No. 24

Feature:
Doorway

Location:
North wall of H2.06 (Old Great Chamber), west end

Description:
The existence of a feature in this position was indicated by two vertical lines of stone quoins, to either side of a brick stack, on the exterior face of this wall (fig 24.1). To the east of this, at sill level, a piece of timber is set horizontally into the wall facing.

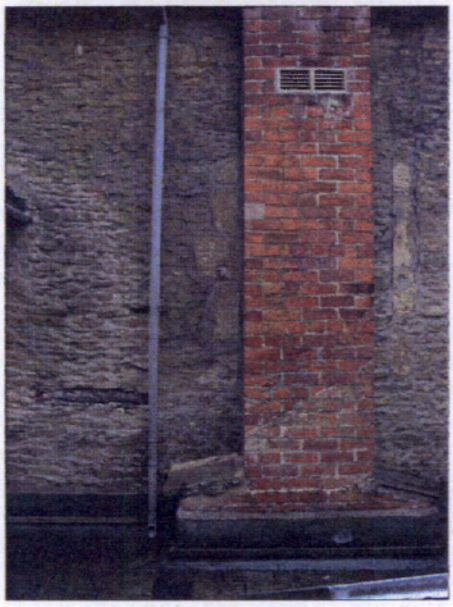

Figure 24.1

Figure 24.2

The removal of modern plaster from the interior of the Old Great Chamber revealed a damaged late medieval stone doorway, with a four-centred head (cut to make the opening square-headed) and continuously moulded surround (figs 24.2, 24.3 and 24.4). The moulding comprises: a shallow hollow chamfer, a fillet, a deep hollow chamfer, a fillet and a shallow hollow chamfer. This has very simple horizontal stops to east and west. In terms of its construction, it is interesting to note that the doorway has an extremely thin keystone. The aperture is blocked with red brick (measuring: 0.23m x 0.115m x 0.07m).

Today, a doorway in this position would open into the courtyard behind the hall. Originally, it may have opened into either a garderobe or a staircase. The plan of 1858 shows a staircase slightly to the west of this position, entered from a doorway in the Long or Matted Passage. Although this staircase could never have corresponded with the medieval doorway in the Old Great Chamber, it may have superseded a staircase which related to that doorway, occupying approximately the same position. By 1858, the medieval doorway had been converted into a cupboard.

Figure 24.3

Figure 24.4

Key Measurements:
height of aperture (as it is at present): 1.90m
width of aperture: 0.94m

No. 25

Feature:
Newels

Location:
'Devils Stair', at east end of north range, newels at N1.35, N2.26 and N3.07.

Figure 25.1

Figure 25.2

Description:
The 'Devil's Stair', alternatively known as the Library Stair, is located at the east end of the north range. It has not been possible to obtain a date through dendrochronology, but this timber staircase is thought to have been built in 1622-24. It was retained when the eastern part of the north range was rebuilt in 1740-42. It was probably in the 19th century that the greater part of the newels was boxed in.

At ground-floor level the form of the north newel post can be seen within an under-stairs closet, where it was never concealed by boxing (fig 25.1). This same newel rises through the staircase for its full height, and can be glimpsed once again above the 19th-century boxing, under the attic landing (fig 25.2). The corners of the newel are chamfered and the centre of each face hollowed, with a cyma (or ogee) moulding to either side of the hollow.

The complete form of the south newel, complete with acorn finial, can be seen at attic level (fig 25.3). At first-floor level the newel has been boxed in. Removal of the capping has revealed the sawn-off base of the acorn finial (fig 25.4).

Figure 25.3

Figure 25.4

Key Measurements:

diameter of cut-off finial: 0.133m

dimensions of north and south newel posts: 0.14m x 0.14m

No. 26

Feature:
Quoins

Location:
NW corner of H2.11, first-floor level

Figure 26.1

Description:
The north-west corner of H2.11 can be seen from the east end of the Orangery passage, at first-floor level. The west wall is of rubble, including the gable, and is neatly quoined to the north (fig 26.1).

This feature suggests that this block did not continue westwards, but ended at this point. It is worth noting that the west wall is aligned with the former 'garden wall' which ran along the west side of the hall range.

No. 27

Feature:
Plasterwork Frieze and associated Ceiling

Location:
In S3.05, S3.09 and S3.11, under floor over S2.03 (Drawing Room).

Figure 27.2

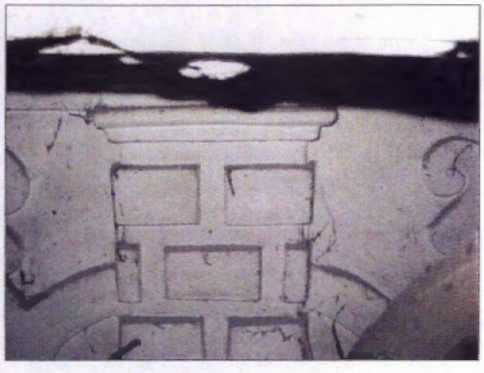

Figure 27.3

Description:
A decorated plasterwork frieze and associated ceiling (figs 27.1 to 27.7) survives along the top of the east wall of S2.02, the Drawing Room, behind the coving of the existing ceiling of 1622-24. This frieze was revealed by the lifting of the gypsum plaster floors of the attic rooms, prior to carrying out conservation work on the ceilings below (see: A.J. Goode, *Report of the Inspection of Gypsum Plaster Floors, Apethorpe Hall, Northamptonshire*, nd (2005)). The frieze is difficult to view and photograph, as it is below deep joists (fig 27.1).

Figure 27.4

Figure 27.5

Figure 27.1

The north and south ends of the frieze are curved, where they would have abutted covings on the long walls of the Drawing Room. The frieze comprises a backdrop of strapwork, against which a series of motifs are symmetrically arranged. These motifs comprise: a cherub (fig 27.2, underneath the curved end of the frieze), a rusticated pilaster (fig 27.3), a grotesque head (fig 27.4), a rusticated pilaster, a grotesque head, a rusticated pilaster and a cherub (once again, underneath the curved end of the frieze). The strapwork (fig 27.5) includes foliate volutes and plain scrolls. The pilasters have moulded caps, directly under the surviving ceiling.

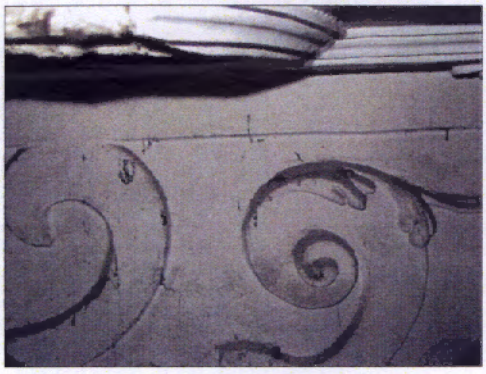

Figure 27.6

Figure 27.7

The fragment of ceiling surviving above the frieze is decorated with moulded panels studded with small bosses (fig 27.6).

A similar ceiling survives at the west end of the Drawing Room (fig 27.7), but the associated frieze no longer exists. This is because the wall it adorned was rebuilt in 1740-42.

No. 28

Feature:
Plasterwork Frieze

Location:
In S3.05, above S2.02 (Great Chamber).

Figure 28.1

Figure 28.2

Description:
A decorated plasterwork frieze survives on the west wall of the Great Chamber, behind the cove. It can be glimpsed through the laths of the coving which runs along the entire length of the north wall of the room (fig 28.1).

This frieze is decorated with a human head, volutes (one issuing an animal head), floral swags and strapwork (fig 28.2, 28.3 and 28.4). The ceiling above it is 0.45m deep.

Figure 28.3

Appendix 2

Diana Sutherland, 'Apethorpe Hall, Geological Report on the Stonework', Report for English Heritage, February 2006

APETHORPE HALL

GEOLOGICAL REPORT ON THE STONEWORK

Diana Sutherland B.Sc., Ph.D, F.G.S.

February 2006

INTRODUCTION: geological setting; local quarrying

Apethorpe Hall is built of rubblestone and well-dressed freestone, with stone-slate roofing, all of which came from the Lincolnshire Limestone, a Jurassic rock formation that extends from the Humber in the north, through Lincolnshire, into Rutland and northern Northamptonshire. This formation includes many different types of limestone, and local rubblestone can be a varied assortment; also along the outcrop are (or have been) well-known quarries yielding freestone, such as Ancaster, Ketton, King's Cliffe, and Weldon. These freestones are characteristically oolitic, that is, they are composed of small spherical ooliths, (up to millimetre-size, visible with a hand-lens), but rocks from different sources are often distinctive.

The village of Apethorpe lies south-west of the Willow Brook, on an outcrop of Lower Lincolnshire Limestone (Geological Map 171) which has no doubt been the source of rubblestone for the village and the Hall. The road to King's Cliffe follows this outcrop for a kilometre out of the village, and then reaches Upper Lincolnshire Limestone (Geological Map 157), which was the source of the celebrated King's Cliffe freestone; the remains of many quarries can be seen as uneven ground on both sides of the road. Upper Lincolnshire Limestone occurs almost continuously along both sides of the Willow Brook for 4 kilometres, underlying much of King's Cliffe (the soft sediments of the Grantham Formation below lie along the brook), and it continues 2 kilometres up the tributary valley to the north, alongside the Collyweston road, reaching to Buxton Wood in the west.

The outcrop along the steep left bank runs by Huskisson's Lodge and through the former Cliffe Park, where hills and holes mark the sites of old quarries, some known to have been worked in the 16th century for Burghley House (Till, 1998). Records show that in 1460, stone from King's Cliffe was supplied for King's College Chapel in Cambridge, and for other colleges in the 16th and early 17th centuries (Purcell, 1967). Purcell also noted its use at Hengrave Hall (1525-1538). Several quarries were in work in 1703, when John Morton recorded the geology (Morton, 1712; see later). John Bridges in the early 18th century saw 'in the road to Apethorp, without the town, on each side are large tracts of stone-pits' (Bridges, 1791). In 1750 a quarry owner built the house now known as The Walnuts in quarried ground to the north of the Apethorpe road. The Enclosure Award of 1809 (NRO: EE M 372) made no mention of historic quarries, but allocated about eight separate 'public stone, sand, gravel and

mortar pits'; some of these appear on the O.S. map of 1901 as 'Old Quarry' (two having already disappeared when the railway was built). Certain pits were seen by Judd (1875). In 1809 John, Earl of Westmorland held land in King's Cliffe, including an area north of the Apethorpe road (NRO: Map 2860). (This could be investigated further - to check the location with a detailed geological map, and the history of its ownership.)

At Apethorpe Hall, King's Cliffe ashlar was specified for building the Orangery in 1718 (Heward and Taylor, 1996). Indeed the stone of the Orangery is readily identified by its characteristic oolitic, banded, shelly but porous texture, and yellowish cream colour. King's Cliffe stone, however, can be recognised throughout most phases of the Hall building. This is not surprising in view of the close proximity of the King's Cliffe quarries.

BUILDING PHASES

Phase I. (Wolston,1460-1510)

The earliest building was of rubblestone, with dressings of freestone. The rubblestone is mainly Lower Lincolnshire Limestone. This sedimentary rock varies in texture from one bed to another when seen in a quarry: the lowest beds are sandy limestone (in certain areas yielding Collyweston 'Slate') which are overlain by fine-grained limestones, some of which contain dispersed ooliths. In the rubblestone walling (north range, or the west court), blocks are generally small (less than 8 or 10 cm thick and 15-20 cm long) and varied; later rubblestone walling here is similar but more uniform.

Architectural features, using freestone, were examined in several places:

1) Internal south doorway to hall. Two kinds of oolitic stone are recognisable in the moulding. One (e.g. block centre right) is pale grey, coarse-grained, with prominent ooliths (1 mm) and coarser shelly fossils (including small gastropods), roughly banded, but having little obvious cement. It is from the Upper Lincolnshire Limestone, but differs from Barnack Rag in being porous (not cemented) and more closely oolitic. Also in this doorway are different blocks, of more typical King's Cliffe oolite: cream-coloured, porous, and texturally banded with centimetre-scale layers of finer oolite and coarser ooliths with shell.

2) External Hall Oriel window. This too has some of the coarse shelly grey oolite at a low level, and in the attached 'pilasters'; some is rather

less coarsely fossiliferous, with thinner shell; there is also the typical cream, banded King's Cliffe stone at window level.

3) Courtyard Porch. The stone moulding is partly coated with a layer of grime and partly soft and weathered. Fairly coarse oolite containing some shell is seen (lower left), but also yellower stone (lower right); the attached shafts are oolitic, with thin shell layers (left), the right one, possibly without shell, could be Ketton oolite - and perhaps replaced(?). Otherwise, it seems to be King's Cliffe stone. The other (internal) porch is coated and could not be examined.

4) Courtyard Stair Turret. This is part rubblestone, with dressed stonework including large oolitic limestone blocks, and some are coarsely shelly, but the stone is variable. Banded, fine- to coarser shelly layers is typical of King's Cliffe, seen in quoins and the door case moulding (but the latter, top right, looks different, perhaps replaced?).

5) Entrance Gate. The stone appears to be consistent within the range recognisable as King's Cliffe stone: oolitic, layered, with medium- and finer grained ooliths, shell fragments and here a little cement matrix. The stone is cream, but the surface is discoloured.

6) Internal doorway, first floor Cross Wing. The uncovered door case is fairly coarse (1mm) cream oolite with some shell; it could be King's Cliffe.

7) External stair turret with crenellation. Only the string course under the crenellation could be reached for inspection. It includes some coarsely shelly oolite, and banded cream King's Cliffe-type stone.

8) West Rauge Doorway in west courtyard. The chamfered door case appears at first to have varied stone, but it depends how the stone is oriented. One block, a metre up the left side, is coarsely shelly (including gastropods) and oolitic, cream rather than grey, but traced round to the door side is seen to be banded with shell, like other stones, for example on the right. This oolite may be rather coarser than some examples of banded King's Cliffe stone.

9) Hall Gallery Door case. This is included here because the stone blocks seem to be varied in the same manner as the Hall south door **(1)**. Outside, lower right and upper left are examples of the coarse oolite (1mm) with shell (>1mm) including small gastropods, in rough layers.

The lintel looks coarse and shelly, but traced underneath is seen to be banded from coarse to fine oolite, the shell being in layers. Half way up, the moulding is interrupted (replaced?) by finer-grained oolite (<0.5 mm) with some shell. Inside the gallery the door lintel is of a King's Cliffe-type finer cream oolite with coarser shell layers. The inside blocks vary, with fairly fine oolite with shell (lower left) and coarser shelly oolite blocks above this. The history of this door will no doubt be assessed by architectural historians, from its structural elements and mouldings,. It is worth noting that a stone's texture needs to be considered all round where possible, as a shell layer seen one side 'on bed' can give a false impression. Nevertheless, this door does appear to have varied stonework. None of it appears to match the Hall fireplace (see later), except perhaps the presence of a similar-looking 'cornice' over the outside of the gallery door. Both the cornices are smooth and coated, so looking 'fine-grained'; from the broken parts that can be inspected, the fireplace cornice is actually not all fine-grained, but an oolite of varying texture, with some shell, including a small gastropod, and the gallery external cornice which looks fine-grained where seen, may well be similar. They can perhaps best be judged by the moulding.

10) External high-level Hall windows. These were not re-examined, but seen briefly on the first visit they appeared to include varied oolitic stone types.

The source of the coarse grey stone seen in the early phase is not certain. It could be a type of King's Cliffe stone from say Cliffe Park, where very coarse, shelly, not so oolitic, cemented grey stone can still be seen both sides of the dismantled railway (TL014 973; TL01359755). Some King's Cliffe Stone is grey (e.g.The Walnuts), but most is cream-coloured (like the Orangery, and many buildings in King's Cliffe). The juxtaposition of seemingly different stones in the early phase is puzzling. Did Wolston accept an assortment of quarried stone? Or might he possibly be re-using stone from an earlier building, along with newly quarried material?

Phase 2 (16th century extensions)
The two-storey bay window in the SW corner of the main courtyard is medium-grained porous oolitic freestone with bands of shell, not seen closely on account of scaffolding, but similar to King's Cliffe.

Phase 3, remnants (Walter Mildmay, 1560s)
1) Windows, south side of the Great Chamber and White Stair. These recently uncovered features were accessed from the White Stair, within the 19th-century addition to the south front. The blocked 4-light mullioned

window appears to be fairly fine-grained oolite with little shell, and not much weathered. There are holes from fixing the covering.

2) Remnants in south loggia. A small window in the (refaced) wall is partly coarsely shelly oolite (but ooliths <1 mm), and the old plinth line and stack quoins, where seen, include shelly oolite, weathered to a 'pocked' appearance. These do not seem to resemble the finer oolite of the windows at the higher level, but perhaps finer stone was selected for window mouldings.

3) External stack in SW corner projection on south side. This is mentioned here because there is some of the coarse grey shelly oolite among the varied stone-types. (Might it be relevant to building phases 2 or 3?)

Phase 4 (Francis Fane, 1622-24)

1) Exterior of East Range, and east end of Sonth Range. This superb, high-quality masonry is of uniform appearance, in typical King's Cliffe Stone: the well-laid ashlar generally follows the conspicuous layering of the stone. In the SE bay, for example, the bands of medium and fine oolitic texture, 2 or 3 centimetres thick, are interrupted by thin streaks of shell fragments, some continuous, some dying out. Some blocks show cross-bedding. (Earlier building phases have not necessarily laid blocks according to the bedding.) Along the East Front the grain size of the ooliths is rather fine, commonly about 0.5 mm, but some layers are mixed, with additional smaller sizes; the shell layers include fragments of varied fossil material.

The limestone of the Porch and columns of the outer Loggia is banded King's Cliffe Stone (most of the later modified, inner part, with niches, is a different oolite, medium fine, without shell, Lincolnshire Limestone but not necessarily Ketton stone - the ornaments on the seats are more typical coarser Ketton Stone). The rusty brown pillars of the 17th century porch are weathered 'ironstone' with purplish patches, sandy, with small pebbles and crinoid fragments (including *Pentacrinus*). It is a type of ferruginous and calcareous sandstone probably from the lower part of the Northampton Sand Formation, which was quarried for building stone in the north of the county (Morton in 1712 mentioned pits at Desborough and Glen Hill); similar stone is seen in Rothwell church tower and in Tresham's Market House.

2) The parapet of the East Range was examined along the length of the **Roof Walk**. The parapet and niches are of cream King's Cliffe oolite, banded and with streaks of shell. The ooliths are uneven in size in some

layers and perhaps in general finer grained than, for example, the older stone of the West Range door case. The stacks are of banded King's Cliffe stone similar to the rest of the masonry of the East Range, some blocks showing cross-bedding at parapet level; at higher flue level the banding is vertical, the beds on end, but the masonry looking to be very good.

The ornamental features repeated along the Walk comprise several elements: each has a lower plinth as part of the parapet wall, a top stone then supporting a rectangular upright moulded pedestal, with flat moulded 'capital', superimposed by a carved finial. The finials are of two kinds, a few being 'pineapples', and perhaps not all placed where they might have been originally. The separate elements were inspected where possible, and found to be varied. The pedestals include coarser, or finer, porous oolite, or both, with shell, and seem to be King's Cliffe (just possibly some could be Weldon) stone. The second pedestal north of the southern stack is different, and feels sharp, a cemented shelly oolite (similar to Clipsham Stone), which may be a replacement, likewise another beyond the second stack. Ketton-type oolite, without shell, is seen just here and there: immediately underlying the second and third pedestals counted from the southern niches; then north of the central niches: one finial (but not the pedestal), and next to it the pedestal and underlying stone (but not the finial); north of the second (northern) stack, the second pedestal (currently lacking a finial), and its base are both Ketton-type, possibly also a finial further on. In the north corner, the larger angled plinths and pedestals are banded King's Cliffe Stone, the finials are Ketton oolite. Whilst it is possible that the ornamental pieces were made of varied stone in the first place, I suggest the relatively few Ketton Stone pieces may be replacements. This point should be considered in relation to the south corner of the Roof Walk, where there has been 19th-century reconstruction, and Ketton Stone is seen in more pedestals and finials.

3)The doorway uncovered between the King's Chamber and the Duke's quarters is identified just as cream oolite with shell.

Embellishment of North Gateway and Tower (mainly1653)
The niche to the right, with vermiculated ornament, is even-grained porous oolite with no shell, some slightly pink, typical Ketton Stone. The carved beast above is also Ketton Stone. This may be the earliest use of 'Ketton Stone' (*sensu stricto*; see later) at Apethorpe. Note that the two small, rather worn heraldic shields above the main arch spandrels are of softer grey clunch(?), and probably earlier (16th century, Mildmay).

Phase 5 (Orangery 1718-19)
The stone, a rather rough-surfaced ashlar (compared with the house masonry), is cream, fairly fine grained but uneven (0.3 - 0.5 mm), a porous oolite with layers of varied fossil shell fragments, and small-scale cross-bedding. It is reported to be from King's Cliffe (Heward and Taylor, 1996), and is comparable with stone seen in King's Cliffe village buildings.

Phase 6 (1740s)
In the main courtyard the Palladian façade (N elevation) of the South Range, and the Library opposite (S elevation) are well-dressed stone with rustication to the lower storey, the stone yellowish-cream but the surface having taken a deeper colour; this phase of King's Cliffe Stone is again rather fine-grained (up to 0.5 mm) , banded, with only a little shell, in thin layers. Cross-bedding is common, especially noticeable in the upper ashlar of the library. Outside, the north elevation of the library is of Lower Lincolnshire Limestone coursed rubblestone, the quoins of grey coarse shelly oolite, with windows of fine-grained grey oolite with shell (one stone pinkish but this is not 'Ketton Stone'), possibly from Weldon.

Later Phases
1) The South Front Loggia (by Browning, 1848-49) is a porous oolite without shell, similar to Ketton Stone, (or Stamford), a type having somewhat uneven-size ooliths (0.5 mm and less).

2) East Range Loggia (modified Blomfield, 20th century), in the main courtyard, has much Ketton-like stone, but again a type with uneven size ooliths. But the original Porch is banded King's Cliffe limestone, with ironstone, similar to the outer porch of the east elevation

3) The east side of Hall Range, on the west side of the main courtyard, has been refaced at some time with different style of ashlar masonry (courses of 15 cm and 25 cm depth, some blocks about 90 cm long, unlike the parlour area). It is very patchy stonework, varied oolite with shell, some of it having deeply iron-stained brown matrix, with interspersed blocks of pale Ketton-type oolite. A very brown shelly oolite occurs locally in the topmost beds of the Lincolnshire Limestone in the present Ketton quarry, and just might be a possible source. (Some of these beds are spar-cemented 'ragstone', which is a possible contender for the yellow-brown polished stone at the bases of all the Apethorpe fireplaces - see later; could there be a connection?)

FIREPLACES and SCULPTURE

1) Hall (1560s) This is made of massive blocks, apparently a somewhat robust oolitic limestone, with some shell (and fossil echinoid spine), and a cement matrix. It is grey, but part is seen be ochreous. It might be Upper Lincolnshire Limestone, from Stanion perhaps? It is surmounted by a moulded shelf or cornice of cream porous oolite with some shell, seemingly local King's Cliffe stone. (As noted earlier, this feature is apparently the only comparison with the Gallery door.) Three stones evidently replaced on the right hand side are paler cream porous oolite, with some shell, possibly Weldon Stone.

2) Great Chamber (1562) This fireplace is moulded in soft pale grey calcareous stone, a type of 'clunch' from the Lower Chalk. The block with the inscription is the same stone. Note also that the small heraldic shields on the Gateway appear to be this stone (see earlier). There is no Chalk in Northamptonshire; Clunch for building has been quarried at Totternhoe in Bedfordshire and Burwell near Cambridge. Purcell (1967) noted that often the grey Chalk from above the harder white Clunch was used for indoor work. Inserted within the Clunch surround is a pale grey crinoidal 'marble' (polished limestone) from the Carboniferous Limestone of Derbyshire. The small crinoids are about 0.5 cm in cross-section, longitudinal or oblique sections about 1 cm. At the base of the fireplace each side are rectangular pieces of polished yellowy-brown 'marble' (this is thinly layered shelly, spar-cemented oolitic limestone); one on the right is 'blue-hearted', being incompletely oxidized by weathering. This stone is possibly fairly local (as discussed later) and, since most of the fireplaces have them - including the 18th century Old Dining Room - they were apparently added later (see below).

3) Withdrawing Chamber (1622-24) Rectangular pieces of yellow 'marble' again occur at the base. The columns are of fairly fine oolitic limestone with some shell, worked smooth and carved, but not polished. The horizontal mantle panel (with an open book in the centre) carved in bas-relief is in polished 'marble'. It is very dirty; a small area wiped with a damp sponge enabled that much to be seen as an oolitic limestone (ooliths up to 1 mm) with shelly fossil fragments (1-2 mm) in a matrix of crystalline calcite (and therefore polishable). The base of the overmantle is similar, but just above that appears to be fine-grained cream oolite; the upper part could not be examined on account of the scaffolding. It is necessary for the top to be made more accessible, and all the 'marble' parts cleaned, to make more progress here. However, similar stone types are recognized in the other fireplaces of this period, and possible sources

discussed below. Small rectangular panels of black stone are used for decorative effect in all these fireplaces; a broken panel in the Duke's Room was identified as black marble (see later).

4) King's Chamber (1622-24) The components of this grand fireplace comprise several different stones. The basal plinths are again yellowish buff to orange, thinly layered, shelly oolitic polished 'marble'; but, as already mentioned, they may not be original. The horizontal carved frieze in bas-relief is fairly polished, 'marble'-like, oolitic limestone with small fossils; the flat vertical sections of the surround attached to the wall (the left one scratched with mason's mark) are rather fine-grained oolitic limestone, not marble, worked smooth but with a grooved surface. Oolitic limestone under the columns in front might possibly be similar to Ketton freestone, but in poor light this is not certain.

The well-polished light-to-dark grey 'marble' columns are a coarsely fossiliferous sparry limestone, quite distinct from the other types of 'marble' described above. It is not from the local Lincolnshire Limestone, but possibly from the Great Oolite. However, it is not like Alwalton Marble, which is packed with oysters, or like the Drayton examples, which are coarser but also oyster-rich (Sutherland, 2003). The fossils here include quite large (3 cm) sections of various ribbed bivalves, and some oysters, dispersed with tiny shell fragments in a matrix of lime mud (churned up by the burrowing of these creatures), and crystalline sparry calcite. It could just possibly have come from Raunds, in Northamptonshire, where the Blisworth Limestone contained a seam of 'marble' much prized for chimney-pieces (Morton, 1712); but the columns in the King's Chamber are particularly high quality, and another source may eventually be identified. This type was not used in the other fireplaces, but there are the same small panels of black marble incorporated here as elsewhere.
The elaborate sculpture of the overmantle is sharply carved, but coated in a grey wash, which does not allow the stone to be examined. However, by good fortune for this purpose, a small fragment had broken off and was lying on the mantle shelf. It is a very fine-grained limestone in which there are some ooliths (0.5 to 1 mm) and crystals of calcite shining in the matrix, a form of small-scale lustre-mottling. Dr R.G. Clements at Leicester University recognized this stone as a peloidal limestone (the fine grains including 'pellets' of lime mud), with larger ooliths, giving a 'bimodal' texture, and suggested it came from the Lower Lincolnshire Limestone, specifically the Greetwell Member (Hudson and Clements, in press). It is therefore a stone available locally over a wide area. Possible sources are discussed later.

5) Duke's Chamber (1622-24). The buff shelly oolitic 'marble' is again present at the base. The pilasters above are smoothly worked, not polished, fine-grained, closely oolitic limestone, with a little shell. The horizontal panel with bas-relief is, as in the similar fireplaces elsewhere, a shelly oolitic stone, calcite cemented and able to be somewhat polished; a few larger sections of bivalves can be seen. The pediment, and panel below, appear to be this same marble-like stone. The upper level could not be reached on account of scaffolding.

The black rectangular panels were examined here, as one was broken, and able to be identified as fine dark limestone, most probably the Ashford Black 'Marble' from Derbyshire (Tomlinson, 1996). The black stone has sometimes been referred to as 'touchstone'; this, also known as Lydite, is defined as 'black flinty jasper', or 'other silicified fine-grained rocks', formerly used as a streak-plate to test gold (Chambers Earth Sciences Dictionary). Black 'Marble' is not siliceous, and not such a hard stone; though there is some precedent for the use of the term 'touchstone' for Belgian Marble, as reported by Robinson (2004), it is confusing, and best avoided. Of particular interest is the similarity between the rectangular panels in the Apethorpe fireplaces and the identical panels in the (otherwise very different) fireplaces, of around 1620, in William Cavendish's Little Castle at Bolsover. The Ashford Black 'Marble' at Apethorpe would also have come from the Chatsworth (Cavendish family), estate - someone, perhaps Francis Fane himself, surely must have seen the panels at Bolsover?

6) Long Gallery (1622-24). The basal plinths are again yellow oolitic 'marble'. The Ionic columns are smoothly worked oolitic limestone, the right one containing shell, the left having little or no visible shell. The horizontal carved panel here seems to be smooth oolitic limestone, not polished 'marble'. The statue of King David is sadly damaged, but the broken surface enabled the identification of a very fine-grained peloidal, sparsely oolitic limestone with small-scale lustre-mottled calcite; it is similar to the small fragment from the King's Chamber, but contains some shell. It is from the Lower Lincolnshire Limestone, another block from the beds of the Greetwell Member. The inscribed tablet, like the black panels, is probably Ashford Black Marble.

7) Old Dining Room (18th-century, with 16th-century plaster overmantle). The stone is fine-grained cream porous oolitic limestone (0.3 mm); it is similar to Lincolnshire Limestone from Ancaster, or

maybe available more locally. The basal plinth stones are brownish polished oolite with assorted grains.

8) Statue of King James
Where it can be seen, the limestone seems slightly coarser (0.5 mm), or more oolitic, than the statue of David in the Long Gallery, and both appear to have a little shell. It is not possible to identify the stone other than its likely similar provenance from the Lincolnshire Limestone, and quite local.

GEOLOGICAL SOURCES

Lincolnshire Limestone Formation:
Lower Lincolnshire Limestone
1) Rubblestone
The Lower Lincolnshire Limestone can be seen in present-day deep quarries near Duddington and Ketton to be some 11 metres thick. Geologists have distinguished the beds in the lowest 3 metres, which are fine-grained sandy limestones, as the Collyweston Member, the slate-stone occurring locally at the base. They are followed by fine-grained 'peloidal' limestones in which many of the tiny grains are pellets of lime mud, and larger ooliths are dispersed in varying amount, these beds being known as the Greetwell Member (Ashton, 1980; Hudson and Clements, in press). These limestones underlie Apethorpe village, and north of the brook towards Woodnewton; more extensive outcrops lie to the north - between Yarwell, Wakerley and Stamford - and on the far side of the Welland, in Rutland (Geological Map 157). Rubblestone for local building comes from these beds. At the surface, limestone is usually shattered by frost; better walling stone is found a metre or so below, but most of the older sources were probably shallow quarries, reflected in the character of the masonry produced.

2) Stone for sculptures
The identification of the sculptures as Lower Lincolnshire Limestone, Greetwell Member, is interesting. How large a block would be required? (Are the sculptures made in sections?) A shallow quarry is not likely to provide suitable blocks, and indeed most of the limestone lies in beds less than 30 cm thick. In the very large present-day working quarry at Ketton (Best *et al*, 1978), a complete section of the Lincolnshire Limestone can be seen. The Greetwell Member (lying below the Upper Lincolnshire Limestone) includes beds as thick as a metre (Hudson and Clements, in press); fallen blocks in Ketton quarry can measure about 2 m by 1.2 m by

0.8 m. Stone for the sculptures could of course have come from any deep enough quarry in the Lower Lincolnshire Limestone outcrop, but a case could be made for a source actually working the freestone above. The nearest such location to Apethorpe might be north of the brook, towards King's Cliffe (TL018 966), but of course there were many old quarries where freestone was worked at Ketton (see Purcell, 1967, Plate 18).

Upper Lincolnshire Limestone

This is the main source of oolitic freestone in the Midlands. However, the stone varies in character throughout the outcrop, and sometimes from one bed to the next overlying it. It is often not possible to identify it other than 'oolitic limestone from the Upper Lincolnshire Limestone'. But some of the well-known quarried freestones are recognisable:

Ketton Stone (*sensu stricto*) is a very pure oolite, composed only of ooliths (appearing to be just held together where they touch), described as porous, since it lacks obvious cement. It has no shell. Usually, the ooliths are an even size (about 1 mm). The freestone comes from the 3 or 4 massive beds grouped as the Sleaford Member, seen overlying the Lower Lincolnshire Limestone in the Ketton quarries (photos A, B). (Stone from these other beds here of course would not be recognised as 'Ketton Stone'.) The Ketton Stone selected as freestone is ideally only just cemented; but cementation varies in the same beds, some being too much so (and then not selected for stonework), some falling apart as 'oolith sand'. Some variation in texture is also recorded in the different beds of the Sleaford Member at Ketton (Hudson and Clements, in press, Table 3)

Stamford Stone, and Edithweston, are very similar to Ketton oolite (Ireson, 1986), with some variation in grain-size.

Weldon Stone is also a porous oolite, distinguished by the presence of small oyster shells in thin layers, and weathering light grey.

King's Cliffe Stone likewise contains shell fragments, but also tends to be banded (on a centimetre-scale), having layers of finer and coarser oolite with shelly fossils; often this stone is a deeper creamy-yellow colour than the pale oolite from Weldon, or the light-coloured buildings of Stamford, for instance. Morton (1712, p 124) made the following observations at King's Cliffe in 1703: 'a Stratum of clay lying there next under the Soil, and a Course of Raggstone betwixt two of Freestone, the Upper of a coarser the Nether of a finer sort', which may account for some of the variation seen in the Apethorpe masonry.

1) Apethorpe fireplace limestone

The limestones of the various pieces for the fireplaces, worked to a smooth but finely grooved surface are not easily identified, but often they seem fairly fine-grained, some with visible shell, and not obviously

banded, so not really identifiable as 'Ketton Stone' or 'King's Cliffe Stone'. The source was no doubt from the Lincolnshire Limestone so readily available in the area, carefully selected by the stone-mason for pillars etc.. The Ketton quarries may indeed have yielded suitable stone; blocks of varying textures can be seen in the present quarry. But one should not discount other sources, such as the Ancaster quarries where, according to A.S. Ireson (master-mason and founder of Stamford's Men of the Stones), the 'Hard White' has a close grain suitable for carving and is 'often preferred for stone fireplaces and heraldry' (Ireson, 1986). This freestone from the Upper Lincolnshire Limestone is fine-grained (<0.5 mm) and contains a little shell.

2) Polished Limestones or 'Marble'

a) Within the Upper Lincolnshire Limestone there are intermittent beds of shelly, fossiliferous limestone having a matrix of crystalline calcite, which is capable of being polished to make a decorative stone. Morton (1712, p 107) described such a stone, lying between the lower and upper freestone beds at Weldon, from which handsome chimney pieces and window-sills were made; few of his examples still exist, but a monument of this Weldon 'Marble' can be seen in the church at Deene, containing beautiful fossils, notably a screw-like gastropod (*Nerinea*) several centimetres long (Sutherland, 2003, 1.7). Another polishable limestone came from below the freestone in Stamford quarries, and was known as 'Stamford Marble'. The geologist Samuel Sharp (1873) recorded 'a particular bed (containing much coral, many *Nerinaeae*, and other fossils), very crystalline, and taking a high polish… much used for chimney pieces'; it was 30 to 45 cm thick. This could be the smooth, somewhat polished stone of the carved panels in the fireplaces of the State Rooms at Apethorpe. Stone in Stamford considered by Ireson (1986) to be 'Stamford Marble' is seen to be creamy buff-coloured, oolitic, with less of the crystalline matrix, and only a few fossils. It can be seen in the chancel steps of St John's Church in Stamford (see photo C); the bivalve sections here look very similar to those in the Duke's Chamber - cleaning these fireplaces could perhaps show up some Nerineids. There may have been other seams of polishable limestone that are not recorded by name.

b) The yellowish-brown polished stone at the bases of all the fireplaces is different. It is thinly layered, with assorted coarse grains, shell and ooliths in a sparry matrix. This may have come from beds at the top of the Lincolnshire Limestone. Brown-weathering stone is well seen above the freestone at Ketton Quarry, and some of it is dark grey-hearted when incompletely weathered (see photos B, D). This kind of stone also occurs

elsewhere, for example at Ancaster where it is known as the Weatherbed, and is polishable.

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Captions to photographs

A. Ketton quarry in 2006. The face is in Lower and Upper Lincolnshire

Limestone, with overlying formations stripped back in the distance. Foreground blocks are of oolitic Ketton Stone from the Upper Lincolnshire Limestone, some having a pink tinge.

B The Limestone face at Ketton quarry. The lower beds are part of the Greetwell Member of the Lower Lincolnshire Limestone; the light-coloured beds above are the Sleaford Member (the source of 'Ketton Stone'); overlying this is the brown-weathered shelly rock called the Clipsham Member - a block of it in the foreground is grey-hearted, only partly weathered.

C. A variety of 'Stamford Marble' in the chancel steps of St John's Church, Stamford. Fossils include the gastropod, *Nerinea*, and sections of bivalve shells. The rock is actually lighter colour than this photograph. Other examples of 'Stamford Marble' can apparently be more crystalline.

D The top beds at Ketton - layered, brown-weathering shelly limestones seen overlying the eroded ('hard ground') surface of the Sleaford Member.

Appendix 3

Andrea Kirkham, 'Condition Report on the Wall Painting in Room H3.01', Report for English Heritage, July 2005

Apethorpe Hall, Northamptonshire

Condition Report on the Wall Painting in Room H3.01

Contents

1: Introduction

Apethorpe Hall, Northamptonshire (Grade 1) has recently come into the possession of English Heritage by compulsory purchase, after being derelict for a number of years. The early building dates from the late C15th with a major phase in the early C17th creating State Rooms for James I. Later work includes C18th and Edwardian phases, as well as modern buildings from when Apethorpe was a school.

The building is, however, known for its Jacobean State Rooms with sumptuous decorative plaster ceilings and elaborate fireplaces of the 1620s, carried out by Sir Francis Fane (1583/4-1629). Elizabeth I also stayed at Apethorpe but no rooms associated with that period survive. Overall, little decorative work appears to survive from the late C16th – c1620s. The survival of a fragment of late C16th/early C17th wall painting in one of the attic rooms at Apethorpe is, therefore, an unusual and significant feature for the building. Furthermore, its location in attic rooms adds an important dimension to the way rooms were being used, their degree of decoration and their relative status in secondary areas.

The painting has suffered from water infiltration, a result of failed valley gutters, and its condition is a major cause for concern. Fragments of painting have already fallen off and others are likely to fall if not conserved.

I inspected the wall painting at Apethorpe 20th June 2005, at the request of the project director, Nick Hill.

2: Description of the Painting

The painting is located between two doors in an attic room (numbered H3.01). Developers exposed this small area of wall painting when carrying out repairs. The rest of the wall was stripped. However, other areas of painting may exist beneath modern coverings on the adjacent and opposite walls, on the landing and in room H3.02 next to H3.01. These areas will need investigating should other areas of painting survive. Part of the ceiling associated with the painting remains in situ.

The support is timber-frame with reed and hair plaster laid over the studs thus providing a continuous surface for the painted scheme. The reeds are laid horizontally and fixed into position with vertical laths nailed over the reeds onto the studs. Although only a fragment now, the painting was undoubtedly part of a more extensive scheme, which would have continued round the room, creating an impression when first entering the room of one filled with expensive textile hangings.

The painting imitates a textile hanging of counter-colour red and grey panes with a scalloped valance, also counter-colour red and grey but in counterpoint to the panes

below (plates 5&6). Narrow, darker red bands at the junction of the grey and red panes imitate strips of braid found on actual textiles. The panes were richly decorated to imitate embroidered textiles. This is very fragmentary now and the clearest example is towards the top of the grey pane where traces of black pattern can be seen (plates 5&8). Traces of white lines suggest that the red panels were decorated too. Other colours may have been used (perhaps some red on the grey pane?). Cleaning and conservation will clarify the design.

The valance has a red fringe or braiding (plates 5&6) and there was an inner, narrow band. The current white appearance of the band motif is, however, a false impression resulting from the loss of paint and fragments of surviving paint show that it was originally red (plate 6). It is not clear whether the valance was tasselled but this may be clarified once the batten is removed. The bottom of the textile cannot be seen because of a later skirting.

The painting has at some time been covered over with a textile, perhaps the backing for a wallpaper covering (?). Of considerable interest are the tenterhooks on the beam by the top left corner of the right doorframe (plate 8). These probably held an actual hanging and it will be interesting to see if more tenterhooks survive further left, beneath the later rotten batten.

3: Comparative Examples and Significance to the Building

3.1: Comparative Examples

Numerous examples of secular wall paintings, employing a wide variety of textile designs, survive at vernacular level and in some high status buildings. Those examples of wall painting imitating textiles with counter-colour panes are found over a long period. Plates 17-23 show a selection of 'textiles' dating from the C15 to the early C17th, as well as modern hangings made for the Great Bed of Ware. Numerous other examples and some extant actual textiles (for example, a late C15th tapestry in Winchester College) could be shown to illustrate the points. In East Anglia, for instance, imitation textiles with panes of alternating colours are typically found in urban centres, reflecting a pattern of patronage for that region in the late C16th/early C17th. Other examples include the imitation hangings in a private house, Glouces, black and white hangings in a room 'over' the chapel at The Vyne, Hants and The Elms, Walpole, Suffolk c1613 (plates 21-23).

3.2: Comparative Examples Using the Red/Grey Colour Combination

Schemes using the red/grey colour combination are found in three sites in and around Bury St Edmunds (one gentry site close to Bury and two urban sites) and are quite tightly dated to the 1590s (plate 23 shows one such example). Other examples, known to me, are gentry sites. Burleigh Farmhouse, Herts was probably a bunting lodge and the decoration

appears to be contemporary with the building of c1580s (plate 21).[1] The imitation textile at Harvington Hall, Worcs was probably associated with work carried out by Humphrey Pakington in the late C16th (plate 22).[2] It is likely that the paintings at Old Gweryfed, Powys were contemporary with the new building, probably built between 1600 and 1613 by Sir David Williams, MP for Brecon (plates 24&25).[3] Although damaged now, the painting at Apethorpe was a relatively elaborate example of the type. The date range for this type of imitation textile seems to fall into the latter years of the C16th or the early C17th. However, as research into the building and its history is in the early stages, the date range may have to be adjusted to take into account new information. Dendrochronology may enable a more precise date for the painting.

3.3: Significance to the Building

The value of the wall painting at Apethorpe lies in the fact that there is so little of the later C16th/early C17th period surviving and that it is in an unusual location. As yet the function of these secondary attic rooms is not fully understood. The location of the painting is important to our understanding of the way these rooms were used. The room clearly had some relative importance for it to be decorated at all and then with a scheme that was originally elaborate and well executed. It would be instructive to investigate the way the adjacent room and the one below were decorated. If they have original surfaces surviving which were never decorated then it says something about the relative status of the painted room. The relationship between this painted textile and the possibility of an actual hanging (as indicated by the tenterhooks) in the same area needs to be investigated further.

4: Condition Survey

The painting (and timbers above it) has suffered from water infiltration, because of a leaking valley gutter. A temporary roof has been fixed over the structure and the wall is now dry (plates 1&2). The overall condition of the painting is quite poor and some areas are extremely vulnerable to loss and damage. Some fragments of wall painting have already fallen to the floor (plates 9&11).

4.1: The Support

• Battens for plasterboard still remain in situ and are visually, extremely disruptive. The batten at the right edge, however, must remain because it holds the ends of the reeds in position.

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[1] Information Adrian Gibson

[2] Baird, K: Secular Wall paintings in the Sixteenth and Seventeenth Centuries in the Welsh Marches, unpub D Phil, Oxford University, 2002, gazetteer 160-171. Probably a red and grey scheme but very damaged now.

[3] Haslam R, The Buildings of Wales, London 1979. Information provided by M Perry

• There is a large area of paint and plaster loss in the top right corner. Some plaster fragments from the top edge have detached completely and are now on the floor (plates 9&11). The left side ends of the reeds are loose because the nails holding the lath strips
(which hold the reeds in place) have rusted through. Some of the reeds have already fallen to the floor. Other areas of plaster loss include the bottom right corner and smaller
losses associated with the battening and/or nails. Broken edges of plaster, associated with areas of loss, are particularly vulnerable to further damage. Plaster is bulging and detaching in localised areas, associated with plaster losses and/or damage because of the battening. The worst areas of bulging plaster are along the bottom edge and in the bottom right corner. Most of the right side shows signs of movement. The surface is peppered with small nail holes some retaining rusted nails.

• Two small areas of plaster loss have been filled in the past. The one at the bottom left is stable and can remain in place but a small patch (plate 12) at the top left is moving and should be replaced. Edges of painted plaster around this loss are detaching and removal of the repair would facilitate plaster fixing.

4.2: The Paint Surface

• Enough of the painting survives to show the overall design format of an imitation textile with counter-colour panes and a valance but, the paint surface is heavily abraded. Most of the decorative pattern on the panes has been lost, particularly in the lower half of the scheme where the surface is very damaged.

• Localised areas of paiut bas lost its adhesion, notably in the braded areas (plate 16). Most of the paint has lost its cohesion and is powdering.

• Tbe whole surface is covered with an accretion of dust, dirt and cobwebs. Drip stains resulting from the water infiltration disrupt the scheme particularly along the top edge.

5: Treatment Proposals

5.1: The Support

• Removal of the redundant electric socket. Removal of the battens by drilling round the nail fixings and breaking the batten away. Removal of the blocks and nails.

• Replacement of the lost areas of reed with new reeds. Re-use, or replace where necessary, broken lath strips and fix into place with brass screws.

• Secure the worst areas of moving, detaching and bulging plaster by injecting a lime based grout between the plaster and the reeds. Some areas may have to be secured as bulges. Reattach detached fragments, where possible, using an adhesive mortar of lime putty and washed, sieved sharp sand.

• Fill plaster losses with a lime putty: chalk: washed, sieved sand: hair mortar. Proportions of the mixture to be decided following tests on site.

5.2: The Paint Layer

• Readhere flaking paint with a dilute acrylic dispersion such as Plextol B500. Tests on site will establish the appropriate dilution. Pre-wet where necessary with Isopropan-2-ol in water.

• Consolidation of powdering paint with Paraloid B72 in Acetone. The solution to be decided following tests on site.

• Surface clean with soft brushes. Removal of the more stubborn areas of dirt with water and/or a solution of ammonium carbonate applied through lens tissue. It may not be possible to remove all the drip stains.

5.3: Presentation

There is no intention to reconstruct any missing areas of the scheme. Larger areas of plaster will probably not be toned. However, smaller repairs within the painting, which otherwise would be visually disruptive, will be toned to blend with background colour using a pigmented limewash and/or artists quality watercolour.

6: Conclusion

The wall painting at Apethorpe is an important survival. The location of the wall painting is particularly significant and the relationship of this painted room with other rooms in the vicinity needs further investigation. The scheme is, however, in poor condition and stabilisation is essential. Cleaning and conservation will improve the appearance of the scheme and clarify some of the areas, which are difficult to 'read' at present.

Andrea Kirkham

Appendix 4

Jennifer S. Alexander, 'Apethorpe Hall, the Evidence of the Masons' Marks', Report for English Heritage, 2006

APETHORPE HALL

THE EVIDENCE OF THE MASONS' MARKS

Jennifer S. Alexander

Abstract

Apethorpe Hall has a large number of masons' marks on the exposed stonework of the 1620s ranges. These marks are analysed both by their siting, to help elucidate the progress of construction of the ranges, and also formally to provide information about the organisation of stonemasons at this period. The nature, and state of understanding, of the marks known as masons' marks comprise the first section of this report and the detailed analysis of the Apethorpe marks forms the second part. Comparative study of related buildings is in part three. The marks demonstrate that the east and south ranges were built continuously, but work began in the south-east corner, and the east range was built more quickly than the south. A series of phases in this construction, based on building seasons is proposed, with new masons introduced during the construction of the Long Gallery and others retained from the previous period. Hierarchies within the works department at Apethorpe are proposed and an elite group of masons identified who worked on moulded and carved work. Detailed analysis of the form of the marks allows for a differentiation to be made between the marks that is distinct from that used for medieval marks, and it is used to suggest that the marks were employed in a way that is not found in the medieval period. This involves the conspicuous display of marks, as a form of trademark. It is shown here that the marks can be regarded as a form of quasi-signature and therefore used to trace the progress of masons around the country in the late 16th and early 17th century. The connections between these marks and the family of the Thorpes, masons of King's Cliffe, is explored. The Apethorpe masons' marks have been entered into a database and it is appended to this report, sorted on the basis of the marks and on the zones of the building.

SECTION ONE

INTRODUCTION: MASONS' MARKS AND THEIR INTERPRETATION

1.1 MASONS' MARKS

Masons' marks have been used as part of the construction process of stone buildings since at least the Bronze Age. The marks are incised into the blocks of stone used for mass walling, and on more complex sections of mouldings or other architectural features. They are cut with a narrow chisel, or punch, by the masons who shaped the blocks of stone. The marks are usually made up of a combination of straight or curved lines to form a cipher. The straight lines sometimes bear evidence of having been

drawn against a straight-edge and curved marks are often compass-drawn, but free-hand drawings predominate. In cutting stone for ashlar five of the six faces of the block are taken to a highly finished state and the sixth is left rough. Marks are cut into the stone when the blocks are shaped at the bench and can therefore be sited on bedding planes and joint-faces as well as on the exposed surface of the block. For this reason not all marks are visible in the built structure, and if all the blocks in a batch are marked, one should expect at least one stone in five to have a mark visible. Marks are occasionally found on stone taken to a less-finished state than ashlar, but none has been found on rubble.

The marks belong to the category of non-phonetic symbols employed to carry information that utilise mechanisms outside literacy, and they can be shown to have had a number of different functions within the building industry. Little has been recorded from the periods of use of marks and so the elucidation of these marks has been derived from observation and interpretation of those sites where marks occur.[1]

Given that marks have been in use for over four thousand years it is to be expected that a number of different systems existed in which marks were used, and that stoneworkers will have developed their own schemes which then became workshop practice over time. Certain functions that marks fulfilled more generally can be discerned and distinctions made between different types of mark. Each building that is surveyed for marks may therefore reveal a different method in which marks have been used.

1.2 Quarry Marks

Marks were used at the quarry to identify blocks intended for a specific site, or purpose, for example, stone selected for Gloucester Castle in 1442 was marked in this way.[2] 19th-century marks in use at one of the Ancaster quarries supplying Lincoln Cathedral were based on Roman numerals and gave the size of the block. These marks would not survive the process of cutting the stone into blocks for the building, and indeed their purpose is served once the block has been delivered to the masons' yard.

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[1] For a recent study, with bibliography, see Jennifer S. Alexander, 'Villard de Honnecourt and masons' marks', in M-T Zenner, ed. *Villard's Legacy, studies in medieval technology, science and art in memory of Jean Gimpel*, (Aldershot, 2004), pp. 53 – 69.

[2] L. F. Salzman, *Building in England down to 1540*, (Oxford, 1952), p. 126.

1.3 Assembly Marks

A second category of mark is the assembly mark. This system enabled complex construction of sectional work to be undertaken without written directions, and it is not restricted to stone buildings. The marks are usually cut across the joints of stones, and consist of a simple numeric scheme in most cases. One of the niches in the south parapet gable on the east range at Apethorpe is marked in this way, with diagonal strokes cut across the joints of the blocks for three courses. (Fig. 1)

1.4 Banker Marks

The third category of mark is the banker mark that was made by the mason cutting the stone to shape at the bench. Marks were needed when masons were set to task work, that is, paid by block, so that the overseer could determine each mason's output. Where masons were paid wages there was no need for them to mark their stones. These two methods of payment have been documented at Lincoln and Exeter cathedrals respectively, and whereas Lincoln has a large number of marks, Exeter has very few.[3] It is banker marks that often occur in large quantities on stone buildings and they are amenable to analysis as a body of data. Accurately recorded to site and input into a database the marks can provide a great deal of information about the construction of stone buildings. Distribution maps demonstrate the spread of individual work across a building and provide evidence for the significance of building breaks. What the data cannot provide however, is the identity of individual masons, although it does allow for differentiation between them.

1.5 Documentation of Marks

There is no documentation for, or evidence of, registration of medieval masons' marks in England, although there are ordinances for the regulation of masons from perhaps as early as the 14th century. In late-medieval Germany the system was formalised; marks were registered and displayed in a quasi-heraldic form, yet there is no reference to this system in either France or England. The Torgau Statutes of 1462 and 1563 describe the allocation of marks to masons in Germany and the mechanisms for their use. As a result masters like Anton Pilgram are shown with their mark, in this case appearing as an observer in St Stephen's Vienna, overlooking the work he built

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[3] Jennifer S. Alexander, 'Masons' marks and stone bonding', in T. Tatton-Brown and J. Munby, *The Archaeology of Cathedrals,* Oxford Committee for Archaeology Monograph, 42 (Oxford, 1996), pp. 219 – 36.

in 1513, whereas the tomb slab of Hugues Libergier, d.1263, from St-Nicaise, Reims, shows the status of the master mason by his apparel, accompanying tools and inscription, yet there is no depiction of a mark.

The lack of centralised control of the stonemasonry industry is fundamental to this. It has long been recognised that masons worked outside the gild system since its systems for the control of training, and for the production of goods for a limited market, would not have been applicable to stonemasons. Instead the organisation of training and quality control for masons' work lay within the individual works departments of the cathedrals and abbeys or their quarries. The works departments could be large in scale and most continued in existence for decades, or even hundreds of years, each with its own independent but related working practices. At the end of the medieval period masons in London were organised into a company and this continued into the 17th century with the growth in demand for stone buildings in the capital.

1.6 The Study of Masons' Marks

Antiquarian interest in marks first began in the 18th century and the early publications expressed the belief that the marks constituted a type of autograph, therefore masons could be traced from one building to another on the basis of their marks, although it soon became apparent that neither of these was true. The range of marks used is actually fairly small and the coincidences frequent, but the antiquarian view still colours a certain amount of modern thinking. It was also assumed, until the recent past, that marks were always used in the same way, at all periods, and across continents. A broader view, in which certain similarities arise due to the nature of the material and the ways that it is worked, but one that allows for variation, is more likely to be the case. The most important point, acknowledged by most writers now, is that, for the medieval period, marks cannot be associated with named masons.

1.7 Masons' marks and Signatures in the Early-Modern Period

The situation changes in the early-modern period however, and there is a growing body of evidence to support the idea that masons were recording their marks on documents. L. F. Salzman illustrates an agreement for the supply of stone, dated 1536, that has three masons' marks drawn on it although there is no indication of whose marks they are, since there is one person named as a freemason on the contract and

four dealers in stone.[4] One example, in which a mason's mark is included with the mason's name, is the Sandgate Castle accounts from 1539 – 40. There Robert Lynstead, the warden of the works department, signed off each page of the accounts with his name and mark.[5] Blake Tyson has drawn attention to masons' marks found on documents from the Cumbria area. He has been able to connect one mark from Whitehaven harbour wall, in building from 1679 – 81, with a signed receipt for the work on which the mark appears with the mason's name. Likewise Lady Anne Clifford's account book has a mark next to a mason's signature on a page dealing with work at Brough Castle in 1665 and this mark has also been found on the Countess's Pillar that she had built in 1654.[6] The Purbeck Marblers' company in Dorset also included marks with some of the names of the masons in the 1697/8 Articles of Agreement, although in this case the names that accompany the marks seem to have been written by a third party and the marks display poor writing skills.[7] Further examination of documents from this period may well provide more evidence of this type, as the recent discovery of the account from Hatfield Hall with the mason's mark has shown.

1.8 MASONS' SIGNATURES

The presence of masons' signatures as well as their marks can be attributed to the growing literacy of these men. Lay literacy was increasing during the 15th century and basic reading and writing skills in English would have not been uncommon by the 16th and 17th centuries. Amongst masons working on tombs and fireplaces evidence for literacy, in the form of signatures on contracts, or notes on drawings, starts to appear during this period, although the picture is far from uniform. Garat Johnson, for example, who came to England from Amsterdam in 1567 and d.1611, annotated a drawing that he made for a monument in West Firle in Sussex in 1595.[8] Sculptors of the status of Maximilian Colt, to whom the Mildmay tomb in Apethorpe church has been attributed, were also certainly literate.

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[4] Salzman, *Building in England*, plate II, and pp. 121 - 22.
[5] William Loftie Rutton, 'Sandgate Castle, AD 1539 – 40', *Archaeologia Cantiana* 20 (1893), pp. 228 – 57, at p. 235.
[6] Blake Tyson, 'Identifying and classifying masons' marks', *Vernacular Architecture* 25 (1994), pp. 4 – 15.
[7] Dorset Record Office, D619/1.
[8] The drawing is published in *Sussex Notes and Queries* II (1928 – 29), pp. 175 – 77.

A more significant development in the work of masons who produced sculptural projects during the late 16th and early 17th centuries is the growing emergence, during this time, of signed work. Medieval tombs are not signed, and very few have masons' marks. One example of a marked tomb, from the early-modern period, is the monument to Richard, duke of York, on the north side of the high altar in Fotheringhay church that was erected in 1573, and this has two single marks placed discretely on the plinth. (Fig. 2)

Tombs began to be signed in the 16th century, but more signatures survive on 17th-century monuments, particularly those made after *c.*1630. Adam White's dictionary of London tomb sculptors includes references to signed works. For example Le Sueur's monument to Sir Thomas Richardson in Westminster Abbey is inscribed 'HUBER: LE SVEVR REGIS SCULP: FACIEBAT 1635'. Hubert Le Sueur (b. *c.*1580, living 1658), was employed by Charles I to make twelve statues for the funeral catafalque of James I in 1625 and he is also the sculptor of the monument to George Villiers, duke of Buckingham in Westminster Abbey, designed in 1630 or 31.[9] White also reports signatures on the works of John (1598/9 – 1654), and Matthias, Christmas, (1605 – 1654); both men signed a series of tombs to people who died in the 1630s. The tomb of Susanna Cage in Bearsted church, Kent is signed with the initials of John Christmas and the lettering matches that of the inscription on the brass of the monument, proving that he made both. The tomb of Elizabeth Morgan, who d.1638, in Shottesbrook church, Berks., is clearly signed 'IOHANNES ET MATHIAS CHRISTMAS FRATRES FECERUNT'.[10]

Signatures first start to appear on the work of the previous generation of tomb-sculptors, those working at the end of the 16th century. Epiphanius Evesham (b. in or before 1570, fl. 1620s) was signing monuments at this date, for example, the tomb of Margaret Collyns, who was buried in 1595 at Mersham, Kent, is signed 'EVESHAM ME FECIT' as is that to John Collyns, d.1597 at St Leonard, Hythe, Kent. Later monuments are also signed and an inscription by Epiphanius is recorded on a compilation of the family pedigree drawn up by his brother.[11] Evesham has been

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[9] Adam White, 'A Biographical Dictionary of London Tomb Sculptors *c.*1560 – *c.*1660', *The Walpole Society* 65 (1999), pp. 1 – 162, pp. 77 – 83.
[10] White, 'London tomb sculptors', pp. 22 – 3.
[11] White, 'London tomb sculptors', pp. 49 – 55