



117-119 Portland Street, Manchester

Results of Architectural Paint Research

29/02/2024

Project Summary

Project	117-119 Portland Street, Manchester
Nature of Project	Architectural Paint Research to selected interior facets within the.
List Entry Number	1246957
Listing Date:	28 th February 1989
Listing ID	Grade II
National grid reference	SJ 84112 97813
Address of building	117-119 Portland Street Manchester
Name and Address of Conservator	Hirst Conservation Limited Laughton, Sleaford Lincolnshire NG34 0HE
Name and Address of Client:	Bruntwood SciTech Union, 2-10 Albert Square Manchester M2 6LW
Date of Site visit	14 th February 2024
Investigation undertaken by:	Charlotte Owen
Methods Employed	Cross sectional analysis; micro-chemical stain tests.

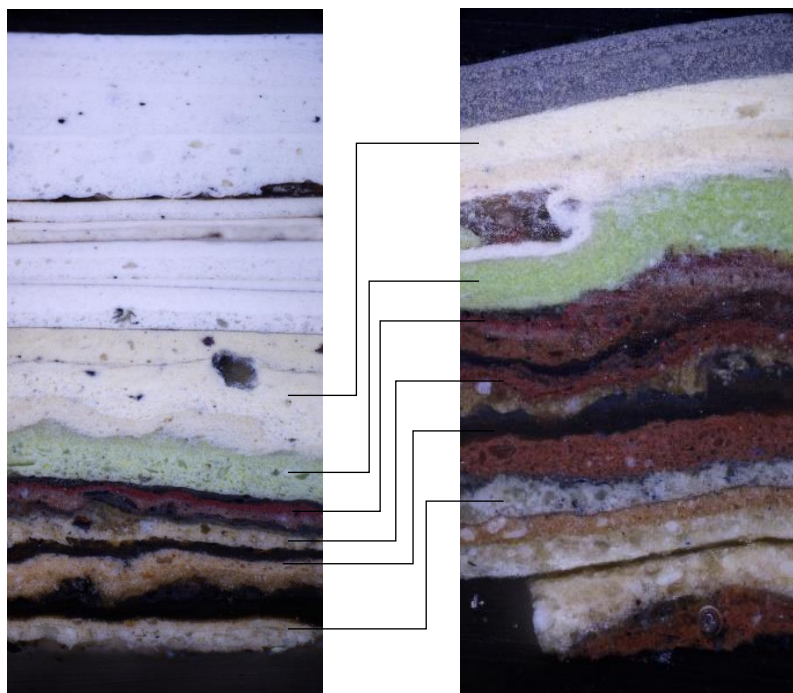
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Company No. 09797372 England - VAT Registration No: 425 6915 39*

Executive Summary

Samples taken from the ceiling and cornice to level one reveals a lack of significant detail about the earliest decorative treatment of this space though this may say as much about the use of materials and condition of the ceiling with fragments of early distemper schemes noted. The treatment of the interior window finishes was compared to samples taken from the Portland Street elevation and samples taken from the larger rear elevation windows which indicated that the window joinery to the interior was initially painted in a light brown colour then varnished. Later schemes revealed variation in the interior treatment of the windows with the windows to be rear painted in lighter colour paint films, assumed to aid reflection of natural light into the space.

Samples taken from the columns to the front space to level one revealed more significant use of colour with evidence of one or more schemes of marbling identified. Marbling was employed in a more common fashion in Victorian decoration as it could be used to hide marks and dirt that would otherwise be seen to flat finished paint films. However, the use of marbling to the cast iron columns to the first floor along with the surviving decorative mouldings to the ceiling would suggest an area of higher status within the building and further investigation to record these finishes may be of interest.



Sample 10AB (200x mag) (left) taken from Portland Street elevation, interior window compared to sample 02, cast iron column. Surround showing correlation of earlier schemes.

By comparison samples analysed from the rear staircase would indicate the space was of a lower significance in the hierarchy of the building indicated both by the simplistic design of the staircase spindles and the simplified decoration identified in the paint samples.

Samples were tested for the presence of lead which was confirmed in samples taken from the columns and windows but there was no lead detected in the samples analysed from the staircase walls, ceiling or cornice.

With limited archival detail to cross-reference to the results of the analysis it is not possible to give much definition to the schemes with regard to the chronological development of the decorative schemes within the building.

The earliest recorded occupants were velvetene wholesalers who occupied the building for a number of years. It was also noted that they had premises in Scotland and exhibited at Paris Exhibition of 1878 perhaps suggesting a company of some status. It would appear that the marbling to the cast iron columns to the first floor can be attributed to this period and, given the survival of the mouldings to the ceilings to this space would suggest that this area was of some hierarchy within the building. There was variation in the use of colour seen to the upper facets of the cast iron columns and exposing an area of applied decoration to these features would add to the recorded understanding of this building and should be considered should proposals include any paint removal to the columns.

It is unfortunate that the original principal staircase has been lost though there may be some evidence of this surviving to the first-floor office space, though only seen through changes in the line of the ceiling and may also only indicate the presence of an internal staircase and not principal access for all visitors.

The use of darker colours and varnished paint schemes to the window finishes would certainly be fashionable in the late Victorian period. Changes in the use of colour and paint media in the early twentieth century included use of lighter green colours and zinc-based oil paints, an indication of which are seen in the samples. The brighter green seen in the sample shown on the previous page can likely be dated to the early to mid-twentieth century.

Later schemes of decoration include the introduction of bright white synthetic resin-based paints, seen particularly to the interior window finishes.

The simple treatment of the walls to the central staircase would indicate a lower hierarchy of the space with a light blue-grey colour repeatedly applied to the brickwork.

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1. Scope of Research

This report discusses the results of architectural paint research to selected interior architectural facets of 117-119 Portland Street, Manchester. The research was undertaken at the request of James Moulton on behalf of Bruntwood Group, Manchester.

The aim of this programme of research is to understand the nature of applied decoration to the interior of the building in support of Listed Building Consent application for redecoration.

Sampling was undertaken by Charlotte Owen of Hirst Conservation in February 2024 with high level access provided by the client.

No independent archive research has been undertaken as part of this study. Any information or archival images contained in the report has been obtained through limited internet searches. At the time of sampling Deloitte were undertaking research into the building and no details had yet been confirmed by the local archives. Any details identified are listed in the bibliography in section 9.



Figure 1: the corner of the building as viewed from the junction of Dickinson Street and Portland Street.

2. Definitions of the Aims of the Project, Discussions of the Research Strategy and Details of the Methodology

2.1. Aims and Objectives of Paint Sampling

The aims of architectural paint research are:

- To understand the original design intention, where possible.
- To record the decorative archaeology of the space prior to renovation following fire damage.

2.2. Collection of Paint Samples

Samples were taken using mechanical means using a small chisel and hammer or scalpel, given individual reference codes and the sample sites recorded photographically and diagrammatically (these are illustrated in section 1)

2.3. Microscopic Assessment of Samples

The samples were mounted in clear casting resin and polished to provide a cross section through the paint layers. Assessment at 50x, 100x & 200x magnification in incidental light allowed the layer structure to be assessed. The majority of the sample images have been assessed in darkfield mode with additional analysis and image capture undertaken at 500x magnification in brightfield mode. In addition, fluorescence microscopy

was employed to identify the basic stratigraphy of paint schemes and to establish basic composition of paint films.¹

Assessment of samples in incidental light and UV fluorescence allows each scheme to be identified though dirt films, 'oiling out' layers, fading of upper surfaces of films and variations in fluorescence properties.

2.4. Micro-chemical Analysis of Paint Films

Further investigation of key layers was achieved by stain test and simple chemical techniques (Plesters, 1956).² This was undertaken in order to understand the basic composition of the layers.

2.5. Advanced Analysis

No advanced analysis has been included in the scope of works.

¹ Microscope used was a Nikon Eclipse LV150NL stand with LV-UEP12 Universal EpiFL-Illuminator 2. Visible & UV light was produced by CoolLED pE-300 Ultra pE-300-UT-D-SB-27E-30(3200k). UV-2A FL Filter cube, Excitation wavelength range: 390-490nm, Splitting mirror :510nm, Absorption wavelength: 515nm

² Plesters, Joyce. Cross-sections and chemical analysis of paint samples *Studies in Conservation*, (Volume 02, pp 110-157, 1956)

2.6. In-situ Investigation

Where employed, colour readings are taken using a handheld colour measurement tool³ and are adjusted slightly by eye to take into account the yellowing and greying of paint films over time. At the time of writing the report the exposure of historic schemes had not been commissioned.

Any intention to recreate colour schemes should make use of colour swatches or test panels prior to final colour scheme selection as any historic colours applied at different periods will have been seen when the colour of surrounding masonry was likely to be different from the existing appearance. Therefore, the choice of colour schemes should take into account the colour changes to the building to ensure an appropriate colour palette is selected.

³ NCS Colour Scan 2.0, which can give colour translation details in LRV D65 10°, CIE Lab D65 10°, RGB D65 2°, Adobe RGB D65 2° and CMYK Euro. Cites the nearest NCS colour reference and can also indicate sheen/gloss.

3. History and Context

3.1. Archive material.

No independent archive research has been commissioned as part of these works and all material herein contained has been provided by the client / their agent or through appraisal on material available through internet searches. Should any further information be provided then Hirst Conservation reserves the right to reappraise the findings of the survey and make appropriate revisions to the results.

The details of any documents or web sources are listed in Section 9 – Bibliography.

The following information is recorded as a relevant history of the building to further understand and support the findings of the paint analysis and is not intended to be a full and concise history of the building.

3.2. Brief History of Building

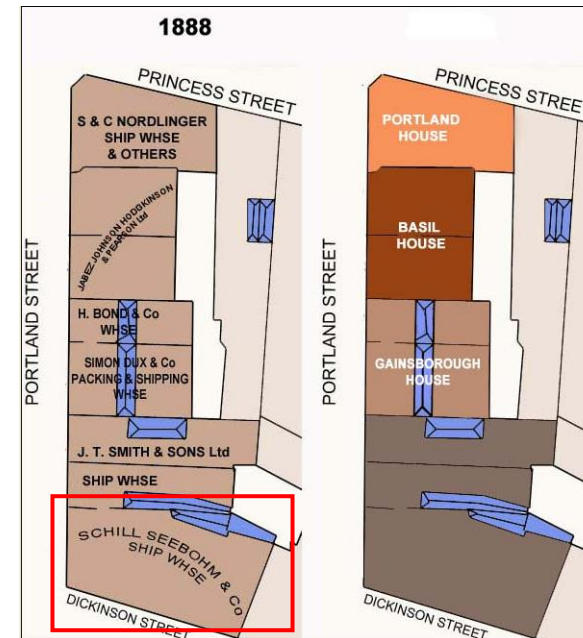


Figure 2: Possible record of occupation of the building with 117-119 highlighted (Manchester History, n.d.)

The only recorded history of the site available at the time of writing is found in the Historic England listing detail. Possible additional detail may be found in the Manchester Victorian Architects detail for the attributed architect Edward Walters (not verified) though the building has also been attributed to Clegg & Knowles (not verified) (Manchester History, n.d.).

The relevant details in the H.E listing are shown below:

Manufacturers' home trade warehouse and shipping warehouse, now offices etc. c.1860-70, altered. Red brick with sandstone dressings (roof not visible). Irregular plan on corner site, with loading at rear. Utilitarian design with some Italian Gothic features. Four storeys and basement, 16 windows (some coupled); Basement and ground floor altered except in the last 3 bays (and right-hand return side to Dickinson Street), which have elaborately decorated cast-iron railings to the basement openings and coupled sashed windows with stone mullions and heads; Right-hand return wall, 10 bays in matching style, with wide segmental-headed loading bay entrance in 6th bay. Rear and interior not inspected.

Forms group with No.103, Nos 105 and 107, and Nos 109 and 111 to left (q.v.), together comprising a complete block of former warehouses. (Historic England, n.d.)

Warehouse on Portland Street is attributed to Edward Walters on Manchester Victorian Architect website though it is noted that there is a gap in numbering between 101-123 Portland Street in 1863 Slater's Directory.

The 1848 Slaters Street Map of Manchester does not show Dickinson Street or Portland Street junction with Oxford Street. Portland Street ends at David Street (the red line showing the "missing" section of Portland Street in the map shown in Figure 3).

This is the same in the 1860 Rapkin Map but by 1870 Portland Street has been extended to the intersection now seen at Oxford Street, note that Dickinson Street has also been extended south at this point. (Figure 4)

It is likely that 117-119 is not the work of Edward Walters as his last recorded commission is in 1865 and he dies a few years later in Brighton in 1872. The other architects firm associated with this section of buildings on Portland Street is Clegg & Knowles (Manchester History, n.d.) in practice between 1851-1884; though this building does not appear in the

building list in Manchester Victorian Architects listing (Architects of Greater Manchester, n.d.).



Figure 3: 1848 map of Portland Street (Historical Maps of Manchester, n.d.)



Figure 4: 1870 map of Portland Street to Oxford Street (Historical Maps of Manchester, n.d.)

A further reference to the area makes note of a power station at the bottom of Dickinson Street with the hoist still visible to the exterior of 117-119 Portland Street just visible in the image (Figure 5). Limited investigations indicate this power station was constructed in 1893 and was the only power station to serve the city (Manchester History, n.d.) and was later demolished sometime between 1953-1963. The source notes that prior to the extension of Portland Street to Oxford Street the area was occupied by Globe Iron Works, a timber yard and Dickinson Street Cotton Mill (Manchester History, n.d.) (Figure 6) though based on the evidence shown above the map predates 1870.



Figure 5: image of the Dickinson power station c.1890 with the lower section of 119 Portland Street just visible. (Our Town Story, n.d.)

The location of the 117-119 Portland Street is roughly indicated by X.

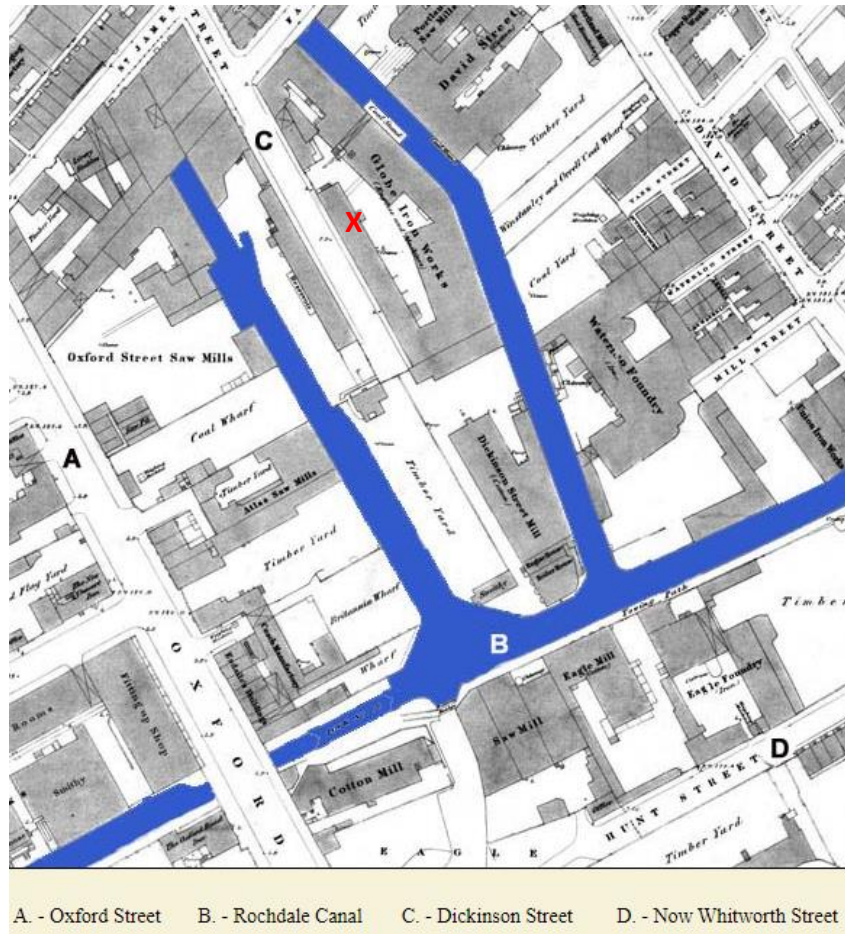


Figure 6: nineteenth century map (not specified) showing area of prior to extension of Portland Street

The first business listing to be identified at the time of writing is a textile manufacturer of Schwann, Modern & Co at 117 Portland Street⁴. The company is listed as agents for all descriptions textiles with offices registered at Manchester, Glasgow and Belfast. A wider internet search on the firm lists details in Glasgow that indicates registered premises at Dundas Street and North Hanover Street.

The Journal of Fabrics, 1882, listed the dissolution of the partnership with addresses registered at Manchester, London, Glasgow, Dundee and Huddersfield indicating a successful business (Franklin Institute Library, 1877). They registered at the Paris Exhibition of 1878 of which no other business from this section of Portland Street is registered. (Great Britain, Royal Commission for the Paris exhibition, 1878)

1886 Goad Insurance map for Portland Street shows the property appears to be as recorded today as separate from other parts of the building (not one building internally). The map merely lists the occupants as Modera & Co Ship. Warehouse (Old Maps Online, n.d.).

⁴ Unpublished correspondence between Deloitte & Hirst Conservation, February 2024



Figure 7: 1886 Goads Insurance map (Old Maps Online, n.d.).

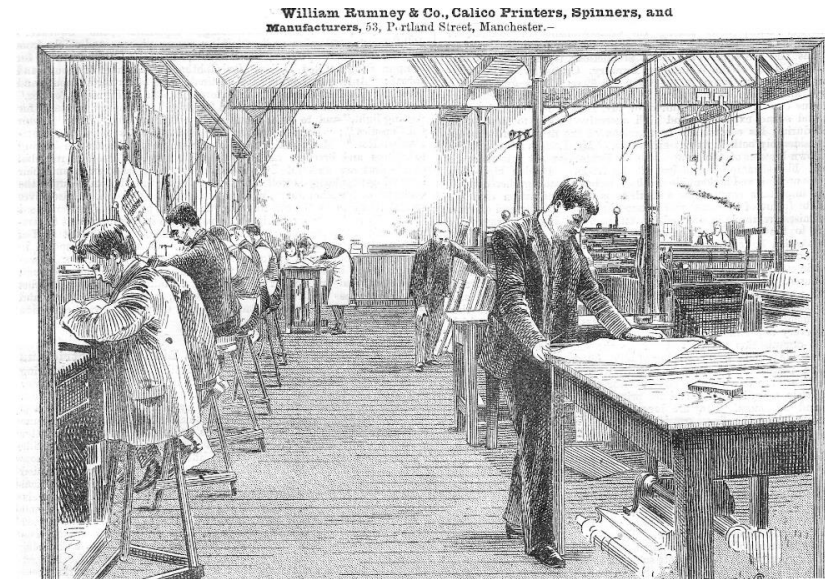


Figure 8: image showing W Rumney & Co calico printer from 53 Portland Street - note variation in decor to the iron columns. (The Century's Progress - Lancashire, n.d.)

The only other archival reference that has been identified for the building relates to the twentieth century development of C.U.B.E (Centre for Understanding the Built Environment) which was developed by Hodder Associates in the basement and ground floor of 113-115 in 1998. Pevsner notes that “everything was stripped back to bare brick, timber beams and cast-iron columns” (Pevsner, 2004).

The details listed on the C.U.B.E website were limited and indicated that it was present in the building until 2013 when funding could not be sustained by the University of Salford. Whilst CUBE is listed at the adjacent property the description of stripped back walls and timber does echo appearance of the lower floors of 117-119 Portland Street. There was also a description of the creation of a new foyer and insertion of new

staircase (Architects Journal, 1998), items which appear similar to the appearance of the building in this research.

“The entrance to the two ground-floor galleries and the RIBA Bookshop is via a new foyer which presents an anonymous front to both cube and the offices within the remainder of the building. The galleries are quite simple, with a subtle interplay of new screens and diffuse side glazing set against the conserved enclosure. Serviced nodes articulate the spaces and a new beech floor gives coherence to the whole.

Two new staircases of folded steel descend to the basement gallery and lecture room. STRUCTURAL ENGINEER: Blackwood Structural Design” (Architects Journal, 1998)

There is therefore very little archival detail at the time of writing this report to give any weight to the interpretation of the paint sample analysis and we reserve the right to revisit the findings of the report should any archival detail be identified.

Date	Event
c.1860-70	Construction of block (now numbered 113-119)
1877	Schwann, Modera & CO registered at 117 Portland Street
1882	Schwann, Modera & Co dissolved.
c.1953-63	Demolition of Dickinson Street power station
c.1998	Possible redevelopment of the building
2002	Acquired by Bruntwood

Table 1: summary of relevant history

4. Level 1

4.1. Overview



Figure 9: Level 1 looking towards the rear of the building with Dickinson Street elevation to the right.

A site sampling visit was undertaken on Wednesday 14th February 2024 where a number of samples were taken from agreed interior facets. High level access was provided by the client.

The space was vacant at the time of sampling with significant evidence of long use as an office space. Level 1 was identified by the client as being of most historic interest due to the presence of cornice and perimeter mouldings to the ceilings (Figure 10). These were noted across much of the front office space with some interruptions identified that may signal the line of past subdivisions, though the dates of these cannot be

determined in the chronology of the building without further investigations.



Figure 10: image of the ceiling of Level 1 showing architectural mouldings to the ceiling and beam casings.

No archival information has been supplied at the time of the site visit and little is known about the building including when significant past renovations may have taken place. The following information is therefore a summary of observations and possible conclusions by the paint researcher based on their experience and knowledge of other spaces in Manchester.

The cast iron columns would indicate the likely intention for a large open plan space with smaller subdivision likely formed from timber panelling

possibly with windows to sections to allow light to travel through to the space within.

The presence of architectural mouldings to this area of the building would also suggest the presence of offices and, depending on the exact nature of the earlier trades, perhaps a show floor to inspect wares (fabrics etc). it was noted when walking through to the rear of the building the large expanse of windows with what appears to be a deep windowsill upon which one could inspect or cut fabrics under daylight.



Figure 11: image of the rear of level 1 showing the large expanse of window glass and deep windowsill.

The depth of the sill was not measured but may have been intended to take a roll of fabric. To the rear of the building the goods lift door is also noted and whilst the doors have been altered the iron safety bars are still in situ.

An inspection of a number of internal walls indicates a renewal of wall plaster and within a small IT cupboard opposite the fire escape staircase it

was noted that partial remains of the earlier plaster finishes survive (see Figure 12). This was not accessible for sampling but would be prudent to do so for building archaeology purposes prior to any alteration to the space.

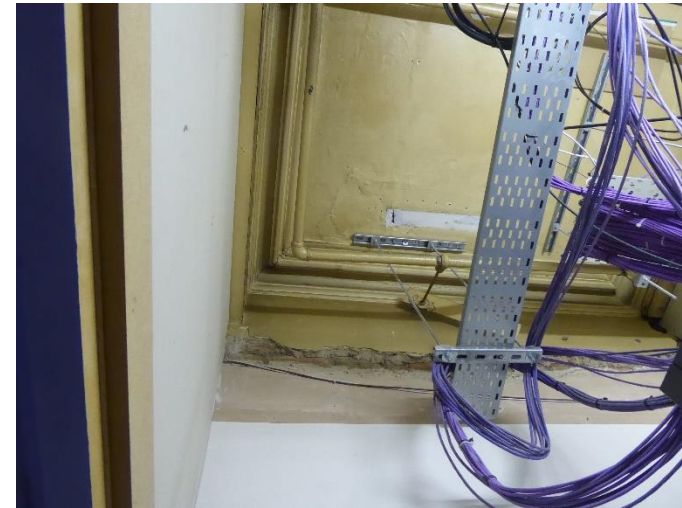


Figure 12: section of surviving cornice and wall plaster within a services cupboard, level 1.

The cutting away of the plaster would suggest that the walls have had an earlier plaster system removed and the walls recovered with modern plaster.

It would also appear that windowsill mouldings have been replaced. An inspection of these across different locations on this floor level identified younger looking timbers and a lack of paint archaeology.

It is also possible that evidence relating to the location of an earlier staircase may survive. This is noted between the toilet facilities and the small kitchen area to the centre of the floor space. There is a natural line

of perimeter mouldings to the ceiling and an apparent drop in the level of ceiling, as though allowing for the rise of the staircase (Figure 13).



Figure 13: possible evidence of the location of an earlier staircase to level 1.



Figure 14: the former goods lift shaft to the rear space of the building.

Inspection of the historic staircase that forms the fire escape route reveals a simple cantilevered staircase with plain square balusters. During sampling it was noted that these are a mixture of timber and metal.

The first-floor space is painted in a neutral colour scheme of white walls and joinery to the windows and use of a grey colour to the columns and ceiling. the rear of the building has a ceiling of much simpler design and it is understood that it contains metal ceiling panels, these were not inspected on the day of sampling.

4.2. Discussion of results

Windows:

One sample from the window to the Portland Street elevation was selected for analysis along with samples from the rear elevation of the building.

Sample 10 from the Portland Street elevation contained a significant number of schemes of decoration with comparable detail to that seen in the samples from the columns. The Portland Street elevation will be discussed first.

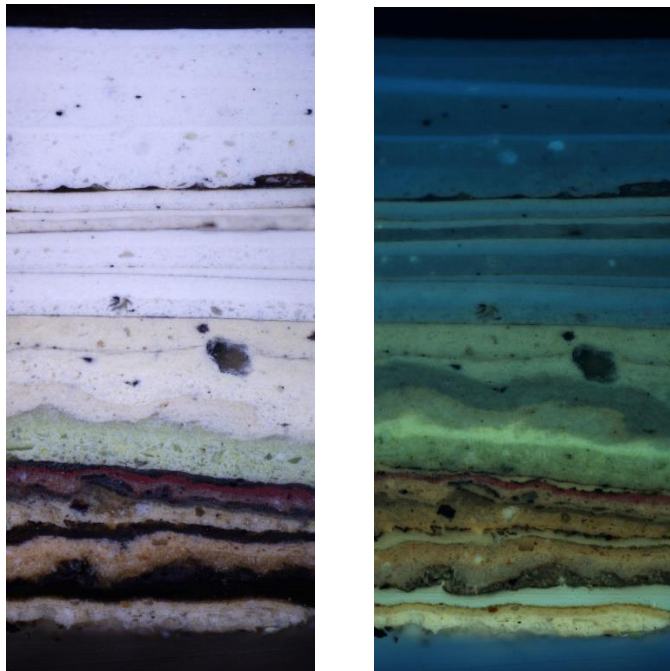


Figure 15: sample 10 (taken at 200x magnification) shown in visible light (left) and ultraviolet light (right)

Whilst no evidence of marbling was seen to the window samples there is comparable use of colour in the latter part of the earliest phase of decoration.

The earliest scheme of decoration is a varnished light brown colour, there is a noticeable dirt film over the varnish layer which would normally indicate this scheme has been in place for some time. However, due to the proximity to the power station of Dickinson Street and the busy nature of Portland Street in the nineteenth century it is expected to see some dirt layers within the early schemes.

The second scheme of decoration is comparable to the first though this scheme appears slightly darker in colour, this scheme has again been varnished and there is a noticeable dirt film over the varnish layer.

Scheme three is also a repeat of the varnished brown colour though there is some indication of a secondary paint film seen here also suggesting graining the interior window finishes.

Scheme four in this sample is the strong red-pink colour applied over a pink undercoat seen as the sixth scheme in the samples taken from the columns. This suggests that there may be schemes missing or disruption to the schemes within the sample location and therefore a further scheme precedes this one. A significant dirt film is also noted in the varnish that has been applied over this scheme. Following additional archival research undertaken by Deloitte detail of the bomb damage to the area was revealed. Whilst the building that forms 113-119 Portland Street was not damaged during the raids on Manchester in December 1940 the building on the opposite side of the road was hit. This is likely to have resulted in significant detritus present in the atmosphere and whilst no significant build up of dirt layers are seen in the sample taken from the interior window finishes that may be attributed to this the disruption noted in this section of the sample, it may indicate losses associated with

the clean up and redecoration of the windows with the rubbing back of paint film. It is highly likely that the varnished dark red colour seen in this scheme was applied prior to 1940.

The use of colour then changes with the introduction of a mid-green colour oil paint, note this was also seen in samples taken from the lower portion of the columns.

Three schemes applied in a cream colour have then been applied which contain some evidence of dirt film suggesting these may preceded the 1956 Clean Air Act. The reaction to ultraviolet light would suggest these may be oil alkyd-based paints readily available after the Second World War. However, given the short period of time noted between the bomb damage to buildings to the opposite side of the road and the lack of dirt films in this phase of colour it is more likely this use of cream can be attributed to post war period of 1950s and early 1960s'

Later schemes of decoration have been applied in white synthetic resin-based paints with seven schemes noted the latter three are of a similar appearance and do not contain any evidence of dirt films beneath them. These paint films are well bound and would suggest a more regular programme of maintenance. It is understood that Bruntwood acquired the building in 2002 and the slight disruption in the paint films below these last three schemes of decoration would suggest that the upper three schemes are likely applied post 2002, though maintenance records for the current owner would clarify how many schemes of decoration have been applied since acquisition.

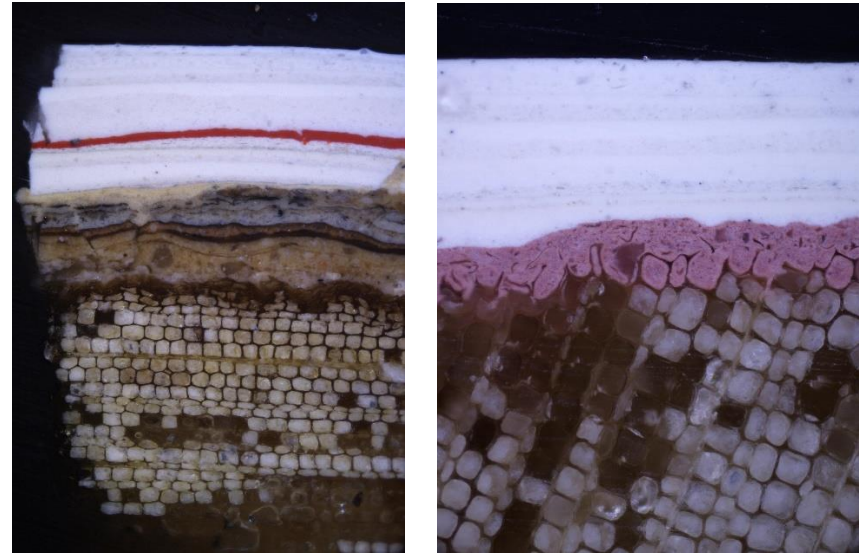


Figure 16: sample 13 (left) and sample 15 (right) (taken at 200x magnification)

Samples 12 and 13 from the rear elevation windows were comparable and also contained evidence of initial light brown colour schemes though there is less evidence of the varnish films noted here. The second scheme is also a darker brown colour (varnished) however this is where the comparable treatment stops with the rear windows then being painted with an off-white oil paint. This did not test positive for lead,, unlike the earliest brown colour schemes. The change to the use of white in these window frames may also be associated with the need to bounce more light into this space where inspection of fabric was undertaken in front of the large windows.

A cream colour is seen to the samples after the off-white decorative scheme followed by three further white colour schemes. A strong red colour is noted, applied over a white undercoat, prior to the last three schemes being applied in a bright white paint scheme.

By contrast sample 15 shown in Figure 16 contain a pink colour paint film as the earliest scheme followed by a five later bright white paint schemes. This indicates this is a replacement section of joinery to the window.

Columns:

A number of samples were taken from different points to two columns within the first-floor open office space and compared.

Sampling from metal means that there is no substrate to the samples, and it is apparent from examination of sample 01 that not all paint films are present. However, analysis of samples 02 and 03 from the first column revealed a similar initial treatment with an initial dark red colour applied to the column there is no evidence of the use of red lead pigment that might suggest this is a protective undercoat. There are dark red, black and orange pigments noted. The appearance under ultraviolet light revealed a build-up of paint layers indicating this is the first complete scheme of decoration to the samples.

This is followed by white lead-based oil paint with evidence of use of some pigmentation to the uppermost paint layer giving a blush appearance to the scheme. The appearance of the paint film varies slightly across the samples indicating a variation the colour used at different heights to the column. There is evidence of dirt film over this scheme in sample 03 also suggesting this scheme may have been present for a period of time before redecoration took place.

This scheme also appears to make use of a varnish film over the preparatory layer (sample 02) and further investigation would be required to understand the appearance of the scheme at this height. This scheme is missing from Sample 01 and sample 02 appears to have been finished with a warm blush colour which becomes lighter in sample 03 to

the upper height of the column. Sample 04 from the base of the capital is also painted in a warm blush colour (indicated by red line below).

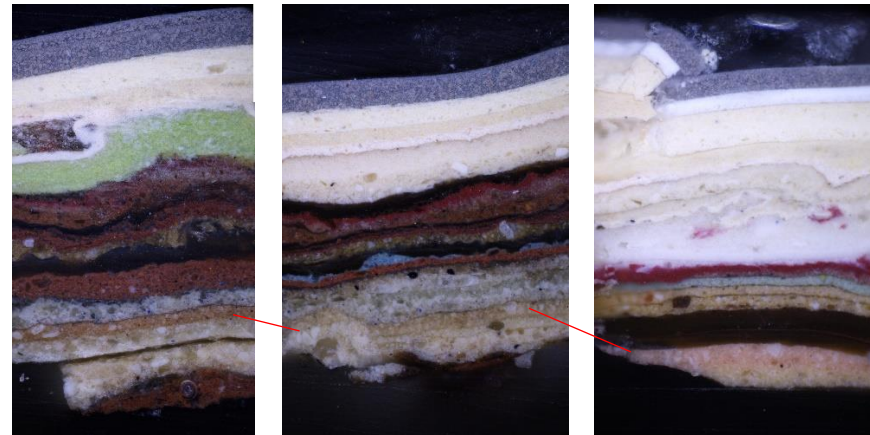


Figure 17: Sample 02 (left) 03 (centre) and 04 (right) showing correlation of scheme two.

Sample 04 also contains a varnish film over the blush paint layer beneath which a secondary broken paint film is also noted under ultraviolet light this suggests a paint finish such as marbling was employed at scheme 02 (see Figure 18).

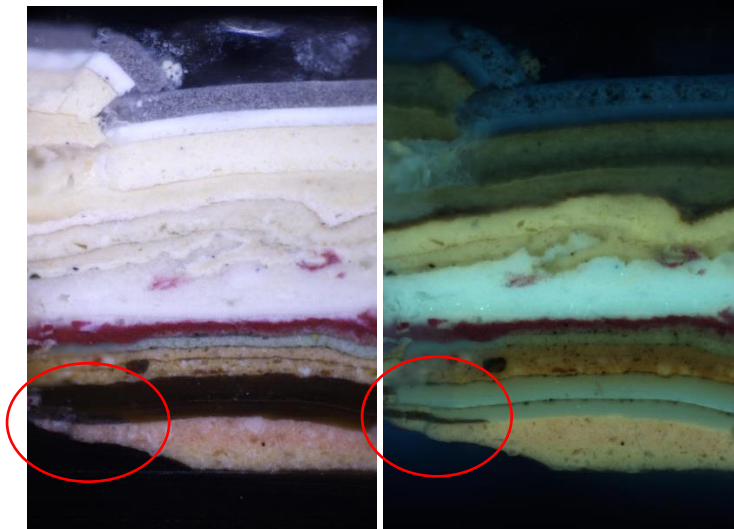


Figure 18: Sample 04 (taken at 200x magnification in darkfield mode) in visible light (left) and ultraviolet light (right).

Scheme three also has variations noted in the samples taken from the height of the column with a blue and grey colour seen to sample two and three, sample four contains a renewal of the varnish film noted in Figure 18. There is fragmentary evidence of this scheme seen in sample 01 that is comparable to the appearance of the scheme seen in sample 03 though further investigation would be required.

Sample 02 contain a white lead ground with evidence of blue pigmentation in the ground layer followed by a thinly applied paint film tinted with blue and black pigments. Sample 03 has been built up of the same blue pigmented lead white ground layer with a secondary coating of white ground layer and buff colour topcoat that contains black pigments and a thin layer of blue pigmented paint over the top.

Scheme four has been applied with a dark red ground to samples 01, 02 and 03. The scheme then contains a variation with a thin, incomplete layer of either dark blue or light blue applied over it, the thickness of the film varies and has then been varnished prior to evidence of a broken thinly applied dark blue film seen over the varnish suggesting marbling. Sample three was examined at 500x magnification in brightfield mode and is shown in Figure 19 below.



Figure 19: sample 03 (taken at 500x magnification, brightfield mode) showing the composition of layers in the earliest schemes of decoration.

Under ultraviolet light the overlying varnish is well integrated with the light blue veining suggesting the varnish may have been applied before the veining had dried. The light blue pigments are also mixed with larger granular pigments of a transparent nature, there is evidence of dark blue pigments within the red ground.

Scheme five has also been applied in a dark red colour but there is no evidence of blue veining suggesting this scheme was a single colour to the column, there is a varnish film noted in the samples. The red is darker to the lower section of the column than it is to the upper portion. This dark red colour has been applied over a buff (stone) colour base coat with orange pigmentation noted. The scheme tested positive for presence of lead. There is a secondary thinly applied dark red paint film applied over this with some evidence of a thin blue paint film noted, this may suggest further imitation marbling to the column though possibly of a lesser quality than scheme four. Sample 04 from the lower moulding of the capital has not been painted red and contains the buff (stone) colour base coat with white, yellow and orange pigments noted, there is a light blue colour seen in this sample with yellow pigments noted. There is evidence that this colour scheme is also used to the capital, but the paint film is not clear, though does appear to have been finished with a varnish.

Scheme six has dark red colour applied over a grey base coat, varnished to the lower section (sample 02), this scheme is also seen in sample 02 from the mid height of the column but there is an additional dark brown paint film to the base coat suggesting a slight colour variation at the middle of the column. This is also seen in sample 03 from the upper half of the column also finished with a varnish film. The capital contains the strong pink-red over a pink undercoat. This scheme reacts slightly to tests for carbonates with a positive reaction to lead in the base coat.

The colour schemes then change dramatically away from the use of strong colours with the introduction of a white zinc-based oil paint with barytes to the upper section and a strong green colour to the lower portion (samples 01 and 02).

Scheme seven has been applied in a cream colour – also repeated in scheme eight and nine.

The current scheme (ten?) has been applied in grey over a white undercoat. This scheme is readily soluble in acetone indicating use of a synthetic resin-based paint.

Ceiling:

There are fewer schemes of decoration seen in the samples taken from the ceiling than from the columns with a limited number of early schemes recorded.

The sample taken from the beam casing (sample 06) has a tinted distemper with large orange pigments noted. It is not possible to determine where this scheme falls within the chronology of the earliest schemes due to the disruption noted within the sample (loss of schemes). The most complete schemes contain a warm cream colour applied beneath a buff colour scheme and later white. The current grey colour applied over a white undercoat is noted.

Sample 07 and 08 from the cornice also contain limited evidence of the earliest schemes of decoration with thinly applied distemper schemes noted. In sample 07 this includes fragments of a blue and red tinted distemper. The lack of significant schemes but fragments of the distemper schemes may indicate the use of washable distempers.

It may also indicate disruption to the cornice as observations noted during the site visit suggested historic loss and repair. Sample 09 from the ceiling flat plaster was also missing any significant early schemes so conclusion about its original appearance cannot be determined from the samples taken.

Rear Staircase:

The earliest applied decoration to the brickwork was a blue tinted limewash/distemper. The use of blue varied depending on the desire to off-set the natural yellowness of the limewash or to tint the paint film. The amount of pigment seen in the paint layers indicates an intention to create a light blue colour to the staircase rather than a brightened white. At least three schemes of the light blue colour limewash/distemper was noted and has been overpainted at a later date by cream colour, followed by off-white and bright white paint films. These later schemes of decoration were applied after the second half of the twentieth century, noted due to the lack of dirt films between the schemes and the reaction to ultraviolet light. In contrast the earliest blue colour schemes do have a build up of dirt layers between the schemes and, given the proximity to the power station on Dickinson Street it is likely these schemes pre-date the twentieth century.

There is further evidence of the use of tinted limewash to other areas of the building's internal brickwork, even in areas to the lower floor where historic finishes appear to have been stripped. This was seen in the lower ground floor corridor and in fragments to the brick walls in the lower office space to the rear (Figure 20 & Figure 21).

Schemes of this nature may suggest a more functional approach to the decoration of the interior and less likely to be somewhere that was visited by more significant members of the company, clients or public access. The renewal of the blue tinted limewash was also easier to undertake than a full-scale redecoration with lead-based oil paints as a single coat can be applied to renew the scheme compared to several schemes of a oil based paint. Hasluck notes "In places where people congregate, the moisture in the atmosphere – unless ventilation is exceptionally good – will condense upon a painted surface and run down the walls. When

distemper is used in such situations the distempered surface will absorb the moisture for the time being and ultimately give it forth again without any detriment to its colour" (Hasluck, 1871)



Figure 20: evidence of historic blue-grey decoration surviving to the lower ground floor.

The use of such paints may also have served a purpose as being hygienic in a space containing a significant amount of cloth where an increase in the humidity of the internal environment may have a detrimental effect on the fabric contained in the spaces. Using paint to help reduce this

impact shows the practical nature of the areas where fragments of these schemes are found⁵.



Figure 21: Section of retained historic decoration to the lower ground floor office / exhibition space.

Samples taken from the staircase handrail and spindles revealed the use of a dark grey colour oil paint to the handrail followed by a dark red colour. These were subsequently overpainted after the Second World War by black, dark green and then pink. These colours are also seen to the spindles though this appears to have initially been varnished repeatedly in the earliest schemes.

⁵ For this reason it would be useful to understand the nature of the decoration to the plaster identified within the IT cupboard to the centre of the building.

A sample was taken from the edge of the step and indicated this is unlikely to have been painted initially with the use of white paint films applied after the Second World War, a dark green and pink were also noted in the cross section.

As might be expected the appearance of the staircase would suggest a simple treatment as a functional space most likely reserved for staff associated with the running of the warehouse. The simple nature of the design is comparable to that seen to other lower status access routes in buildings such as Canada House. The principal staircases designed for use by clients were more decorative and the simple design of this staircase along with what is thought to be possible location of an historic staircase to the centre of the circulation space to this floor would suggest this staircase was reserved for lower classes of workers to this building.

It should be noted that in addition to the agreed samples taken from the facets detailed above a limited number of additional samples were removed on 14th February. These included one sample from an exterior window facet to Portland Street elevation, one sample from the surround of the goods lift within the rear of the building and one sample from a section of external metal railings to the lower ground floor window towards the lower end of the Dickinson Street façade. These samples have been prepared for assessment but not analysed at the time of writing the report.

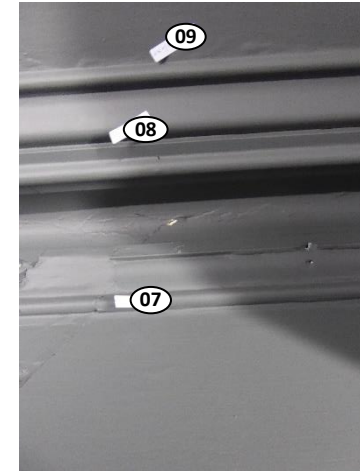
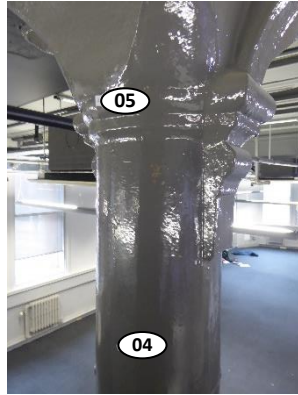
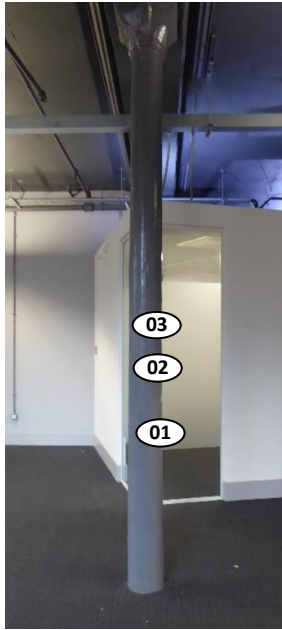
4.3 Colour References

No return to property to expose colour schemes has been undertaken at the time of publishing this report and colour schemes can only be discussed on terms of general appearance. Any interest in the provision of colour schemes needs to be informed by exposure of paint films in a return visit.

It is recommended that colour panels are made and viewed in situ against the stone prior to redecoration of the windows as the earliest recorded colour may need to be adjusted to complement the existing appearance of the façade. Colour references are listed against images.

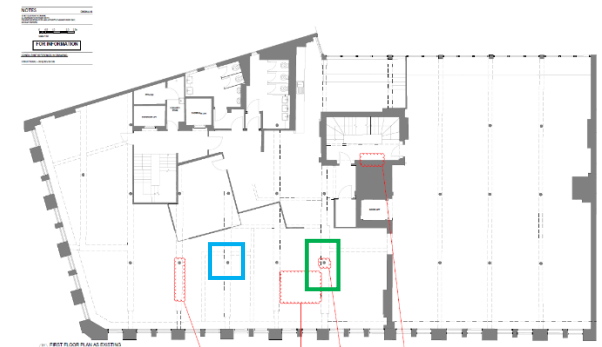
5. Sample Locations

5.1. Level 1 Column 7 & Ceiling

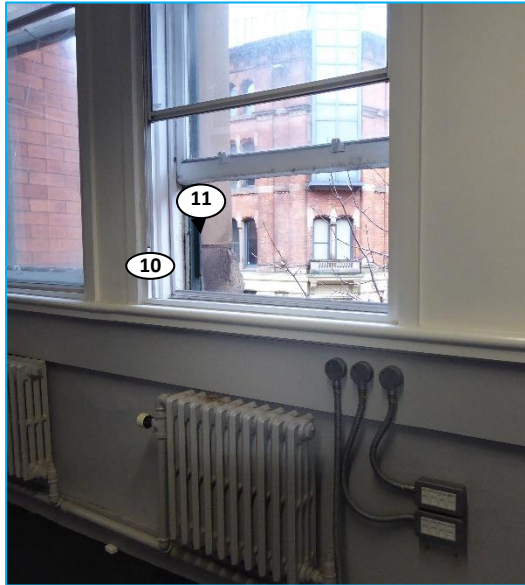


Sample locations:

- 01 – Column, lower (
- 02 – Column, mid height (
- 03 – Column, lower portion of upper section (
- 04 – Column, Upper section
- 05 – Column, capital, lower
- 06 – Beam casing,
- 07 – Cornice, lower ovolo moulding
- 08 – Ceiling, perimeter moulding
- 09 – Ceiling, panel flat

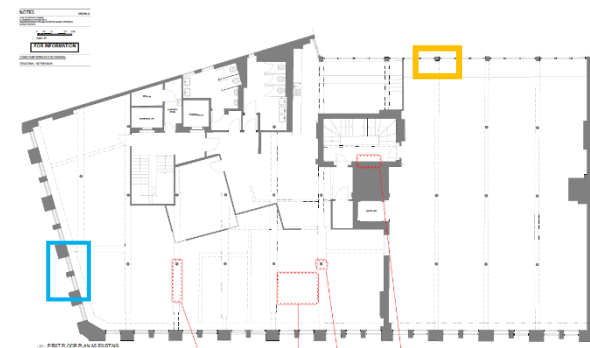


5.2. Level 1 Windows

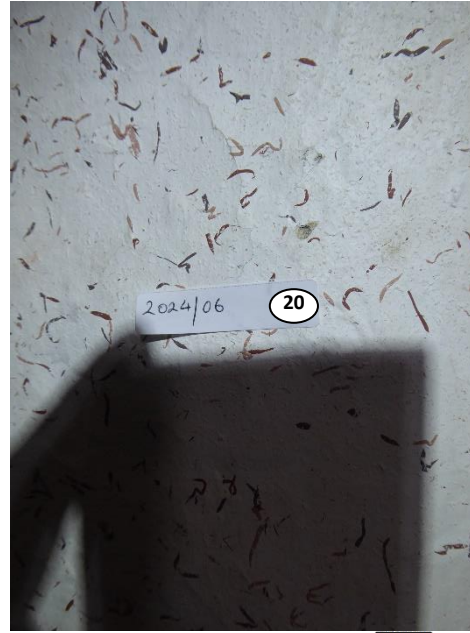
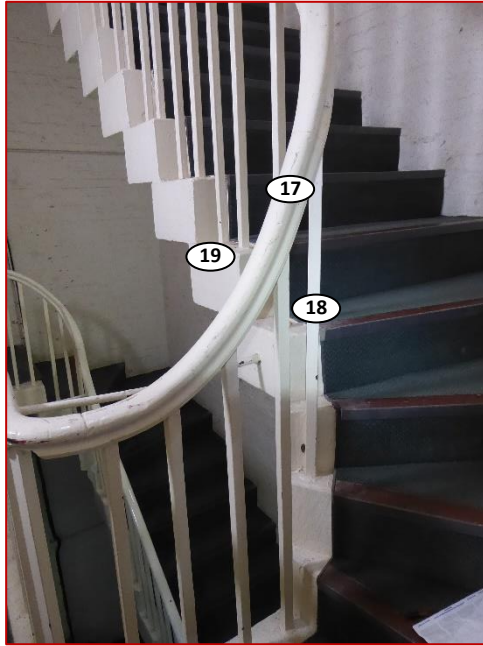


Lower-Level Sample locations:

- 10 – Portland Street elevation, window, interior surround
- 11 – Portland Street elevation, window, exterior surround (not analysed)
- 12 – Rear elevation, window, lower horizontal to window
- 13 – Rear elevation, window, vertical beam, ovolo beading
- 14 – Rear elevation, window, vertical beam, panel flat (front)
- 15 – Rear elevation, window, window frame (casement window)
- 16 – Goods Lift, door surround (not analysed)



5.3. Level 1 Staircase



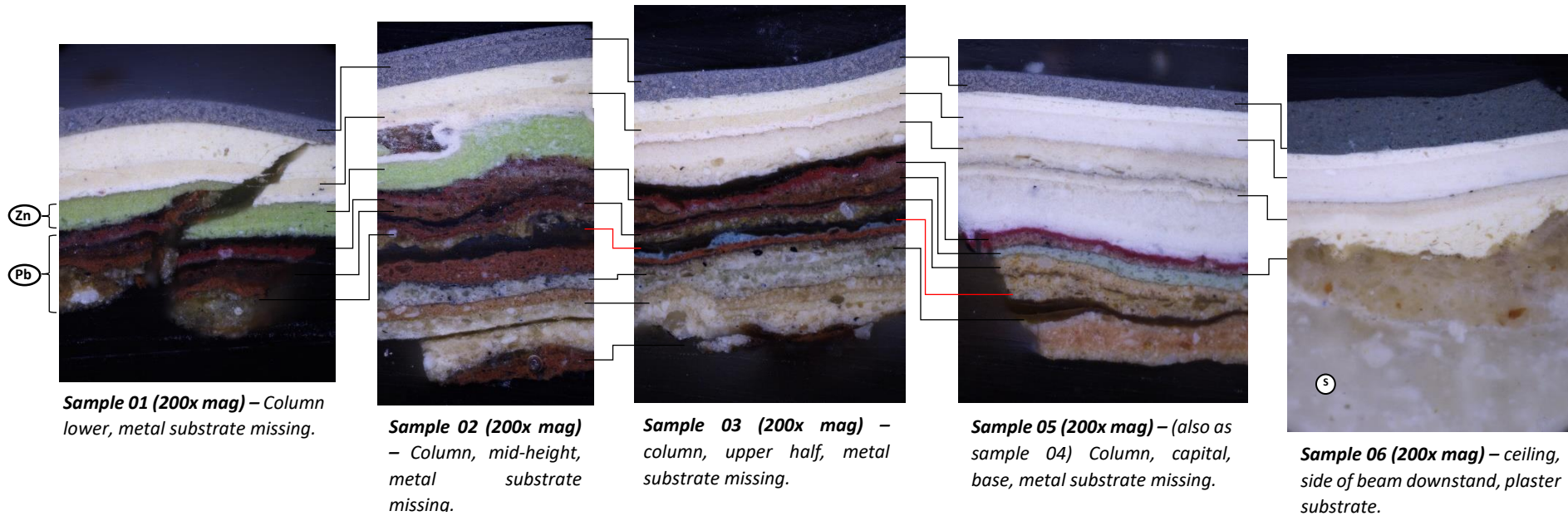
Sample locations:

- 17 – Rear (historic) staircase, handrail
- 18 – Rear (historic) staircase, spindle
- 19 – Rear (historic) staircase, corner of concrete nosing
- 20 – Rear (historic) staircase, wall



6. Photomicrographs

6.1.1. Column & ceiling



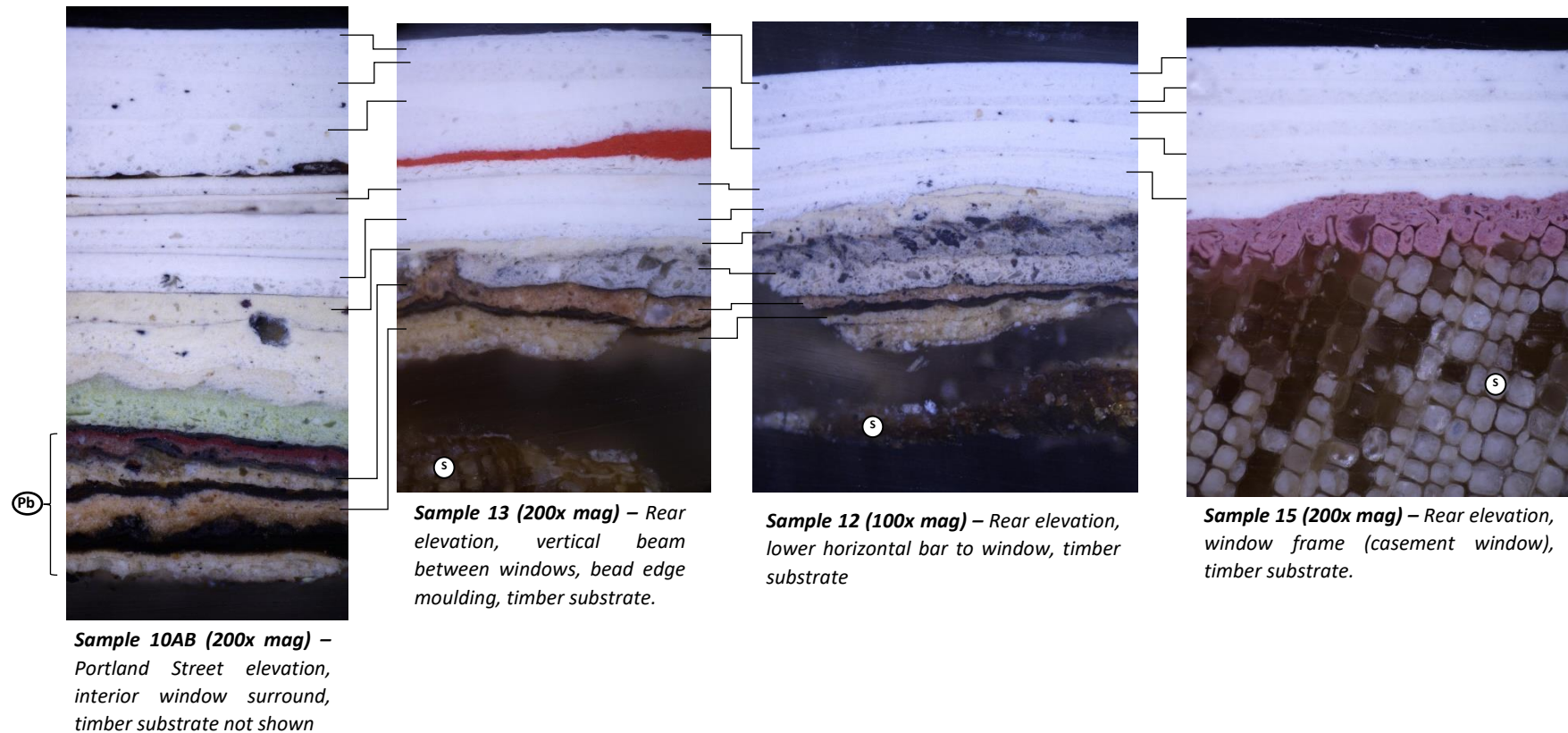
Initial observations:

- Analysis of the samples taken from the column reveal a comparable treatment and number of schemes. The earliest schemes to sample 01 from the lower section are missing and there is some indication of a variation in the earliest schemes between sample 02 and 03 indicating the lower portion was treated slightly differently from the upper.
- Within the schemes to the column there is evidence of a special paint finish – this may be marbling, or similar finish and further investigation is required (scheme marked).
- Sample 06 taken from the beam show fewer schemes of decoration than the columns with a cream colour evident as the first scheme.
- The lack of paint archaeology suggests loss of applied decoration though this was noted across all samples taken from this area and further investigation of the ceiling may be required to ascertain presence of additional finishes.

Key

- ① Number of scheme(s)
- / Links decorative scheme
- Pb Lead-based oil paint scheme(s)
- Zn Zinc-based oil paint scheme(s)
- S Substrate

6.1.2. Windows



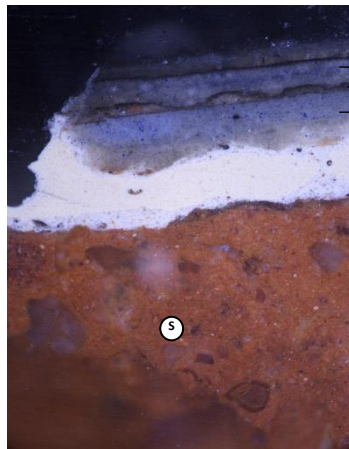
Initial observations:

- Sample 10 taken from an interior facet to a Portland Street elevation window contains a significant number of paint films. The earliest schemes have been applied in lead-based oil paints and have varnish films over. These are followed by a number of schemes applied in oil alkyd and synthetic resin-based paints indicating this sample likely contains a full paint archaeology for this facet.
- Samples taken from the rear elevation window show comparable initial treatment but fewer schemes of decoration with sample 15 containing only later synthetic resin-based paint film indicating this facet may be a later replacement.

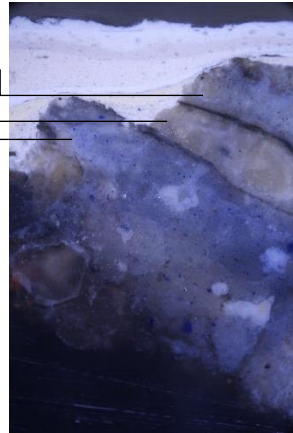
Key

- ① Number of scheme(s)
- Links decorative scheme
- Pb Lead-based oil paint scheme(s)
- Zn Zinc-based oil paint scheme(s)
- S Substrate

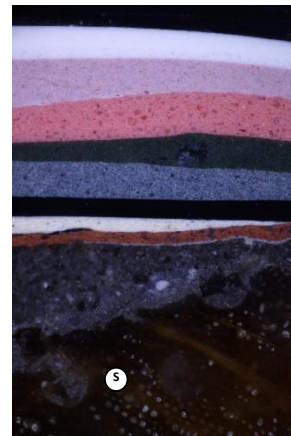
6.1.3. Staircase



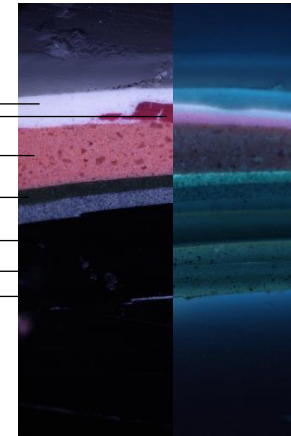
Sample 20A (200x mag) – Rear staircase, wall, brick substrate.



Sample 20B (200x mag) - Rear staircase, wall, brick substrate. .



Sample 17 (200x mag) – Rear staircase, handrail, timber substrate.



Sample 18 (200x mag) – Rear staircase, spindle, timber substrate not shown (inset UV image to RH side).

Initial observations:

- Sample 20 has split into two sections (A & B shown above). Sample 20A shows what appears to be an initial white colour applied to the brickwork but is a bleed through of later paint layers into fractured earlier paint film – blue.
- Sample 20B shows the earlier schemes of blue pigmented distemper beneath the later white paint film. There is some disruption to the paint films most likely as a result of abrasion / impact from a high traffic area.
- The use of blue pigments in the distemper would indicate French ultramarine synthesised as an alkaline stable pigment in the mid-19th century.
- The earliest treatment of the joinery to the staircase suggests a dark grey to the handrail but varnish to the spindles (noted under UV light in sample 18). In a number of the subsequent schemes that followed this the use of dark red, black and dark green is noted.
- The use of black to the handrail (sample 17) would indicate post Second World War due to the availability of black oil alkyd based paints.
- The lack of paint archaeology in sample 17 indicates loss of schemes.

Key

- ① Number of scheme(s)
- Links decorative scheme
- Pb Lead-based oil paint scheme(s)
- Zn Zinc-based oil paint scheme(s)
- S Substrate

7. Recommendations

7.1. Appropriate Redecoration Strategy

A number of areas contained failing paint films and all areas of flaking paint should be removed prior to redecoration. Whilst every effort should be made to retain paint archaeology suitable preparation is required to ensure appropriate bonding of the paint films, especially given the elevated nature of the facets and any future access limitations.

If it is possible to retain some paint archaeology prior to redecoration following removal of failing paint films, this ensures physical evidence is retained should any existing research be lost.

It would be beneficial for location of retained schemes to be marked onto drawings to ensure these areas can be identified in future should any further research or analysis be required.

7.2. Health & Safety

The large proportion of paint films were found to contain lead which is toxic. Where paint removal is to be undertaken, methods should ensure safe working practice. Therefore, dry removal should be avoided to prevent the creation of air-borne, lead-containing dust, unless suitable extraction with a HEPA filter can be in place. The use of a heat gun should also not be used without the operative wearing suitable PPE and appropriate Hot Works permits in place. Any waste material from the use of paint strippers should be disposed of according to lead contaminated waste regulations.

Positive identification of paints with a high lead content: Where original architectural features are still extant, early paint films were identified as lead oil paints and tested strongly positive for lead. Most of these are encapsulated by later, non-lead paint films though there is localised failing. Those working in close proximity to these facets need to follow guidelines for working with lead contaminated waste and wear suitable PPE at all times.

7.3. Colour Tests Prior to Redecoration

It is strongly advised to undertake trial panels viewed in-situ prior to the final specification for colour where there is an interest in recreating the design intention of the original architect.

Any intention to recreate an earlier colour palette should take into consideration the changes in any surrounding buildings or landscape and associated patina since construction. Schemes that were applied in the 18th century may have considered the colour of stonework, the appearance of which, will most likely have altered in the intervening years. Therefore exposed “original” colours may need to be adjusted accordingly.

8. Glossary of Terms

Cross-section: a sample, mounted in clear resin, polished to exposure all the paint films for microscopic examination.

Decorative scheme: an intended finished appearance of a space.

Dirt layer: a layer of dust or debris sandwiched between decorative schemes. Often seen in exterior paint samples where paint films were applied before the Clean Air Act (1956) and surfaces were not heavily prepared before the application of the new paint film. Dirt films can also be seen in samples from areas of heavy carbon deposits such as interiors where open fires, gas lighting etc. were employed. Dirt films can be indicative of long periods of time between schemes of decoration.

Oil Paint: Dry, finely-ground pigment which is made into a paste with an oil, such as linseed, poppy or walnut. The paste may then be diluted with more oil and/or a spirit such as turpentine or white spirit.

Lead oil paints: Lead paint is a traditional paint type, with a basic composition of oil (usually linseed, oil type varies according to paint use), lead white paste or pigment, and other pigmentation. The translucency of white lead oil paint increases with age by virtue of saponification of basic lead white with oil, forming lead linoleates. This represents a graceful alteration of the paint, leading to a more yellowed tone with time.

Gilding: an application of gold or metallic leaf applied to a surface as part of a decorative scheme. Oil or water gilding can be used and exterior oil gilding can include double gilding for a more durable finish.

Paint sample: the physical sample of paint. The sample should include all paint films and a small section of substrate where possible.

Paint film: a single application of paint, a number of paint layers make up a decorative scheme.

Paint scheme: a combination of a number of paint layers to form the intended scheme of decoration e.g. primer, undercoat and top coats.

Photomicrograph: an image of a cross-section taken through the microscope.

Primer: a preparatory film applied beneath an undercoat, can be applied as a continual film or as a spot primer where the underlying or existing coatings need additional preparation prior to the application of a new scheme of decoration.

Synthetic resin, oleo-resinous: Alkyd resins were developed in the 20th century and are based on a synthetic resin. They quickly replaced oil paints, gaining great popularity after WWII, and provided a high gloss paint which was easier to work than traditional oil. They were available as gloss or matt, the gloss and eggshell having a particularly 'plastic' appearance.

Substrate: the underlying material upon which the paint film has been applied.

Topcoat: One or more applications of the final paint colour of a scheme. A topcoat can be used to pick out an architectural facet or have a number of paint layers to make up a polychrome or stencilled scheme.

Undercoat: a preparatory paint film(s) applied to a surface prior to the application of a topcoat or varnish film. An undercoat can be built up in several layers.

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