into a small kettle, which should again be put into a larger one filled with water and placed over a small fire. Add five gallons of hot water to the whole mixture.

"This wash is applied where particular neatness is required, with a painter's brush. It must be put on while warm, if upon the outside of a building - if within doors, cold. It will retain its brilliancy for many years. There is nothing of the kind which will compare with it. About one pint of this mixture will cover a square yard upon the outside of a house if properly applied. If a larger quantity than five gallons is wanted, the same proportions must be observed in preparing. Coloring matter may be added to give it any required shade." -*Gennessee Farmer*

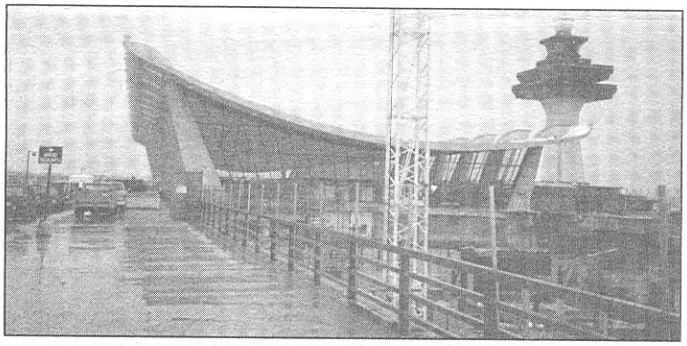
—from the *Florida Sentinel* (Tallahassee), July 16, 1841

Color Matching by Numbers at Dulles International Airport

The problem of color matching is pretty common, but the builders renovating historic Dulles International Airport in Chantilly, Virginia, were required to match original colors, and their solution was very uncommon. The repercussions show enormous promise for the future of color matching.

General Contractor M.A. Mortenson Co. is in charge of expanding the airport. On both sides of the original terminal, which was designed by Eero Saarinen and built in 1962, matching wings are being built. Both the new wings and the old terminal must be painted the original colors Saarinen specified..

At the direction of the consulting architect, Frank Welsh retrieved sixty-two samples from all interior and exterior surfaces. He analyzed and then referenced the original colors in his report submitted to the general contractor.



Construction is underway at Dulles International Airport (1962) to add north and south wings that match the original terminal designed by Eero Saarinen.

Precise Color Match Required

A need for increased quality control arose when the metal fabrication subcontractor had to match the original medium gray color for curtain wall elements. The situation was this: Not only did the colors of the various architectural details have to match Saarinen's original but they had to match seamlessly with each other. The project has different subcontractors responsible for finish-painting their own materials, including metal curtain walls, signage, lighting fixtures, acoustic tiles, plaster walls and so on. Near matches and variations within a range would be unacceptable because some of the materials would be side by side. Each feature had to have the precise color match, regardless of subcontractor.

This special need for precision gave rise to a new use of color communication and color matching technology that has been around only a few years. The technology uses the spectrophotometer, a scientific instrument that measures and then describes color in terms of reflectance values (spectral data) instead of the familiar hue, value and chroma. When Frank Welsh wrote his paint analysis report he of course included traditional means to describe the original colors. But in addition he also described them using spectral data from his spectrophotometer.

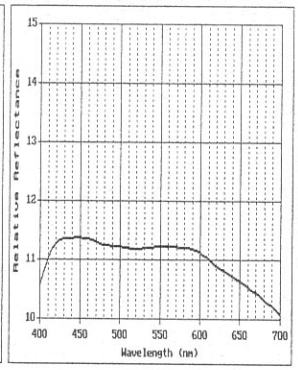
Precise color analysis made it work.* General Contractor M. A. Mortenson sent the curtain wall subcontractor the spectral data presented in Welsh's report. The "sub" sent those specs to PPG (Pittsburgh Paints). Using only the spectral data PPG duplicated the medium gray color in the industrial finish required and submitted it for review. It was a perfect match with Welsh's specifications of Saarinen's original gray.

PPG never had to see a sample of the medium gray—only the spectral data generated in the Frank S. Welsh lab.

DULLES-DARK-GRAY

Directory :	DULLES		
Illum/Obs :	C/2		
Ref L* :	39.83		
a* :	-0.36		
b* :	-0.45		
Limits DL* :	1.00		
Da* :	1.00		
Db* :	1.00		
No Samples :	0		
Average L* :			
a* :			
b* :			
Range L* :			
a* :			
b* :			

nm	Ref	nm	Ref
400	10.55	560	11.21
420	11.25	580	11.19
440	11.36	600	11.12
460	11.34	620	10.88
480	11.24	640	10.71
500	11.21	660	10.53
520	11.17	680	10.32
540	11.20	700	10.07



This spectral data was used by PPG to exactly color match a new dark gray paint for manufacturing of the new curtain walls although they never saw an actual color sample. The data was generated by the Frank S. Welsh Company with an X-Rite® spectrophotometer.

Providing precise analysis with spectral data directly, as illustrated, avoids color mismatches because the color matching process is so precise. Also, metameric color matches (color matches that look the same in some light yet different in other light) can be eliminated. This specialized use of spectrophotometry introduces a color matching application that is an enormous boon to quality control.

In the foreseeable future, Frank Welsh believes color cards will be satisfactory for many color matching projects. But when there is a special need for an exact, non-metameric match, Welsh says the high-tech solution cannot be surpassed for accuracy.

At present, the Frank S. Welsh Co. is the only conservation microscopy lab in the country that uses an in-house spectrophotometer. But he predicts that spectrophotometry may become the wave of the future. "We're already seeing—and meeting—demand for it," he says.

* Spectral data is now an option on all Frank S. Welsh Co. reports.

VERDIGRIS PIGMENT:

We are searching for a source of real verdigris (copper acetate). We need a large quantity. If you know of one please fax us a note at (610) 525-1333. Thank you.

FRANK S. WELSH COMPANY

The Frank S. Welsh Company specializes in conservation microscopy: the microanalysis of old and modern coatings such as paints, varnishes, wallpapers, and fabrics on all substrates from buildings as well as historic artifacts. The company analyzes and evaluates color and composition. We have performed coatings, pigment, fiber and media analyses along with color evaluations on hundreds of restoration/ conservation projects across the U. S. and in foreign countries since 1974. Our experience in color services as well as our laboratory expertise using stereomicroscopy and polarized light microscopy can provide unequaled accuracy and results from coatings analysis.

May, 1995