

TOSY.002
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Finishes Study

TOURO SYNAGOGUE NATIONAL HISTORIC SITE

FINISHES STUDY

**Touro Synagogue National Historic Site
85 Touro Street
Newport, Rhode Island**

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National Park Service
United States Department of the Interior
Boston, Massachusetts**

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INTRODUCTION

In 1976 the North Atlantic Historic Preservation Center of the National Park Service conducted a finishes study of Touro Synagogue. The purpose of this study was to determine what the original interior and exterior finishes were and to make restoration recommendations. However at the conclusion of this investigation, it was determined that a more thorough study which would include the architectural fabric and historical documents as well as the finishes was needed. Therefore, at the request of the Rhode Island Historical Preservation Commission, a continuation of the study was undertaken. This study focused not only on an analysis of paint samples but also on examination of the architectural fabric and a review of pertinent historical documents. A synopsis of the information obtained by the Preservation Center during this second investigation is included in the following report.

INVESTIGATIONS

Historical Information

The most extensive source of information regarding Touro Synagogue is contained in Esther Schwartz's 1959 article concerning the restoration of the structure. Besides documenting things discovered during the late 1950's restoration, Mrs. Schwartz presents a hypothesis regarding the physical history of the Synagogue. Her hypothesis is that the Synagogue was severely damaged during the Revolutionary War and that substantial work was done to repair the structure in the latter part of the eighteenth century. In addition, Mrs. Schwartz notes that extensive work to the structure was undertaken in 1827-28.

Radiographic

If Mrs. Schwartz's hypothesis that the structure was severely damaged during the Revolutionary War is accepted, then it appears unlikely that the interior architectural fabric observed today dates from 1763. In an attempt to confirm or refute this hypothesis, portions of the Ark and sections of the railing surrounding the bema were radiographically investigated for the types of nails and screws used. The radiographs taken indicate that some of the nails used to construct the Ark and bema railing might be wrought and therefore date from the 1763 construction of the Synagogue. However, the majority of the nails appear to be cut and therefore more likely to have been used at a later date.

Screws

Screws were removed from the door hinges of the Ark and compared with other early screws. The comparison indicated that the screws used in the doors of the Ark were hand-made and therefore could date from the construction of the Synagogue in 1763. However, it should be noted that the screws could have been reused from an earlier Ark or something else.

Paint Analysis

Paint samples were taken from forty-seven locations on the exterior and interior of the Synagogue. At the North Atlantic Historic Preservation Center, all of the samples were mounted, examined, and photographed. The samples that appeared to have the most information were further examined. Their paint layer chromochronology was recorded, and subsequently followed by selection of the layer to be color matched for the recommended restoration of the finishes. Color comparison was conducted under a light which approximates a northern sky light -- a light which eliminates a large percentage of color distortion inevitable with other lights. The color comparison included matching the samples to the Munsell Color Notation System and Benjamin Moore's Moor-O-Matic Color System.

CONCLUSIONS

1763 Finishes

The paint analysis in conjunction with an examination of the architectural fabric indicates that the exterior brick was originally unpainted and the exterior trim was a cream. With respect to the interior, the walls were originally unpainted or whitewashed with the trim painted gray.

Recommended Restoration Finishes

After a review of the data collected in this study, it is not recommended that the 1763 finishes be used for restoration purposes. This recommendation is based on the fact that the principle interior architectural element of the Synagogue, the Ark, probably does not date from 1763 but rather from the late 18th or early 19th century. Besides the fact that restoration of interior finishes to their 1763 appearance would have no relation to the existing Ark, restoration of the exterior to its 1763 state would result in accelerating the deterioration of the brick. Given these facts, it is recommended that restoration be to the 1827 period -- the earliest period that all portions of the present Ark can be dated to. Restoration of the Synagogue's finishes to this period would result in an authentic representation of the structure at one point in time.

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SITE Touro Synagogue

LOCATION Exterior
DATE September 1977

SAMPLE NO.: TOSY 01 P012
LOCATION: East Wall
APPROXIMATE NUMBER OF LAYERS: 19
SUBSTRATE: Brick

CHROMOCHRONOLOGY:

1.	<u>Brown with Sand</u>		21.	<u></u>
2.	<u>Cream</u>		22.	<u></u>
3.	<u>Red</u>	<i>dirt</i>	23.	<u></u>
4.	<u>Cream</u>	<i>dirt</i>	24.	<u></u>
5.	<u>Cream</u>		25.	<u></u>
6.	<u>Cream</u>		26.	<u></u>
7.	<u>Cream</u>		27.	<u></u>
8.	<u>Cream</u>		28.	<u></u>
9.	<u>Lt. Green</u>		29.	<u></u>
10.	<u>Cream</u>	<i>dirt</i>	30.	<u></u>
11.	<u>Lt. Green</u>	<i>dirt</i>	31.	<u></u>
12.	<u>Cream</u>	<i>dirt</i>	32.	<u></u>
13.	<u>Cream</u>	<i>dirt</i>	33.	<u></u>
14.	<u>Cream</u>	<i>dirt</i>	34.	<u></u>
15.	<u>Beige</u>		35.	<u></u>
16.	<u>Beige</u>		36.	<u></u>
17.	<u>Beige</u>		37.	<u></u>
18.	<u>Beige</u>	<i>dirt</i>	38.	<u></u>
19.	<u></u>		39.	<u></u>
20.	<u></u>		40.	<u></u>

SITE Touro Synagogue

LOCATION Exterior
DATE September 1977

PERIOD OF RESTORATION: 1828

LAYER SELECTION: 2

COMMENTS: Based on the fact that the exterior walls are laid up in Flemish bond, it seems likely that the exterior was originally not painted. The first applied finish may date from the 18th century. Prominent 18th century buildings such as Mount Vernon are known to have sand finishes. The red layer may date from the 1850's when this was a common color used on structures; i.e., Salem Custom House.

PROBABLE PIGMENT: _____

PROBABLE MEDIUM: _____

COLOR NOTATION: MUNSSELL: 2.5Y 9/2

SPECTROPHOTOMETRIC COEFFICIENTS:

x _____, y _____, Y _____

RECOMMENDATIONS:

COLOR: Benjamin Moore 2-65

PAINT TYPE: Alkyd

VISUAL CHARACTERISTICS: _____

DOCUMENTATION:

SLIDE NOS.: TOSY 01 5012

OTHER: _____

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

SAMPLE NO.: TOSY 01 P028
LOCATION: Hinge, North Door of Ark
APPROXIMATE NUMBER OF LAYERS: 15
SUBSTRATE: Metal

CHROMOCHRONOLOGY:

- | | |
|----------------------|-----------|
| 1. <u>Green</u> | 21. _____ |
| 2. <u>Lt. Yellow</u> | 22. _____ |
| 3. <u>Lt. Yellow</u> | 23. _____ |
| 4. <u>Lt. Yellow</u> | 24. _____ |
| 5. <u>Lt. Green</u> | 25. _____ |
| 6. <u>Cream</u> | 26. _____ |
| 7. <u>Cream</u> | 27. _____ |
| 8. <u>Cream</u> | 28. _____ |
| 9. <u>Cream</u> | 29. _____ |
| 10. <u>Cream</u> | 30. _____ |
| 11. <u>Cream</u> | 31. _____ |
| 12. <u>Burgundy</u> | 32. _____ |
| 13. <u>Green</u> | 33. _____ |
| 14. <u>Dark Gray</u> | 34. _____ |
| 15. <u>Lt. Gray</u> | 35. _____ |
| 16. _____ | 36. _____ |
| 17. _____ | 37. _____ |
| 18. _____ | 38. _____ |
| 19. _____ | 39. _____ |
| 20. _____ | 40. _____ |

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

PERIOD OF RESTORATION: 1828
LAYER SELECTION: 1

COMMENTS: Based on research conducted by Esther Schwartz in the
1950's as well as our study of screws used to attach
the hinges to the Ark doors, we do not believe the
present Ark dates from 1763. Rather, it seems 1827-28
would be a realistic date. This date corresponds to
the time when extensive repairs are thought to have
been made to the structure and when the painted canvas,
"The Ten Commandments", was installed. Mrs. Schwartz
supposedly observed the removal of this canvas in the
1950's and saw a gray green under it - the earliest
layer found on TOSY 01 P028.

PROBABLE PIGMENT: _____

PROBABLE MEDIUM: _____

COLOR NOTATION: MUNSELL: 5GY 8/2

SPECTROPHOTOMETRIC COEFFICIENTS:

x _____, y _____, Y _____

RECOMMENDATIONS:

COLOR: Benjamin Moore 20-61

PAINT TYPE: Alkyd

VISUAL CHARACTERISTICS: _____

DOCUMENTATION:

SLIDE NOS.: TOSY 01 S028A

OTHER: _____

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

SAMPLE NO.: TOSY 01 P041
LOCATION: North Wall of Gallery
APPROXIMATE NUMBER OF LAYERS: 11
SUBSTRATE: Plaster

CHROMOCHRONOLOGY:

- | | | | |
|-----|-------------------------|-----|---------|
| 1. | <u>Oil</u> | 21. | <u></u> |
| 2. | <u>Cream</u> | 22. | <u></u> |
| 3. | <u>Yellow Brown</u> | 23. | <u></u> |
| 4. | <u>Lt. Yellow Brown</u> | 24. | <u></u> |
| 5. | <u>Cream</u> | 25. | <u></u> |
| 6. | <u>Gray</u> | 26. | <u></u> |
| 7. | <u>Off White</u> | 27. | <u></u> |
| 8. | <u>Off White</u> | 28. | <u></u> |
| 9. | <u>Off White</u> | 29. | <u></u> |
| 10. | <u>Off White</u> | 30. | <u></u> |
| 11. | <u>Cream</u> | 31. | <u></u> |
| 12. | <u></u> | 32. | <u></u> |
| 13. | <u></u> | 33. | <u></u> |
| 14. | <u></u> | 34. | <u></u> |
| 15. | <u></u> | 35. | <u></u> |
| 16. | <u></u> | 36. | <u></u> |
| 17. | <u></u> | 37. | <u></u> |
| 18. | <u></u> | 38. | <u></u> |
| 19. | <u></u> | 39. | <u></u> |
| 20. | <u></u> | 40. | <u></u> |

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

PERIOD OF RESTORATION: 1828

LAYER SELECTION: 1

COMMENTS: This sample is a 1/8 inch skim coat probably put on
during the 1827-28 work on the Synagogue. Since no
paint layers were found on the plaster surface under
this skim coat, it seems likely that the interior
walls were originally whitewashed or left unpainted.

PROBABLE PIGMENT: _____

PROBABLE MEDIUM: _____

COLOR NOTATION: MUNSELL: _____

SPECTROPHOTOMETRIC COEFFICIENTS:

x _____, y _____, Y _____

RECOMMENDATIONS:

COLOR: Simulated Whitewash

PAINT TYPE: Alkyd

VISUAL CHARACTERISTICS: Flat

DOCUMENTATION:

SLIDE NOS.: TOSV 01 S041

OTHER: _____

SITE Touro Synagogue

LOCATION Exterior
DATE September 1977

SAMPLE NO.: TOSY 01 P046
LOCATION: Portico
APPROXIMATE NUMBER OF LAYERS: 17
SUBSTRATE: Wood

CHROMOCHRONOLOGY:

1.	<u>Cream</u>	21.	<u></u>
2.	<u>Cream</u>	22.	<u></u>
3.	<u>Dark Brown</u>	23.	<u></u>
4.	<u>Cream</u>	24.	<u></u>
5.	<u>Cream</u>	25.	<u></u>
6.	<u>Reddish Brown</u>	26.	<u></u>
7.	<u>Reddish Brown</u>	27.	<u></u>
8.	<u>Reddish Brown</u>	28.	<u></u>
9.	<u>Dark Reddish Brown</u>	29.	<u></u>
10.	<u>Dark Reddish Brown</u>	30.	<u></u>
11.	<u>Dark Reddish Brown</u>	31.	<u></u>
12.	<u>Dark Brown</u>	32.	<u></u>
13.	<u>Brown</u>	33.	<u></u>
14.	<u>Light Brown with Sand</u>	34.	<u></u>
15.	<u>Dark Brown</u>	35.	<u></u>
16.	<u>Dark Brown</u>	36.	<u></u>
17.	<u>Light Brown with Sand</u>	37.	<u></u>
18.	<u></u>	38.	<u></u>
19.	<u></u>	39.	<u></u>
20.	<u></u>	40.	<u></u>

SITE Touro Synagogue

LOCATION Exterior
DATE September 2977

PERIOD OF RESTORATION: 1828
LAYER SELECTION: 3

COMMENTS: It seems likely that the first two paint layers are contemporary with the time period that the body of the exterior was not painted. The third layer probably corresponds to the earliest paint layer found on TOSY 01 P012 -- the sanded finish.

PROBABLE PIGMENT: _____
PROBABLE MEDIUM: _____
COLOR NOTATION: MUNSELL: 5Y 9/1
SPECTROPHOTOMETRIC COEFFICIENTS:
x _____, y _____, Y _____

RECOMMENDATIONS:
COLOR: Benjamin Moore 2-65
PAINT TYPE: Alkud
VISUAL CHARACTERISTICS: _____

DOCUMENTATION:
SLIDE NOS.: TOSY 01 S046
OTHER: _____

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

SAMPLE NO.: TOSY 01 P047
LOCATION: Fragment of Trim Removed from President's Seat in the
1950's
APPROXIMATE NUMBER OF LAYERS: 3
SUBSTRATE: Wood

CHROMOCHRONOLOGY:

- | | |
|-----------------|-----------|
| 1. <u>Gray</u> | 21. _____ |
| 2. <u>Red</u> | 22. _____ |
| 3. <u>Green</u> | 23. _____ |
| 4. _____ | 24. _____ |
| 5. _____ | 25. _____ |
| 6. _____ | 26. _____ |
| 7. _____ | 27. _____ |
| 8. _____ | 28. _____ |
| 9. _____ | 29. _____ |
| 10. _____ | 30. _____ |
| 11. _____ | 31. _____ |
| 12. _____ | 32. _____ |
| 13. _____ | 33. _____ |
| 14. _____ | 34. _____ |
| 15. _____ | 35. _____ |
| 16. _____ | 36. _____ |
| 17. _____ | 37. _____ |
| 18. _____ | 38. _____ |
| 19. _____ | 39. _____ |
| 20. _____ | 40. _____ |

SITE Touro Synagogue

LOCATION Interior
DATE September 1977

PERIOD OF RESTORATION: 1828

LAYER SELECTION: 3

COMMENTS: The layer color matched corresponds to earliest layer
on TOSY 01 P028. The earlier two layers probably are
the interior trim colors used when the supposedly
earlier Ark was in place.

PROBABLE PIGMENT: _____

PROBABLE MEDIUM: _____

COLOR NOTATION: MUNSELL: 5GY 8/2

SPECTROPHOTOMETRIC COEFFICIENTS:

x _____, y _____, Y _____

RECOMMENDATIONS:

COLOR: Benjamin Moore 20-61

PAINT TYPE: Alkud

VISUAL CHARACTERISTICS: _____

DOCUMENTATION:

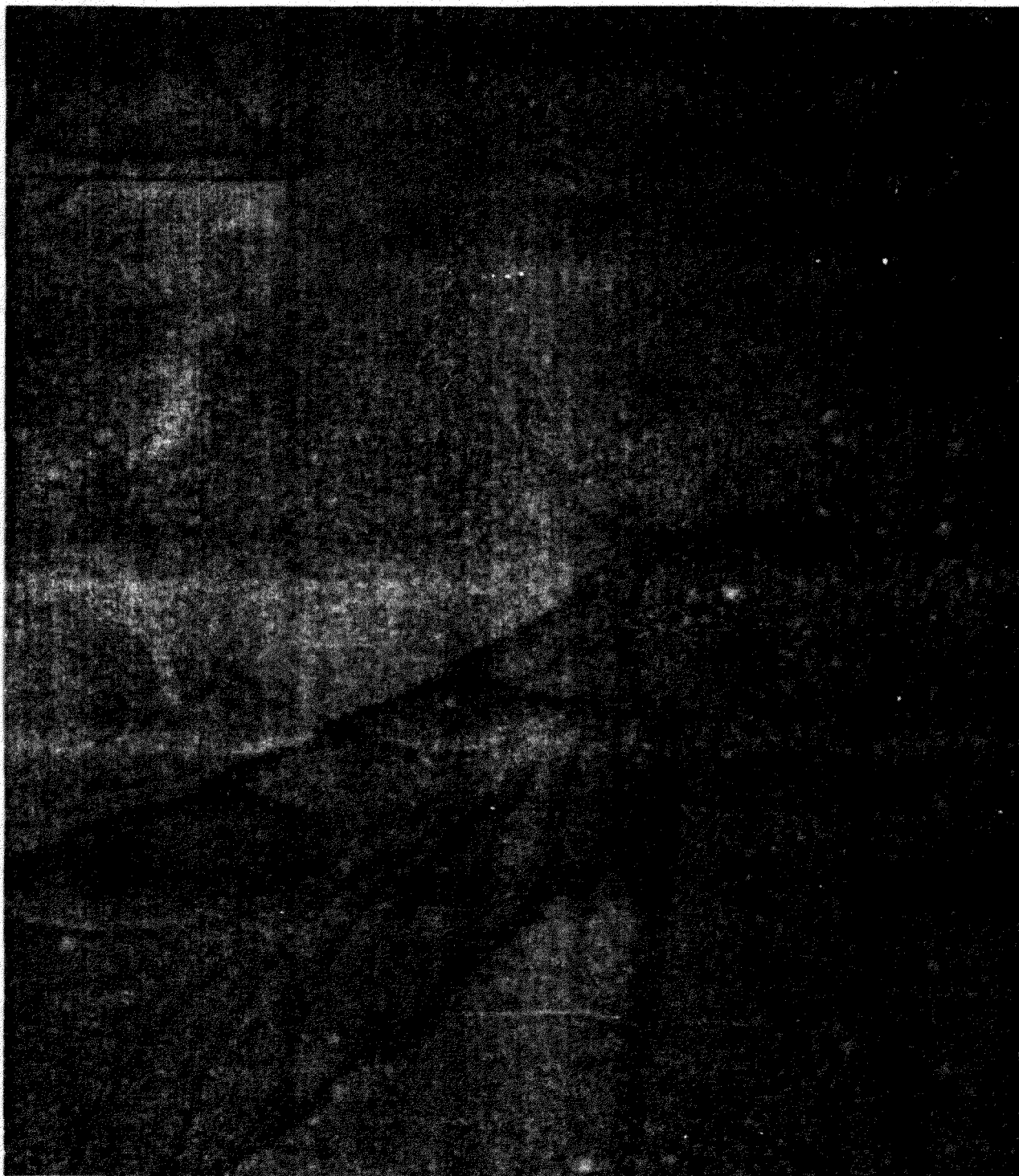
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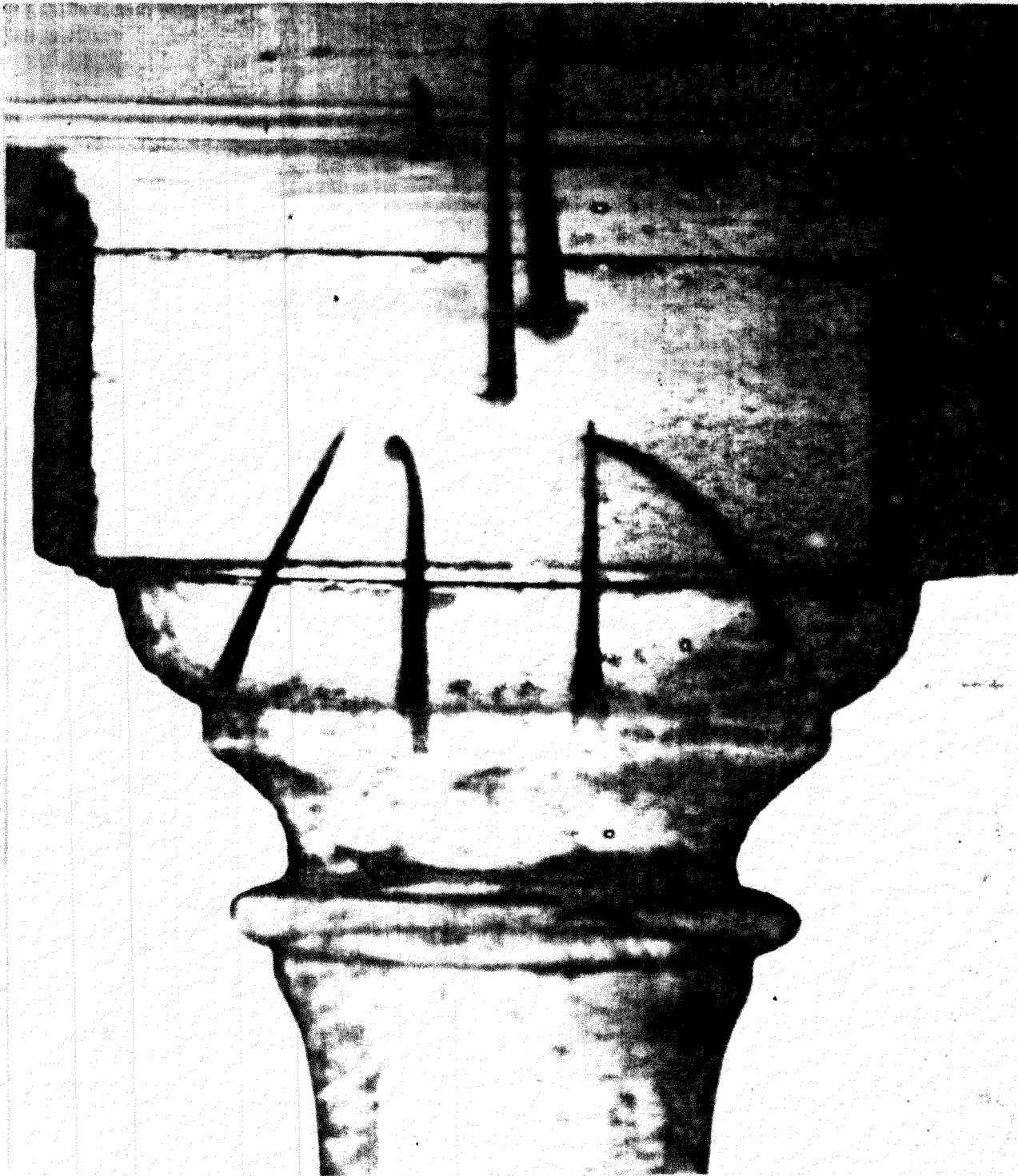
APPENDIX

Radiographs

TOSY 01 X001, Detail from the Ark door.



TOSY 01 X002, Detail of Bema railing.



Paint Analysis

A synopsis of data obtained from the most significant paint samples is provided on the following pages.