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Research and conservation of historic decorative schemes in the built environment

Project Name: Hunter's Moon Cottage, Wallpaper Survey & Conservation Recommendations

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Introduction

Context

Hunter's Moon Cottage, Shoreham-by-Sea is a grade II listed (1027876) flint-faced and timber framed semi-detached cottage which forms a mirrored pair with Holly Cottage on the west side of The Street in Old Shoreham. It was originally set in farmland, and is believed to have always be a domestic property. The property was originally constructed in the late 16th century, and modified in the 18th century. The wallpaper was found on the first floor of the cottage behind what is believed to be Victorian lath and plaster stud walling. [1]

Brief

To assess historical significance of paper, and give recommendations for its conservation.

Summary of report

The wallpapers in Bedroom 1 (South), likely date from late 18th – mid 19th century. The wallpapers in Bedroom 2 (North) are probably later, dating from mid 19th to late 19th century. They are in a relatively good and stable condition, but vulnerable to environmental changes. Overall they are of mid-to-high significance; they have high evidential and aesthetic value, but low historic and communal value. The wallpapers in both rooms contain arsenic, and therefore care should be taken when cleaning and touching the wallpapers. The should be dry cleaned, re-attached to the wall where dropping from the top edge, and protected with UV blocking glazing, or totally recovered.



1. Hunter's Moon Cottage (left). Source: Google street view.

[1] No Author. Hunter's Moon Cottage Heritage statement (2019), as supplied to Adur & Worthing Council as a supporting document for AWDM/1878/19 | Listed Building Consent for the removal of a modern stud and plasterboard wall at ground level | 8 The Street Shoreham-By-Sea West Sussex BN43 5NJ. [online] available: http://docs.adur-worthing.gov.uk/NorthgatePublicDocs/02171612.pdf

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The History of Wallpaper

Wallpaper arose in the UK during the 16th century, with the earliest known paper dating from 1509, found covering the beams of the dining hall at Christ's Collage, Cambridge. [2] Originally developed as a method of reproducing the aesthetics of hanging textiles and tapestries, wallpaper quickly became a desired commodity in its own right.

Early 18th century wallpapers saw a surge in the use of floral designs, which has persisted to today.[3] The colour schemes of these early 18th century papers were often bold and strong (although faded due to exposure to light), and commonly incorporates a black outline surrounding the flowers. From the 1750's however, delicate, hand painted papers imported from China created a craze for Chinoiserie style By the late 18th century, complex scenic patterns using numerous woodblocks created naturalistic designs, for instance those produced by Zuber.[4] However, these were often highly priced, and would likely be beyond the means of the inhabitants of a domestic farmhouse.

The technology to produce continuous rolls of paper was not available until 1806, and continuous rolls of wallpaper were not commercially available until the 1820's. However, rolls of wallpaper could be produced by the pasting of several small sheets of paper together before printing.[5]

The mid 19th century saw both simple, and complex, surface printed floral designs flood the middle and lower end of the market, for instance those printed by Jeffery and Co., and W. B. Simpson respectively. Technological developments reduced the cost of paper and printing, and the lifting of the wallpaper tax in 1836, meant that wallpaper was available to the masses.[6]


2


3


4


5

2. Wallpaper from Christ's College, Cambridge. 1509.
3. Wallpaper from 29 Sackville Street, W1. c1730
4. Wallpaper from 6 St James's place, W1. c1760.
5. Wallpaper from High St, Brentford. c1755-60

[2] Oman, C. C. and Hamilton, J. (1982) *Wallpapers: A history and Illustrated Catalogue of the Collection in the Victoria and Albert Museum.* London: Sotheby's Publications. 10.
[3] Hopkins, L. (1994) *The Papered Wall: History, Pattern, Technique.* New York: Harry N. Abrams Inc. 59.
[4] Hopkins (1994). 101.
[5] Hopkins (1994). 24.
[6] Rosoman, T. (2009) London Wallapers: Their manufacture and use, 1690 – 1840. 2nd edition. Swindon: English Heritage

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6. Zuber wallpaper. 1856.
7. Wallpaper from Doddington Hall, Lincoln. c.1760-65
8. Wallpaper from Wrest Park. 18th century
9. Wallpaper sample from W. B. Simpson. 1849.
10. Wallpaper illustrating the Crystal Palace. 1853-55.
11. Pimpernel wallpaper, Morris & Co. 1876.
12. Pomegranate wallpaper, William Morris for Jeffery & Co.. 1866.
13. Wallpaper boarder, 1880's-1910

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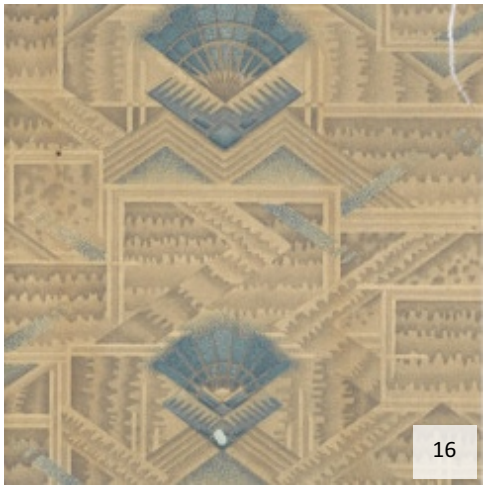













14. Floral Wallpaper, 1920's
15. Floral Wallpaper, 1920's
16. Geometric Wallpaper, 1930's
17. Floral Wallpaper, 1930's
18. Ward's wallpaper sample, 1942
19. Ward's wallpaper sample 1940's
20. Room design, Hazel Dell Brown Armstrong (1944) *Ideas for Old Rooms and New*
21. Sear's wallpaper sample. 1953.

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Changes in fashion in the late 19th century lead to two distinct styles of wallpaper design; illusionistic and scenic designs, often in gaudy colours, and the rebuttal to this (led by William Morris) of flat, pattern driven, woodblock style designs in earthy colours. Varnished 'sanitary' papers also became popular during this period, due to the rise in public interest in domestic health.

By the turn of the 20th century, dark, muted colours of the 19th century gave way to soft colours, florals, and mica pigments, and are distinctive in their geometric, and stylised patterns, and subdued colour schemes.[7] Heavily affected by shortages and rationing in both the first and second world wars, the 1930's and '40's production of wallpaper was heavily reduced, and patterns were reused from earlier decades.[8] The influence of modernist art and architecture on interior design in the inter-war years called for plainer, more subdued papers, or rejected their use entirely.[9] However, by the 1950's, wallpaper had seen a revival as a cheap and effective method of decoration, particularly due to developments in machine printing in the late 1940's. Styles varied widely and catered for all tastes and budgets. Traditional motives such as floral designs, were updated for a modern audience, with cleaner, brighter colours.

The 1960's introduced new materials, for instance vinyl, acrylic, and ready-pasted paper. Patterns were influenced by the pop and op-art movements, and aimed to entice a youthful audience. The 1970's continued the trend for vinyl, and advocated for large, flat, prints. The 1980's, in contrast, saw a return to delicate, floral and trellis wallpapers, which matched fabrics – a style capitalised on by companies such as Laura Ashley.

Retrospective trends often make it difficult to identify wallpaper from patterns alone. Other contextual clues such as finding paper behind fixtures and furniture, or beneath more 'of-their-time' papers can help with dating.









22. 1960's floral wallpaper
23. 1970's floral wallpaper

24. 1980's floral wallpaper
25. 1980's floral wallpaper

[7] Hopkins (1994)
[8] Oman, C. C. and Hamilton, J. (1982). 66.
[9] Hopkins (1994)

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Assessment of Significance

Description

Two rooms were assessed; Bedroom 1 South, and Bedroom 2 North, on the first floor of the Cottage. Some fragments which had become detached were kept and recorded by the owners of the property.

In Bedroom 1 South, three wallpapers were found behind lath and plaster, in which an opening was made to the right hand side of the window on the north wall. No other openings in the lath and plaster were made and as such it is unknown as to the extent of the wallpaper in this room. All three wallpapers had been directly applied to the timber and limewashed plaster, and did not have a lining paper.

1. Green and blue floral and foliage design with maroon outline on a white background. The design is block printed onto wove rag paper. The paper seems to be printed on a continuous roll, and a selvedge edge can be clearly seen. Smaller fragments of the same paper have been used to patch in lower areas, with no attempt made to match the pattern. The paper extends to at least the window to the left of the opening made in the lath and plaster, and to the edge off the wall on the right. Analysis through p-XRF showed that the green pigment is a copper arsenate.
2. Damask pattern, predominately white on plain background, with dark blue-green motifs and pin-prick details. The design is block printed onto wove rag paper. Only a medium-small fragment survives – although the pattern repeat is clearly visible. The fragment overlaps the bottom edge of wallpaper 1, but at a height that tis too low for a dado, and too high for skirting. The fragment begins a little past the left hand side of the opening, and ends about three quarters into the opening.
3. Stylised grey floral in a dark pin outlined diamond grid on a white background. Overlaps the bottom edge of wallpaper 1 at the same height as wallpaper 2. Small fragment to right side of opening.

In Bedroom 2 North, two wallpapers were found behind lath and plaster, in which a small opening had made in the north wall. Both wallpapers had been directly applied to the timber and plaster, and did not have a lining paper.

4. Stylised floral sprig in a fleur-de-lis arrangement, in a diamond grid, delimitated by a geometric boarder. A white background, with a ginger outline, and pink, green, blue, and ginger floral sprigs. The design is block printed onto wove paper. The paper has been hung sideways. It begins from the timber frame beam, extending vertically downwards almost to the floor, and appears to extend lengthways the full length of the wall. At least one layer of limewash is visible behind the paper. Analysis through p-XRF showed that the green pigment is a copper arsenate.
5. Floral design in a diamond grid and cameo arrangement, with stylized leaves and flower buds making up the boarders. The background of each diamond space alternated between white and grey, and the cameo background are white. The floral design within each grey diamond, and each cameo is styles, and white with a pink outline. The floral design within each white diamond is more realistically rendered, and in natural colours of pink with green foliage. Solid grey, and pinprick pink lines also intersect the white diamonds to make a checkered background. The design is block printed onto wove paper. This paper is hung to the far right of the opening, above a frame beam. Small fragments of paper were also found on the west wall, which had become detached before the site visit.

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26. Opening in lath and plaster in bedroom 1 South, showing location of wallpapers



27. Wallpaper 1, Bedroom 1 South.

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28. Wallpaper 2, Bedroom 1 South.



29. Wallpaper 3, Bedroom 1 South.

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30. Opening in lath and plaster in bedroom 2 North, showing location of wallpapers



31. Wallpaper 4, Bedroom 2 North.

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32. Wallpaper 5, Bedroom 2 North.



33. Wallpaper 5, Bedroom 2 North, detached fragment.

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Condition

Although fragmented, all the wallpapers were in a relatively good condition. Dampness has resulted in poor adherence to the wall surface in areas, rehydrating the adhesive, and thus causing the paper to detach from the wall. In Bedroom 1 South, this has not largely affected the stability of the paper, as it has remained largely adhered at the top part of the paper. However, in Bedroom 2 North, this seems to have caused some loss of paper, with fragments having become completely detached historically. Wallpaper 4 was either poorly applied historically, or has buckled under its weight.

A larger threat to the loss of paper, particularly in Bedroom 1 South, has been the loss of plaster substrate, which has either resulted in the loss of paper, or means that the remaining paper hangs loosely with no back support.

All the wallpapers have not become overly brittle – also likely due to the high RH% in the property, and due to the fact that the papers have been protected from UV light by the stud walling. This has also meant that the colours of the papers have been preserved well. The pigments are stable, and there is little brush-off when agitated.

There is a large level of surface dirt on all of the papers, particularly settling in shelves created by creased or buckled areas. Cobwebs and other detritus are also present.



34. Detached fragment of wallpaper behind lath and plaster, Bedroom 2 North.

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35. Wallpaper 1, Bedroom1 (South). Wallpaper detached at top edge, causing overhang



36. Lost plaster Bedroom 1 (South).

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Dating

Retrospective trends often make it difficult to identify wallpaper from patterns alone, particularly with floral designs which span all eras of wallpaper production. Other factors, such as printing method, materials used, size and type of paper, and its placement in the stratigraphy of the property, must all taken into account when dating wallpaper.

All of the wallpapers were found behind lath and plaster stud walling – a technique that fell out of use by around the early-to-mid 20th century. As such, all the wallpapers are likely to pre-date the 1950's.

The papers are all printed on wove paper – a technique which was not developed until the mid-1750's.[10] As such, they must post-date this. The largest fragment (wallpaper 1), is compiled of large sections, and therefore it is possible that it was made on a continuous roll of paper, rather than single sheets, suggesting that it may date post-1820's.[11] As the other papers are even more fragmentary it is impossible to determine if they were printed on a continuous roll or not. No tax stamp was found on the detached fragments of any paper.

Analysis of the green pigment on wallpapers 1 & 4 showed that this was a copper arsenate pigments. These group of pigments, which contained high levels of arsenic, were developed around the late 18th – early 19th century under various names, including; Scheele's Green (1775)[12], Paris Green, Patent Green, and Emerald Green (commercially available 1814)[13], among others. They were particularly popular during the 19th century and, although arsenic in paint was not officially banned until 2007.[14]

Stylistically, however wallpaper 1 appears earlier than this. The large, bold flowers, curling tendrils, and wood-blocked design are more reminiscent of papers from the late 18th – mid 19th century (see figs 3, 4, 5, 9, 37 & 38). The un-trimmed salvage edge also attests to an early paper.

As wallpapers 2 & 3 slightly overlay wallpaper 1, they must be contemporaneous, or later than, wallpaper 1. They are stylistically similar to wallpaper 1, thus also indicating a date range of late 18th – early-to-mid 19th century.

The wallpapers in Bedroom 2 North, are slightly more delicate and complex in style than those in bedroom 1 South. This indicates a date closer to the mid 19th century (figs. 9, 39 & 40), although the designs are also reminiscent of the early 20th century (fig. 18). However, the lath and plaster wall which the papers have been found behind is believed to be Victorian, in which case, the wallpapers would pre-date 1901. As such, the wallpapers are likely to date from the mid – late 19th century.

[10] Gadd, I., Eliot, S., Louis, W. R., & Robbins, K. (2013) *History of Oxford University Press: Volume I: Beginnings to 1780*. Oxford: Oxford University Press. 211.
[11] Hopkins (1994). 24.
[12] Riddick Partington, J. (2016) *History of Chemistry*. London: Macmillan International Higher Education. 218
[13] Eastaugh, N., Walsh, V., Chaplin, T., Siddall, R. (2004) *Pigment Compendium: A Dictionary of Historical Pigments.* Oxford: Elsevier Butterworth-Heinemann. 149.
[14] Sheridan, H. (2018) "Paint Toxicity and Risk". *The Building Conservation Directory.* [online] Available from: https://www.buildingconservation.com/articles/lead-paint/lead-paint.htm

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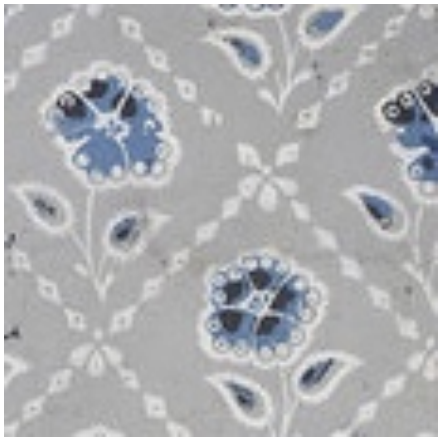
37. Wallpaper, Uppark, 1825-1875.
V&A E.821-1969



38. Wallpaper, Whitehall, Surry, 1730-1740
V&A E.970-1977



39. Wallpaper, Owen Jones 1852-1874
V&A 8342-56



40. Wallpaper, England 1860-1870
V&A E.1817-1934

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Evidential value

The wallpaper provides evidence of the style and taste of the residents, and / or owners, at Hunter's Moon Cottage during the the late 18th up to potentially the early 20th century, as well as proving their fiscal ability to purchase and apply wallpaper. Thus, the 'wallpaper' can provide material evidence of the social, aesthetic, and economic standing of the family that lived in, or owned the property, and similar families, in similar locations by extension. Analysis of the pigments in the remains of the wallpaper pattern can also provide material evidence or the colours viewed by the residents, as well as their daily level of exposure to hazardous compounds. That the 'wallpaper' is still in situ, and overlies other decorative features (scrap of wallpaper, and varnished and painted wood), means that it provides evidence of the decorative chronology of the building. The wallpapers thus have high evidential value.

Historic Value

Although there is no person or event of significant historical note associated with the building, the previous owners and residents of the property are known, and further research into this may affect the historic value of the property. Similarly, the property stands on one of the oldest roads in the area, and was potentially part of local historic events. As such, the wallpapers currently have low historic value, although there is the potential for this to rise.

Aesthetic Value

An exact match for the patterns of the wallpaper could not be found, and as such, the papers add to our knowledge of wallpaper design. The pattern and colours are in a good condition, and there is a full repeat visible on most papers. The wallpapers thus have high aesthetic value.

Communal Value

The building is important to the Wealden Buildings Study Group, and by extension the wallpapers, which form part of the building. Similarly, the wallpaper is of interest to other academic and professional groups who study decorative surfaces. However, the value of the wallpaper to these groups is more of an Evidential, and Aesthetic value, rather than communal. The wallpapers thus have low communal value.

Vulnerability

Although renovation works are being undertaken to the property, the owners are careful and considerate, and have been recording and safeguarding fragments of detached papers, as well as those found in situ. The bulk of the wallpaper is protected by stud walling, into which openings have been cut. The wallpapers are now vulnerable to changes in environmental conditions, most notably exposure to light, and fluctuations in humidity. However, had these openings not been made, the wallpapers were potentially vulnerable to deterioration through neglect. The wallpapers are thus mildly vulnerable.

Conclusion

The wallpapers in Bedroom 1 South, likely date from late 18th – mid 19th century. The wallpapers in Bedroom 2 North are probably later, dating from mid to late 19th century. The early date, their generally good condition, and the aesthetic and evidential value it holds, heightens the significance of the wallpaper. However, the historic and communal value of the wallpaper is relatively low. Overall, it is of mid-to-high significance. The wallpaper is of mild vulnerability, which can be mitigated (see below).

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Recommendations for Conservation

Aim

Low impact conservation to improve and preserve the condition of the wallpaper in situ.

Health and Safety

X-Ray Fluorescence on wallpapers 1 and 4 identified arsenic in the green areas of the wallpaper pattern. If the surface of the wallpaper is agitated, FFP3 masks should be worn to prevent inhalation, gloves should be worn to avoid contact with skin, and hands should be washed before eating, or touching mouth, nose, and eyes. If mould is noticed growing on the surface of the paper, a conservator should be consulted.

Cleaning

As wallpaper is a decorative object, its aesthetics are crucial to its significance. Surface dirt can become ingrained over time, and as such should be removed to avoid damage to appearance of the wallpaper. Surface dirt can also hold moisture on the surface, causing weakening of the paper fibres, and, can act as a food source for pests. Care should be taken to ensure that pigment is not being removed during cleaning.

Loose dirt, cobwebs, and detritus should be removed using a soft brush, and caught by a vacuum cleaner. More stubborn dirt can be removed using a smoke sponge.

Consolidation

Area where the wallpaper has come away from the wall at the top edge, causing a fragment to overhang (fig. 35), should be reattached to the wall using a suitable adhesive. Areas where the wallpaper is still largely attached at the top edge, but the lower edge is loos from the wall should not be reattached, as dirt and detritus may get trapped in the pockets and shelves formed by this. Small tears which may become larger should be consolidated using Japanese tissue and a suitable adhesive.

Detached fragments

Fragments which have become completely detached from the wall (figs 33 & 34) should not be reattached, but recorded, removed, and stored flat between acid free card, acid free paper, or melenex, and protected from the light.

Environmental conditions

As the relative humidity (RH%) in the Cottage changes, the wallpaper may become more brittle, and the adhesive holding it to the wall may fail. The RH% should be monitored to better understand the changes and fluctuations occurring within the building, and the effects on the wallpaper should be monitored. Exposure to light can cause embrittlement of the paper and fading of pigments. As such it is important to limit the exposure to light as much as possible. This can be achieved though coving the paper with an opaque covering (such as the stud walling), or transparent glazing with a UV filter. Though an opaque covering is less invasive to the final appearance of the room, a transparent glazing has the benefit of allowing the wallpaper to be visually monitored, and thus avoid deterioration through neglect. The covering should be placed at the same or similar level as the current stud walling, so as to retain the microenvironment that the wallpaper has come acclimatised to over the past centuries. It is also important that the covering does not come into direct contact with the wallpaper. It is noted that there is currently good ventilation running behind the stud wall.

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APPENDIX 1

p-XRF results

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Element		Min [%]	Conc. [%]	Max [%]	Stddev. [%]
Silicon	Si		38.67		1.64
Zirconium	Zr		25.09		0.12
Zinc	Zn		20.16		0.17
Aluminium	Al		13.86		0.48
Iron	Fe		0.56		0.08
Tin	Sn		0.39		0.08
Lead	Pb		0.36		0.06
Nickel	Ni		0.33		0.03
Rhodium	Rh		0.23		0.04
Titanium	Ti		0.17		0.03
Arsenic	As		0.06		0.02
Copper	Cu		0.06		0.02
Cobalt	Co		0.03		0.03
Chromium	Cr		0.02		0.02

Background (white ceramic glazed tile). These results should be eliminated from the results of the wallpaper. As the wallpaper is extremely thin, the XRF beam may penetrate this, and pick up information from the background.

Element		Min [%]	Conc. [%]	Max [%]	Stddev. [%]
Zirconium	Zr		34.43		0.17
Aluminium	Al		26.79		0.68
Zinc	Zn		22.39		0.20
Silicon	Si		8.86		1.14
Titanium	Ti		2.90		0.08
Iron	Fe		1.46		0.12
Vanadium	V		0.94		0.05
Lead	Pb		0.55		0.08
Tin	Sn		0.51		0.10
Nickel	Ni		0.44		0.04
Rhodium	Rh		0.34		0.06
Arsenic	As		0.19		0.03
Copper	Cu		0.08		0.03
Palladium	Pd		0.07		0.03
Silver	Ag		0.04		0.03

Wallpaper 1, Bedroom 1 South. High levels of Arsenic and Copper indicate a copper arsenate pigment

Element		Min [%]	Conc. [%]	Max [%]	Stddev. [%]
Aluminium	Al		44.94		0.70
Zirconium	Zr		26.32		0.15
Silicon	Si		8.73		1.24
Zinc	Zn		8.67		0.14
Arsenic	As		2.52		0.08
Iron	Fe		2.45		0.17
Lead	Pb		2.33		0.16
Copper	Cu		1.65		0.09
Tin	Sn		0.68		0.14
Nickel	Ni		0.53		0.05
Rhodium	Rh		0.38		0.07
Titanium	Ti		0.22		0.04
Gold	Au		0.21		0.06
Molybdenum	Mo		0.10		0.04
Chromium	Cr		0.09		0.03
Palladium	Pd		0.08		0.04

Wallpaper 2, Bedroom 2 North. High levels of Arsenic and Copper indicate a copper arsenate pigment

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HISTORIC MATERIALS ANALYSIS



HISTORIC INTERIORS



ARCHITECTURAL CERAMICS AND TILES



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