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TOURO SYNAGOGUE
A NATIONAL HISTORIC SITE

AN INVESTIGATION OF FINISHES

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Touro Synagogue, the oldest synagogue building in the United States, is a unique historic structure. Recognizing this, the congregation requested the North Atlantic Regional Office of the National Park Service to provide professional assistance in the preparation of specifications for the repainting of the synagogue. The Preservation Unit of the North Atlantic Regional Office felt that prior to preparation of the specifications, research to determine the authenticity of the synagogue's interior and exterior finishes should be conducted. All previous research regarding the physical appearance of the structure was sought. Saul Fine of the Touro congregation provided assistance in locating all reports and data presently held by the synagogue. Attempts were made to secure a copy of a report prepared by Ann Clapp prior to the 1963 restoration work. The report, a synopsis of the information found by Clapp in her investigation of the synagogue's original interior woodwork colors, was not located. The fact that this report is not available, as well as the lack of any other technical information on the finishes, led the Preservation Unit to conduct a study on the building's finishes.

Trips were made to Newport on 20 November 1975 and 12 March 1976 for the purpose of studying the synagogue and to obtain paint samples from specific areas of the interior and exterior of the structure. The samples were brought to the Preservation Unit's laboratory in Boston for microscopic examination and photomicrography.

History. Construction of the synagogue began in 1759 and was completed four years later. Besides being used for worship, it is reported that the Rhode Island General Assembly met in the building from 1781 to 1784. During this period, it was also the chambers for the state's supreme court. Following the Revolution, the Jewish community gradually left Newport and it is reported that by 1791, the synagogue was virtually closed. For the next sixty years, the synagogue remained closed except for rare occasions such as funerals for a member of one of the old families of Newport. In August of 1850, the synagogue was reopened for religious services. However, regularly scheduled Sabbath Services did not take place until 1883.¹ It has been open regularly since that date.

Maintenance. Information as to when the interior and exterior of the synagogue have been painted is limited. In their book on the architectural heritage of Newport, Antoinette Downing and Vincent Scully make mention of restoration work being done in 1822.² However, no other record of this work was found. Supposedly, a slate roof and general repairs to the structure were completed in 1857-8.³ It is stated that the building was painted inside and out at that period. Nothing further is known about the maintenance of the synagogue until 1946 when it was reported that it was repainted. In 1953-4, the Wamples Company of Roxbury, Massachusetts, specialists in masonry cleaning and pointing, conducted tests on cleaning and removing paint from the brick exterior. Sand blasting as well as two chemical processes were used. One of the chemical processes proved to be the most satisfactory and its use on the exterior of Touro was recommended by Charles E. Peterson, a National Park Service Architect and a specialist in historic buildings.⁴ However, the congregation decided to leave the building painted and not return it to its original appearance. In 1954 work on the interior was begun. The work was performed by J. Rosenberg, a contractor from Providence, Rhode Island. Major problems dealt with during this work were the checking of the solid log columns and the development of cracks in the plaster sidewalls. In order to eliminate these problems, the contractor encased the columns and covered the walls with canvas prior to their repainting. The next period of work on the synagogue was 1963 when extensive restoration took place. Prior to this restoration work, studies of the building were conducted. One of these studies dealt with an investigation of the interior finishes. This investigation by Ann Clapp was to have formed a basis for deciding how to restore the interior woodwork with respect to color. However, as no record of this study can be found, its information and affect upon the restoration cannot be determined. No major work on the interior or exterior has taken place since 1963.

Samples. Samples were taken from areas of the interior and exterior which appeared to be representative. All were placed for ninety-six hours under ultraviolet light. This removes the discoloration due to oil oxidation. The layers were then matched to the Munsell Color System. All colors referred to in this report are noted using this system.

Brick Walls. Microscopic examination of samples from various exterior locations reveal the brick walls to have fifteen layers of paint. As can be seen in the Photomicrograph, Figure 1, a majority of the layers are in the yellow range. An exception is the earliest layer. This layer, 7.5YR8/4, a tan, appears to have had sand mixed in with it. It is possible that it is a remnant of a hard mortar used to repoint the building at an early date. In the 28 October 1952 report by Charles E. Peterson, he discusses the mortar. He states that it was applied in a smotchy way due to the irregularity of the bricks.⁶

The fourth layer is 10R3/6, a red. It is possible that this is the color the exterior was painted during the 1850's. It is known that this color was used on other prominent buildings in New England during the middle of the nineteenth century. One example is the Custom House in Salem, Massachusetts. An 1868 photograph of the Custom House shows it painted red. Furthermore, later pictures of this building show it

Figure 1. Photomicrograph of exterior brick wall paint.

painted yellow, similar to later paint colors found on the exterior samples from Touro.

The exterior walls are presently painted 2.5Y8/2, a yellow.

Entrance Portico. Eight layers of paint were identified on the samples from the portico. As shown on the photomicrograph, Figure 2, the earliest layer is 5R3/1 brown. All of the other layers are also in the brown range with one exception, which is a cream. The most recent layer is 7.5R4/2, a brown with a sand finish.

Due to the small numbers of layers of paint on this sample when compared to the fifteen found on the brick walls, one is forced to conclude that the wood is either relatively new or has been previously stripped. Therefore, a study of this sample is only useful for identifying the most recent layers.

Figure 2. Photomicrograph of entrance portico paint.

Ark Trim. Microscopic and photomicrographic study of this sample revealed a minimum of twelve layers of paint. Although not easily seen in Figure 3, the earliest layer is 10R2/4, a Brown.

Two of the earlier layers are zinc white (judged on the basis of their fluorescence under ultraviolet light). The significance of finding this color is that it allows one to date approximately when the white was used. Zinc white was not easily available to house painters until the 1850's.⁷ Its use in the synagogue was probably during or after the 1857-8 renovations, since this is the earliest record we have as to work being done on the building. It should be remembered that the synagogue stood vacant from 1790 to 1850 when it was reopened.

The top four paint layers of the sample comprise a sequence which appears on several other samples. The earliest of the four is 10R2/4, and is followed by 5Y6/1, N5.0/ , and 7.5R8/2.

Figure 3. Photomicrograph of the ark trim paint.

It should be noted that this sample showed no trace of ever having been previously painted 7.5R8/2 the present color.

Sidewalls. A sample was taken from the plaster sidewalls beneath the contemporary wall canvas. The twelve layers of paint discernable probably comprised eight different paintings. The earliest coat observed in Figure 4 is oil. In the eighteenth century, it was common to use oil as a size on plaster walls prior to painting them. The immediate layer above the oil is white as is the third layer. They are followed by 10YR5/6 and 10YR8/6, browns. Zinc white is the next layer. This layer probably corresponds to one of the two zinc white coats found on the sample from the ark trim. The remainder of the twelve layers under the canvas are white or cream.

The canvas which presently covers the plaster sidewalls was installed in 1954 so as to conceal cracks in the plaster.⁸ It has received three coats of paint since its installation. All of these coats are 10YR9/2, a

Figure 4. Photomicrograph of plaster sidewall paint.

cream. This color corresponds to the top layer of paint beneath the canvas.

This should be noted that in the eighteenth and nineteenth centuries, a plaster wall was often left unfinished and whitewashed as it got dirty. This could have been the situation originally with Touro.

Columns. Like the plaster sidewalls, the solid log columns were encased with canvas. Paint samples taken from the columns beneath this canvas reveal six layers of paint. The earliest color found was 10R2/4, a burgundy. The sequence of colors following this is N5.5/ , 10R2/4, 5Y6/1, N4.0/ , and white. As previously noted, the columns are encased with canvas. This work was done in 1954 so as to conceal the checking of the columns. Two layers of paint can be observed on the canvas. Presumably, the layers correspond to the 1954 and 1963 repainting of the synagogue interior. The color of the layers is 7.5R8/2, a light purple. This color was not found to have been previously used in this location.

Wainscoting. Eleven layers of paint were microscopically identified on the sample from the wainscoting. The earliest color found was 10YR8/6, a tan. The next three layers are composed of whites and creams. These are followed by 10YR4/6, 2.5Y9/2, 10R2/4, 5Y6/1, N5.0/ , and 7.5R8/2. Again it should be noted that the present color of the top layers, a light purple, was not found to have been previously used on the wainscoting.

Sash. Only one layer of paint, 7.5R8/2, was found on several samples from the window sash. This indicated that the sash was probably stripped or recently replaced. However, the latter is not likely since the sash appears in Photo 10 of Rhode Island Architecture, by Henry-Russell Hitchcock, 1939. Judging from their construction, the sash do not appear to be original.

Window Casing. The sample from the casing was examined, and six layers of paint were identified. The earliest layer was 10R8/1, a light purple. The succeeding layers are 10R2/4, 5Y5/1, white, N5.0/ , and 7.5R8/2, respectively. It is doubtful that this sample contains traces of all of the colors it has been painted for six layers is hardly enough. It is possible that the casing was

stripped at an earlier date. Therefore, the layers observed may be considered to be contemporary to this century.

Ceiling. No samples were obtained from the ceilings of the synagogue.

Colors. The samples used in this study are listed in Figure 5. The earliest color found as well as the most recent are shown. These colors are noted in the Munsell Color System and their equivalent in the Benjamin Moore Universal Color System.

Conclusions. The exterior brick walls were probably not painted when the synagogue was built. It seems likely that the bricks were repointed in the 1850's if not earlier. Presumably at the time of the re-pointing, the exterior was first painted red.

The original color of the entrance portico cannot be ascertained. Research by Charles Peterson in 1952 suggests that the portico originally was painted a cream.¹⁰ The sample examined in this research suggests 7.5R4/2, a brown with sand, as the earliest color. However, Peterson's sample came from a more protected area of the portico and seems a logical color to contrast with the unpainted brick exterior.

The presence of zinc white on the sample from the ark trim suggests the distinct possibility that it was painted this color at the time of the 1857 improvements or later. The 10R2/4, a brown, could be considered an original color for the ark. However, the present ark,¹¹ though eighteenth century, may not date from 1759.

The plaster sidewalls of the synagogue were possibly left bare and not painted when originally constructed.

The 1972 edition of the book, Touro Synagogue of Congregation Jeshuat Israel, published by the Society of Friends of Touro Synagogue has an article by Rabbi Lewis describing the building's restoration. In this article, he states that samples from the interior indicated it to have been painted twenty different colors and he proceeds to list them.¹² However, no information is given as to the location of the sample. This, as well as the fact that the wood was stripped during the 1963 restoration, make it difficult to compare the paint layers listed in Lewis' article with those found in this investigation.

Alternatives. This investigation by the Preservation Unit of the North Atlantic Regional Office of the National Park Service cannot claim to be a thorough study of the synagogue's finishes. However, it does document what physical evidence was found by the Unit during the winter of 1975-76. Alternatives with regard to repainting the synagogue are presented for the congregation's consideration. It should be remembered that these alternatives are based on physical evidence only, without benefit of documentation. Therefore, they should be viewed in that perspective.

Exterior Alternative 1. Originally the brick wall surface was not painted. However, to chemically remove the paint from the brick is not advised due to the physical condition of the brick. Instead, the brick surface could be repainted 10R3/6, a red. The use of this color would enable the exterior to resemble its eighteenth century appearance. In conjunction with the use of this color, the brick should be penciled in with white paint and the exterior trim should be painted cream.

Alternative 2. The exterior brick and trim could be repainted their present colors. The sand finish should be applied to all trim.

Interior Alternative 1. The ark and all woodwork could be painted 10R2/4, a brown. The walls should be painted a flat white to resemble plaster. This alternative is believed to be how the eighteenth century synagogue appeared upon its completion.

Alternative 2. All woodwork, the ark, and the plaster walls could be painted white. The interior would then resemble its nineteenth century appearance.

Alternative 3. The wall surfaces and trim could be repainted their present color. No data in this study documents the use of this color scheme.

Recommendations. Based on the information derived from this study, the Preservation Unit recommends that finishes of Touro Synagogue reflect its appearance in the latter half of the nineteenth century. As outlined in Alternative 2 for the exterior, the outside of the structure would be finished like it is presently. The interior of the synagogue would be finished as suggested in Alternative 2 for the interior. Implementation of these recommendations will, in the Preservation Unit's opinion, result in an historically accurate restoration of the synagogue's finishes as they were during the latter half of the nineteenth century.

Figure 5. Earliest and most recent colors found.

Sample Location	Layers	Earliest Color		Most Recent Color	
		Munsell	Benjamin Moore	Munsell	Benjamin Moore
Brick Walls	19	7.5YR8/4	3-60	2.5Y8/2	18-18
Entrance Portico	6	5R3/1	30-42	7.5R4/2	19-32
Ark Trim	12	10R2/4	30-41	7.5R8/2	5-42
Sidewall	15	White	14-20	10YR9/2	3-25
Columns	8	10R2/4	30-41	7.5R8/2	5-42
Wainscoting	11	10YR8/4	18-28	7.5R8/2	5-42
Sash	1	---	---	7.5R8/2	5-42
Window Casing	6	10R8/1	19-18	7.5R8/2	5-42

Footnotes

- ¹ Friends of Touro Synagogue, Touro Synagogue of Congregation Jeshuat Israel, Newport, Rhode Island, Ward's Printing, 1972, pp. 9-11.
- ² Antoinette Downing and Vincent Scully, The Architectural Heritage of Newport, Rhode Island, Cambridge, Massachusetts, Harvard University Press, 1952, p. 91.
- ³ Charles E. Peterson, Touro Synagogue: Preliminary Report on the Exterior Finish, October 28, 1952.
- ⁴ Edwin W. Small, Annual Inspection Report, Touro Synagogue National Historic Site, May 12, 1954.
- ⁵ Ibid.
- ⁶ Peterson, op. cit.
- ⁷ Theodore Zuk Penn, Decorative and Protective Finishes, 1750-1850: Materials, Processes, and Craft, June 1966, p. 22.
- ⁸ Small, op. cit.
- ⁹ Ibid.
- ¹⁰ Peterson, op. cit.
- ¹¹ Downing and Scully, op. cit.
- ¹² Friends, op. cit.