Glastonbury Abbey
The SE Crossing Pier

Archaeological Survey of the standing fabric - 2005

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Summary

Close inspection of the fabric of the south-eastern crossing pier, in the context of discoveries made during previous archaeological recording of the ruin, has further developed the understanding of the phases of construction of the ecclesia major *at the end of the twelfth century and the beginning of the thirteenth:*

- the arcade, south choir aisle and eastern part of the transept in the vicinity of the southern crossing pier must be contemporary with the construction of the Lady Chapel (1184-6/7)

- the fabric to the top of the triforium was probably complete by 1189, after which ?Dundry stone is largely abandoned as a building material in the period of financial constraints following the death of Henry II

- the clerestory of the choir was probably completed within a few years of 1189 and the four bays of the choir were probably then brought into use by the convent

- there is evidence for a building break at the northern jamb of the clerestory window in the northern bay of the south transept (an identical position to one of the breaks in the building of Wells cathedral), there being a coursing mismatch in the ashlar above the string-course at this point. The course heights in this Phase 2 fabric are very similar to those in the Phase 2 fabric of the South Nave Aisle (as defined in the previous report in this series), and may indicate that the construction of the transept involved also the completion of the eastern three bays of the nave aisle with some parts of the higher work, partly as abutment and partly to contain the pulpitum and steps before it, which formed the approach to the ritual choir.

Traces of the ?fourteenth century pulpitum were identified on the north elevation of the crossing pier, this presumably belonging to the period of Monington's enlargement and embellishment of the choir. Choir aisle screens of stone were installed, probably at the same time, and traces of another (?earlier) screen were identified in the north-east chapel of the south transept.

Traces of the rood beam (also probably of Monington's period) remain above the screen, the socket for the southern end of the beam apparently having been blocked prior to the dissolution of the abbey, perhaps in or soon after September 1538.

Monington's panelling of the choir may have involved heightening the clerestory and vaulting, and certainly involved new fenestration, with its glazing near the inner face of the wall.

The position of the head-stop and corbel supporting the fan-vault over the crossing erected for Abbot Bere may have been identified. The scars left by the insertion of Abbot Bere's scissor arches beneath the side arches of the crossing were recorded.

Traces of polychromy were identified, but their extent seemed much reduced since the survey in 1988.

Five periods of post-medieval repair were identified: a 'pier' built into the triforium arcade, probably in 1849; the major restoration under the direction of W.D. Caröe in 1908-9; repointing work and wall-capping in 1935-6, and a similar campaign in 1962-3 when the clerestory passage may have been bricked up; and the repair of the arcade arches in 1988.

Caröe's repair included the rebuilding of the southern margin of the ruin, and the refacing and corbelling-out of most of the choir wall-stub from arcade springing to clerestory window jamb. He also capped off the spiral stair which rises within the body of the crossing pier from the clerestory passage through the east wall of the south transept.

As with the inspection of the south nave aisle, the findings from this survey demonstrate the extent to which such detailed interrogation of the fabric can provide new insights into the history of the Abbey.

1 Introduction

1.1 The circumstances of the report

1.1.1 During the spring of 2005, from February to the beginning of May, conservation of the fabric of the south-eastern crossing pier of Glastonbury Abbey provided scaffolding access to the apex of the ruin for the first time since the 1960s. As part of the programme of work an archaeological survey of this fragment of the building was commissioned by Alan Thomas, RIBA, the architect for the Abbey.

1.1.2 Findings were initially plotted onto 1:50 scale drawings prepared by Alan and Ann Thomas, Chartered Architects [Drawing Nos. 262/58-61], and these site drawings are bound with the current report. A photographic survey was undertaken by Carrek Conservation prior to the commencement of work; this was not duplicated as part of the archaeological record, but detail photographs illustrating the archaeological findings have been taken and are being scanned to CD to form part of the archive - an index of these is included as Appendix 2.

1.2 Previous surveys

1.2.1 The standing fabric of Glastonbury Abbey has not been exhaustively surveyed in the past. Rev. Robert Willis first analysed the structural remains in 1866,[1] and Frederick Bligh Bond described much of the ruin in his '*Handbook*'.[2] Bond almost certainly had access to the repair scaffolding erected for the 1908-9 campaign under W.D. Caröe, so his observations on the crossing piers are detailed and generally correct.

1.2.2 A.E. Henderson may have had access to the 1935-6 repair scaffolding to the south-eastern crossing pier, since this scaffold figures in one of the photographs

[1] Willis 1866 - see p.36-7 for his consideration of the remaining fragments of the crossing, and p.43 for Bere's scisspr arches.

[2] Bond 1910.

in his book of reconstruction drawings,[3] but his work consists entirely of drawn views of the church rather than written analysis.

1.2.3 In 1988, on the instructions of Alan Rome RIBA, Wells Conservation Centre, under the direction of Richard Stokoe, undertook cleaning and repair of the two surviving arches of the west bay of the south choir aisle. In order to accomplish the work a scaffold of four lifts was erected (though with only the upper three planked-out) whose primary purpose was to provide access to the arches - hence neither the adjacent south-eastern crossing pier to the north, nor the south-western face of the remaining transept pier was made accessible. The base of the scaffold platform lay a little below the sill of the triforium arcade. The inspection made by the present author in the autumn of 1988 concentrated chiefly on the recording of paint exposed during the cleaning process.

[3] Henderson 1935.

2 The south-eastern crossing pier

2.1 The Late 12th / Early 13th Century Fabric

2.1.1 Introduction

2.1.1.1 The form of the original fabric has been masked to some extent. In the mid-fourteenth century Abbot Walter Monington overlaid the Early English choir with rich panelling and altered the clerestory windows; while in the early sixteenth century Abbot Bere erected scissor-arches against the western faces of the surviving crossing piers, in the process cutting away the triple shafts and capitals of the late twelfth century responds. Furthermore, the southern and eastern margins of the surviving masonry have been cloaked by the extensive early twentieth century repairs carried out under the direction of W.D. Caröe.

2.1.1.2 These three later phases of alteration and repair are dealt with later in this report; this section addresses firstly some aspects of the physical form of the late twelfth century building, and secondly what can be learnt of the sequence and progression of the building of the surviving post-1184 fire fabric.

2.1.2 The form of the late twelfth century crossing

2.1.2.1 Little remains of the original monastic choir above aisle level, its cloaking by Abbot Monington has only left the respond of the western arcade pier and the shafts of the north-eastern angle of the crossing pier on the interior, and parts of the western jamb of the west clerestory window on the exterior. Reconstructions of the twelfth century abbey have always assumed that the choir (and nave) elevations were of similar form to those of the transepts, with the triple openings of the triforium enclosed within a super-arch rising from the arcade beneath, and above this the triple openings of the clerestory, its glazed central light flanked by two blind lancets.

2.1.2.2 As at Wells cathedral foliate paterae appear to have added decorative articulation to the architecture (a feature most evident in the western Lady

Chapel of the Abbey). A large lozenge-shaped panel lies at the centre of the tympanum of the south transept triforium, and a smaller square panel with a swirling foliage design occupies part of the plain wall of the clerestory above the northern lancet. The foliage of the capitals at arcade level shows the same mix of archaic leaves and fully developed stiff-leaf that has been reported for the choir aisle, and which can be seen on the north door of the Lady Chapel - demonstrating a date very early in the building campaign.[4]

2.1.2.3 One aspect of the Lady Chapel architecture which appears to have been absent from the first years of the rebuilding at arcade level of the great church is the use of blue lias as an insert to provide a natural polychromy. This is one of the hallmarks of the architecture of the Lady Chapel, and was clearly intended from the very beginning of the reconstruction, since the freestanding shafts appear in the jambs of the doors which were built while the ruins were still being plundered for architectural salvage following the fire of St Urban's day 1184. By contrast the choir aisles have attached shafts of Doulting stone in the angles and framing mouldings, and the arcade respond and arch mouldings are similarly all of attached Doulting stone. Lias inserts may first appear in the triforium, where the neck of the northern capital in the south transept and the base beneath it show that a pair of freestanding shafts were fixed here, presumably with single shafts beneath the capitals of the remainder of the arcade between the jambs. There is no certainty, however, that these were of lias rather than Doulting or some other stone, particularly given the fact that the abaci, capitals and surviving base are all of Doulting.[5]

2.1.2.4 Only in the clerestory can the use of blue lias be regarded as certain, since here there are stubs of the material remaining in the jambs. In the angle of the northern window jamb of the south transept, despite the almost total loss of the capital-level lias, it is clear from the existence of a white lime mortar joint 8 cm down, that this consisted of an 8 cm abacus with a 16 cm capital beneath - the capital probably (like that on the exterior) being moulded rather than foliate. Beneath this there survives 72 cm of lias shaft which now has a diameter of 11 cm, but which may have been slightly larger originally. At the base of this surviving length of shaft is a moulded annulus on a block 15.5 cm high, and which must have had an original diameter of more than 19 cm, since this is what still survives against the face of the stonework. Since this annulus lies very high on the window jamb it must be assumed that further annuli existed descending within the internal angle of the framing window moulding, but the extent of the

[4] Sampson 1990, pp.4-7; Sampson 1992, pp.5-6.

[5] At Wells freestanding shafts with annuli are first seen in the south transept doorway built soon after the 1184 fire forced the masons to use Chilcote stone rather than Doulting. The first use of lias may be in the northern arch of the north porch.

1909 repairs (and the losses which these infill) has obscured the original arrangement on the south side of the crossing.

2.1.2.5 The likeliest position for the next annulus could well be the height of the capital and abacus block of the minor opening - which would certainly have been of blue lias in the northern half of the jamb - and it would seem likely that one or both (though probably the capital block itself, which is 15.5 cm high, and the same height as the abacus) would have been carried across the full width of the jamb to provide the support for the lias shaft. This is rendered the more likely by the fact that the distance between the base of the surviving capital block on the northern opening, and its own annulus is 72 cm - the same height as that between the upper annulus and the capital on the main window jamb (the distance between the minor opening's annulus and base being 79 cm).

2.1.2.6 A further feature which has been obscured by later alterations is the eastern respond of the south transept crossing arch, the greater part of which has been hacked off in the early sixteenth century to make way for the scissor arch erected by Abbot Bere. For roughly two metres, from the springing of the arch downwards, the scar of the respond has been partly preserved, and this appears to show the former presence not of a double roll with keel between as on the eastern crossing arch, but rather a triple roll 37 cm wide overall with a central projecting keeled roll 14 cm wide.

2.1.3 The building sequence

2.1.3.1 The course heights and geology of the south-east pier

2.1.3.1.1 Without the detailed base-map provided by photogrammetry or other precise directly measured scale-drawing of the fabric - enabling individual blocks to be accurately located - it is difficult to provide a meaningful analysis of the fabric of the south-eastern crossing pier in terms of the form and geology of the stonework.

2.1.3.1.2 During previous work on the surviving fabric of the Abbey it has been observed that the earliest post-1184 building is characterised by the use of relatively small Doulting stone block bearing diagonal toolmarking, together with a preference for ?Dundry stone in the carved and moulded work. In the remaining fabric of the south-eastern crossing pier this pattern can be seen to be repeated in the rarity of courses over 29 cm in height, the apparent absence of vertically-tooled stonework, and in the use of ?Dundry stone for the majority of the capitals up to triforium level, the carved chevron ornament of the triforium super-arch

(though not of the arches of the arcade) and for some of the roll mouldings rising to the height of the springing of the crossing arch.

2.1.3.1.3 These three characteristics: tooling, block size and ?Dundry stone distribution have been investigated to some degree during the archaeological survey of this part of the building, but the findings outlined here should be regarded as provisional until more precise and detailed investigation becomes possible.

2.1.3.2 Forms of tooling

2.1.3.2.1 All the identifiable tooling of the plain ashlar which has been noted on the south-eastern crossing pier and the associated masonry is of diagonal boaster-marking - the earlier of the two types of stone finish in the Abbey church. On the relatively protected north-facing fabric of the south respond of the eastern crossing arch four instances of diagonal tooling were recorded: three on courses at around 2 metres up, and one at approximately 6.5 metres up.

2.1.3.2.2 More relevant in terms of its usefulness as an indicator of relatively early date are the survivals in the protected areas of the arches at triforium and clerestory level, particularly the latter, where the northern opening of the clerestory of the northern bay of the south transept retains clear traces of diagonal boaster marks, placing the upper levels of the transept at an earlier date than the upper levels of the south nave aisle, where the tooling is already vertical.

2.1.3.3 Block sizes and course heights

2.1.3.3.1 One of the defining characteristics of the south nave aisle fabric above the level of the top of the north cloister wall[6] is a marked increase in the block size of the ashlar, the average course-height rising here from around 19.5 cm to between 32 and 37 cm. Course heights in the south choir aisle were recorded during the September-October 1990 conservation programme, and taken with those of the south nave aisle allow comparisons to be made with the course-heights of the south-east crossing pier.

2.1.3.3.2 In the latter area the course-heights on the north elevation of the pier were

[6] See the report on the South Nave Aisle, 13 December 2004, and the Appendix to Sampson 6.6.89.

recorded from ground to capital level, with further course-heights being noted in areas of plain ashlar where the coursing is uninfluenced by architectural features: the east wall of the south transept triforium (26 courses), the east wall of the south transept clerestory (10 courses); and the interior of the west elevation of the northern clerestory opening of the south transept [15 courses].

2.1.3.3.3 The lowest two courses of the crossing pier represent the plinth stones beneath the bases, and these (together with courses containing and conditioned by other architectural features such as the capitals) have been discounted in the following analysis. By taking the courses in sets of five and taking an average height for these it is possible to establish whether significant variations in the coursing are occurring in the height of the crossing pier. Taken from the base of the pier to the base of the capital at the springing of the arch, in sets of five and ten courses, the results are as follows:

Sets of five courses	Average	Sets of ten courses	Average
111.75	22.35		
113.75	22.75	225.5	22.55
136	27.2		
104.25	20.85	240.25	24.03
103.25	20.65		
98	19.6	201.25	20.13
119.5	23.9		
139	27.8	258.5	25.85
120.25	24.05		
131.75	26.35	252	25.2
126.25	25.25		
129	25.8	255.25	25.53

2.1.3.3.4 While there is certainly some increase in the course heights over the upper half of the pier, there is nothing like the difference seen in the nave aisle wall, where the average course height for the upper fabric is consistently over 30 cm. The analysis of the course heights in the south nave aisle wall by comparison is as follows:

Bay	3W	4	4W	5	5W	6	6W	7
bench to string (14 courses)	22.57	22.57	22.57	22.57	22.57	22.57	22.57	22.57
string to first tall course	19.5(6)[7]	19.5(6)	19.8(9)	20.6(7)	19.7(6)	19.1(7)	19.2(6)	19.4(5)
upper wall	25.9(11)	24.7(13)	36.9(7)	33.1(9)	35.2(9)	33.7(9)	31.8(10)	33.6(10)

2.1.3.3.5 What would be expected over the height of the south-eastern pier would be either a sudden increase in course heights in the case of a long hiatus during the period of construction, or a slow increase in the course heights in the case of a continuous building campaign. The nave aisle coursing would be of the latter type, where, following the completion of the lower part of the wall to form the abutment of the north walk of the cloister, the building of the rest of the nave aisle was deferred; but the increase in course heights to 25 cm from 20-24 cm seen in the crossing pier would seem consistent with a fairly constant building campaign. This is the same sort of variation as is seen in the south choir aisle, a part of the fabric which must have risen rapidly in the first (1184-9) campaign of construction. Here, as in the crossing pier, the average course height starts at around 23 cm, drops a little, and then rises to around 25 cm:

	1W	1	2W	2	3W	3	4W
Bench to string course (9)	23.2	23.2	23.3	23.4	23.3	23.2	23.2
String to capital - lower 9	20.38	20.39	20.22	20.66	20.66	20.5	20.22
String to capital - upper 9	22.77	22.78	22.72	22.44	22.33	20.7(10)	20.6(10)
Abacus to top of fabric	23(7)	25.5(6)	24.7(6)	23.3(6)	26(6)	25.3(6)	-

2.1.3.3.6 In addition to the coursing of the north elevation of the crossing pier, course heights in the southern crossing area were recorded at triforium level on the plain walling of the east elevation [26 courses], and at clerestory level both inside [15 courses] and outside [10 courses] the south transept. Here, too, the courses heights generally range between 20-25 cm in height. The averages

[7] The numbers in parenthesis are the number of courses where these are variable.

(calculated in groups of 5 courses, as in the crossing pier analysis) are as follows:

Position	base				top
triforium east wall	21.9	24.6	19.75	21.15	23.5
clerestory W elevation	17.9	20.2	21.3		
clerestory E elevation	24.4	21.4			

2.1.3.3.7 In all the instances so far quoted (except for the upper fabric of the nave south aisle) courses of 30 cm and over are exceptional - there are none in the choir aisle, one (36 cm) in the triforium east wall, one (34) in the clerestory east wall, and three in the north face of the crossing pier (30, 31and 32.5) those in the latter not occurring until 8.5 metres above the present ground level.

2.1.3.3.8 Since the sample from the north face of the crossing pier ceases at the level of the top of the triforium arch the measurements of the clerestory are of importance in carrying the sample up to the springing of the main clerestory window, and demonstrating that there is no further increase in course size in this upper sector of the fabric - indeed, if anything it seems to suggest a slight reduction in the block size from the 25 cm average at the level of the triforium.

2.1.3.3.9 The conclusion to be drawn from this analysis is that course heights over the surviving height of the crossing pier show a consistent pattern, the stones generally of 20-25 cm, with some signs of increase in the upper parts of the fabric, but nothing like the increases seen in the south nave aisle. It would appear, therefore that the existing height of the crossing lies within what was probably a single campaign of building, whereas the south nave aisle demonstrates at least two major phases of construction identifiable on the basis of variations in the height and form of the cutting of the block.

2.1.3.4 Variations in the masonry of the crossing pier

2.1.3.4.1 Within this apparent single phase of construction around the southern crossing there are some slight suggestions of sub-phases, however.

2.1.3.4.2 From 7.95 to 8.79 metres from ground level the coursing of the double roll moulding of the northern respond no longer matches that of the pier itself, and while this is a relatively minor variation it is worth noting that in the south nave

aisle the capitals and/or their supporting roll-mouldings at the break-line between the two phases of construction belong to the later fabric even though lying within the level of the earlier structure. Thus it is possible that the mismatch in the crossing pier relates to a minor hiatus in the building campaign - possibly a hold in the vertical construction while the aisle vaults were being erected, since the vaults have their apex at approximately 8.6 m, or just below the height at which the coursing of the north elevation comes back into register.

2.1.3.4.3 A second variation in the form of the stonework relies for its identification upon the distribution of the ?Dundry stone component of the fabric. The use of ?Dundry stone for the finer carved or moulded detail of the building is a characteristic of the earliest main phase, beginning immediately after the period when the post-fire ruin was being cannibalised for ashlar. It is seen throughout the 1184-6/7 Lady Chapel, in the lower parts of the choir, and in the cloister doorway of the south nave aisle. The scaffolding of the south eastern pier has now allowed the later limits of the ?Dundry stone distribution to be investigated, and it would appear that there is a significant reduction in its use at the top of the triforium level.

2.1.3.4.4 It can now be seen that ?Dundry stone is found both as carved work (its more normal function), and as occasional ashlar block throughout the fabric of the southern crossing area up to the base of the vault-springing capitals, above which it is rare or absent. The precise analysis of its distribution is difficult to establish in the absence of a stone-by-stone survey of the fabric, and given the carbon-coated surface of parts of the building, which makes identification of the geology difficult; however, as with the coursing, the north elevation of the crossing pier was carefully analysed to give a sample of the distribution, and there are very clear indicators of the distribution in the contrast between the triforium super-arch and the clerestory window openings of the south transept.

2.1.3.4.5 In the north elevation of the south-east crossing pier the ?Dundry stone is largely restricted to moulded block - chiefly the roll mouldings of the attached shafts. Only 12 of the 63 pieces identified were used for plain or merely chamfered ashlars - just 19% of the total. In the choir aisles ?Dundry stone is rare or absent in the plain ashlar beneath the string-course below the windows, and the same can be seen in the crossing pier, where the stone is not found in the lower 2.6 metres. Above this point the distribution is relatively random to a height of 6 courses (1.68 metres) below the bases of the crossing arch/vault springing capitals, above which (apart from one possible piece in an abacus) it seems to disappear. Expressing the distribution in terms of groups of five and ten courses the results can be summarised as follows:

Sets of 5 courses	Percentage of total	No. of rolls	Sets of 10 courses	Percentage of total	No. of rolls
-	-	-			
-	-	-	-	-	-
9	14%	6			
3	5%	1	12	19%	7
9	14%	6			
11	17%	11	20	32%	17
7	10%	6			
2	5%	2	9	14%	8
11	17%	8			
5	8%	5	16	25%	13
6	10%	6			
-	-	-	6	10%	6

2.1.3.4.6 As with the results of the analysis of course heights on the north elevation of the pier, the results from the analysis of the ?Dundry stone distribution suggest that there is little major variation, at least to the point 1.7 metres below the springing level, and that the fabric is, therefore, the result of a single continuous campaign of construction where ?Dundry stone represents a minor but significant component.

2.1.3.4.7 On the western elevation of the pier and transept, however, the contrast between the use of ?Dundry stone in the arcade and triforium with the apparent absence of the material in the stonework above this level is considerably more dramatic. Here ?Dundry is by no means the universal material for capitals and carved work in the arcade - six of the remaining capitals of the crossing are carved from it, as is the hood-moulding of the super-arch, and many of the surviving voussoirs of the vaults; but the zig-zag work of the two arches into the transept is apparently of Doulting stone. However, in the triforium the toothed moulding of the super arch and its hood-moulding are all of ?Dundry, as is the capital from which it springs. But in the clerestory ?Dundry stone is apparently absent, being found neither in the moulded stonework of the wall-rib, the window jambs or arches, nor in the plain ashlar.

2.1.3.4.8 This break in the use of ?Dundry stone seems to occur at the same level in both

the north and the west elevations of the remaining masonry of the south-east crossing, tending to confirm the view that these parts of the building rose together, but its disappearance from the fabric may give some insight into the progression and dating of the construction process.

2.1.3.4.9 It is likely that some, at least, of the earliest ?Dundry stone block in the Abbey derives from salvage from the fire-damaged buildings - within the Lady Chapel, for instance, a number of the ?Dundry blocks show evidence of reddening by fire. However, the sizes required for many of the blocks (particularly for the larger capitals) are greater than are likely to have been found in the Romanesque church, and the regularity of its use in doors and arches suggests that new stone was being brought onto site throughout the earliest phase of construction. ?Dundry stone first occurs consistently and in quantity in the voussoirs of the Lady Chapel doors, demonstrating that its use was a characteristic of the 1184-9 phase of work under Ralph fitz-Stephen, and the quality of finish which its use would have allowed in the carved work matches the description given by the Abbey's chronicler, Adam of Domerham, who says that he utilised '*squared stones of the most beautiful workmanship, omitting no possible ornament*'.[8]

2.1.3.4.10 According to Domerham the death of King Henry II on 6 July 1189 brought the first campaign of building at the Abbey to an end, since

> 'He was succeeded by his son Richard, whose war-like tastes diverted his attention from the building of Glastonbury church. Wherefore the work stopped, because no funds were forthcoming to pay the wages of the workmen.'[9]

2.1.3.4.11 The financial troubles precipitated by these events led to a fund-raising tour with what relics had survived the fire of 1184, and the translation of the bones of King Arthur and Queen Guinevere from the churchyard. It seems likely that in this climate of economic austerity the importation of building stone from Bristol would also have ceased, and it seems probable that the top of the triforium of the south transept represents the height to which the building had progressed between 1184 and the autumn of 1189 - probably five building seasons. The great fire occurred on 25 May 1184, and it is likely that most of the rest of the possible building season that year was taken up with clearing the ruins and preparing the site, and perhaps a start was made on the lower 2 metres of the Lady Chapel where a cocktail of different stone types - evidently salvaged from the ruins - were used. Only in 1185 is it likely that full-scale building was

8 Chronicle of Adam of Domerham, quoted in Willis 1866, p.12.

9 Ibid. p.22-3.

underway on the eastern arm of the great church, and the four and a half or five seasons of construction would probably have progressed at around 10 feet a year.[10] The base of the clerestory, where the supply of ?Dundry stone ceases, lies 14.5 metres [47 ft. 6 in.] above ground level - close to the expected height in such a scenario.

2.1.3.4.12 This model for the progression of building also fits Adam of Domerham's record, since he notes that,

> 'Great part of the *ecclesia major* having been built the rest would have been beautifully completed had the Lord prolonged the king's life.'[11]

For Domerham the *ecclesia major* would have meant the choir (and perhaps the crossing) of the Abbey church, and the completion of the four bays of the ritual choir to the base of the clerestory would certainly qualify as the '*great part*' of this.

2.1.3.5 The evidence for the Choir / Transept building break

2.1.3.5.1 The question which this analysis of the progression of the building must next address is how ambitious was Ralph fitz-Stephen's first building phase? Did the *ecclesia major* of his campaign extend to the whole of the transept, or was it restricted to the ritual choir alone? So little remains of the standing fabric that any answer must be hedged with caveats, but there is one tantalising hint in the highest surviving fabric of the south transept clerestory which suggests a break in the construction between the eastern arm and the transept.

2.1.3.5.2 It is, perhaps, worth prefacing the description of this area with a brief consideration of the parallel offered by the analysis of the eastern arm of Wells Cathedral, which was being built between approximately 1175 and 1205. Here the great fire of 1184 at Glastonbury had the effect of forcing the Dean and Chapter of Wells to go elsewhere for building stone when the Abbey suddenly and unexpectedly needed the Doulting quarries (which it owned) to supply its own rebuilding programme. As a result there is a sudden switch at Wells from Doulting stone to the grey, less consistent Chilcote stone quarried near East Horrington, a change which, when carefully plotted, allows the extent of

[10] This is the rule-of-thumb figure hypothesised by John Harvey, and confirmed from observation at Salisbury Cathedral.

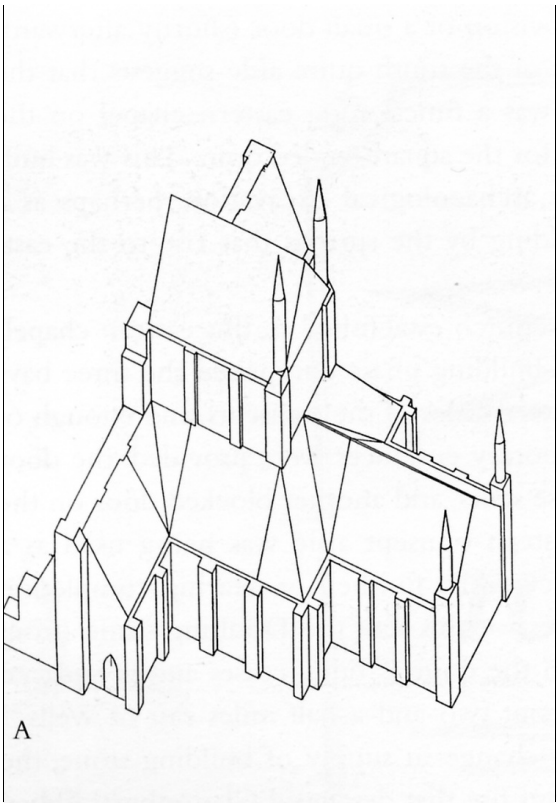
[11] Ibid. p.22

completion of the Cathedral in 1184 to be reconstructed. At this time the eastern three bays of the choir of Wells were complete, and the corner onto the east elevation of the north transept had been turned, but the transept clerestory ended on the south jamb of the southern window, and a vertical toothed joint had been left above this to the base of the parapet about a metre north of the choir wall.

2.1.3.5.3 Some years later, in c.1199, Wells appears to have regained control of the Doulting quarries (probably after Bishop Savaric became Abbot of Glastonbury and the See briefly became that of Bath and Glastonbury). At this point another break between Chilcote and Doulting stone can be identified in the fabric, and here a precisely similar break-line exists in the angle between the north transept and the nave - the fabric turns west off the southern angle of the north transept and terminates with the eastern jamb of the eastern clerestory window of the nave, and a vertical toothed break above the hood-moulding string-course rising to the parapet about a metre west of the angle.

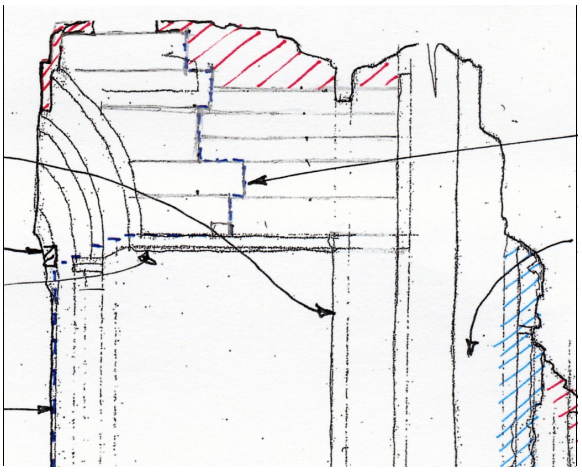
2.1.3.5.4 Bearing these break-profiles in mind the masonry of the northern stub of walling of the south transept at the top of the clerestory becomes exceptionally interesting. Above the hood-moulding string-course which defined the springing of the late 12th/early 13th clerestory windows the coursing of the choir masonry passes seamlessly around the angle onto the south transept, maintaining its course heights of (from the bottom up): 29 cm., 28.5 cm., 17.5 cm., 18 cm., and 18 cm.. However, on the transept, these consistent courses continue for only 1.18 metres before three of them die out against much larger masonry blocks. Given the rarity of block heights of 30 cm. and above in the masonry of the southern crossing, extensively discussed above, the coursing of the southern half of this spandrel of the clerestory is very surprising - the course heights become (again from the bottom up): 30 cm., 28.5 cm., 37 cm, 27 cm, 29 cm, 36.5 cm, and the top single stone is 25 cm high, but may not be in situ. This represents not only a total of 3 courses out of 7 at or over 30 cm high (where only 3 such courses exist in the whole 14 metre height of the crossing-pier as analysed above), but an **average** of over 30 cm for the course heights of this area of masonry. At the junction between these two areas of fabric the third and fourth of the northern courses sub-divide one of the tall courses to the south, while the next course up (the last surviving medieval course in this area) terminates well below the top bed of the adjacent course of the southern masonry.

2.1.3.5.5 On the western elevation of this part of the transept clerestory medieval masonry also survives, but here the ashlar work is much more restricted than it is on the east elevation of the wall, since the ashlars are squeezed between the window head and the vault wall-rib, and their sizes cannot be relied upon too heavily; however, it is noteworthy that here too the block sizes increase markedly above the first two courses above the springing: 19.5 cm., 22.5 cm.,



At Wells Cathedral (left and above) the choir was constructed first, with the side walls at clerestory level just turning onto the north (above) and south transepts - the break line defined on the change from yellow Doulting to grey Chilcote stone

At Glastonbury a break occurs in the same place, the change being defined by a change in the height of the courses. Note that the putlog hole from the original construction scaffold (immediately above the string-course) is laid against the completed stonework of the choir phase.



29 cm., 37 cm., and (probably) 29 cm.

2.1.3.5.6 This marked increase in the course-heights of the southern fabric in the north bay of the south transept clerestory represents an intermediate stage between the coursing of the 1180s fabric and that of the upper parts of the south nave aisle, where the average course heights are more usually in the range of 33-36 cm., and courses of 40 cm. and more are not uncommon. Indeed the general range of course heights in this fragment of the transept are close to those seen in the masonry of Bays 3W and 4E in the south nave aisle, where architectural features (in particular the variation in the form of the parapet) suggested that a further break in the construction may have occurred.[12] In these eastern fragments of the nave the average course heights above the break-line are 26.56 [3W] and 24.7 [4E] - close to those in the upper parts of the southern crossing pier - but both have three 30+ cm. courses in their surviving height.

2.1.3.5.7 If, as seems an inescapable conclusion, there is a gradual evolution in the heights of the coursing at the Abbey during the main period of its later 12th and early 13th century construction, then it seems that by pure good fortune portions of the breaks between its major phases may have been preserved in the fragments of the building which survive. The existing evidence points to a phase-break at the junction of choir and transept, and a further phase-break at the eastern side of the fourth bay of the nave, the masonry between these two break-lines being of directly comparable size. Following the completion of the choir (two or more building seasons after the end of 1189), therefore, it would appear that work on the transept phase of construction would have begun, in this instance extending as far west as the eastern edge of the fourth nave bay.

2.1.3.5.8 The previous report in this series (on the South Nave Aisle) noted the possibility of the existence of the break in the 4th bay of the nave aisle, but expressed surprise that it occurred so far west - since the comparable breaks at Salisbury and Wells Cathedrals lie in the second bay of the nave. One possible reason for the difference may be the apparent existence of a western aisle in the north transept of the Abbey, a discovery reported by Bond in his Eighth Report,[13] and drawn on his revised plan,[14] but which has not found its way into the more general literature, most later published plans being derived from that published in *PSANHS* in 1930 (after Bond's dismissal) and drawn by V.M. Dallas. Such a western aisle would have moved the break-line one bay westwards, and it is possible that the flight of steps required to accommodate the known difference

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12 See Sampson 2004, pp. 26-8, Section 2.11

13 P.S.A.N.H.S., vol. lxi, pt.ii, pp.129-31

14 Plate 1 in his Sixth Report, P.S.A.N.H.S., vol. lix, pt.ii, between pp.56-7.

in the floor level of the choir and nave was also moved westwards by this aisle, dictating the greater length of nave required to complete the transept phase of building.

2.1.3.6 A provisional summary of the phasing of the building of the Abbey church

2.1.3.6.1 Thus it would appear that the work at the Abbey began soon after the 25 May 1184 fire with the clearance of the site and the digging of the foundations for the Lady Chapel and the construction of its lower 2 metres of masonry. At the same time the great church was being laid out to the east, and construction was certainly well underway before the Lady Chapel was completed - as can be seen from the similarity of the leaf forms in the Chapel and the Choir Aisle / Crossing capitals. By the autumn of 1189 the four eastern bays of the choir to the eastern face of the crossing had risen to the top of the triforium and the aisle vaults were complete, but work on the clerestory was only just about to begin. By analogy with Wells Cathedral it is likely that the eastern aisle of the transept (and its chapels) were also usable at this time.

2.1.3.6.2 Financial problems must have led to a slowing in the programme after 1189, and to dispensing with top quality carving stone from the ?Dundry quarries, but there is no sign that work stopped for more than a few years, and it seems probable that the four bays of the ritual choir would have been usable by 1195 (1200 at the very latest), and certainly long before the occupation of the great church by the monks on Christmas Day 1213 referred to by Radford.[15]

2.1.3.6.3 The construction of the transepts and the tower base would appear to have followed on from the completion of the eastern arm, this area comprising a significant part of the east nave as buttressing to the high work to the east. Work would have begun at low level and worked up in continuous horizontal bands - hence the coursing of the east nave appears to have been slightly shallower than that of the south transept clerestory. The completion of the transept phase would have effectively completed the whole of the ritual choir, which must have extended across the space beneath the tower prior to Monington's fourteenth century extension, and it may be the dedication of this part of the building to which the 1213 date refers (though there is reason to believe that the fabric may have been even further advanced by this date).

[15] Radford 1973, p.14, without giving a source.

2.2 Other constructional features

2.2.1 The high-level passageways and access

2.2.1.1 Virtually invisible from the ground is the surviving evidence of the high-level galleries of the church, at triforium and clerestory level, and, rising from the clerestory, the tower and high roof-spaces stairs, which are preserved only in the remains of the crossing piers.

2.2.1.2 No ground-level access to a stairway of the abbey church remains, or is reported from excavation, since the walls of the great church (except where surviving) have been reduced below the top of the foundations. It is likely that the south transept had a stair in the south wall at the south-eastern angle of the high vessel - stairs exist here at Wells and St Davids Cathedrals, both buildings which bear a close relationship to the Abbey, and the existence of the night stair in the south-western corner of the transept would also tend to favour this position.

2.2.1.3 Bond stated that,

> 'The triforium at Glastonbury, at all events in the transepts, was not used as a passage for its whole extent...'

and he adds in a footnote,

> 'It stopped a short distance from the tower piers where the return face of a doorway can still be seen, giving access to the space behind the triforium.'[16]

It is at present not entirely clear what Bond meant by this, and it is hoped that the point can be discussed further in the report on the north-eastern crossing pier.

2.2.1.4 At all events, it appears that the triforium roofspace was accessed from a spiral stair, and perhaps a wall-passage across the south transept's south elevation, and was apparently enclosed beneath the aisle roof. The same stair would have risen to clerestory level and given access to a wall-walk at the level of the string-course below the clerestory windows. Originally this walkway probably passed right around the church, but there is no evidence that it existed to the east of the

[16] Bond 1910, p.55.

The Clerestory wall-passage (above and right), now blocked with brick, originally gave access to a stair in the thickness of the crossing pier rising to the SE angle of the tower.
Below left shows the remaining treads of the newel stair at the apex of the ruin, with internal C19 blocking visible below. The window is still visible on the exterior (below right)

crossing following the remodelling of the choir by Abbot Monington, neither the fabric as it exists at present, or as it is shown in the pre-Caröe repair photographs, suggesting the least sign of its emergence from the eastern faces of the crossing piers.

2.2.1.5 Only the discovery of drawings or documentation from the c.1909 period, or the removal of the capping of the stair or the brick blocking of the transept clerestory passageways will clarify whether the choir possessed clerestory passages prior to Monington's work; but it is clear that the transept passages gave access to a stair in the upper parts of the eastern crossing piers when they were built in the late twelfth century. At the apex of the south-eastern crossing pier the interior of this stairwell has been capped off horizontally, and above this the medieval fabric of the stair rises for a further 193 cm. 60 cm below the apex of the surviving medieval fabric lies the top of the uppermost of two stair treads, each 20 cm deep, the lower of which has a tread surface 36 cm wide at the face of the wall. These two survivals confirm the supposition (based on the geometry of the stair) that the treads rose clockwise; the corresponding staircase in the north-east pier rising counter-clockwise. The course-heights of the stairwell are, of course, conditioned by the height of the treads, the courses varying between 19.5 and 20 cm in height.

2.2.1.6 Some 60 cm (3 courses) below the underside of the upper surviving step is the head of the window which is visible on the exterior of the choir wall, hard against the angle with transept. This window, 125 cm high x 16 cm wide relates directly to the original coursing of the wall, and its western jamb is formed by the projecting square moulding next to the nook-shaft in the angle between choir and transept. The window is very sharply splayed to the west, and clearly relates to the stair in the body of the pier.

2.2.2 The form of the triforium roof

2.2.2.1 The consideration of the two phases of the aisle roof will be deferred until the northern traces of this part of the choir can be compared with the findings from the present survey.

2.2.3 Technical features

2.2.3.1 Masons' marks and medieval repairs

2.2.3.1.1 Whereas 10 medieval repairs and 22 instances of stones bearing a mason's mark were noted on the more restricted area of masonry of the later fabric of the surviving south nave aisle, none of either were located on the south-eastern crossing pier. It would appear that these two technical features are characteristics of the west nave building phase.

2.2.3.2 Putlog holes

2.2.3.2.1 Relatively few examples of putlog holes were encountered in the south-eastern pier, and their concealment, like the apparent absence of the use of whole-stone repairs and masons' marks appears to be an aspect of the procedure of the early masons' yard at Glastonbury. The Phase 1 fabric of the south nave aisle, and the Lady Chapel also suggest that the masons were concealing the putlogs.

2.2.3.2.2 Three probable putlogs on the same standard may survive on the west elevation of the south transept's northern bay: one just above the centre of the northern arc of the arcade super-arch; one in the back of the triforium arcade just to the south of the position of the northern freestanding shafts; and one immediately south of the north jamb of the northern clerestory opening. All are relatively small; none were observed emerging on the eastern side of this wall. There is a possible companion to the clerestory level hole just to the south of the jamb of the central window opening.

2.2.3.2.3 Two putlogs were noted on the south wall of the west bay of the choir aisle, which pass through the wall and are visible on the north elevation of the north-eastern chapel of the south transept.

2.2.3.3 Centreing marks

2.2.3.3.1 During the 1988 survey it was observed that there were series of square slots cut into the top surface of the upper mouldings of the wall plate on both south and west walls of the western bay of the south choir aisle. These have now

been found on the corresponding positions of the south transept's south elevation arches, and appear to be a signature of the early mason's yard, since they were not reported in the remnant of the clerestory wall plate, nor the south nave aisle.

2.2.3.3.2 During the 1988 survey it was hypothesised that these slots appeared to have been cut to house some form of reinforcing, and that

> 'This may have been some form of strutting within the body of the vault web which served as centreing during the process of building. Since its position would place it within the body of the web when built it is difficult to establish a case for it being removable centering. These slots only appear in the upper part of the arch - the lower part would have sloped too steeply for such battening to have been of much assistance, and the tufa infill behind the web would have been built up to cover part of this area.'[17]

2.2.3.3.3 Perhaps also associated with supporting centreing are several instances of neatly cut rectangular slots at arch-springing level on the jambs of arcade piers, which in the case of those in the western arch of the south choir aisle's west bay have been filled with mortar, indicating that they were no longer needed in the middle ages. Similar features were discussed in the context of the windows of the south nave aisle in the previous report in this series.

2.2.3.4 Wooden wedges

2.2.3.4.1 A number of small wooden wedges were observed in the horizontal joints between the plain ashlar courses of the east elevation of the south transept triforium (within the aisle roof-space). These appeared to be remnants of the original wedges used during the fixing of the stones. It was hypothesised that their distribution might prove significant, but they were largely removed before they could be plotted. They seem to have survived solely because they were in a concealed (and probably quite dark) roof-space. Many of them had expanded (probably as a result of being wetted by rain) and burst the adjacent arris of the block.

[17] Sampson 1988, p.3.

2.3 Evidence of screenwork

2.3.1 The transept chapel screen

2.3.1.1 The north-eastern chapel of the south transept retains marks of several structural fittings, including evidence for what may have been a retable with opening doors, but the majority of these lie outside the remit of the current survey. However, in the northern respond of the arch leading into the chapel, there are scars which suggest the former presence of a wooden screen.

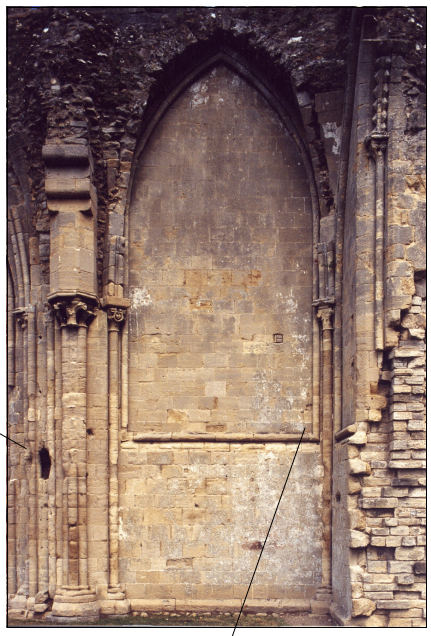
2.3.1.2 A large roughly rectangular hole has been excavated into the wall-core over the height of two courses in the flat northern respond immediately west of the mouldings of the arch; the centre of this recess lies at the mid-point of the height of the respond (from base to abacus), and immediately beneath it lies the first of six pairs of small leaded iron fixings, which lie in two vertical alignments approximately 12 cm apart over a height of just over a metre. The rectangular hole was probably originally 42 cm high x 18 cm wide and up to 46 cm deep, and it seems likely that it accommodated the lintel of a wooden screen, while the small leaded iron fixings were inserted to pin the upright of its northern post. This would seem to imply the tracery openings of the screen running from 1.10 to 2.20 metres above pavement level, below which the solid dado would have closed off the chapel. This equality in height of tracery and dado suggests a relatively early date for the screen.

2.3.1.3 It is noteworthy that the top of the hole for the lintel lies at the level of the base of the string-course which divides the adjacent north wall of the chapel into two registers.

2.3.2 The pulpitum

2.3.2.1 Documentary evidence records that the great screen under the crossing of Glastonbury Abbey was built for Walter of Taunton, whose abbacy lasted only from December 7 1322 to before the end of the following January, but as prior,

> ‘For some time before he became abbot he seems to have been taking over abbatial duties and had a pulpitum...built at the west end of the choir, whose decoration included 10 large statues. He also had a cross designed for the church which featured images of Christ, Mary, and St



S Transept, northern chapel

Above: traces of a screen across the entrance, with pairs of pins defining the position of the tracery and ending above the height of the dado, the large hold perhaps to locate the bresummer.

Right: cut out and iron ring (lower left) against the eastern wall shaft, perhaps to located the northern wing of a retable behind the chapel altar.

John.'[18]

John of Glastonbury's Chronicle makes it clear that this cross was almost certainly the rood which stood above the screen.[19]

2.3.2.2 Bond observed traces of the installation of a screen between the eastern crossing piers, noting that,

> 'The great piers of the choir arch still shew the grooves made by the masons for the admission of the fluid cement which united the ends of the overhanging vaulted canopies of Abbot de Tauntonia's great choir screen to their faces.... Over this screen, according to the records, would have been the Rood, before which Abbot de Tauntonia was buried.'[20]

Bond's knowledge of screenwork,[21] coupled with his observation of these traces on the eastern crossing piers, informed the reconstruction view of the interior of the crossing published both in his '*Architectural Handbook*' and his monograph on screens.[22]

2.3.2.3 However, it seems unlikely that this screen, which has left clear traces of its presence on the eastern crossing piers, is the one built by Walter of Taunton in or just prior to 1322. Before the enlargement of the choir from four to six bays during the abbacy of Walter Monington (1342-74) it is probable that the monastic choir incorporated the space beneath the tower, and until this date the likeliest site for the pulpitum and its associated rood would therefore be between the **western** piers of the crossing. Unless the screen erected under Walter of Taunton was moved to the new position, it seems more likely that the screen which has left scars on the eastern piers was erected as part of the enlargement and beautification of the choir under Walter Monington, and Monington's gift of 22 statues for the great screen[23] makes it likely that a new screen was part of

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18 Carley 1988, pp.39-40.

19 'Hic construxit pulpitum ecclesie cum decem ymaginis et erexit magnam crucem cu*m* ymaginib*us* crucifixo, Maria et Iohanne*s*.', Carley 1985, pp.256-7[and Carley 1978, vol.ii, p.322]

20 Bond 1910, pp.70-1.

21 Exemplified in Bond and Camm 1909.

22 Bond 1910, Plate 3, facing p.38; Bond and Camm 1909, Plate 5, facing p.22.

23 Carley 1988, p.50.

the choir project.[24]

2.3.2.4 The screen in the eastern crossing arch appears to have been approximately 4.8 metres high to the crest of the parapet, and at least 1.85 metres deep from east to west. Not only are the mortar channels already mentioned - cut to provide greater adhesion of the mortar for the projecting parapet (rather than for liquid grout as Bond suggested) - still preserved on the flat part of the northern elevation west of the pair of attached shafts of the eastern crossing arch, but at the north east angle of the pier the square moulding immediately east of the arch respond has been trimmed back over its lower 4.1 metres, the trimming having also cut away the face of the base from which the roll moulding rose. This trimming has left fairly coarse diagonal toolmarks over the lower three-quarters of the area, showing that it was carried out after the erection of the pier, and it was probably done to accommodate the eastern ashlars of the screen.

2.3.2.5 The position of the base of the western parapet is probably marked by the cut recess which takes the form of a narrow strip of hollow chamfer on the west face of the arch respond at 3.85 metres above ground level.[25] This height probably marks the approximate position of the floor of the loft, and would have provided a parapet approximately 3 feet [91.3 cm] high. The apparent built height of the eastern elevation of the pulpitum (marked by the top of the cut rebate) is considerably lower, extending only 25 cm above this putative floor level, but this was probably compensated for by the presence of the tall canopies of the wooden stalls returning against the eastern face of the screen, and the continuation of their tabernacle work across the arched doorway beneath.

2.3.2.6 At the level of the top of the mortar channels, above the western elevation of the screen, are two cut rectangular recesses which could relate to features of the top of the parapet. Other features possibly related to the pulpitum are the three 1" diameter drilled holes to the west of, and just above the top of the parapet; and the roughly cut rectangular hole centred 2.75 metres above ground level, and probably positioned forward of the western face of the screen (a similar, filled, hole exists on the north pier).

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[24] Or at the very least a new parapet, as is shown in Henderson's reconstruction of the 'Crossing Screen and Sanctuary as in 1539', where the ten statues given by Abbot Taunton are displayed on the body of the screen, and 22 smaller statues stand within the parapet.

[25] These measurements have been taken off the record drawings, and are not necessarily precise - it is intended to make accurate measurements on the north pier where these traces are also preserved, or to take measurements from the ground following the striking of the scaffolds.

The traces of Abbot Monington's pulpitum.

In addition to the chases cut into the ashlar to assist in the bonding of the projecting parapet there are recesses which probably correspond to the position of the top (upper left) and bottom (lower left) mouldings of the parapet. Immediately below the level of the latter the corresponding moulding at the eastern side of the pier has been cut away, probably to accommodate the eastern face of the screen.

These features exist on both the northern and southern faces of the eastern crossing arch.

2.3.3 The choir aisle screens

2.3.3.1 Probably inserted at the same time as the Monington period pulpitum, screens also existed across the western arches of the choir aisles, leaving identical marks on the north and south arches. Initially appearing to be no more than areas of accidental damage to the outer roll mouldings of the responds of the arches, sections of the mouldings have been deliberately cut away at the same heights on both sides of the missing central roll, the profile of the cuts being curved at the top and flat at the base in all instances. That the central roll has been worked off (rather than merely broken) is proved by the cutting-back of the inner faces of the bases on both sides of the arch, and by the presence of small patches of mortar on the 'broken' face of the southern respond, presumably from the fixing of the stonework of the screen (and incidentally proving that the screens were of stone rather than being of wood).

2.3.3.2 It seems likely that this erasure of the outer roll mouldings of the arch responds represents the height at which the much lighter screens of the aisles expanded to form a parapet, this being some 3.5 to 3.6 metres above the present ground level. This point lies at roughly the same relative level within the arch as the slightly earlier aisle screens at Wells cathedral.

2.3.4 Screens behind the choir stalls

2.3.4.1 No unequivocal signs of the screen-walls which probably existed behind the stalls have so far been identified.

Traces of the South Choir Aisle screen: cut away areas of the arch mouldings at the entrance to the choir, at the height of the parapet (top left and right), and at the bases and down the centre roll moulding (bottom); traces of mortar on the latter show that the screen was of masonry (top centre).

2.4 Other decoration and fittings

2.4.1 The rood beam

2.4.1.1 Between 6.5 and 7.2 metres above the present ground surface, and overlapping from the southern respond of the east crossing arch onto the north-facing flat to the west of it, is a large, rectangular, blocked recess. The north-east crossing pier has a corresponding open recess on its south elevation. The upper 22 cm of the blocking is composed of three courses of lias, while the lower part is taken up by a large coarse Doulting stone block, and all are laid in a white lime mortar, showing that the blocking must be early. At the centre of the top surface of the large Doulting block is a roughly cut slot, its inner face sloping inwards, as if it were part of a Lewis hole.

2.4.1.2 This large blocked recess, and its companion in the northern pier, were clearly made to accommodate a massive beam of 50 cm square or more, spanning the width of the eastern crossing arch, its ends cut into the pre-existing piers. The southern hole has been cut so that both the southern and eastern margins would have provided support; the bearing on the ends of the beam would otherwise have been relatively slight, since the depth of the hole visible in the northern pier looks to be less than 40cm, probably giving less than a foot of bearing at the ends. The beam-seating lies at the mid-height of the southern respond of the crossing arch, midway between the ground and the base of the capitals, and is placed directly over the parapet of the pulpitum.

2.4.1.3 The massiveness of the beam and its precise positioning relative to the pier and the screen beneath leave little doubt that this must be the site of the rood-beam which served Monington's choir. The same arguments already rehearsed in the context of the pulpitum apply to the attribution of this beam to Abbot Walter of Taunton, who is known from documentary sources to have 'erected a great cross with images of the crucified Christ, Mary and St John'. It is entirely possible that Abbot Walter's rood could have been moved to a new site, and it is also possible that the Abbey contained more than one rood after Monington's expansion of the choir, Winchester having had three, and three are suggested for Glastonbury by Henderson.[26]

2.4.1.4 It seems likely that Bond had realised the significance of these traces, since he drew the rood and rood beam in more or less this position in his reconstruction of the transept and crossing in 1909/10.

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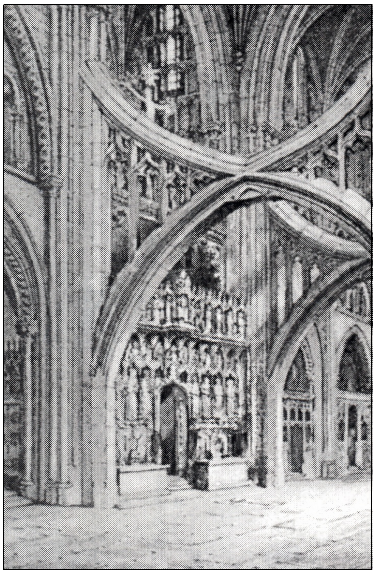
[26] Luxford 2001, p.86 fn.1; Henderson 1937, p.107-10.



Traces of the sockets for the great rood-beam above the 14th century pulpitum.

The hole in the southern pier (above left) has been blocked up - presumably before the dissolution, suggesting the rood was taken down as part of the 1538 legislation against roods which were the object of pilgrimage or offerings. The hole in the northern pier (above right) is badly damaged.

Bond had used these scars to identify the rood-beam in his reconstruction of the crossing (left)

2.4.1.5 The lias blocking the top of the hole in the south-eastern pier has been laid in such a way that it could have been plastered over to match the moulding above, but the large Doulting block is placed diagonally across the hole and its centre projects beyond the face of the rebate in the north-western face of the pier. It is possible, therefore, that the lias was fourteenth century infill above the beam, let in to fill an over-large hole. The blocking of the rest of the hole may perhaps shed some light on events at the Abbey in its last days.

2.4.1.6 The hole could only have been blocked after the rood beam was taken down; but if the beam was taken out as part of the despoilation of the Abbey church following the Dissolution there would have been no point in blocking the hole. The earliest period at which a concern for the stability of the ruins might have prompted a repair to be inserted in the hole would be the early nineteenth century, but the mortar fixing the blocking is of an earlier type, quite unlike the coal/lime mix used on the south transept triforium in or prior to 1849. The only likely explanation, therefore, is that the beam was taken down before the destruction of the Abbey, and the roughness of its blocking suggests that this was done right at the end of its existence as a monastery.

2.4.1.7 Some moves towards the destruction of roods were made in the 1530s, and although

> 'At the outset the movement was nothing like general, but, "by the special motion of the Lord Cromwell," says Hall's *Chronicle*, was directed more particularly against those images which were, or were alleged to be, the objects of peculiar devotion, or, in the words of the Royal Injunctions of 1538, were "abused with pilgrimage or offerings." And so, under this specious pretext, the attack upon roods began in or about September.'[27]

This date, just a year before the dissolution of the Abbey, suggests that the great rood at Glastonbury was taken down either by order of Cromwell, or by the abbey authorities in a bid to 'cleanse' the church of fittings which might offend the King's commissioners, and that a 'temporary' blocking was inserted into the hole before the demise of the convent.

2.4.1.8 Just below the blocking, and orientated more or less centrally upon it, is an irregularly shaped hole 8.5 cm high x 5.5 cm wide x 11 cm deep; this may have housed the fixing for an adjunct to the beam, perhaps a corbel - though given the weight of the beam this is more likely to have been decorative than functional. Bond's 1909-10 reconstruction included a curved and cusped brace

[27] Vallance 1936, p.5.

rising from the top of the pulpitum parapet, which he may have inferred from this and the pair of rectangular sockets at the top of the latter parapet.

2.4.1.9 Immediately to the east of the lias blocking at the top of the beam-hole is a fragment of an iron fitting leaded into the wall, which probably related to an adjunct of the beam.

2.4.1.10 There is little sign of the anchors which must have run from the tall figures of the rood to the framing arch in order to secure them, and it is probable that these were fixed into the arch itself above the level of the masonry now remaining.

2.4.2 Fixings above the south choir aisle screen

2.4.2.1 On the eastern side of the arch between the west end of the south choir aisle and the crossing, centred 65 cm above the springing of the arch, the innermost moulding of the vault rib to north and south, hard against the back of the arch, has been cut away to form shallow semi-circular recesses. The similarity of the form of the recesses, and their symmetrical positions imply that they were cut to support a feature which spanned the arch at approximately one-third of its height above the springing. Clearly not a tie (or the ends would have been much more firmly seated into the masonry) this was presumably a decorative feature in its own right or the support for a decorative feature. Its relatively shallow seating suggests that it may have been additionally supported from the top of the screen.

2.4.3 Fixings above the arch into the eastern aisle of the south transept

2.4.3.1 To either side of the south elevation of the head of the arch between the west bay of the south choir aisle and the eastern aisle of the south transept are sets of three drilled holes. These, of a standard 1.7 cm diameter, are arranged symmetrically across the arch, and have a depth varying between 4 and 4.6 cm. Since they lie outside the position of the hood moulding, and there are no obvious signs that the hood has been cut back to accommodate a cross-bar in this position, it is possible that the holes were designed to hold the ends of a feature which ran around and above the head of the arch itself (though there are no signs of further fixings at the apex of the arch), or that they fixed two independent symmetrical features, such as enamelled plates of kneeling figures, or perhaps the metal fittings for the censers of painted kneeling angels.

2.5 Monington's Choir

2.5.1 Abbot Walter Monington (1342-1374) extended the choir of the Abbey church eastwards by two bays, and clad the four pre-existing Early English bays with a rich traceried panelling. In doing so he appears to have been following the precedents set at Gloucester (under Abbot Staunton, 1337-51) and nearby Wells Cathedral (under Ralph of Shrewsbury): the Romanesque choir of Gloucester Abbey having been remodelled in the late 1330s, and the Wells choir having been extended by three bays and the western three (Early English) bays having been adapted to match the new work in the 1330s. The easternmost stub of Monington's choir wall survives at the margins of the eastern crossing piers, and on the southern one there are the remains of seven[28] tiers of blank panelling, the panels arranged in pairs between heavier mullions,

> 'So one has to assume an arrangement based on that of the Gloucester choir, whereby the new style was put as a veneer on the late C12 or early C13 walls, and the new higher and probably wider clerestory windows were made part of that grid. As an early case of the Perp. style in Somerset this choir must be remembered.'[29]

2.5.2 Bond, probably writing with the experience of having inspected the fabric at close quarters from the 1909 repair scaffolding, described Monington's work of transforming the choir in greater detail:

> 'What he did was to cut away the great arches over the triforium with the wall surface above them overhanging the lower part, and reduce the whole to an uniform thickness. Then he applied to the whole height of the walls above the choir arcade a network of beautiful panelling, dividing each bay into four principal compartments, and twice as many minor ones. The two middle compartments of the four were pierced, and glazed, and these became large windows, but they were on the inner face of the wall, and consequently the old lancet lights on the outer face of the wall became superfluous.
>
> 'Monington, however, suffered these to remain. He merely took out the glass, and lowered the cills about four feet, lowering, at the same time the roofs of the triforium spaces, and the marks of these changes can be seen still on the outside of the choir walls.

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[28] Not five, as Pevsner (1958), p. 175, says.

[29] Pevsner 1958, p. 175.

> 'The choir, after his reconstruction must have presented a peculiar appearance externally, as the lancet windows would have been seen as dark cavities, without glass, and the actual windows, which were much wider, were a couple of feet inside them, the walls being splayed out to admit the light to the whole area.'[30]

Bond also illustrated his conclusions with a drawn reconstruction of two bays of the interior choir elevation [his Plate 11a in Bond 1910], a drawing which Henderson appears to have used in his own reconstruction of the choir.[31]

2.5.3 It appears likely that Monington, in addition to extending the building eastwards, also raised the height of his remodelled choir, as did Abbot Staunton at Gloucester. The existing fabric of the western jamb of the west clerestory window of the choir shows no sign that the springing of its arch has been reached - the extant jamb rising to approximately 30 cm above the springing of the adjacent south transept clerestory window. On the exterior wall of the clerestory the string-course at the level of the springing of the 12th/13th century windows returns onto the choir from the south transept, but now ends some 46 cm short of the first chamfer of the western window jamb of the western choir window. The line of the narrow course on which this string-course was carved terminates at the point where the moulding ends (rather than the moulding having been broken or worked off the parent block), showing that Monington's masons have deliberately removed it, and implying that the springing line had been changed.

2.5.4 The only surviving fourteenth century vaulting detail is the springer for the rib of Monington's vault which lay against the eastern face of the eastern crossing arch, and which is preserved in the masonry of the south-eastern crossing pier, lying approximately 3 metres above the 12th century springing.[32] At Gloucester the vault springers were placed immediately below the transom halfway up the windows; at Glastonbury this surviving springing capital on the NE face of the crossing pier also lies immediately beneath the transom of the blind panelling, but, because the panels here are shorter, this is at the level of the second transom above the sill. The Gloucester tracery rises for one more tier above the springers before the springing of the window head, and by analogy Glastonbury might be expected to have possessed a minimum of another full panel before

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30 Bond 1910, p. 72.

31 Henderson 1935, '*Retro-Choir and Shrine of St. Dunstan, View looking South*'.

32 This measurement has been taken from the record drawings, but these, being based on photographs, are not trustworthy where (as here) the comparison of two different planes is involved. The springer also survives on the north-eastern pier, and must be measured as part of the survey of this area.

the window springing.

2.5.5 In the junction with the lower twelfth century fabric of the crossing pier Monington cut away only the outermost roll moulding on the east face from the top of the minor NE capital of the arcade to the top of his second tier of panelling, but above this point he replaced the fabric back to the first roll-moulding east of the south respond of the eastern crossing arch to the height of the latter's capital.

2.5.6 At this point Monington's masons dressed-back the twelfth century capital block (originally supporting the diagonal vault-rib) to form a continuous roll-moulding, but left a ridge at the eastern side where the bell of the capital had emerged from the carving-block. On the narrow course above this there are traces of the moulding of the twelfth century abacus remaining as shallow recesses. Above this point the whole north-eastern face of the pier including this roll has been renewed in mid-fourteenth century masonry, with no sign of the original springing of the diagonal vault-ribs, which in the twelfth century south transept rose from the level of the base of the clerestory.

2.5.7 To properly assess the amount of twelfth century masonry which Monington's masons left in situ detailed stone-by-stone drawings would be required to trace the coursing eastwards from the crossing. This is particularly the case with the outer jamb of the choir window, which presents a complicated mixture of coursing, some of which relates to the twelfth century coursing of the exterior, some to Monington's tracery, and some being simply the junctions of exterior and interior courses meeting on the face of the jamb.

2.5.8 The handling of the glazing, and the relationship of the inner and outer jambs of the surviving choir window, appears to be much as described by Bond, and are extremely unusual. There is a glazing groove 1.8 cm wide and between 6 and 8 mm deep in the eastern face of the upper three tiers of the Monington panelling, indicating the former existence of glass, and at the level of the springing of the cusped heads of the blind paneling to the west on the upper complete panel and the next one down, are what appear to be grooves for iron reinforcements (presumably saddle-bars) lying immediately north of the glazing-line, the upper having been 4 cm high and more than 2 cm wide, running back into the stonework for 16 ½ cm (the full width of the projecting mullion of the blind panelling). The blind panelling was evidently extended across the window openings to form the tracery, there being a clear shadow of the transom remaining on the east face of the upper complete panel at its base, and beneath this the first cusp of the panelling springs eastward. Thus the individual lights would have been shorter than those of the Gloucester choir, with saddle bars at approximately 1.5 metre intervals, the lowest at 80 cm above the sill.

2.5.9 The glazing line, however, is close to the inner face of the wall, and more than

Left: C12 capital and abacus cut away in the C14 remodelling of the choir

The hollow moulding of the underside of the abacus

The outline of the bell of the capital

Below left: the transom of the blind panelling of Monington's remodelling continuing eastwards to form the window tracery.

Below right, the glazing line of Monington's window.

70 cm inside the more normal position near the face of the outer window jamb. The outer window jamb appears, in part at least, to be that of the twelfth century building, and the glazing of the original windows seems to have consisted of glazed lights set in wooden frames fitted into the recessed outer moulding of the window and tied back onto square saddle-bars at springing and two intermediate levels beneath - this certainly being the system adopted on the south transept clerestory. However, no signs of the former existence of square sockets for saddle bars were found on the early outer jamb, the only significant sockets in this vicinity being a series of round holes, possibly for light saddle-bars, the lowest one centred 5 cm below the bottom bed of the nook-shaft base level; the next one 96 cm above this, and the third 86 cm above again. These may all lie in 12/13th century block, and could, therefore, be original - though the lowest one must have been so close to the original sill level of the early window as to perhaps render this unlikely.

2.5.10 In Monington's choir it is evident that the jambs of the windows were cut down well below those of the twelfth century windows - the base of the one surviving [west bay window, west jamb] nook shaft lying 1.44 m above the point at which the descending jamb of Monington's work is capped-off by the 1909 repair. Below this the string-course at the base of the clerestory angles sharply downwards, and, despite there being little sign of its having been cut into the pre-existing masonry, it must be assumed that this is a Monington period adjustment to allow the triforium roof to drop beneath the new, taller windows. Oddly, however, the incised flashing groove for the triforium roof leads does not follow this line, but is twice cut across it, so that rather than running horizontally out from the transept wall for 90cm and then turning downwards, it begins to drop from the face of the transept. Furthermore, rather than running beneath the drip-course it rises to the top of it, where the groove continues horizontally along the transept's east elevation.

2.5.11 The surviving masonry of the base of the extended choir window jamb ends at the level of the clerestory sill, and it seems probable that Monington's master mason removed the twelfth century window sill and the masonry beneath it to this level - equalising the heights of the interior and exterior sills - and created his window splay and blind panelling in the space formerly occupied by the minor (blind) clerestory openings. In this process the clerestory passage appears to have been blocked off, since there is no sign of an opening in the east elevation of the window jamb.

2.6 Abbot Bere's fan vaulting and scissor arches

2.6.1 According to Leland,

> 'Bere made the volte of the steple in the transept and under 2 arches like S. Andres crosse, els it had fallen.'[33]

Bond, who by 1910 appears to have undertaken otherwise unrecorded excavations around the crossing, wrote that

> 'There must have been a heavy central tower at Glastonbury, since the piers bear marks of violent pressure, and have bulged and broken their foundations.'

Bond speculated that Bere may have added to the height of the tower, on the grounds that the insertion of the vaulting over the crossing would have been insufficient to cause the settlement of the structure and require the insertion of scissor arches; but there is no causal link implicit in the testimony of Leland, and it may simply be that the two projects were unconnected works of the same abbot, or equally that the movement of the tower also destabilised the previous crossing vault and led Bere to replace it.

2.6.2 Some evidence regarding the form of the scissor arches remained to Bond which has now apparently disappeared, since he noted that

> '...we have an excellent clue to the pattern, in one of the central junction stones which occupied the intersection of the four arched arms. This still lies near where it fell, on the north side, and is by good fortune well preserved. It shews some excellent mouldings.'

Its form led him to conclude that the arches were lighter in design than their antecedents in the crossing at Wells cathedral, and he further noted that

> 'The semi-octagonal base of Bere's arch on the south rests in its ancient position and on both choir piers we can trace the line where his work impinged upon the older masonry and took its pressure, whilst we can see where he cut away the double shaft and carved caps which originally stood against the west face of the pier, following the design of those in the choir opening.'[34]

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[33] Quoted by Carley 1988, p.70.

[34] This and the previous quotations from Bond 1910, p.71.

However, what is very obvious from the remaining projections of the cut-away bonding stones of this moulding is that it was much narrower than the double roll of the eastern crossing arch - the latter being 75 cm wide overall, the scars of the former barely 40 cm wide - and, as noted in Section 2.1.2., it would appear to have been a triple roll with a central projecting keeled shaft, rather than the double roll of the eastern crossing arch.

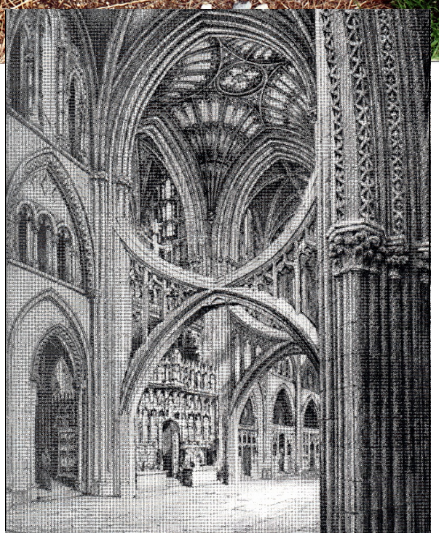
2.6.3 At a little over mid-height on the western face of the crossing pier an area of stonework (to the north of the scar left by the removal of the earlier mouldings) has been slightly recessed. This area is rectangular and lies between 7 and 9.5 metres about ground level, its northern edge 20 cm south of the angle with the step at the north edge of the western respond; it probably represents the approximate position of the central oculus or panelling of the spandrel between the arches. Comparison with a similar recessed area on the northern crossing pier may allow this hypothesis to be refined.

2.6.4 The vaulting which Bere inserted beneath the crossing was drawn by Bond in his reconstruction vista across the transepts as a fan vault (and Henderson's drawings followed him in this). He mentions no direct evidence for this particular design of vault in the *Handbook*, and it may be an assumption based on the popularity of this style of architecture for square vaults in the early sixteenth century, and his understanding of Glastonbury's close relationship and competition with Wells Cathedral, where the crossing vault was of this form.

2.6.5 Fan vaulting appears to have been erected in Bere or Whiting's abbacy in the Edgar Chapel, and Bere was involved in the remodelling of Weston Zoyland parish church, where the tower has a fan vault.[35]

2.6.6 Traces of Bere's vaulting may exist on the northern face of the western respond of the crossing pier, where there are defaced blocks corresponding in position to the corbel and head-stop which exist on the south face of the north-eastern crossing pier. The upper block has a naturally split or worked-back face, but appears to match the demi-octagonal corbel of the northern pier; the lower is a vertical 'spine' which probably represents the 'keel' of the head-stop beneath. There seems little sign above this point of any scarring from the previous presence of a vault, and, taken with the appearance of the northern head-stop (which looks more thirteenth than sixteenth century), may indicate that these features relate to a pre-Bere structure rather than his inserted vaulting.

[35] The central boss of the Edgar Chapel was recovered in excavation, and architectural fragments including panelling from the vault was illustrated by Bond [*PSANHS* 2nd Report]; Leedy - ignoring this drawn evidence of panelling from a conoid - is dismissive of the firmness of Bond's assertion of the former existence of fan-vaulting [Leedy 1980, p.165]



Traces of Abbot Bere's scissor arches: the semi-octagonal base to the west of the southern pier (top); the cut back mouldings and the rectangular recess on the west face of the NE pier (left)

These traces were used by Bond in his reconstruction of the crossing viewed from the north transept (above).

Examination of the northern crossing pier should help to clarify this observation.

2.7 Polychromy

2.7.1 Comparison between the notes made on the surviving medieval colour in 1988[36] and the visible survivals today suggest that considerable losses may have taken place over the past 17 years. However, these losses may perhaps be more apparent than real, and could in part be due to the tenacity of the 1988 sheltercoat, which may still obscure some traces which were covered at the time. The severity of the 1988 cleaning cannot be responsible for these changes, since the report written at the time notes that

> 'There are considerable traces of colour remaining on the area under scaffold, *much of which has been revealed by the present cleaning operation*'.

- indicating that the inspection took place after the cleaning had been done. Most of the southern half of the western arch and the majority of the south arch into the east aisle of the transept are now carbon coated once more - possibly obscuring further paint traces.

2.7.2 At the present time the visible paint traces are almost all restricted to the northern side of the west elevation, and consist almost exclusively of copper green pigment, located either on the square innermost moulding which forms the 'background' of the zig-zag rolls, or on the innermost angle of the zig-zag on the rolls, which coincides with the joint between blocks. This area was also the focus for the 1988 report, but whereas only green was found in the 2005 inspection, considerable traces of red were noted in the earlier report.

2.7.3 The situation described in 1988 is worth quoting in detail:

> 'The main area of interest, since it seems to provide material for reconstructing the colour scheme for a complete arch, is the arch from the south choir aisle into the crossing. The arch into the south transept retains considerable traces of white ground and limewash but very little pigment.
>
> 'The deepest areas of the moulding of the soffit of the arch is that where the chevrons of the two orders of decoration meet on the west face. Here, a recessed lozenge shape exists between each pair of chevrons and within these the greatest areas of pigment survive. The pigment is largely restricted to alternate lozenges where green-blue (copper,

[36] Sampson 1988, p.1-2.

probably verdigris) paint overlies thick white ground. The lozenges between are almost devoid of paint, but two retain traces of red.

'It seems likely, therefore, that the lozenges alternated red and blue-green, and that for some reason the red has been more subject to decay than the blue-green.

'The roll-mouldings of the chevrons appear to have been painted blue-green, while the angles between them have been picked out in red. Thus we seem to have a scheme where the decorated arch was painted blue-green with red lines emphasising the angles between mouldings. Whether there was any alternation of colour on the mouldings corresponding to that in the deep lozenges is no longer clear.

'The angles between mouldings on the soffit of the central order sometimes retain red paint, but there are no clear traces of blue-green on this area.

'The decorative orders appear to have been separated by a thicker red line which also framed the angle between the plain soffit of the arch and the decorated sector. Traces of ashlar-lining on the plain soffit were located but were removed during cleaning.

'There is evidence for several re-paints - green and red overlay each other in places (usually green over red), and in one area green is overlaid by a thick white ground. But the lowest sequence is that described above, and this seems to have been the original decorative intention.'

2.7.4 The southern of the arches into the west bay of the south choir aisle seems to have re-accumulated a layer of carbon deposition since it was cleaned, but this area seems generally to have retained less paint, being recorded in 1988 as having,

'...far less surviving colour - perhaps the colours [of the decorative scheme] were reversed here and the red surviving less well (as on the west arch) has been lost.

'Here the lines framing the orders of the decoration do survive well, and the width of the line can be established at 12 mm. on the plain soffit.'

2.7.5 The super arch of the western opening into the south choir aisle still retains good traces of green pigment, where on the northern side of the arch, on the lower mould of the hood-moulding, are several areas of green pigment: on the fourth, fifth and eighth stone down from the apex, laid on both the flat lower

moulding and within the hollow chamfer above it. Quite how these areas have survived in what is a relatively exposed position is not immediately apparent. Nonetheless, there are three areas of between 3 and 5 cm long, with smaller outliers, including one 2cm long to the north of the main middle area - the area on the fifth stone down from the apex being composed of three 'islands' which together represent a survival 16 cm long.

2.7.6 In 1988 these paint traces were noted as '*green on the joint between the hood-moulding and the arch moulding...applied over a mortar or ground smear*', the presence of the latter substrate being contrasted with red in the mouldings of the super-arch which were thought more likely to be algal in origin, since they were found '*directly overlying the (weathered) stone*'.

2.7.7 Above this the openings of the triforium arcade have cusps which frame foliate panels, and the three surviving cusps each bear considerable traces of a dark red paint on both the foliage itself and, on the northernmost cusp, on the framing moulding as well. The red paint here is fairly thick and generally has a coarse surface - over the framing moulding it is sufficiently thick to largely fill the crisp tooling of the stone. Here, also, it overlies a green residue, presumably left from an earlier paint scheme; while there are also traces of white paint or limewash adhering to the surface of the red, suggesting that this in turn was overpainted in the later middle ages.[37]

2.7.8 The 1988 conservation and repair programme required a scaffold which only gave access to the two surviving arches of the west bay of the south choir aisle, and as a result the north eastern chapel of the south transept was not inspected at that time. Despite its exposed aspect the south elevation of the wall between the choir aisle and the south transept still retains considerable traces of the thin plaster or render which formed its 12/13th century finish. Thus, for instance, against the vault springing of the eastern aisle of the south transept there are numerous traces of white lime render applied in a very thin coat, but none of this appears to retain pigment - unlike the stonework within the north-eastern chapel of the south transept, where a small fragment of red ashlar lining exists beneath the two top stones of the wall rib immediately east of the apex. Bond notes in his account of the transeptal chapels (which includes the northern chapel where considerably more paint survives) that

> 'The stone walls were covered with a thin film of plaster, painted over with an uniform rectangular jointing, each rectangle containing a small

[37] The 1988 inspection noted only that, '*There are traces of red visible on the foliage panel of the dexter cusp of the central opening*'.

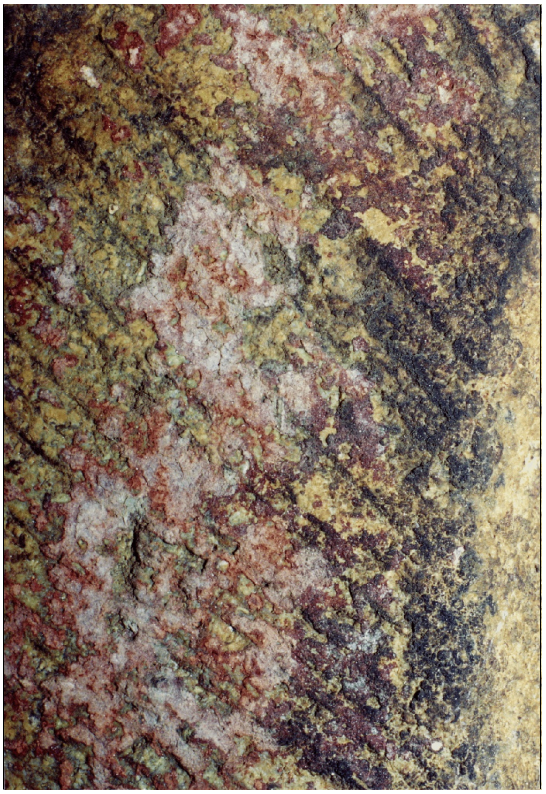
red rosette at the centre'.[38]

2.7.9 In this chapel there appears to be the occasional trace of a second coating overlying this - this being most easily visible beneath the roll of the wall rib on the east side, at the level where the ashlar vaulting junctions with the two faced tufa blocks below the main area of tufa fill of the web. This second coat appears to have an ochre surface. There are other traces of ochre surface on a later plaster substrate surviving two courses above this, again beneath the roll of the wall-rib.

2.7.10 On the roll moulding of the wall-rib three blocks down from the apex on the western side there are traces of a thin, smooth white lime coating indicating that the finish found on the ashlar was also carried over the moulding.

2.7.11 On the western side of the north elevation of the chapel parts of the Doulting ashlar web of the vault also survive, and these carry extensive areas of lime render. The lower major area of this render is blistering and free of the stone, and liable to be lost; while both this and the stone above have, at their junction with the face of the wall-rib, good traces of red paint suggesting that there was red ashlar lining or other decoration also applied to the vault web.

[38] Bond 1910, p.70.



Traces of paint

Upper left: copper green on the zig-zag mouldings of the arcade arch

Upper right: copper green on the hood-moulding of the super-arch over the arcade (west elevation), in a relatively exposed position

Left: red paint on the cusping of the triforium arcade opening

3 The Post Medieval Fabric and Repair

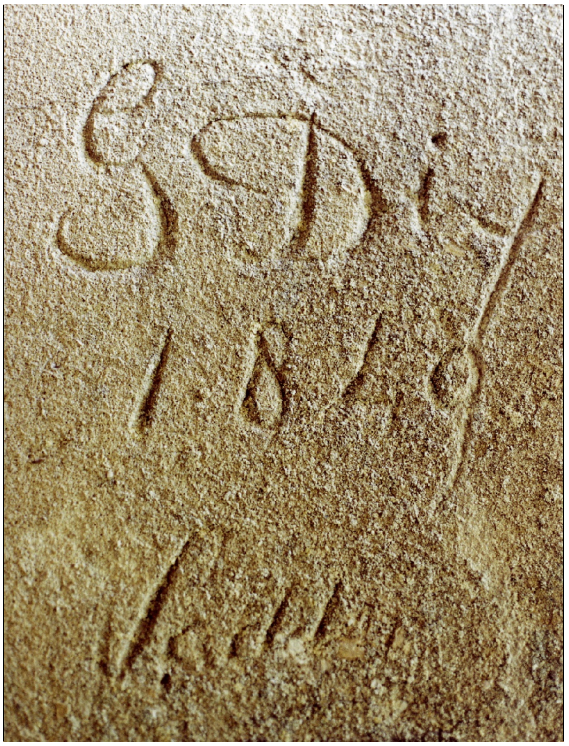
3.1 The [?pre-] 1849 repairs

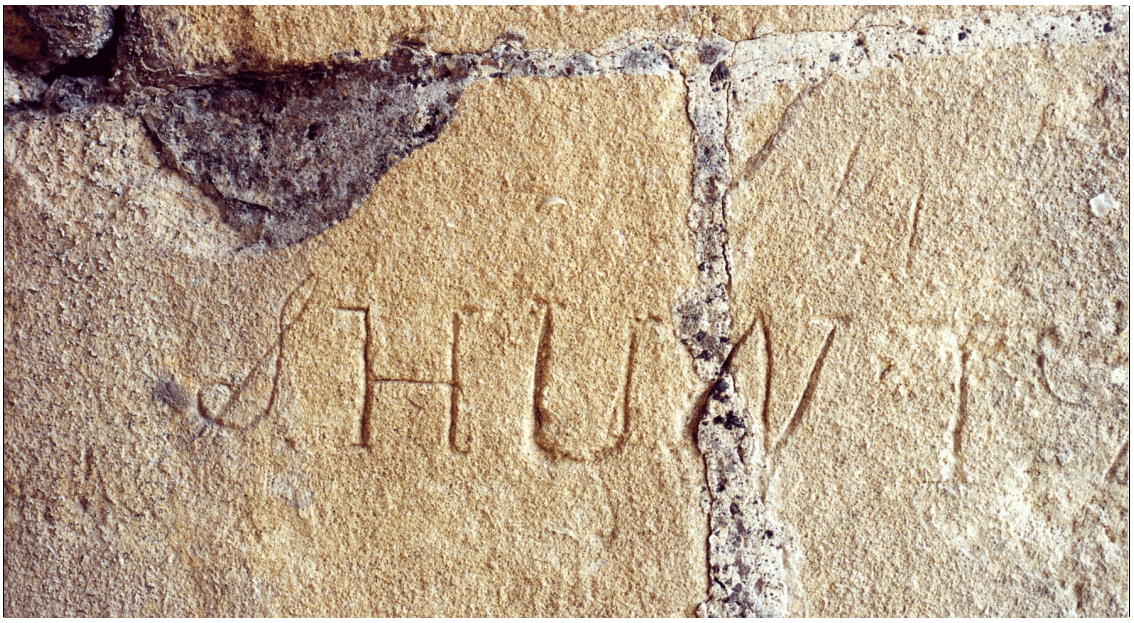
3.1.1 In the surviving fragment of the south transept triforium, the southern margin of the blind arcade openings is supported by a plain masonry pier which rises beneath the position of the southern capital of the middle opening. This pier, and the masonry above it to the height of the lozenge-shaped patera, is built of various pieces of freestone, including a significant proportion of Bath stone, bonded with a lime mortar whose aggregate includes plentiful charcoal / coal fragments, suggestive of a mid-nineteenth century date. In addition, some stones of a more medieval character to the north of this are heavily pointed in the same mix, and the presence of a Bath stone ashlar immediately beneath the patera suggests that part of the stonework here may have been taken down and rebuilt. The repair has been fitted beneath the curved springer-corbel which ran out to the back of the south-centre arcade capital.

3.1.2 Coney's 1817 engraving of the ruin looking east-south-east from near the position of the north porch shows this area of the south transept apparently unrepaired, the masonry apparently unsupported beneath the position of the abacus, and a plain vertical area above the position of the capital suggesting damage to the stonework. To the south of this there appears to have been an unsupported projection, probably representing the plain ashlar courses above the lost spandrels of the southern arcade arch. It seems entirely likely that this unsupported section fell at a later date, and that this prompted the existing repair.

3.1.3 On the north elevation of the inserted 'pier' are graffiti which appear to provide a date for the work. Towards the top is the name 'S. HUNT', the initials 'J.P.', and beneath these, 'G. Diy[?] / 1849 / Saddler[?]'. The lettering is relatively well cut, Hunt's name being incised across a mortar joint, proving that it postdates the erection of the pier; 'Diy''s name is neatly cut with a chisel, the curved lines of the lettering looking more like the work of a mason than a saddler.

3.1.4 The position of the graffiti, cut into a single area of the repair work in a part of the fabric which could only easily be reached from scaffolding, strongly suggests that these are the names of the men who carried out this repair to the triforium.





Evidence of repairs in 1849: the southern half of the south arch of the triforium arcade has been rebuilt using an ashy lime mortar and reclaimed rubble and ashlars. On the renewed stonework are two graffiti: S. Hunt's name apparently incised while the mortar was still wet, and G.Diy's dated 1849 - presumably the date of the repair.

The mid-nineteenth century date would also seem to accord with the testimony of Bond, who noted that the buildings suffered

> 'A final period of destruction [which] was inaugurated by one John Down, also a Presbyterian, who held the Abbey for sixty years, during the latter part of the xviii, and the first few decades of the xix century... After the death of John Down, the Abbey passed into the hands of reverent custodians, and its subsequent history has been a more fortunate one. Mr. Reeves, a late owner, did much to preserve what was left....'[39]

Carley states that Down, '*mayor of Glastonbury and a local brickmaker,.... used gunpowder to dislodge stones and turn the site into a quarry*'. John Fry Reeves took over the site in 1825.[40]

3.2 W.D. Caröe's repairs of 1908-9

3.2.1 Photographs taken in the later nineteenth century (including those which illustrate Bond's '*Handbook*') show the state of the ruins prior to the purchase of the Abbey by Ernest Jardine as holding agent for the Church of England on 6 June 1907. The vesting of the abbey in the Church Commissioners ushered in a major campaign of repair and stabilisation of the fabric, some of which is surprisingly heavy-handed given the authorship of W.D. Caröe.

3.2.2 The bulk of Caröe's repairs to the south-eastern crossing pier consist of additions to the southern slope of the ruin, the capping of the wall tops and the corbelling of the scar of the choir where Monington's fabric overhangs the arcade respond. It seems likely that it was Caröe who capped off the remnant of the spiral stair to the tower above the springing of the clerestory windows; but the blocking of the clerestory passage with brick may have been postponed until the 1930s or '60s.

3.2.3 In the intervening 96 years since the new stone was introduced to the ruin weathering has made it difficult to distinguish the 1908-9 work from the original, since the poor quality of the replacement Doulting stone has meant that the fresh surface has weathered surprisingly quickly. Indeed, it is the coarse texture of the modern stone which is the most reliable marker for its identification. Most of Caröe's stonework is pointed with a pale grey cement mix, but much of this

[39] Bond 1910, pp.33-4.

[40] Carley 1988, pp.173-4.

may be later repointing, since his bonding mortar appears to be a paler (?hydraulic) mix with angular, and often dark, aggregate. This mix has a tendency to be slightly purplish, and this colouration differentiates it from the 1849 coal-rich mix, which it can otherwise resemble.

3.2.4 The photographs of the Frith archive are particularly useful to illustrate the appearance of the ruin prior to Caröe's repair programme, and in some instances are of great assistance in differentiating between medieval and repair masonry after nearly a century of additional weathering. Two photographs looking east (the later one from slightly to the north of the central axis) show the whole of the crossing [Cat. Nos. 23910 (1890) and 38376 (1896)] a decade and more before the restoration, while the most useful in this context is Cat. No. 64487 which Frith's date to 1912, but which is probably of c.1907.

3.2.5 This last shows the western choir aisle arch from the west, framing the south wall of the aisle, and would appear to pre-date the Caröe work since the masonry extension of the south-western baulk had certainly not yet taken place. The photograph appears to depict the arch at a time when heavy timber props had been erected as an emergency measure (one is positioned against the south-western corner, and another is visible in the arch of the second window from the east end of the aisle), but no new stone had as yet been inserted. The ragged scar of the southern margin of the arch shown in this photograph closely matches the edge of the Caröe renewals as plotted during the current survey, and confirms both the accuracy of the survey and the care with which Caröe preserved what remained of the medieval stonework.

3.2.6 Nonetheless, it is evident that a considerable amount of new stone was erected in 1908-9, with the shafts of the south-west corner of the southern pier being carried up from about 2 metres above ground level to the height of the springing of the arcade on west and south elevations, where they are weathered back with more new ashlar. Above this the south-facing wall core has been capped with coursed lias forming a stepped profile, and the western half of the south elevation of the tympanum above the arch into the east aisle of the south transept has been renewed together with much (if not all) of the blue lias relieving arch above. It seems likely that Caröe was concerned about the stability of the pier, and that the new masonry here was intended to buttress the upper fabric and provide a more continuous angle of abutment.

3.2.7 Above this, at triforium level, the southern margin of the lower part of the ashlar ends on the line of the southern jamb of the arcade openings, but the clean vertical face here implies that some form of rebuilding must have taken place. When this was done is unclear, since the pre-Caröe photographs show this vertical jamb as having existed in 1890. Above this the profile of the southern edge of the ruin has altered, Caröe having formed a stepped profile down the margin of the fabric, in the process building the outer mouldings of the super-

arch out to the keystone.

3.2.8 The string-course beneath the clerestory, together with the course beneath this were renewed back to, or beyond, the northern edge of the pier between the clerestory openings, and the pier itself, lost to the springing of the minor northern arch, was rebuilt in new stone preserving what remained of the inner moulding of the lancet head.[41]

3.2.9 As with the wall top of the aisle, the top of the south-eastern pier was capped with coursed lias rubble, and a capping was inserted to close off the spiral stair which rose from the clerestory passage within the body of the south-eastern pier. It is not known how this closure was made, and whether the stair has been filled or merely capped over a void. The narrow window in the south-eastern angle of the pier which originally lit the stair has been filled with coursed lias blocks set in a [?hydraulic] lime with dark coarse aggregate, probably Caröe's original mix (much of this having been obscured by later Portland cement pointing).

3.2.10 On the eastern elevation of the south transept the stepped southern face of the masonry at the upper part of the triforium represents Caröe period refacing, with at least the southern block on each course belonging to the 1908-9 repair programme, and in places up to three such blocks have been renewed. In the course of the renewal the line of the wall has been shifted very slightly to the west, narrowing the southern elevation slightly. Below this, at the level of the heads of the triforium arcade openings, considerably more of the southern end of the eastern side of the transept wall has been renewed by Caröe, with up to 5 blocks being of 1908-9 Doulting stone, representing up to 1.32 metres of new masonry. Some of this appears to be reused material, since it has much less coarse surface morphology, and appears more weathered. The masonry of this part of the building was obscured by ivy or other plant growth in the photograph which forms Plate 7 of Bond 1910 (facing p.56).

3.2.11 To the east of the crossing pier Bond's photograph shows that prior to the 1908-9 repairs the scar of the choir consisted of exposed wall-core from the springing of the arcade arch to the base of the triforium, above which was a rectangular ashlar patch which might have been the western side of the twelfth century

[41] Bond's reconstruction drawing of the two northern bays of the south transept [East elevation] which forms Plate 9 of his '*Architectural Handbook*' has been shaded along the profile of the interface between medieval and 1908-9 stonework, suggesting that Bond (an architect in his own right) or Caröe prepared detailed survey drawings of the ruin from the scaffolding.

triforium arcade opening.[42] A similar patch appears to have existed on the northern crossing pier, but this has a significantly different appearance in the photograph. Above this the wall-core can be seen between the two ashlar skins of the finished fabric. Caröe inserted new ashlar facing and corbelling beneath the projecting baulk of the clerestory window down to the springing of the arcade, including an entirely new section of the southern springing of the arch of the arcade. If the ashlar patch does indeed represent a part of the twelfth century triforium it is clear that Caröe did not seek to perpetuate it in the form of his repairs.

3.2.12 The repair scaffold is illustrated in a postcard captioned '*Glastonbury Abbey 1908*' and reproduced in Brunsdon and Badmar (1984).[43] The contractor, John Merrick's, scaffolding clearly extended to the top of both piers, and appears to have given access to the whole of the southern block of masonry, but not to the northern half (and probably the whole) of St Thomas's Chapel. In typical 19th and early 20th century style the structure is only partially planked-out, and where planks are provided they tend to provide a platform only two boards wide - though most planked lifts are provided with handrails! The only signs of work having begun are the presence of a hurdle barrier at the bottom of the northern scaffold, and of two vertical props beneath the unsupported masonry of the triforium arcade on the north side.

3.2.13 The seemingly unrepaired and overgrown aspect of the choir walls suggests that the crossing piers - probably because these were the tallest elements of the ruin - were regarded as the most urgent phase of the stabilisation of the Abbey when the Church Commissioners undertook this task.

3.3 Mid-20th century scaffolding: 1935-6 and 1962-3

3.3.1 A.E. Henderson's series of reconstructions of the appearance of the Abbey in its heyday in '*Glastonbury Abbey Then and Now*' are each prefaced by a photograph of the view of the building in its ruined state. The published view illustrating the '*Cloister, Tower and South Transept from the South-West, Exterior*' shows scaffolding erected on the south-eastern crossing pier up to a height of a lift above the base of the clerestory. This scaffold appears to have been erected only on the south-east pier itself, running only halfway across the

[42] Bond shows openings behind the Monington period tracery of the choir elevation at roughly this point in his reconstruction in Plate 11a of the '*Architectural Handbook*'

[43] Brunsdon and Badmar 1984, pl. 13.

choir aisle archway, and thence rising vertically to enclose the southern face of the surviving masonry of the clerestory.

3.3.2 Henderson's booklet was originally published by the SPCK in December 1935, the year in which the author stated that '*with the skilled assistance of the late Mr. C.E. Clayten, I was able to revisit and study the remains*.' It seems certain, therefore, that this photograph was taken in the summer of 1935 or shortly before, since Henderson acknowledges the help of the late Mr Clayten and Mr Ashridge in providing various photographs, including two taken from the top of the south-eastern crossing pier showing the ruins looking east and west.[44]

3.3.3 On the back of the pier between the minor and major arches of the south transept clerestory is a well-cut graffito in two lines, the upper clearly legible, the lower very difficult to read: 'M. ALVES 1909-36 MASON / C. GRAY[?] .....'. Evidently Alves worked for Merrick in 1909 and then returned in the '30s to assist during the repairs of C.E. Clayten's campaign. M. Alves seems likely to be a relation [?father] of A.J. Alves, the Glastonbury builder who undertook the repairs to St Michael's tower on Glastonbury Tor in 1948-9, and who was the father-in-law of the founder of the firm of Cribb's builders which still operates in the town.

3.3.4 Only this one graffito was found relating to the 1935-6 repairs, and in the absence of more complete documentary evidence it is difficult to form any impression of the work that may have been undertaken, though the fact that the scaffolding appears to have remained in position for at least four months (the trees are in leaf in the photographs, and (on the testimony of the graffito) January 1936 is the earliest that the scaffolding could have been struck) suggests a considerable campaign, probably including work to the wall-tops. This scaffold would have enabled the blocking of the clerestory passageway with brick to have been carried out, and the slightly darker, more granular appearance of the cement bonding the bricks compared to that of the work on the south elevation wall tops (which were not scaffolded at this time) might suggest a date in the mid-1930s for this.

3.3.5 It is graffiti which provide the evidence for the third of the known twentieth century interventions in 1962-3, a date which represents the alternative contender for the blocking of the clerestory passageway. Within the clerestory passage where it passes behind the minor opening at the northern margin of the

[44] Illustrating the reconstructions of the '*General View from the North-West*' (for which Henderson states that 'It was found impossible to take a photograph from the same place as that represented in the restored drawing; the photograph is taken looking westward from the top of the great south-east pier'); and '*The Edgar Chapel, View looking East, Interior*'.

surviving south transept fabric, are several names - on the west wall of the passage: 'HAMISH WOOD / 1962'; 'E.G. HANN / 1963'; J. NASH / 1963'; 'B. DYER' (undated, but probably belonging to this period); and on the east wall of the passage: 'A.H.S. 1962'; and 'A. SNOOK / 1963'. Five or six workmen (since 'A.H.S.' could be the same as 'A. Snook') working on a project which overlapped from 1962 to 1963, again suggests a considerable programme of work, probably including cement repairs to the wall cappings.

3.4 Cleaning and consolidation of the aisle arches - 1988

3.4.1 In 1988, on the instructions of Alan Rome RIBA, Wells Conservation Centre, under the direction of Richard Stokoe, undertook cleaning and repair of the two surviving arches of the west bay of the south choir aisle. In order to accomplish the work a scaffold of four lifts was erected (though with only the upper three planked-out) whose primary purpose was to provide access to the arches - hence neither the adjacent crossing pier to the north, nor the south-western face of the remaining transept pier was made accessible. The base of the scaffold platform lay a little below the sill of the triforium arcade.

3.4.2 Cleaning was subcontracted to A & D Stonecleaners, a commercial stone cleaning firm from Bristol, the work being overseen by Dermot O'Regan. Cleaning appears to have been carried out generally over the planked-out area of the scaffolded structure, but concentrated upon the very carbon encrusted mouldings of the arches. Repairs in colour-matched lime mortar were then carried out to the zig-zag mouldings, and a colour-matched sheltercoat applied, considerable portions of which still appear to survive.

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all courses in bond around SE angle

cut recess 18h x 8w x 7d for top terramenta bar?

course heights (from underside of s/c down)
23, 23½, 18½, 23, 34, 24½, 17, 24½, 24, 20

probable line of Phase 1 / Phase 2 break

mixture of C12 and C14 masonry in window reveal

The narrow rebate, 6cm deep to S and E probably accommodated a wooden frame containing the glazing (as at Salisbury), tied back to the saddle bars

152-156 up from sill + 168 down from base of capital course is a 4·5cm high square slot cut in the E face of the rebated inner moulding behind which is a roughly cut recess 9cm deep into the jamb 16cm high, to the west tapering out to the surface of the jamb over a length of 38cm. The form + position of the slot suggests that it relates to the terramenta, and the rough cutting and tapered groove probably belongs to the cutting out of the saddle bar, perhaps at the dissolution.

Ends of medieval courses capped off with 1909 ashlars - between 1 and 5 blocks in each course, representing up to 1·32m width of masonry

course heights (from base): 14½, ,18½, 24, 22, 22, 24½, 21½
, 18, 23, 17½, 18¾, 22, 17½,
, 22, 19, 23, 21¾, 20, 22, 27½,
, 21½, 23½

bronze straps in p/c

tufa vault web

'tipped' coursing

all Dundry

1909

shallow semi-circular recesses cut behind the vault ribs into the rib-block against the wall-face at the same height on both sides

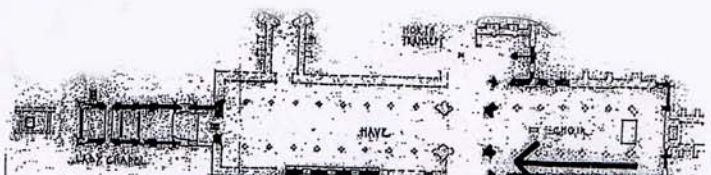
cut into the faces of the jambs are narrow slots 3·3 x 6·2w (N) and 3·2h x 7w (S). Both have been filled. (cf the open slots in the jambs of the arch into the transept (see S elevation)

cut back for screen

square recess 12½h x 7w x 4d

recess (? weathered or more roughly cut ?) 11h x 11½w x 7d

square moulding cut back ? to accommodate inner face of pulpitum (to 50cm below nack of capitals of arcade).



GLASTONBURY ABBEY
CHOIR WEST END S.
EAST ELEVATION
262/59
Scale 1:50
May 2004

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GLASTONBURY ABBEY
CHOIR WEST END S.

NORTH ELEVATION
262/58

Scale 1:50
May 2004

filling of stair windows in lias block set in ash/coal lime mortar

window jamb is a complicated mixture of c12/13 and Mowington period masonry requiring more accurate drawing to properly disentangle

small rubble similar to med. core-work, but almost certainly course capping off of the stair lining from the clerestory passage

Mowington's vault springer 120cm high, seated into the angle behind the arch stones.

despite following the form of the c12/13 mouldings below these stones course with Mowington's remodelling and are roughly worked into the angle with the eastern crossing arch

coursing of abacus/string and capital of c12/13 work carries through to the E. There are traces of what appears to be the abacus moulding worked off to either side of the roll-moulding, and to the E of the roll on the capital level course a coursing, near-vertical ridge which could belong to a c12/13 capital worked off to make the Mowington period roll.

? cut recess or fracture or stress-crack?

irregularly shaped hole 8.5h x 5.5w x 11cm deep.

The square moulding appears to have been carefully cut back to 67cm below the neck-ring of the arcade capitals these being fairly coarse diagonal tool marks over the lower 3/4 of this area showing that it was done after the erection of the pier The same is true of the NE pier, where the recess ends just above a bed joint, rather than on one, as here.

axe marks

lead flashing laid over lowest inserted block at base of 1909 work

Mowington period 'string' immediately beneath the vault springer its eastern face apparently having shed a medieval repair, since it is now a simple flat face, with a ledge at the level of the top of the base moulding.

NB. relative levels here do not match due to recession in the photograph used to prepare the drawing.

irregular surface of ? worked back or naturally split face of corbel block corresponding to that on the NE pier.

'spine' from back of head-stop beneath corbel, corresponding to the head on the NE pier opposite

block of tufa which corresponds to another tufa inset on the S elevation of the NE pier opposite

neatly cut slot 5h x 11w x 4½d. immediately above string

tufa insert at same level as slate-filled hole on S respond of NE pier 42h x 22w and bearing the remains of a white lime render/plaster, showing it was covered in the middle ages

tapering rectangular hole 8h x 9w x 7d

roughly cut recess in face of N respond 27h x 18w x 8d (max)

possible filled hole (or c12 mortared patch?)

fragment of leaded iron fixing at the centre of the height of the lias rubble infil

blue lias coursed rubble (3 courses) in a fairly soft white lime mortar (pointed over in portland cement) arranged in such a way that it could have been plastered to match the moulding

large coarse Doulting stone block on its natural bed laid in a white lime mortar at the centre of its top surface is a roughly cut slot 11h x 5w x 8+d, its inner face sloping inwards (? part of a Lewis.

3 x 1" dia drilled holes, the adjacent stone broken away around them

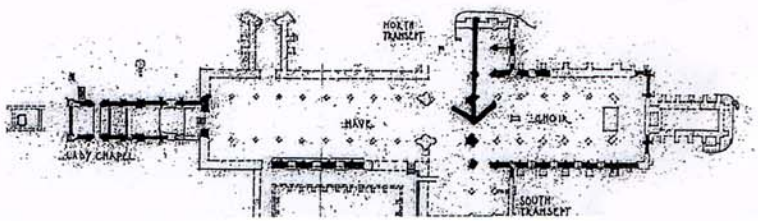
positioned slightly above the adjacent sq. hole is a more roughly cut recess 9cm square and 5cm deep, its w edge 4cm from the edge of the order, the adjacent mortar-channels end level with its top edge. The top of these recesses are at the level of the arcade capitals' abaci.

carefully squared recess cut into the chamfer to accommodate an N-S structural element which spanned the crossing arch 9 E-w, 12 N-S and 11 high, mortar remains in the inner angle

series of incised mortar-channels, indicating that lost stonework has been fixed against this area, presumably the western parapet of the pulpitum

cut recess in the form of a hollow chamfer, its base on a bed joint

roughly cut hole 11h x 17w x 26d [the corresponding hole on the NE pier has been filled] its upper edge corresponding to a bed joint.



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WEST ELEVATION
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May 2004
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2x copper bands 1" wide x ⅛" thick screwed into lead plugs - probably 1909 retaining remains of lias shaft with stub of capital above and 'annulus' at base

Diagonal tooling on protected blocks within opening - course heights (from base): 14, 18, 23, 19, 15½, 20, 21, 20, 24, 16, 19, 25½, 20½, 19½, 22. Plentiful graffiti on concealed surfaces - W. wall, E elevation, N side of opening has: 'HAMISH WOOD/1962' 'E.G.HANN/1963' 'A.WEBB/ 7/10 1/94' 'Spud HARMON'/SCAFFOLDER/8/2/2005'; 'J.NASH/1963'; 'B.DYER' (probably 1962-3) 'SOULA '05': On E wall (N end) 'A.H.S.1962'; 'A. SNOOK/1963' On E face of 1909 pier: 'M.ALVES 1909-36 MASON' second line illegible

lias capital abacus, annulus and base blocks

remnant of the abacus, capital and keeled shaft of SE coursing respond preserved above scissor arch - it would appear to have been a triple shaft - the side elements having been worked back

P144

37

7 courses of apparently in situ medieval stone (2 replacements at ends of lowest and penultimate courses) 2 open putlogs on lowest course positioned to miss the bases of the openings

This area heavily pointed in lime/coal mortar, and including one Bath stone ashlar, implying rebuilding c.1849. The angle of the wall-face kicks slightly westwards at this area's northern margin.

This vertical face implies some form of rebuilding or reworking, though it is difficult to detect and date. This elevation would have had blocks in this position defining the S edge of the triforium opening.

pier rebuilt incorporating Bath stone ashlars using a lime mortar with plentiful charcoal/coal fragments. The N face bears graffiti - 'G. Diy /1849/ Sadler (?)'; above is 'S. HUNT' and the lightly initials 'J.P' all cut into the repair stones.

Above this, on medieval blocks are 'SPUD HARMON / SCAFFOLDER/4/2/2005'; 'DERMOT O'REGAN/A.R.D STONECLEAN /23/11/1985. together with 'JEFF' and 'DES'.

lightly cut-away to fit Bere's scissor arches

P/L

green paint

hood mould in Dursley

'tipped' coursing all in Dursley

tufa

For traces of pulpitum see N elevation record.

Dursley roll moulding recessed to fit dexter side of label stop

scar of label-stop

pastey mortar-filled recess 2cm deep of roughly the same shape + size as the corbel

corbel with lozenge on underside

alternate stones (being the bonders for the attached triple-shaft of the respond) cornered back (but still projecting) to accommodate the scissor-arch inserted by Bere

sections of the inner mouldings have been deliberately cut away on both sides of the missing central moulding, the profile of the cut curved at the top, flat at the base in all 4 instances. The S respond retains mortar on the broken or reworked face of the central roll, showing that a stone screen once stood here. (Note identical arrangement on N wing arch)

series of small drilled holes 1.3cm (N), 1.8cm (2S) and 2.3cm in dia. The 2 at S probably belonging together - ? associated with the screen?

square holes 6·2h x 6·6w x 9d (t
and 7·5h x 6·6w x 8·2d (bottom

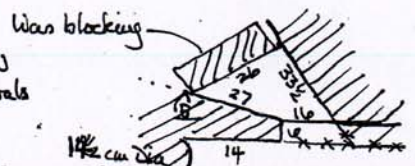
irregular hole 15h x 8w x 8d - accidental?

clear evidence of working-back of bases on both sides for insertion of screen (cf N side of N wing)

keeled

bottom up: 38, 26.

increase in block size and failure to course with the C12/13 fabric to the W indicates likely Monington period renewals



window opening from the original construction (since it relates directly to the coursing) 125cm high x 46 cm wide, its W edge formed by the square moulding next to the nook-shaft; its top at the base of the course below the s/c. The E jamb runs back with a 45° splay, but the W jamb is much steeper, so that 27 inside (from the E edge) it is only 10 cm deeper. This sharp splay to the W indicates that the tapice stair rose from the clerestory passage rather than the high vaults. The blocking is of lias blocks set in a lime/coal mortar similar to that associated with the 1849 repairs.
The geometry suggests a clockwise stair

brick infill in English bond set in portland cement - ? 1962-3.

original drip-course worked back in Monington remodelling

incised flashing groove

square holes 8·8h x 8·5w x 11d (top) and 8h x 9·6w x 9·2d (bottom)

core pointed, capped or rebuilt

core pointed, capped or rebuilt

unlike Canon's later wall-cores which are exclusively of local lias this incorporates mudstone & tufa, but its neat coursing & stepped profile indicates that it is modern

3 drilled holes all of 1·7cm dia and a maximum of 4·2cm deep the top one filled with hard ?mortar. A precisely matching set of the same diameter 4 to 4·6cm deep exist on the W side of the arch at (A)

ashlar and lime pointing of probably renewed fabric including lias - ? 1840s.

1909 fabric

matching pair of slots into jamb [9x3x6] + [8x4x8]

copper pin 9mm dia orig in p/c was replaced in colour match.

6·5cm deep drilled hole 1·6cm dia

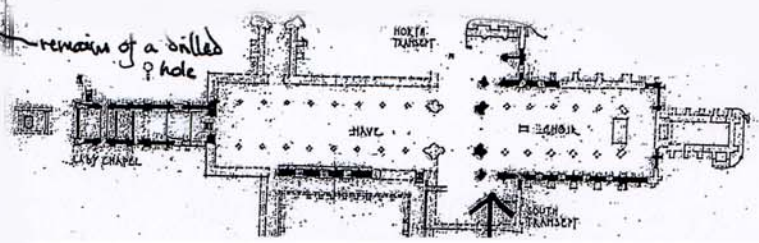
drilled hole (tapering) up to 2·8 cm dia and 8cm deep
- - 1·3cm dia and 4·2cm deep

s/c of NE chapel of S. Transept - the top of the hole for the screen's summer lies on the level of the base of the s/c.

large hole excavated into the wall-core over a height of two courses probably originally 42h x 18w x 46d but now a little larger. Immediately below this a series of leaded ferrous fixings, or the holes left by their extraction begins - probably from the securing of the N post of a wooden screen.

remains of a drilled ?hole

rebuilt in coarse 109 Doulting but incorporating some reused medieval fragments



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SOUTH ELEVATION
262/60
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No.	Site	Description		**Film title: 2005/13/10 to 37**
13/10	**Glastonbury Abbey**	SE crossing pier, N elevation: upper two sockets and mortar chases associated with S junction of pulpitum	50mm macro lens	P
11	**SE crossing pier**	NE crossing pier, general view of S elevation showing area of N junction of pulpitum		P
13		ditto, detail of mortar chases and sockets associated with parapet	135mm lens	P
14		ditto, large open socket above screen, ?associated with withdrawal of rood beam		P
15		SE crossing pier, N elevation: lower socket and mortar chases associated with S junction of pulpitum	50mm macro lens	P
16		ditto, open socket below level of pulpitum parapet		P
17		ditto, large blocked socket above screen ?associated with withdrawal of rood beam		P
19		SE crossing pier, N elevation: leaded iron fixing to E of blocked socket above screen		P
20		ditto, earlier blocking above blocked socket over screen		P
22		Arch between S choir aisle and NE transept chapel: SE soffit, showing original plaster with green/red paint		
23		Arch between S choir aisle and S transept: green pigment in NW mouldings		P
25		ditto, scar of destroyed head stop on W elevation, S side		P
26		Arch between S choir aisle and NE transept chapel: SE soffit, general view of surviving plaster traces		P
27		Arch between S choir aisle and S transept: E elevation, shallow cut-out behind vault shaft - southern recess for screen?		P
28		ditto, shallow cut-out behind vault shaft - northern recess for screen?		P
29		ditto, red paint beneath white on joint of NE zig-zag mouldings	50mm macro lens + T32 flashgun	L
31		ditto, NW mouldings, green pigment in diamond-shaped recess		P
33		ditto, second area (on joint)		L
35		SE crossing pier, W elevation: worked back bonder of removed triple-shaft	50mm macro lens + natural light	L
36		NE crossing pier, central area of W elevation to show recessing for scissor-arch		P
37		ditto, detail of central area	135mm lens	P

Film: Kodak Professional Elite UC200-135-36 Date: 23 February 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/14/0 to 36**	
14/2	**Glastonbury Abbey**	Arch from S choir aisle to S transept: W elevation, super-arch at arcade level - traces of green paint	50mm macro lens+T32 flash	L
3	**SE crossing pier**	ditto, second area		L
10		S Transept NE chapel, N wall: red pigment in angle with wall plate	+ T32 flashgun	P
11		ditto, second area		P
12		ditto, plaster skins lower down surviving fragment of vault web	+ natural light	P
13		ditto, general view of vault to show junction between ashlar and tufa fabric		P
14		ditto, upper E part of wall near apex: fragment of ashlar lining		P
15		ditto		P
18		N bay of E wall of transept, triforium, W elevation: 'S Hunt' graffito on S wall of southern surviving triforium recess		L
20		ditto, red/green paint films on N arch of trifoium recess, foliate spandrel to N of arch, general view		P
21		ditto, detail		L
22		ditto, detail of second area		L
23		ditto, red paint in deeper carving of foliage		P
25		ditto, red paint on foliage		
26		ditto, second area		
30		NE crossing pier, S elevation: remains of Monington's blind panelling in the choir		P
31		N bay of E wall of S transept, triforium: central remaining foliate spandrel		L
32		ditto, northern remaining foliate spandrel		P
33		ditto, head of northern arch		L
34		ditto, head of southern arch		L
35		ditto, wooden wedge to S and below triforium arch		L
36		E elevation at same level - wooden wedge		L

Film: Kodak Professional Elite UC200-135-36 Date: 24 February 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/23/30 to 36**
23/31	**Glastonbury Abbey**	SE Crossing Pier: western arch into choir aisle, northern respond, showing slots cut in shafts for fitting screen	50mm macro lens
32	**SE Crossing Pier**	ditto, southern respond	
33		ditto, southern respond, showing fragmentary remains of mortar for fixing stonework of screen	
34		ditto, base of northern respond, showing cut-back face of bases and central roll	
35		ditto, base of southern respond	
36		NE chapel of S transept, northern respond of entrance arch, showing series of leaded iron fixings for screen[?]	

Film: Kodak Professional Elite UC200-135-36 Date: 7-20 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/24/0 to 10**
24/0	**Glastonbury Abbey**	SE crossing pier - NE angle: cut back angle and base to accommodate the eastern face of the pulpitum	50mm macro lens
1	**SE/NE crossing pier**	NE crossing pier - SE angle: cut back angle and base to accommodate the eastern face of the pulpitum	
2		ditto, western arch into choir aisle, northern respond, showing slots cut in shafts for fitting screen	
3		ditto, western arch into choir aisle, southern respond, showing slots cut in shafts for fitting screen	
4		ditto, base of southern respond, showing cut-back face of bases and central roll	
5		ditto, base of northern respond, showing cut-back face of bases and central roll	
6		NE chapel of S transept, northern respond of entrance arch, showing slot for bressummer of screen	
7		ditto, eastern end of north wall, immediately above string-course - recess ?to accommodate element of retable	
8		ditto, detail to show ferrous ring - ?holdfast for opening retable	
9		SE crossing pier - NE angle - top of cut-back area to accommodate eastern face of the pulpitum	
10		ditto, NW angle - the area retaining traces of the fitting of the pulpitum [mortar joggles, cut away for string, and open slot	35mm

Film: Kodak Professional Elite UC200-135-36 Date: 20 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

Film title: 2005/25/13 to 35

25/13	**Glastonbury Abbey**	S Transept, N bay, clerestory window, eastern capital at springing, looking NW	50mm macro lens	P
14	**SE Crossing Pier**	S Choir elevation, W bay, clerestory level: tower stair window		P
15		SE pier, N elevation, interior of stair well showing blocking of tower stair window		L
17		S Transept, N bay, clerestory W elevation, foliate patera above window, frontal		P
19		Springing of NE corner vault of N bay of S Transept, head-stop, sinister		P
20		ditto, frontal/dexter		P
23		S Transept, N bay, W elevation, 'M Alves' graffito on back of renewed clerestory window pier		L
24		ditto, clerestory wall passage and outer sill of clerestory window, looking north	35mm shift lens	P
27		NE crossing pier, S elevation, top section from S scaffolding	50mm macro lens	P
28		SE crossing pier, NE angle, springing of Monington's vault	35mm shift lens	P
32		ditto, detail to show abacus and side of bell		L
35		ditto, general view of E transept elevation, looking NW	28mm lens [in rain]	P

Film: Kodak Professional Elite UC200-135-36 Date: 20-26 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/26/0 to 37**	
26/5	**Glastonbury Abbey**	NE crossing pier and St Thomas Chapel, from top of SE pier scaffolding		L
9	**SE Crossing Pier**	N elevation of ruin, spiral stair, remnants of treads	35mm shift lens	P
10		ditto, more general view		P
11		S Transept, E elevation, coursing break above clerestory, looking WSW		P
20		S Transept, N bay, E elevation, clerestory window sill, looking NW	50mm macro lens	P
23		Choir, S elevation, triforium roof drip-course and flashing groove		L

24	ditto, detail of flashing groove and blocked housing for joist	L
25	Choir, W bay, W jamb of clerestory window, glazing groove and housing for saddle bar	P
27	ditto, glazing groove, and scars of transom and cusping (also glazing bar beneath cusp)	P
28	ditto, outer part of jamb - hole, ?for earlier (or outer) ferramenta	P
29	ditto, C12 base in situ on line of base at SE corner with transept	P
31	Choir aisle wall top at junction with transept chapel (view looking SE from level of triforium roof) - water channel	P

Film: Kodak Professional Elite UC200-135-36 Date: 26 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/27/0 to 37**	
27/3	**Glastonbury Abbey**	Choir, W bay, N elevation, Monnington panelling, transom continuing across window opening		P
5	**SE Crossing Pier**	NE pier , upper section of choir panelling from S scaffolding - western part of upper section [arch springing etc.]		P
12		Choir, N elevation, Monnington panelling, showing transom continuing eastwards	35mm shift lens	P
16		S Transept, triforium arcade, northern springing capital, looking NE		L
21		S Transept, W elevation of trifoium, rebuilt S end of arched openings, looking SE		P
22		S Transept, W elevation of triforium, 'S Hunt' graffito on ?1849 fabric	50mm macro lens	L
24		ditto, graffiti in recess behind arched openings, S end		L
29		ditto, northern arch head, dexter foliate spandrel in cusp		L
30		ditto, northern arch head, sinister foliate spandrel in cusp		L
31		ditto, central arch head, dexter foliate spandrel in cusp		L
35		ditto, 'G Diy 1849' graffito		P

Film: Kodak Professional Elite UC200-135-36 Date: 26 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/28/00 to 36**	
28/0	**Glastonbury Abbey**	S Transept triforium, northern springing capital of super-arch, frontal-sinister	50mm macro lens	P
1	**SE crossing pier**	ditto, frontal		P
2		ditto, worked back head-stop		P
3		SE pier, NE angle, traces of white lime plaster in deep moulding		P
5		S Choir Aisle, W wall, series of rectangular slots in wall-plate, looking SW		L
6		ditto, S wall, rectangular slots in wall-plate, looking S		L
7		SE pier, W elevation, triforium level, showing worked recess to accommodate Bere's scissor arch	35mm shift lens	P
9		S Choir Aisle, W wall, series of rectangular slots in wall-plate, looking WSW		L
10		ditto, SE angle with choir, showing transition from vault pocket to ashlar walling		P
12		SE pier, N elevation, west side, showing mortar channels to accommodate pulpitum parapet		P

Film: Kodak Professional Elite UC200-135-36 Date: 26 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun

No.	Site	Description	**Film title: 2005/29/0 to 4**
29/4	**Glastonbury Abbey**	Crossing framed in west door of nave, general view looking E, under scaffold	50mm macro lens

Film: Kodak Professional Elite UC200-135-36 Date: 26-29 April 2005
Camera: Olympus OM4 with 28mm f.3.5, 35mm shift f.2.8, 50mm macro f.3.5 Zuiko lenses and Olympus T32 flashgun