Paint Analysis at York Assembly Rooms
Client: York Conservation Trust
Report Author: Paul Croft
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1.0: Introduction

Lincoln Conservation were contracted by York Conservation Trust to undertake a brief programme of historic paint analysis on the interior spaces within the Assembly Rooms in York. A site visit was made on September 26th 2017 to take advantage of a full scaffold already in place, allowing access to the higher areas and remove a tranche of paint samples through the moulded cornice and pilaster capitals above the clerestory windows. Beneath the windows, samples were also removed from the ornate architrave immediately above the supporting corinthian columns, the columns themselves, walls and main door.

The Assembly Rooms were constructed in 1730 to a design by Richard Boyle, 3rd Earl of Burlington, representing an early example of neo-classical architecture. They are listed Grade I (list entry no. 1259521) and considered to be of seminal importance in the history of English Architecture. In his design, Burlington availed himself of Palladio’s interpretation of Vitruvian archaeology with a perfect reconstruction of the ‘Oecus Aegyptus’ or Egyptian Hall, as illustrated in Palladio’s woodcut.

The objective of this research exercise is to establish the earliest appearance of the interior space of the main Assembly Room (no samples were removed from the adjoining rooms and circulation spaces). However, an examination of the physical samples in cross section has brought the subsequent decorative schemes applied into focus and a brief narrative of their colours and nature is also provided within this report.

It is important to recognise the Assembly Rooms have understandably undergone significant restoration and refurbishment over the years resulting in some loss and disruption to the original fabric. During the sampling exercise every effort was made to identify areas that appeared to retain a heavy build up of decorative layers to potentially provide a full chronology of paints and other decorations.

This is why archival research is important; it can reveal primary sources of information indicating when interventions have taken place, the nature of the work carried out and whether redecoration would have been required. This allows the paint researcher to establish datum points in the record and begin to identify the dates the decorative schemes were applied.

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1 Historic England list entry summary [online], available from https://historicengland.org.uk/listing/the-list/list-entry/1259521
In this case, much of this work has already been undertaken by Maybank Buildings Conservation and included in their Statement of Significance issued in May 2017. The following section outlines some of the key dates lifted directly from their report.

2.0: Key dates (from Statement of Significance)\(^3\)
The following dates are pertinent to the decorative history of the interior (i.e. events that may have resulted in re-decoration either in part or as a whole)

1735: Construction and decoration completed. John Bagnall’s interior stucco on the clerestory walls was stone coloured.

1755: John Staveley added decorations of gilded and painted plaster to the interior walls of the clerestory, including scallops above the end windows and oval mouldings below.

1773: Minor fire, Lesser Assembly Room remodelled (potential smoke staining to other areas)

1827: Possible redecoration; painting etc. by D. Allen.

1843: Roof repairs and alterations – likely insertion of ventilation system and clerestory dormer. Cleaning, repainting and redecoration of the interiors.

1859: Interior remodelled including removal of side walls

1860: Major redecoration scheme by Owen Jones, including gilding ceiling vents and surrounding paintwork in red. Potentially a rich Victorian decorative scheme.

c1906: Possible restoration although no formal records of work carried out.

1939-40: Restoration

1950-51: Major restoration & redecoration, scallops and oval mouldings removed. Box girder frame inserted at base of clerestory. Clerestory walls, pilasters and decorative plaster pinned back onto steel frame. Followed by “the decorative plaster in cornices, string courses, mouldings and capitals being remoulded and replaced where excessively damaged or perished”. Ceiling vents removed.

1971-73: Restoration. Repairs to Lesser Assembly Room walls


1990: Restoration

The work carried out in 1950/51 was clearly highly interventive, causing major disruption and the replacement of some of Bagnall’s original plaster/stucco work. The evidence for this is clear in some of the samples removed from the decorative plasterwork beneath clerestory level.

3.0: Terminology used

3.1: Paint samples

A physical sample removed from a surface, ideally to include all paint layers and substrate. Similar in process to a medical biopsy. Though collected on site, investigation of paint samples commonly occurs off site in a laboratory environment. Samples are often mounted in blocks of resin, and viewed in cross-section under the microscope to determine the build up of paint layers. However, as only a small section is analysed, it can often miss patterning or polychrome schemes if examined in isolation.

3.2: Numbering & Naming Convention

A number of samples are mounted within a resin block (typically, about six). The blocks are numbered in sequence, starting at 1, with the individual samples as a sub-section of the block. For example a sample numbered “2.10” corresponds to block number 2, sample

10. This convention is reflected consistently throughout the report and summarised in the Sample Location List (along with a descriptor), for example as

2.10: Upper water leaf (above modillions)

3.3: Cross-section

A cut made through the paint sample perpendicular to the lay of the paint layers. This enables us to view the build up of layers.

3.4: Photomicrograph

A photo taken through the microscope.

3.5: (Decorative) Scheme

The applications of paint, wallpaper, gilding or varnish with the aim of refreshing or redecorating a surface or area. A decorative scheme may be formed from a single layer of paint etc. or from a set of layers. For instance four layers: a primer, basecoat, topcoat and varnish, may be constitute a single decorative scheme.
3.6: Substrate

The underlying material that the paint is applied to, for instance the plaster on a wall, or the wood of a skirting board. It is important to obtain a paint sample complete with the substrate in order to determine if the first layer of paint is the earliest decorative scheme. Damage to the substrate, or traces of another paint would indicate that the surface was stripped and so the earliest evidential paint layer is not the first that was applied. Similarly dirt on the surface of the substrate may indicate that it was originally left unpainted.

*Note: this is particularly relevant here at the Assembly Rooms, where evidence suggests Bagnall’s original stucco was initially left unpainted.*

3.7: Primer

A substance used as a preparatory coat on wood, metal, or canvas, especially to prevent the absorption of subsequent layers of paint or the development of corrosion.

3.8: Sealing coat / builders finish

A size, distemper paint or other substance applied to a surface – often lime plaster as preparation for the first decorative scheme of paint. A builder’s finish was often applied whilst the slow drying lime plaster cured – a process that could take up to a year. However, this was often deemed to be part of the plasterer’s work and not necessarily as a decorative scheme.

3.9: Top-coat

The final paint layer applied in the desired final colour or finish.

3.10: Varnish

Resin dissolved in a liquid for applying on wood, metal, or other materials to form a hard, clear, shiny surface when dry. Commonly used to protect a surface and improve its longevity, and provide a washable surface. The appearance of a varnish layer may indicate a special, complex or expensive decorative scheme, e.g. polychrome design, gilding, wood-graining etc.

3.11: Dirt Layer

After decoration and throughout the lifetime of a decorative scheme, dirt, dust, debris and other particulates become deposited.

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on the surface of the paint. When a new decorative scheme is applied, this build up of deposits becomes sandwiched between the old and new layers visible under the microscope. Taking into account environmental factors, the size of the dirt layer corresponds to the length of time the paint layer it sits on was exposed to the air for. Thus, the heavier the dirt layer, the longer amount of time between decorative schemes. The lack off a layer of dirt deposits between two paint layers indicates that those paints were applied as part of the same decorative scheme e.g. the application of a basecoat and a topcoat.

3.12: Paint
Paint is commonly made from four components: pigment for colour, binder to hold everything together, dryer to enable the drying or curing of the binder and an extender to bulk out the paint and require less pigment.

3.13: Oilpaint
Paint made with a drying oil binder, e.g. linseed oil.
Alkyd paint uses a synthetic alkyd resin as a binder. Although available for retail in the UK in 1929, disruption to production due to WWII and a distrust of new paint technologies meant that alkyd paint for interior decorative purposes was not in common use until at least 19495.

Until the middle of the 19th century lead compounds were added to oil paints as both pigments and driers, but they tended to rapidly discolor – particularly lead white. This was largely counteracted with the introduction of the pigment zinc oxide, which began on a commercial scale in 18476.

Titanium dioxide paint uses titanium dioxide to give a more brilliant, stable and opaque white when compared to lead or zinc. Although discovered in 1821, it was popularised and became the basis most white house paints from 1921 onwards.
Lead paint uses lead compounds to aid the drying of the oil. Lead in linseed oil was the predominant paint base until a rapid decline the 20th century due to increasing concern over its toxicity. White lead in paints fell during 1900-45 from nearly 100% to less than 10%.7

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3.14: Distemper paint
Soft distemper is a permeable paint where the binder is an animal glue. Commonly used with large quantities of whiting (chalk dust) as an extender, optionally with pigments added to provide colour. Distempers are water-soluble and usually, but not always, washed off before the application of a new scheme.
Oil bound distemper was popularised in the 19th century, a distemper paint with the addition of oil and an emulsifier such as borax (sodium borate). Unlike soft distempers it is more durable and often washable.

3.15: Marbling
The application of several layers of paint or glaze and worked by the artisan to replicate the appearance of marble, either naturalistic or fantastical. This was a time consuming and expensive technique and deemed to be a high status finish.

3.16: Wood-graining
The application of several layers of paint or glaze to replicate the appearance of wood, either naturalistic or fantastical. Wood graining is a relatively common decorative finish, used in lieu of more expensive wood e.g. mahogany. However complex and high quality wood-graining can be deemed a high status finish.

3.17: Gilding
The application of gold or metallic leaf.
Oil gilding uses oil size (similar to a varnish) to adhere the leaf to a surface. Occasionally a yellow paint was applied as a basecoat and a glaze applied as a topcoat to give the desired tone. A varnish may be applied on top as a protective layer.
Water gilding requires an undercoat of bole (a finely divided clay suspended in thin animal glue). Gold is applied to the surface using water, and then burnished to give a high shine.

4.0: Method of Analysis
Historic paint analysis can be highly detailed and involve a number of different analytical techniques, including optical microscopy and a range of more scientific analyses designed to identify the constituent components: pigments, binding media and extenders.
This exercise will focus solely on optical microscopy techniques using both reflected light and ultra-violet. This method provides an image of the accumulated decorative layers, with the earliest at the
base of the sample and subsequent schemes stacked above, as they would have been applied in real time.

Examination under reflected light displays the number of decorative schemes applied, their colours and defines dirt layers between schemes, which helps to define primers from top coats and highlight unpainted substrates. Ultra-violet light causes different types of paints and varnish films to fluoresce in a characteristic manner assisting the identification of lead, zinc and modern alkyd paints. This assists the dating of paint layers, for example the introduction of zinc in paint after the middle of the 15th century and synthetic alkyds from the middle of the 20th century.

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Fig. 1: The Assembly Rooms (exterior)⁹

⁹ Image downloaded from https://commons.wikimedia.org/wiki/File:Ask_at_the_Assembly_Rooms,_Blake_Street,_York_(21st_October_2010).jpg

www.lincolnconservation.co.uk
5.0: Summary of findings

This report will now examine a number of samples that are representative of the decorative schemes applied, along with an accompanying narrative. Annotated colour photomicrographs are provided with the earliest scheme at the base of the image and subsequent layers stacked above.

Images of sample locations are included along with their corresponding reference numbers, with a sample location list included at the back of the report for archival purposes.

5.1: The Upper cornice & Ceiling

Fig.3 displays a photomicrograph of a key sample removed from the modillion on the stucco cornice. The plaster substrate is at the base with a distinctive heavy dirt layer on the surface indicating the cornice was originally left unpainted. This dirt layer is consistent across all samples removed from the cornice and are probably sooty deposits as a result of burning tallow candles in the early C18 to light the space.

In addition, the surface layer of the stucco contains fine grains of sand along with traces of what appears to be pigment. This is very unusual and certainly warrants further investigation and research.

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10 Image downloaded from https://austenonly.com/2010/05/16/the-assembly-rooms-at-lyme/
According to Beard\(^{11}\) “the use of colour was dependent on the attitude and temperament of both patron and artist and appears to have been practiced outside England. Authentic examples of coloured stucco in the British Isles have still, to be satisfactorily proven”.

An examination of other samples removed from the cornice appear to include a range of earth pigments (e.g. ochre and umber) in the surface layer of the stucco, suggesting a deliberate attempt to present the interior in subtle shades of stone colour possibly to further accentuate the impression of a stone interior.

The interior appears to have remained unpainted for approx. 20 years, when in 1755 Staveley refreshed the interior by painting the plaster and adding some gilded elements. No evidence for gilding from this period has been uncovered during this exercise and it appears that the theme of a ‘stone interior’ continued through the remainder of the 18\(^{th}\) century and into the mid 19\(^{th}\) century when Owen Jones was commissioned to introduce a new decorative theme to the Assembly Rooms.

This was the first time colour was introduced to the interior with evidence for blue, orange, creams and some gilding to the cornice (see figs 4 & 5). The Owen Jones decorative schemes appears to have been retained until the early 20\(^{th}\) century when a theme of predominantly cream oil paints were introduced until the 1990 and current 2017 schemes in white.

A sample of early ceiling plaster was provided, removed from a section that had previously been removed and stored in the basement. A photomicrograph of this is provided (fig.6), displaying a lining paper above the plaster substrate with a sequence of cream coloured oil paints above. The earliest paint applied immediately above the paper is a cream coloured zinc oil paint (note the bright white fluorescence in fig.6\(^{12}\)) suggesting a mid C19 date (possibly the Owen Jones period). This evidence adds weight to the fact the ceiling experienced considerable upheaval when the ventilation system was installed in the mid C19 and potentially covered with a lining paper at that time. Further evidence indicates the ceiling was painted to match the upper cornice, up to and including the most recent white decorative schemes.


\(^{12}\) op cit., de la Rie
Fig. 3: Sample 1.3, modillions stucco cornice

Key dates (from Statement of Significance) and their apparent decorative schemes

10. 1990 Restoration
9. 1981: Restoration internal redecoration & plaster repairs
8. 1971-73: Restoration & repairs to lesser Assembly Rooms
7. 1950-51: Major restoration
6. 1939/40: Restoration
5. c1906: possible restoration (no formal records)
4. 1860: Major redecoration - Owen Jones scheme (blue)
3. Early C19 (1827 – 1843) surface cleaned back in preparation for the 1860 scheme
2. 1755 & 1773 (Staveley scheme in 1755, minor fire in 1773)
1. 1735 (unpainted stucco potentially pigmented)

Note: heavy surface dirt layer
Fig. 4: Sample 1.2 (frieze beneath modillions)

- **Modern schemes (1981 onwards)**
- **20th century schemes in creams and stone colours**
- **Owen Jones (1860) orange/cream oil paint**
- **Early C19 schemes (cleaned back)**
- **1735 unpainted stucco potentially pigmented with ochre**

Fig. 5: Sample 1.5 (lower water leaf)

- **Modern schemes (1981 onwards)**
- **20th century schemes in creams and stone colours**
- **Owen Jones (1860) oil gilding**
- **Early C19 schemes (cleaned back)**
- **1735 unpainted stucco**
Modern schemes (1981 onwards)

20th century schemes in creams and stone colours

Cream coloured zinc oil paint, Owen Jones (1860). Zinc oil paints were not introduced to Britain for architectural use until after 1850 (cited in: Downs, A.C. (1976), Zinc for Paint & Architectural Use in the 19th century, Bulletin of the Association for Preservation Technology, vol 8., no.4, pp 80-99)

Lining Paper

Plaster
Fig. 7: Sample locations upper level (above clerestory windows)

Ceiling sample taken from a section of original material, previously removed and stored on site (sample 2.11)

- Upper waterleaf above modillions (sample 2.10)
- Modillions (sample 1.3)
- Waterleaf beneath modillions (sample 1.4)
- Frieze beneath modillions (sample 1.2)
- Bead & reel (sample 1.1)
- Lower water leaf (sample 1.5)
- Frieze (sample 2.6)
- Pilaster capital acanthus (sample 2.8)
- Frieze swag (sample 2.7)
- Pilaster shaft (sample 2.9)
5.2: Beneath Clerestory Level

Fig.8: The entablature (sample locations)

Fig.9: Column Capital (sample locations)
5.2.1: Observations
A number of samples were removed from the entablature and column capitals immediately beneath clerestory level. There is no evidence for 18th century decorative schemes on any of the samples removed, with the possible exception of the modillions (sample 3.16). All the remaining samples suggest a mid 19th century date, probably just prior to the 1860 Owen Jones scheme. Potentially, this could mean that the 1843 and 1859 remodelling and repairs by J.B. and W Atkinson13 included major intervention to the lower entablature – at least in the location the samples were removed. It is important to bear this final point in mind. The evidence presented here represents one small isolated area of the interior that was accessible on the day of sampling; although every effort was made to remove samples that would reveal a full chronology of paint layers, this cannot be guaranteed.

Specific observations include.
- The area of frieze sampled (4.18) displayed modern paints only and appears to be a relatively recent replacement (possibly 1950/51)
- The first gilding applied to the column capitals appears to have taken place during the 1860 Owen Jones scheme. Immediately prior to this they were presented in stone or pale cream
- Both samples removed from the laurel torus (3.15 & 4.19) display a long tradition of the torus being gilded and not painted green
- Egg and dart mouldings (3.17) oil gilded from the mid 19th century onwards. Currently painted in gold oil paint.
- The modillions (3.16) – could be the original plaster stucco with traces of pigmented surface. This surface was cleaned and washed prior to the introduction of the 19th century schemes.

The following page displays two photomicrographs that are representative of the gilded finishes and painted plaster.

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13 Smith, Dr D., op cit, p.6
Fig. 10: Sample 3.16 Modillions

Description of layers:
- Current scheme: pale green with gold painted tips
- Stone/cream coloured zinc oil paint
- Pale stone/cream colour lead oil paint
- Pale stone/cream colour lead oil paint (mid 19th century)
- Surface cleaned back
- Plaster/stucco

Fig. 11: Sample 4.19 laurel torus moulding

Description of layers:
- Current scheme: pale green with gold painted cross straps
- Oil gilding on white ground
- Oil gilding
- Oil gilding (probably 1860)
- Gold oil paint on white ground (mid 19th century)
- Plaster/stucco
5.3: Fig.12, The Column shafts and bases

The columns are currently marbled in a painted faux sienna marbled finish and coated with a polyurethane varnish. This raises the question: *is this a uniquely modern interpretation, or were the column shafts marbled in the past?*

This is impossible to establish from paint sampling alone, which by its very nature only examines a small area (typically 5mm square) and can easily miss the figuring of a marbled finish. To conclusively establish the presence of earlier marbling, the paint layers will need to be removed carefully one layer at a time covering sufficient surface area to reveal the nature of the underlying marbled schemes.

Although the cross section removed from the column shaft was inconclusive it is included here for the academic record.

However, there is clear evidence the columns were marbled in the past, starting with an etching in the London Illustrated News (1864) and further photographs dating to c1940 and c1950 included in the Maybank Conservation Management Plan (pp. 31/32). This is further endorsed by another photograph of the interior taken during the 1928 Radio Exhibition and included later in this report, along with additional observations.
Fig.13: Sample 4.21 Column shafts

Description of layers

- Modern schemes with tinted varnish on the surface
- Approx. 5 schemes of potentially faux marble finish
- 1735 scheme (pale stone colour)

Fig.14: Sample 4.20 Column bases

Description of layers

- Current brown scheme
- Early to mid 20th century brown oil paints with varnishes
- 3 X 19th century schemes in gold oil paint with varnish layers
- Late 18th/early 19th century scheme in blue
- 1735 scheme (pale stone colour)
5.4: Fig.15, The Walls (sample locations)

The internal wall faces were closely examined to find an area that demonstrated a heavy build up of paint and potentially a full chronology of decorative schemes dating back to the early 18\textsuperscript{th} century.

Two samples were removed from the north wall (as indicated left), one inside the niche and the other from the edge of the wall immediately outside. Photomicrographs of both are shown overleaf with a layer of soft distemper at the base (earliest decorative scheme) on each.

Soft distempers are vapour permeable and allow lime plaster to continue to cure (or carbonise); a process that can take up to two years. Bristow\textsuperscript{14} cites the accounts for Henry Pelham’s house in Arlington Street, London, which show that the whole of the staircase had been painted in this way by January 1746 and was not decorated in oils until about two years later. ‘Distempering’ was part of the Plasterer’s Art and fiercely guarded as such by the ‘Plaisterers Company’ and as a member of the Company, this would have been the responsibility of John Bagnall \textit{(further research required)}.

\textsuperscript{14} Dr Ian Bristow (1996), \textit{Interior House Painting Colours and Technology 1615-1840}, Yale University Press, London
Immediately after construction the walls and niches were decorated uniformly in stone coloured distemper. More than one application may have been applied and left in place until the first oil paints were applied in pale stone. Although unclear precisely when this occurred it may have been Staveley’s scheme in 1755. A yellow oil paint was applied to both walls and niches in the early 19th century.

The Owen Jones scheme of 1860 sees the first time the niches were picked out in a different colour to the surrounding walls, with red walls and darker red/brown niches, presumably to enhance the statuary housed within them. There is also clear evidence for some localised gilding to the edge of the niche wall at this time with the precise nature of this, without further research unclear at this time. Another stone coloured scheme was further applied prior to a theme of grey walls with pale grey niches. All subsequent modern schemes were applied uniformly in pale greens and cream.
5.5: Figs. 18 & 19 Main door

**Muntins & Stiles**

Immediately after installation in the early 18th century the entire door was primed in white lead (at the base of the image) with a course grey undercoat immediately above.

A green top coat was applied on top of the grey undercoat.

The muntins and stiles were then overpainted in chocolate brown oil paint.

**Panels & bolection mouldings**

The door panels themselves remained green with the bolection mouldings picked out in black oil paint.

Only the earliest decorative scheme is depicted here. The two photomicrographs (left) clearly show the cell structure of the timber substrate at the base with a white lead primer immediately above. Subsequently a grey undercoat was applied with a dark green oil immediately above. This created a uniform dark green across the entire surface of the door.

When dry, the muntins and stiles were picked out in chocolate brown and the bolection mouldings in black.

The use of green, brown and black in this manner is a typical Palladian colour scheme.
6.0: Concluding remarks

To be accurate and credible, an architectural paint research exercise must be supported by relevant archival research and fortunately in this case, much has already been carried out by Maybank Buildings Conservation and used throughout this report to support the physical paint evidence uncovered. It has been particularly useful in helping to date the application of the various decorative schemes used.

The objective of this exercise was to define the appearance of the original early 18th century decorations and provide an insight as to how the appearance of the interior has evolved over time. The suspicion the space was originally presented in stone colours is correct, with evidence for this at clerestory level and on the walls. The use of unpainted and potentially pigmented plaster on the stucco cornice is particularly unusual and important to the historical record. The early evidence on the entablature beneath the clerestory is less conclusive, with much of it lost due to later structural interventions. However, we must bear in mind this sampling exercise was very localised and entirely driven by the location of the scaffold on the day of sampling; it is possible early 18th century decorations have survived in other areas.

This exercise has raised additional questions, and given the significance of the Assembly Rooms a more thorough programme of investigation and research is justified, both on site and in the archive. Specifically, to address some of the following questions (there are potentially many others)

- What is the precise nature of Bagnall’s stucco scheme, did he use pigment to tint the plaster? – if so, this could be highly significant and help to define the true nature and colours of this seminaly important classical interior.
- What influence did Burlington have over the manner/colours the interior was presented – did this reflect his own interpretation of the appearance of the interior of the Vetruvian Egyptian Hall and what does it tell us about Burlington and other comparable interiors?
- Further investigation of the Lesser Assembly Room and circulation spaces will reveal if the decorative schemes were applied consistently to the walls and joinery. Was the use of unpainted plaster and stone colour used throughout?
How extensively was the brown, green and black Palladian colour scheme applied to the joinery, or were other areas treated differently to define a hierarchy within the interior spaces.

• What is the nature of the faux marbled schemes applied to the supporting columns, particularly during their earlier decorative phases?

• The significance of the 1860 Owen Jones decorations should not be underestimated. This appears to be the first time vivid colours were introduced. What is the extent of the gilding around the niches on the walls – was this simply a border to create a gilded frame around the statuary in the niches or serve another purpose?
Fig. 20: 1928 Radio Exhibition

Note the scallop shells above the windows and oval plaques beneath. These were introduced by Staveley in 1755 and removed during the 1950/51 restoration.

Faux marbling to the columns

The feature running the perimeter immediately above the entablature divided into segments with central holes. These appear to be receptacles for candles used to light the clerestory – see etching on p. 31 Maybank Buildings Conservation Statement of Significance.

The use of gold paint or gilding on the column capitals and laurel torus (entablature).
Sample Location List: Assembly Rooms York

**Upper Level**

Sample block 1
1. Bead & reel
2. Frieze beneath modillions
3. modillions
4. water leaf beneath modillions
5. lower water leaf

Sample block 2
6. frieze
7. frieze swags
8. pilaster capitals (acanthus)
9. pilaster shaft (modern only?)
10. upper water leaf (above modillions)
11. Ceiling

**Lower Level**

Sample block 3
12. Column capital (acanthus)
13. Water leaf beneath laurels
14. Green painted laurel
15. Green painted laurel (repeat)
16. Modillions
17. Eggs (from egg & dart moulding)

**Lower level continued**

Sample block 4
18. Frieze immediately above capital (poss later repair)
19. Laurel straps

**Ground level**

20. Column bases
21. Column shaft
22. Wall next to niche
23. Inside niche

Sample block 5
24. Main Door (muntins & stiles)
25. Door inner panel moulding (early layers)
26. Door inner panel moulding (later layers)
27. Door outer bolection moulding (early layers)
28. Door outer bolection moulding (later layers)
Bibliography

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Lincoln Conservation is a specialist research and consultancy centre within the University of Lincoln.