Sacred Space:
Priorities, Perception and the Presence of God in Late Medieval Yorkshire Parish Churches

4 Volumes

Volume 1: Text

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Abstract

The use of church space reveals how its creators understood their relationship with God. By identifying and exploring what created church space in architectural terms and how it was perceived through the senses the use of church space can be identified. This exploration is achieved through the application of methods of spatial analysis to five case-study churches in the medieval diocese of York which were chosen for their coherence of design (and therefore of space) so that the clearest examples of space may provide the least ambiguous results. This shows how factors of changing theological or devotional priority affect church design which helps explain change in ecclesiastic architecture. It suggests how parish church space was intended to be used, and in some cases how those intentions did not suit actual use. It also tests and develops analytical methods for the study of architectural space in more than two dimensions, which restores experience to the study of architecture in quantifiable and testable ways while also widening the field of possibilities for study. The methods and techniques used are applicable to other architectural forms allowing histories of space or of any of its individual properties to be made. On a more case-specific scale it contributes much to the knowledge of each of the case-study churches, in some instances rewriting their architectural histories or helping to define their status and use in the past.

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Nigel Holdsworth - Chants
Michael Tyler - Bidding Prayer and Great Cursing
Anthony Masinton - Recording/Editing

*No York Kyrie music is available in the Surtees Society volumes

Acknowledgments

In primis, soli Deo gloria. Lapidem quem reprobaverunt aedificantes hic factus est in caput anguli.

To steal a leaf from Richard Marks' *Image and Devotion*, I must also thank the generations of people who have built these churches. They are the *vives lapides*. This extends to the incumbents, churchwardens, and parishioners of these churches today who continue to open their churches to the experience of others. On the academic front it goes without saying that I owe very, very much to my supervisors Dr. Jane Grenville and Prof. Richard Marks. Thanks also go to Dr. Jeremy Goldberg and to Dr. Kate Giles. Ben Gourley and Steve Dobson were instrumental in their assistance with surveying and equipment. Thanks for computer and other equipment go to Stanley McFadden, Harry and Pat Masinton, Dr. Damian Murphy and the University of York Department of Physics and Electronics, Mike Brudenell, Prof. Gary Green and the York Neuroimaging Centre, Kevin Sheppard and the Delta County School District, Cedaredge First Baptist Church. Thanks also go to Caroline Dougherty, Carolyn Esser, Dr. Judy Frost, Dr. Peter Goldsborough, Dr. Joanna Huntington, Simon Johnson, Bob and Wyn Lawrence, Fred Luther, Lila Rakoczy, Dr. Lucy Sackville, Michael Tyler, Emma Watson, Nigel Williamson of the *Cistercians in Yorkshire Project*, the Dean and Chapter of York Minster and my fellow staff at the Minster, the staff of the Borthwick Institute and the York Minster Library. Eleanor Masinton makes this work worthwhile.

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There is one who may be pleased to note that her name appears nowhere in this work. My debt of gratitude to her is ineffable. Her contribution is far greater than that of any other.

How to Read This Dissertation

This dissertation is divided into four volumes. The first two are printed and contain the text and the printed illustrations, respectively. The third is a CD-ROM containing all of the figures and plates printed in Volume Two as well as movies. The final volume is an audio CD containing the tracks used in Chapter Five. The individual chapters of text in Volume One are divided into headings, which are italicised and underlined; and subheadings, which are italicised and indented. Throughout the work the illustrations are separated into three categories: *figures*, *plates* and *movies*. *Figures* comprise all single-image illustrations that are not photographs. *Plates* are photographs. It is important to separate the two because the distinction between the 'virtual' reality of illustrations and the 'reality' of photographs is an important one to keep clear while reading the dissertation. *Movies* are illustrations comprising multiple images and are in several formants including interactive QuickTimeVR. The illustrations are numbered consecutively across chapters (except in the Introduction and Chapter One) with an attempt to group illustrations associated by subject or theme together. *Tracks* are arranged according to the order of Mass.

Perhaps the best way to read the dissertation is to read with the first two volumes side-by-side so that text, figures and plates are easily associated. A computer should also be nearby for easy reference to large versions of the single-image illustrations and access to the movies. Finally, a CD player (preferably with headphones) should be used for Chapter Five.

When the text refers to a figure (Fig.) or plate (Pl.) the reader should either turn to the appropriate illustration in Volume Two or navigate to it on Volume Three. Similarly, when an audio track (Track) is referenced, the reader should select the appropriate track of Volume Four. Using the content of Volume Three requires somewhat more explanation because of its interactive nature. To view either the single-image illustrations or the movies (Movie) requires a computer with CD-ROM drive, a web-browser, QuickTime Player (freely available for download at www.apple.com/quicktime), and Adobe Acrobat Reader (freely available at www.adobe.com/products/acrobat/main.html). To access the illustrations double-click on the 'Volume3.html' icon. This will display the Volume Three table of contents page in your browser (do not close this page). Clicking on any of the chapter titles on the right will cause that individual chapter's table of contents page to open in a new window. Each table of contents page consists of three frames. The top frame is the navigation frame which allows the user to select an illustration category by clicking on the appropriate text. When one of the categories is selected the right-hand frame displays the illustration numbers. Clicking on an illustration number will bring up the illustration in the left-hand frame. Clicking on most single-image illustrations in the left-hand frame will open a larger version of the image in a new window or in Acrobat Reader (close this window when you have finished with the illustration).

Viewing Movies

There are six different movie formats on Volume Three and each allows differing levels of user interaction. Movies frequently have large file sizes and may take several minutes to load. Be patient.

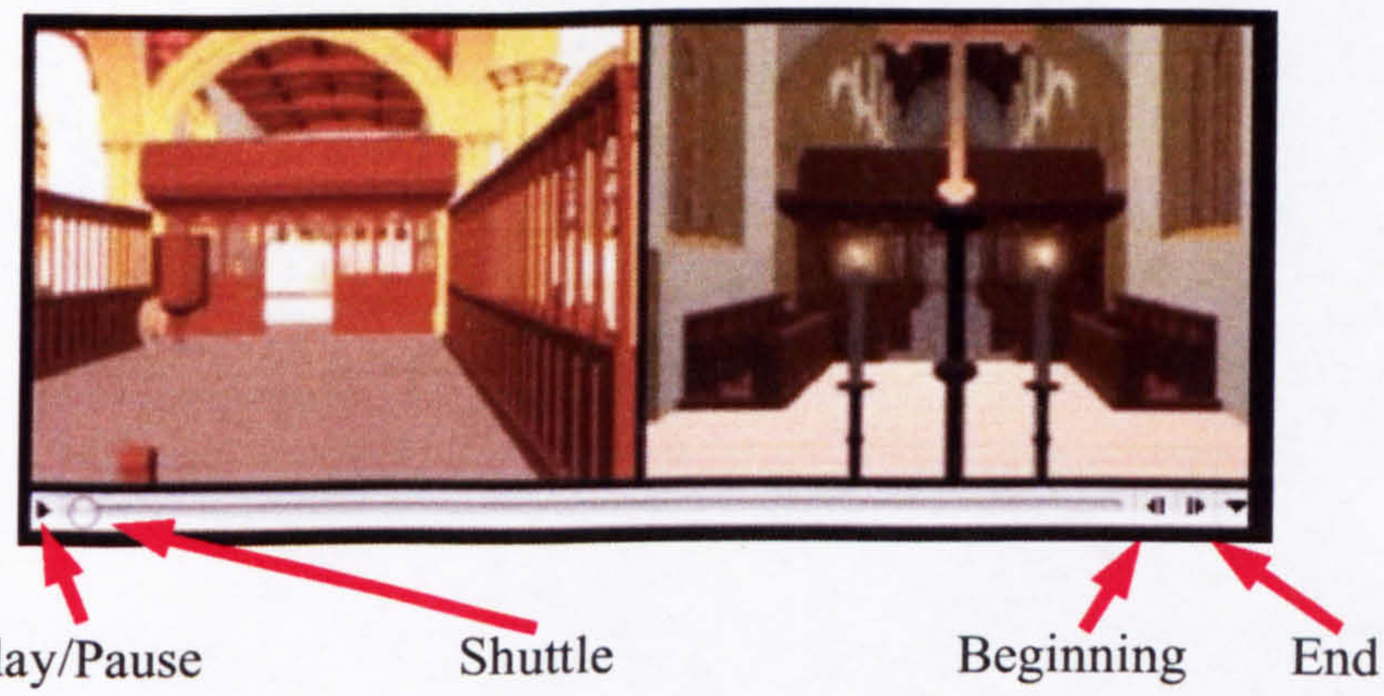
Animated GIF

Animated GIFs are the least interactive. When they load in the left-hand frame they begin playing immediately. The user has no control over playback and they are looped (that is, once they reach the final frame they begin again). These are used only for Chapter Five.

Conventional QuickTime Movie

The most conventional movie format is *QuickTime* movie. Most will not begin playing upon loading and the user has full control of playback. A conventional movie may be identified by moving the cursor over the movie frame. The cursor will not change shape. To play, simply click the Play button.

The conventional movies are intended to be played normally as well as in segments by stopping and starting at points of interest or in slow motion forward and backward by shuttling (clicking and dragging the shuttle). Most of these movies are presented in pairs, giving two points-of-view simultaneously. Therefore, playing through the movie several times and at different rates in different directions using the shuttle is always recommended.



VR Object

A VR Object movie allows the user to manipulate a virtual object by viewing it from any angle desired. There is one of these types of movies for each of the case-study churches except Patrington. They are intended to let the user interactively explore the exteriors of each church.

The cursor over the VR Object movie turns into a hand. To interact with the object simply position the cursor over it, click and hold while dragging left or right.

VR Cylindrical Panorama

Cylindrical Panoramas allow the user to interactively view a space by rotating left or right around a central pivot. This type is identified by a black circle cursor. By clicking

and dragging within the movie frame the user can look around the scene. There is only one cylindrical panorama (Chapter One).

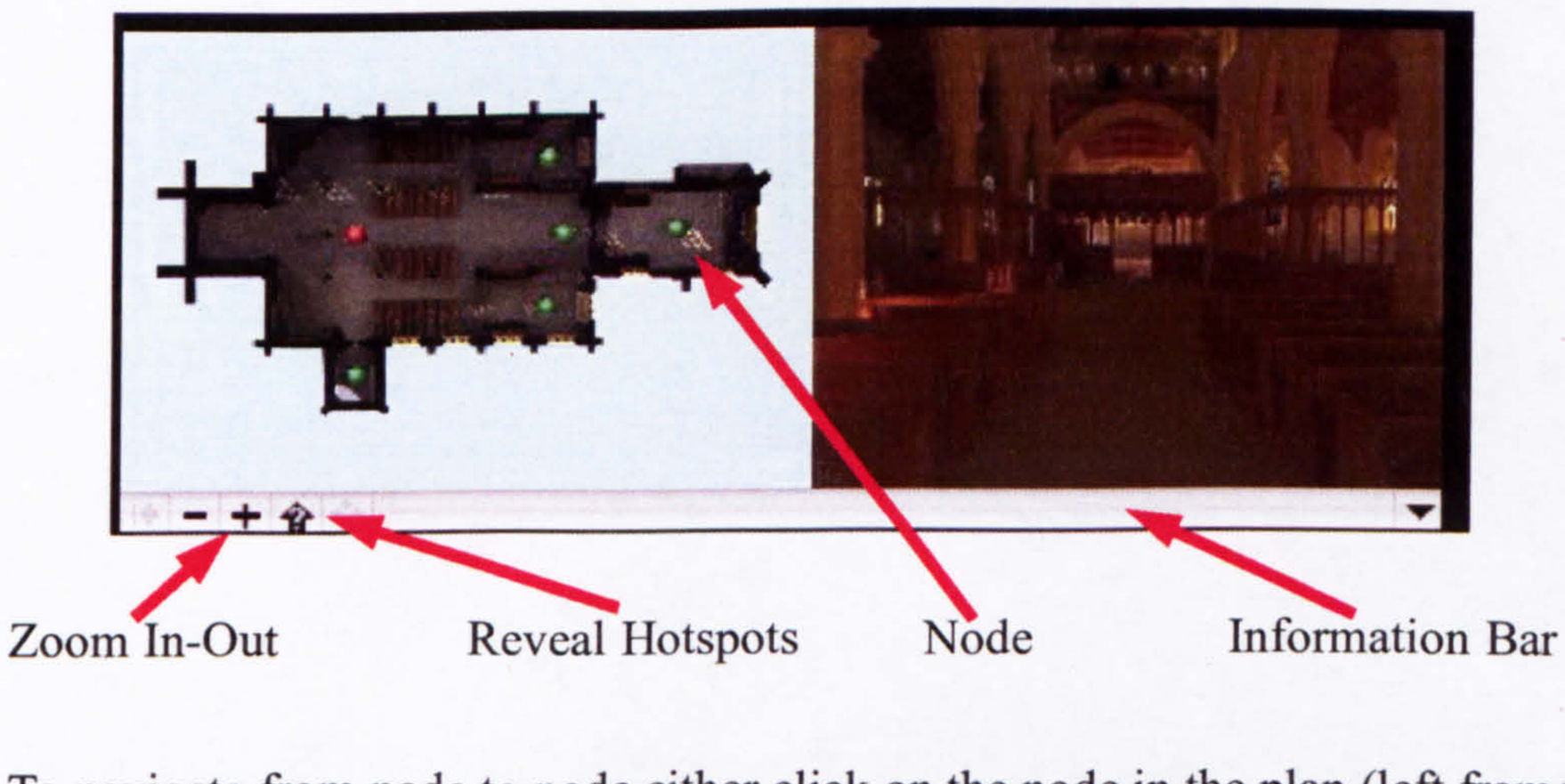
VR Cubic Panorama

A Cubic Panorama maps a series of images onto the inside faces of a cube with the camera at its centre. This allows the user to view a scene from all angles – up and down as well as side to side. In this way virtual spaces are more visually immersive, allowing the user the maximum of visual freedom. At least one Cubic Panorama (usually of the church in a reconstructed original state) has been generated for each of the churches with the exception of Patrington. In some chapters multiple Cubic Panoramas have been created.

Like a Cylindrical Panorama, the cursor changes to a black circle. Movement within the space is controlled in the same manner with the addition of full vertical motion as well as horizontal. Cubic Panoramas sometimes load only a black and white grid. By clicking and dragging within the movie frame the movie will load properly.

Multi-node VR Cubic Panorama

Multi-node Cubic Panoramas link a series of single Cubics together, forming a kind of virtual walkthrough. These can be interacted with in two ways – either directly through clicking on 'hotspots' in the movie frame itself, or by clicking on viewpoints in a plan view of the space. The controls are described below. One Multi-node movie has been created – for Thirsk in Chapter Six, because issues of individual experience and multiple viewpoints are the subject of this chapter. The controls for this movie type are described below:



To navigate from node to node either click on the node in the plan (left frame) or interactively by clicking on a hotspot in the right frame. The cursor will change to a white arrow when it passes over a hotspot and the name of that hotspot will appear in the Information Bar. Clicking on a hotspot will take you to the indicated node. To reveal the locations of hotspots you can also click on the 'Reveal Hotspots' button. To hide the hotspots, click the button again. You can zoom the scene in and out but this is not recommended.

The experience of the reader is a critical element of this thesis. You are meant to spend time exploring *and enjoying* each virtual space. If you encounter any difficulties/bugs, if the CDs are damaged, or if you would like your own copies, please contact the author (at amasinton@gmail.com).

Abbreviations

ARfC	*Archaeological Review from Cambridge*
BoE	*The Buildings of England*
BI	Borthwick Institute of Historical Research
BAR	British Archaeological Reports
JBAA	*Journal of the British Archaeological Association*
JSAH	*Journal of the Society of Architectural Historians*
JWCI	*Journal of the Warburg and Courtauld Institutes*
RCHMEY	Royal Commission on the Historic Monuments of England, York
SS	Surtees Society Publications
VCH	Victoria History of the Counties of England
YAJ	*Yorkshire Archaeological Journal*
YML	York Minster Library

Preface

Mystery transfuses the medieval parish church. Despite a steady stream of scholarship from at least the twelfth century the study of the parish church – of what was intended to occur within and what actually occurred – has not dispelled the mist with which mystery has filled these ubiquitous, silent and unyielding monuments.[1] Inquiry into mystery frequently begets more mystery and often the means of inquiry themselves gather this obscuring mist. Thus for three years I regularly found myself standing inside one or another medieval parish church attempting to pierce the mist with an instrument the origins of whose name is as full of mystery as the buildings themselves but which a medieval etymologist might reasonably deduce was an instrument for finding God.

The theodolite (Pl. 1), or at least its English name, is not recorded before 1571 and is therefore a word and an instrument which no medieval etymologist would have had occasion to parse for the edification of his audience.[2] If it had existed, he would have found it a convenient object for allegory. According to the OED the word seems to have been derived *ex nihil* by an L. or T. Digges and may be nothing more than an Elizabethan brand name meant to convey authority by sounding learned. However, the two parts of the word 'theo' and 'dolite' appeared to me (before I read the OED entry) to have something to do with 'God' (as in 'theology', 'theophany', 'Theodore', etc.) and some kind of mineral (as in 'dolomite', 'azurite', 'rhyolite', etc.). A theodolite implied an instrument containing a 'God stone', like a touchstone; a thing which confirmed the objective reality of other things, in this case, landscapes and buildings. In its common present-day incarnation a theodolite does just this (although it is now more properly called a Total Station Theodolite, or TST, since it measures vertical angles and distance as well as the horizontal angles which theodolites originally measured). It determines the geometric reality of a landscape or structure in Cartesian terms based on a subjective origin. That is, a theodolite 'knows' nothing other than that it is the centre of the universe and the positions of all measured points relative to itself. Therefore, a theodolite is an instrument for determining the meeting point of external reality and internal reality – in religious terms, the divine and the human. Much to the delight of the medieval etymologist, a theodolite, then, is an allegory for a church. For, if we take Eliade's definition of sacred space, a church is a place set aside for the human-divine relationship.[3]

How people and God meet with one another, and how that role has developed over time is a matter of deeply personal significance to me. If I relate to God in a certain way now, how did those in the past meet Him? How can their understanding and experience enrich my own? The role of church buildings in the facilitation of this meeting cannot be underestimated. They have moulded the spiritual realities of generations of people at

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1 In 1134 Hugh of St. Victor wrote a notable examination of the meaning of churches in general, and parish churches occasionally - Hugh of St. Victor, *De sacramentis Christianae fidei*, trans. R.J. Deferrari (Cambridge, MA, 1951), pp. 279-282.

2 *Oxford English Dictionary*, 'Theodolite', Available: http://dictionary.oed.com

3 M. Eliade, 'The sacred and the profane', in J.D. Bettis (ed.), *Phenomenology of religion* (London, 1969), pp. 205-218.

fundamental levels. The thirteenth century vision of the Essex peasant Thurkill vividly demonstrates just how much the sacred space of that time infused the understanding and experience of God.[4] For Thurkill the journey of one's relationship with God could be mapped and the country it depicted had a distinctly ecclesial form (Fig. 1). It seems reasonable, therefore, to see medieval church buildings and church spaces as records of that relationship.

Thus, with a theodolite, a 'God-stone,' I have tried to find God in medieval English parish churches as the people who built them found Him. Although what I have found is not expressed in such personal terms, I hope that my attempt at recovering the relationship between man and God as expressed in late medieval sacred space will leave the reader in the end some way further along the journey in their own relationship than they were when they began.

4 R. Bartlett, *England under the Norman and Angevin kings 1075-1225* (Oxford, 2000), pp. 604-612.

Introduction

This is a study of the use of sacred space in five parish churches in the diocese of York built between *c*1240 and *c*1540. It is also an exploration of new ways of studying the use of space. In this study what is meant by 'the use of space' is how the medium of space is manipulated to express the concerns and priorities of its creators and occupants. I have chosen to focus on how the use of sacred space at the parish level acts as a mediator in the relationship between the human and the divine. Space is a complex phenomenon which requires complex analytical methods and techniques for exploration. Therefore, this is a study of procedure, of finding analytical methods that, when applied, will suggest new insights, or make ineffable experience capable of articulation. In practice, this means that computer-assisted procedures are the majority of those employed in this study. The rise of powerful computers and sophisticated software means that virtual realities can be generated over which the user has complete control of time and space. This is a tremendous opportunity as well as a tremendous challenge. New points-of-view, – many of which would be impossible in reality – new interpretations may be presented in any way imaginable. This extends the domain which the researcher can explore. But it also subjects the explorer to the most difficult restraints – those imposed by one's own imaginative limits. This is not an empty commonplace. It is extremely difficult to think beyond the two dimensions of 'paper' space.

Church space is still considered primarily in terms of plan, section and elevation. While some of this is undoubtedly due to the difficulties and inconveniences inherent in computer-assisted analysis and presentation, it is also evident that conventional analytical and presentational technologies limit the thoughts and imaginations of the researchers themselves. The third and fourth dimensions, the intangibilities of light, sound and motion, have little place in current scholarship, not only because of the difficulties of studying and presenting them, but because conventional methods of representation do not suggest their existence in the researcher's consciousness. Nevertheless, study of three and four-dimensional space, of their intangible properties, requires nothing more than that the researcher use his or her senses. For example, in archaeology, before the ground-breaking work of Devereux, Jahn and Ibison in the mid-1990s on the acoustics of prehistoric tombs very little consideration was given to sound as part of the archaeological record.[1] It is as though researchers simply did not use their ears. Sound did not exist.

This study intends to add weight to the argument for including sound and other little-explored regions of space to the investigative conscious. By using computer models to help display and analyse three and four-dimensional space this study advocates a way of understanding the late medieval parish church that focuses on human experience in the sensual terms of seeing, hearing and moving as well as in terms of larger historical narratives. I have chosen five parish churches in Yorkshire as case-studies to demonstrate

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1 P. Devereux and R.G. Jahn, 'Preliminary investigations and cognitive considerations of the acoustical resonances of selected archaeological sites', *Antiquity* 70 (1996): 665-666; R.G. Jahn, P. Devereux, and M. Ibison, 'Acoustical resonances of assorted ancient structures', *Journal of the Acoustic Society of America*, 99:2 (Feb. 1996): 649-658.

different ways in which their uses of space can be examined. Each case study features a particular method of investigation and the studies are arranged so that the analytical approaches build upon each other. I have employed well-established techniques such as stone-by-stone survey and reconstruction drawings along with emerging techniques such as photometric, acoustic and four-dimensional analysis while also using historical documents where helpful to explore how these spaces were used to mediate the human/divine relationship.

Methodology

The primary source materials are the parish churches themselves, their stone, timber, glass, paint and written record. These are all physical manifestations of mental, emotional and spiritual processes on individual and corporate levels. The common unifying element is space. It is estimated that over 12,000 parish churches and chapels existed in England by 1500.[2] None were identical. Most of the thousands of surviving churches are amalgamations of numerous building campaigns which rarely share a unified design. The variety of architectural and spatial forms do share regional and temporal similarities which allow them to be organised into broad classificatory systems and categories. However, within each category the variation can be immense. The number of possible subjects, their formal diversity and their chronological and geographic range demands either a broadly quantitative or a narrowly qualitative approach. Many of the analytical methods used in this study demand time-consuming close recording of specific material and spatial evidence which mitigates against a quantitative approach. The questions asked are ultimately questions of experience, expression, and meaning which again are best answered through deep exploration of specific subjects rather than shallow exploration covering many. But how to narrow the field? How to choose which buildings to explore?

Most surviving medieval churches are now the work of numerous creators and users, each with their own priorities of meaning and ways of expression over long periods of time. These churches are like collages made by individuals who did not necessarily know each other or share each other's objectives. Their spaces are incoherent. However, some single-design churches still stand, largely built to one design regardless of the time spent in building and little altered after. Such churches were never the norm, but they are the result of circumstances which allowed the designers to create a whole building. They may not have been representative of architectural design and construction in practice, but they may be representative of the principles and priorities which underlay all ecclesiastic building at a specific time. They are coherent spaces. As such, they offer the best opportunity of recovering the meanings and intentions with which their creators imbued them. The number of surviving single-design churches is very small compared to the total number of pre-Reformation churches still standing. The number is further reduced when single-design churches are considered region by region. If the historical scope is narrowed

2 R. Morris, *Churches in the landscape* (London, 1989), p. 276.

to emphasise a specific period, the number is reduced again. In the North and East Ridings of Yorkshire (including the city of York) there are five single-design non-monastic churches for the period beginning with the issuing of the canons of the Fourth Lateran Council in 1215 and the dissolution of the last monasteries in 1540.[3]

The five churches are: St. Giles, Skelton, North Riding, *c*1240; St. Patrick, Patrington, East Riding, *c*1350; St. Augustine, Skirlaugh, East Riding, *c*1404; St. Mary, Thirsk, North Riding, *c*1430; and St. Michael-le-Belfrey, York, *c*1537. The churches were chosen because of their coherence of design, because they all stand within the diocese of York, and because they are chronologically well distributed over the period 1215-1540. Patrington, Thirsk and St. Michael-le-Belfrey are parish churches. All of the sacraments were administered in them and they were the principal churches of their respective parishes. Skelton and Skirlaugh were, in the Middle Ages, chapels within parishes controlled by another church. Skelton was part of Overton parish but functioned parochially in that the most important sacraments of the Eucharist, baptism and burial were administered. Skirlaugh was part of the parish controlled by the Cistercian nunnery of Swine. It was founded both as a perpetual chantry for the founder as well as a chapel of ease for the parishioners in the vicinity with one of the chaplains having cure of souls. Only Skelton was built in one campaign, probably in a short period of time. Patrington, Thirsk and St. Michael-le-Belfrey all retain traces of previous churches *in situ* or reused. Patrington and Thirsk were rebuilt over several decades. However, they adhered to or achieved a unity of design which makes them coherent spatial expressions. All but the tower at Skirlaugh was built within a two or three year period and to one design under the patronage of one person, Walter Skirlaw Bishop of Durham. The best preserved interior is at Thirsk where significant portions of most of its fifteenth century woodwork remain (it even possesses a fifteenth century bell). Skirlaugh is the least preserved with only faint traces of medieval wall painting remaining. The other church interiors fall somewhere in between. Enough physical and written evidence survives for each, however, to allow virtual reconstructions of the interiors to be made with relative certainty.

Models and the Possibilities of Virtual Realities

The problems of analysing space, especially space in the past, are those of control, adequacy of visualisation and management of widely diverse data. All three problems can be solved or reduced by the creation of models of reality where the creator has total control of all factors. In practical terms this means turning toward solutions now offered by numerous computer software applications of various sophistication. Such computer-based models fall (inaccurately) under the blanket term 'virtual reality' (VR) – that is, models of reality. These models can be capable of several layers of immersiveness, from the full-immersion of true VR which simultaneously stimulates the senses of sight, sound, touch and motion, to simple three-dimensional models of an object's geometry. However, all VR

3 A similar approach has been successfully applied to Georgian churches in T. Friedman, *The Georgian parish church: Monuments to posterity* (Reading, 2004).

is, at its core, computer manipulation of diverse data according to any of a number of powerful algorithms. This is the power of VR, that it manages diverse data – from three-dimensional coordinate data to digital copies of historic images to textual information gleaned from the documentary record – presenting it in an intuitively understandable format which is capable of any number of modifications or alternate presentations over which the user has complete control. In a computer model time and space are subject entirely to the will of the creator.

While the application of VR to the historic past has been discussed for at least the past nineteen years, and the tools for its utilisation have become increasingly more sophisticated while at the same time becoming more accessible to the non-computer scientist, it has been slow to attain integration in the standard research tool kit.[4] Where this does occur it happens almost exclusively within an archaeological context. Architectural historians still rely primarily on plans, sections, elevations and photographs.[5] This slow (or, in some disciplines, non) integration is attributable to numerous factors, some of which stem from those inherent in the technology itself, and others which stem from a prevailing research culture inherently suspicious of methodological innovation and habitually limited to the confines of 'paper space.' Both of these factors are eroding at an increasing rate, however, and so it is important to explore the ways in which VR techniques can be used as legitimate research tools rather than simply as a way to present visually appealing displays intended for consumption by the 'educated layman.'[6]

Two especially successful examples demonstrate how VR (in the sense of computer visualisation) can be used as a research tool to further the understanding of a subject. The

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4 An early evaluation of the potentials both negative and positive of VR in archaeology is D. Spicer, 'Computer graphics and the perception of archaeological information: Lies, damned statistics and...graphics!', in C.L.N. Ruggles and S.P.Q. Rahtz (eds.), *Computer applications and quantitative methods in archaeology 1987*, BAR, International Series 393 (1988), pp. 187–200; similar evaluations, most of them cautionary, have been published regularly since that time. For example, P. Reilly, 'Towards a virtual archaeology', in K. Lockyear and S. Rahtz (eds.), *Computer applications and quantitative methods in archaeology 1990*, BAR, International Series 565 (1991), pp. 133-140; P. Miller and J. Richards, 'The good, the bad, and the downright misleading: archaeological adoption of computer visualisation', in J. Huggett and N. Ryan (eds.), *Computer applications and quantitative methods in archaeology 1994*, BAR, International Series 600 (1995), pp. 19-22; N. Ryan, 'Computer based visualisation of the past: Technical 'realism' and historical credibility', in P.M.T. Higgins and J. Lang (eds.), *Imaging the past: Electronic imaging and computer graphics in museums and archaeology* (London, 1996), pp. 95-108; M. Gillings, 'Engaging place: A framework for the integration and realisation of virtual-reality approaches in archaeology', in L. Dingwall, S. Exon, V. Gaffney, S. Laflin, and M. van Leusen (eds.), *Computer applications and quantitative methods in archaeology 1997*, BAR, International Series 750 (1999), pp. 187-200; M. Foccillo, A Manzo, C. Perlingiere, and R. Perlingieri, 'Real space beyond solid models: spatial metadata in ethnoarchaeology', in M. Forte and P.R. Williams (eds.), *The reconstruction of archaeological landscapes through digital techniques*, BAR, International Series 1151 (2003), pp. 71-80; and see J. Kantner, *Virtual reality in archaeology* (Oxford, 2000), *passim*; *Internet Archaeology* 8 (2000): http://intarch.ac.uk/journal/issue8/index.html, *passim*. For comments in 2003 on the slow integration of VR as a research tool in its own right see K. Devlin, A Chalmers and D. Brown, 'Predictive lighting and perception in archaeological representations', *UNESCO world heritage in the Digital Age: 30th anniversary digital congress* (2003), http://www.virtualworldheritage.org/index.cfm?pg=Home&l=en

5 For an art-historical application of VR techniques (though by computer sicentists and archaeologists) see K. Devlin and A. Chalmers, 'Realistic visualisation of the Pompeii frescoes', in A. Chalmers and V. Lalioti (eds.), *AFRIGRAPH 2001*, ACM SIGGRAPH (2001), pp. 43-47.

6 Devlin, Chalmers, and Brown, 'Predictive lighting and perception in archaeological representations', p. 1.

first is a study in virtual reconstruction of past architecture and the relationship of form to meaning.[7] Dawson and Levy surveyed the remains of houses made from whale bones by the prehistoric Thule culture peoples in Arctic Canada. From the survey data (obtained predominantly by hand survey – an example of how VR integrates data from both digitally 'native' and 'non-native' sources) a computer model of a reconstructed house was created. Dawson and Levy were interested in the relationship between the metaphor of the house as a whale in historic Alaskan Inupiat culture to the prehistoric Thule culture houses. A model of a whale skeleton was produced by LIDAR survey (the antithesis of hand survey) of an assembled skeleton in a museum. This model allowed the skeleton to be viewed from points-of-view not normally possible in reality. By comparing specific views of the skeleton to views within the model of the house, Dawson and Levy visually demonstrated similarities between the two which suggest that Thule culture peoples' houses may have been intentionally built to reflect the house/whale metaphor. More useful still is that Dawson and Levy's work also allows the reader to explore alternative viewpoints within the house through the use of *QuickTime* cubic panoramas which 'immerse' the viewer in the three-dimensional space of the model, allowing interactive visual exploration of that space from pre-determined positions.

The second example is more technical in nature but is concerned with the impact of (pre)historic light sources on the creation and perception of art - in this case, palaeolithic cave art.[8] Based on evidence of neolithic lighting techniques associated with cave art an animal fat lamp was recreated and its lighting properties measured. A high resolution model of a relief in Cap Blanc cave was made by LIDAR survey. This was then rendered lit by a 55w incandescent light bulb and by the animal fat lamp using the physically accurate *Radiance* rendering software. The difference in effect between the two is instantly perceptible. It is a powerful argument for the consideration of appropriate period lighting in the interpretation of art (Fig. 2).

Both of these examples are from prehistoric contexts where the study of form and meaning must always be an exercise in hypothesis and conjecture. The possibilities for such studies within historical contexts offers opportunities for conclusions to be made with greater confidence. The written historic record can be collated into the non-textual data managed by VR systems with a resultant greater degree of accuracy both in the realities generated and in the interpretations made. Medieval churches are ideal subjects for such an approach because they are abundant and stand within a rich historical context.

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7 P.C. Dawson and R.M. Levy, 'Using computer modeling and virtual reality to explore the ideological dimensions of Thule Whalebone Architecture in Arctic Canada', *Internet Archaeology* 18 (2005): http://intarch.ac.uk/journal/issue18/dawson_index.html

8 K.R. Brown, A. Chalmers, and F. d'Errico, 'Very-realistic visualisation of the sculpted bas-reliefs from Cap Blanc', in K.R. Brown (ed.), *Archaeological sciences 1999: Proceedings of the Archaeological Sciences Conference, University of Bristol, 1999*, BAR, International Series 1111 (2003), pp. 117-119; Also published in Devlin, Chalmers, and Brown, 'Predictive lighting and perception in archaeological representations'.

The Sources

The most important sources upon which this study relies are the five churches as they stand today. The analyses, reconstructions, interpretations and conclusions which follow rests upon these buildings. But they are not the sole sources, nor can they stand alone as witnesses to their own reconstruction and interpretation. Integral to each case-study are the unique written and pictorial record surviving for each building. These often supply evidence for past internal ordering, alterations to the fabric, activities which occurred within each church, the hierarchy of importance of spaces and objects within the spaces, devotional and religious practices of people in the past, and their social and religious organisation. The documentary evidence also provides the historical, social and organisational context within which the churches were created which frequently contributes to guiding the interpretation and specific methodological approach of each case-study. Chief among documentary sources is the testamentary evidence up to about the year 1550 by which time Edwardian Reforms had generally taken root in the official record. Rare, but important where they do survive, are visitation records. Other kinds of documentary sources survive, but their frequency and utility are extremely varied. Pictorial sources are also important in establishing the appearance of the churches before most of them went through a series of nineteenth century restorations. No source is complete in itself and none are unbiased or purely objective records of reality. They are all problematic and it is important that these problems be recognised.

Fabric

Church fabric is subject to two great problems: the Reformation and nineteenth century restorations. The effects of the various sixteenth century Reformation phases in England upon parish church fabric cannot be underestimated. The loss of all devotional imagery and the sometimes deliberate erasure of any physical traces of its former positions – the falsification of the record, as it were – is only the most obvious of difficulties wrought by sixteenth and seventeenth century religious change.[9] Other problems are more subtle. Churches were reordered to emphasise the importance of preaching and this reordering was often elaborated upon in the seventeenth and eighteenth centuries. This resulted in some cases in a total gutting of pre-Reformation interior furniture and fittings and their replacement by others, the physical traces of which can seriously obscure the evidence for medieval arrangements. For example, the choir desks at St. Michael-le-Belfrey were converted at some time in the past into benches for the poor. The changes to the woodwork wrought in the process of conversion made it difficult to identify how these surviving fragments were originally arranged and where they were placed in the church. At Patrington, Skirlaugh and Thirsk the numerous scars in the masonry made by post-Reformation galleries, wainscotting and often elaborate family pews have made the extent

9 M. Aston, 'Public worship and iconoclasm', in D. Gaimster and R. Gilchrist (eds.), *The archaeology of the Reformation 1480-1580* (Leeds, 2003), pp. 7-28.

of pre-Reformation screenwork almost impossible to determine. Centuries of erecting, rearranging and then removing funerary monuments at St. Michael-le-Belfrey have virtually destroyed the evidence for the position of the roodscreen, and completely obliterated the east window of the south aisle.[10]

Greater than the changes resulting from the eventual adoption of reformed religion were the campaigns of restoration popular in the nineteenth century. These were not simply repairs and maintenance of decaying fabric, and they were certainly not conservation and preservation. This was, at its worst, the remaking of church fabric in the image of an idealised past.[11] But even at its best it frequently involved the reordering of architectural elements to bring them into an artificial harmony. The results were alterations which are often extremely difficult to distinguish from genuinely original features because they share the same stylistic vocabulary and details – down to the imitation of moulding profiles. Fortunately, most of the churches in this study avoided heavy-handed restorations. The most radical changes made were the complete rebuilding of the west end of St. Michael-le-Belfrey, the rebuilding of the chancel arch and nave east wall at Thirsk, and the alteration of the tracery at Patrington. Skelton underwent two extensive restorations in the nineteenth century but appears to have suffered little significant alteration apparently due to the respect the restorers held for the church as a rare historical gem.[12] More problematic for the five churches studied was that in every case the interiors of the church were completely rearranged, often by more than one restorer. The most grievous rearrangement was the wholesale removal of what was probably an intact arrangement of medieval furniture sometime in the first two decades of the nineteenth century. Other churches suffered less in the nineteenth century because they had lost most of their medieval furniture long before the restorers arrived. However, standard in the specifications for faculties granted for repewing the churches were clauses granting permission to remove and level the old floors and to scrape the interior down to bare stone thereby obliterating at a stroke any vestiges of medieval patterns of movement and wall painting.[13] This loss of the texture of the pre-Reformation space is unfortunate both because it had survived the official Reformation phases and because with it went most of the physical remains of the medieval experience of the space. Only careful study of the fabric itself in conjunction with written and pictorial historical evidence can reveal the extent to which the forces of history and accident have altered a church. Reconstructive visualisation techniques such as VR can then help the researcher to better envisage both

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10 This has been described as 'spatial iconoclasm' by S. Roffey, 'Deconstructing a symbolic world: The Reformation and the English medieval chantry', in D. Gaimster and R. Gilchrist (eds.), *The archaeology of the Reformation 1480-1580* (Leeds, 2003), pp. 350-351.

11 Ewan Christian, the architect who so carefully surveyed and later restored St. Giles, Skelton also destroyed the fifteenth century clerestory at Bampton, Oxfordshire in order to 'restore' the church to what he thought was its thirteenth century form. C. Wilson, D.E. O'Connor and M.A.J. Thompson, *St Giles, Skelton, A brief guide* (York, 1978), p. 3.

12 E. Christian, *Architectural illustrations of Skelton church, Yorkshire* (London, 1846), pp. 4-5; York, BI, FAC 1882/17.

13 Examples of flooring and scraping clauses can be found in the specifications of faculties for St. Michael-le-Belfrey (York, BI, FAC 1853/4), Patrington (York, BI, FAC 1866/10), Thirsk (York, BI, FAC 1876/13), and Skelton (York, BI, FAC 1882/17).

how the church likely appeared in the past and inconsistencies or errors in the researcher's understanding.

Documents

The problematic nature of medieval testamentary evidence is well known.[14] Like all medieval written records it is subject to the accidents of time and survival. Numerous gaps always exist in the testamentary record for any parish and sometimes for entire dioceses. For example, the largest collection of testamentary evidence for York, the Probate Registers of the Archbishop's exchequer court, does not begin until 1395 and contains enormous gaps from October 1408 to March 1417 and then from January 1418 to May 1426. This is especially unfortunate in this study for Thirsk where much of the fifteenth century rebuilding probably occurred at this time. The survival rate for wills relating to any given parish is not subject to the size of the parish or its wealth. Over 200 wills written before 1554 survive for St. Michael-le-Belfrey. This may not be surprising given that the parish was literally on the doorstep of the York Minster Dean and Chapter by whom it was governed and who kept separate, somewhat better preserved probate registers. However, for Patrington, a large parish which was evidently wealthy and well connected to the Archbishops, only 29 register entries before 1550 survive. This is only two more than the 27 which survive for St. Giles, Skelton – a mere chapel in a small village. Another problem with testamentary evidence is that it is dispersed among numerous collections of material based on the complex structure of spiritual jurisdiction in most dioceses. For York, besides the largest body gathered in the Archiepiscopal probate registers, wills before 1550 are to be found scattered through twenty-three peculiar, Dean and Chapter, collegiate, and prebendal court manorial records.[15] Many of these sources are poorly indexed and the indices that do exist are frequently full of errors and omissions. The testamentary record is also subject to scribal errors and omissions – a point well illustrated by Heath's work on Hull wills – and also to convention which masks or distorts the individuality of the testator.[16]

Who actually wrote the text of wills and therefore how subject they are to scribal or legal convention is difficult to determine. Several of the wills used in this study explicitly mention that they were written by the hand of the testator him or herself. The majority, however, are so formulaic that they may have been written by notaries, scribes or members of the parish clergy. At the very least, most wills were witnessed by one or more members of the local or familial clergy as well as the more prominent members of the parochial lay hierarchy. Therefore, the possibility that bequests could be channelled to specific projects

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14 C. Burgess, 'Late medieval wills and pious convention: Testamentary evidence reconsidered', in M. Hicks (ed.), *Profit, piety and professions in late medieval England* (Gloucester, 1990), pp. 14-30.

15 BI, 'Guide to probate records', http://www.york.ac.uk/inst/bihr/guideleaflets/probate.htm; This is the diversity of locations of testamentary evidence in the Borthwick Institute alone. Significant testamentary evidence is spread throughout the various records of the York Minster Dean and Chapter and its members held at the York Minster Library. Other testamentary records relevant to the diocese of York are scattered through civic and regional archives as well as through the medieval records of other dioceses.

16 P. Heath, 'Urban piety in the later Middle Ages: The evidence of Hull wills', in B. Dobson (ed.), *The church, politics and patronage in the fifteenth century* (Gloucester, 1984), pp. 212-213.

or interests seems likely.[17] This is explicitly the case in the will of Isabella Barton of Thirsk who left the use of some of her bequests to the church to the discretion of the clergy and churchwardens.[18]

The nature of testamentary evidence also presents numerous difficulties. Wills are meant to be records of the wishes of the testator for the disposal of their moveable property after death. As such they generally do not record how that testator may have already disposed of much of their property or of how their wishes were implemented. Medieval wills were not comprehensive of the total of the testator's possessions. They are usually only records of the disposal of moveable goods above and beyond those traditionally divided among the testator's obligations to church and family (and therefore unrecorded).[19] For most of the period these considerations appear to have precluded the majority of the population from making wills, or at least from having them officially registered. The social circles within which testators moved, as evidenced by the witness lists, indicates that only the upper or civically active levels of parochial society made wills. The activities of individuals which may have had an impact on the fabric of their parish churches, such as the founding of a chantry, the donation of a window, or the funding of a rebuilding are just as likely to have occurred before the testator drew up his or her will and therefore go unrecorded in that source.[20] However, while incomplete, subject to errors and even coercion, idealistic, and originating from the well-to-do and predominantly male elements within the population of any parish, testamentary evidence frequently does supply the only evidence for the devotional topography of church interiors and the social organisation of the parish, as well as numerous other details useful for establishing the legal status and architectural development of the church. It is also the largest body of medieval documentary evidence surviving for most parishes. These reasons alone make it essential to the study of medieval parish churches.

Other documentary evidence is far less abundant but no less problematic. For most historical records the problems of survival and accuracy noted for testamentary evidence applies. As useful as testamentary evidence are visitation records, when they survive (pre-Reformation visitation records survive only for Skelton and St. Michael-le-Belfrey, and sixteenth century post-Reformation records survive for Skirlaugh and Thirsk). These vary significantly in the amount of information and level of detail recorded concerning the churches themselves. What the parishioners or the visitors reported was not always an accurate representation of the state of the church, nor an indication of the subsequent remedying of the problems. The long dispute between the Dean and Chapter and the parishioners of St. Michael-le-Belfrey in which the church was in a state of imminent

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17 R. Marks, *Image and devotion* (Stroud, 2004), p. 8 discusses this in relation to bequests to images.

18 York, BI, Prob. Reg. v.13, f.742.

19 P.S. Barnwell, "Four hundred masses on the four Fridays next after my decease:' The care of souls in fifteenth-century All Saints, North Street, York', in P.S. Barnwell, C. Cross, and A. Rycraft (eds.), *Mass and parish in late medieval England: The Use of York* (Reading, 2005), pp. 60-62.

20 For example, two perpetual chantries were founded at Holy Trinity, Hull which receive no mention in testamentary evidence - Heath, 'Urban piety', p. 213. The extent of similar omissions for the five churches of this study is unknown.

collapse for well over a century is an excellent example of this. Another example is Archdeacon Derring's visitation of the churches of the East Riding in the eighteenth century in which he ordered the complete removal of all roodscreens and lofts. The fact that portions of many still stand today, including the complete roodscreen and loft at Flamborough, is again witness that visitors' injunctions may not have been carried out to the degree which the visitors intended.[21] To be used with equal caution are the fiscal records of the Minster Clerk of the Works which record the Minster's financial contribution to the remodelling of St. Michael-le-Belfrey in the 1520s and 30s. Here, the greatest problem is their ambiguity over what work was actually being done and the gap which leaves half of the twelve year period during which renovation occurred unaccounted for.

Post-medieval and published medieval sources also carry with them particular difficulties. Editors of various volumes of printed medieval records subjected their material to their own editorial filters which can misrepresent the true nature of the record, if not outright falsify it. For example, James Raine the elder played a major role in the Surtees Society for decades in the mid-nineteenth century editing numerous volumes of medieval and post-medieval documents which have become standard references for generations of scholars. His work is neither infallible nor immune to contemporary political or religious issues which had little to do with the original documents at hand.[22] The purposes and objectives of the editors must always be borne in mind, as these will colour the presentation of the documents. Antiquarian accounts are likewise subject to the interests of the antiquarians themselves. Dodsworth and Dugdale were chiefly interested in the history of gentry and so concentrated on recording inscriptions on tombs and in glass which related to patronage. Later antiquarians rarely cited their sources and sometimes reported second-hand information as if they had gathered it themselves. Poulson's history of Holderness is probably guilty of this to some degree in his architectural histories of parish churches, for example.[23] Angelo Raine's *Medieval York* is notorious for its lack of citations to original sources.[24] The religious and political motives of Poole in the 1840s meant that his monographs on important Yorkshire parish churches sometimes recorded what he wished to see rather than what he saw – such as the extent of the lost medieval furniture at Skirlaugh, which it is likely he never saw.[25]

Non-textual documents are extremely valuable in establishing the appearance of a church at the time the record was made. However, they too must be approached with a critical eye. This study is fortunate in that original masons' drawings of specific architectural elements survive for two of the churches: Patrington and St. Michael-le-

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21 A. Vallance, 'Roods, screens and lofts in the East Riding', *YAJ* 24 (1917): 109-185.

22 For a critique of the way in which Raine conducted the opening of St. Cuthbert's tomb at Durham Cathedral in 1827 and his subsequent deliberate mishandling of the evidence in light of the debate over the legalisation of Roman Catholicism see R.N. Bailey, 'St. Cuthbert's relics: Some neglected evidence, in G. Bonner, D. Rollason and C. Stancliffe (eds.), *St. Cuthbert, his cult and his community to AD 1200* (Woodbridge, 1989), pp. 231-246. For Raine's own description of the opening of Cuthbert's tomb see J. Raine, *Saint Cuthbert* (Durham, 1828);

23 G. Poulson, *The history and antiquities of the Seigniory of Holderness* (Hull, 1841), *passim*.

24 A. Raine, *Medieval York* (London, 1955).

25 G.A. Poole, *St. Augustine, Skirlaugh* (Leeds, 1844), p. 50.

Belfrey. These valuable sources are the closest one can come today to witnessing the medieval process of design in relation to buildings or elements of buildings which still stand. Relating the surviving designs to the fabric as built can be difficult. Masons' drawings, like testamentary evidence, are by nature idealistic and forward-looking. The difference between what was drawn and what was built can be considerable. This is especially the case when multiple versions of a single design or architectural element exist.[26] Also, the dating of these designs can never be firmly established. Usually they can only be given a basic chronological range based on what is known of the chronology of the surface upon which they are etched. More traditional, pictorial evidence can also be unreliable. No medieval drawings in the conventional sense of an artist's depiction exist of any of the churches in this study. The majority of the pictorial evidence comes from the eighteenth and nineteenth centuries. Here, the motives and purposes of the artist must be considered just as the motives of editors and antiquarians are important in evaluating their work. Many of the pictures used in the following chapters are not entirely trustworthy. For example, the earliest drawing of St. Michael-le-Belfrey (other than the picture of its bellframe on the foot of the 1558 paten) dates to 1705. Also shown in this illustration is a view of the west end and south side of the Minster where flying buttresses are drawn. While medieval provision for flying buttresses over the south aisle of the Minster nave were made, they were not completed until the early twentieth century.[27] The interior perspective engraving of Skelton dated *c*1844 included in Poole's monograph is likewise a mixture of fantasy and fact. For example, the threshold of the priest's door is treated as though it were the sill of a window. Comparison with Ewan Christian's *c*1843 survey shows that this was not the case (Figs. 42, 43). Similar examples could be multiplied for virtually every pictorial source used in this study. However, despite these caveats, non-textual evidence remains one of the most important sources for determining the past appearance and the architectural development of these churches. The advent of VR systems means that all of these sources can be integrated under the critical eye of the researcher in order to achieve a more complete result than relying on a single source. Important too is the work of others in the multidisciplinary field of parish studies, of which the study of parish churches is a part.

Parish and Parish Church Studies

This thesis builds on the diverse field of the study of the English medieval parish and, more specifically, the study of the parish churches themselves. However, rather than focusing on the social history of the parish as is most common in this field, this study examines how parish church space is used to express and mediate the relationship between the parishioner and God. Therefore, this study is a work of synthesis, drawing on the

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26 See the alternative window designs at Clermont Cathedral in M.T. Davis, 'On the drawing board: Plans of the Clermont Cathedral terrace', in N.Y. Wu (ed.), *Ad quadratum: The practical application of geometry in medieval architecture* (Aldershot, 2002), pp. 183-204.

27 R. Cant, 'From 1916-1975', in G.E. Aylmer and R. Cant (eds.), *A history of York Minster* (Oxford, 1977), p. 554.

methods, techniques and interests of a number of disciplines and approaches. It stands principally within the disciplines of archaeology, architectural history and history. An important contributing discipline is computer science, especially graphics, from which it borrows heavily. Theology, architectural survey, music history, perceptual psychology, mathematics and physics also make important contributions to the work.

While the English parish is well covered in academic writing, there are gaps. This study rises from work that has gone before while contributing to filling the gaps of the unknown. Archaeologically, it contributes to the array of methods used in analysing buildings as cultural artefacts while widening the scope of that which can be archaeologically evaluated. In architectural history it contributes an understanding of the church building that is explicitly inclusive of its three and four-dimensional properties and their historical development. Historically, it is hoped that this study contributes a narrative of the phenomenological effects of historical changes in the way man envisaged his relationship to God. It contributes not only archaeological, art historical and historical information to the academic discourse, but it also offers a way of understanding the late medieval parish church that includes human sensory experience.

A glimpse of what actually happened in late medieval parish churches in terms of the behaviour of the people who used them was recorded by a friar complaining about the reception of his sermons:

> 'But these dayys mochyl folk wyl nout lowyn hem to syttyn doun at the sermoun, ne welyn heryn it with meek herte, but thei welyn stondyn, that they moun redely gon away yif the prechour plese hem nout. Summe comyn obstinat in here synne, and nout thykyn to amendyn hem for out that the prechour schal seyn. Summe comyn only to heryn coryouste and newe thyngis. Summe comyn for mailce and envye to pynchyn at the prechouris wordis. Summe comyn only to be seyn. Some comyn only for the maner, and for non devocion, ne for no profyt of here soule, and swyche fallyn sone on slepe.'[28]

Such mundane historical events do not usually leave unambiguous physical traces. Church fabric is not ideally suited to the recovery of a sermon, the tears of the mourners at a funeral, the bonds of community strengthened at a baptism. Church space does not perpetually echo the prayers of the pious kneeling at the Elevation, the conclusion of a bargain over a horse in the porch or a fight between village dogs somewhere in the back. These sorts of activities - the holy and the profane - survive, when they survive, in the documentary record, a medium which is well suited to the preservation of such moments. The material reality of a church provides the setting for such events, determines the broad limits of what is possible and what is probable within the space, and, above all, shows what its creators and users would have liked to happen, not necessarily what did happen. Architectural space, especially that which is specifically religious, is an expression of the norms of general practice. It is especially susceptible to formation according to the ideal rather than the actual. The survival of a pulpit shows only that it was possible for a sermon to be preached from this article of furniture, not the frequency nor the content of the sermons themselves. Tombs show that there were burials but not who attended them and

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28 In H.L. Spencer, *English preaching in the late Middle Ages* (Oxford, 1993), p. 1.

with what solemnity or sense of loss they conducted the funerals. A splendid font, such as the seven sacrament fonts of East Anglia, or the specially elevated and richly carved font at Patrington, only show that baptism was a Sacrament valued by the producers of the font, not how strong that Sacrament tied individuals together or to what degree the words of those partaking in the ritual were sincere. Parish churches, as cultural artefacts, are positivistic, forward-looking objects defining what was desirable rather than what occurred. Thus, this study is chiefly concerned with the space of the parish church as a guide leading its occupants in ideal practice, channelling experience to the intentions of its creators. This study is not concerned with recovering the historical events which occurred within the churches it explores except so far as those that are recorded reveal something about the space itself. To develop some idea of the kinds of things that actually occurred in churches one must turn to other studies and to the written record.

Parish churches were intended for a certain sort of activity and a certain type of behaviour which is defined in liturgical texts, most fundamentally in the rite of the dedication of a church, and in the various manuals for priests and laity published from the mid-fourteenth century.[29] This does not mean that such model behaviour was universally practised. For instance, the impressive early to mid-thirteenth century south door at St. Giles, Skelton ornaments the simple process of passing into and out of the church interior. From liturgical texts it is known that the main entrance of a church was the location of significant portions of the rituals of baptism, the purification of women, marriage, and the Easter Sunday services.[30] But, in February 1535 it was the place where it was alleged that 'John Darley [the rector] hath not down honestly to the said Margaret [Brandesby, wife of one of the most important men of the village],' which slight resulted in a defamation case in the Dean and Chapter's court between the rector and Mrs. Brandesby.[31] The south door, then, intended in part to be the place of a person's first entry into the universal Christian community, was also the site of fractures within that fellowship. It is rare that the records of such events survive. When they do they are concerned with the people themselves; the places are incidental. For the five churches studied in the following chapters such records provide colour and personal interest. They reveal both that events of a nature opposed to those intended for these spaces could and did occur and also that the actions of individuals in these spaces in the past are too varied, specific and infrequently recorded to provide the basis for any comprehensive conclusions.

However, a general survey considering such records from a wide variety of sources distributed over a large geographic and chronological landscape is valuable in showing how much variation of use churches were subject to. The classic study is J.G. Davies' *The Secular Use of Church Buildings*. Davies' work reveals the variety of uses other than the strictly liturgical to which churches were put. People lived and slept in them

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29 For example: W.G. Henderson (ed.), *Liber pontificalis Christopheri Bainbridge Archiepiscopi Eboracensis*, SS 61 (1875), pp. 53-80; T.F. Simmons (ed.), *The lay folks mass book*, Early English Text Society Publications, Original Series 71 (1879).

30 W.G. Henderson (ed.), *Manuale et processionale ecclesiae Eboracensis*, SS 63 (1875), p. 170; Henderson (ed.), *Liber pontificalis, passim*.

31 York, BI, D/C C.P 1536/2.

for a number of reasons ranging from hopes for miraculous cures to the necessities of sanctuary or to guard the church's possessions. Eating and drinking at numerous occasions individually and by the community as a whole was common, especially at important celebrations or at fund-raising events. Dancing, gaming, commerce, theatre, civic and parish meetings, the administration of justice, a place of public announcements, schooling and, sometimes, community defence are among the many and varied secular uses of church space, most of which left little physical trace.[32] Important too is Margaret Aston's work on the segregation of the sexes which gives a vivid glimpse of how the secular and religious uses of a church were expressed spatially.[33] While ostensibly about 'official' religious use of church space, Spencer's and Owst's works on preaching in the Middle Ages are filled with illuminating glimpses into the blurry nature of the boundary between sacred and secular use of church space.[34]

Parish studies and work on the social history of the late medieval English parish, while not necessarily concerned with church buildings *per se*, reveal much of the typical daily use of church buildings. One of the most focused and sustained efforts is Eamon Duffy's work on the Devonshire parish of Morebath.[35] The study necessarily includes much about the church building itself because it uses the remarkably detailed sixteenth century churchwardens' accounts which were by their nature concerned with the fabric of the building, among other things. The Morebath accounts reveal dramatically how intertwined the material and spiritual realities of late medieval life were, especially during times of political and religious change as the parish struggled to keep up with prescriptions which altered their church's spatial arrangements to reflected the frequently changing conceptions of ideal religious practice and devotional relationship. Nearer to the churches in this study is the volume edited by Paul Barnwell, Claire Cross and Ann Rycraft focusing on the church of All Saints North Street, York in the fifteenth century.[36] Here both the official prescribed liturgical practice of the clergy as well as the unofficial devotional preoccupations of the parishioners are explored as they related to a 'typical' parish church in York. Numerous somewhat broader studies have been published recently including Katherine French's work on Somerset and Beat Kumin's history of the parish in the last century and a half of the Middle Ages in England.[37] French's work explores the life of the parish from numerous points of view including the role of church buildings both socially and religiously. More specifically concerned with the relationship between space and parish social organisation is Pam Graves' work on East Anglian and Devonshire parish

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32 J.G. Davies, *The secular use of church buildings* (London, 1968), pp. 36-95.

33 M. Aston, 'Segregation in church', in W.J. Sheils and D. Wood (eds.), *Women in the church* (Oxford, 1990), pp. 237-294.

34 Spencer, *English preaching in the late Middle Ages*; G.R. Owst, *Preaching in medieval England* (New York, 1965).

35 E. Duffy, *The voices of Morebath: Reformation and rebellion in an English village* (London, 2001).

36 P.S. Barnwell, C. Cross and A. Rycraft, eds, *Mass and parish in late medieval England: The Use of York* (Reading, 2005).

37 K. French, *The people of the parish: Community life in a late medieval English diocese* (Philadelphia, 2001); B. Kumin, *The shaping of a community: The rise and reformation of the English parish c1400-1560* (Aldershot, 1996).

churches.[38] She pioneers a phenomenological approach to parish church space which relies chiefly upon the fabric of the churches themselves. Her guiding principle, however, is power and how church space is an expression and mediator of power relationships within the parish community. Graves' work bridges the gap between parish social history and archaeology. Perhaps the most important work on the medieval parish church itself is Richard Morris' *Churches in the Landscape* which takes a holistic approach to parish churches, placing them within their physical landscape but also their historical, liturgical and social landscapes, among others.[39] In its synthesis of over a century of church archaeological study and its frequent insights into church space it is perhaps the most successful single study of the subject. There are also a host of surveys of the parish church as a historical institution as well as a physical artefact which include much information on the ways in which sacred space was used officially and unofficially. Colin Platt's study is one of the most approachable, considering the religious, social and physical elements of the parish church.[40] His work stands on the shoulders of a well established tradition of nationwide parish church surveys, the most important of which are those by J.C. Cox, G.H. Cook, Edwin Smith, and Alec Clifton-Taylor (although the last with some reservations since he explicitly diverts discussion from the religious aspects of parish churches).[41]

How a church related to its more explicit purposes as a space for the enactment of religious ritual is, in some ways, more difficult to determine, the main reason being that the sources are far less numerous and specific. Liturgical texts were almost always written for cathedrals and as such were adapted to their physical space and interior arrangements. How this was meant to be adapted to the very different spaces of parish churches is almost never indicated.[42] No record of the celebration of Mass at any English parish church survives to help. Even in cathedrals for which a specific use and liturgical texts do survive it is difficult to define the relationship between text and church. Van der Ploeg demonstrated this very well for Siena Cathedral in his monograph on the relationship between liturgy and architecture. At Siena the liturgy changed very little while the Cathedral changed frequently.[43] This is one of the fundamental problems in linking liturgical texts with liturgical practice in general. Official liturgy is normative, and as such is resistant to change as well as being silent about unofficial religious expression.

Nevertheless, as Roger Reynolds has argued, it is important to consider liturgy as one part of a complex and dynamic historical relationship between text and architecture

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38 C.P. Graves, *The form and fabric of belief: An archaeology of the lay experience of religion in medieval Norfolk and Devon,* BAR, British Series 311 (2000).

39 Morris, *Churches in the landscape.*

40 C. Platt, *The parish churches of medieval England* (London, 1995).

41 J.C. Cox, *The parish churches of England*, Ed. C.B. Ford (London, 1946); G.H. Cook, *The English mediaeval parish church* (London, 1970); E. Smith, G. Hutton, and O. Cook, *English parish churches* (London, 1976); A. Clifton-Taylor, *English parish churches as works of art* (London, 1974), (see pp. 1-17 for his justification for discussing parish churches in non-religious terms).

42 The York Processional makes one specific reference to parish churches, but this is very limited. Henderson, (ed.), *Manuale et processionale,* p. 170.

43 K. van der Ploeg, *Art, architecture and liturgy: Siena Cathedral in the Middle Ages,* Mediaevalia Groningana fasc. 12 (1993).

with each having a formative and reflexive relationship with the other.[44] Studies of this relationship have enjoyed some popularity. An early but important step was taken by Christopher Brooke who demonstrated that change in church design could be linked in part to changes in what he called 'religious sentiment' which was expressed both liturgically and in the rise of extra-liturgical devotions such as saints' cults.[45] David Parsons later published a similar discussion, but with more emphasis on earlier medieval practice.[46] Other work has attempted to be more thorough and systematic. For example, Arnold Klukas' work on the eleventh and twelfth centuries, when both architecture and liturgy were undergoing reasonably well understood changes, is important.[47] But once liturgy stabilised, the ongoing development of ecclesiastic architecture is more difficult to convincingly connect to it.[48] The relationship becomes less one of cause and effect and more one of how the now standard liturgy is used in conjunction with its physical setting to emphasise different interpretations of the ritual and its significance. A broader approach considering social and political elements is frequently more successful. Peter Draper's work on Lady Chapels in the later Middle Ages or his interpretation of Wells Cathedral show how fashions in liturgical emphasis such as the spread of the importance of liturgical devotion to the Virgin or the competition between Bath, Wells and Glastonbury over hosting the Bishop's *cathedra* could make use of both pre-existing liturgy along with new architectural work.[49] For parish churches Pam Graves' work noted above in reference to the social history of the parish is also useful, not least because she takes a more phenomenological approach which emphasises the experience of different participants in the liturgy.[50]

Attempts at defining the relationship between liturgy and architecture and, to a more implicit degree, between society and architecture are in part responses to the desire to find meaning in architectural form. The quest for meaning in church architecture has a long and venerable history. Churches undoubtedly were intended to and did carry meaning – even quite specific meaning. This is made clear in the prayers used during the dedication of churches which remained stable for nearly a thousand years although the rubrics were altered to reflect the change in altar position from free-standing to against the east wall.

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44 R.E. Reynolds, 'Liturgy and the monument', in V. Raguin, K. Brush, and P. Draper (eds.), *Artistic integration in Gothic buildings* (London, 2000), pp. 57-68.

45 C. Brooke, 'Religious sentiment and church design in the later Middle Ages', in C. Brooke, *Medieval church and society: Collected essays* (London, 1971), pp. 162-182.

46 D. Parsons, *Liturgy and architecture in the Middle Ages* (Leicester, 1989).

47 A. Klukas, *Altaria superiora : the function and significance of the tribune-chapel in Anglo-Norman Romanesque: A problem in the relationship of liturgical requirements and architectural form* (Ann Arbor, 1982); A. Klukas, 'Liturgy and architecture: Deerhurst Priory as an expression of the *Regularis Concordia*', *Viator* 15 (1984): 81-106.

48 For example, see A. Klukas, 'Durham Cathedral in the Gothic era: Liturgy, design, ornament', in V. Raguin, K. Brush, and P. Draper (eds.), *Artistic integration in Gothic buildings* (London, 2000), pp. 69-83.

49 P. Draper, "Seeing that it was done in all the noble churches in England", in E. Fernie and P. Crossley (eds.), *Medieval architecture and its intellectual context* (London, 1990), pp. 147-142; P. Draper, 'Interpreting the architecture of Wells Cathedral', in V. Raguin, K. Brush, and P. Draper (eds.), *Artistic integration in Gothic buildings* (London, 1995), pp. 114-130; or, more generally, his work focusing on Salisbury and Ely in P. Draper, 'Architecture and liturgy', in J. Alexander and P. Binski (eds.), *The age of chivalry: Art in Plantagenet England 1200-1400* (London, 1987), pp. 83-91.

50 Graves, *The form and fabric of belief, passim.*

The dedication ceremony was popularised through explanations of the liturgy directed to the clergy and laity alike, such as in Voragine's *Golden Legend*.[51] This basic meaning in which the connections between the medieval church and the Tabernacle of Moses, Solomon's Temple in Jerusalem, the earthly and the heavenly Jerusalem and the Temples of St. John's Revelation are quite clear was elaborated upon by numerous medieval writers. Most influential was the first book of the *Rationale Divinorum Officiorum* by William Durandus, Bishop of Mende, in the late thirteenth century and published repeatedly well into the sixteenth century throughout Europe (including England).[52] Durandus attaches an astonishing array of multiple and sometimes contradictory meanings to virtually every feature of a church. He himself was drawing from a long established tradition which had found explicit expression a century earlier in writing and in architecture in the rebuilding of the west end and choir of the abbey church of St-Denis in Paris by Abbot Suger.[53] Suger's explicit links between form and meaning at St-Denis were tremendously influential on architectural historical scholarship in the twentieth century. The specificity of meaning with which Suger and Durandus described church architecture encouraged architectural iconographers of the twentieth century to attempt to broaden the specific meaning/form relationship to all medieval architecture. Erwin Panofsky, using Suger as a foundation, attempted to demonstrate a direct cause and effect relationship between Scholastic theology and the rise of the Gothic style.[54] Working on Chartres Cathedral and drawing on a wide variety of historical and archaeological sources Otto von Simson created a beautiful but ultimately unconvincing iconography of that building which was linked to the Platonist or Augustinian theology and philosophy at the school of Chartres in the twelfth century.[55] Both assumed an unfounded correlation between patron and architecture which excluded the role of the architect. No direct link between the elaborate and sophisticated theological and philosophical constructs of the ecclesiastics and the realities of architectural practice could be established; as Peter Kidson was to later demonstrate.[56]

Before Panofsky or von Simson, Richard Krautheimer defined architectural iconography as a discipline in his seminal article 'Introduction to an "Iconography of medieval architecture"' while simultaneously applying its methods with successful restraint to the phenomenon of the medieval architectural copy; perhaps the only iconographic essay to withstand the critiques of Kidson and others.[57] The numerous difficulties inherent in relying upon medieval theologians as keys to decoding any narrowly conceived symbolism

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51 Compare the dedication ceremonies of the eighth and sixteenth century York Pontificals – W. Greenwell (ed.), *The pontifical of Egbert, Archbishop of York, AD 732-766*, SS 27 (1853), pp. 26-51; Henderson (ed.), *Liber pontificalis*, pp. 53-80; Jacobus de Voragine, 'The dedication of a church', in Jacobus de Voragine, *The golden legend*, trans. G. Ryan and H. Rippeier (New York, 1969), pp. 769-780.

52 W. Durandus, *The Symbolism of churches and church ornaments: A translation of the first book of the Rationale Divinorum Officiorum*, ed. and trans. J.M. Neale and B. Webb, 3rd edn (London, 1893). In 1548 Sir Lawrence Hall, the parish priest of St. Michael-le-Belfrey, York possessed a copy of the *Rationale* – York, YML, D&C Wills v.3, f.20.

53 Suger, *Abbot Suger on the abbey church of St.-Denis and its art treasures*, ed and trans. E. Panofsky and G. Panofsky-Soergel, 2nd edn (Princeton, 1979).

54 Suger, *The abbey church of St.-Denis, passim*.

55 O. von Simson, *The Gothic cathedral* (London, 1956).

56 P. Kidson, 'Panofsky, Suger and St Denis', *JWCI* 50 (1987): 1-17.

57 R. Krautheimer, 'Introduction to an "Iconography of medieval architecture"', *JWCI* 5 (1942): 1-33.

of churches and the inevitable failure of such a limited approach are well described in Paul Crossley's work.[58] It is not doubted that medieval churches were meaningful, but, in order to understand something of the intentions of the creators and users, their goals, priorities and fears, the 'truths ramified, disruptive and many-layered' present in these buildings must be accepted and explored.[59]

That the meaning of churches lies in more than any strictly allegorical or symbolic relationship, that the complex influences of liturgy, society, theology, function and architectural practice cannot be underestimated, and that churches functioned on numerous levels is precisely what this study hopes to contribute to the academic discourse. It is not a study of the social history of the parish, although it relies upon the work of others in that field.[60] Similarly, while fundamentally concerned with relationships, it is not relationships of power, at least not the limiting conception of power relationships in a Marxist framework, that are at the theoretical heart of this study.[61] While it is certain that such relationships existed and were expressed in the use of space in the late Middle Ages, a view of all spatial relationships as simply about the exercise of power of one group over another or of 'the ways in which groups negotiate rights over space within a building' is to treat the sincerity of medieval conceptions of sacred spatial relationships within churches with contempt.[62] Rather, this study takes an approach akin to the one advocated by Bernard McGinn who suggested that it would be helpful to think of churches as 'applied theology.'[63] The root of such an approach must be God in a Christian context: 'It is in this context that the Gothic style should be understood: it accompanied one stage in the development of Christianity.'[64] This understanding of God, this relationship with him, 'the conviction that so much beauty can exist only because God is in every man and beast, in every herb and stone', is the primary relationship intended to occur in medieval sacred space.[65] This is an ideal, but, as I have said above, church architecture is more about the ideals than about the actualities. How late medieval church space was used as a medium of expression to guide experience is an indication of how its designers and users intended that relationship to be conducted and, ultimately of how they understood their place not only among each other, but in that chain of being which descended from God. Thus I have

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58 P. Crossley, 'Medieval architecture and meaning: The limits of iconography', *The Burlington Magazine* 130:1019 (1988): 116-121; P. Crossley, 'Introduction', in P. Frankl, *Gothic architecture*, ed. P. Crossley (New Haven, 2001), pp. 15-31.

59 P. Crossley, 'The limits of iconography', p. 121.

60 See above and especially the field-defining work of Eamon Duffy, *The stripping of the altars: Traditional religion in England c1400-c1580*, 2nd edn. (London, 2005).

61 Buildings as expressions of power relationships are well described in T.A. Markus, *Buildings and power: Freedom and control in the origins of modern building types* (London, 1993). The limiting effects of Marxist frameworks are felt in Graves, *The form and fabric of belief.*

62 G. Fairclough, 'Meaningful Constructions – Spatial and functional analysis of medieval buildings', *Antiquity* 66 (1992): 348.

63 B. McGinn, 'From admirable Tabernacle to the House of God: Some theological reflections on medieval architectural integration', in V.C. Raguin, K. Brush, and P. Draper (eds.), *Artistic integration in Gothic buildings* (London, 1995), pp. 41-56.

64 P. Frankl, *Gothic architecture*, ed P. Crossley (New Haven, 2001), p. 268.

65 N. Pevsner, *The leaves of Southwell* (London, 1945), p. 66.

chosen to study and recreate the spaces themselves to develop an idea of how this relationship was mediated.

Space and Ways of Seeing

There seem to be as many theories on architectural space as there are people interested in architecture. Space itself has transcended the physical and entered the metaphorical with abundant and varying results.[66] The type of space which is of interest in this study is physical, real and specific in that the spaces of five buildings which stand at present are analysed. Space is defined by the structural envelope which encloses it and is ordered by factors which have physical existence although the duration of that existence may vary from the long-term, such as screens, arcades, steps, etc., to the instantaneous such as light, sound or motion. The challenge in studying this space is one of how to analyse it and how to interpret it. These are challenges of ways of seeing which, as perceptual psychologists would stress, is conditioned as much by biological limitations as it is by mental or imaginative ones.[67] That is, seeing and understanding are determined by what one thinks, not simply by what the eye passes over.[68] We see what we expect to see. Therefore, the theories that condition perception, or interpretation, are important.

Of the vast firmament of architectural theory there are a few bright constellations which help guide seeing and interpretation. First, and most important is the concept that architecture does not consist entirely of its fabric, of its floors, walls and roofs but of the spaces which these define or enclose.[69] Important too is the conception of architecture as defining place which takes into account the importance of the function of any given building to the way in which it defines space.[70] Key to both of these theories is that architecture must be experienced and that this experience is dynamic. The chief difference between architecture and the other arts is precisely this dynamic nature. Plans, sections and elevations – two-dimensional representations of architecture – while fully describing the physical properties of architecture, do little to define its experience.[71] But this study is not simply concerned with space as a generic phenomenon. Rather, it concentrates on church space, sacred space, and in this context the medieval theologian's conception of the church is given theoretical support by Eliade's definition of sacred space as a place where the divine and the human meet.[72] This definition links space, place and experience to

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66 For example, the numerous approaches gathered in B.A. Hanawalt and M. Kobialka, eds, *Medieval practices of space,* Medieval Cultures 23 (2000).

67 R. Gregory, *Eye and brain: The psychology of seeing*, 5th edn. (Oxford, 1998), pp. 177-188; R. Sekuler, *Perception*, 5th edn. (London, 2005), pp. 265-266.

68 For example, Gregory cites a case study of a man who, blind from birth, had gained sight resulting from an operation in middle age. When asked to draw a bus at which he was looking, it was found he could only draw what he had touched when blind. He was only capable of interpreting what he was accustomed to experiencing. He only 'saw' what he expected to 'see.' – Gregory, *Eye and brain,* pp. 153-158.

69 This is given brief and readable treatment in N.L. Prak, *The language of architecture* (The Hague, 1968), especially pp. 12-13.

70 Particularly well described by S. Unwin, *Analysing architecture* (London, 1997).

71 Prak, *The language of architecture*, p. 28.

72 M. Eliade, 'The sacred and the profane', in J.D. Bettis (ed.), *Phenomenology of religion* (London, 1969), pp. 205-218.

relationship, and the human/divine relationship specifically. Architectural space functions as the mediator of the relationships which occur within it and the exercise or implementation of mediation is culturally dependent.[73] In sacred space, as Eliade's definition makes clear, more than just human relationships are mediated, nor are they primary. In medieval sacred space the primary relationship was between the people and God according to Christian understanding and through a number of heavenly and worldly intermediaries. This understanding was culturally dependent and changing, which is reflected in the historical context within which the spaces were created. Primary to late medieval sacred space, what set it apart from other spaces of the period, was this relationship with God. This is McGinn's 'applied theology.'[74] Medieval sacred space is not just theology in stone, however, for that is too simplistic a metaphor. It is theology in practice, theology in experience, a kind of field theology where the distant and elaborate constructs of theoretical theologians is only faintly heard but where the contingencies, the irregularities, the uncomfortable inconsistencies and the inexplicable realities of daily contact with God occur. How sacred space channels these experiences reflects and informs the concerns and the desires of its creators and users.

How, then, given these definitions and theoretical points-of-view is late medieval sacred space to be analysed? How is it to be captured and examined? Metaphor is useful as a conceptual framework. But not all metaphors are useful. The metaphor of space as a text is a natural but especially troublesome one. It has been applied generally to sacred space by Lindsay Jones but the problems of the metaphor are so substantial that they required Jones to dedicate the first of his two volume study to their delineation.[75] The limiting and negative effects of the reliance upon textual metaphor prevalent in archaeological interpretation of material culture have been studied by Matt Edgeworth who sees that the fundamental problem with the textual metaphor is that it hides the reality of material evidence as material. The text, the interpretation, is what is important – the material disappears.[76] In other words, the metaphor, which was initially simply an interpretive tool, a means to an end, becomes the end itself. It tends to divorce interpretation from material reality. This tendency is inherent in the nature of texts themselves which do not necessarily have a physical existence. A building (and architectural space) is not, in reality, a text. By necessity it has physical existence. This is an important distinction because it defines how people use and interact with both. A text requires interpretation, its recital in a human mind, in order to have any existence and therefore the process of formulating meaning is the same process which imparts textual existence. People interact with texts by interpreting them, by constructing meaning. In contrast, once a building is built, it is not dependent on human beings for its existence (at

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73 Markus, *Buildings and power*, pp. 4-5, 21-25; Fairclough, 'Meaningful constructions', p. 348; B. Hillier and J. Hanson, *The social logic of space*, (Cambridge, 1984), pp. 176-183; Hillier, *Space is the machine: A configurational theory of architecture* (Cambridge, 1996), pp. 22-27.

74 B. McGinn, 'From admirable Tabernacle to the House of God', pp. 41-56.

75 L. Jones, *The hermeneutics of sacred architecture* (London, 2000), 1: *passim*.

76 M. Edgeworth, *Acts of discovery: An ethnography of archaeological practice*, BAR, International Series 1131 (2003), pp. 1-14.

least until entropic forces take over). People interact with buildings through experience conveyed by their perceptions of sight, sound, motion, even smell and taste. Therefore, an interpretive metaphor which does not limit buildings to the immaterial and non-sensual requirements of the text is needed. I propose the metaphor of architectural space as a medium like clay or paint which can be manipulated in any number of ways in order to convey or express the concerns of the creator. This has two advantages over the textual metaphor. First, it is explicitly material and cannot be divorced from physical reality. Second, it acknowledges that meaning can be expressed sensibly as well as intellectually.

This is, in part, both a phenomenological and an empirical approach. But it is hoped that it avoids the relativism of phenomenology[77] on the one hand and the mere categorisation of empiricism[78] on the other by emphasising the role of space as a material medium which can be used in sensibly expressing any number of meanings or multiplicities of purpose. In this approach, perception acts as the intermediary between meaning and form. It does not lose touch with the particular and the material because this is what is sensibly perceived. But the guidance and channelling of perception is by material which is the manifestation of the intentions, purposes or meanings of the creators.

A perceptual approach is advocated by Carleton Jones and implemented by Tadhg O'Keeffe as a caveat to less physically-grounded modes of interpreting medieval ecclesiastic architecture.[79] The dynamic nature of perception of architectural space is difficult enough to analyse in the present, let alone for past spaces and past peoples. The individualistic nature of spatial perception makes it difficult to examine directly. What can be examined are the elements which influence how perception is formed. While some are static and therefore readily observable and quantifiable, others are more dynamic and ephemeral and these are much more difficult, if not impossible, to observe by conventional means. What is needed is a method of analysis which 'captures' and controls the tangible and the intangible components that create perception of space. The degree of spatial and temporal control offered by various applications of VR is ideally suited to the 'capture' and analysis of material and immaterial realities and is discussed in the first chapter. By creating virtual realities this study links the material to the immaterial, the historical to the ephemeral, theoretical inquiry to practical application. It is an approach somewhat akin to medieval farming practices – sowing in scattered strips in a number of fields, and bringing together what is hoped is an abundant harvest.

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77 The classic application of phenomenology to archaeological interpretation on a large scale, the (f)utility of which is contestable, is C. Tilley, *A phenomenology of landscape: Places, paths and monuments* (Oxford, 1994). For a less ambitious and more precise phenomenological study with problematic conclusions see A. Watson and D. Keating, 'Architecture and sound: An acoustic analysis of megalithic monuments in prehistoric Britain', *Antiquity* 73 (1999): 325-336. For a rare architectural historical phenomenological approach see S. Murray and J. Addiss, 'Plan and space at Amiens Cathedral: With a new plan drawn by James Addiss', *JSAH* 49:1 (March, 1990): 44-66.

78 F. Bond, *Gothic architecture in England* (London, 1906). Bond well understood the dangers of arbitrary categorisation (*Gothic architecture in England*, pp. xx-xxi). The taxonomic problems with which he disagreed were nevertheless answered by more categorisation; just categorisation to a different set of criteria.

79 C. Jones, 'Interpreting the perceptions of past people', *ARfC* 15:1 (1998): 7-22; T. O'Keeffe, 'Perceptions and interpretations of architecture: Cautionary tales from the Middle Ages', *ARfC* 15:1 (1998): 75-93.

Organisation and Chapter Content

Exploration of the five churches is conducted individually, each church standing as a case study of a specific component of the larger discussion of the use of late medieval sacred space. The text is organised according to different aspects of space in increasing complexity from the fabric which defines the geometric bounds of the space to the points-of-view experiences of multiple occupants of a space in motion. The chapter-by-chapter focus on separate spatial components coincides with the use of a different set of analytical methods and techniques for each chapter which build upon each other. The chapters themselves follow the same general organisation. Each is composed of three parts. The first is the introduction to the chapter and to the church being explored. Objectives and the means of achieving those objectives are established. A description of the church at present follows which is in turn followed by brief historical and historiographical reviews which introduce the reader to the source material and place the building in its historical context. This frequently guides the interpretation and particular methodology of each chapter. The second section is the analysis of the building. The basis for analysis is a model or models of the specific church in question at particular times in the past. In order to establish the basis for these models, the architectural development of the building is discussed and the evidence for the interior ordering of the space in the Middle Ages is reviewed. The analytical methods and techniques are introduced and their application to the study of churches is briefly reviewed. Finally, the spatial model is analysed. The concluding section of each chapter consists of interpreting the results of analysis and placing the space within its wider context. This organisation places emphasis upon space itself and the methods used to explore it rather than upon any historical narrative that may exist. However, the conclusions of each chapter are arranged in their correct chronological order in the Conclusion of the dissertation allowing a historical narrative to be presented about the development of the use of late medieval sacred space and the changing understanding of the human/divine relationship.

Chapter One explains the methodologies used in detail. I am well aware that many of the technologies described are already out-of-date and all will be thoroughly out-moded within a few years. However, it is hoped that the ways of exploring space described in this chapter will outlive the technologies upon which they rely and that future technological developments will simply allow for their more sophisticated and meaningful application. This chapter will be useful to readers who may wish to apply similar methods and techniques to further research in this or related fields. The chapter has two halves. In the first it is stressed that none of the techniques used is meant to take the place of visiting the real-world churches themselves, that reconstruction is only a representation of what is likely to have been as opposed to what actually existed, which can never be fully recovered. It also attempts to convey some sense of the time-consuming and creative process of producing the models used in this study. The second half of the chapter is concerned with specific and critical discussion of the methods used.

The case studies proper begin with Chapter Two. The most basic spatial element, the architectural envelope which defines the limits of a space, is discussed using St. Michael-le-Belfrey as the case study. Conventional archaeological methods involving analysis of stone-by-stone elevations and metrological investigation of plan geometry are presented. How fabric can be altered to redefine a space is demonstrated.

Less materially impacting than the fabric of the architectural envelope but no less important in terms of the ordering and use of space are furniture and treatment of surfaces. These are discussed in Chapter Three with St. Augustine, Skirlaugh. The particularly strong ties between the building of the church and a single patron about whom much is known make examination of the relationship between patron and space possible. Skirlaugh's interior went through a period of reordering which signifies the take over of the church by the laity, whose spatial needs and whose theological understand differed from the founder's. Themes of the creation and re-creation of sacred space are important. Computer reconstructions of the two interiors - substantially different although the fabric itself was little altered - are interpreted within a theological and devotional context.

Light leaves no physical remains (other than faded colours) yet its importance in the use of space cannot be underestimated. In some ways it may be thought of as one of the elementary materials from which any building is built. In Chapter Four light is shown to have been deliberately used at St. Giles, Skelton to direct the attention of the occupants of the space to liturgically and theologically important places. The effects of this specific use of light are considered at important times throughout the day and year.

As important as light and equally ephemeral is sound. The audial experience of the Mass in the late fourteenth and early fifteenth centuries is recreated in Chapter Five at St. Patrick, Patrington. The acoustic effects of alterations to the church furniture are shown to have reordered the church's space. How the Mass was heard from different altars and strategies for controlling their associated acoustics are placed within the social and religious organisation of the parish.

Chapter Six is the final case-study. At St. Mary, Thirsk, it is shown that, while a visually unified space, it is composed of numerous smaller spatial units. The difference between where one could see and where one could go is explained in terms of the points-of-view of the divine and human occupants of the building. It is shown that each spatial unit is commanded by important liturgical or devotional objects which represent different manifestations of the divine presence. The processions of the High Mass unified the space by moving through it, turning the building into an ever-changing series of configurations offering opening and closing views which coincided with important liturgical moments. The difference of experience between the primarily sedentary laity and the active clergy is analysed and compared to the other churches in this study.

The Conclusion summarises the conclusions of the case studies and the use of the various methodologies. It also places the churches in chronological order, drawing a historical narrative of human/divine relational development and its expression in sacred space. It is argued that, ultimately, the experience of church space at the parochial level in

the late Middle Ages in the diocese of York was one that was guided by and given meaning by the encounter with God according to the understanding and priorities of each space's creators and users. Space is one medium in which the deepest hopes and desires of the people were given expression during the last centuries of the Middle Ages.

Chapter One: Virtual and Other Realities

Filippo Brunelleschi stood before the unfinished Florence Cathedral. In front of him was a picture of the Cathedral as he envisaged completing it but with the image facing away from him. In front of the picture, facing the image, was a mirror. In the picture was a pinhole. Brunelleschi carefully peered through it. What he saw was his new Duomo standing amidst the other buildings of the piazza, *virtually* complete.[1] The father of modern linear perspective is also the father of virtual reality.

Strictly speaking, virtual reality (VR) is the fully immersive computer-generated simulation of reality. True VR is expensive, impractical, difficult to use, and its advantages as a research tool in the study of the past are debatable.[2] It is not used in this study. Rather, VR is used in its wider definition as a human-constructed simulation of reality which is sensually intuitive. In as much as they are human-designed environments, the interiors of buildings themselves constitute a kind of virtual reality as well. In practice all of the techniques used in this study are computer-based, but VR does not necessarily rely on the use of computers, as Brunelleschi demonstrated. In a short time, the technologies for creating VR used here will become obsolete.[3] However, the utility of VR as a research tool is likely to remain. There are two reasons for its endurance. First, the presentation of results are intuitively understandable; that is, while any VR is an abstraction of reality it is not presented as an abstraction in the manner of a chart, graph or architectural plan. Second, VR gives its creators and sometimes its users complete control in four dimensions.

An important caveat, however, is that any virtual reality is not an adequate substitute for the real thing. The virtual realities presented here are tools employed in analysis and argument. They are not meant to take the place of the real churches. There is nothing better than visiting the church oneself, touching its stones, moving through its spaces, contemplating it in stillness. In relation to their virtual reality models, each real church is the Platonic ultimate reality, the original from which all of the imperfect copies

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1 R. Gregory, *Eye and brain: The psychology of seeing*, 5th edn. (Oxford, 1998), p. 175.

2 See E.L. Vote, D. Acevedo, D. Laidlaw, and M.S. Joukowsky, 'ARCHAVE: A virtual environment for archaeological research', in Z. Stancie and T. Veljanovski (eds.), *Computing archaeology for understanding the past: Computer applications and quantitative methods in archaeology, Proceedings of the 28th conference, Ljubljana, 2000*, BAR, International Series 931 (2001), pp. 313-316; for a discussion and case-study of fully immersive VR in archaeological research. One of the chief limitations of true VR as a research tool is that the results of such research are not easily reproducible since they are bound to the system with which research was conducted. The disadvantages of any computer-assisted analysis are considerably greater with true VR because it requires the user physically to interact with highly specialised computer equipment in an intimate way whether by wearing special goggles, gloves or other clothing connected to the computer or operating within a room the visual and audial properties of which are controlled by the computer. At present, no easily portable true VR system exists. When such a system that is also accessible both monetarily and by widespread use becomes available, its utility in research of past environments will become significant.

3 The development of Augmented Reality technologies is potentially revolutionary in the visualisation and study of the past. See A. Penn, C. Mottram, A. Fatah gen. Schieck, A. Wittkämper, M. Störring, M. Romell, O. Strothmann, A. Aish, 'Augmented reality meeting table: a novel multi-user interface for architectural design', In J.P. van Leeuwen and H.J.P. Timmermans, (eds). *7th International Conference on Design & Decision Support Systems in Architecture and Urban Planning 2004* (Eindhoven, 2004), pp. 213-220; and University College London, *Arthur*, Available: www.vr.ucl.ac.uk/projects/arthur for a description and case-study project in Augmented Reality.

are made. There is no substitute for leaving the cave with its shadows on the walls and seeking out the churches themselves in the bright light of day.

Virtual reality does not stand alone nor is it always the most useful tool for spatial analysis. Virtual models of each of the case studies were created but they were built using other techniques and analysed using a wide array of complementary methods and tools. Many of these are not a part of the standard analytical repertoire employed by researchers of the past. None was specifically designed for the study of the past. Therefore, some description and explanation of the methods and techniques used in the following chapters is an aid assisting readers in understanding how the results were achieved. Before the particular analytical methods of each chapter are discussed, a description of the basic process of creating a virtual medieval church is given in the form of a tutorial. The process described is the base procedure upon which the more advanced analyses of the individual chapters are built. It also demonstrates how a model, or an image of a model, can be a scholarly argument in its own right.

Building a Virtual Church

Equipment

Creating a computer model of a building, especially its interior, is not simply a matter of pointing equipment in the right direction and pressing a button. That is basic photography. The generation of computer models involves more equipment and much more time. Provided the model is to be based at least partially on a church existing in reality, survey equipment is needed. I used a five metre tape measure graduated in millimetres, 16 centimetre profile gauge, a Leica TST (705 or 1105 model), a Fujifilm Finepix 2650 two megapixel camera, drawing paper, a drawing board, notebooks, a pencil, and a piece of chalk. The tape measure, profile gauge, camera, drawing equipment and chalk are essential (although multiple, even longer tape measures are recommended and any kind of camera is adequate). Hand survey techniques are always preferable, if there is enough time, since they put the surveyor literally in touch with the building. They also develop a detailed understanding of the structure and frequently provide data that are more accurate and easier to transfer to CAD. The TST, which is more precise but not necessarily more accurate than hand survey, was used to measure features of the building that were inaccessible, but it is possible with the assistance of a ladder, ingenuity and courage to measure an entire structure without a TST.

Once the building measurements are acquired the modeling begins. It is not necessary to use expensive high-speed or sophisticated computer equipment or software to generate the basic three-dimensional geometry of a model. To accomplish the basics of computer modeling based on survey data the hardware I used was a 700mHz G3 Macintosh iBook with 640Mb RAM (already obsolete when I acquired it but sufficient to run the necessary software).[4] The primary software was the *Vectorworks* 10.5 Industrial version

4 I owe an enormous debt of gratitude to Stanley McFadden who provided this machine. Macintosh computers were used throughout because of their superior stability, lower susceptibility to viruses and compatibility with both MS Windows and Unix-based systems in addition to their native MacOS.

CAD package.[5] In individual practice any computer capable of running a CAD package with 3D drawing functions may be used. The critical point is that CAD, unlike 3D modelers, works in real-world coordinates based on survey data and ensuring that there is metric precision during and after modeling. Finally, some way to accurately convert 1:1 moulding profiles to vector drawings for use in CAD is needed. This is best done with a digitising tablet, but it may also be done by tracing and scaling scanned or digitally photographed copies of the profiles imported into CAD, although varying levels of error will be introduced by these latter methods.

Procedure – Surveying and drawing – A picture is worth a thousand words

The process of generating a three-dimensional model that is an accurate representation of the original is, in practice, varied, complex and unique to each model as well as the software being used. These stages depend upon the quality of the survey data and the methods used to build the model once the data have been transferred to the computer. These methods are as individual as each surveyor and modeler and are best learned through practice. This is not the place to present a detailed manual of how to either survey or model.[6] It is sufficient here to recognise that each model is developed based on some simple, fundamental principles described in the following example taken from St. Michael-le-Belfrey, York.

The modeling method I employed created churches on an architectural element-by-element basis. This had the primary advantage of producing an end result which was modular and could be configured and reconfigured in numerous ways. Medieval architects designed and builders also built on an element-by-element basis. Keeping this in mind while modeling a building gave insight into the development of the building itself. Modeling methods such as photogrammetry or LIDAR scanning which generate a complete, one-piece model are too rigid for most uses, are significantly more expensive to produce, and remove the researcher both from the way in which the building was built and from the fabric of the building itself. They are especially poor techniques for interior

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5 Thanks to the Elizabeth Salter Memorial Fund for supporting the purchase this software and the other commercial software used in this research. *Vectorworks* is a standard for the MacOS. There are alternatives: the poorly designed and prohibitively expensive *AutoCAD* is the Windows (and industry) standard. A limited but workable and multi-platform free 3D CAD package is *Design Workshop Lite* available: http://www.artifice.com/dw_lite.html Google has made *Sketchup*, an exceptionally easy, multiplatform, CAD-like modeler freely available at: http://sketchup.google.com

6 Some guides are: D. Andrews, B. Blake, M. Clowes and K. Wilson, 'The survey and recording of historic buildings and monuments', Association of Archaeological Illustrators and Surveyors, Technical paper 12 (1995); International Council on Monuments and Sites, *Guide to recording historic buildings* (London, 1990); H. Eiteljorg II, K. Fernie, J. Huggett, and D. Robinson, CAD: A guide to good practice, AHDS Guides to Good Practice (2002), Available: http://ads.ahds.ac.uk/project/goodguides/cad/; K. Fernie and J. Richards (eds.), *Creating and using virtual reality: A guide for the Arts and Humanities*, AHDS Guides to Good Practice (2002), Available: http://vads.ahds.ac.uk/guides/vr_guide/index.html; English Heritage, *The presentation of historic building survey in CAD* (Place and date not given). They offer some very general guidelines with examples for the use of CAD and VR. A brief description of one team's methods for generating computer models of existing Gothic ecclesiastic architecture for the purposes of conservation is given in P. Smars and D. D'Ayala, 'Parametric shape model for conservation oriented surveying', in *UNESCO world heritage in the Digital Age: 30th anniversary digital congress*. 2003. Available: http://www.virtualworldheritage.org/index.cfm?pg=Home&l=en but this uses software that was specific to the project and is no longer available.

survey. In the modular method I usually began modeling a church with the pier bases although one may begin anywhere.

The first step is the acquisition of survey data. When modeling moulded architectural elements (and most of the important elements of late medieval churches are composed of mouldings) a 1:1 moulding profile is taken. In the case of the pier bases of St. Michael-le-Belfrey this was taken by hand using a profile guage (Pl. 2, Fig. 3). Inaccessible mouldings may be taken in sufficient detail with a TST. As many sections of the element as are necessary are also taken. At St. Michael-le-Belfrey three sections were necessary for the pier base: the floor-level section of the pier base was plotted using hand tapes set at right angles, the section through the widest part of the base moulding was built up with the profile gauge, and a section through the pier itself was likewise created. The position of the pier base in the church was taken with a TST. A photograph of the base completed the survey of this element.

Modeling is done later at the computer. The moulding profiles and sections must first be digitised. In this case they were traced on a digitising tablet which produced vector-based copies of the originals. These files were then transferred into CAD where they were cleaned up in order to generate the most geometrically efficient three-dimensional models while maintaining accuracy. The St. Michael-le-Belfrey base moulding profile was then broken into two parts since the geometry of the base is in two separate parts: one referring to the section of the base at floor level, the other corresponding to the section of the base at its widest. The section through the widest part of the base was also broken into four arcs from which the radius of each lobe was taken (Fig. 4). To create the three-dimensional model the lower portion of the base profile was extruded along the path represented by the section of the base at floor level. This produced the 'plinth' of the St. Michael-le-Belfrey pier base in three dimensions. The upper portion of the base moulding was swept around a circle of radius equal to the radius of the section's component arcs to produce four three dimensional models of the upper portion of the pier base (Fig. 4). These four 'sweeps' were then positioned together according to the appropriate pier section and grouped so that they formed a single object in virtual space. These grouped sweeps were then placed on top of the extruded plinth and the pair was grouped. Finally, the section of the pier itself was extruded greater than the height of the actual pier. This 'extrude' was then set atop the built base and 'nudged' down until the four hollow fillets of the pier disappeared entirely into the four sweeps of the upper base. This composition was grouped again and the three-dimensional St. Michael-le-Belfrey pier base was complete (Fig. 4). The final stage was to position it within the church based on the coordinates generated by the TST. Since every pier base at St. Michael-le-Belfrey is essentially identical, the completed base was replicated ten times (the arcade responds are different and were modeled separately) and positioned according to the TST coordinates taken for all bases. For the experienced surveyor/modeler this process would take between six and eight hours from initial survey to final model. In a church with greater variation of

detail, such as Patrington, the process could take a week or longer. It takes a thousand words to describe. The resultant image takes less than a second to comprehend.

The survey and modeling process for the remainder of the building follows these same essential steps of survey-model-position; although, of course, each individual element of each building is different and requires greater or lesser variations to the process outlined above. In this way an accurate, three-dimensional model of a church based on survey data may be created. If elements of a building which no longer exist are modeled (based on archaelogical and documentary evidence) the resultant picture becomes an expression of a historical argument since it is an interpretation of evidence. The panorama of St. Michael-le-Belfrey (Movie 1), for example, shows furniture, windows and doors for which there are archaeological or documentary evidence but which do not now exist. It is an argument for how I believe the space was ordered *c*1537. Another researcher may have a different interpretation. They could rearrange the elements of the model to present their own ideas. This is a powerful way of concisely and intuitively presenting such an argument. Other aspects of a building such as painting, glazing, the point-of-view of an observer, motion, etc., all based on physical or documentary evidence can be included which add multiple layers of interpretive significance to an argument. The methods for building up these layers which are used in the following chapters are presented below.

Chapter analytical methods and technologies

Chapter two: The spatial envelope – St. Michael-le-Belfrey, York

The analytical methods begin with the two-dimensional and conventional techniques of fabric analysis; fabric being the most basic component of space defining its geometric bounds. At St. Michael-le-Belfrey the development of the fabric is important. Historically, the present church building has always been understood as being entirely rebuilt from the ground up during the Reformation, begun when England was officially Catholic and finished under the Act of Supremacy and the establishment of the Church of England. Its fabric tells a somewhat different story; one of reordering of spatial emphasis rather than total reconstruction. Close analysis of the fabric reveals the degree to which the building and its space were changed.

In essence, fabric analysis is survey. It is part of the standard methodological toolkit of archaeologists and, to a lesser degree, architectural historians. At St. Michael-le-Belfrey hand survey was used extensively since almost every moulding was directly accessible from the west gallery. Instrument survey was used to find the positions of these details and the general dimensions of the space. The most painstaking work was carried out on the exterior of the building where stone-by-stone drawings of the visible portions of the east, north and south walls were made. Here, photogrammetric techniques were used. Photographs of each bay were taken. The dimensions of the bays were determined by TST and the perspective distortions in the photographs were removed based on these data using photo-manipulation software called *DigiCad3D* (Pl. 3). These photos were then imported into *Vectorworks* where each stone was traced. The resulting drawings were printed, taken

back to the church and corrected on site (Fig. 5). The corrected drawings then formed the basis for conventional archaeological analysis of the building's construction history.

More advanced photogrammetric techniques were also employed in modeling the exterior of the building. A series of overlapping photographs of all visible portions of the exterior (including the roof, which was visible from various vantage points on the Minster) was taken. *Photomodeler* software was then used to generate a three-dimensional wireframe model based on these photographs which was sufficient to allow the basic masses of the exterior to be generated without the need for extensive instrument survey. This type of photogrammetric software is also used for site insertion projects where a virtual architectural model is accurately inserted into a photograph of a real-world location – the digital equivalent of Brunelleschi's mirror technique.

Chapter three: Creation and re-creation – St. Augustine, Skirlaugh

Fabric is only the most basic of elements defining space. Other physical aspects of a building can be equally influential on its organisation and perception. A building's space can be dramatically altered simply by the inclusion or rearranging of furniture or by altering the rendering of surfaces without changing the physical fabric at all.[7] The simple stone box of St. Augustine, Skirlaugh demonstrates this very well. Conceived by Walter Skirlaw Bishop of Durham in 1404 originally as a chantry chapel with some parochial responsibilities, the chapel moved gradually into the sphere of the laity, essentially becoming a parish church. This shift of purpose was manifest in the building of a tower (which did little to alter the space itself) and spatially in a major reordering of furniture including the introduction of a roodscreen and loft and repainting the walls. The effects of these alterations can be vividly portrayed by comparing virtual restorations of the interior at the time it was first built and at the end of the Middle Ages.

One of the most common uses of computer modeling of historical architectural space is for purposes of visualisation and virtual restoration.[8] In the context of medieval ecclesiastic architecture perhaps the most ambitious work of virtual reality reconstruction is the ongoing *Cistercians in Yorkshire* project which is 'rebuilding' five complete monasteries and making them interactively explorable on-line.[9] An infrequently discussed but important benefit of using computer reconstruction in research is that it can make problems or difficulties arising from the restorer's interpretations instantly apparent because it forces the researcher to think and operate practically. The act of virtually refurnishing a church

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7 This is the configurational nature of space. B. Hillier, *Space is the machine: A configurational theory of architecture* (Cambridge, 1996), pp. 29-42.

8 K. Devlin, A Chalmers and D. Brown, 'Predictive lighting and perception in archaeological representations', *UNESCO world heritage in the Digital Age: 30th anniversary digital congress* (2003), http://www.virtualworldheritage.org/index.cfm?pg=Home&l=en; see also Vote, Acevedo, Laidlaw and Joukowsky, 'ARCHAVE', pp. 313-316; J. Kantner, *Virtual reality in archaeology* (Oxford, 2000); and especially M. Zhukovsky, 'Virtual 3D reconstruction of the Kiafar site, North Caucasus, Russia', in Z. Stancie and T. Veljanovski (eds.), Computing archaeology for understanding the past: Computer applications and quantitative methods in archaeology, Proceedings of the 28th conference, Ljubljana, 2000, BAR, International Series 931 (2001), pp. 297-301, for a good evaluation of the value of VR reconstruction and its application to a poorly-funded archaeological project.

9 *The Cistercians in Yorkshire*, Available: http://cistercians.shef.ac.uk/index.php

with pews, for example, can make issues of seating capacity, circulation of movement, and accommodation instantly apparent and lead to major revisions of the restorers' hypotheses. Virtual restoration also has the tremendous advantage of enabling the exploration and presentation of alternative restorations or of restorations of buildings at different times (Movie 8 shows Skirlaugh's exterior in two different periods). It can show in an instant the dramatic spatial, perceptual and experiential differences effected by relatively minor alterations to a space, or by alterations which do not affect the physical properties of a space at all. For spaces which are at present ambiguous, virtual restoration can be illuminating in determining former use and spatial priorities.

At Skirlaugh the methodology was relatively simple. The church was surveyed with special emphasis placed on the inclusion of archaeological details such as the scars in the north and south interior walls which indicate the position and relative dimensions of the former roodscreen and loft. The photographic record was also key since it recorded the traces of successive campaigns of interior wall painting as well as the relationship of the painting layers to the furniture. A computer model was built and a suite of church furniture installed. The dimensions of the screen and loft were based upon archaeological evidence at Skirlaugh while the remaining furniture was loosely based on examples found in Thirsk and several East Anglian churches. Alternative versions of the model were created which showed the church as it may have appeared at different times in the past. The greatest external change was the virtual removal of the west tower for the St. Augustine of 1404. Internally, the changes were more spatially impacting and dramatic. Models of the church in 1404 and in *c*1540 were created showing restorations of their very different decorative treatments and furnishing.

Most difficult to restore were the painting schemes. This was an exercise in texturing (the process of assigning colour, surface properties, and images to virtual surfaces). Image-based textures taken from surviving late fifteenth and early sixteenth century examples elsewhere were applied to the walls of the 1540 model.[10] The 1404 painting schemes were somewhat more difficult since they involved texturing techniques which 'painted' and 'stamped' textures directly onto the surface of the model. The surviving early wall painting at Skirlaugh shows that some of the stenciling or stamping was done in a pattern that, while regular, respected physical features and displayed a level of randomness in its distribution. Such 'hand-made' randomness in digital texturing can only be achieved through a 3D painting technique which allows the user to directly control how textures are spread over the surfaces of multiple objects. The technique also has the advantage of being closer to the way in which wall paintings were applied in reality than is possible in more conventional texturing techniques. This kind of digital painting technique has only become available in the past six or seven years. In this case the industry-leading software *Bodypaint* was used.

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10 Photos of wall paintings were taken from www.paintedchurch.org and then modified to correct perspective distortions, colour and contrast balances, and to fit the Skirlaugh model.

Chapter four: Light – St. Giles, Skelton

Fabric, fittings and decoration are only the basic elements defining and configuring space. There are other elements, less material and static but no less important, which order space, define place within it and guide experience and perception. Such are light, sound, colour, temperature, time, among many others. Simon Unwin calls them 'modifying elements' which are the factors that modify the physical elements of architectural design and our experience of architecture.[11] They are part of the conditions of architecture – no architecture can exist in reality without them although they depend upon the basic elements of the built fabric and are therefore an analytical step beyond the factors considered in the two previous chapters. Modifying elements are frequently dynamic in that they move or vary, sometimes unpredictably, and are time-dependent. They therefore leave little physical trace, are difficult to quantify, and operate at a sensory and perceptual level which is subjective in nature and difficult to represent by the conventional means of drawings on paper. Therefore, archaeologists and architectural historians have tended to ignore them. However, it is these modifying elements which create the experience and perception of architecture because it is these elements which provide the sensory stimuli that is the basis of human experience. The most important modifying element is light because it 'is a *condition* of architecture, but it can also be used as an [architectural] element.'[12] The fact that data concerning past lighting strategies exist for any building for which evidence for windows or for artificial lighting exists means that this should become one of the standard methods for analysing architectural space; especially spaces of ritual importance where light is frequently a part of religious and ritual symbolism.

Computer modeling is especially powerful in analysing the use of light in space because it can realistically simulate the effects of any actual or theoretical lighting system. It is technically possible to predict precise lighting levels within any space lit by any number of sources. This includes the sun itself, the lighting properties of which can be modeled for any known space anywhere on earth for any time of day, any day of the year, any year in time. Since the design of St. Giles, Skelton is so deliberate in the way in which it admits sunlight into the interior, the church is an excellent case study not only for the application of various computer modeling and lighting analysis techniques but also for the examination of how light is used in this particular space to influence experience and to convey its creators' intentions for how the space was to be used.

At present physically accurate daylight simulation is one of the most computationally demanding tasks one can set a computer to doing.[13] The more complex the computer model, the longer the simulator will take to achieve a solution. For example, it took a 2.7MHz dual processor G5 PowerMac with 2Gb RAM (a very fast desktop computer by the standards of 2005)[14] running the radiosity solver in the *Cinema4D*

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11 S. Unwin, *Analysing architecture* (London, 1997), p. 25.
12 Unwin, *Analysing architecture*, p. 25.
13 G. Ward and R. Shakespeare, *Rendering with Radiance: The art and science of lighting visualization* (San Francisco, 1998), pp. 14-15.
14 A great debt of gratitude is due to Prof. Gary Green, the staff and students of the York Neuroimaging Centre for the use of their computers.

modeling package over thirty-six hours to create a cylindrical *QuickTimeVR* panorama of the interior of the nave of St. Mary, Thirsk lit only by sunlight (Movie 2). To generate the cubic *QuickTimeVR* panorama of the interior of Skelton the same computer took about twenty-four hours (Movie 15).[15] This generation time can be reduced or lengthened (with lesser or greater results) in any number of ways, and it can take days or even weeks to achieve the most acceptable compromise between speed and accuracy.

Generating a daylight interior scene via computer depends on the complexity of three factors: the model, texturing and the renderer. The complexity of three-dimensional computer models is measured in terms of its polygon count. Every three dimensional model is composed of polygons (Fig. 6). Most computer modeling software uses, at the most fundamental level, triangles to make up more complex polygons. Each polygon has three basic attributes in virtual space: position, rotation and scale which are defined by a series of numerical coordinates. Changing any one of these attributes will change the appearance of the three-dimensional model. Fortunately, computer models today do not have to be built through laborious text-editing methods where the model-maker must write out the geometry of the model through text-based code, never seeing the model itself until it is completed. Therefore, most modelers do not build their models on a polygon-by-polygon basis. They rely on their particular software package to automate this process.[16] The drawback to this automation is that it is easy to rapidly create overly-complex geometries. The more complex the geometry, the higher its polygon count, the longer it takes to a render a lighting solution. However, high polygon counts are unavoidable when creating detailed architectural models of ornate stone-built structures based on survey. Actual polygon counts differ widely depending on what modeling package is used. For example, the *Cinema4D* model of St. Giles, Skelton is composed of around 1,000,000 polygons while the *Vectorworks* version has far less (Fig. 6). Long rendering times are one of the particularly frustrating hazards of any architectural daylight simulation.

Once the model has been built, it must be textured. Texturing is the process of creating and applying the 'covering' of the individual polygons. At its most basic a texture is simply a colour. At its most complex, a texture can be a multi-channel procedural micro-program running within the rendering package itself. Like the model, the more complex the texture, the longer it takes the renderer to produce a solution. A texture controls how virtual light interacts with the surface of the model which determines how it looks. Textures can be glossy, or matte, smooth or rough, opaque or transparent, etc. Most of the church models in this study use simple textures that are either uniform colours or image-based. The colour textures are simply a colour (the value of which was chosen from digital photographs) approximating the real-world colour of the stone or wood object being textured and the reflectivity (or, 'specularity') of the object was set appropriately. Image-based textures apply images to objects. They tend to be used for specific parts of specific

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15 It is somewhat quicker to build a cubic panorama than a cylindrical one, but the radiosity solutions of the cubics are correspondingly less accurate sometimes producing 'seams' between the faces of the cube.

16 Software such as *Radiance* and *Odeon*, which rely on computer models but are not modelers themselves, are still based on text-modeling, making transfer of models created by other software problematic.

objects; the glass in windows, or paintings on walls, for example. For the Skelton model only colour textures were used. Image-based textures were avoided because of the time they take to create and because of the problems they cause in the generation of physically accurate renderings.

Rendering refers to the process by which a software package draws a computer model. At its simplest this produces a 'wireframe' which is a drawing composed of lines representing the edges of every polygon (Fig. 6). The next step displays a solid model showing the outside surface (called a 'normal') of every polygon rather than the edges. Only the most elementary shading is applied to distinguish depth, but the shading is not based on any physically rigorous model of the behaviour of light. There are numerous types of shading which render solid models based on more or less accurate interpretations of lighting behaviour. The photorealistic rendering of light uses a technique often called 'radiosity' which is the most computationally intense. Every rendering program calls these different methods of shading different names but most operate based on similar algorithms.

The difference between rendering algorithms is important. Raytracing is a rendering technique which calculates each pixel of an image based on invisible rays emitted by the camera (the origin of the point of view of each scene). This technique is akin to the pre-modern conception of vision being the result of beams being sent out of the eye into the real world. If a ray strikes a surface, the computer calculates the colour value for that strike based on the surface texture and the settings of all lights in the scene. If a ray strikes no surface, the pixel is given the default background colour. Where the raytracing algorithms differ is how they handle the behaviour of light which is essentially done in one of two ways. In non-radiosity techniques light is treated as though it did not bounce. Therefore, in a space with enclosing walls, floor and ceiling, light would enter in at the windows and only illuminate what it directly fell upon – in the manner that the headlights of a passing car seem to do at night from the perspective of a viewer standing in a dark room. While this method produces results much more quickly (seconds instead of days), the results are not convincing depictions of reality. In order to achieve some semblance of reality using this rendering method a complex 'light rig' using many light sources must be employed. Such a light rig was used in lighting the sections of Skelton (Fig. 37). Radiosity raytracing techniques, by contrast, take into account the fact that not only does light bounce from surfaces, depending on surface properties, but that the reflecting surface also colours the light. Therefore, with a radiosity technique, a single light source such as the sun, is capable of fully illuminating a virtual interior with both direct (the minority) and indirect (the majority) lighting. There are several radiosity techniques which have varying levels of physical accuracy. Most, however, use a raytracing algorithm which only approximates real-world lighting behaviour optimised for speed over accuracy. These methods rely on limiting the number of times light photons bounce through the scene. The more bounces, the better the results but the longer it takes to achieve a solution. Therefore, most radiosity renderers use a number of methods such as stochastic sampling and limiting

the number of bounces traced to achieve the best compromise between speed and accuracy.[17] This method produces an image which is generally realistic. However, it is not physically accurate because the physical properties of different light sources and materials and their interactions are not taken into account.[18] The most physically accurate algorithms are those developed by the creators of the *Radiance* renderer which is the standard for lighting engineers needing precise, reliable and quantifiable results.[19] *Radiance* is also freely available.[20] It is one of the most difficult and least intuitive renderers to use since model building and texturing are text-based. Unlike any other renderer, however, *Radiance* produces images which are based on real-world measures which can be statistically manipulated in numerous ways making *Radiance* a powerful analytical tool.

For Skelton, three basic raytracing rendering methods were used: the solid model showing the normals but with only basic shading, a more realistic rendering which accurately shades the normals but does not accurately simulate the real-world behaviour of light, and radiosity. Basic shading was used in the time-lapse movies showing the path of sunlight through the church during specific days of the year and for the alternative roof reconstructions (Fig. 47). Mid-range rendering was used for the sections (Fig. 37). Time-intensive radiosity solutions were produced only for the panoramas and some of the light-dependent plans where the photo-realistic quality of light was essential to the aims of the chapter (Movie 12). The radiosity implementations of *Radiance* were also employed (Fig. 57). In the radiosity images the only light source is the sun.

The sun, of course, is not static in the way that a light bulb is static. Its position varies depending on the location of the observer, the time of day and the year. Many rendering packages include a virtual heliodon for calculating this based on the latitude and longitude of the model and the desired time. It was necessary to calibrate the Skelton model with the real-world position of the church itself and within the specific historical context of the church's building. The first part of this task was relatively simple since the latitude and longitude of the church were easily obtainable.[21] The orientation of the church was determined by taking the average of a series of compass bearings along the north and south aisle walls and then averaging these. But it was not enough to simply orientate the model correctly and render the scene with the sun at an arbitrary position. The possible significance of positions of sunlight within the building on certain days of the year is also important. However, this could not be modeled based on the present Gregorian calendar system since this only came into use in 1582. Indeed, even the significance of time of day required a thirteenth-century Yorkshire rather than a twenty-first century global sensibility.

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17 The algorithm used by the *Cinema4D* radiosity solver which is sometimes used in this study is briefly described in MAXON, *Advanced Render R9* (No place given, 2004), pp. 14-15.

18 Ward and Shakespeare, *Radiance*, pp. 6-8, 14-15. For the *Radiance* renderings used in this study window glass was omitted. Significant errors can be introduced by virtual glazing if the exact reflective and refractive properties of the original glass are not known. It was thought more time-efficient and effective for the purposes of this study to leave the windows without glazing. What is of interest in this study is not the exact appearance of each window, but how they directed the light within the space itself.

19 *Radiance* has been rigorously tested against real-world examples numerous times. For a summary of *Radiance's* accuracy see Ward and Shakespeare, *Radiance*, p. 9.

20 Available: http://radsite.lbl.gov/radiance/

21 Available at: http://www.streetmap.co.uk

Important times of day were fairly easy to determine based upon the nineteenth century work of Christopher Wordsworth whose research made it possible to reconstruct the times of the daily round of Office and Mass during the later Middle Ages in England, and the diocese of York in particular.[22] Reconciling the pre-Reformation Calendar of the Use of York with the post-Reformation Gregorian calendar was a more difficult process. Fortunately, Dershowitz has created algorithms for reconciling numerous historical calendars, including the medieval Julian calendar.[23] For example, using this resource it was possible to determine that 1 September 1247 – the feast day of St. Giles in the Use of York for the year of the earliest record of the chapel in Skelton – was actually 8 September in the Gregorian reckoning of solar time.

The final technical requirement of lighting simulation at St. Giles was to determine the precise times of sunrise and sunset at Skelton for the year 1247 and their positions on the horizon. Numerous astronomical software packages doing precisely this are freely available. In this case I used *EquinoX*.[24]

Chapter five: Sound – St. Patrick, Patrington

Sound, like light, is a modifying element of space dependent on fabric and fittings. In the late medieval liturgical use of sacred space it is especially important. Architectural daylighting is a recurrent and predictable phenomenon which is determined by the position of the building and the arrangement of its windows. Sound, however, while affected by the space in which it is produced (which is predictable and therefore measurable) is equally dependent on the producer and listener, hence is subjective and less easily quantifiable, adding an additional layer of complexity. In studying past sound in space, therefore, the objective properties of the space combine with the subjective experience of the observer. In prehistoric spaces the sounds meant to have been performed are irrecoverable. For the historic period musical notation survives and, in a specifically liturgical context, prescriptive systems governing its performance also exist, allowing acoustic analysis to contribute to meaningful understanding of space. Acoustic analysis of the late fourteenth-century space of St. Patrick, Patrington was chosen because it is the only space of the five case studies to show evidence for specifically acoustic development. When the vaults were introduced into the Lady Chapel and the unusually large roodloft which probably contained an organ was installed in the first bay east of the crossing the acoustic properties of the church were radically altered. While most of the other case studies doubtless possessed roodlofts of their own, and Thirsk and St. Michael-le-Belfrey likely possessed pre-Reformation organs like Patrington, only at Patrington was the space altered with specific reference to its acoustic properties.

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22 C. Wordsworth and H. Littlehales, *The old service-books of English church*, 2nd edn (London, 1910), pp. 18-20.

23 N. Dershowitz and E. M. Reingold, *Calendrical Calculations* (Cambridge, 1997). Implementations avail.: www.calendarists.com (also available at http://www.ortelius.de/kalender/form_en2.php#notes).

24 Available at: http://www.microprojects.ca/MPjEquinoxPage.html

The computer modeling of sound has much in common with the simulation of light. The techniques used to achieve both in regards to their architectural application are essentially the same. An accurate survey of an existing building and the computer modeling of that building at a specific point in time are essential, although a model produced for acoustical purposes should not be as highly detailed as that produced for visual purposes.[25] Instead of rendering light within the space, sound is rendered. There are vastly fewer software options available for acoustic analysis than there are for lighting simulation and all of them are prohibitively expensive. The standards are *Odeon* (used here) or *CATT*. Both are complex, rather unwieldy packages, with difficult geometric modelers. The real-world accuracy of these and other packages are variously reliable and their appropriate application depends on the needs of the user.[26] Regardless of the software used, the results of sound rendering can take hours or even days to produce since raytracing algorithms similar to radiosity are used. Most of the industry standard acoustic modeling software is less reliable for sounds in the lower frequencies (under 500Hz, for example) and this is because the algorithms used treat sound as rays the paths of which zigzag sharply as they bounce off of surfaces. But real soundwaves, particularly the large, low-frequency waves, both bounce and bend. This behaviour is especially complex to simulate although Dr. Damian Murphy[27] has developed a software package (*Roomweaver*) which does precisely this. It is hoped that it will be commercially released with a user-friendly 3D modeler so that its superior rendering methods can be easily employed. For the present purposes *Odeon* was deemed 'good-enough' since church spaces do not generally have a sensitive low-frequency response.

A rendered sound model is usually analysed in two ways: by the direct analysis of any number of acoustic measures or by auralisation. Auralisation is the audial equivalent of the visual display of the results of a daylight simulation. It is a form of analysis which can be comprehended instantaneously through the observer's senses. If auralisation is chosen, however, another stage in the modeling and rendering process must be taken – the producing of sounds to be heard within the virtual space under analysis.

While the advantages offered by the quantitative analysis of architectural acoustics are great, not least because they offer objective data which can be manipulated in any number of statistical and graphical ways, the auralisation (the actual experience of hearing the model) has a greater impact and is more easily appreciable (Track 15). Because auralisation requires the source sound to be as acoustically dead as possible (anechoic), the simple importing into the model of pre-recorded late medieval chants and music from the Mass is unsuitable. These types of recordings invariably include the acoustic of the space in which they were performed, especially since it is generally felt that the performance space itself is an essential 'instrument' in the performance. An additional historical

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25 C.L. Christensen, *ODEON Room Acoustics Program Version 7.0, User Manual* (Lyngby, 2003), pp. 17-18.

26 I. Bork, 'A comparison of room simulator software: The second round robin on room acoustical computer simulation', *Acustica* 86 (2000): 604-609.

27 University of York Department of Physics and Electronics.

complication for this case was that the music would have to be specific to the late medieval Use of York, of which no recording existed. A new recording was therefore necessary to produce an accurate and successful auralisation.

The production of acoustically dead recording requires an acoustically dead recording space: an anechoic chamber. Fortunately, the University of York possesses a semi-anechoic[28] chamber the properties of which were suitable for this project. Once the recording space had been procured, a singer and appropriate material for him to sing were required. The material was provided by the notation printed in the first volume of the Surtees Society edition of the York Missal.[29] These brief pieces are plainchant settings of the priest's portions of the Mass according to the Use of York. The role of priest was ably filled by Mr. Nigel Holdsworth who is a cantor at All Saints North Street and who was able to transpose the medieval notation into modern form. On two days in August 2005 Mr. Holdsworth made numerous recordings in the chamber.[30] Singing, however, is acoustically different from speaking. Since both elements were present in the typical late medieval High Mass, anechoic recordings of prominent spoken sections of the service were also required. The Bidding Prayer, the only part of the Mass in the vernacular, and the Great Cursing, read four times a year in English to the parishioners at Mass, were chosen.[31] Since late medieval English is somewhat different both in its vocabulary and its sound, a person experienced in Original Pronunciation (OP), preferably with a native Yorkshire accent, was necessary. Mr. Mike Tyler, Artistic Director of the 2006 York Mystery Plays, agreed to record the Bidding Prayer and the Great Cursing in the chamber. The chant and spoken-word recordings are, to my knowledge, the only recordings of this material in existence. That they are anechoic recordings makes them very useful to anyone wishing to study the acoustic properties of pre-Reformation churches in the diocese of York or in England generally. However, on their own they lack much of the necessary life added by an appropriate performance space.

The recordings were then convolved through the virtual space in *Odeon* and the resultant auralisations generated. Examples of the difference between anechoic recordings and auralisation are demonstrated on Tracks 40 through 42 on the accompanying Audio CD. Also present on the CD are anechoic and auralised versions of organ music since the development of roodlofts and organs in parish churches appear to be related.[32] The anechoic Bach piece was provided by *Odeon* and, while anachronistic, was included as a demonstration of the bass-deadening effects of Patrington's acoustic properties. More historically accurate is the very short Organetto piece. The Organetto was a small, portable

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28 Semi-anechoic because the floor is a bare concrete slab rather than covered with acoustic foam. The effects of this floor can be rendered acoustically dead if the area around the mic and performer are surrounded by pieces of foam.

29 W.G. Henderson (ed.), *Missale ad usum insignis ecclesiae Eboracensis*, SS 59 (1874).

30 Recorded with a monodirectional microphone, MOTU Firewire equaliser, and *Audacity* recording and editing software freely available at: http://audacity.sourceforge.net/download/mac

31 W.G. Henderson (ed.), *Manuale et processionale ecclesiae Eboracensis*, SS 63 (1875), pp. 119-127.

32 F. Bond, *Screens and galleries in English churches* (London, 1908), pp. 107-123; F. B. Bond and B. Camm, *Roodscreens and roodlofts* (London, 1909), 1: 82-87; F. Harrison, *Music in medieval Britain* (London, 1963), pp. 197-213.

organ common in the Middle Ages and often present in churches.[33] The recording is of a replica instrument and is not strictly anechoic.[34] However, it seems to have been recorded out-of-doors, which, on a still day without any man-made or animal sounds is practically anechoic. In any event, there is no appreciable acoustic in the recording and it was ideal for inclusion in the study. Finally, the Kyrie on the CD is also anachronistic. It is a single-voice setting of the Kyrie of the anonymous sixteenth century *Missa de Angelis*. It was included for two reasons: there was no printed notation for a York Kyrie and it was simply beautiful, especially after auralisation, demonstrating most clearly how the space of the church could become an accompanying musical instrument in its own right.

Chapter six: Point-of-view and motion – St. Mary, Thirsk

No space is experienced in stasis. Some degree of motion is inherent, whether this is simply the approach to the exterior of the building or an elaborately choreographed procession which includes a building's interior and exterior. The point-of-view of the individual is central to the experience of space, but this is guided by the basic and modifying elements of the architecture. As an observer moves about a building their view of that building changes. In medieval churches this is especially important as the semi-permeable spatial dividers composed of screens, arcades and arches structure what can be seen depending on the observer's position. Within the late medieval ritual framework, which placed great importance on seeing, how churches guided visibility was paramount. The same ritual framework also made specific use of motion which was contained and structured by the church building and its furniture. Seeing and moving are the fundamental elements inherent in the experience of any late medieval church. At St. Mary, Thirsk the interior devotional topography and the arrangement of its furniture can be reconstructed with a high degree of certainty based on the substantial physical remains and ample documentary evidence. This makes analysis of this most objective experience of sacred space possible. The mutually influential roles of visibility and motion require analysis by a variety of conventional and developing methods operating in two to four dimensions.

The simplest and most conventional analytical methods are those of access analysis first developed by Bill Hillier and Julienne Hanson.[35] This is a method which reduces the plan of any spatial system into a schematic representation of spatial relationships in terms of access (Fig. 89). Social and cultural interpretations are then based on the layout of these schematics; especially on how restrictive the system is. The method is widely employed by archaeologists since it allows for the quantifiable comparison of complex spatial systems.[36] It is also easy to generate, requiring only knowledge of the plan of the system. How the

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33 C.J. Cox, *Pulpits, lecterns and organs in English parish churches* (London, 1915), pp. 209-210; S. Bicknell, *The history of the English organ* (Cambridge, 1996), pp. 26-37 for technical and historical discussion of small organs in English churches in general and analysis of the surviving fragments of two pre-Reformation parish church organs.

34 The recording is available at: http://www.twingroves.district96.k12.il.us/Renaissance/Town/Music/RenSound/OrganPrin.snd

35 B. Hillier and J. Hanson, *The social logic of space* (Cambridge, 1984).

36 See, for example, G. Fairclough, 'Meaningful constructions - spatial and functional analysis of medieval buildings', *Antiquity* 66 (1992): 348-366.; and Markus, *Buildings and power, passim.*

configuration of a space affects visibility (and to some extent motion) is related to Hillier and Hanson's work on space syntax and has been given a powerful analytical tool set in Alisdair Turner's *Depthmap* software.[37] This produces and performs a number of analyses of visibility graphs generated from two-dimensional vector-based plans of spatial systems (Fig. 90). Using these two analytical methodologies the possibilities of where one can go and where one can see at Thirsk are established. However, these are two-dimensional, objective abstractions of four-dimensional, subjective space and as such are both artificial and limited in what they reveal about the use of space and interpretation of its organisation within the church. More subject-dependent and dynamic approaches are necessary.

In the analysis of St. Mary, Thirsk a method for the schematic representation of four dimensional space is proposed which quantifies the degree of visual change an observer experiences moving through a space. While schematic and therefore two-dimensional and abstract, it is based on more intuitively appreciable representations of space both from particular points-of-view and in motion. In this case movies can be powerful visualisation tools. Unlike the movies generated for Skelton where the observer remained stationary, the movies of Thirsk include the observer's motion in order to recreate liturgical motion through the mid-fifteenth century space. One movie also allows the user to explore the space in any order they choose (Movie 20). The technique for creating the movies is a standard form of computer animation – in this case a technique called 'camera animation'. Here a movie is produced by the motion of a virtual camera though virtual space. The movie is created from a handful of 'keyframes' or particular points-of-view which define the position and rotation of the camera (cameras have no scale) at key moments in the animation – at the step down from the chancel, for instance, or for the four positions needed for navigation around the font (Fig. 7, Movie 3). The computer then calculates the transitions over time for all of the frames between the keys. At Thirsk, the motion of the camera was based on processional routes prescribed by the York Processional supplemented by the Sarum Processional.[38] The keyframes were determined by the positions of important devotional foci such as altars or images known from testamentary evidence and for which locations were recorded. Animations of processions from the points-of-view of both a participant and an observer were created which make simultaneous analysis of the motion of a single event from multiple points-of-view possible. While these animations are intuitively understandable, they are unquantifiable. For quantification a different approach was taken.

The four-dimensional schematic system itself is described in Chapter Six. The schematic system relies on a series of isovists (points-of-view), or viewsheds, which represent the area of a space visible from a specific point-of-view.[39] Isovists were generated in three dimensions (they are usually created in two, but this is less reliable) from

37 Freely available to academic researchers at www.spacesyntax.org

38 Henderson (ed.), *Manuale et processionale*.

39 For the origin of the term 'isovist' see C.R.V. Tandy, 'The isovist method of landscape suvey', in H.C. Murray (ed.), *Symposium: Methods of landscape analysis* (London, 1967), pp. 9-10, cited in A. Turner, M. Doxa, D. O'Sullivan, and A. Penn, 'From isovists to visibility graphs: A methodology for the analysis of architectural space', *Environment and planning B: Planning and design* 28 (2001): 1.

the points-of-view of the important liturgical and devotional foci within a model of St. Mary. This has the double benefit of showing how much of the church space had a view of each focus and also how each spatial unit at Thirsk was dominated by the 'arcs of address' of these important objects which represented the Divine presence.[40] The individual isovists are observable if a parallel top view of the model (a horizontal section through the model; like a plan but in three dimensions) is rendered without radiosity illuminated by a single light source placed at a given focus and the floor level raised to average eye height (5 feet - 1.5 metres) (Fig. 8). The illuminated area of floor represents all that the focus can 'see' (or all the places from which the focus can be seen) and the area in shadow represents areas where the focus cannot see (or be seen). These isovists establish the network of intervisibility between important foci and within which human observers moved. A similar method can be taken to generate a dynamic isovist from the point-of-view of an observer moving through the church. In this method, the light source represents the observer. As it moves through the space, the play of light and shadows becomes a dynamic isovist (Movie 21). Each frame of the animation represents the isovist at one moment during motion. The dynamic schematic is then built from key moments or 'stations' of the dynamic isovist. An interactive analysis of the four-dimensional visibility possibilities of different stations can be created through generating a multi-node *QuickTimeVR* cubic panorama movie where each node is the point-of-view from each station (Movie 20). This allows the user to navigate through the space in any order desired, experiencing the full range of visibility possible from significant positions within the building. The physical limits and ordering of space, perception, and multiple points-of-view are all considered in this methodology.

Conclusion

Buildings are more than the sum of their parts. They are not simply design and fabric to be subjected to the two-dimensional 'paper-space' analytical methods of conventional archaeology and art history. Buildings are fundamentally composed of fabric and space which exist in four-dimensions and are understood through experience. The rise of VR and other computer-assisted analytical methods gives researchers unprecedented control over their material and documentary evidence. Buildings research should only necessarily be limited by the imaginations of the researchers themselves, rather than by technical limitations of visualisation or representation. It is hoped that, while technologies for analysing the basic and modifying elements of space will advance, leaving their predecessors obsolete, the ways of seeing (or hearing) these spaces inherent in their analysis will take root and flourish.

However, it is also clear that not all methods are suitable in all cases. They should not be sewn indiscriminately on stone and thorns and good soil alike. Contrary to appearances, computer-assisted techniques are neither 'point-and-shoot' simple nor are they labour-saving. Their application should be guided by a clear research agenda and by the

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40 The 'arc of address' is from M. Baxandall, *The limewood sculptors of Renaissance Germany* (London, 1980), pp. 166-168, Quoted in R. Marks, *Image and devotion*, (Stroud, 2004), p. 21.

individual characteristics of each building. Stone-by-stone analysis of Skelton would reveal little about its construction history that is not already known. Likewise, lighting analysis of St. Michael-le-Belfrey only reveals that the church uses light in a general way, rather than specifically, as it is used at Skelton. If one's research agenda is only interested in the relationships of different spatial systems to each other, then the quick, two-dimensional techniques of access analysis or visibility graphs are more suitable than the painstaking detailing of the virtual restorations of Skirlaugh or Thirsk. However, if the experiential nature of space and the use of space itself as a medium of expression are of interest, then the more expensive and time-consuming methods described above may be appropriate.

The most useful but least quantifiable benefit of these new methods is in how they can present instantly comprehensible images and sounds embodying complex archaeological, art historical and historical arguments which bring together a vast array of sources and disciplines. They are most successful when the techniques are not noticed at all, when their comprehension is as natural as opening one's eyes, or pausing to listen, or walking through a space. A picture is worth (at least) a thousand words.

Chapter Two: The Spatial Envelope
St. Michael-le-Belfrey, York

Introduction

The fabric of a building is the most elementary part of its space. It is the manifestation of the abstract designs of its creators, defining the limits of the space it envelopes and providing the framework within which that space is used and experienced.[1] Late medieval architects understood well the relationship of fabric to space and how modifications to key components could result in the creation of new space which significantly altered the priorities and intentions of the previous space while retaining much of the old fabric. After a century of dispute between the Dean and Chapter of York and the parishioners of its church of St. Michael-le-Belfrey within the close of York Minster a design was conceived sometime at the turn of the fifteenth and sixteenth centuries for creating a new St. Michael's through a reformation of its ancient fabric. This was not the total rebuilding which has been assumed.[2] Rather, it was the result of a design which took the elements of the old church and carefully transformed them into what was effectively a new building. The design itself and the resulting space stand within a complex long-term historical process which is recorded in the church's superb written and pictorial documentation and is detailed by its stones. The reformation of sacred space through a reordering of its fabric and the corresponding reformation of the relationships within that space at the transition from late medieval to early modern are the focus of this first case study.

Between 1525 and 1537 the parish church of St. Michael-le-Belfrey underwent a process of opening-up through a remodeling of its fabric. The church itself stands about 56 feet (17 metres) south of the nave of York Minster in the city of York at the junction of Minster Yard and High Petergate (Pl. 4). It is aligned to Petergate which runs along its south wall and is thus orientated about 35° south of true east. The building is important for its remarkable completeness with little post-1537 alteration. It exhibits a coherence of design and clarity of expression which make it a superb candidate for examination of the processes by which the intentions of its (re)designers were expressed. This is supported by a wealth of documentary evidence unparalleled by any other church in this study. Enough of the previous church survives *in situ* or in documentary evidence to provide some idea of how it was arranged and used. It is important to understand this earlier form to determine

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1 S. Unwin, *Analysing architecture* (London, 1997), p. 25 describes a building's fabric as its 'basic elements' under full control of the designer while the dynamic forces at work on the fabric and within the space it defines which are not completely controllable by the designer he terms 'modifying elements.' These are explored in the following four chapters.

2 F. Drake, *Eboracum: Or, the history and antiquities of the city of York,* ed. K.J. Allison (Wakefield, 1978), p. 338 and N. Pevsner *BoE: Yorkshire: York and the East Riding* (Harmondsworth, 1972), p. 124, and the York Civic Trust plaque on the church itself assert a total rebuilding starting in 1525; P.M. Tillott (ed.), *A history of Yorkshire: The city of York*, VCH (1961), p. 396 states that no architectural features of the earlier church remain; J. Raine (ed.), *The fabric rolls of York Minster*, SS 35 (1858), p. 100n; G. Benson, 'Notes on the church and parish of St. Michael-le-Belfrey, York', *Yorkshire Architectural Society* 37 (1923/4): 108; A. Raine, *Medieval York: A topographical survey based on original sources* (London, 1955), p. 35; and RCHMEY, *An inventory of the historical monuments in the city of York: The central area* (London, 1981),p. 36 assume a total rebuilding.

the extent and the effects of the rebuilding. Documentary evidence suggests that the changed space corresponds with a change in use. An explanation for the change in design and use is sought within the wider architectural and social discourse of the period of rebuilding.

The church was held by the Dean and Chapter who rented the living to a fee-paying priest.[3] The parish was concentrated in Petergate, parts of Stonegate and Grape Lane, and included extramural areas in Bootham, Clifton and Rawcliff beyond Bootham Bar on the road north to Thirsk.[4] It was the wealthiest parish in the city.[5] Because of its city and extramural holdings the 500 or so houseling people of the parish in the first quarter of the sixteenth century represented a broad diversity of backgrounds and occupations.[6] They included the wealthy merchants and clergy of the city, goldsmiths, drapers, booksellers, vintners, apothecaries. From their ranks were drawn numerous aldermen and Lord Mayors. Minster staff and tradesmen including master masons, carpenters, glaziers and keepers of the precinct gates were also present. The extramural parts of the parish ensured that this urban congregation was well tempered by rural members who were yeomen and husbandmen. They were a close community united by ties of kinship, trade and their thoroughly conventional religion which they shared with Christians throughout England.[7] They loved, prayed for and fought each other; they served the parish together in the parish gilds, or as wardens, or in the relief of the poorer members of the community; they came daily to the church for their devotions, (until 1525 when such references drop from the records) they gave generously to the parish altars and images, endowed stipendiary clergy, and lit lights.[8]

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3 VCH, *York*, p. 395.

4 Benson, 'St. Michael-le-Belfrey', p. 105; VCH, *York*, p. 312.

5 O.M. Saunders, 'Minster and parish: The sixteenth century reconstruction of the church of St. Michael-le-Belfrey in York' (MA diss., University of York, 1996), p. 9n7.

6 'Houseling' - communicants; from 'housel' meaning communion (E. Duffy, *The stripping of the altars: Traditional religion in England c.1400-c.1580,* 2nd edn. (London, 2005), p. 37); Benson, 'St. Michael-le-Belfrey', p. 108. In 1589, after the union of St. Wilfrid's to Belfrey parish, the churchwardens' accounts list 443 individuals liable to pay the Queen's Tax (York, BI, Y/MB 33, ff. 9-12, 13-14). In reality there must have been at least twice this number of people living in the parish if most of the individuals listed were married with children and servants. Based on the large body of testamentary evidence for the parish in the first half of the sixteenth century, the presence of these individuals in almost every household regardless of prosperity would indicate that there were at least three other people in each household for every testator. This would put the number of individuals living in the parish at somewhere near 1,500 to 2,000.

7 They compare well with the parishioners in the Somerset parishes studied by K. French, especially those in more urban settings such as Gloucester and Bridgewater in the early sixteenth century - K. French, *The people of the parish: Community life in a late medieval English diocese* (Philadelphia, 2001), *passim*; Based chiefly on testamentary evidence the Belfrey parishioners appear to have thought and moved securely within the conventional late medieval religious world characterised by E. Duffy, 'Late medieval religion', in R. Marks and P. Williamson (eds), *Gothic: Art for England 1400-1547* (London, 2003), pp. 56-67.

8 The character of the parish community can be seen in the large body of documents surviving for this church from the fifteenth and sixteenth centuries. For the visitation reports and testamentary evidence see below; for the active litigious side of Belfrey parish life see the numerous cause papers relating to Belfrey parishioners from the early sixteenth century in York, BI, Cons.AB.1 f.36; Cons.AB.3 f.104; D/C.CP1512/1-1549/1 *passim*; for an example of corporate parish charity from 1589 see the entry in the Churchwardens Accounts - York, BI, Y/MB - 33 f.15r.

The church building itself forms part of the southern wall of the Minster close which once surrounded the liberty of St. Peter within the city walls (Fig. 9).[9] As such, St. Michael-le-Belfrey is the only church within the city proper to stand outside the boundaries of its own parish (St. Olave's, standing in a similar relationship to St. Mary's Abbey also stands outside its parish).[10] The unusual position of the church both physically and in terms of its relationship to its owners is the product of a rich and complex history which has exerted a strong influence over the development and use of the building itself. The context within which the present St. Michael-le-Belfrey stood is of paramount importance, for the church that stood before 1525 was a very different place from the church that stood after 1537. Both must be known in order to appreciate the significance of the changes.

The argument rests on stone-by-stone archaeological survey of the visible exterior fabric and on metrological analysis of plans and elevations within their York city and wider context. While the more unconventional methods for analysing religious architecture and space explored in the following chapters have been employed for St. Michael's, especially in re-creating the *c*1537 church space, the particular methodology highlighted in this chapter is more conventional. At St. Michael-le-Belfrey it is the spatial envelope – the fabric itself – which (re)defines the space and is pivotal to the understanding of that space. A critical approach to the extensive documentary sources makes up the second plank of my analytical and interpretive platform. This detailed approach returns good dividends, in this case refining the accepted history of the building. St. Michael-le-Belfrey emerges as a church that experienced redesign to meet the changing needs and ideals of its patrons, owners and users – a theme that will run throughout this study.

St. Michael-le-Belfrey today

The form and much of the fabric of the present church of St. Michael-le-Belfrey is the result of the 1525-1537 rebuilding. The church consists of six virtually identical bays. There is no structural chancel. On plan the church is a parallelogram with two aisles running the full length of the central vessel and separated from it by arcades (Fig. 10). The main door is in the centre of the west wall with two subsidiary doors in the north and south aisle walls of the westernmost bay. Another small door, now blocked, pierces the east wall to the south of the high altar and may have led into the sixteenth century vestry. In the north wall a break in the plinth and the coursing below the sill of the third window from the east indicates a blocked door. From internal and external coursing evidence, this door was blocked when the window was inserted. One four-light window lights each aisle bay. There are also identical windows lighting the east and west ends of each aisle, although that in the east end of the south aisle is now blocked. Much larger five-light windows illuminate the east and west ends of the central vessel. A continuous clerestory of two three-light windows per bay further lights the central vessel.

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9 Drake, *Eboracum*, p. 338 noted that it stood 'on the old wall of the close of York.'
10 Thanks to Christopher Norton for pointing this out.

The elevations are relatively simple (Figs. 11 - 12; Pls. 5, 6; Movies 4 - 5).[11] All aisle windows are four-centred with tracery organised by Y-forms with four ogee-headed lights beneath. The great east and west windows of the central vessel are two-centred with five lights and rectilinear tracery, and the clerestory windows are square-headed with three lights and no tracery. Inside, the central vessel consists of a four-centred arcade with angels at the springings and blind tracery in the spandrels. A short, blind 'triforium' of two bays per arcade is deeply set back between square pilasters, and an equally short clerestory rises from transoms at the top of the blind triforium. The ceilings are flat with paneling and not original to the sixteenth century church. They are probably similar in character to the originals (which may be hidden above the present ceiling).[12] The exterior elevations are likewise simple and uniform. The north and south elevations have continuous plinths of two stages. On the south wall between the plinth and the window sills runs a frieze of cusped lozenges bearing shields charged with the arms of saints appropriate to the Dean and Chapter. The bays are separated by slender buttresses of three stages, the uppermost stage being a detached shaft set diagonal to the wall tied in via miniature fliers. At the parapet level the shafts 'pierce' projecting gargoyles which spring from the wall while the impaling shafts continue 'through' the gargoyles terminating in crocketed finials. There is a continuous, plain parapet. Above the low rise of the aisle roofs, but hardly visible from the ground, the single, short stage of the clerestory rises without buttresses. There is no parapet above this. The east elevation is left plain without buttresses. Today it is largely blocked by later buildings built against it. The most remarkable elevation is the west elevation which can properly be called a 'facade' in that it masks the interior composition behind it. It consists of the central doorway with the large west window above, all set beneath a deep superarch which in turn supports a horizontal parapet consisting of a series of weatherings. In the centre of the parapet is a small octagonal bellcote. At its corners are pinnacles. Large buttresses of three stages separate the central vessel from the aisles. The aisles themselves are surmounted by 'false front' half-gables which give the west end something of a 'broken pediment' silhouette. A small octagonal stair turret rises to a low peak in the southwest corner of the building and provides access to the roof. Virtually all of this elevation was rebuilt in 1867 but conforms in general to the facade that was in existence by 1705 when the earliest surviving drawing of the building was made (Fig. 13).[13] The whole of the building, inside and out, exhibits a degree of uniformity which masks the considerable and important differences in the details.

The furnishings and interior arrangements have been significantly altered since 1537. With the exception of some reused sixteenth century woodwork, and the extensive

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11 These figures are reconstructions of the church *c*1537.

12 While the St. Michael-le-Belfrey aisle ceilings could have been angled rather than flat, the ceiling of the central vessel *must* have been flat since the west facade makes anything other than a shallow, obliquely angled ceiling here impossible. Late medieval flat or shallow-pitched and paneled ceilings were not uncommon in churches; in York such a ceiling survives at St. Denys, Walmgate, and there are similar ceilings, although more elaborate, in St. Michael-le-Belfrey's contemporaries of St. Mary, Beverley and St. Andrew Undershaft, London.

13 York, BI, FAC 1867/8; B. Wilson and F. Mee, *The medieval parish churches of York: The pictorial evidence*, Archaeology of York, Supplementary Series fasc. 1/1 (1998), pp. 130-134.

fourteenth and sixteenth century glass, nothing of the medieval interior remains.[14] The medieval woodwork now serving as movable benches was once the desks of what was substantial choir furniture (see the scars in the woodwork marking their original construction – Pl. 7). There are also two surviving bench end standards which may also have come from the choir (Pl. 8). The standards bear marks which show that they once stood against the pier bases. Today, the most spectacular interior furnishings are the 1712 Etty reredos and communion rails.[15] Other eighteenth century work includes the Queen Anne arms now on the gallery front, the core of the present west gallery and the ceiling. From the evidence of the grave slabs and the churchwardens' accounts the floor was also repaved in the eighteenth century (and subsequently in the nineteenth).[16] The pews, organ, organ screens and raised and tiled chancel platform are nineteenth century.

History

No firm evidence survives for an Anglo-Saxon St. Michael-le-Belfrey. A reference to a 'basilicam Sancti Michaelis Archangeli' in Folcard's late eleventh century Vita of St. John of Beverley may possibly refer to St. Michael-le-Belfrey but this is far from certain.[17] The early history of the church has been recently and plausibly revised by Christopher Norton who suggests that the original St. Michael-le-Belfrey was part of an Anglo-Saxon minster complex consisting of the Minster and four satellite churches. He suggests that St. Michael-le-Belfrey may have originally served as a gatehouse and bell tower for the cathedral close . The word 'belfrey' is derived from *berefridus* which originally denoted a place of refuge, or a tower.[18] On the same evidence Eric Gee had also surmised that St. Michael's was once the detached belfry of the Norman cathedral making it a tower church like St. Mary Bishophill Junior.[19] No unambiguous documentary references to the church exist, however, until the late thirteenth century by which time it was fully under the control of the Dean and Chapter and attached to St. Martin-le-Grand.[20] The nature of this relationship between St. Michael's and St. Martin's is unclear. By 1409 a visitation of the Dean and Chapter reported serious faults in the fabric. These complaints appeared five more times in 1416, 1472, 1494, 1510 and 1519. The 1409 and 1510 complaints appear to have been lodged on the initiative of the parishioners themselves who held an 'expertise'

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14 Pevsner, *York and the East Riding* (1972), p. 124 identifies the desk ends as sixteenth century (although he thought they were bench ends).

15 RCHMEY, *The central area*, p. 36; Drake, *Eboracum*, p. 338 says the reredos was installed in 1714.

16 Extracts printed in Benson, 'St. Michael-le-Belfrey', pp.111-114.

17 J. Raine, (ed.), *Historians of the church of York and its Archbishops,* Rolls Series 71 (1886), 1:257, quoted in RCHMEY, *The central area,* p. 36. Of the three churches dedicated to St. Michael in medieval York, only St. Michael Spurriergate has a solid pre-Conquest foundation - RCHMEY, *The central area,* p.40; Wilson and Mee, *The medieval parish churches of York*, p. 138.

18 C. Norton, 'The Anglo-Saxon cathedral at York and the topography of the Anglian city', *JBAA* 151 (1998): 5-9; He also suggests that the pre-1525 tower was wooden and extremely ancient but the evidence for this (that the parishioners could see the tower move during storms) is ambiguous - it could just as easily refer to a timber spire, for example.

19 E. Gee, 'Architectural history until 1290', in G.E. Aylmer and R. Cant (eds.), *A history of York Minster* (Oxford, 1977), p. 127; for St. Mary Bishophill Jr. see RCHMEY, *An inventory of the historical monuments in the city of York: South-west of the Ouse* (London, 1972), p. 27.

20 RCHMEY, *The central area,* p. 36; VCH, *York*, p. 395.

such as those held for large building projects where experts advised on the condition of the fabric.[21] The next reference to the building's fabric is John Coltman's window inscription in the church in which he claims to have laid the foundation stone for the rebuilding in 1525 (the actual date of the installation of the window is not recorded).[22] From this it has been assumed that the old church was completely demolished and a new one arose from a *tabula rasa*. Entries in the Minster Fabric Rolls from 1525/6 to 1536/7 give some details as to who rebuilt the church, how long it took and an idea of how much it cost.[23] The latest inscription in the windows is Christopher Ceel's which dates the completion of the glazing to 1537. In 1586 the Dean and Chapter finally clarified their relationship with the parishioners concerning the fabric of the building.[24] The usual reordering of church furniture, goods and fittings seems to have occurred during the reigns of Edward, Mary and Elizabeth, and later with repewing in the late sixteenth century, paving in the seventeenth, new chancel furniture in the eighteenth century, and further repewing and paving in the eighteenth and nineteenth centuries.[25] The fabric itself was little altered until 1867 when the west end and the north and south doors were rebuilt. This design was based on the appearance of the previous west end.[26] In the twentieth century the church was threatened with redundancy but was acquired by the growing evangelical congregation of St. Cuthbert's. It is now the home to a large and active congregation which continues to find the space suitable to its needs.

Historiography

Despite its apparent uniformity as a single-period church erected on the cusp of the Reformation with a considerable body of documentary evidence the church of St. Michael-le-Belfrey has received no detailed, critical discussion. This is despite its being included in virtually every historical account of the city since Dodsworth in the early seventeenth century.[27] This is almost certainly because the building is assumed to be unproblematic,

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21 The visitations are found in the Dean and Chapter visitation books, York, YML, D&C L2(3)b ff.8-11, 19-20, 37-40; D&C L2(3)a ff. 11-12, 45, 73-75, 99-103, 151-152; Extracts are published in Raine (ed.), *The fabric rolls*, pp. 246-247, 248, 250, 253, 261-263. For a discussion of the purpose, procedures and results of such an expertise (for Milan Cathedral), see J. Ackerman, 'Ars sine Scientia nihil est', *Art Bulletin* 31 (1949): 84-111.

22 The inscriptions in the present windows are restorations of the inscriptions as recorded by Dodsworth in the early seventeenth century - Oxford, Bodleian Library, Dodsworth MS 157 f.18v, and MS 161 ff.39r-40r; these are also printed in Drake, *Eboracum*, pp. 339-40; Coltman's inscription is: 'of your charitie pray for the soule of Mr John Coltman/ laite subtresaurer of the church of yorke + clerk of/ St Peter workes ... of the first stone/ towards the building of this Church which was the yere of/ our lord Mo ccccco xxv'

23 York, YML, E3/38, E3/39, E3/40, E3/41, E3/42, E3/43, E3/44; Extracts are published in Raine (ed.), *The fabric rolls*, pp. 99-109; It appears that the masonry work was carried out by three or four masons from 1526/7 to *c*1532 and cost perhaps £300.

24 The settlement is bound into each volume of the St. Michael-le-Belfrey churchwardens' accounts, York, BI, Y/MB 33.

25 York, BI, Y/MB 33 ff. 25-30; Benson, 'St. Michael-le-Belfrey', pp. 110-114; VCH, *York*, pp. 395-396.

26 Benson, 'St. Michael-le-Belfrey', p. 114; For pre-1867 views of the west end see pictures published in Wilson and Mee, *The medieval parish churches of York*, pp. 131-133; and reproduced here in Figs. 14 - 15.

27 For a the antiquarians of York and their relationship with its parish churches see C.M. Barnett, 'Memorials and commemoration in the parish churches of late medieval York' (D.Phil. diss., University of York, 1997).

conventional and, to some, architecturally uninteresting.[28] If it is, as John Harvey called it, 'the swansong of English Gothic architecture', it is not a particularly memorable or lovely tune.[29]

Its historians are numerous and only the most important are listed here. The first antiquarian engagement with the church began with the microscopic, schematic and mislabeled drawing of the church on Speed's plan of the city included in his map of the West Riding *c*1611 (Fig. 16).[30] Dodsworth in the early seventeenth century recorded the inscriptions in the glass and on the monuments. To him a great debt of gratitude is owed since the inscriptions were already fading by his time and the chancel would be leveled and repaved in 1679, thus disturbing many of the memorials.[31] Torre recorded the surviving inscriptions in 1691.[32] In 1736 Drake, a Belfrey parishioner himself, compiled both Dodsworth's and Torre's accounts in his description of the church. His account gives a glimpse into the mid-eighteenth century building.[33] In the nineteenth century James Raine the elder cast a long shadow. Although he did not write a concentrated account of the history of the parish or the building, his comments concerning the church in his extracts from the Fabric Rolls largely set the interpretation of the building up to the present day.[34] The twentieth century contributions to study of the building consist of compilations and syntheses, all fairly similar in nature but differing in their particulars. In 1924 George Benson compiled extracts from the churchwardens' accounts and the faculty papers which are extremely useful in determining the post-medieval development of the church and parish as a whole.[35] Angelo Raine's unreferenced but generally accurate compilation of the images, altars and fittings known to have been in the pre-Reformation church is valuable.[36] The Victoria County History and Royal Commission entries for the church are brief but useful in their syntheses of the disparate information available.[37] That the Royal Commission report gives only one short paragraph to the pre-Reformation development of the church (shorter than for most other churches in the volume) and devotes a paragraph of equal size to the nineteenth century restoration is some indication of the interest the building held for the Commissioners. To them it was an entirely unproblematic, single-period and unremarkable structure.[38] Barbara Wilson and Frances Mee's volume on the

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28 J. Hutchinson and D. Palliser, *York* (Edinburgh, 1980), p. 138 say that the arcades appear 'as though they had been bought by the yard and dropped in.' But in the eighteenth and early nineteenth century it was considered by some antiquarians to be very fine - Drake, *Eboracum*, p. 338; S. Glynne, 'Notes on Yorkshire churches: St. Michael-le-Belfrey', *YAJ* 12 (1889): 329.

29 J. Harvey, 'Architectural history from 1291 to 1558', in G.E. Aylmer and R. Cant (eds.), *A history of York Minster (*Oxford, 1977), p. 188.

30 J. Speed, *The theatre of the Empire of Great Britaine* (London, 1612), Available: http://faculty.oxy.edu/horowitz/home/johnspeed/Cities30.htm.

31 Oxford, Bodleian Library, Dodsworth MS 161, ff. 39-40; for repaving the chancel see Raine (ed.), *The fabric rolls*, p. 140.

32 Torre's MS is York, YML, LI(7), *York Minster 1690-91.*

33 Drake, *Eboracum*, pp. 338-343.

34 Raine (ed.), *The fabric rolls,* pp. 99-109, 246-247, 248, 250, 253, 261-263.

35 Benson, 'St. Michael-le-Belfrey', pp. 107-130. The text lacks references.

36 Raine, *Medieval York*, pp. 35-46.

37 VCH, *York*, pp. 395-396; RCHMEY, *The central area*, pp. 36-40 (barely half a page of which is dedicated to the building and its history, the rest of the description consists mainly of the details of the glass).

38 RCHMEY, *The central area*, p. 36.

pictorial evidence for the medieval parish churches of the city is invaluable both for its description of the church and the reproductions of early views of the building.[39] Finally, O. Saunders' MA Dissertation examined the parish and its well-documented individual parishioners in the early sixteenth century, compiling a wealth of information about the social , economic and political background against which the building was rebuilt.[40] However, none of these commentators engaged critically with either the documentary material or the fabric of the building itself.

The Fabric

Documents relating to the post-1525 fabric

The documentation for the post-1525 St. Michael-le-Belfrey is to be found primarily in five sources. For the period 1525-1537 inscriptions in the glass and the surviving Minster fabric rolls are the chief sources while less firmly dated are the equally important designs for the church's windows and arcades drawn on the floor of the Masons Loft above the Minster Chapterhouse Vestibule.[41] From 1569 to the present the Belfrey Churchwardens' accounts are useful, and from 1674 faculty papers also exist.[42] From these last two sources only the 1867 faculty is relevant here as it identifies the extent of the west end rebuilding. Between 1537 and 1867, however, the fabric had been little altered and so it is the group of pre-1569 sources which are most important.

Of the three pre-1569 sources the fabric rolls are by far the most important. The window inscriptions simply provide the *terminus post quem* (1525) and *terminus ante quem* (1537) of the rebuilding.[43] The fabric rolls provide the surviving details. In 1525/6 Thomas Marser, clerk of the works, recorded that £111 were paid 'ad novam edificacionem ecclesie Sancti Michiaelis de Berefrido' from the communal chest.[44] In 1527-28 there are three references. The first is a separate line-item in the mason's wages recording that James Sympcock and Robert Harbert were paid as setters for work done 'sup ecclia sci Michis de Berefrido'. In the minute expenses of the same roll is recorded purchase of straw to cover the walls of the church which again suggests that the walls were at an early stage.[45] Each of the rolls after 1527-28 until 1531-32 includes a separate line-item under the masons' wages naming two or three masons, already listed as working regularly at the Minster, as working separately on an unspecified project. The wording is so similar to the first occurrence in 1527-28 that it is likely that these also record setting work done at St. Michael-le-Belfrey.[46] Finally, in the 1527-28 roll John Coltman, then Minster

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39 Wilson and Mee, *The Medieval Parish Churches of York*, pp. 130-134 - (without references)..

40 Saunders, 'Minster and parish'.

41 The principal drawings on the tracing floor are published in Harvey, 'Architectural history from 1291 to 1558', p. 166; and reproduced here in Fig. 25.

42 York, BI, Y/MB 33; Faculty papers are lodged at the Borthwick Institute and begin with York, BI, FAC 1674/2 continuing to the present; the 1867 faculty is BI FAC 1867/8.

43 St. Michael-le-Belfrey windows sVI and nVII.

44 York, YML, E3/38.

45 York, YML, E3/39.

46 (1527-28, 1529-30, and 1530-31) York, YML, E3/39, 40, 41 - the wording used to denote masons detailed to work at St. Michael-le-Belfrey first appears in 1527-28 (York, YML, E3/39) 'Et in Remun'acoe Date [masons' names] sup ecclia sci Michis de Berifrido - [amount]'; in later rolls the item

Chamberlain, gave £33 13s 4d to the rebuilding. He may have given similar sums from 1529 to 1532. In 1533 the Minster Subtreasurer Thomas Forne left £15 (if it could be wrested from the hands of the Abbot of St. Mary's) or 5 marks to the rebuilding.[47] Some part of the church may have been ready for glazing as early as 1531-32 when the expenses for iron window bars in the 'novo ecclessia' were noted. In the same roll John Sykes was paid by contract for unspecified woodwork done at St. Michael-le-Belfrey.[48] The gap between the 1531-32 roll and 1535-36 roll where the line-item for setters does not occur makes it impossible to know when masonry work ceased at St. Michael-le-Belfrey, but the fact that John Sykes began work in 1531-32 does suggest that it was mostly complete by this time. The final specific mention of work done at St. Michael-le-Belfrey comes in 1535-36 when John Maugham provided iron bars for the 'great wyndow in the west-end of Belfray church' and possibly a lock and key, two joiners made side doors, and the godfather and godson carpenter team of Thomas Flemyng and Thomas Williamson made two partitions in the choir of the new church.[49] The Dean and Chapter also bought more glass this year than in the previous ten years and some of this may possibly have been for use in the Belfrey windows.[50] By the end of November 1536 the fabric of the new St. Michael-le-Belfrey was complete. In the following year the insertion of Coltman's window finished the project.

The standing fabric

St. Michael-le-Belfrey's standing fabric is not as simple or unproblematic as the documentary evidence appears to suggest. In single-building-campaign structures masonry coursing frequently carries across individual bays and architectural features such as windows are integrated into the overall coursing pattern. Such is the case in this study at St. Giles, Skelton; St. Patrick, Patrington; St. Augustine, Skirlaugh; and St. Mary, Thirsk. At St. Michael-le-Belfrey there is very little uniformity in the coursing (Figs. 17 - 18). Numerous disturbances and inconsistencies in the fabric, while not terribly problematic on an individual basis, together constitute a challenge to the accepted chronology of the building's development. Stone-by-stone analysis makes these discrepancies between documents and fabric clear. Metrological analysis of the plan adds to the problematic nature of the St. Michael-le-Belfrey fabric and brings the date of the design of the rebuilding project into question. Detailed analysis of the fabric also helps to reveal some of the spatial form of the pre-1525 church, revealing the nature of the changes made, as well as the mechanism by which the change was effected.

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appears 'Et in remun'a [masons' names, how long they have worked, amount]'.

47 References to funding compiled in Saunders, 'Minster and parish', pp. 17-18, 96-97, 105-106.

48 York, YML, E3/42

49 York, YML, E3/43; for the relationship between Thomas Flemyng and Thomas Williamson see Flemyng's will York, BI, Prob. Reg. v.13 f.39.

50 In 1539 William Thomson, glazier, requested burial at the west end of the church (York, YML, D&C Wills v.2, f.184). It is possible that he glazed this large window. He also gave the (presumably lost) glass of the now blocked east window of the south aisle which was still in existence in Dodsworth's time (Dodsworth MS 161 f.39v). It was not unknown for craftsmen to request burial near their work. In 1505 William Hyndley, Minster Master Mason, requested burial under the Minster's central tower (York, YML, D&C Wills v.2, f.49.)

The Royal Commission team identified a number of inconsistencies of detail in the building which are important clues that it is a more complex structure than is normally assumed.[51] They noted the break in the north wall plinth of the third bay from the east, indicating a blocked door. Also mentioned is the fact that the north and south aisle windows have slightly different moulding profiles and that the sill height of the south aisle windows is higher than those on the north. No reference is made to the blocked door behind the south wing of the 1712 reredos although the Royal Commission plan clearly shows a hollow on the vestry side of the east wall in this location. Presumably the Commission team did not discover the secret revealing the western face of this hollow which retains the door's original four-centered stone head blocked with nineteenth-century brick (Pl. 9).[52] Although these irregularities alone are enough to indicate that a closer look at the fabric would be helpful, the team made no further comment, preferring instead to concentrate on the stained glass.

About 2,500 stones are now visible in the exterior faces of the east, north and south walls of the church (the west wall is a refacing of 1867 and so not considered in this discussion). Most of them are the white oolitic limestone commonly used in York, although some stones, especially in the north wall, show signs that they were taken from widely different quarry beds.[53] There is very little uniformity of size amongst individual stones. The geologic mix and diversity of stone size indicates a degree of reuse of materials not unexpected in a program where significant portions of a pre-existing masonry structure were being replaced. Other clues in the stonework, however, suggest that a substantial portion of the previous church remains *in situ*.

The most noticeable irregularities in the exterior stonework occur in the visible portions of the east wall (Fig. 17). There is a series of chases beneath the sill of the central vessel east window. Above these is the line of a very low-pitched roof. Despite their initial appearance, the two are not associated. The high number and dense linear arrangement of the chases do not indicate the purlins of a roof. Rather, they indicate floor joists from a building built against the east end of the church. This building (or at least its upper floor) cannot have existed when the east window was built because it would have blocked the window. The roofline cuts into the east window sill and is therefore later than the window. The building indicated by the floor joist chases must, in fact, be earlier than both the roofline and the east window because the stonework below the roofline, including all of the joist chases, is less weathered than the stones above the line, indicating that the structure represented by the roofline replaced the building represented by the joist chases. Therefore, the wall below the east window sill is older than the east window itself. A *terminus ante quem* for this portion of the wall is suggested by a 1374/5 reference to a

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51 RCHMEY, *The central area*, pp. 36-37

52 The south wing of the reredos is hinged to allow it to swing open to reveal the door. The presence of a similar arrangement for the north wing of the reredos (the present vestry door into the church) suggests that the blocked sixteenth-century door was originally the twin of another on the north which has since been removed to widen access into the church. Many thanks to Guy Fowler, St. Michael-le-Belfrey verger, for showing me this little secret.

53 Peter Gouldsborough, pers. comm.

house as standing against the east gable of St. Michael-le-Belfrey (which incidentally provides a clue to the previous chancel's roof shape).[54] This could be the same house next to the vestry and near the high altar having the offensive latrine complained about in the 1409 visitation report.[55]

There are other important irregularities in the east wall stonework. A vertical straight joint runs between the roof of the north aisle and the clerestory which shows that the north aisle roofline must have been altered. Vestigial traces of another vertical joint exist in the two courses immediately below the east window under the north end of the roofline. While this trace now runs into a large, square area of disturbed stonework, it is enough to indicated that the lower portion of east wall of the north aisle is not contemporary with the lower portion of the central vessel east wall. At least four levels of horizontal straight joints in the east wall coursing reveal that the wall rose in discrete stages. Disturbances in the stonework and putlog stones immediately around the east window jambs reveal that the east window is a later insertion into pre-existing fabric. All of this strongly suggests that a substantial portion of the visible east wall of the present church is *in situ* fabric of the east wall of the pre-1525 church. Much of the east wall of the south aisle, now blocked on the outside by 38 Low Petergate may also be from the previous church since the outline of the east window of this aisle visible in the interior plaster is significantly offset to the north, suggesting that the east end of the pre-1525 south aisle was narrower than at present and that the south arcade has been moved.

In the north and south aisles, with the exceptions of the plinth and parapets, the stonework is so irregular that very few building breaks are visible (Fig. 18). This is especially the case for the south aisle where only the walling around the window heads of the two and a half easternmost bays courses across window voids and buttresses (Fig. 19). Otherwise, the stonework of the south aisle only courses across buttresses occasionally and in isolated positions. The frequency of coursing of any kind lessens the further west one looks. Just more than half (54.1%) of the window jamb stones in the south aisle integrate well with the wall coursing. The stones themselves in this aisle are generally large, geologically uniform and the mortar joints fine. Finally, few putlog stones are visible, but enough are identifiable to determine that there were two rises of scaffolding at uniform heights across all six bays (Fig. 20). All of this evidence points to a single-phase of construction utilising fine but reused material. Only in the eastern two bays is there perhaps evidence for use of mostly new material or at least of coordination between the producers of the walling stone and the producers of the window jambs since jamb stones in these bays integrate more (76.4%) than those in the other four bays (44%).

The system of coursing for the north aisle is more extensive than that of the south aisle. The courses are organised into three groups – the easternmost two and a half bays,

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54 J. Harvey, *English medieval architects: A biographical dictionary down to 1550*, 2nd edn. (Gloucester, 1987), p. 185.

55 'Item juxta vestibulum eiusdem ecclesiae, videlicet, in domo Johannis Porter, est una latrina summo altari eiusdem ecclesiae contigua, nociva valde, in tantum quod tempore estivali vix potest aliquis in choro exprecari, propter fetoris abhominancionem eiusdem latrinae.' YML D&C L2(3)b f. 10r; also printed in Raine (ed.), *The fabric rolls*, 35, p. 247.

the western half of the third bay from the east to the eastern half of the westernmost bay, and the western half of the westernmost bay (Fig. 19). Again the plinth and parapet generally course the full length of the aisle. In between the two there is a comparatively high frequency of coursing across windows and buttresses within the three distinct regions. In contrast to the south aisle, the stones of the north vary more in size and geology and the mortar joints are more coarse.

Two vertical joints are clearly visible and these are associated with the blocked doorway in the third bay from the east. The eastern joint is straight and breaks the two longest series of coursing above the plinth. The western joint is more ragged. The same joints can be seen as irregularities in the plaster surface on the interior of the church as well. This is clearly a blocked doorway. Because there is no trace of the original door head, especially on the interior where one would expect to find the segmental arch of the inside reveal, it is possible that the head of the doorway rose above the present window sill. If this is the case, then the door was blocked when the window was inserted. Therefore, the courses below the windowsill level of at least the western half of the third bay to the eastern half of the sixth are *in situ* fabric of the pre-1525 church.

That the eastern two and a half bays and the western half of the sixth bay may not be contemporary with the bays in between is also suggested both by the changes of coursing in these areas as well as the pattern of putlog stones. On the north aisle three levels of putlog holes are clearly visible falling into two primary patterns plus a minor one. One pattern covers the eastern two and a half bays and another of smaller stones covers the western four bays. They overlap on the east side of the third bay from the west. One other, separate pattern of putlog holes exists in the westernmost bay. The three patterns suggest three different building phases with the pattern of the four western bays representing the first build which the other two, later builds overlap. Finally, although the percentage of integration of window jambs with walling is higher for this aisle (63.7%), the vast majority of this integration occurs in the easternmost two and a half bays (95.7% versus 37.8%) which lends more weight to the suggestion that these bays are a unified, separate build with producers of walling and producers of window jambs well-coordinated. The north aisle wall is between two and three inches (2.5-7 cm) thicker than the south aisle wall which, along with the difference in window moulding profiles indicates that the two were built at different times (Fig. 21). While the south aisle indicates a single building campaign with reused materials, the north aisle suggests a process of addition of bays or parts of bays to a pre-existing core with the insertion of new windows in old fabric along with heavy modification using recycled materials.

In summary, the exterior stonework includes substantial amounts of *in situ* fabric in the east and north walls while the south wall appears to have been entirely built at one time. It appears likely that at least the easternmost two bays of the north aisle are a separate building campaign added to old fabric in the north and east walls. It is also possible that the western half of the westernmost bay was an addition as well. That the north and south walls are separate builds is indicated by the difference in wall thickness

and moulding profiles. The evidence of coursing patterns from all three walls indicates that the windows were, in general, prepared separately from the walling (except in the easternmost two and a half bays of the north aisle) and that they were inserted in the east and north walls into or on top of older fabric. The doorway of the north aisle in the third bay from the east was likely blocked when the window above was inserted. Therefore, the present church depends on the fabric of the previous church.

A tale of two churches: The documentary evidence reconsidered

The post-1525 St. Michael-le-Belfrey is clearly not the *tabula rasa* rebuild it has been assumed to be. The east and north walls retain considerable amounts of fabric from the pre-1525 church which dictated the position, orientation and general dimensions of the post-1525 church. The fabric also shows evidence of having been added to piecemeal, especially in the east end of the north aisle. Differences of moulding profiles and wall thicknesses between the north and south walls also indicate that the present church owes its form and details to several building campaigns at the hands of more than one designer. The fabric appears to be at variance with the documentary evidence rehearsed above. However, a critical reappraisal of the documents brings them more into line with the standing fabric.

Five inscriptions with dates now appear in the St. Michael-le-Belfrey glass spanning the years 1525 to 1537, but caution must be exercised when relating the inscriptions to the church building. First, the inscriptions in the windows today are restorations based on Dodsworth's record of the already worn originals. The possibility for error both in the transcribing and the restoration exists. Coltman's window, presumably crediting him with laying the foundation stone of the rebuilding, is not contemporary with the event it records. He styles himself 'laite subtresaurer', a position which he did not occupy until 1533.[56] Obviously, the glass was inserted many years after the rebuilding began. What is meant by 'building of this Church' must also be questioned. From his perspective after 1533 he did lay the foundation stone of a rebuilt church. But in 1525, a wholesale rebuilding may not have been in mind. Rather, it could have been simply for an extension or improvement to an aisle or some other lesser work. In any event, 'building' cannot be assumed to mean complete destruction of the former church and construction of a new one from the ground up. 'Building' could carry symbolic meaning without reflecting a literal and complete rebuilding. Christopher Ceel's window bears the date 1537 and its inscription is less ambiguous in its relationship to the date of the glass itself (though not the building): 'this window was glasyd in the yere of our lord god/ Mo cccccmo xxxo vijo.'[57] But the rebuilding itself may have been largely complete before 1537, as two of the other three dated inscriptions indicate.[58] Thomas Marser's window was 'glased with his owne costs/ + cherdges Ao Dm Millo quingenmo xxxvo.'[59] The Beckwith window was 'glased

56 Saunders, 'Minster and Parish', p. 106.

57 Oxford, Bodleian Library, Dodsworth MS 161 f. 39r; York, St. Michael-le-Belfrey, Window nVII.

58 John Lister's window inscription is too incomplete to allow its date (1535) to stand for the date of the glass itself - Oxford, Bodleian Library, Dodsworth MS 161 ff. 39v-40r; York, St. Michael-le-Belfrey, Windows sIV, sV and sVII.

59 Oxford, Bodleian Library, Dodsworth MS 161 f. 39v; York, St. Michael-le-Belfrey, Window sV.

Ao Dm mo ccccco xxx.'[60] This suggests that the church rebuilding could have been far enough advanced (or of small enough impact) to allow glazing as early as 1530. These caveats must be kept in mind. The church itself may have been completed for all practical purposes for some time before the majority of the 1530s glass was installed.

The Minster fabric rolls are even more problematic. There is a gap in the surviving rolls between November 1519 and November 1525 so any record of work that may have been carried out between these dates is now lost. Other gaps occur 1526-1527, 1528-1529, and 1532-1535 leaving only half of the span identified by the window inscriptions recorded. In 1519 the Dean and Chapter bought a great lock for the host in St. Michael-le-Belfrey.[61] Perhaps they were not as negligent in their duties as the parishioners' complaints had made them seem. It may also be important in this instance to note that this is the same year as the final recorded visitation by the Dean – a record in which complaints about the fabric of the church, while present, are minimal.[62] By 1525 John Forman, presumably of Belfrey parish as well, was master.[63] The number of masons increased from ten in 1519 to 16 including one entailer and two apprentices in 1525.[64] This year coincides with the year Coltman's inscription says the first stone was laid. Raine has naturally assumed that the increase in masons this year reflects work being done on St. Michael-le-Belfrey, the old church having been 'pulled down'.[65] There is no written evidence for either assumption and the fabric itself shows evidence that a substantial portion of the old church was never pulled down. The fabric rolls themselves only mention St. Michael-le-Belfrey by name in 1525-26 in reference to the gift from the common chest.[66] But in later rolls Thomas Marsar, the clerk of the works who compiled the rolls, is careful to note when money was paid for work on the church. For the 1525-26 roll all of the masons are described as 'opperant in fabrica' which would imply that they were employed on the fabric of the Minster itself.[67] It is also possible that the increase in masons mentioned in the 1525-26 roll reflects an influx of masons Forman brought with him or whom he hired for work on other projects he was supervising at the same time. Forman succeeded the often troublesome (but trusted enough to be a frequent witness to parish wills) Christopher Horner who had held the office from 1505 until his death in 1523.[68] Forman himself had been warden of the masons at Wolsey's Hampton Court Palace and was sent north by Wolsey to supervise work on his archiepiscopal palaces in Southwell, Scrooby and Cawood.[69] At Cawood, Wolsey's biographer claimed that three hundred craftsmen were

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60 This date may be incomplete; Oxford, Bodleian Library, Dodsworth MS 161 f. 40r; York, St. Michael-le-Belfrey, Window sVII.

61 Raine (ed.), *The fabric rolls*, p. 98.

62 York, YML, D&C L2(3)a f. 152r.

63 In 1546 Annas Thomson, widow of William Thomson who donated a window, gave painted cloths to Forman and his wife. (York, YML, D&C wills v.3, f. 16.) Forman's own very brief will of 1558 (York, BI, Prob. Reg. v.15(2) f. 286) requests burial in the Minster, but it is feasible that he, like his immediate two predecessors Hyndley (who was also buried in the Minster) and Horner, was a member of the parish.

64 Raine (ed.), *The fabric rolls*, p. 98; York, YML, E3/38.

65 Raine (ed.), *The fabric rolls*, p. 100n.

66 York, YML, E3/38.

67 York, YML, E3/38.

68 Harvey, *English medieval architects*, pp. 110, 149.

69 Harvey, *English medieval architects*, p. 110; S. Thurley, 'The domestic building works of Cardinal

employed during the building works. While some allowance must be made for biographical hyperbole, it is quite possible that the number of masons at work in the diocese on archiepiscopal projects was on the rise and that some of them also found employment under Forman at the Minster.[70] It is worth noting that the numbers of masons employed at the Minster drops to ten in 1529-30, the years of Wolsey's fall and death, and then decreases to five by 1535-36.[71]

Despite Raine's assurances that St. Michael-le-Belfrey is the main masonry project occurring at the Minster between 1525 and 1536, the fabric rolls are not so clear. In the rolls, masons working as setters at the church in 1527-28 were each paid 8s 4d which only amounts to about two and a half weeks' regular wages.[72] That the two masons were paid as setters indicates that stones had been prepared for St. Michael-le-Belfrey earlier but that this work was not specified in the accounts. Alternatively, they were engaged in making walls alone for which specially prepared stones were not needed or could be made on-site, or both. The line-items in the rolls from 1527-28 to 1531-32 record pay for six, fourteen, and an unknown number of weeks (the rolls are damaged). That so little time is recorded on the setting indicates that the masonry of the church was something of a 'weekend project' which a very small group of Minster masons (both masons and entailers) took up whenever they were able in order to supplement their regular wages. Such brief times spent each year on St. Michael-le-Belfrey also suggest that fairly limited amounts of new stone had to be prepared – a suggestion supported by the fabric itself – which indicates extensive reuse of existing materials. The project was not so much a rebuilding as it was a rearrangement. The final references in the rolls to the church occur in 1535-36 and are for interior woodwork and items associated with glazing.[73] These projects all took place in a church which was essentially complete and probably had been in regular use (if it had ever been out of use) for several years.

Olivia Saunders used testamentary evidence to support the notion of the 1525-1537 work as disruptive to the regular use of the church. She notes a marked decrease in testators' requests for burial within the church between 1525 and 1537, with only one testator requesting burial in a specific position within the building (I have found two more requesting burial in St. Michael's during the rebuilding period).[74] The almost total absence of burial requests in the church should be used with some caution. The twelve years of the rebuilding are a period of particularly light testamentary evidence not only for St. Michael-le-Belfrey but for all of the churches represented in the Dean and Chapter probate register. Most of the testators recorded are only mentioned as administrations, commissions in

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Wolsey', in S.J. Gunn and P.G. Lindley (eds.), *Cardinal Wolsey: Church, state and art* (Cambridge, 1991), p. 81.

70 Thurley, 'The domestic building works of Cardinal Wolsey', p. 94.

71 York, YML, E3/40, 41, 42, 43.

72 York, YML, E3/39.

73 York, YML, E3/43.

74 Saunders, 'Minster and parish', pp. 12-14. Testators requesting burial in St. Michael-le-Belfrey during the 1525-1537 period are: William Smith in 1525, York, YML, D&C wills v.2, ff.142-143; Richard Smith in 1533, York, YML, D&C wills v.2, f.165; and John Rayncote in 1537, York, YML, D&C wills v.2, f.183.

goods or probate acts with few texts of the wills themselves existing making it impossible to determine where these parishioners requested burial. Of the fifteen wills that were registered, three request burial somewhere in the church, six in the churchyard, four in churches or churchyards other than St. Michael-le-Belfrey, and two are unspecified. Of those requesting burial elsewhere three wished to be buried beside spouses or other important people in their lives who had predeceased them, so that their wishes for burial location were made regardless of the state of St. Michael-le-Belfrey at the time. The number of requests for burial within the church does increase after 1537 but this may be due partially to the higher survival rate of the wills themselves. In those wills that survive for the 1525-37 period the requests for long-term and numerous prayers, lavish funeral ceremonies, and funeral lights to altars remain strong. If the parishioners were in doubt as to whether there would be space for their bodies, they do not appear to have any doubt as to the availability and suitability of their parish church for prayers for their souls. The continuity of testamentary evidence for the rebuilding period reflects the likelihood that the transition from the pre-1525 church to the post-1525 church was gradual and non-disruptive. Yet the difference between the two buildings – especially spatially – was immense.

St. Michael-le-Belfrey before 1525

Sufficient documentary and physical evidence of the pre-1525 church survives to allow an outline of its appearance and spatial organisation to be made. The 1409 to 1510 visitation reports provide the most fabric-specific information. They are also useful in setting the impetus for the rebuilding in the context of the long-term relationship between the Dean and Chapter and their Belfrey parishioners. The surviving pre-1525 fabric allows a basic plan following the framework provided by the visitations to be proposed.

Visitation records for St. Michael-le-Belfrey make many specific references to the fabric and fittings of the earlier church between 1409 and 1519. From these it can be determined that the old church consisted of nave, chancel, two aisles, a tower (with substantial timber work) and a porch. The windows were glazed, but with dark and defective glass. There was a roodloft and 'stalls' in both chancel and nave, but no font is mentioned. Despite these useful references to the old church, the visitation reports are of primary use in recording the development of the relationship between Minster and parish and the dispute between them which resulted in the extensive restoration of the church.

St. Michael-le-Belfrey was visited by the Dean or his representative in regularly recorded episodes from 1409 at which time the fabric of the church was, if the report is to be fully believed, in such decay that the parishioners feared the building would collapse. They held their own 'expertise' on the state of the fabric from which they reported to the Dean on its dangerous state. The Dean and Chapter's response is not recorded and it can only be assumed that they did very little. The parishioners' complaints are repeated with variations and usually in less detail at every recorded visitation until 1510. In 1519, the last visitation, very few complaints are recorded. The long-standing dispute recorded in

the visitations over who was responsible for repairs must have its origins in the relationship of the parish to the Minster. The parishioners appear to have acted as though the Dean and Chapter had full responsibility for the entire fabric of their church. In the extensive testamentary record, parishioners preferred to give small sums to the altar or vicar for forgotten tithes and to St. Peter's Works, the Minster's fabric fund, rather than to the fabric of their parish church.[75] Perhaps their bequests to St. Peter's Works were meant as bequests to the fabric of St. Michael-le-Belfrey but one that recognised that the church was an extension of the Minster.[76] When the fact that the parish was the wealthiest in the city is taken into account, the small amount of money testators gave to their church underlines the parishioners' assumption that the building was entirely the responsibility of the Dean and Chapter. The parishioners also considered their church to be one of the most important in the city, the state of which reflected poorly on the Dean and Chapter rather than themselves, a fact they emphasised in the visitation report of 1409.[77]

Since the Dean and Chapter seem to have ignored St. Michael-le-Belfrey for more than a century, the literal truth of the parishioners' claims is questionable. It is unlikely that the Dean and Chapter were unaware of the state of St. Michael-le-Belfrey's fabric since the church was literally on their doorstep. Indeed, it was always the first church visited after the Minster and the Vicars Choral in the Dean's visitations and was the central church to which representatives of all of the other city churches in the Dean and Chapter's possession went to make their presentations.[78] Exaggerations in the parishioners' reports would be apparent to the visitors since the report was presented in the building itself. Perhaps the parishioners' use of building experts was an attempt to convince the visitors that the defects were not obvious, and that only the trained eyes of professionals could detect their true and dangerous extent. Yet some of the defects, especially those in the books and vestments, and in the roof which let in the rain, must have been obvious to even the casual observer. Not even these defects appear to have been amended since they regularly appear at each visitation. Perhaps the reason for the Dean and Chapter's neglect stems from an assumption on their part that the parishioners were not taking responsibility for what was reasonably their share of the upkeep of the building and its goods, especially since the parish was so wealthy. The deteriorating condition of the church may have been the result of a century-old standoff between parish and proprietor stemming from a misunderstood or ambiguous formal and traditional relationship that placed responsibility for the church under at least three jurisdictions: that of the Minster, the parishioners, and St. Martin-le-Grand to which it had been annexed in the thirteenth century.

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75 Of the 104 surviving wills between 1482 and 1554, most gave money (very small sums) to St. Peter's Works or to the parish priest. None gave money directly to the fabric of the church itself.

76 The funding of the rebuilding project was recorded in the Minster's Fabric Rolls, overseen by the Minster's Clerk of St. Peter's Works, and repeated payments of about £33 received from the Clerk of the Works throughout the rebuilding period all indicated that the Minster's own fabric fund contributed substantially to this work and that a contribution to this fund was a contribution to St. Michael-le-Belfrey - see the Minster Fabric Rolls York, YML, E3 38-44.

77 Raine (ed.), *The fabric rolls*, p. 246.

78 York, YML, D&C L2(3)b f. 8; L2(3)a ff. 10, 43, 68, 98, 150.

However, some moves toward repairing the church may have already been made by 1519. As mentioned above, in this year the fabric rolls record that a lock was purchased for the host. The 1519 visitation reports few defects in comparison to the full 'expertise' lodged in 1510. The only trouble with the fabric is the leaky nave roof. The faults with the tower (mentioned in all of the previous reports) do not appear. The parishioners requested to divert the funds of the Selby chantry in the church toward the repairs. This may be evidence that the parishioners had already taken matters into their own hands.[79] By 1525 the Dean and Chapter were funding the restoration. It was a project in which the Minster clergy took special interest.[80] Not until 1586, however, was the relationship between Minster and parish codified in writing which was carefully copied into each volume of the churchwardens' accounts.[81]

Old and new plans

The standing fabric supports the idea that the St. Michael-le-Belfrey renovation proceeded by stages. The pre-restoration church seems to have had an plan lacking unity (Fig. 22). By the later fourteenth century the east end was in its present position. The extent of the pre-restoration north wall is represented by the westernmost four bays, although it appears this was shorter on the west end by about half a bay. Vertical joints in the east wall indicate that the north aisle was approximately the same width as the present north aisle. The standing fabric suggests that the two easternmost bays of the north aisle were erected in a single campaign. It is probable that they stand on the site of the vestry mentioned in 1409. The central vessel itself may have been narrower than at present if the offset blocked window in the east end of the south aisle is a pre-restoration feature. This feature also defines the eastern and southern extents of the pre-1525 south aisle. It is probable that the original south aisle was some three or four feet (45-60 cm) narrower than the present aisle, and that the south arcade of the present church stands south of its predecessor. The west end of the previous church is more difficult to determine. There is some fabric evidence that the present western bay terminated approximately half a bay further east. Where the troublesome tower stood is impossible to determine with certainty. Three fifteenth century York churches – St. Saviour, St. Sampson and All Saints North Street – have western towers that are partially embraced by later aisle bays.[82] Perhaps this was the case at St. Michael-le-Belfrey with its archway to the nave now represented by the super-arch of the western facade. This is, of course, speculation. Likewise difficult to

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79 York, YML, D&C L2(3)a f. 152r.

80 The Fabric Rolls record that £111 were paid 'ad novam edificacionem ecclesie Sancti Michiaelis de Berefrido' in 1525-6 from the communal chest. John Coltman, then Minster Chamberlain, gave £33 13s 4d to the rebuilding in 1527-8 and may have given similar sums from 1529-32. In 1533 the Minster Subtreasurer Thomas Forne left £15 (if it could be wrested from the hands of the Abbot of St. Mary's) or 5 marks to the rebuilding. Christopher Seele, Thomas Marsar and John Coltman were Clerks of the Minster Works during the rebuilding and each of them donated an aisle window. Hugh de Ashton, residentiary Canon, also gave a window. These clerical windows show the sustained interest the Minster clergy had in the project, specifically the Clerks of the Works who oversaw the funding. Information compiled in Saunders, 'Minster and Parish', pp. 17-18, 96-97, 105-106.

81 York, BI, Y/MB 33.

82 RCHMEY, *South-west of the Ouse*, p. 3-6; RCHMEY, *The central area*, pp. 45, 47.

place is the pre-1525 porch. General English church tradition would place it in the westernmost bay or the second from the west on the south side and there are some churches in York where this is the case: All Saints North Street and St. Mary Castlegate being two. If this was also its position at St. Michael-le-Belfrey perhaps the porch was shallow, extending to Low Petergate on the line of the present south wall. What is most important to notice, however, is that the proposed plan, regardless of its western arrangement, is irregular, indicative of a building that grew by several accretions over a long period of time.

The old church plan was composed of several relatively small, individual cells: the nave, chancel, south and north aisles. At some point this arrangement, probably displaying heterogeneous architectural forms, filled with altars and images, crowded with stalls and screens must have become unacceptable and steps were taken to alter it. Perhaps the first steps were the building of the easternmost bays of the north aisle. This building activity may have set the design for the details of the rest of the church, especially for the windows, the stones of which here course with the surrounding walling in all but two instances. That the windows of the four westernmost bays of the north aisle integrate with the walling infrequently suggests that, after the erection of the eastern bays, an attempt was made to 'regularise' the remaining bays through a program of refenestration. The refenestration also resulted in the blocking of the door in the third bay from the east. But then work ceased for some time, or changed designers, since the moulding profile of the remaining windows of the church does not match those of the north. The bay rhythm of the refenestrated north aisle indicates that by the time the windows were inserted the overall design for a restoration and 'regularisation' of the whole church had been created. When it was created and when it was executed are two questions of some importance.

The plan of the existing St. Michael-le-Belfrey could not have been created piecemeal in the manner of the pre-restoration plan. Rather, it relied upon a generative technology that was reductive in nature utilising a limited but elegant architectural vocabulary to effect a spatially and architecturally unified building out of a heterogeneous existing structure. The two key elements are the geometry governing the plan and the arcades which govern the space.

The geometry that generated the St. Michael-le-Belfrey plan can be reproduced in a few simple steps (Fig. 23, the following text is keyed to numbers appearing on the figure). First (1), the designer determined a base measurement from which to generate the plan. In this case, it was an 18'3" (5.56 metres) measure which would become the basis for the width of the south aisle from pier centre to interior wall face. A square having 18'3" (5.56 metres) sides was created (2) and a diagonal drawn (3). The length of the diagonal – 25'11" (7.89 metres) – provided the width of the nave (4). Another 18'3" (5.56) length (5) was added to the preceding two lengths (the 18'3" (5.56 metres) base and the 25'10" (7.89 metres) diagonal) to produce the interior width of the church of 62'4" (18.87 metres). With the aisle width set vertically, perpendicular lines were extended horizontally representing the centerline of one of the arcades (6). From the end of the aisle width the nave width was

extended vertically and another perpendicular line was drawn horizontally from its end to produce the centerline of the second arcade. With the widths of the three vessels so determined and marked against the total interior width of the church, a square with sides equal to the full interior width of the building was extended either east or west (7). Next, a square was inscribed inside this largest square so that the corners of the inscribed square touched the midpoints of each of the sides of the larger square (8). This would produce an inscribed square rotated 45° around the same centre as the first square. A third rotated square was inscribed inside the second square (9). A duplicate of these three squares was then produced over the original three and then shifted east or west (10). For purposes of this argument I will say they were moved westward. They were moved until the eastern sides of the diagonal inscribed square intersected the western sides of the original diagonal inscribed square (7) at the point where both meet the centerlines of the arcades. The point where all three lines intersect is the centre of the middle piers in both arcades. At the same time, the full interior length of the church is taken to be the distance from the east edge of the first largest square with sides equal to the full width of the church to the west edge of its duplicate which had been shifted westward. In this case the dimension is 97'8" (29.78 metres). The centrepoints of the eastern and westernmost piers of the arcades are found where the eastern sides of the second and smallest inscribed square and the western sides of its duplicate cross the arcade centerlines. The piers between the centre and the eastern and westernmost are located by dividing the distance between in half.

In this way a regular six-bay plan with eastern and westernmost bays slightly shorter than the inner bays is produced. It is the only geometrical way in which this plan can be produced and the shorter eastern and western bays are the artefacts of this process. This is a reductive process working from outside in, from the plan as a whole down to the individual placing of the piers. This method can only produce a six bay aisled parallelogram that is symmetrical (including the eccentricities of its extreme bays) along both longitudinal and transverse axes. The effect on the church fabric of this plan was a regularisation of the overall space into the form of a parallelogram and to shift at least the south aisle wall and perhaps the south arcade several feet south, leaving the east window of the south aisle in an eccentric position. It also may have pushed the western limits of the church a half bay further west. The advantage of this plan was that it allowed two of the four church walls, including the most recent work in the north aisle, to be retained – a useful feature if services were to continue in the church with minimal interruption (as the testamentary evidence indicates). It also minimised the amount of new materials needed while maximising the new floorspace.

The generative geometry proposed is not entirely standard medieval design practice. During the Middle Ages numerous generative geometries were employed.[83] However, by the late Middle Ages the single most common generative geometry (when

83 The volume edited by Nancy Wu, *Ad Quadratum* (Aldershot, 2002) demonstrates the astonishing number of various medieval design techniques while reinforcing the notion that the most complex of plans were generated from a few simple elements.

geometry was used) relied upon √2 ratios and their derivatives.[84] In other words, the relationship of the length of a bay to its width equals approximately 1.414. This is achieved by making a square whose sides are the length of a bay (usually from pier centre to pier centre), drawing a diagonal from one corner of the square to the next and using the length of this diagonal for the width of the bay. For example, the nave of fifteenth century St. Mary, Thirsk was derived entirely from √2 and its √3 derivatives both in its plan and its elevations (Figs. 86-87). The system requires no mathematical knowledge and generates pleasing proportions. It is also additive in that one can go on adding bays or planning elements *ad infinitem* once the basic proportions are set. The designer does not need to have any specific overall plan in mind. At St. Michael-le-Belfrey, however, only the relationship of the width of the aisles to the width of the central vessel can be expressed in a √2 ratio. No such geometric ratio exists for the other proportions of the building. Once the basic units of the vessel widths had been determined, the rest of the geometric generation proceeded reductively – working from the overall plan downward. This planning technology *only* creates one type of plan to which nothing can be added or in which nothing can be varied once the base unit (the aisle width) has been determined. This is a geometry concerned with making a regular plan – not adding to a pre-existing plan. It is ideally suited to renovation and modification of a pre-existing building. It was used in late-medieval York for precisely this purpose in the middle of the fifteenth century on another Dean and Chapter church, one with close ties to St. Michael-le-Belfrey: St. Martin in Coney Street (St. Martin-le-Grand).

In the first half of the fifteenth century five York city parish churches were essentially rebuilt: St. Sampson, St. Saviour, St. Cuthbert, St. Crux, St. Martin-le-Grand. To these must be added the mid-fifteenth century building of the Guildhall which bridged the gap between ecclesiastic and secular.[85] The geometries used to generate all of these buildings differs greatly (Fig. 24). None of them relies upon √2 relationships, most appearing to have used simple 1:2:1 relationships such as that used at the Guildhall to determine vessel widths (the lengths here, however, appear to have used approximations of 6/100, the cumulative error of which resulted in a short western bay). In only one case, St. Martin-le-Grand, is any overall geometric system clear. The system used in the rebuilding of St. Martin-le-Grand in 1443 is identical to that of St. Michael-le-Belfrey. At St. Martin-le-Grand, which is not a regular parallelogram, the St. Michael-le-Belfrey system was nonetheless used to unify a very heterogeneous fabric – one which was, in 1443, at a stage of partial reconstruction which had been suspended due to lack of funds.[86] The effect of this system upon the fabric was to retain the positions of the north and west walls while pushing the east wall eastward and the north arcade further north, leaving the great west window in an eccentric position. The two churches also share their peculiar buttress form

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84 E. Fernie, 'A beginner's guide to the study of architectural proportions and systems of length', in E. Fernie and P. Crossley (eds.), *Medieval architecture in its intellectual context* (London, 1990), pp. 229-238.

85 RCHMEY, *The central area*, pp. 76-78.

86 RCHMEY, *The central area*, pp. 25-26.

which also appears on the southeast transept of the Minster. While it is impossible to determine if the new St. Michael-le-Belfrey design was part of a Minster 'house' style of the mid-fifteenth century, it is important to note that the generative geometries of both churches were employed to bring regularity out of the chaos of multi-period, heterogeneous fragments of earlier buildings.[87]

The planning connection between St. Martin-le-Grand and St. Michael-le-Belfrey brings into question the dating of the St. Michael-le-Belfrey design which in turn relates to the means by which the plan design was extended into the third dimension of space, which is where the real difference between the pre-restoration and post-restoration St. Michael-le-Belfrey lies. While most of the documentary evidence relevant to the fabric indicates that the most active period of work was between 1525 and 1537, it has very little to say about the date of the design itself. There are hints, however, both in fabric and documents to suggest that the design could have originated in the last decade of the fifteenth or the first decade of the sixteenth centuries. It has already been suggested above that the 1519 visitation report may be evidence that work repairing the dilapidated church had already begun. The fabric shows evidence of piecemeal building with the two easternmost bays of the north aisle setting the themes for the eventual full restoration. This seems to have been carried out sometime before the south aisle was rebuilt but already using the existing bay rhythm which means that by the time of the north aisle bay additions and refenestration, the plan had been generated. Stylistically, the moulding of the north aisle plinth, while similar to the early fifteenth century plinths of the old Library and the Zouche Chapel at the Minster, is most like the plinth of the north range of the Kings Manor, which was built from *c*1483 to *c*1502.[88]

In the gap between documentary and fabric evidence are the drawings of the St. Michael-le-Belfrey arcades and windows on the tracing floor of the Masons' Loft. This links the minster masons with the designing of the church. It also suggests that the new work concentrated on the arcades and windows. The designer has always been assumed to have been John Forman. However, given that he was in charge of extensive building works of at least three archiepiscopal palaces for Thomas Wolsey, as well as the Minster fabric, it can be questioned as to whether he would have the time or the interest to design St. Michael-le-Belfrey. If the rebuilding project had been considered for some time previous to 1525 it is possible that Christopher Horner, who died in 1523, was responsible for the Michael-le-Belfrey drawings. He was certainly more active in the parish, witnessing numerous wills and, when he died, requested burial in Michael-le-Belfrey, probably in the Lady Choir.[89] Interestingly, his predecessor William Hyndley left money to the Lady Gild 'ad ornamenta emendque pro altarí beati marie in ecclie mea po'in 1505.[90] Could this anticipate the rebuilding of or at least repairs to the chapel? Finally, in 1507 William Sourby, the parish priest, cryptically left a silver spoon to St. Peter's Works 'p no novo'

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87 For St. Martin's architectural history see RCHMEY, *The central area*, pp. 25-27.
88 RCHMEY, *The central area*, p. 30.
89 York, YML, D&C wills v.2, f.135.
90 York, YML, D&C wills v.2, f. 49.

('pro nostro novo'? - for our new [church?]) in his will.[91] The evidence, such as it is, leans toward a design created sometime between *c*1500 and 1519.

Space

Whoever made the drawings on the tracing floor, it is clear that they understood the methods by which the reconstructed St. Michael-le-Belfrey would be 'regularised'. The plan only represents the process in two dimensions. The unity of the space suggested by the plan could easily be ruined by the use of architectural elements which would divide the space in the third dimension, that is, in the space above the notional floor-level of the plan's geometry. The exterior regularisation was carried out through refenestration to one design, which is drawn on the tracing floor (Fig. 25). The unification of interior space was effected through the broad spacing of the piers and the use of the four-centred arch, also represented on the tracing floor. The effect of three-dimensional, spatial unity possible with the four-centred arch can be appreciated if St. Michael-le-Belfrey is compared to its nearest contemporary, the nave of St. Mary, Beverley (1520-*c*1525). The two buildings bear a strong resemblance, especially in their spandrel ornamentation (Pls. 10 - 6). The similarity is so strong, in fact, that it has lead some to suggest that the same designer was responsible for both.[92] However, the two could not differ more in their use of space and this is entirely due to the use of two-centered arcades at St. Mary, Beverley versus four-centered arcades at St. Michael-le-Belfrey. Two-centred arches cannot span the St. Michael-le-Belfrey bay length without rising to impractical heights. Such heights would have emphasised the vertical aspect of the nave, resulting in an unacceptably exaggerated proportion of vessel width and height which would favour the central vessel vertically, especially if a clerestory was to be added. Such an arrangement would reduce the St. Michael-le-Belfrey space to a series of three spatially separate compartments. Conversely, if exaggerated height was to be avoided and two-centred arcades to be retained, the St. Michael-le-Belfrey piers would have had to have been placed much closer together. The result of this would again be to separate the space of the nave from that of the aisles. At St. Mary, Beverley and, indeed, every other two or three-vessel church within York itself, each arcade forms an effective wall blocking everything but transverse vision into the aisles from the nave. The length of the bays combined with the comparatively low springings of the arches produce this 'phalanxing' effect. At St. Michael-le-Belfrey the bays are so long and the springing of the four-centred arcades so high that the piers effectively disappear. The space of the aisles is drawn into that of the nave and vice-versa. It is a single great hall while still allowing for the more traditional three vessel division that had existed in the previous church. It is, then, these arcades which realise the unifying potential proposed by the plan and are chiefly responsible for creating those qualities of openness, universal visibility, and lightness of structure apparent in the church today.

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91 York, YML, D&C wills v.2, f.68.
92 Arnold Pacey, pers. comm.

In summary, the pre-1525 church seems to have been a building composed of several different campaigns which resulted in a divided space of several distinct cells. It was a predominantly closed space. At some point, perhaps between *c*1500 and 1519, the first steps toward restoration were carried out with the addition of the eastern two bays of the north aisle. This set the precedent and design for the complete restoration of the building, the majority of which work appears to have taken place between 1525 and 1537. The restored church was homogeneous architecturally and open spatially, the roodscreen creating the primary spatial division rather than the architecture itself. The chief methods for achieving this 'regularisation' was the reductive nature of the geometry used to generate the plan – a geometry which appears to have been used especially for such homogenising purposes – and the four-centred arcades. Throughout this process, including the period of greatest building activity, the parishioners do not seem to have experienced any great disruption in the regular services in the church, if the constancy of testamentary requests for funeral and other services in the church is any indication of their experience. However, while services do not seem to have been especially disrupted, the testamentary evidence does reveal a change which directly impacted the restored church building as much as the new space contrasted with the old.

Use

Testamentary evidence is the largest single body of documentary sources surviving for St. Michael-le-Belfrey. Because the parish was in the peculiar of the Dean and Chapter, the parishioners usually registered their wills directly in their court rather than in the Archbishops'.[93] Proximity to the Dean and Chapter's offices in the Minster close and the wealth of individual parishioners must account for the high number of wills registered.[94] From 1482 to 1554 104 wills survive.[95] Wills are important for three reasons. First, they contain the only surviving references to what altars and important imagery existed in both the rebuilt and the previous churches. Second, they provide most of the written evidence for how the church building was used.[96] Finally, they record some of those complex networks of relationships familial, business and spiritual, local and national that existed amongst the parishioners. The first two are most relevant to the church itself.

The topography and imagery of the pre-restoration church are known from wills.[97] There were five altars, dedicated to St. Michael, Our Lady, St. Thomas of Canterbury, St.

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93 Twenty-eight Belfrey wills do survive in the first eleven volumes of the Archbishops' Registers and have been collated into the following discussion.

94 The evidence for the relative wealth of the Belfrey parishioners based on evidence from various medieval and early modern taxation records is summarised in Saunders, 'Minster and parish', p. 9n7.

95 1483-1554 is the period covered in the second and third Dean and Chapter probate registers. This is a convenient period since it covers the transition from medieval to modern and places the rebuilding of St. Michael-le-Belfrey roughly in the centre of the range.

96 The visitation reports offer scant information on the use of the previous church. Other than the obvious round of services which were apparently performed with tattered pomp, the visitation reports record that the parishioners sat in stalls in the nave (the wills also mention parishioner stalls in the chancel) and that some pious parishioners performed their devotions in the church daily.

97 Raine, *Medieval York*, p. 35-46.

Nicholas, and St. Mary Magdalene.[98] The entry to the chancel was equipped with doors as was the entry to the chapel of our Lady, indicating a roodscreen and at least a screen for the Lady Chapel.[99] Images of St. Anthony, St. Barbara, St. Blaise, the Crucifix (presumably the Rood), St. Erasmus, St. Michael, Our Lady of Pity, St. Paul, the Salutation, and St. Sith attracted bequests from fifteenth and early sixteenth century testators.[100] An Easter Sepulchre existed as well.[101] From these records a glimpse of the devotional topography of the previous church can be seen. It had a high altar and side altars dedicated to St. Mary and St. Thomas. The Lady altar was the centre of the strongest cult in the parish. Testators gave it more bequests than any other altar and requested burial near it more than anywhere else in the building. A gild of Our Lady appears in wills before and after the rebuilding. Two lights were associated with Marian imagery in the church. St. Thomas of Canterbury's altar may have been the home of the two known perpetual chantries in the church, those of William de Selby and Sir Ralph Bulmer, although the Selby chantry had dwindled to the point where the parishioners asked to divert its funds to the rebuilding work in 1519.[102] The St. Thomas altar attracted little testamentary attention.[103] The St. Nicholas altar survives in only one bequest in which it is described as standing at the door to the Lady Choir.[104] The altar of St. Margaret attracted no bequests during the 1483-1554 period and its location is unknown. If the building followed York tradition, it may have stood a bay or two further west from the main altars in either aisle and may represent the position of a chantry which had pushed the church plan outward as such subsidiary altars had in other city churches like All Saints North Street or St. Martin-le-Grand. There was a Rood and roodscreen although these attracted no testamentary attention during this period.[105] A great rowel, or chandelier, hung before the Sacrament at the High Altar.[106] The positions of the numerous lesser images is unknown. The floor glittered with polished tombstones, brasses, and possibly in one case, gold.[107] By 1525 numerous priests were kept busy with the various requests for prayers lasting only a year or less and the names of chaplains form a frequently changing group of witnesses in testamentary witness lists and

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98 Raine, *Medieval York*, pp. 35-37.
99 Raine, *Medieval York*, pp. 36, 37.
100 Raine, *Medieval York*, p. 37; J. Raine (ed.), *Testamenta Eboracensia: A selection of wills from the Registry at York*, SS 4 (1836), p. 269; J. Raine (ed.), *Testamenta Eboracensia: A selection of wills from the Registry at York*, SS 53 (1869), p. 337.
101 Raine, *Medieval York*, p. 37.
102 York, YML, D&C L2(3)a f. 152r; Benson, 'St. Michael-le-Belfrey', p. 108 places the chantries at St. Thomas' altar, but the VCH, *York*, pp. 395-396 says (incorrectly) that the Selby chantry disappeared after 1418 and that the Bulmer chantry could have been at either the High Altar or the Lady Altar.
103 Only four testators requested burial in the St. Thomas choir and most of these were clergy; while the *c*1530 glass now in the St. Michael-le-Belfrey north aisle and the Minster Chapter House depicting scenes in the life of St. Thomas Becket's parents is important, nothing of its origins is known and it is even possible that it came from another church. Peter Gibson (pers. comm.) thinks it originally came from St. Wilfrid's church after the union of the two parishes in 1548.
104 The 1522 will of Mayor Paul Gillour, York, YML, D&C wills v.2, f.131.
105 The roodloft receives the most attention in the visitation reports.
106 John Wilkynson, York, YML, D&C wills v.2, f.21.
107 See the will of Henry Aleyn, Proctor of the court of York, who in 1500 requested that the inscription on his and his wife's tombstone be written 'de opere aurifabri.' - published in Raine (ed.), *Testamenta Eboracensia*, 53: 178.

visitation reports.[108] Short-term chantries were endowed by sufficient numbers of individuals to make the altars hum with prayers a good part of the day.

Most testators made no mention of images, lights, gilds or subsidiary altars. Common devotion appears, from the wills, to have been generally orthodox but hardly fervent. Out of 104 only twenty mention altars, images or lights between 1483 and 1554. All but one of these references occur between 1499 and 1525. Between 1525 and 1537 only two testators make reference to any imagery, and these are to imagery not in St. Michael-le-Belfrey itself. After 1540 imagery and lights drop out of the testamentary record entirely with the exception of one mention of an image of Our Lady in the Lady Choir in 1540, which may reflect compliance with Royal Injunctions from 1536 prohibiting open veneration of images.[109] While only three references to the gild of Our Lady survive, one of these is post-rebuilding which indicates that this devotional organisation, at least, was strong enough to survive until Edward's reign.

The resulting glimpse of the devotional topography of the rebuilt church is rather bare compared to the previous building if that glimpse is *solely* based on testamentary evidence. Only the three main altars remain. No screens of any sort are mentioned.[110] No Rood or roodscreen appear, although these were present. Only an image of Our Lady exerted a strong enough pull to be mentioned in the final devotions of only one of the parishioners; no other testator mentions images. In the wills, no lights picked out images within the church. It is as though images simply did not exist. But the altars remained areas of constant activity as the temporary stipendiary priests continued their duties. The tombs continued and even increased in prominence, although the days of 'the work of the goldsmith' inserted in polished stone were gone.[111] Great candles and torches, leftovers from parishioners' funerals, burned upon the altars or were raised at the elevation of the Host, and some stood for a time on candlesticks about new tombs. The lights that burned in parishioners' wills after 1537 now picked out their hearses in funerals. The testamentary focus had shifted from numerous but scattered and individual concerns, to the concerns of the individual projected to the public and to God from the altars and tombs themselves.

Much more abundant than bequests to images, altars or lights are the often lavish instructions for funeral arrangements including, most commonly, lights about the burial

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108 The visitation reports list Robert Atkynson, Richard Aleyn, Peter Danyell, William Hoghton, Robert Birstall, Thomas Crichhert?, and William Gilmyn clerk in 1472 (York, YML, L2(3)a f.45r); William Soureby, William Spencer, Henry Jakson, and William Gilmyn clerk in 1494 (York, YML, L2(3)a f.73r); Henry Jackson, Peter Danyell, William Whithame, John Wright, William Metcalfe, William Gilmyn clerk in 1510 (York, YML, L2(3)a f.100r); John Thomson, Henry Diconson, Roger Wannyfforth, William Thomson, and William Gilmyn clerk in 1519 (York, YML, L2(3)a f. 151r).

109 Isabell Wild requested 'my body to be buried in saynt Michael church of belfray affore our lady in our lady quire' – York, YML, D&C wills v.2, f.200; R. Marks, *Image and devotion* (Stroud, 2004), pp. 250-262; Duffy, *The stripping of the altars*, pp. 398, 407.

110 Screens between the choirs, at least, are known from the Fabric Rolls and choir doors, therefore a choir screen, are mentioned in the churchwardens' accounts in 1593. (York, BI, Y/MB 33, f. 25.) The only reference to the roodlight occurs in a will of 1551 where it attracted a bequest 'if it fortune the Roodlight to be set up agayne.' (D.M. Palliser, *The Reformation in York 1534-1553*, Borthwick Papers 40 (1971), p. 28) The only reference to the Young Men's light also occurs in 1551 in the will of John Raynocke (cited in Saunders, 'Minster and Parish', p. 22).

111 Raine (ed.), *Testamenta Eboracensia,* 53: 178.

place or torches born in procession or both. In England in general and in York specifically funerary practice (with the exception of the formal element of the actual funeral service conducted in church) was little affected by official changes in religion.[112] Degrees of funeral elaboration are present in the majority of wills from 1483 to 1554. The emphasis here is clearly on display intended to be witnessed by as many as possible. Compared to bequests to imagery the funerary requests are more evenly distributed both socially and chronologically throughout the wills indicating a longer-lasting, and perhaps more universally important priority among parishioners at every level than bequests to specific imagery. It suggests that while belief in the efficacy of prayers for one's soul remained strong, there was a shift away from the more individual and exclusive means of securing those prayers represented by bequests to images and lights. There was a shift toward a more open, corporate and inclusive means of obtaining intercessions. Many testators cast a wide net for prayer preferring multiplicity of prayers from as wide a prayer-base as possible rather than prayers concentrated in only a few people and locations over a long period of time. The strengthening of this trend in corporate piety is an important factor in the rebuilding of St. Michael-le-Belfrey, dramatically affecting its design.

Whereas the numerous rebuilding and regularisation works carried out in the later Middle Ages throughout the city were in the service of chantry activity, by the early sixteenth century such activity had greatly diminished. No more perpetual chantries were founded in York after 1510.[113] In St. Michael-le-Belfrey no testator between 1483 and 1550 (with the exception of John Chapman who in 1530 founded a perpetual chantry in Knesall in Nottinghamshire)[114] makes provision for chantry-type regular prayers longer than twenty years.[115] Most of the testators who do make provision for long-term prayers endow priests for only half a year or a year. The St. Michael-le-Belfrey parishioners' loss of interest in the institution of the perpetual chantry culminated in their request for the Selby chantry's suppression. Along with the decline in the chantry went the decline in bequests to imagery. It seems that the new St. Michael-le-Belfrey offered the traditionally pious little that would attract such bequests.

What does continue unchanged are requests for elaborate funerals intended to be witnessed by as many people as possible and arrangements for lights to burn around burial sites within the church afterward. Testamentary evidence indicates that funerals at St. Michael-le-Belfrey in the first half of the sixteenth century could be grand occasions. In 1500 Nicholas Lancaster included six white-robed poor men and money to distribute bread to 800 paupers.[116] In 1539 Alderman Rauf Pullan requested that white robed 'adged men' and two women in white kirtles bear torches at his burial on the north side of the St. Thomas altar and as late as 1549 the lavish funeral of Robert Cooke at which £5 was spent (the equivalent of over two years' salary for a stipendiary priest at St. Michael-le-Belfrey)

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112 C. Gittings, 'Urban funerals in late medieval and Reformation England', in S. Bassett (ed.), *Death in towns: Urban responses to the dying and the dead, 100-1600* (London, 1992), pp. 172-175.
113 Palliser, *The Reformation in York*, p. 4.
114 York, YML, D&C wills v.2 ff.158-162.
115 In 1525 William Smith, Notary, endowed prayers for 20 years – York, YML, D&C wills v.2, ff.142-143.
116 York, YML, D&C wills v.2, f.29.

included four white-robed poor men bearing four torches in the presence of the twenty-four Brethren of the City, eight of whom bore his hearse to the church.[117] These kinds of elaborate funerals appear to have been unaffected by Edward's reign. The focus of the religious concern of the wills is on the last rites of the deceased and on the greatest possible participation in those rites by as many of the living as can be accommodated or afforded. Such funeral provision had been made by testators long before St. Michael-le-Belfrey was rebuilt. However, the old St. Michael-le-Belfrey, with its smaller, irregular space, narrow sight lines and multiple devotional foci, like most of the city churches, was not ideal for such public, visually-important spectacles. For those who desired burial in their parish church, the impact of such a funeral was greatly diminished by the highly divided space. The new St. Michael-le-Belfrey offered the opportunity for parishioners to take advantage of the spiritual and social benefits that celebration of an elaborate funeral in a large space with unobstructed visibility afforded.

Conclusion

St. Michael-le-Belfrey post-restoration in some ways epitomised York city church development while in other ways departed radically from it. Most of the city churches for which pre-Conquest evidence survives began as small, single-cell structures. These were gradually enlarged, usually by the addition of a chancel and the later extension of that chancel, most often in the thirteenth century as the role and separateness of the priest became more pronounced, and also by the adding of one or more aisles in connection with the multiplication of altars. From the late thirteenth century aisle-building, rebuilding and extension became widespread throughout the city with most episodes of expansion linked to the founding of perpetual chantries during the city's economic ascendancy. By the mid fifteenth century the economy was in retreat and the city's churches had ceased building.[118] The chief task undertaken in the last phase of work at most of the city's churches had been that of regularisation; of drawing the numerous and heterogeneous accretions of the past centuries into a uniform whole. Plans which had hitherto been organic in creation and in appearance were gradually brought into what by the mid fifteenth century would become the standard York city church plan: an aisled parallelogram without structural division between nave and chancel. St. Michael-le-Belfrey, as I have argued above, was no exception to this development.[119]

Spatially, however, the restored St. Michael-le-Belfrey departed significantly from York city tradition. On plan, of course, the church is emphatically focused at its exact centre[120] and this is a product of the reductive nature of its geometry. Spatially, however, the church lacks any clear focus. The light is generally uniform throughout the building throughout the day over the whole year. No one area is emphasised over another at any

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117 Rauf Pullan - York, BI, Prob. Reg. v.11, f.529; Robert Cooke - YML, D&C wills v.3, f.26.

118 D. Palliser, *Tudor York* (Oxford, 1979), pp. 201-225.

119 All Saints North Street is the best example in York of this kind of gradual development into a regularised, aisled parallelogram. See RCHMEY, *South-west of the Ouse*, pp. 3-6.

120 It would be interesting to know who was buried in this location, but later repaving including what may be the Minster's high altar mensa has made this impossible to determine.

time. Uniformity is displayed in the decoration with the greatest concentration of elaborate moulding profiles and carved ornament evenly distributed across the nave sides of the arcades. The large aisle windows with their stained glass, however, balance the decorative composition, which again mitigates against a particular focus or foci. Likewise, the church is not laid out in a series of discrete, framed views. Virtually every part of the church is equally visible from every position within the building. This near universal visibility, lacking any specific focus, is the hallmark of this space – something which was carefully constructed.

What is important about a space lacking any focus of its own is that temporary foci can be introduced at will. Thus, a hearse surrounded by its associated candles and torches set before the altar and framed by the roodscreen in the new St. Michael-le-Belfrey would be at both the centre of the building and universally visible from anywhere within the church. Wills in which specific reference is made to the theatricality of the funeral increased by 30% after 1525. As funerals maintained and increased their theatricality St. Michael-le-Belfrey was adapted to become more and more of a theatre. Akin to theatre is preaching, always important in the Middle Ages, but with growing emphasis placed upon Scripture itself, preaching as a necessity grew in importance. Fundamental to preaching success is visibility and audibility. The renovated St. Michael-le-Belfrey accomplished the first better than any parish church in the city. The focus of the space had moved from exclusive cells containing individual altars and had integrated to one where the users of that space could set the focus as they wished. The focus was on the individual amidst observers rather than on individual-dependent responses to discreet views of furniture and fittings determined by the structure of the building. The 'opened-up' post-1525 St. Michael-le-Belfrey was a humanised space; one in which the users defined the focus. It was a space that operated on human terms, that could be changed to suit the use. Here, relations were no longer primarily vertical, between individual person and the divine, as they seem to have been in the pre-restoration St. Michael-le-Belfrey. Now, they were horizontal as well, encompassing the congregation in the modern sense of the word in the presence of God.

Chapter Three: Creation and Re-Creation
St. Augustine, Skirlaugh, East Yorkshire

Introduction

St. Augustine, Skirlaugh is now a palimpsest. To its early fifteenth-century builder, Walter Skirlaw, Bishop of Durham, the church as it stands today would literally be transformed. The interior is an empty stone and wood box with only indistinct traces of its former states remaining. Its documentary history likewise gives brief and unfocused glimpses of its past. Nevertheless, the traces and glimpses exist and they are enough to make a sketch of its past appearance possible. In such an act of reconstruction it must be acknowledged that the endeavour will produce only what was likely to have been. What actually existed is irretrievable. That a sense of Skirlaugh's former significance can only be retrieved through reconstruction is, however, appropriate, for it is not the stone that gave Skirlaugh's space its form, it was its furnishing and decoration. The same was true for any medieval sacred space, but at Skirlaugh this can be especially observed. There is enough in the evidence clinging to the standing fabric to suggest that a cycle of creation and re-creation has occurred at Skirlaugh several times. St. Augustine, then, despite its present condition as an empty shell, offers an ideal opportunity for exploration of what different people in the final century and a half of the Middle Ages thought was fundamentally necessary for the definition of sacred space and the role played by now vanished furniture and decoration.

Before attempting to make a reconstruction, it is necessary to evaluate the current fabric, its development and what is known of its history. Following on from this and central to the ensuing reconstructions is the evidence for alterations to the fabric and decoration. After the physical evidence has been established, two reconstructions of the building's appearance are then presented. The first is of the interior *c*1540 where specifics of decoration and spatial order can be presented with most certainty. The second suggests its appearance in 1404, shortly after it was completed. Although certainty declines the farther back in time one attempts to reconstruct, the existing evidence, as well as auxiliary evidence from other sources provides enough information to present a picture of the church's original space. The documents relevant to the building, especially those from the medieval period, say nothing about the appearance of the building or its fittings. However, they do offer clues for how the building was intended to be used and how it actually was used in later years. Finally, the two reconstructions are evaluated for what they reveal about late medieval clerical and lay concepts of sacred space.

The extant fabric

St. Augustine stands in the small village of Skirlaugh near the banks of the Lambwath Stream about seven miles (11.25km) east of Beverley and seven miles (11.25km) north of Hull in the East Riding of Yorkshire (Fig. 26). It is a simple structure (Pl. 11). The plan consists of a projecting western tower and a single-celled nave and chancel of six bays total, each bay divided from the other on the exterior by buttresses but

undivided on the interior (Fig. 27). There are no aisles. The nave and chancel are 80 by 22 feet (27.2 x 6.7 metres). A small porch projects south from the second bay from the west and a similarly small vestry projects north from the easternmost bay. A stair block fills the junction of tower and west end on both the north and south sides of the tower, but only that on the north side contains a set of stairs. The door into the south block opens into a tall, unfinished chimney-like compartment the purpose of which is unknown. Opposing doors permit access to the nave in the second bay from the west. A smaller door in the south side of the second bay from the east gives outside access to the chancel. One three light window stands in the western wall of the tower. Almost identical three-light windows pierce the north and south walls of each bay of the nave and chancel. The east window is the largest, composed of five lights.

Today, the exterior of St. Augustine is its most notable feature (Movie 6). With the exception of the tower its composition is uniform and repetitive which is the key to its success as an archetypal Perpendicular design where unity is the guiding principle.[1] Nikolaus Pevsner called Skirlaugh the '*beau idéal* of a Perp. parish church.'[2] The tower and porch are later compositions than the nave and chancel which explains their ill-fit. The tower is a relatively complex structure and requires some length of description. It rises in three principal stages and is supported at its outside corners by diagonal buttresses of six stages. The first stage of the tower proper has a two-level moulded plinth which is of a different profile than the continuous plinth which runs round the rest of the church. Between the stages of this plinth runs a frieze of quatrefoils. Above the plinth runs a stringcourse even with sill level of the west window. The window itself is composed of three lights with simple Perpendicular tracery under a two-centred head. A second stringcourse runs at window head springing height. The first stage terminates at the apex of the west window in a embattled stringcourse. The second stage is short and consists of the present ringing chamber. The south face is pierced by a small quatrefoil square window. In the west face is set an ornate image niche with canopy. The north face is plain. The ringing stage terminates in a plain stringcourse and with detached pinnacles on the diagonal buttresses. The two stairwell blocks end at the top of this stage. The final stage is taller than the second and houses the bells. Each face is identical, composed of a single, tall window in the centre which is divided into four lights by a mullion and transom. The bottom two lights are blind while the top two are filled with louvres. The tracery in the round, two-centred heads is of a different pattern and, perhaps, geology than the tracery in the main church windows. A stringcourse ornamented by gargoyles and paterae marks the top of the tower and the beginning of the parapet. Eight pinnacles rise from the parapet, three to a side, between which stand an array of three openwork 'crenels' formed of

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1 The principles of the vocabulary of Perpendicular Gothic are discussed in C. Wilson, *The Gothic cathedral: The architecture of the great church, 1130-1530* (London, 1990), pp. 204-223; and in J. Harvey, *The Perpendicular style, 1330-1485* (London, 1978), pp. 67-74. Harvey cites unity, verticality, the 'organised quadrangle' as especially important features, all of which Skirlaugh exemplifies.

2 N. Pevsner, *BoE: Yorkshire: York and the East Riding* (Harmondsworth, 1972), p. 26.

trefoiled ogival arches with foliate finials. The tower composition its variety and intricacy is at odds with that of the rest of the church.

Each bay of the church proper is essentially identical, the only differences being window sill heights in the bays where there are doors. The whole of the building is built of unusually large blocks (3' x 2' about 1m x .6m) of a very fine grey sandstone, the source of which must have been a fairly distant quarry, perhaps in the Wolds west of Beverley, although a source even further afield is not impossible given the wealth and wide contacts of its patron.[3] Each bay is marked by three-stage buttresses which terminate in tall pinnacles. At the corners of the church are pairs of angle buttresses, the pinnacles of which rise slightly higher than those marking the bay divisions. There is a continuous two-stage plinth above which, in each bay, runs a stringcourse at window sill level which dies into the buttresses at either side. The windows themselves occupy most of the available wall space between the buttresses. They have two-centred heads and are divided into three lights under simple Perpendicular tracery. The central panels of the tracery are divided into four lights by a mullion and transom. The top lights are trefoiled but the bottom lights of the north and south windows lack cusping. The west window is identical to the north and south windows except that the central lights of its tracery are fully cusped. The east window, which is taller and wider, is composed of two overlapping west window tracery patterns. The central lights of its tracery are also fully cusped. Over the windows runs a hoodmould which terminates in shields charged with the arms of Walter Skirlaw. The top of the wall/base of the parapet is marked by a moulded cornice. The parapets are strongly battlemented with three crenels per bay except on the east wall where there are five set at a slightly higher level. The porch and vestry, although much shorter, follow the same general design. The head of the south porch door is four-centred. Their large battlemented parapets give both structures a top-heavy appearance. The three external doorways, all of which retain their original wooden doors, each have different, rich moulding profiles.

The interior is nearly devoid of medieval features (Figs. 28, 29, 30; Pl. 12; Movie 7). It is primarily a stone box made of enormous ashlar blocks, except in the tower where the north and south walls are made of rubble. The only relief to this now severe space is in the tower arch and the ornamental details near the altar. The tower arch is nearly as wide as the interior of the tower itself and rises almost the full height of the west wall of the nave. There is a later fifteenth century moulding on the nave side of the arch opening dying into the capitals of the octagonal tower arch responds. The capitals are of a typical 'stepped' mid-fifteenth to sixteenth century profile. The arch itself is of two chamfered orders. In the east end the ornamentation consists of the piscina and two image brackets. The piscina in the south wall is finely-detailed consisting of a moulded octagonal bracket into the top of which is carved a scalloped bowl itself partially within an ogee-headed recess in the wall. On the east wall under the corners of the east window sill and flanking the altar are two brackets. The southern bracket is the largest. Both are octagonal. The northern bracket's principal faces are carved with paterae. Running along the top of the north and south walls

3 Peter Gouldsborough, pers. comm.

is a moulded cornice. Additional decorative relief is added by the original oak doors retaining what is probably their original ironwork which is decorated with simple patterns. The most ornate ironwork is the boss-like ornament in the centre of the vestry door which at one time formed the base of the original door handle. The ceiling is modern and consists of a series of shallow inverted pyramids designed to enhance the acoustic performance of the space.

The foundation, use and status of St. Augustine

A chapel in Skirlaugh has surfaced periodically in the surviving historical documentary record since 1337 when a dispute arose between the parishioners and Swine priory.[4] No trace of the chapel of that time remains with the possible exception of a stone bearing the carving of a bishop uncovered in the vestry during the 1981-91 restoration.[5] Its next historical appearance is in Walter Skirlaw's will in 1403 where he bequeaths 200 marks towards its completion. This is followed by his foundation charter in 1404, the most important surviving document, and then a reference in Skirlaw's inventory drawn up, presumably, after his death on 24 March, 1406.[6] In 1479 the 'pauperii hospitilitati in cimiterio de Skirlagh' are mentioned in William Squyrig's will.[7] The church is regularly mentioned in early sixteenth century wills, including several requests for funeral masses and even a half-year chantry.[8]

The charter is a fascinating document because it sets out explicitly the reason for building the chapel, how it was to be used, and by whom. Skirlaw founded the chapel 'out of the devotion and sincere affection which he bore to the Nunnery of Swine and to the Chapelry of Skirlaugh (where he was born) and to the relief of certain poor parishioners of the said Chapel.' Two chaplains, a Warden and a Second, were to serve. The Warden was also to have cure of souls. The weekly round of services is prescribed in detail. It was to follow the canonical round of hours as observed by the clergy of the colleges and secular cathedrals. Every day there was to be the set Mass for the day according to the Use of York. On Monday, Wednesday and Friday there was also was to be a Requiem Mass and on Tuesday, Thursday and Saturday there was to be a Mass of the Virgin. On Sundays was a full High Mass by one priest and a Mass of the Trinity by the other. All of this was to be done for the special benefit of Skirlaw while he lived (a benefit he was to enjoy for almost two years) and for him and his relations and benefactors after his decease. In this way the chapel was like many perpetual chantries, but it also functioned parochially under the Warden's cure of souls and with the laity explicitly expected to be present at Mass on

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4 T. Thompson, *A history of the church and priory of Swine in Holderness* (Hull, 1824), pp. 191-192.

5 G. Jarratt, *The life of Walter Skirlaw: Medieval diplomat and Prince Bishop of Durham* (Beverley, 2004), p. 211, n. 646; I did not find this stone during my survey of the building in May, 2004.

6 Walter Skirlaw's will is published in J. Raine (ed.), *Testamenta Eboracensia: A selection of wills from the Registry at York*, SS 4 (1836), pp. 306-27; and the foundation charter is in T. Langley, *The register of Thomas Langley, Bishop of Durham, 1406-1437*, v. 2, Ed. R.L. Storey, SS 166 (1957), pp. 81-90.

7 York, BI, Prob. Reg., v. 5, f. 142.

8 The half-year chantry was requested by Richard Nevell in 1545, BI Prob. Reg., v. 13, f. 30. The other surviving medieval wills from residents of Skirlaugh up to 1546 are: BI Prob. Reg., v. 5, f. 170; v. 6, ff. 150, 155; v. 9, ff. 85, 156; v. 11 , ff. 89, 453, 485; v. 13, f. 175.

Sundays. There is no reason to believe that Skirlaw's charter was not carried out in full until the dissolution of the chantries in 1548 (although Skirlaugh is not mentioned in Kitching's list of dissolved chantries) and two chaplains were always in office from 1404 until 1529 at least.[9] But, based on testamentary evidence, the chaplains did gain additional duties. By the sixteenth century, they were also being paid to pray for the souls of some of their parishioners as well as the Prince Bishop. The laity seem to have fully adopted Skirlaw's gift and put it to their own uses by the sixteenth century.

The formal status of St. Augustine within the parish is unclear. In 1337 a dispute over the status and duties of the chapel and its parishioners in relation to Swine Priory was taken to Archbishop Melton.[10] Melton ruled that the parishioners of Skirlaugh and the surrounding settlements were responsible for the maintenance of the entire chapel, its fittings and all the articles necessary for Mass as well as the maintenance of a stipendiary chaplain. Swine Priory was only to contribute 1d from every oxgang of land they held in Skirlaugh and £1 10s 4d yearly. The parishioners were also required to go to Swine on Easter and on the feast of the Assumption of the Virgin 'as they were wont to do in former times.' This indicates that the mid-fourteenth century chapel was a fairly independent entity in practical terms, but that the mother church still required its parishioners to take their yearly Sacrament at Swine. Perhaps tithes payment is represented by the requirement to attend Swine on the Feast of the Assumption of the Virgin. Skirlaw's charter made no such demands on the parishioners, nor yet did it explicitly remove the parishioners' obligations to the mother church. In later years every parishioner whose will survives requests burial at Swine and so it seems fairly likely that Skirlaugh never had burial rights and that the 'cimiterio' mentioned in 1479 was simply the church garth where the priests had their house and where there was some kind of hospital.[11] Nothing is known about the right of baptism at Skirlaugh. The registers do not officially begin until 1719 but Kent mentions transcripts of some beginning in 1600.[12] A 1552 inventory of church goods at Skirlaugh mentions 'one cresmatorye' which may have been associated with a font.[13] If St. Augustine ever had right of baptism in the Middle Ages, perhaps the addition of the south porch, an area associated with both baptism and marriage, reflects the granting of that right. Skirlaugh was not formally made a separate parish until 1867.[14]

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9 Kitching's chantries list is published in C.J. Kitching, 'The chantries of the East Riding of Yorkshire at the Dissolution in 1548', *YAJ* 44 (1972), pp. 178-194; For a list of chaplains see Thompson, *Swine*, p. 197 - the last Second was presented in 1529; In 1535 only one chaplain's stipend was mentioned in a list of stipendiary clergy in Holderness – Anon., 'The East Riding clergy in 1525-6', *YAJ* 24 (1917): 68.

10 This is summarised in detail by Thompson, *Swine*, pp. 191-192 who took it from Torre's MS on the East Riding p. 1428.

11 For the location of the priests' house see G.H.R. Kent, 'Skirlaugh', in K.J. Allison (ed.), *A history of the County of York: East Riding* (Oxford, 2002), 7: 164.

12 Kent, 'Skirlaugh', p. 166.

13 W. Page (ed.), *The inventories of church goods for the Counties of York, Durham and Northumberland*, SS 97 (1896), pp. 48-49.

14 Kent, 'Skirlaugh', p. 164.

Creation and Re-Creation of Space

Architectural and decorative development

Uniformity of design seems to have induced a general suspension of critical evaluation of the church's development by other writers. Of all of the antiquarian and modern investigators of St. Augustine's, Kent alone seems to have suspected that the building as it stands now is not entirely of one period.[15] The completion of the church proper is likely to have been 2 May 1404, the date of Walter Skirlaw's foundation charter. The tower and south porch, however, are later additions. The later date of the south porch is immediately obvious because of its generally cramped fit between the buttresses of the second bay from the west, its butt-joining to the south wall and buttresses of the church and its entrance with its four-centred head. The tower is, perhaps, less obviously an addition – at least the lower two stages. This is chiefly due to the presence of the west window bearing identical tracery to the other windows in the building and, more importantly, Skirlaw's arms on the hoodmould stops. However, there is good reason to think that this window is reset from its original position in the west wall of the church. The first exterior clue that the tower is not of the same date as the rest of the church is its plinth which has a different profile and the addition of the quatrefoil frieze. Other differences of detail such as the battlemented stringcourse separating the first and second stages and the numerous details of the belfry stage, especially its tracery, headstops and openwork parapet, all mark the tower as later work. The parapet is virtually identical to the tower parapets at Beeford, East Yorkshire nine miles (14.5km) north of Skirlaugh and Holy Trinity Hull. At Hull the parapet can be dated to the early sixteenth century.[16] That the tower is a different build is immediately confirmed on the interior by the rubble walls which stand in sharp contrast to the megalithic ashlar of the rest of the church. The mouldings of the tower arch itself appear to point toward a later fifteenth century origin and are not of the same character as the other mouldings at Skirlaugh or indeed of Skirlaugh's surviving work at the Bishop's Manor at Howden which is in many ways similar to St. Augustine.[17] The four-centred heads of the two staircase doors also add weight to the argument for a later fifteenth century origin for the tower. That the west window was reused is suggested on the interior by its ill fit with the inner walls. It is as wide as the tower interior forcing an awkward fit within the thickness of the west tower wall which results in an extra order added to the window head by a segmental arch. The window jambs themselves are too thin for the wall in which they are set indicating that they were originally intended for a thinner wall.

The fabric of St. Augustine has been changed in other ways as well. The addition of the tower necessitated major alterations to the original west wall of the church involving

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15 Kent, 'Skirlaugh', p. 165.

16 N. Pevsner and D. Neave, *BoE: Yorkshire: York and the East Riding* (London, 1997), pp. 274, 506, 689.

17 The porch at Howden Manor has been attributed to Skirlaw because it bears his arms but the moulding profiles of its plinth and entryway do not match the rest of Skirlaw's work there. It is possible that the porch here, as at St. Augustine's, was a later addition, perhaps by the same masons, who made attempts for it to harmonise with the earlier fabric. The mouldings of the inner doorway into the Manor are very similar to the south door moulding at St. Augustine. The tower arch moulding at Skirlaugh does not appear at Howden Manor.

the removal and resetting of the original west window and the insertion of the tower arch. The tower addition also required the removal of most of the original west wall parapet. Two fragments of the original western parapet may survive *in situ* on either side of the tower. These rise at an angle which suggests that the original western parapet may have had a false gable (Pl. 13, Movie 8). The window tracery of the church may also have been altered at some time, possibly during the 1879-80 restoration which specifically targeted the tracery.[18] These alterations, if they took place, were minor, but may explain why the central tracery lights of the north and south windows lack cusps. The elevation of the east end included in Britton drawn in 1813 shows a quatrefoil in the apex of the east window tracery instead of the present two lights (Fig. 31).[19] However, Poole's *c*1844 engraving, also pre-restoration, shows the east window exactly as it is now (Fig. 32).[20] One of the engravers may have simply been inaccurate. It is also possible that there was an unrecorded restoration between 1813 and 1844.

Interior alterations have had the greatest impact on the organisation and use of the space but have also left the least substantial traces. The tower interior, because of its small size and its separation from the nave by the tower arch, has little impact on the space. Of much greater impact was the roodscreen and loft which may not have been originally intended for the space. The chases for both screen and loft remain, patched with ashlar, in the north and south interior walls between the fourth and fifth bays from the west. This divided the interior into a chancel of two bays and nave of four. The roodscreen stood until *c*1819 when it and all of the other furniture in the church was removed and the church repewed.[21] The appearance of the screen and loft itself is only generally known. In the Archbishop's Visitation Court Book of 1567/8 there is an entry recording charges against the Skirlaugh churchwardens and their replies to those charges.[22] The wardens were charged with numerous faults in the books and services. Among the charges were ones concerning 'painted pictures in the Rode Lofte'. To this charge the wardens replied 'that

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18 Kent, 'Skirlaugh', p. 165. The faculty is not held by the Borthwick Institute.

19 J. Crosse, 'Skirlaw Chapel, Yorkshire', in J. Britton, *The architectural antiquities of Great Britain* (London:1835), 4: plate between pp. 98-99.

20 G.A. Poole, *St. Augustine, Skirlaugh* (Leeds, 1844), plate between pp. 16-17.

21 Kent, 'Skirlaugh', p.165 says that the screen and other woodwork were removed *c*1835 and cites Poole (*Skirlaugh*, p. 50) who commented that they were sold 'about twenty years ago' and then dates back from Poole's 1855 edition twenty years to arrive at 1835. This follows Aymer Vallance's notes on the screen in A. Vallance, 'The history of roods, screens, and lofts in the East Riding', *YAJ* 24 (1917): 167-168. However, Poole's monograph on Skirlaugh was first published in 1844 which then pushes the date for the removal of the screen back to 1824. Thompson, *Swine*, p. 185, writing in 1824, however, comments cryptically that the interior was left in its original condition until within 'a few years ago.' The earliest architectural description of the church was published in 1835 in volume 4 of John Britton's *Architectural Antiquities* by. J. Crosse who dated his work on the church to April 1814 and the engravings to August and September 1813. Crosse, 'Skirlaw Chapel', p. 100 comments that the woodwork was still in place at that time. This means that the woodwork was removed sometime after 1814 but before 1824. In 1819 a faculty was granted for repewing the church (Kent, 'Skirlaugh', p. 165). The faculty is not in the Borthwick Institute, but this is the likeliest date for the removal of the medieval woodwork and accords well with Thompson's statements. Locating the working papers of architect W. Porden whose drawings Crosse used for his 1814 description might reveal a sketch of the once grand roodscreen. Time has not allowed for this interesting and enjoyable pursuit.

22 York, BI, V.1567-8/CB.1, ff. 211v-212r. The fact that there were churchwardens at Skirlaugh in 1567/8 and that they were visited separately from Swine adds weight to the argument that the chapel was functioning parochially in the sixteenth century.

theyr is in dede some paintinges in ther church,' which suggests that they were being cautious in confessing that the roodloft was still standing undefaced. It may also refer to paintings elsewhere in the building. This sort of foot-dragging reform was not at all uncommon in the Riding in 1567 and numerous other churches, including the mother church of Swine where a Rood was standing in the north aisle. Swine had retained its screens and loft complete with paintings having 'superstitious thinges therein' such as a depiction of the Five Wounds of Christ on a shield.[23] When the screen and loft at Skirlaugh were installed is not known. Crosse, the earliest writer on the church, was of the opinion that the woodwork present in 1814 was original to the church in 1404.[24] Thompson, who grew up in Swine parish and had no doubt seen the screen before its removal, was of the same opinion.[25] Poulson writing in *c*1841, who seems to be quoting Crosse but who also could have seen the Skirlaugh screen before its removal, also states that the screen was of the same date as the church.[26] Finally, Poole, who probably did not see the screen itself but did see and illustrate a fragment of a moulded timber from it, also asserts that the woodwork was from Bishop Skirlaw's time (Fig. 33).[27] Aymer Vallance identified the moulded fragment illustrated in Poole as either the 'lintel of a screen of rectangular construction, or the breastsummer of the rood-loft.'[28] Nevertheless, it is possible that the roodscreen and loft were not erected until sometime after Skirlaw's chapel was completed because some of its traces in the fabric appear to cut through and overlay earlier wall painting.

The 'paintinges' to which the churchwardens of 1567 confessed were not just on the screen and loft, but extended to the walls. The alteration and then loss of these constitute the second most noticeable set of changes to the interior of the church. There are traces now of at least three layers of wall painting at Skirlaugh chapel. They are the faintest remains, but they do allow some basic statements to be made about the interior decorative scheme. The topmost, and most visible layer today, are fragmentary texts (Pl. 14) which were probably added sometime after Canon 82 required the painting of verses of Scripture on church walls in 1603.[29] These overlay another layer of paint. Belonging to this layer are the remains of a scene in the southwest corner of the nave (Pl. 15). The landscape and possibly the feet of a figure survive on the west wall, having been protected from later forces of decay by being covered by the western gallery which had probably been erected in 1819 at the time of the repewing. This figure is painted over a thin layer of plaster or

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23 York, BI, V.1567-8/CB.1, ff. 193v, 210r; A.G. Dickens, 'The first stages of Romanist recusancy in Yorkshire 1560-1590', in A.G. Dickens, *Reformation Studies* (London, 1982), p. 163.

24 Crosse, 'Skirlaw Chapel', p. 99.

25 Thompson, *Swine*, p. 185. A note penciled on the flyleaf by Vincent Perronet, Vicar of Shoreham on Minster Library Copy 2 of Thompson states that Thompson, a Banker in Hull, was born at Owbrough in the parish of Swine in 1753. It is very possible that he knew the Skirlaugh screen.

26 G. Poulson, *The history and antiquities of the Seigniory of Holderness, in the East Riding of the County of York, including the abbies of Meaux and Swine, with the priories of Nunkeeling and Burstall* (Hull, 1841), 4: 266.

27 Poole, *Skirlaugh*, p. 50.

28 Vallance, 'Roods, screens and lofts', p. 168.

29 G.A. Poole, *St. Mary, Thirsk* (Leeds, 1844), p. 12 cites this cannon as the impetus for the wall texts at Thirsk visible in 1844.

whitewash, itself overlaying a red ground painted onto the bare stone. The red ground occurs in traces throughout the church, most noticeably with stenciled diapering or powdering on the south wall in the region of the roodscreen and loft chases (Pl. 16). They perhaps owe their survival to having been covered by the roodscreen and loft themselves which also suggests that the roodscreen and loft were installed after the first painting scheme was completed. The surviving area of paint forms the outline of a loft of square construction and is cut through by some of the structural traces of that loft.

The final obvious change to the interior of the church is the ceiling. The present ceiling was installed in 1967 to replace the badly decayed original.[30] It effects both a visual and an acoustic change by flattening the ceiling space to level with the cornice and by its specially-designed acoustic panels which help to diffuse the sound. In 1844 Poole's perspective of the interior showed a low-pitched ceiling composed of massive firred beams placed at the divisions of the bays with common rafters between (Fig. 32).[31] Moulded purlins provided support.

Documentary evidence indicates the extent to which the furnishing has also changed. In the church until *c*1819 was a complete set of medieval benches, a pulpit, possibly choir stalls and stained glass. The furniture has, like the screen, vanished, but unlike the screen has left no trace. Crosse mentioned only 'the pulpit and seats...coeval with the building.'[32] Poole speaks of 'screen and stalls' but this is possibly a liberty with his source (likely Crosse or Poulson) in order to prove a point (and Kent seems to have taken him at his word).[33] Evidence for the window glass remains in the form of a few fragments formerly in the northeast window but arranged in 1981 in the east window to form a composite angel and 'vase' with the initials W S (presumably for Walter Skirlaw).[34] (Pl. 17) Crosse quotes one 'Wood', who is not further identified, as reporting that Skirlaw's arms were set in every window.[35] Thompson gives more details quoting Warburton's MS in the British Library (Lansdowne MSS. No. 894).[36] Warburton visited the church in 1656 and at that time reported that the windows were, 'all curiously painted, and set with coats of arms, but now almost all gone, and white glass in lieu thereof. Remains only Walter de Skirlaugh.' But Thompson notes that later in the same MS Warburton lists six additional arms of which the royal arms and those of Fitzhugh, Constable, and Lascelles or Hilton could also be identified. The Constables and the Hiltons were important local gentry.[37] The royal arms were probably included through Skirlaw's close connection to the King. Their survival, along with Skirlaw's arms, indicate that the glazing of the church remained stable into the seventeenth century. The other arms may be those of donors who contributed to the fabric either at the time of building or later

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30 Parish Church of St. Augustine, Skirlaugh, *The parish church of Saint Augustine, Skirlaugh* (Skirlaugh, 1967?), p. 3.
31 Poole, *Skirlaugh*, plate between pp. 50-51.
32 Crosse, 'Skirlaw Chapel', p. 99.
33 Poole, *Skirlaugh*, p. 50; Kent, 'Skirlaugh', p. 165.
34 Kent, 'Skirlaugh', p. 165.
35 Crosse, 'Skirlaw Chapel', p.100.
36 Thompson, *Swine*, p. 198.
37 Kent, 'Skirlaugh', pp. 156-164.

and represent insertions. The loss of this glass, which Crosse blamed on the strong winds in the area, greatly changed the interior of the church.[38]

Finally, two small but significant alterations occurred in the chancel. The image brackets (Pls. 18 - 19) on either side of the altar do not appear to be in their original positions. Both do not course well with the surrounding masonry and there is an ashlar 'patch' just north of the north bracket indicating the former presence of something. The north bracket is entirely out of style with the other details of the church, especially the south bracket which is larger and less ornate. I would suggest that the south image bracket originally stood where the ashlar patch is now which is roughly the same size as the bracket. At some point after the initial completion of the chapel this bracket was then moved to its present position on the south and the north bracket was installed. This represents a significant reordering of devotional space. Like the wall treatment and the arrangement of furniture, the image brackets and their changes reflect the intended and the actual use of the space which is known from St. Augustine's brief but important documentary history.

Reconstruction – Envisaging the past

Skirlaugh Chapel is a box into which anything can be placed. At first glance, the church interior is disappointing and remarkable only for its plainness. In its present stripped state St. Augustine appears to be the barest expression of Francis Bond's definition of the purpose of a church building as a shelter for an altar.[39] This was not one of the purposes understood for churches in the later Middle Ages and church and altar were seen to exist quite separately.[40] Bond's definition also misses the more fundamental point that church space depends upon its furniture and decoration to give it order and definition. At Skirlaugh this is well demonstrated. While the space may appear empty and functional in the extreme, the St. Augustine of today is a wholly different space than the St. Augustine's of 1540 (Movie 9) and that is different again from the original St. Augustine of 1404 (Movie 10). The only thing the three spaces have in common is the stone, which, as Durandus was at some pains to note, does not by itself impart order, definition or even existence to the church.[41]

The traces of the church of 1540 and 1404 are hints but do not constitute a complete or unambiguous picture. They leave many gaps to be filled. The following two reconstructions of the church are founded upon the surviving evidence but, in order for the argument of spatial change effected by changes in furnishing and wall rendering to be clear, they must be supplemented by evidence from elsewhere. For instance, only scraps of medieval glass survive but it and the post-medieval references to it are enough to suggest that it was armorial and figural and that it probably changed little after its installation

38 Crosse, 'Skirlaw Chapel', p. 100.
39 F. Bond, *The chancel of English churches,* (Oxford, 1916), p. 1.
40 W. Durandus, *The Symbolism of churches and church ornaments: A translation of the first book of the Rationale Divinorum Officiorum,* ed. and trans. J.M. Neale and B. Webb, 3rd edn. (London, 1893), pp. 86-87, 98.
41 Durandus, *Rationale*, p. 100.

*c*1404. Walter Skirlaw is famous for his patronage of stained glass and for these lavish works he relied upon the glazier John Thornton. Therefore, the windows in the reconstructions are pieced together from work attributed to Thornton or glaziers within his influence, chiefly from the Minster but also including the surviving fragments at Skirlaugh and canopies from All Saints North Street.

Reconstructing the two wall painting schemes was much more difficult. The traces at St. Augustine can be used only as guides. A figural scene on a white background appears to overlay an earlier, more abstract layer executed on a red background. There are some very faint traces elsewhere in the church that, with imagination, could be the remains of a decorative border running a few feet beneath the window sills, such as the one surviving in the southwest corner of All Saints North Street, York. Using these clues two interior painting schemes were created. The colours used in the models were determined digitally from photographs of Skirlaw as well as the more complete painting scheme surviving in the Ely Cathedral Lady Chapel. The soft tones achieved in the models are in keeping with the cheap pigments, most commonly red and yellow derived from iron ores, usually employed in medieval wall painting.[42] The figural paintings of the 1540 model date from the late fifteenth and early sixteenth centuries when large but less naturalistic figures, sometimes with borders and secondary stenciling were common.[43] The earliest layer of paint, which seems to underlay the roodscreen and loft at Skirlaugh appears to have been executed upon a red base and patterned with rosettes or symbols in black, or perhaps vermilion (which has since oxidised and turned black).[44] The 1404 model shows patterns executed in both colours. They could represent the remains of a 'stoning and roses' pattern, but this was usually executed upon a white base with a red or black brick pattern drawn.[45] At Skirlaugh, only a red ground with stenciling but no brick pattern survives.

While the precise appearance of St. Augustine's in 1404 and 1540 was probably different from the ones envisaged in the models, they are intended to support an argument for the general character of that appearance in the past based on the available evidence. The two interior reconstructions are best explored by loading both *QuickTimeVR* movies (Movies 9 and 10) side-by-side on your computer screen and looking at them from different angles, comparing them. The differences between the two are dramatic and reflect the shift from Skirlaw's chantry to Skirlaugh's parish church.

St. Augustine in c1540 (Movies 6 and 9)

St. Augustine at the end of the period is presented first because the evidence for its appearance is strongest. By *c*1540 the single cell of the original church was divided into five distinct spaces: tower, south porch, nave, chancel, and vestry. The limits of the tower, porch and vestry spaces are still self-evident. The nave occupied the westernmost four bays

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42 D.V. Thompson, *Materials of medieval painting* (London, 1963), pp. 118-121.
43 Thompson, *Materials of medieval painting*, pp. 23-26; images from A. Marshall, *Painted church*, Available: http://www.paintedchurch.org
44 Thompson, *Materials of medieval painting*, p. 124.
45 A complete scheme of 'Stoning and Roses' survives in the chancel of Morley, Worcs.

of the church east of the tower and the chancel occupied the remaining two eastern bays. Dividing them was a large roodscreen and loft painted with images which would have been surmounted by a Rood group. The walls were painted and decorated, some of it figural, and the windows were filled with glass which included armorial displays, especially of Skirlaw's arms. There was an altar against the east wall flanked by two brackets, the south one having a pricket and candle. Both brackets undoubtedly bore images: the north probably that of St. Augustine and the south that of the Virgin. This, then, is as much of the space as can be known from the present fabric. In 1814 Crosse referred to the presence of seats and a pulpit of medieval character. What Crosse meant by 'seats' cannot be known, but it seems reasonable that there were benches as well as a pulpit in the nave and possibly some form of stalls, perhaps a wooden sedilia, in the chancel.[46] The glass by this time may also have included figures of individual saints contributed by parishioners or other patrons.[47] By the Reformation the church was divided by its roodscreen and loft into nave and chancel all richly painted and the windows filled with stained glass. It was awash with colour. It is a fundamentally different space than the one that exists at Skirlaugh at present. The original church of 1404 was yet another space.

St. Augustine in 1404 (Movies 8 and 10)

Identification of the St. Augustine of Bishop Skirlaw's intentions is a more difficult task and here more weight must be placed on less evidence. However, in general it is certain that the original design included neither the tower nor the south porch. All that is certain of the interior is that it left ample room for painted and glazed elaboration. The original church was a rectangular stone box of six bays with no structural internal divisions. Very little of what filled that space at the time of its consecration in May 1404 can be known with certainty. There was an altar for the two chaplains to celebrate at, a missal given by Bishop Skirlaw to guide them, and a piscina for cleansing the priests and the chalice. The windows were, of course, filled with stained glass and this probably survived at least partially intact up to the seventeenth century. It is entirely possible that there were figures and even narrative scenes in the glass given Skirlaw's extensive figural and narrative glass donations to other churches.[48] The walls were painted. The surviving traces indicate that the interior was uniformly covered with a red base upon which were stenciled black and possibly darker red, perhaps gilded, designs.[49] Based on the traces of

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46 The dimensions of the chancel and the arrangement of doors make a full choir of twelve or more stalls very difficult to fit within that space. There is no sedilia now in the chancel and it is therefore probable that this was wooden, perhaps taking the form of stalls. Six or so stalls could also have been placed against the east side of the roodscreen.

47 Single figures were popular because they allowed individual patrons to contribute glass reflecting their personal devotional interest – R. Marks, *Stained glass in England during the Middle Ages* (London, 1993), pp. 64-65.

48 Skirlaw gave the Great East Window at York Minster and re-glazed the cloisters at Durham Cathedral as well as giving armorial glass to Balliol College, Oxford. His glass donations are summarised in Jarratt, *The life of Walter Skirlaw*, pp. 106-117. The glass may have been heavily influenced or created by John Thornton, Skirlaw's preferred glazier. On Thornton's style and its influence in the North and Midlands see Marks, *Stained glass in England*, pp. 181-183.

49 The size for gilding was commonly coloured red in order to distinguish it from its background and also to bring out the warmth of the gold when burnished - K.P. Whitley, *The gilded page: The history and*

medieval painting in the vicinity of the roodloft, it may be plausibly suggested that there was originally no loft and probably no screen since both seem to overlay the first painting scheme. Additionally, benches and pulpits of *c*1400 are rare and it is probable that there were none in the original design. Skirlaw's space, with its rich colours in both glass and paint and its openness of plan would have been a jewel-like, otherworldly setting for the round of services meant to be carried out there every week.

Use and Meaning

Precisely what made space sacred in the Middle Ages was understood in very specific terms. Durandus of Mende in about 1286, drawing from numerous earlier sources and using that kind of medieval churchman's language that consists almost wholly of rearranged extracts from the Bible, explicitly set forth exactly how a building and the space within became sacred. His work was popular with clergy throughout Europe, being one of the first non-Biblical texts to be printed on the new printing presses of the last half of the fifteenth century.[50] For Durandus, what converted space to sacred space was consecration of the church building. The virtue of consecration imparted during the consecration or dedication ceremony rested in the shape of the building, specifically residing in the rendering of its walls.[51] A church could be significantly damaged or entirely rebuilt to its original form, but as long as its shape was maintained it would retain its consecration and thereby continue to exist with its sacrality intact. For, 'the shape giveth existence to the thing.'[52] However, if a church lost its original wall treatment, it was automatically deconsecrated.[53] Also, if a church's shape was significantly altered it was, to Durandus, a new creation and therefore in need of reconsecration. Finally, even though not in need of reconsecration (unlike a chalice after re-gilding), if a church's walls were re-plastered or repainted, the church appeared to be remade and as such had some of the properties of a new creation. Therefore, when the parishioners added the tower and porch, introduced furniture, and repainted the walls, they literally brought a new church into being and the being of the old church, even though it was materially almost identical, no longer existed. The post 1404 changes to the church resulted in a literal re-creation.

In 1404, space in St. Augustine was prioritised space entirely in terms of distance from the altar. The easternmost bay was given more prominence by the doublewide east window. This east end emphasis was enhanced by the framing of the east wall achieved by the interior proportions defined by the north and south walls which, from the west end, direct the eye eastward by establishing strongly horizontal converging lines. The size of

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technique of manuscript gilding (London, 2000), pp. 138-141; E. Johnston, *Writing & Illuminating & Lettering* (New York, 1995), p. 113.

50 Sir Lawrence Hall, parish priest of St. Michael-le-Belfrey in York had a copy of the *Rationale* in 1548 – York, YML, D&C wills, v.3, f.20; *J.M.* Neale and B. Webb, 'Introduction', in Durandus, *The Symbolism of churches and church ornaments: A translation of the first book of the Rationale Divinorum Officiorum,* Ed. and trans. J.M. Neale and B. Webb, 3rd edn. (London, 1893), pp. ix-x.

51 Durandus, *Rationale*, p. 100.

52 Durandus, *Rationale*, p. 100.

53 Thus, the Victorian restorers who scraped the walls of their churches to return them to their 'natural' state deconsecrated them!

the east window ensures that that end of the church receives marginally more light than elsewhere, but the overall lighting is uniform due to the even distribution of window voids in each bay (Chapter Four, Fig. 60). Because the space was an undifferentiated rectangular prism its acoustic properties are uniform throughout. In general, the closer one stands to the sound source, the better it is heard. A sound source can be placed anywhere within the space. It is a diffuse space; that is, the sound propagates evenly throughout. The reverberation time is around three seconds, which is not ideal for speech, but is very good for church music (see Chapter Five), and so the auditory experience of Mass would have been satisfactory from any listening position. Since the space is a single cell it offers universal visibility which means that the visual focus could be placed at any position within the space and seen without obstruction from anywhere else. East-west motion through the space would not reveal a series of opening and closing vistas. A procession traversing the full length of the space would tie the east and west ends together in a single act, but this is already achieved by the uniformity of the space itself. Such a space, with its even quality of light and sound, its universal visibility and its lack of change in response to motion creates a temporal steady-state in which all change is suspended and nothing is present to differentiate one moment from the next.

Such an arrangement seems to have been unacceptable to those who used the chapel in the years after its construction. The St. Augustine in the decades before the Reformation was explicitly and unambiguously organised, displaying clear spatial priorities. This organisation was achieved chiefly by the roodscreen and loft which divided the space into the two standard regions of chancel and nave. These were image-filled spaces. There was at least one figure on the walls, others were probably included in the glass, painted on the screen and loft, and stood bathed in candlelight on the brackets by the altar. But, supreme within this crowded place the Rood was the undeniable focus. It stood in free space atop its gilded and painted loft. Candles doubtlessly were lit before it, drawing attention to it with their bright and flickering points of light. It was framed by the east wall and the great east window beyond. The actions of the people in the space were limited by the presence of benches. People were intended to sit, facing east, their attention absorbed by the display before them. Coupled with sitting, was listening, both to the Mass beyond the screen, and to the Gospel or the occasional sermon in the pulpit in front of it. Sight was important but so was sound – intelligible, spoken sound. Acoustic considerations were lavishly catered to by the construction of the tower and belfry which marked a separate space for the ringing of bells. The bells marked the hours of the day and also the elevation of the host. The village was tied to these bells and they would have come to provide some regulation for life. And at the end of life, a time of utmost importance to all of the parishioners, the bell was tolled for the passing of the dead.[54] Conversation, meetings and business including marriage, were also given their own space by the addition of the south porch with its stone

54 On the bell at the sacring see E. Duffy, *The stripping of the altars: Traditional religion in England c1400-c1580,* 2nd edn. (London, 2005), p. 97; for the role of bells in parish life see K. French, *The people of the parish: Community life in a late medieval English diocese* (Philadelphia, 2001), pp. 146-147.

benches. By the time of the Reformation St. Augustine was functioning, for most purposes, as any other parish church.

Bishop Skirlaw's chapel, if the 1404 reconstruction above was essentially what Skirlaw intended, does not seem to have had such use in mind. Strict division of space was not necessary. Limitation of activity is not expressed by furniture. Bells do not seem to have been important. The chapel was a self-contained entity concerned with one focus: the altar. This was the decorative, visual and auditory focus of the space. It was large enough to support multiple candles easily and these would have been powerfully attractive to the eye in the relative dimness of the darker interior. If the base colour of the walls was the red which survives in traces throughout, the walls would have absorbed the light from the windows a good deal, reducing their role as providers of light and increasing their function as illuminated screens for the display of imagery. Beneath the largest of these would have been the altar, and the two, altar and window, must be seen as a piece working together. The altar and the space immediately surrounding it were the only official locations for the production of sound during services. As such, auditory attention is not distributed among multiple platforms. The overwhelming importance of the altar is founded on Skirlaw's primary intended purpose for the chapel: as a perpetual chantry. Its architectural expression depends on Skirlaw's own experience and knowledge.

Seen as a semi-personal chantry or collegiate chapel created for a tremendously wealthy and powerful patron with wide experience and connections, the unusual form and decoration of the space acquires a context. Although St. Augustine was completed in 1404, its design is a product of the last half of the fourteenth century and may look to the lavish personal chapels of the high ecclesiastics and royalty. As a chantry chapel it has much in common with the 'cage'-type chantries founded in cathedral churches by bishops which were a kind of microarchitecture – a single cell in which there was an altar and a priest and little else. Archbishop Savage's chantry at York Minster, of the sixteenth century, is a good, local example.[55] Or, larger but still functionally and spatially identical, Skirlaugh chapel can be seen as a freestanding version of the aisles and parts of aisles being added to churches of all ranks to accommodate additional altars for perpetual and lesser chantries. Another local example is the Howme Chantry at Holy Trinity Goodramgate in York for which the foundation charter still survives, but there are countless other examples throughout the country.[56] However, it is not to the ranks of parish chantries alone that St. Augustine looks. Its humble location aside, St. Augustine also stands within the religious culture of wealthy lay and ecclesiastic men whose preferred expression of sacred space was

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55 Numerous examples of these kinds of chantries, which are generally a fifteenth and sixteenth century phenomenon and are peculiarly English are given in G.H. Cook, *Medieval chantries and chantry chapels* (London, 1963), *passim.*; On the Englishness of this type of chapel see B. Dobson, 'Two ecclesiastical patrons: Archbishop Henry Chichele of Canterbury (1414-43) and Bishop Richard Fox of Winchester (1501-28)', in R. Marks and P. Williamson, *Gothic: Art for England 1400-1547* (London, 2003), p. 244; Savage's chapel in York Minster is discussed in J. Harvey, 'Architectural history from 1291 to 1558', in G.E. Aylmer and R. Cant (eds.), *A history of York Minster* (Oxford, 1977), p. 178; G.E. Aylmer, 'Funeral monuments and other post-medieval sculpture', in G.E. Aylmer and R. Cant (eds.), *A history of York Minster* (Oxford, 1977), pp. 432, 464.

56 York, City Library, Chantry Deeds, YC/AT G70:22.

manifest in the predominantly single-celled collegiate and royal chapels such as those of New College Oxford, St. Stephen's chapel at Westminster Palace, and, ultimately, medieval conceptions of the biblical Temple in Jerusalem (Pl. 20; Fig. 34; Pl. 21). These were products of social and theological spheres with which Walter Skirlaw was intimately familiar.

It has already been mentioned that Walter Skirlaw gave many gifts of glass. One of these appears to have been to Balliol College Oxford. He also endowed a fellowship there where he had earned his Doctorate in Canon Law in 1373.[57] At the same time William Wykeham, Bishop of Winchester, founded New College which was revolutionary in numerous ways. The heart of the college's buildings was the chapel and it is here that basic design elements which Walter Skirlaw would later employ in his own chapel were first expressed at Oxford.[58] The New College chapel is T-shaped with the stem of the T being the choir and chapel proper and the cross forming an ante-chapel, referred to in the foundation documents as the nave, but intended equally for the celebration of small, occasional Masses, academic disputations, and for formal college functions such as the election of a new Warden.[59] The chapel proper was a single-celled space and this is the most important similarity between the interiors of Skirlaw's and Wykeham's chapels. Against the north and south walls, under the window sills, ran the 62 stalls for the college fellows. The lesser members of the college were intended to stand in front of these stalls, and the choir stood at the pulpitum separating the chapel and ante-chapel facing east. The altar itself stood against the east wall under an enormous reredos that occupied the whole of that wall. Most of the glazing was figural while some windows in the antechapel were narrative serving as reredos to the altars there. The painting scheme is unknown. The roof was probably a grand, but structurally simple feature composed of tiebeams. It is the New College Chapel exterior, however, that seems to foreshadow St. Augustine. It derives its power from its repetition of simple, uniform bays. Each bay is composed of plinth, tall window with two-centred head and Perpendicular tracery, cornice and crenelated parapet. The bays are divided by prominent buttresses which terminate in tall pinnacles above the parapets. It presents an even, strongly horizontal silhouette punctuated at regular intervals by pinnacles. New College Chapel was completed in 1386, the year Skirlaw himself was translated to the see of Bath and Wells, but the chapel's construction had been in-progress in the 1370s when Skirlaw was still earning his Doctorate.[60]

Similar to New College and also completed during Skirlaw's life was the royal chapel of St. Stephen in the Palace of Westminster. Skirlaw had an active career in royal service under Edward III, Richard II and Henry IV. He began his royal service in 1376 as

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57 Jarratt, *The life of Walter Skirlaw*, p.10.

58 Similar basic design principles were in existence earlier elsewhere, notably in the new Lady Chapel at Ely, finished *c*1349, and in the newly rebuilt chapel/parish church of Peterhouse College, Cambridge, finished *c*1352. For Peterhouse see R. Willis and J. Clark, *The architectural history of the University of Cambridge, and the colleges of Cambridge and Eton* (Cambridge, 1886), pp. 50-61; For a brief history and description of the New College chapel see G. Jackson-Stops, 'The architecture', in J. Buxton and P. Williams, *New College Oxford 1379-1979* (Oxford, 1979), pp. 169-175.

59 Jackson-Stops, 'The architecture', p. 170.

60 Jackson-Stops, 'The architecture', pp. 170-171; Jarratt, *The life of Walter Skirlaw*, p. 59.

King's clerk.[61] In 1377 he was promoted to chancery clerk and in 1382 was made Keeper of the Privy Seal.[62] Throughout his royal service, from 1377 to 1401, Skirlaw was sent on numerous diplomatic missions at home and abroad, negotiating treaties and arranging marriages.[63] There is no question that Skirlaw would have been familiar with the opulent work at St. Stephen which was not formally completed until the reign of Edward III in 1363.[64] This chapel was also an essentially single-celled space. There was a small ante-chapel in the westernmost bay separated from the chapel proper by a substantial solid screen. The chapel itself, which was collegiate, contained stalls along its north and south walls and a grand altar at the east wall beneath a large window. While little is known of the stained glass in its windows, much is known of its painting scheme which was extremely rich. The figural scheme running beneath the window sills is legendary but the painting scheme also consisted of much that was purely decorative and ornamental, including much stenciling, diapering and patterning on richly-coloured backgrounds. It completely covered every stone surface and contributed to the sumptuous, jewel-like interior.[65] St. Stephen was partially a response to the earlier Ste. Chapelle in Paris.[66] Here, the single-celled space was more explicitly a jewel-box. The spatial priorities of both royal chapels were centred on the altars at the east end through the strong focusing properties of the parallel walls of a single cell.[67] Walter Skirlaw would have known both very well. While St. Augustine was doubtless far less expensively painted, the essential experience of dark, deeply-coloured wall surfaces enriched with repetitive stenciled patterns would have echoed to some degree those at St. Stephen and the Ste. Chapelle.

While the New College chapel and St. Stephen (and by extension the Ste. Chapelle) may have been the finest expression of an architectural and spatial sensibility current in Skirlaw's social sphere, the biblical Temple in Jerusalem may have provided the spiritual model. While all medieval churches were understood in a general sense to be versions of the Temple, St. Augustine and Solomon's Temple bear more specific similarities.[68] Both are six bay structures without aisles and with one window per bay in each of the longitudinal walls. This may have been enough for St. Augustine to be considered a copy of the biblical Temple.[69] Temples appear twice in another of Skirlaw's works of patronage: the Great East Window of York Minster. These bear striking similarities both thematically and physically to St. Augustine. The contract for the Great East Window was drawn up in

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61 Jarratt, *The life of Walter Skirlaw*, p. 26.
62 Jarratt, *The life of Walter Skirlaw*, pp. 30, 33.
63 Jarratt, *The life of Walter Skirlaw*, pp. 40-56.
64 The standard work on St. Stephen is H.M. Colvin, 'St. Stephen's Chapel', in H.M. Colvin, *The history of the King's Works* (London, 1963), 1: 510-527; St. Stephen's is reconstructed and discussed at length in M. Hastings, *St. Stephen's Chapel and its place in the development of Perpendicular style in England* (Cambridge, 1955), *passim*.
65 Colvin, 'St. Stephen's Chapel,' pp. 517-518.
66 Colvin, 'St. Stephen's Chapel,' p. 510.
67 For the focusing effects of parallel walls and its use throughout architectural history see the discussion in S. Unwin, *Analysing architecture* (London, 1997), pp, 139-147.
68 Durandus, *Rationale*, pp. 10-13.
69 For the medieval conception of an architectural copy see R. Krautheimer, 'Introduction to an "Iconography of medieval architecture"', *JWCI* 5 (1942): 1-33.

1405, a year after St. Augustine was completed.[70] The glazier was John Thornton of Coventry who may have first met Skirlaw when he was elevated to the See of Coventry and Lichfield in 1385.[71] It is entirely possible that Thornton was familiar with St. Augustine and it is also within the realm of possibility that he contributed to the glass there. In the Minster East Window the Temple in Heaven (panel 7e - Pl. 22) and the Temple in Jerusalem (panel 8j - Pl. 21) appear as part of the overall narrative of the Book of Revelation displayed in the bottom half of the window. Both of these buildings are depicted not as the Temple described in the Old Testament and in Revelation but as a single-cell Perpendicular medieval church of five or six bays with one window per bay, no aisles, and prominent buttresses terminating in tall pinnacles separating the bays. The western end of each Temple is gabled and there is no tower, only a small bellcote on the roof. The window tracery of the west window of the Temple in Jerusalem is similar to that of the west window at St. Augustine (Pl. 23). Both Temples have no screen dividing their interiors (despite Solomon's Temple being so divided). Most of the surviving works of which Skirlaw was a patron prominently display his arms. The Great East Window is no exception. His arms occur three times. The largest is as the frontal to the altar at which his donor figure is praying (Pl. 24). The other two times are as armorial pennants on the two Temples. This links Skirlaw himself and the Temple specially within the scheme of the glass (Pls. 25 - 26).

The glass and St. Augustine are also linked in other more thematic ways which suggest that they are both operating within Skirlaw's overall theological outlook. The Great East Window expresses itself in typological theology in which what went before in the Old Testament prefigured what was to come in the New Testament and that both are leading toward the ultimate Realities of Heaven which will be revealed at the end of the world. Christ himself gave sanctification to this kind of theology in the Gospel of St. John 3:1-15 where he describes Moses' brazen serpent (Numbers 21:9) as a type prefiguring his own impending crucifixion. The brazen serpent is depicted in panel 13f in the Great East Window. John 3:15 is also the second reading set for the Mass of the Trinity; a Mass which Skirlaw required to be said in St. Augustine every Sunday. The first reading of the Trinity Mass is Revelation 4:1-10 where St. John describes the throne of God and the court of Heaven. This is also depicted in the window and again links St. Augustine to the general narrative of the window. Also shown in the window is the City of God, the heavenly Jerusalem of which all churches were a type. St. Augustine, the chapel's patron saint, wrote the definitive book on the church as the celestial city in *The City of God*. The 144 compartments of the tracery of the Great East Window show that all elements of the window, including its frame, function together within the overall symbolic and interpretive priorities of the window's content.[72] Architecture and symbolism are, in this case,

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70 T. French, *York Minster: The Great East Window* Corpus Vitrearum Medii Aevi Summary Catalogue 2 (1995), p. 5 - the various versions of the contract text are included in French's catalogue on pp. 153-54.

71 French, *The Great East Window*, p. 5; Jarratt, *The Life of Walter Skirlaw*, pp. 14-25.

72 Sarah Brown (*'Our magnificent fabrick' York Minster: An architectural history c1220-1500* (Swindon, 2003), pp. 159-160) has argued that the tracery of the window is later than the window frame itself and is probably contemporary with the creation of the glazing scheme. Her evidence for this is a clear building

combined. Similarly, there are thirteen primary lights in the tracery of the East Window at St. Augustine's which could hint that the original tracery glazing was thematically based on Christ and the Apostles. It is not impossible, therefore, that an explicit relationship between form and meaning was at work in Skirlaw's chapel.

It may be argued that Walter Skirlaw saw his chapel both as a chantry and as a copy of the Temple and therefore as part of the continuum of the priestly and sacred space established by God for the Israelites. But his temple was one clearly seen in light of the Resurrection and thus served as a jewel-like shrine for the Eucharist and its salvific powers. The language and idiom in which it was expressed belonged to that employed in the finest and most admirable architecture of the day, the personal royal chapels and collegiate chapels. The dual purpose of Skirlaw's foundation, as a perpetual chantry for himself and as a chapel of ease for the parishioners of Swine, allowed the space to be appropriated and eventually re-created to serve the needs of the community. The appropriation was expressed in the addition of a tower and new furniture and decoration which re-formed the church to an extent now only fully appreciable through virtual restoration based on the surviving evidence. What is witnessed at St. Augustine is the literal transformation of what was essentially an episcopal chantry to a parochial church. The transformation literally brought into existence a new chapel in which the more affective piety of the living was expressed while allowing for the continuation of the hopes and concerns of the founding dead.

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break visible on the external springings of the window head and in the probably intentional correlation between the 143 lights in the tracery and the importance of the number 144 in Revelation. Concerning the 143 tracery lights and the total integration of form and symbolism in the Great East Window, Brown is in agreement with David O'Connor, 'York and the Heavenly Jerusalem: Symbolism in the East Window of York Minster', in *Medieval Europe: Pre-Printed Papers VII, Art and Symbolism* (York, 1992) who earlier commented on the numerological and iconographical significance.

Chapter Four: Light
St. Giles, Skelton, North Yorkshire

Introduction

The mid-thirteenth century chapel of St. Giles, Skelton in Overton parish is remarkable for what Christopher Wilson *et al.* call its 'near-miraculous completeness.'[1] Its completeness together with the fact that its fabric has been left effectively unchanged since building was finished sometime before 1247 allows analysis of the architectural modifying elements, those dynamic conditions not a part of the fabric but essential to the individual character and experience of the place.[2] Such analysis may proceed here with a certainty not possible in most multi-period churches. The most important modifying element, and that which is most deliberately used at Skelton, is light. The specific effects of light in space are readily observable in St. Giles and these observations help contribute to answering two important questions. First, how was light used by the builders to convey their intentions for the space? As a *de novo* church within the Minster Treasurers' peculiar with direct architectural links to the contemporary building works at the Minster itself, St. Giles stands within a particularly interesting historical context. The complexities of temporal and spiritual jurisdiction within Overton parish combined with the religious and organisational reformations being carried out at every level of the Chapter and diocese by Archbishop Walter de Gray in response to the canons of the Fourth Lateran Council converged to make St. Giles a space filled with specific purpose and intention. Light played a major role in the expression of these purposes. The second question which the use of light within the church helps answer is how was St. Giles used? In some instances, the answers are dramatic.

The Church Today

The village of Skelton stands a little over three miles (five kilometres) northwest of the York city walls on slightly rising ground on the east side of the principal road north from York (Fig. 35).[3] Until 1878 the village lay within the parish of Overton with its parish

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1 C. Wilson, D. E. O'Connor, and A. J. Thompson, S*t Giles, Skelton: A brief guide* (York, 1978), p. 1. Wilson *et al.* are the only architectural and art historical analysis of the church within the past 150 years. As such their brief account is invaluable, especially because it places the church within its wider architectural context (i.e. the Minster and its masons) and furnishes the only description of the surviving medieval glass.

2 On modifying elements in architecture see S. Unwin, *Analysing architecture* (London, 1997), pp. 25-29.

3 H.E.C. Stapleton and M. J. A. Thompson, *Skelton village: The continuing community* (York, 1971), pp. 1-2. Stapleton was rector of St. Giles' church during the 1970s and during that time compiled the most comprehensive discussion of the church and village available. He used churchwardens' accounts and faculty papers in the Borthwick Institute for the core of his post-medieval research. I have relied in part on his work for the post-medieval changes to the church. In two instances I have also turned to his work for medieval information: his list of known rectors (sources unknown), and his summary of the now missing inventory of 1523.
For a discussion of the medieval road network in North Yorkshire see A. Masinton, 'A penny vowed: The context of pilgrimage at Durham Cathedral' (MA diss., University of Durham, 2000), pp. 8-28, 70-83. A. Screeton, 'Skelton village, history and excavation', *YAJ* 73 (2001): 4-5 posits that the present A19 road from York originally entered Skelton at the southwest corner of the village and then joined up with a link road running east to the York-Crayke road which she calls 'the main road to the north' (p. 5). While both the A19 and the York-Crayke road appear to be Roman, the A19/A168/7 seems to have been the more important of the two, linking York to the important North Riding market towns of Thirsk and

church about one mile west of Skelton.[4] But, since the mid-thirteenth century the spiritual needs of Skelton have been served by the church of St. Giles. Although the exact status of the church during the Middle Ages is difficult to determine, and its status continued to be a source of administrative difficulty until 1878, by the mid-fourteenth century it seems to have acted parochially.[5]

Architecturally, St. Giles is an exceptionally coherent expression of Early English style. It shares several features in common with the north transept of York Minster such as similar moulding profiles, the universal use of lancet-headed windows, dogtooth and nailhead ornament, and filleted shafts. The grand south door, the downward projecting nailhead ornament of the gables, and the individually gabled buttresses appear to be echoes of the Minster south transept. This is not surprising if the close matching of masons' marks at both buildings is considered.[6] Unlike the Minster's transepts, however, Skelton is a complete church. It incorporates the three basic spatial divisions commonly found in medieval churches (nave, choir and sanctuary) along with two aisles terminating in chapels. It meets the Sacramental needs of a parish (at least those which directly affect the fabric of a church; i.e. altar, font, and, for a privileged few, burial) within a remarkably small interior of 44 feet by 32 feet 6 inches (13.4 by 9.9 metres).

The building consists of a central vessel with north and south aisles, all three and a half bays long. The aisles extend the full length of the building so that the basic plan is rectangular (Fig. 36). The two western bays are the nave. The next bay east, which is separated from the nave by a heavy chancel arch, is the choir, and the half-bay east of that is the sanctuary. An arcade of three arches separates the aisles from the central vessel. Solid walls projecting from the east wall separate the high altar from the side altars. The principal door is set in the south wall of the westernmost bay of the south aisle. Another, lesser door is in the corresponding position in the north aisle. A priest's door enters the choir bay in the south wall of the south aisle. There is no tower, the bells being hung in an open-air bellcote which projects through the roof above the chancel arch.

The defining feature of the exterior composition of the building is its steeply-pitched roof which covers both central vessel and aisles (Pl. 27; Movie 11). It rests upon low side-walls making the whole of the western and eastern walls gables which spread the full width of the church. The west wall is pierced by three lancets, one for the nave and one each for the aisles, with the nave lancet surmounted by a round oculus. The north and south walls are pierced by very small lancets. The primary door in the south wall breaks the otherwise low, even composition of this elevation. It is a showpiece with its four orders

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Northallerton and crossing the Tees near Sockburn, continuing on toward Durham. This appears to have been the main route north from York in the Middle Ages as evidenced by the medieval hospital at Northallerton and the itineraries of medieval travelers including bishops and kings (see Masinton above).

4 Stapleton, *Skelton village*, p. 86.

5 A 1364/5 visitation report describes the Skelton laity as its parishioners, the chaplain is called the rector, and a font and cemetery are mentioned. This suggests the church was functioning parochially. J. Raine (ed.), *The fabric rolls of York Minster*, SS 35 (1858), p. 243.

6 Wilson et al., *Skelton*, p. 4; However, masons' marks are far from well understood and their use as evidence of patronage or for the identities of the masons themselves must be made with caution. B. Tyson, 'Identifying and classifying masons' marks', *Vernacular architecture* 25 (1994): 4-15.

of shafts, stiffleaf capitals and lavish mouldings all set beneath a gable (Pl. 28). The other two doors, the priest's door and the north door, are without ornament and do not rise above the eves of the roof. Five lancets pierce the east wall, one for each of the aisles and three for the sanctuary, with a vesica set above the central lancet. A continuous stringcourse beginning and ending at the south door runs the full circuit of the building and unifies the composition.

The interior is as fine as the exterior without introducing new designs or decorative motifs (Figs. 37, 38, 39; Pl. 29; Movie 12). The space is divided by the north and south arcades and the massive chancel arch. Each arch springs from three-shafted responds or four-shafted piers, all enriched by fillets on the shafts and nailhead around the capitals. The arches themselves are of two orders lacking any ornament other than simple chamfers. The west side of the chancel arch is given greater emphasis by the addition of a hoodmould. Another, smaller, arch is set above the chancel arch (Pl. 30). Three steps elevate the sanctuary above main floor level. Most of the stone furniture and fittings survive (only one altar mensa survives and not *in situ*). The font is set against the northwestern side of the north nave arcade pier. Identical, ornate piscinae are let into the walls to the south of each altar, aumbries are set in the north walls with the larger high altar aumbry perhaps serving as an early kind of pyx, and scars in the east walls show where the corbels supporting the altar mensae once were.[7] An image bracket made from a twelfth century capital has been inserted into the east wall to the north of the high altar (Pl. 31). Like the exterior, a continuous stringcourse unifying the interior runs around the walls beginning and ending at the south door and broken only by the image bracket.

History

The recorded history of St. Giles from its construction until the Reformation is slight. The earliest surviving document is dated 1247 and records the awarding of an annuity to John de l'Edes, the church clerk, by the Treasurer of York Minster, Roger Haget.[8] A series of 27 wills and records of probate administration exists for Overton parishioners living in Skelton village between 1399 and 1548 but only two of these mention the church specifically.[9] Of the two, John Hayton's will of 1438 is most important because it mentions that the chapel was dedicated to St. Giles.[10] Six shillings and eight pence 'for the honourmente of the crucifix their (*sic*)' and an altar cloth were given by William Smith of Rawcliffe in the parish of St. Michael-le-Belfrey in 1525.[11] Clerical

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7 On aumbries doubling as early pyxes in England see M. Rubin, *Corpus Christi: The Eucharist in late medieval culture* (Cambridge, 1991), p. 48.

8 Walter de Gray, *The register or rolls of Walter Gray, Lord Archbishop of York: With appendices of illustrative documents*, ed. J. Raine, SS 56 (1872), p. 102.

9 The wills are: York, BI, Prob. Reg. v.2, ff.196, 474, 559; v.3, ff. 25, 214, 217, 280, 333, 376, 557, 562; v.4, f.213; v.5, ff.85, 497; v.6, f.196; v.9, ff.26, 339, 361; v.11, ff.83, 115, 257, 593, 610, 748; v.13, ff.402, 406, 437; No Skelton wills survive in the Dean & Chapter registers or in the documents of the Treasurer's peculiar.

10 The two wills which mention the chapel are William Gell's of 1407 (York, BI, v.3, f.280) and John Hayton's of 1438 (York, BI, v.3, f.557), both wills call the church a chapel.

11 J. Raine (ed.), *Testamenta Eboracensia: A selection of wills from the Registry at York*, SS 79 (1884), pp. 207-208.

provision for the chapel is incompletely recorded. However, based on testamentary evidence, the visitation returns and Stapleton's work, it is clear that the church was provided with a priest invariably known as the rector, a clerk and, for at least one period in the late fifteenth century, a chaplain.[12] Known rectors were presented by the Treasurers from at least 1308; the last one of the medieval period, John Darley, by 1535.[13] He began the parish register in 1538 as instructed at the 'Lord Abbott's Visitation holden at byland', thus bringing the church into line with the reforms then being carried out within the Church in England.[14] Skelton does not appear in the chantry surveys published by the Surtees Society.[15]

No pre-Reformation archiepiscopal visitation returns have survived for the diocese. However, because Skelton was a peculiar of the Treasurer it does appear in the Dean and Chapter visitation books. Besides their lists of the numerous defects in the fabric, the visitations stand as important evidence for how the church was intended to function:

> Visitation of Skelton in 1364/5
> Cancellus patitur defectum maximum in coopertura. Fenestrae vitriae cancelli franguntur. Calix est fractus. Eucharistia no conservature honeste nec habet seruram. Crismatorium caret fons. Carent serura. Portiforium est defectivum et disligatum. Omnes libri indigent reparacione et ligatura. Navis patitur defectus complures in coopertura, et fenestrae ibidem vitriae franguntur. Cimiterium non cluaditur. Willelmus Assheton, rector, non residet nec aliquid boni facit infra parochiam, nec est aliquis capellanus celebrans Divina nec ministrans sacramenta et sacramentalia parochianis.[16]
>
> Visitation of Skelton in 1472
> Navis ecclesiae est defectivus in fenestris vitreis.[17]
>
> Visitation of Skelton in 1519
> putant quod pes calicis ibidem est fractus.[18]

From the 1364/5 report it appears that the building and the parishioners had been neglected. The numerous defects mentioned, especially in the chancel, which was the rector's responsibility, could be interpreted as purposely loading the report against him, and for this reason the extent of the damages recorded should be taken cautiously. However

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12 The chaplain, Robert Buch, is recorded in the 1484 visitation although he simply may have been a vicar standing in for the rector John Holtenby, but this is not clear - York, YML, D&C L2(3)a 74v.

13 For a list (although incomplete) of known medieval priests see Stapleton, *Skelton village*, p. 92; the Skelton rectors were not immune to scandal. Darley was involved in a defamation case against Mary, wife of Robert Brandesby of Skelton in 1536 - York, BI, D/C.CP 1536/2.

14 C.C. Morewood, 'Overton', in W. Page (ed.), *The Victoria history of the county of York, North Riding*, VCH (1925), 2: 172.

15 W. Page (ed.), *The certificates of the commissioners appointed to survey the chantries, guilds, hospitals, etc. in the county of York*, SS 91-92 (1894-1895).

16 Raine (ed.), *The fabric rolls*, p. 243. Translation: 'The chancel suffers the greatest defects in the roof. The glass windows of the chancel are broken. The chalice is broken. The Eucharist is not in an honest pyx nor does it have a lock. The font wants a chrismatory. Locks are lacking. The breviary is defective and unbound. All the books need repair and binding. The nave suffers numerous defects in the roof, and the glass windows of the same are broken. The cemetery is not closed. William Asheton, rector, does not reside nor does any good among the parishioners, neither is any chaplain celebrating Divine Service nor ministering the sacraments and sacramentals to the parishioners.'

17 Raine (ed.), *The fabric rolls*, p. 254. Translation: 'The nave of the church is defective in the glass windows.'

18 York, YML, D&C L2(3)a f. 155r. 'They think that the foot of the chalice therein is broken.'

exaggerated the actual condition of the church may have been, the reports do reveal what the ideal situation was meant to be. Regular services and administration of the Sacraments to the laity should have been provided, if not by the rector (although he himself would have been a chaplain, technically) then by some other (called a chaplain in this case). That there should have been a chrismatory in association with the font suggests that it should have been ready for regular use, indicating that baptism was not an unexpected event. There is a churchyard, which may indicate that the church had been granted burial rights at this early date.[19] St. Giles appears to have been intended by 1364/5 to function as a parish church.

In 1523 the three churchwardens or 'guardians' drew up an inventory of the church goods.[20] Although the original is still listed in the Minster Archives catalogue, it is, at present, missing.[21] Fortunately, Stapleton summarised its contents in 1971.[22] The two side altars were dedicated to St. Mary on the south and St. John the Baptist on the north. There were two images: the Trinity on the bracket by the high altar and St. Michael in an unknown location. Curtains hung at the back and sides of the high altar. The high altar possessed four cloths and four frontals, an altar cross, two latten candlesticks. The side altars had painted frontals. The font had a chrismatory (apparently the faults of 1364/5 had been mended) and a white cloth. Six sets of vestments, two albs, two surplices, and a rochet were provided for the clergy. There was a chalice and patten, a sanctus bell, two hand bells, a pair of censers, and two pax-breads for use during Mass. Four banners, probably for processions, are also listed. Finally, there is a fairly complete and completely workable set of liturgical books (i.e. nothing would be lacking for the celebration of Mass): three missals, two breviaries, a sequence book, a gradual and a processional.[23] Clearly, for most days of the year and most occasions, St. Giles was functioning parochially and seems to have been flourishing. Most puzzling is the presence of the image of the Trinity on the bracket. In the fifteenth century the church was dedicated to St. Giles, who, by rights, ought to have had a place on the bracket.[24] Perhaps the dedication had changed by 1523 to the Trinity. Confusion regarding the dedication of the church is part of the historic legacy here, a legacy that persisted throughout most of the post-medieval period up to the 1960s.[25]

Historiography

The church building has had a somewhat fuller documentary history since the first third of the eighteenth century. The first description and drawing of Skelton were published by Thomas Gent in 1733 (Fig. 40). The drawing he provides shows the church

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19 Limited burial rights were functioning by 1521 when the Lovells were interred inside the church.

20 The churchwardens were called 'guardians' in the 1510 and 1519 Dean and Chapter visitations - York, YML, D&C L2(3)a ff. 103v, 153r.

21 The inventory is listed as York, YML, L2(3)d ff. 14r-v.

22 Stapleton, *Skelton village*, pp. 72-73.

23 By the late Middle Ages most of the necessary texts from the numerous liturgical books were frequently consolidated into omnibus Missals or Breviaries thus making it possible for individuals and poorly endowed institutions to have a complete set of liturgical texts at a relatively manageable price. Wordsworth and Littlehales, *The old service-books*, pp. 26-33.

24 For patron saints on brackets to the north of the altar see R. Marks, 'The y*mago sancti loci* in the English medieval parish church', in Anna Moraht-Fromm (ed.), *Kunst und Liturgie* (Stuttgart, 2003), p. 41.

25 Stapleton, *Skelton village*, p. 67.

very much like it is today, except that a timber bellcote had been erected near the apex of the west gable.[26] Since 1733 descriptions and drawings of the church have been regularly published by a number of people. Joseph Halfpenny made an engraving of the church at the end of the eighteenth century or the early nineteenth,[27] Rosamond Best published sketches of the exterior in 1831,[28] George Poole published the first serious attempt at an architectural history of the building complete with measured drawings in 1844 (Figs. 41 - 42).[29] In 1843 Ewan Christian, a young architect, came to Skelton church (then known as All Saints) 'to be the means of setting forth to the world the beauties of this monument of the piety and taste of our ancestors, – a task which it has been his ardent wish to accomplish, from the time when he first became acquainted with the little Gem which forms the subject of [his delightful task]'.[30] In 1846 he published what is still the best architectural study of the building, having made an extremely accurate, in some cases stone by stone, set of drawings accompanied by brief, readable, well-informed text (Figs. 43, 44, 45).[31] Christian's monograph succeeded in making the church one of the standard points of reference for numerous Victorian architects and church restorers. In the twentieth century an architectural description of the church was included in the Victoria County History of the North Riding in 1923,[32] a television programme was devoted to the church,[33] the Revd. H.E.C. Stapleton, produced a thorough history and description of not only the church but of the whole parish in 1971, and in 1978 Christopher Wilson, David E. O'Connor and Michael A.J. Thompson produced the official church guide. The little chapel at Skelton has been presented in virtually every medium available (with the exception of radio) for the past two hundred seventy years. It is a remarkable building for many reasons, not least of

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26 T. Gent, 'A journey into some parts of Yorkshire', in T. Gent, *The antient and modern history of the loyal town of Rippon,* (York, 1733), pp. 2-3, drawing between pp. 2-3.

27 Stapleton, *Skelton village*, pp. 78-79; E. Christian, *Architectural illustrations of Skelton church, Yorkshire* (London, 1846), pp. 19, 34 also mentions late eighteenth or early nineteenth century engravings by Halfpenny. I have not been able to locate them.

28 R. Best, *Views of the parish churches in York, with a short account of each* (York, 1831).

29 G.A. Poole, *All Saints, Skelton* (Leeds, 1844), pp. 61-76.

30 Christian, *Skelton church*, p. viii.

31 My TST survey and Christian's survey differ by less than a centimetre. However, Christian's published survey included and excluded several elements and as such represents Christian's hopes for a return to what he believed to be the original design as much as it records what was actually present during his time. When he made his survey in 1843 the church was fitted with box pews, a high pulpit and a false vault. The vault appears only in Christian's interior perspective drawing (Fig. 43). In three cases his drawings are at variance with the fabric of today. Today, the moulding of the eastern respond capitals of the easternmost bay are carried back across the walls dividing the chapels from the high altar and connect to the annulets of the north and south window shafts of the east window via a small dogleg. This is absent in Christian's drawings. This feature does not appear to be a later insertion and it must be assumed that Christian either did not notice them or felt they were unimportant. More serious, however, is the omission in Christian's drawings of the mysterious scars in all of the window frames and door jambs and in the aisle walls and aisle sides of the chancel arch piers. No mention is made of them in the text unless they are what is meant by the 'grooves cut in the stone-piers' (p. 13). It is clear that these scars are post-medieval since they cut through Elizabethan or Edwardian wall texts in the aisles and it may be that Christian noticed this and therefore excluded them since they are not original. Finally, the profile of the opening above the chancel arch is reversed in Christian's longitudinal section of the church (it is also reversed in Christian's section drawn for his restoration in 1882 - York, BI, FAC 1882/17). It is possible that Christian's drawing reflects the profile of *c*1843 and that it was changed to its present form later, but since there is no evidence in the stonework of a reconstruction of this portion of the church, it may simply be an error on Christian's part.

32 Morewood, 'Overton', pp. 170-172.

33 Parish Church of St. Giles, Skelton, *St. Giles' Church, Skelton, York* (Skelton, ?), p. 1.

which is the opportunity it affords to study the use of light in the context of the religious and architectural changes sweeping England in the early thirteenth century.

Light

The wider historical context

Skelton's chapel owes its origins and its composition to more than the rather grand designs of its masons. It is possible that the church's origins and even its design have their roots in the historical context of thirteenth century ecclesiastic reform, and in the initiatives of the ecclesiastic hierarchy working within a parish whose spiritual and temporal administration were complex. The church stands within a parish controlled spiritually (in terms of the care of souls) by powerful organisations with overlapping influence. In the Middle Ages the chapel was part of the peculiar of the Treasurers of York Minster although the parish church in Overton was part of the original eleventh century endowment of St. Mary's Abbey in York.[34] The presence of so fine a work of architecture in so unlikely a place as Skelton village is attributed to the wealthy and powerful Treasurers of York Minster who held the advowson.[35] But, in terms of the spiritual administration of the parish, the position and functioning of the chapel is less clear, with the abbey having an influence right up to 1538. Other influences were at work as well.

The thirteenth century was a period of ecclesiastic reform, given impetus and definition by the canons of the Fourth Lateran Council in 1215. In England, the canons of this Council seem to have found expression in a drive to ensure the suitability of the clergy and to regulate their conduct while at the same time protecting and elevating their status. There was also a general trend toward codification and sometimes complete reorganisation of existing systems.[36] This push for tighter control of the clergy and a 'straightening-out' of systems was ultimately to facilitate the education of the laity concerning the importance of the Eucharist and the conditions under which it ought to be received, which Lateran IV required from everyone at least once per year.[37] The Eucharist was to become an important part of the laity's lives, and the chief agent in accomplishing this at the parish level was to be the well-informed, knowledgeable priest.[38] Churches, likewise, were to be worthy spaces.[39] Therefore, the position of the priest and the importance of his actions needed to

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34 Morewood, 'Overton', pp. 167-68.

35 Christian, *Skelton church*, p. 4, credits Archbishop Walter de Gray with the erection of the church on the basis of its similarities with the Minster south transept; Wilson *et al.*, *St. Giles church*, p. 1, lean toward giving the Treasurers the credit based on similarities with both of the Minster transepts and on Treasurer Roger Haget's 20p annuity to the clerk in 1247. The leanings of Wilson *et al.* are presented as fact in the most recent church guide, Skelton, *St. Giles' church*, p. 3.

36 For the statute-making drive post Lateran IV in England see R. Cheney, *English synodalia of the 13th century*, 2nd edn (Oxford, 1968), pp. 34-50, especially pp. 35-38; see also M. Gibbs and J. Lang, *Bishops and reform 1215-1272: With special reference to the Lateran Council of 1215* (London, 1934), pp. 105-130 for the way the canons of Lateran IV were interpreted in England.

37 Canons 1, 10, 11 and 21 (The text of the Canons of Lateran IV are printed in H.J. Schroeder (ed.), *Disciplinary decrees of the General Councils* (London, 1937), pp. 236-296; Paul Halsall has made this text available as part of the Internet Medieval Source Book at http://www.fordham.edu/halsall/basis/lateran4.html); Rubin, *Corpus Christi*, pp. 83-108.

38 Canons 6, 7, 11 and 27 (Schroeder (ed.), *Disciplinary decrees*, http://www.fordham.edu/halsall/basis/lateran4.html)

39 Canons 19, 20 and 56 (Schroeder (ed.), *Disciplinary decrees*,

be highlighted – at Skelton, literally. Another event of more local importance happened at Lateran IV. In 1215, while attending the Council, Walter de Gray received the pallium from Innocent III and was elevated to Archbishop of York.[40] De Gray set about rebuilding both the Chapter and the cathedral at York. In his diocese he was persistent in rooting-out clerical misconduct and abuse. In the churches themselves he was the first English prelate on record to codify the ornaments, furnishings and other provisions necessary for the proper conduct of Mass and the administration of the Sacraments.[41]

In 1233 Walter de Gray received a letter from Pope Gregory IX. The Pope urged the Archbishop to encourage the founding of chapels and oratories in large parishes where the parish church was some distance away from many of the parishioners.[42] The parish of Overton seems to have been a good candidate to benefit from such an initiative. Its parish church lay in Overton a mile west of the main highway and its land was held by St. Mary's Abbey.[43] The abbots of St. Mary's had a close interest in their Overton lands (one of their chief manor houses was here)[44] and would likely not have welcomed any encroachment by the Minster or the Archbishop. Overton's only geographical asset was that it was sited near the River Ouse. Skelton, on the other hand, was situated on the edge of the Forest of Galtres at a crossroads of the highway running north and lesser roads running west into Overton and the Ouse and east to the villages deeper inside the forest. From the perspective of the traffic along the highway north, Skelton was the most visible of the two settlements in the parish. Perhaps more important, Skelton village was owned by the Dean and Chapter. The third great landholder in the parish, the King, controlled the Royal Forest of Galtres and his forester appears to have held the King's land in the village.[45] Thus, the chapel served the Minster's tenants in the parish as well as local royal officials. The pattern of land tenure in the parish is important because it is within this that St. Giles' chapel arose.[46]

The indeterminate status of St. Giles reflects the administrative complexities of a parish divided spiritually and temporally between Minster, monastery and manor lords. The Treasurers held the advowson and presented all of the known medieval incumbents.[47] The visitation records are those kept for churches within the various Minster peculiars, therefore, the Minster officials claimed and exercised visitation rights. Skelton's priests

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http://www.fordham.edu/halsall/basis/lateran4.html)

40 Brown, *York Minster*, p. 11.

41 For a sampling of de Gray's reforming activity see J. Moorman, *Church life in England in the 13th century* (Cambridge, 1946), pp. 65, 141, 309, 320; A. H. Thompson, *The English clergy and their organisation in the later Middle Ages* (Oxford, 1947), p. 79.

42 de Gray, *Register*, pp. 167-168.

43 Assessed at five carucates in Domesday as opposed to Skelton's nine. Stapleton, *Skelton village*, p. 4.

44 At the Dissolution the Abbot of St. Mary's begged the King to be allowed to keep his manor of Overton. Morewood, 'Overton', p. 167.

45 Morewood, 'Overton', pp. 168-169.

46 Alne, another church within the Treasurer's peculiar, received no lavish rebuilding but was rebuilt piecemeal over the centuries. The majority of the manors in that parish were wholly owned by the Treasurers of the Minster, who had their country house in Alne. The only other landlords were secular. Therefore, the spiritual and most of the temporal rights of the parish were firmly and singly in the hands of the Treasurers and administrative complexities much reduced in comparison to the divisions within Overton parish. Morewood, 'Overton', pp. 85-90.

47 Stapleton, *Skelton village*, p. 92.

were invariably called rectors, not chaplains, implying that they were fully beneficed, independent clergy in their own right rather than vicars standing in for an absentee rector or mere chaplains of a subordinate chapel (which, technically, they were). Likewise, the Skelton laity were always called parishioners in the surviving documents. The church seems to have acted independently of Overton under the oversight of the Minster. However, none of the testators of the surviving Skelton wills requested burial at Skelton and many of them made their wills under the eye of the Overton vicar, some leaving money to him and to the fabric of the parish church at Overton. Only one, John Hayton, left money specifically for St. Giles in Skelton. In 1538, John Darley, the rector, recorded that he was instructed to begin the parish register 'at the abbot's visitation', which suggests that the church still fell under the jurisdiction of St. Mary's with the abbots claiming visitation rights. Finally, there are the Lovells, tenants of the manor house in the early sixteenth century, who lie buried in the south chapel at Skelton.[48] In doing so they seem to have been acting as if the church were their manor chapel.

The name of the individual or individuals who founded the chapel is not known. However, because of its close affinities in style with the Minster north transepts, it is likely that the two buildings shared the patronage of the Treasurers.[49] Other ties within the Minster hierarchy of the mid-thirteenth century cannot be overlooked as being influential. Archbishop de Gray under the influence of Gregory IX in 1233 has already been mentioned. Since St. Giles' church appears to have been built *de novo* this letter seems to be the likely impetus and de Gray working with the Treasurer the likely promoter. A third Minster cleric, canon Thomas de Ludham, endowed a chantry in the Minster dedicated to St. John the Evangelist and the Virgin Mary with lands from Skelton in 1247.[50] It is conceivable that he also had an interest in the parish. Perhaps the chapel was a project which concerned the Chapter as a whole.

Secular and local ties must also be taken into consideration, if not in determining who founded the chapel, at least in determining its location within the village and whom it was intended to serve. The church stands within its churchyard at the northern end of what appears to be a three-row Norman 'planned' village.[51] Immediately north of the church stands the manor house which has late-sixteenth century features but is probably built around a medieval core suggesting associations with the lords of the manor.[52] The thirteenth century lords of the manor appear to have been the Lardiners, the King's Foresters who held certain privileges within the parish.[53] At the end of the Middle Ages the church received the bodies of Richard and Ann Lovell (in 1521), two members of the family that held the manor from at least the mid-fifteenth century and whose members

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48 Morewood, 'Overton', p. 170; Stapleton, *Skelton village*, pp.5, 7, 9.

49 Brown, *York Minster,* pp. 12-30 seems to attribute the majority of the Minster North Transept to the Treasurer John le Romeyn, Sr, although she is unclear in her argument.

50 Raine (ed.), *The fabric rolls*, p. 293.

51 Screeton, 'Skelton village', pp. 4-5.

52 Pevsner, *The North Riding*, p. 345; Bootham School Natural History and Archaeology Societies, *Two country parishes: A survey of the natural history, architecture & history of the parishes of Skelton and Overton*, (York, 1956), pp. 83-84.

53 Morewood, 'Overton', pp. 168-169.

appear in Skelton occasionally in documents as far back as the early fourteenth century. Local connections continued throughout the Middle Ages as several of the known medieval incumbents of the church came from local families. The fifteenth and sixteenth century priests Thomas Lovell, Robert Gilbarne, and John Darley all came from local families or families with local connections.[54] Finally, William Smith of Rawcliffe mentioned that he had a share of the tithes of the church in 1525.[55] It appears that the church was administered by the Minster Treasurers, but that the laity played an important role in how the church functioned; something already seen in the 1364/5 visitation report. While a positive identification of the church's founder is unknown, the spatial priorities created by its design suggest a clerical sensibility in line with Archbishop de Gray's injunctions and the consequences of Lateran IV.

Theological and organisational reformation within the diocese under Archbishop de Gray combined with the complexities of land tenure and secular influence within the parish of Overton to create what can be seen as Lateran IV made material. When Gregory IX urged de Gray to expand parochial provision within his diocese de Gray was already engaged in the tasks of rebuilding his Chapter, his cathedral and the Sacramental theology of his clergy and their parishioners. Skelton, a village which the Chapter controlled close to York within a parish split between two settlement foci, was the ideal opportunity to enact the wishes of the Pope, to cement the reformed bonds between Chapter and Archbishop through a cooperative project, and to provide a space within which the theological agenda set by Lateran IV could be clearly expressed to clergy and laity alike. The product of these converging forces was an architecture that achieved the material expression of the spiritual concerns of its patrons through the manipulation of the most immaterial of mediums – light.

Architectural history

To study the role of light at St. Giles, a model of the church in the mid-thirteenth century must be built. To do this, the architectural history of the building must be established. What is known about the material form of St. Giles' church in Skelton in the Middle Ages must be drawn from the documentary and material evidence. The church's original dedication is an important part of its architectural history. It was dedicated to St. Giles by the fifteenth century, and it is plausible to suggest that St. Giles was the patron from the beginning given that St. Giles' iconography is concerned with hunting and that the church stood within a Royal Forest. This argument is given weight by the orientation of the church (discussed below). From the visitation reports it is known that the church was set within a churchyard, had a font and glass windows. A very few fragments of fifteenth and sixteenth century glass have been gathered into the west window of the north aisle. It is mostly white with silver-stain details (Fig. 46). The 1523 inventory lists three altars and

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54 For a list of known medieval priests see Stapleton, *Skelton village*, p. 92; Local family names and connections have been compiled from the medieval wills surviving for testators from Skelton see especially York, BI, Prob. Reg. v.2, f.474; v.3, ff.25, 333; v.4, f.213.

55 Raine (ed.), *Testamenta Eboracensia*, 79: 207-208.

two images.[56] By 1521 burial was allowed within the church and by 1525 there was a 'crucifix'.[57]

A comparison of antiquarian and more modern pictorial representations of the church interior and exterior show that the building has been remarkably unaltered since 1733 (compare Figs. 40, 41 and Pl. 27). A post-medieval bellcote was placed near the western gable (visible in Gent's drawing) but this was removed prior to the 1814 restoration.[58] In 1791 the church was fitted with box pews.[59] 1814 to 1819 saw a thorough restoration by Henry Graham and Michael Taylor at which time the south door was re-carved and a lath-and-plaster vault inserted into the central vessel (Figs. 42 - 43 show the plaster vault).[60] In 1883 Christian restored the church. His main work was the restoration of the roof which included removal of the 1819 plaster vault. How far his work differed from the original, which had been replaced by 1814, is not known, although he left the arch braces, which were present in 1843.[61] He also placed the present east-west screens between the piers of the easternmost bays.

Beyond this, nothing else is known with certainty. The fabric itself provides clues to the unrecorded history of the building which seems to have been remarkably stable. There are few disturbances in the regular coursing of the stonework both internally and externally. The greatest disturbance occurs at the south door where none of the stones of the door course with the surrounding stonework of the walls. The door is also shifted eastward, out of line with its counterpart in the north aisle wall. The moulding profiles of the bases, capitals and archway do not correspond with the otherwise uniform set of profiles used throughout the church, nor do stiffleaf ornament and figural sculpture occur anywhere else. Although the continuous stringcourse does terminate in foliate bosses on either side of the doorway on the interior, the door jambs cut straight through the corresponding stringcourse on the exterior which lacks formal terminals. All of this suggests that the south door was not created by the same designer as the rest of the building and may indicate that it is a later insertion.[62]

Some time after the church was completed, but before the inventory was drawn up in 1523, the reused twelfth century capital was inserted into the east wall north of the high

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56 Stapleton, *Skelton village*, p. 72.

57 The Lovell tombstone within the church; Raine (ed.), *Testamenta Eboracensia,* SS 79, pp. 207-208

58 Christian, *Skelton church*, p. 34; J. Todd and G. Todd, *A new description of York* (York, 1830), p. 73 note the post-medieval origin of this bellcote.

59 Wilson *et al.*, *St. Giles church*, p. 1; Stapleton, *Skelton village*, pp. 79, 81.

60 Christian, *Skelton church*, pp. 4-5; Wilson *et al.*, *St. Giles church*, p. 1; Stapleton, *Skelton village*, p 81.

61 York, BI, FAC1882/17; Stapleton, *Skelton village*, p. 85; the arch braces appear in Christian's internal perspective drawing of the church - Christian, *Skelton church*, pl. 2; Christian states (p. 19) that the Halfpenny engraving shows the church with a flat ceiling.

62 Christian (p. 11) thought this was the case but Wilson *et al.*, *St. Giles church*, p. 3 explain the irregularities of the door by saying that a different, specialist workshop was commissioned to create the door which was 'medieval workshop practice'. While I agree that a different hand created the south door, I do not agree that this was simply because the designer of the rest of the church did not 'do' doors. Either the moulding details were altered to their present form in 1815 when the door was re-carved (Christian, *Skelton church*, pp. 5, 11) – although Christian thought this to be unlikely – or the door was inserted after the church had been completed, and possibly by a new patron who may have been commemorated by the now badly weathered head corbels under the bases of the eastern jamb.

altar to serve as an image bracket (Pl. 31).[63] Archbishop de Gray's *c*1240 list of the items needed in every church of the diocese included an image of the patron saint in the chancel.[64] Given the close connections of Skelton with the Minster clergy, it is not improbable that the bracket was inserted *c*1240 in response to de Gray's injunctions. If this is the case, the church is earlier than *c*1240 since no bracket was intended in the original design. A date for the church in the 1230s or even the 1220s would place the building closer to the period of de Gray's Minster South Transept (rather than the later North Transept) and support de Gray's influence in the founding of the chapel and his masons as its designers.[65] A similar bracket has been inserted north of the high altar in Alne, another church within the Treasurer's peculiar, and it is likely that the two came from the same source and were inserted at the same time by the Treasurer but working in conjunction with de Gray. The insertion of the bracket shows a continuing concern to materially express the religious priorities of St. Giles' patrons.

There are other irregularities in the building which suggest some slight changes to the fabric in the past. The status of the font as part of the original overall design of the church must be questioned (Pl. 32). Although the font base matches that of the lower stage of the pier base to which it is attached, the details of the shaft and deeply faceted ornament of the bowl are not found elsewhere in the building. Examination of the base reveals that while an octagonal shaft was originally intended to rise from it, the present shaft has been rotated in the socket indicating that there has been at least one change to the font since its initial design. The stone of the bowl and the upper portion of the shaft also do not seem to match that of the lower portion of the shaft.[66] Pevsner questioned the date of the font and his question must remain open.[67] Finally, it appears that none of the arch braces in the aisles are medieval although they are now the oldest timbers in the roof. The form of the original ceiling is not known and this is a particularly vexing question concerning the use of light in the original space and alternative roof constructions must be considered. Other than these relatively minor alterations, the fabric of the church appears much as it was after completion some time before 1247.

Alternative reconstructions

In the following sections, the study of sunlight in the church assumes and relies in part on a roof structure similar to the present one, which is to Christian's design.[68] Since it is not possible to reconstruct the original roof form based on existing archaeological and historical evidence, however, arguments for alternatives must be rehearsed and the reasons for making my assumption made clear. The roof Christian shows in his drawings of *c*1843

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63 It cuts through the continuous stringcourse that runs around the internal walls, showing that it is not an original feature.

64 Printed in de Gray, *Register*, pp. 217-219.

65 For the dates and patrons of the Minster transepts see S. Brown, *'Our magnificent fabrick' York Minster: An architectural history c1220-1500* (Swindon, 2003), pp. 13-16.

66 'Not unfrequently the bowl and stem [of fonts in general] are of different dates.' F. Bond, *Fonts and font covers* (London, 1908), p. 97.

67 N. Pevsner, *BoE: Yorkshire: the North Riding* (Harmondsworth, 1966), p. 345.

68 York, BI, FAC1882/17.

may or may not have been the original roof (Fig. 44). When Christian surveyed the church there was a plaster vault over the central vessel hiding the oculus, the opening above the chancel arch, and the vesica. It is possible that the original roof structure survived above this and that is what Christian drew. It is a simple form of collared truss which rests atop the arcade walls. The aisle roofs are simply lean-tos continuing the angle of the central roof. However, Christian notes that before 1814 there was a flat ceiling over the central vessel and that the opening above the chancel arch acted then as a door.[69] If such a ceiling was original, the composition of the windows in the east and west walls is severely weakened from inside the church, as is the play of light. Such ceilings in parish churches in the thirteenth century are unusual.[70] Another possible, but unusual, alternative is suggested by the arch braces in the aisles (although those in place today are post-medieval). The aisles are about half as wide as the central vessel. An opposing pair of arch braces similar to those in the aisles would span the space and form relatively stable trusses.[71] This would create an arch-braced ceiling open to the ridge which would least obstruct the upper openings in the gables and the chancel arch wall. Since it is impossible to determine with certainty what the original structure of the roof would have been, I have presented each alternative lit at 6:20pm on St. Giles' day (Figs. 47 - 48). The present structure is the one most sympathetic to the overall design of the church and the most common in the thirteenth century.[72]

Other alternative reconstructions of other parts of the building must be considered: the presence of a tympanum in the head of the chancel arch, the existence of screens and the Rood. There are small scars in the chancel side of the outer order of the chancel arch. It is possible that some form of tympanum had been introduced at some time (Fig. 49 is a reconstruction of a simple tympanum). Such a feature would greatly limit visibility of the chancel from the nave. Tympana are not common in the thirteenth century, but do exist in later periods, and the possibility of the existence of one towards the end of the Middle Ages in Skelton cannot be discounted.

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69 Christian, *Skelton church*, p. 19.

70 F.E. Howard and F.H. Crossley, *English church woodwork: 1250-1550*, (London, 1927), pp. 90-106 do not give any examples of this type of roof occurring in the thirteenth century.

71 The examples of this type of roof structure given in Howard and Crossley, *English church woodwork*, p. 98 are all of fifteenth century date.

72 In K. Sandall, 'Aisled halls in England and Wales', *Vernacular architecture* 17 (1986): 21-35, there is a list of all known surviving secular double-aisled halls (which St. Giles generally resembles) and their roof structures, if known. For the thirteenth century there are 27 examples of collar-rafter roofs (similar to that in place today in St. Giles), by far the largest category of known roof structures of this period. The next most common structure with ten surviving examples are crown post trusses. The only other type of roof structure known for this period in this type of building are two examples of roofs composed of passing braces and one example of a crown strut roof. Of the ten roof structures attributed to the thirteenth century illustrated in Howard and Crossley, *English church woodwork*, pp. 90, 94, 96, 106, the majority are either single-framed with collars, like the present roof at Skelton, or single-framed with collars and tie-beams. At Toot Baldon, Oxon. (p. 90), a thirteenth century chapel with a nave and aisle design very similar to Skelton (the west end is illustrated in F. Bond, *Gothic architecture in England* (London, 1906), p. 225), the roofs of both aisle and nave are exactly like the present roof at Skelton. Instrument survey has revealed the degree to which the walls have been pushed out of true by the pressure of the roof. This is about .7° for the west and east walls and 1.7° for the north and south walls indicating a strong lateral thrust exerted by the roof structure. A roof structure similar to the present one does produce a large amount of outward thrust at the tops of the walls.

There is even less evidence for thirteenth century wooden screens in Skelton. No medieval scars or disturbances in the fabric of the chancel arch or its piers exist to indicate that a roodscreen was ever installed. Such screens in parish churches in the thirteenth century are especially scarce.[73] Although Christian mentions scars indicating the presence of screens, he seems to either be speaking of the post-medieval scars mentioned above (n31), or of scars relating to east-west screens in the easternmost bay of the arcades which, if they existed, were hidden when he installed the present screens in 1883.[74] A screen crossing beneath the chancel arch, however, would greatly reduce visibility of the altar in this church. If there was a roodscreen or a tympanum, the Rood would have stood atop the former and against the latter. But there is no evidence for a thirteenth century wooden roodscreen and the date of the possible tympanum is unknown (it could easily have been introduced as a post-medieval backdrop for the royal arms, for example).

However, based on comparative evidence it is probable that the original roodscreen at Skelton survives largely intact. The original roodscreen at Skelton is the chancel arch itself. This heavy arch is a sufficient boundary clearly demarcating chancel and nave limits while also forming an ornamental frame for the high altar beyond. It would have taken on the specific character and function of a roodscreen if, as seems likely, the opening above the chancel arch was associated with the Rood. This was not an unknown arrangement in churches of the twelfth and early thirteenth centuries. A similar arrangement specifically associated with the Rood occurs in Capel-le-Ferne, Kent, and other arrangements likely associated with Roods occur in numerous places including Brechin Cathedral, Scotland; Little Hereford; Castle Rising; and Melton Constable (Figs. 50, 51, 52, 53, 54).[75] At Skelton, it must have been a small Rood if it stood completely within the opening. If, however, the opening was for light, it would have served as an excellent background for a larger Rood placed before it, possibly resting on a beam set atop the arcade walls and spanning the nave over the chancel arch (Fig. 38). Paintings or images of Mary and John would be easily accommodated to either side. This could have been one way in which light was used intentionally at St. Giles to emphasise places or objects of special importance.

Lighting analysis fundamentals

The argument for the consideration of light among factors influencing the production, perception and use of artefacts, including architecture, has been well-stated and ably demonstrated by Devlin, Chalmers and Brown.[76] In parish church archaeology the importance of light in interpreting the use of space has been tentatively explored, especially by Rodwell and Rodwell for Anglo-Saxon Rivenhall, but not in a methodologically

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73 C. Davidson Cragoe, 'Belief and patronage in the English parish before 1300: Some evidence from roods', *Architectural history* 48 (2005): 24.

74 He seems to be speaking of both lateral and transverse screens, the former positions of which he indicated on his plan of the church (Christian, *Skelton church*, p. 13, pl. 4.); York, BI, FAC1882/17.

75 F. B. Bond and B. Camm, *Roodscreens and roodlofts* (London, 1909), 1: 39-43, Figs. 37, 39, 41, 42a-b.

76 K. Devlin, A Chalmers and D. Brown, 'Predictive lighting and perception in archaeological representations', *UNESCO world heritage in the Digital Age: 30th anniversary digital congress* (2003), http://www.virtualworldheritage.org/index.cfm?pg=Home&l=en, p. 1.

rigorous manner.[77] The importance of light in art historical research is frequently alluded to.[78] However, lighting analysis as part of standard investigative practice in both disciplines has not been widely adopted.[79] Where it is considered, vague and imprecise language is used which weakens its power as an investigative and interpretive methodology in these disciplines. In the practice of architecture, by contrast, lighting analysis is a well-developed area with a precise analytical vocabulary and methodology employing powerful tools.[80] The effects of daylighting in architecture and on human perception of architectural space are well-understood.[81] Adoption of these methodologies by archaeologists and art historians opens new possibilities for the quantifiable (and therefore meaningfully comparable) analysis of light in the architecture of the past.

Two kinds of daylighting analysis are used for the purposes of this study: analysis of daylight in stasis at specific times of day on specific days of the year and analysis of daylight in motion for the entirety of specific days of the year. The static analysis is quantitative and comparative, relying upon the physically-based algorithms and analytical tools of the *Radiance* rendering system. The dynamic lighting analysis is more qualitative, based on the physically inaccurate lighting algorithms but geographic and sidereally accurate heliodon included with the *Vectorworks* CAD package.[82] For the static analysis not only the geometric accuracy of the model but also the physical characteristics of the virtual materials with which it is made are critical. Chief among these for opaque materials are their colour, specularity and roughness. Since a material's colour varies depending on the spectral profile of the light source and the intensity of the light striking its surface, standardised measures of colour are needed. Such measures have been produced for a wide variety of materials by LEARN at London Metropolitan University.[83] The colour values

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77 R. Morris, *Churches in the Landscape* (London, 1989), pp. 296-301; W. Rodwell and K. Rodwell, *Rivenhall: Investigations of a villa, church, and village, 1950-1977,* CBA Research Report 55 (1985), pp. 131 fig.92, 133, 136.

78 In the context of sacred space see, for example, the importance of light and lighting effects in S. Murray and J. Addiss, 'Plan and space at Amiens Cathedral: With a new plan drawn by James Addiss', *JSAH* 49:1 (March, 1990): 50; M. Caviness, 'Stained glass windows in Gothic chapels and the feasts of the saints', in N. Bock (ed.), *Kunst und Liturgie in Mittelater: Akten des internationalen Kongresses de Bibliotheca Hertziana und des Nederlands Instituut ta Rome, 28-30 September 1997* (Munich, 2000), p. 141.

79 Devlin, Chalmers, and Brown, 'Predictive lighting', p. 1.

80 The most powerful tool for the physically accurate simulation of lighting is the *Radiance* rendering and lighting analysis software freely available for all platforms at www.radsite.lbl.gov. A good, understandable photometry primer is by T. Beaulieu, 'Photometry concepts', Available: http://hyperphysics.phy-astr.gsu.edu/HBASE/vision/photomcon.html

81 See, for example, papers given at the annual international *Radiance* workshops published at www.radiance-online.org

82 *Radiance* is physically accurate but slow. *Vectorworks* is not physically accurate but much faster. While the static analysis of light and its comparison between buildings requires interpretation of precise data in real terms, the play of light through a building throughout a day does not depend on such a rigorous approach, given that the general lighting behaviour of a building is established via static analysis. Each single-image simulation of the static analysis took between four and twelve hours to compute using *Radiance* on a relatively fast computer. An animation of daylight moving through a space for an entire day, even compressed to one frame per ten minutes of daylight, would take somewhere in the region of five to fifteen days to render at the rate of one frame rendered every four hours (depending on the day of the year chosen) - an impractical time for results that would not be much more useful than the simpler methods employed by the *Vectorworks* heliodon (which took about nine hours to render on a slow computer).

83 LEARN, London Metropolitan University, 'RADIANCE Materials', Available: http://www.learn.londonmet.ac.uk/student/resources/radiance/material_db.shtml

for light concrete (as a close approximation of the stone at Skelton), for oak and for medium concrete were used for the masonry, timber and flooring of the model, respectively. The specularity (how reflective they are) of all of these materials was considered to be nil since they were probably never polished. Their roughness was set to a low value since most of these features were finished to a relatively uniform smoothness (differences of tooling patterns being negligible). The only light source was sunlight from a clear sky, the spectral profile of which is included in the *Radiance* defaults.[84] Glass was deliberately not included in the windows, although this would have been an important factor in the lighting of the church. The physical properties of mid-thirteenth century glass are not available and their lack would reduce the simulation to guesswork making the calculated results unreliable. Additionally, for coloured glass, each piece would have to be modeled and its material attributes assigned separately. This would take an unconscionable amount of time to produce and yield results that would be of little use to this particular study. The size and placement of the window apertures themselves are more essential to analysing the use of light within the space. Also, by leaving the glass out, different buildings built at different times are more reliably compared since what is measured is the total possible light admitted, which can be known with certainty. The light admitted at any time in the past is subject to the vagaries of historic glass at different periods which, in any case, can now never be sufficiently known in any church which has lost its original glazing.

Lighting levels are measured in a variety of ways, but all of these are based on the fundamental unit of luminous flux: the lumen. The lumen is an SI unit measuring the power of a light source as perceived by the human eye.[85] A 60Watt light bulb produces 820 lumens. Lumens per square metre is the standard architectural measurement of surface lighting and is called 'lux'. The recommended lighting levels for public spaces is 300 lux and for reading 500 lux. A dull day is about 1,000 lux.[86] An illuminance histogram which reflects the degree of the full range of luminance within a building is also useful when making comparative evaluations. In the following comparison of St. Giles and St. Augustine, Skirlaugh the time and day as well as the material definitions of both spaces were made identical (as they appear to be in reality) so that a 'pure' comparison of total possible lighting in both spaces could be made. Finally, the buildings were rendered with the sun at noon on June twenty-first, when the sun casts the shortest shadows on the longest day of the year, to avoid skewing the data due to lighting effects specific to each building.

Light at St. Giles

The windows of St. Giles today are filled with Victorian figural and modern clear glass. Only in the head of the north window of the west wall does any medieval glass survive and that is from the fifteenth and sixteenth centuries. Glass windows were mentioned as faulty in the mid fourteenth century visitation report, but what kind of glass

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84 Any type of sky can be specified, but a clear sky was used as a 'default' to avoid needless complications in analysis.

85 Beaulieu, 'Photometry concepts'.

86 Beaulieu, 'Photometry concepts'.

they contained is not recorded. It is likely that the windows of the new church in the thirteenth century were filled with white or coloured grisaille.[87] Some windows may have included coloured figures as well, particularly the east windows as are the Tree of Jesse windows at Westwell, Kent and Kidlington, Oxon.[88] Given the close architectural ties between Skelton and the Minster transepts, it is not improbable that Minster glaziers had a hand in glazing Skelton. Perhaps they filled its windows with a lightly-coloured grisaille like that in the heads of two windows in the Minster south transept south wall (sXXV, sXXVI) which date from *c*1241.[89] Figures of the patron saints of each altar may have appeared in the appropriate east windows, and the vesica of the east wall is an ideal location for a figure of Christ in Majesty. The transmission of light through the surviving thirteenth century glass in York Minster is 'softened' and diffuse while allowing the light entering the building to remain bright. This property of light transmission has been suggested as one reason for the popularity of grisaille in the first half of the thirteenth century since it would allow the details of the interior stonework to be seen more clearly.[90] Sharply defined pools of light as shown in the following computer models are likely not to have occurred with grisaille. Without knowledge of the transmittance index of this glass, however, any simulation of these lighting effects would be pure conjecture.[91] However, the placement and size of windows would have ensured significantly different levels of lighting within specific areas of the church interior regardless of the type of glass through which it filtered.

The interior of St. Giles is fairly dim most of the day. Without glass it averages between 13 and 23 lux; well below the recommended standard for public spaces and far below the recommended levels for reading (Figs. 55 - 56). Christian described the lighting as 'sombre and quiet, and of a somewhat negative character.'[92] With glass the levels would have been even lower. This is the result of the unequal distribution of windows and window sizes throughout the church. There are four windows lighting the south aisle and five lighting the north, but only two – the lancet and oculus in the west wall – lighting the nave. The exceeding narrowness of the aisle windows (6.5in (16cm) wide and 4ft (1.2m) high) means that the nave, the largest area within the church, receives very little direct light from these sources. The chancel, the sanctuary specifically, is lit by the four largest windows in the only portion of wall that is more void than solid. Combined with light reflected from the substantial surface of the east face of the chancel arch, these windows ensure that the chancel is the brightest part of the church throughout the day (Fig. 57). The altar is especially well lit, averaging at noon in summer when virtually no part of the interior receives direct sunlight, between 75 and 237 lux; approaching the levels

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87 Grisaille from the first half of the 13th century remains in numerous parish churches, R. Marks, *Stained glass in England during the Middle Ages* (London, 1993), pp. 137-140.
88 Marks, *Stained glass*, pp. 137, 139.
89 Marks, *Stained glass*, p. 133.
90 Marks, *Stained glass*, pp. 127-128.
91 While tables of the physical properties of various modern types of glass are available, such information for historic glass, the chemical makeup of which is very different, has not been published.
92 Christian, *Skelton church*, p. 9.

recommended for public spaces (Fig. 58). This is in sharp contrast with the 13 to 23 lux average of the remainder of the space. This is important as it ensures that the High Altar is always the most visually powerful place in the church, drawing the eye through its strong contrast with the surrounding space.[93]

Skelton's design is manifestly not an architecture striving toward creating walls of glass, as the architecture of the fifteenth and sixteenth centuries seems to have been. Nevertheless, it *is* an architecture of light, but one that uses light in specific places within the church at specific times of the day and year. This is immediately apparent if similar views of St. Giles are compared with those of the similarly small parochial chapel of St. Augustine, Skirlaugh, also built rapidly to one design under powerful high ecclesiastical patronage (compare Figs. 55 - 57 to 59 - 60). Comparing histograms of the luminance levels of the two churches for the same time (noon) on the same day of the year (21 June) reveals in detail just how different the two spaces are in terms of lighting (Fig. 61). Skelton's histogram is shifted to the left showing that the interior is darker to a far greater degree than Skirlaugh where the luminance is more evenly distributed toward the centre of the histogram indicating both more even and brighter illuminance of the space. Like Skelton, the altar top at Skirlaugh is generally brighter than the rest of the interior and this is due to the large east window (Figs. 62 - 63). However, the contrast between altar top and average interior brightness is much less than at Skelton. Indeed, contrast in general is much less at Skirlaugh showing a far less specific use of daylight within the space and a correspondingly less emphatic perceptual impact.

Having established the general nature of daylighting within Skelton and its specificity of use, how does that change throughout the day and throughout the year? Based on the early sixteenth century calendar published in the Surtees Society *York Missal* I have chosen three specific days to demonstrate the motion of light through the building throughout the year - Christmas Day, the Feast of St. William of York (8 June), and the Feast of St. Giles (1 September).[94] Christmas and the Feast of St. William were chosen because they are significant, fixed dates in the York calendar that occur near the two solstices. They fall during the periods of minimum and maximum daylight. St. Giles' day was chosen to test a hypothesis about the significance of the orientation of the church. Since the following solar studies depend upon the position of the earth's orbit around the sun, some adjustment between the Gregorian and Julian calendars (the former now in use, the latter used in the thirteenth century) had to be made. For example, the Feast of St. Giles occurred on 1 September in 1247 according to the Julian Calendar, but, in terms of solar time calibrated to the Gregorian calendar, it occurred on the 8th of September of that year.[95]

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93 Human vision is powerfully guided by contrasts of light and darkness, being drawn to regions of greater contrast - F. Ratliffe, 'Spatial contrast: Remarks on some relations between the visual arts and the visual sciences', in H. Spekreijse and L.H. VanDerTweel (eds.), *Spatial Contrast* (Oxford, 1977), pp. 138-142; and H. Spekreijse and L.H. VanDerTweel (eds.), *Spatial Contrast* (Oxford, 1977), *passim*.

94 W.G. Henderson (ed.), *Missale ad usum insignis ecclesiae Eboracensis*, SS 59 (1874), pp. xxix-xli.

95 The adjustment was determined using the rigourously-researched calculations pioneered by N. Dershowitz and E. M. Reingold, *Calendrical Calculations* (Cambridge, 1997) and implemented on the

The play of light through the church during the day on specific days of the year is dramatic. In midwinter, on Christmas day, the beginning of the church year, the only direct light the central vessel receives all day (if the doors are closed)[96] are faint rays from the two lancets in the south aisle wall which crawl across the nave and chancel floor from about 10am to 2pm (Movie 13). In midsummer, on the feast of St. William of York, however, both nave and chancel are flooded with light from about 6:30 to 9am and then from about 2:30 to 8pm. Most of this light is provided by the east and west windows while the south aisle windows make only brief pools on the south aisle floor through the middle of the day. The north aisle windows never provide direct light (Movie 14).

It is interesting to note when light falls on or near important liturgical fittings within the church at different times of day throughout the year. The only time direct light from any window strikes the high altar (or near the high altar) on Christmas is at dawn, with light falling on or near the high altar for the first half hour of daylight. On St. William's day, however, the high altar is lit directly from the east window around 8am and continues to be in direct light until about 11am. Then, from about 5 to 6pm it is directly lit by the western lancet and oculus. Whereas no light from any window strikes the font in midwinter, it is bathed in light from the west lancet in the summer between 2:40 and 3:20pm and then again briefly from the western lancet of the north aisle west wall from about 6 to 6:30pm.

However, the results of a sun study on the Feast of St. Giles are even more dramatic (Movie 15). At dawn (about 5:20am) the eastern sides of the chancel arch piers and the east face of the wall above the chancel arch are bathed in light. By 6am this flood has moved to fill the nave with light as well. At 7:10am the light from the central lancet of the east window and the vesica above falls directly in line with the western lancet of the nave. By about 9am the nave is no longer directly bathed in sunlight from the eastern lancets, but the chancel continues to enjoy direct light from its windows until about 10:20am. The church then receives very little direct light, save some isolated pools in the south aisle from the south aisle lancets until about 2:30 when the west end of the north aisle begins to enjoy light from the western windows. The flood of light enters the nave from the western windows at about 3pm. By 5:30pm the chancel is receiving direct lighting from the nave lancet and at 6:20pm, the high altar and the central lancet above are directly lit by the west nave window and oculus. The light from the west into the chancel continues until sunset at 6:50pm. The altar is lit from about 9am to 10am and then from 6pm to 7pm. The font receives direct light from the east briefly from 6:50 to 7am and then from the west from 3:10 to 4pm. But one more feature receives direct light – the opening above the chancel arch. From about 6:30 to 7:30am it is directly lit from the east, and at 7:10 it allows light from the vesica to pass through and fall upon the glass of the western lancet. Then, from 6

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web at www.calendarists.com (also available at: http://www.ortelius.de/kalender/form_en2.php#notes).

96 The doors have been left open in the computer model. This is of little consequence for the study of sunlight in the building for the Feasts of Sts. William and Giles, but for Christmas Day the effect is more pronounced. The largest pools of light shown during the two Christmas Day solar animations are from the south door and the priest's door. They should be disregarded.

to about 7pm it is lit directly by the oculus, at 6:20 allowing light from the oculus through to fall between the apex of the central eastern lancet and the vesica. At 6:20pm there is direct lighting from the west falling on the high altar, the central lancet, and upon the opening in the wall above the chancel arch. If this opening contained the Rood, then there would be a perfect grouping of altar, east lancet, and Rood. If the east lancet contained figural glass the connection of altar, cross and figures would have been the brightest point in the church.

Use

The use of light within St. Giles expresses the designers' intentions for the use of the space. The brightest space at all times was the chancel and the high altar, making the space strongly chancel-focal. If the times of day when the most light falls in the central vessel and upon the liturgical fittings is tied to the times of day when the daily round of services were generally said, several interesting conclusions about the intended use of the space and what the patrons or designers valued can be suggested.

The basic times of the day when services were sung within the Minster in the early sixteenth century is known.[97] Matins was at 7am in the winter and 6am in the summer. The chantry masses began at 8am and continued until 10am. High Mass began at 9am. Vespers began at 2pm in the winter or 3pm in the summer. At the parish churches of Masham and Doncaster the schedules were similar.[98] In other churches within the diocese various chantry masses were said at other times of the day in the sixteenth century. At Pontefract the Morrow-mass finished by 5am, and it began at 5am at Wakefield. In the chapel of St. Agnes Foss Bridge, York, the Mass had been at 11am or noon but was moved to 4 or 5am. At Skipton the rood-priest said mass at 7am in the winter and 6am in the summer. The rood-priest at Tickhill said Jesus Mass at 9am on Fridays.[99] From this it appears that service times at the end of the period were somewhat flexible, depending on the time of year, the occasion of the day and the type of service. Generally, it appears that in the sixteenth century Mass occurred between 8 and 10am. Although common service times are not known for the thirteenth century, the lighting at Skelton suggests they may have been similar.

At St. Giles the chancel is most filled with light in midsummer and St. Giles' day at dawn, when matins and lauds were sung, and good lighting continues until about 9:30am, by which time it is conceivable that the Mass for the day had begun. Again, in midsummer and St. Giles' day, the chancel is once more filled with light around 2 or 3pm, when vespers would begin. Between the end of Mass (and sext and nones which usually immediately followed) and the beginning of evensong, the church was not specifically needed for services, and could have been opened for more mundane, secular uses. But, the times of

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97 C. Wordsworth and H. Littlehales, *The old service-books of English church*, 2nd edn (London, 1910), p. 18.

98 Wordsworth and Littlehales, *The old service-books*, pp. 18, 20.

99 Wordsworth and Littlehales drew the times (pp. 19-20) from the Yorkshire Chantry Surveys of 1545-6 published in Page (ed.), *Chantries, passim.*

day of strongest lighting in the church occurred during usual service times. It is also possible to hypothesise that the usual time of baptisms at Skelton may have been just before vespers, around 2pm, since that is when the font is best lit.

This use of light is specific in this instance and suggests that the designer and/or the patron created the building to emphasise the chancel during service times. On St. Giles' day, the lighting is most dramatic, filling the space with as much light as possible, including that which comes through the opening above the chancel arch, something which is used this way for only a short period during the year. The maximum lighting occurs only on those days of the year when the sun rises and sets on or near the axis of the building. On the feast of St. Giles, 1 September 1247 (the *terminus ante quem* for the building) in Skelton the sun rose at 5:26am at 80° on the horizon (10° north of due east).[100] The axis of the church is not orientated due east but to approximately 82°, thus flooding the church with the maximum amount of sunlight at dawn on this day. It is a long-standing hypothesis that medieval builders orientated the foundations of *de novo* constructions according to the position of the sun on the day the foundations were staked-out.[101] Since the axis of the building could have been determined by sunrise at the setting-out of the foundations, it is reasonable to suppose that this was done at Skelton on or near the feast of St. Giles and that this was intentional. The idea that churches in England are orientated toward the point of the rising sun on the feast day of their patron saint has long been supposed.[102] However, several studies examining a fairly large sample of Anglo-Saxon churches have shown there is no statistically significant correlation between church orientation and important days in the early medieval Church calendar.[103] While ruling out a general trend, these studies do not preclude such significance in the later Middle Ages on a case-by-case basis. It remains possible that some churches such as Skelton were ritually aligned.

Conclusions

The spatial priority within St. Giles is clearly the chancel. The decorative weight is undeniably heavier in that part of the building. Since the building was built at one time and to one design the decorative prominence of the chancel cannot be attributed solely to a change of patron as is often the case elsewhere but rather to decisions made by the designer

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100 Skelton's latitude and longitude are 54° 00' 01"N 01° 07' 04"W (available: http://www.streetmap.co.uk). Sunrise information calculated with EquinoX planetarium software (available: http://www.microprojects.ca/MPjEquinoxPage.html.) Between 1233 (taken in here as the *terminus post quem* for the building of the church) and 1247 the sun always rose on the feast of St. Giles at 84°. On the same day in 2004, however, the sun rose at 82°. Although the solar animator used to create the sun study with the 3D model of St. Giles calculates the sun position using an unknown year, I assume the programmers used their own year (2003 is the date of the last copyright). The 2° difference both between 2004 and 1247, and between the 82° axis of St. Giles and the 84° of sunrise is an acceptable margin of error.

101 Testing of this theory enjoyed a period of popularity in the mid to late nineteenth century. See the bibliographies in P.G. Hoare and C.S. Sweet, 'The orientation of early medieval churches in England', *Journal of historical geography* 26 (2000): 170-173; J.R. Ali and P. Cunich, 'The church east and west'. *JSAH* 64:1 (March, 2005): 71-73.

102 J.M. Neale and B. Webb, in W. Durandus, *The Symbolism of churches and church ornaments: A translation of the first book of the Rationale Divinorum Officiorum*, Ed. and trans. J.M. Neale and B. Webb, 3rd edn (London, 1893), p. 16 n.17 make this assertion.

103 Hoare and Sweet, 'The orientation of early medieval churches', p. 168.

who had the complete building in mind from the start. The eastern weighting is given more emphasis when the lighting of the space is considered. During the morning hours, the only space in the church well-lit is the chancel. The nave, on the other hand, is normally in darkness during the most important service times. This continues for most of the year and is especially prominent around the feast day of the patron saint of the church. The designer, and, I believe, the patrons considered the decorative weighting of space and the control of light to be important resources for emphasising their intentions. In both cases, that intention seems to be, irresistibly, the high altar and the activities normally occurring there with secondary foci at the font and (on the exterior) the south door. Given the church's strong ties with the Minster clergy of the first half of the thirteenth century, especially Archbishop Walter de Gray whose injunctions for the ornamentation and maintenance of churches within the province underscored the clerical and Eucharistic emphases of the Fourth Lateran Council, it is not unreasonable to see the church design as specifically responding to doctrines which were especially in the forefront of clerical thought in the first half of the thirteenth century. When the well-lit chancel offset from the dark nave and framed by the heavy and heavily ornamented chancel arch and east window beyond is considered in relationship to the rest of the church's space, the only focus for attention intended is on the high altar where the priest instituted the daily (usually morning) miracle of the Eucharist. That it is also an ostentatious little 'gem,' one which proclaimed the influence of the patron in a politically-charged parish at a time of official religious reformation, cannot be denied. But it is a gem with a definite purpose and ordering of space, a space that centres on the specifically Eucharistic and Sacramental activities within.

Chapter Five: Sound

St. Patrick, Patrington, East Yorkshire

Introduction

The 'Queen of Holderness',[1] St. Patrick, Patrington, is a complete expression of Decorated Gothic of the late thirteenth and fourteenth centuries. It is one of the most spectacular and complex parish churches in the country and also one of the least understood. Virtually nothing in the surviving documentary record relates to its construction, and very little medieval documentation of any kind pertains to the church which may be why more traditional historians have avoided it. St. Patrick poses three important questions: who built it, what is its history and how was it used? The first question is the most difficult to answer because of the paucity of documents surviving for the building. An answer may be suggested based on such documents as survive but must rely heavily upon the fabric itself. Such a fabric-dependent approach must be taken when attempting to answer the remaining questions. Fortunately, this is a somewhat easier task because the fabric retains the traces of both its own developmental history and of how it was intended to be used. Its architectural history has been elucidated by many writers over two centuries. However, there are still many problems to be resolved. How the space itself was used has never been explained. St. Patrick offers opportunities for the study of the intended use of ecclesiastic church space that few other churches can match both because of its coherence of design and of the relative certainty with which its later alterations can be identified. The 'finished' space of *c*1400 presents, through a series of alterations, a chronicle of how space was used and how that use changed as the priorities of the users changed. This is most dramatically explored by reconstructing not simply how the space appeared in the past but how it sounded.[2]

This chapter takes each of the three questions in turn although the answers inform each other. The question of who built so magnificent a church in what is now such an isolated town offers an opportunity for reviewing what little documentation there is relating to the medieval parish and its church. Here the relationship of the contributions of the high ecclesiastical landholders who were more temporal than spiritual lords of the parish are evaluated alongside the religious and devotional organisation of the parishioners themselves. It will be seen that the church reflects the parishioners' organisational priorities far better than those of the manor's frequently absentee lords. Consideration of the parish religious organisation and how this relates to the building leads conveniently into the architectural history of the building itself. This has been determined by others and it is only necessary to summarise their work and make one or two additions to knowledge which have been overlooked. The architectural history serves to highlight the church space

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1 K.J. Allison, 'Patrington', in K.J. Allison (ed.), *A history of the County of York: East Riding,* VCH (1984), 5: 97; The neighbouring St. Augustine, Hedon, also substantially fourteenth century but much larger, is nicknamed 'The King of Holderness.'

2 I am indebted to the generosity, both of resources and of time, to Dr. Damian Murphy, Mark Every, the Department of Physics and Electronics, Nigel Holdsworth and Michael Tyler without whose interest, support and talent this chapter would have been impossible.

which, by the end of alterations in *c*1400 presented three primary focal points: the High Altar, the Lady Chapel and the roodloft. Each is the product of intentional alteration to the church fabric and these alterations are significant for they established and then reorganised how the space was intended to be used. In the case of the roodloft the reorganisation was substantial. Using these alterations literally as platforms, reconstruction and exploration of the acoustic properties of the space will be presented. The changing religious priorities of the groups using the church were expressed by altering the acoustic response of the space. The alterations favoured both the clergy and the laity differently and at different times.

The church today

St. Patrick stands in the centre of Patrington, a medieval two-row market town and former port on the Humber about seventeen miles (27 km) east of Hull (Fig. 64). Before the harbour silted up in the mid-nineteenth century the town appears to have done good business shipping Holderness grain and wool. Nothing of the medieval town except the church and town plan itself remains (see the pre-inclosure town map in the VCH - Fig. 65).[3] The town plan appears to indicate that the settlement grew up around the large, triangular marketplace at its centre with the manorial and rectorial complex at its wide eastern end.[4] The location of the church on the south side of the town well back from the street, facing away from the main nucleus of settlement is puzzling.[5] However, this does account for the somewhat more ornate treatment of its northern elevation and the prominent door in the north transept (Pl. 33). The two-storey south porch, then, is something of a mystery. Perhaps the location of the church and some of the surrounding lanes hints that the village migrated north some time after the foundation of the church, possibly in response to the market granted to the Archbishops in 1223 and held outside their manor north of the church.[6] The closing of the port and the removal of the railway line has isolated Patrington. It is now a quiet Humberside village which, if it were not for the church at its centre, would be entirely unremarkable.

The majority of the church was (re)built between *c*1280 and 1400 with work concentrated in the first half of the fourteenth century.[7] It is cruciform in plan with north and south aisles to the nave and east and west aisles to both transepts; the chancel does not have aisles (Fig. 66). The nave is five bays long, the transepts both three bays and the chancel five, if the bay immediately east of the crossing is considered part of the chancel. Besides the High Altar in the chancel there were altars in each of the six bays of the transept east aisles clearly indicated by the survival of a piscina in each bay. Projecting from the second nave bay from the west are north and south porches, that on the south of

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3 Allison, 'Patrington', p. 99, 102-106, map p. 98; A. Alexander, F. Casperson, M. Habberjam, M. Hall, and M. Pickles, 'Patrington: A fifteenth century manorial account', *YAJ* 62 (1990): 141.

4 Allison, 'Patrington', pp. 99-100, 102, 107.

5 Of the four main doors into the church, three, including the priest's door (associated with the cemetery, liturgically) and the ornate north transept door are on the north side.

6 Dates of this and subsequent medieval markets in Allison, 'Patrington', p. 104.

7 J. Maddison, 'The architectural development of Patrington Church and its place in the evolution of the Decorated Style in Yorkshire', in C. Wilson (ed.), *Medieval art and architecture: The East Riding of Yorkshire*, BAA Conference Transactions for 1983 (Leeds, 1984), pp. 137-146.

two storeys with a small parvise on the first floor which may also have contained an altar since the chamber lacks an east window. A polygonal apse projects from the central bay of the south transept east aisle. A vestry, complete with fireplace, projects from the north side of the easternmost bay of the chancel. Opposing doors give access to the nave via the porches. Another large door in the centre of the north wall of the north transept also gives access to the church. A door in the exterior wall of the northwest north transept turret gives direct outside access to the stairs leading, eventually, onto the roofs and into the central tower. The chancel can be entered from outside via a priest's door in the third bay east of the crossing. A modern, small door in the west wall of the vestry gives outside access to that part of the church. Windows light each bay of every aisle and larger windows light the end walls of each arm of the church. Windows which appear to be later, medieval insertions light the westernmost bay of the chancel and the interior of the tower from the west. The parvise is lit by a small window in the west wall and a larger one of two lights in the south. An unglazed, two-light window in a niche in the north wall with accompanying window seats affords a view of the nave. The vestry is lit by a single window in its east wall. The polygonal apse is lit by two-light windows in its northeast and southeast faces but the main face, the eastern, has no window. The floor level of the westernmost bay of the nave is raised on two steps and the font stands in the centre of the platform's eastern edge on a projecting plinth. A platform of two steps raises the floor level of the transept east aisle in the two bays nearest the crossing, while the outermost bay in each transept is elevated by only one step. The easternmost bay of the chancel is elevated by two broad steps.

St. Patrick's external and internal elevations are extremely complex in detail and vary from bay to bay but they do conform to a general design. Some elements, especially the tracery of at least the west window and the north window of the north transept central vessel, were substantially altered in the nineteenth century (compare Pls. 34 - 35 and Figs. 67 - 68). The extent of these alterations is not known in detail since the (unillustrated) faculty of 1867 offers only general guidance while giving free rein to the restorers to make whatever alterations they pleased.[8] On the exterior (Pls. 36, 37, 33) there is a plinth which runs uninterrupted, except by the external doors, around all arms of the church. A stringcourse at sill level likewise unifies the building, although this does make allowances for door heads and varying heights of sills, especially on the chancel. Above the string in most bays is a three or two light window with a two-centred head filled with varying forms of Decorated Geometric and Curvilinear tracery.[9] Above the window heads runs another stringcourse or cornice, again unifying the building except at the chancel where it is broken by the somewhat higher chancel parapet, and no attempt has been made to join it with that of the transepts. A plain parapet surmounts this on all parts of the church, again broken

8 York, BI, FAC 1867/8.

9 Maddison, 'Patrington church', *passim* uses the distribution of the twelve tracery forms as evidence for the dating of each portion of the church. He notes, however, that caution must be used (p. 141) since it is clear that some of the tracery was changed in the nineteenth century. Maddison does not note that some of the windows, especially in the south nave wall and the south transept appear to be medieval insertions into older standing fabric.

only by the shift in heights between the transept and chancel parapets. Lean-to roofs cover the aisles while the leaded roof of the central vessels of the western arms and the unaisled chancel rises steeply above. There is no clerestory. The bays are separated by two-stage buttresses surmounted by heavy pinnacles. Large gargoyles project a considerable distance from the buttresses at cornice level. In the second stage of the transept buttresses are set ogee-headed image niches. The central tower rises in three stages, each separated by a continuous stringcourse. The lowest stage terminates at roof height and only in its west face are there windows which are set either side of the nave roof. The second stage is left plain except for a single lancet in the centre of each face lighting the ringing chamber. An arcade of four lancets, the central two containing the louvres for the belfry, decorate each face of the third storey. A cornice ornamented by small gargoyles marks the top of the tower and the base of the tower parapet. Rising from the tower top is an octagonal corona of tracery surrounding the base of the spire. The spire is supported by four pinnacles set on the corners of the tower top from which spring small flying buttresses.[10] Each corner pinnacle in turn rests on a base which is pierced by a depressed two-centred segmental arch to allow movement around the entire perimeter of the tower top. The spire (Pl. 38) terminates 180 feet (54.86 metres) from the ground and is surmounted by a weather vane. Within this general design framework there is much variation and numerous idiosyncrasies such as the set-back stairs behind the parapets of the ends of the transepts; the ill-fit of the upper portions of the chancel with the transepts; the wide range of variation in window heights, widths and tracery patterns (including the later-inserted Perpendicular tracery of the east chancel window); the early use of transoms in some of the major transept and nave windows; and the elaborate treatment of the doorway and surrounding image niches of the north transept.

Internally, Patrington is likewise extremely varied but within a general unifying design (Pl. 39). Each of the three western arms follows the same basic pattern of piers of eight clustered shafts rising from square plinths and supporting richly-moulded, two-centred arcade arches. At the base of the aisle walls runs a continuous bench, except on the eastern walls of the transept east aisles; the bench continues along the bases of the north and south walls in the chancel only in the third bay from the west. Above this at sill level a continuous stringcourse runs the full internal perimeter of the church, including the chancel. The springers for vaulting ribs are set in the internal aisle walls but the vaults themselves were not completed in the aisles until the end of the nineteenth and beginning of the twentieth centuries.[11] The only vaulting completed in the Middle Ages was that of the east aisle of the south transept (Pl. 40). Sculpted corbels are set in the inward-facing arcade walls of the central vessels of the nave and transepts and these once carried wall-posts supporting tiebeams structurally integrated with their corresponding trusses (Fig. 68). A similar bracing system remains in the crossing supporting the ringing chamber floor.

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10 In January 2005 the southwest pinnacle and flier fell in a sudden wind and went through the south transept central vessel roof, seriously damaging several of what are probably the oldest trusses in the church as well as destroying several eighteenth century tombstones.

11 As recorded on plaques in the church.

The tiebeams were removed in the late nineteenth century but the evidence for where they had been sawn off and the cornices of the arcade walls patched is clear.[12] The central vessel and chancel roofs are open timber trusses composed of two sets of arch braces with collar and struts. There are no purlins or ridgepole. Benches surround the bases of the crossing piers which rise on clustered shafts to support two-centred arches. The central tower interior contains, above the tower arches, a blind arcade of three lancets per wall face similar to the belfry-stage arcading of the exterior of the tower. Throughout the church decoration is profuse and varied, but consists mainly of enrichment of load-bearing or void-opening architectural members by various forms of roll moulding, foliage, or animal and human carvings.

Within this design framework for the interior there is, again, much variation and much that is idiosyncratic. For example, there are six capital types and no less than nine base types for the twelve piers and responds in the nave alone which follow no regular pattern of distribution. Twelve different tracery patterns exist for the forty-three windows, although these are somewhat more evenly distributed into groupings within each arm of the church. Patrington also retains a stone carved Easter Sepulchre in the chancel (Pl. 41), a twelve-sided tub font (Pl. 42), and the remains of a late fourteenth century roodscreen (Pl. 43).[13] The wall over the chancel arch does not continue to the apex of the chancel ceiling but stops at the collar of the trusses which, along with the iron ring in the apex of the arch itself indicate that the chancel arch served no structural purpose but rather functioned as a framework from which to suspend the Rood (or possibly the Lenten veil). Undeniably idiosyncratic are the corbeled-out stairs rising over the south side of the south transept crossing arch from internal balconies at the top of the south transept arcade walls (Pl. 44) and meeting at a doorway over the crossing arch apex which gives access to the central tower ringing chamber via a short flight of wooden steps just below the crossing ceiling. Even more remarkable is that these stairs were never practicably accessible in the Middle Ages.[14]

History

St. Patrick was never appropriated by another institution and therefore retained some degree of autonomy. The church advowson and manor were held by the Archbishops of York who only rarely visited Patrington.[15] Nevertheless, most writers on the church have

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12 The engraving in G.A. Poole, *St. Patrick, Patrington* (Leeds, 1844), 'Transept of Patrington Church' (Pl. 68) must be somewhat inaccurate regarding these beams, for it is clear from the fabric today that they crossed the central vessels above the tops of the arcade walls rather than below. For their removal see Maddison, 'Patrington church', p. 137.

13 For at least fragments of the roodscreen being fourteenth century in character, if not origin, see A. Vallance, 'The history of roods, screens, and lofts in the East Riding', *YAJ* 24 (1917): 162-165.

14 They were only made accessible once the vaults had been installed in the west aisle of the south transept, unless some previous form of temporary framework made access from the south transept staircase to the corbeled stairs possible. At the top of the north transept staircase there is a door just before the stair turret passes above the roof which would have given access onto the tops of the north transept west aisle vaulting – had it ever been completed. What this would have given access too, however, is difficult to understand since there is no provision for continued access into the tower as there is in the south transept. This may represent a change of plan between building phases in the north transept and tower.

15 Only Archbishops Corbridge and Greenfield visiting more than once or twice in the first decade of the

attributed the design sources of St. Pàtrick to the Minster nave and the double tracery of the Minster Lady Chapel clerestory to their influence.[16] But Patrington owes just as much, if not more to the other great churches of the region including Hedon, Beverley and Selby.[17] The actual administration of the advowson was under the care of the Provosts of Beverley. What scant medieval documentary sources there are for the church indicate that the clergy and the laity of Patrington had much closer ties to Beverley, Hull and the neighbouring settlements than to York.[18] However, as the surviving mid-fifteenth century manorial accounts for Patrington demonstrate, the Archbishops were constantly involved in the upkeep of the manor, if not the church itself.[19] Specifically architectural links between York and Patrington may have been strengthened by the later fourteenth century presence in York of two Minster master masons from the region: Robert Patrington (1368/9-1385) and Hugh Hedon (1399-1407). They may have worked on both the Minster and St. Patrick but their contribution would only have been to the latest parts of a substantially complete building.[20]

Little can be said with certainty about who motivated the rebuilding or the subsequent changes to the church. Most writers assume that the archbishops must have been the most important patrons because they held the manor and advowson. Support for their assumption has been sought in two documentary references. A casual reference to the shipping of timber to Patrington in 1308/9 occurs in Archbishop Greenfield's register.[21] In 1349 Robert Thurgolts, alias Patrington, Precentor of York Minster, made his will requesting burial in St. Patrick (but lived until 1371 by which time he was Treasurer).[22] Since neither document specifically attributes either the Archbishop or Precentor with the

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fourteenth century – T. Corbridge, *The register of Thomas Corbridge, Lord Archbishop of York, 1300-1304,* Ed. A.H. Thompson, SS 138, 141 (1925, 1928); W. Greenfield, *The register of William Greenfield, Lord Archbishop of York, 1306-1315,* Ed. W. Brand and A.H. Thompson, SS 145, 149, 151-153 (1931 – 1940). Archbishop Melton, to whom the nave has been credited, never visited at all - Alexander *et al.*, 'Patrington', p. 142; J. Bilson, 'St. Patrick's church, Patrington', *YAJ* 20 (1908): 145 mentions that Melton was at Patrington in 1328 but does not give a source.

16 S. Brown, *'Our magnificent fabrick' York Minster: An architectural history c1220-1500* (Swindon, 2003), p. 156 refutes the Patrington/Minster connection concerning the double tracery. She says that the double tracery is more likely a borrowing from St. Stephen's Chapel, Westminster. However, one of the numerous mid-fourteenth century masons with the surname Patrington was at work as a sculptor on St. Stephen's 1351-8 and another Patrington worked in the Cloister of the Queen's Pew at Westminster Palace 1357-1358 while another Patrington worked for the Sacrist at Westminster Abbey 1382-1397 (J. Harvey, *English medieval architects: A biographical dictionary down to 1550*, 2nd edn. (Gloucester, 1987), pp. 229-230.) This strengthens the fourteenth century Patrington-Westminster-York Minster connection.

17 Maddison, 'Patrington church,' *passim.*

18 See the early fourteenth century dispute between James de Anisio and William de Soothill, canon of Beverley, over who was the rightful rector of Patrington recorded in Archbishop Corbridge's register, Corbridge, *Register,* vv. 138, 141 and summarised by Bilson, 'St. Patrick's church', pp. 141-142 where the close clerical relationship with Beverley is detailed at some length. The parishioners themselves maintained a network of contacts with Beverley, Hull and the surrounding settlements. See the wills referring to Patrington published by the Surtees Society – J. Raine (ed.), *Testamenta Eboracensia: A selection of wills from the Registry at York*, SS (1836-1869), v. 4, pp. 105-106; v. 30, pp. 157-158, 205; v. 53, pp. 11-13, 21-26 - all of which show particularly strong links between Patrington and the surrounding region in the fourteenth and fifteenth centuries.

19 Alexander *et al.*, 'Patrington', pp. 141-152.

20 Harvey, *English medieval architects*, pp. 133, 229.

21 Greenfield, *Register,* 152:265-266.

22 Robert Thurgolts' will is now lost but was recorded by Torre and is mentioned in Maddison, 'Patrington church', pp. 133-134.

building work which must have been ongoing during 1308/9-1349, their reliability as sources for interpreting both the patronage and architectural history of the church must be questioned. In this case, the surviving manorial account of 1426-1427 is enlightening.[23] Greenfield's timber is just as likely to have been sent for work maintaining the manor's flood defenses, which the 1426-7 account shows were in constant need of such repair. It could also have gone to repairs on the numerous manor properties, including the manor house itself or the manor windmills, rather than for use on the church in which he had less interest.[24] The 1426-7 account also mentions another Thurgolts as one of the Archbishop's chief agents on the Manor.[25] It is likely, then, that the Robert Thurgolts, alias Patrington, of the fourteenth century was an ancestor of the fifteenth century Thurgolts indicating a long-term family association with the Archbishops, and that he demanded, like so many men of his day, to be buried in the parish of his birth. The greatest physical impact his burial in the church may have had was the laying of his stone (if it is his stone) *c*1371 in the chancel floor, which would at least provide a *terminus ante quem* for the completion of the chancel.[26] Therefore, a distinction must be made between the manor with advowson, which the Archbishops did hold and maintain, and the church of Patrington, which no one but the rector and parishioners held and were required to maintain.

In the light of these uncertain attributions, then, more substantial evidence must be sought. In the Middle Ages, Patrington did good business as a port. In the late fifteenth and early sixteenth centuries parishioners were involved in livestock, grain farming and associated industries such as brewing, but also included weavers, tailors and general merchants which hints at a broader economic base supported by Patrington's position as a port as well as the focus of an agricultural hinterland.[27] This mixture of rural and urban is reflected in the church fabric itself where the then cutting-edge details are, as Maddison comments, 'loaded onto a distinctly old-fashioned frame.'[28] The townspeople and parishioners are the only people whom the surviving documents record as contributing to the church fabric. Their recorded contributions take the form of testamentary bequests. If the parishioners had a substantial role in the rebuilding of the church, this would explain both the adherence of the design to its antique frame, the wide-ranging affinities of its style and the slow progress of development. The emphasis of the building on the transept chapels, which were the core of the rebuilding process, accords well with the religious organisation and devotional concerns of the parishioners.

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23 Alexander *et al.*, 'Patrington', pp. 141-152.
24 Alexander *et al.*, 'Patrington', pp. 142-145.
25 Alexander *et al.*, 'Patrington', p. 145.
26 For Thurgolts' stone see S. Badham, 'Monumental brasses: The development of the York workshops in the fourteenth and fifteenth centuries', in C. Wilson (ed.), *Medieval art and architecture: The East Riding of Yorkshire*, British Archaeological Association Conference Transactions for 1983 (Leeds, 1984), p. 184n45. She says that the stone is unlikely to be his, citing his 1349 will, but is puzzled that the indent in the stone indicates a brass of a type common in the Riding in the 1370s. She was unaware that Thurgolts died in 1371.
27 Roger Clerke was a 'Berebruer' - York, BI, Prob.Reg. v.11, f.454; John Bilton was a weaver - York, BI, Prob.Reg. v.13, f.23; John Parkar was a tailor - York, BI, Prob.Reg. v.11, f.148; and Thomas Talior was a merchant (mostly of cloth, both domestic and imported) - York, BI, Prob.Reg. v.11, f.461.
28 Maddison, 'Patrington church,' p. 147.

Twenty-nine wills refer to Patrington between 1378 and 1549 and these form the bulk of the medieval documentary record for the church.[29] Of overwhelming prominence in the wills are the four gilds of the Blessed Virgin Mary, Holy Trinity, St. Christopher and Corpus Christi. These gilds, especially that of the Virgin, attracted the lion's share of bequests to the church and the regularity and prominence of the gilds in the wills indicates that they dominated official religious life in the parish. It is probable that these gilds maintained some of the transept altars and were therefore important in the upkeep of these areas, if not their creation.[30] There were also images of St. Patrick and St. Mary, both in the chancel, and one more image of St. Mary 'outside the choir' which was probably associated with the gild and the Lady Chapel in the south transept. Each of these images had associated lights to which parishioners made bequests of money, livestock, produce and goods. The wills also make references to 'all the lights' in the church as well as these specific lights and it is therefore likely that there were lesser lights and images as well. The roodloft was the subject of a specific bequest from John Dalton, merchant and sometimes mayor of Hull with long-standing family, real estate and personal connections with Patrington in the late fifteenth century.[31] The books in the chancel were also the subject of a specific bequest in 1451 from Richard Patrington of Beverley.[32] For a church possessing at least seven altars the clergy mentioned in the wills and appearing in the witness lists are few. In the two wills from 1486, for example, only two chaplains (the same men in both wills) appear.[33] A preference for chaplains rather than rectors is evident for the entire series. This suggests that the parishioners were favouring some of the parish clergy over others and it may be that this small group of chaplains were specifically gild chaplains. When the chantry commissioners arrived in 1548 they recorded only the Virgin and Trinity gilds as chantries.[34] There were no private chantries listed nor is there any written evidence for them. All of this points towards a parish dominated by its gilds which were probably localised at the transept altars.

Evidence of lay involvement in the creation and use of church space may exist elsewhere as well. There are numerous sculpted heads in the building, most of which occur west of the roodscreen. While these may simply be the initiative of the carvers, they may also represent lay donors to the fabric.[35] A frequent recurrence of the same wimpled lady, especially in the bosses of the Lady Chapel vault, may be the portrait of an especially

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29 Of these, only eight are before 1500; therefore, the record is skewed towards the end of the period.

30 There is no record of the Patrington gilds in the 1389 Gild Proclamation returns and the gilds may therefore be younger than the church itself. However, the Gild Proclamation returns for Yorkshire are unreliable, providing the barest sketch of gild activity in the diocese. See D. Crouch, *Piety, fraternity and power: Religious gilds in late medieval Yorkshire, 1389-1547* (York, 2000), pp. 21, 66-67.

31 Raine (ed.), *Testamenta Eboracensia*, 53: 21-26.

32 Raine (ed.), *Testamenta Eboracensia*, 30: 157-8.

33 York, BI Prob.Reg. v.5, ff.280, 282.

34 The chantry certificates themselves for the East Riding are lost, but C.J. Kitching has reconstructed most of what the commissioners reported based on several alternative sources made by them and for them in 1535 and 1548: C.J. Kitching, 'The chantries of the East Riding of Yorkshire at the Dissolution in 1548', *YAJ* 40 (1972): 178-194. The relevant Patrington references are included in the table on p. 188.

35 See the sixteenth century figures at the springings of the nave arcades in St. Mary, Beverley where the lay donors' names are inscribed. J. Bilson, 'St. Mary's church, Beverley', *YAJ* 25 (1913): 418-420. This position may reflect a longstanding general practice of donor recognition.

important lay benefactress The livestock appearing in the sculpture may represent gifts from the laity towards the fabric, lights or gilds. Such gifts are frequently mentioned in testamentary evidence.[36] They could also represent the source of the town's prosperity. Civic links with the town may have been strong in the Middle Ages as they were in the seventeenth century. In 1666 the parvise served as the repository for the town council records and this may reflect long-term use of the south porch as a kind of council chamber, as was the south porch in St. Mary's Beverley.[37] All of this suggests substantial lay involvement in the design and funding of the rebuilding campaign.

Historiography

The first antiquarian account to consider the development of the church does not occur until Poulson in 1841.[38] Soon after Poulson, G.A. Poole's detailed description and valuable accompanying illustrations were first published in 1844.[39] Without Poole's work the original purpose of the corbels in the central vessels as well as the original appearance of the tracery for some of the windows may never have been understood. After Poole came Sir Stephen Glynne in 1854, but his remarks are of an uncritical nature and are useful only in establishing the general condition of the church at that time. His notes were not published until 1898 and so made no impact on later nineteenth century investigators.[40] J.T. Micklethwaite presented the first attempt to engage critically with the complex architectural history of the church in 1886.[41] While inaccurate in many respects, he did lay the foundation for the more complex analyses achieved by later writers. He established, for example, that the transepts were the earliest build and that the present building depended much upon the form of the earlier church. In 1893 the documentary history of the church was thoroughly researched by its rector, Rev. H.E. Maddock.[42] He also gave critical attention to the fabric, coming to conclusions very much in line with the later independent conclusions of Bilson and Maddison.[43] In 1908 John Bilson presented the church to the Yorkshire Archaeological Society in their Proceedings for that year.[44] His brief, but thorough account summarised what was known of the documentary history of its clergy with an architectural history which was later upheld in most of its points by the definitive work of John Maddison. Bilson's chronology firmly established the order of construction as south transept, north transept and crossing, nave and then chancel – all between *c*1310

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36 Horses and other livestock were customarily given as mortuary payment in the Patrington wills. Sheep, cattle and produce were frequently bequeathed to the church fabric, lights and gilds - York, BI Prob. Reg. v.4, f.74; v.8. f.73; v.9, ff.65, 336; v.13, f.581. Of course, the sheep carved in the church have associations with the Agnus Dei, but none of the carvings portray this specific iconography.

37 The parvise was called the 'God-house' and was used as a store for town records, according to H.E. Maddock, *St. Patrick's church, Patrington* (Hull, 1893), p. 28.

38 G. Poulson, *The history and antiquities of the Seigniory of Holderness, in the East Riding of the County of York, including the abbies of Meaux and Swine, with the priories of Nunkeeling and Burstall* (Hull, 1841), 4: 447-463.

39 Poole, *Patrington*.

40 S. Glynne, 'St. Patrick, Patrington', *YAJ* 14 (1898): 179-183.

41 J.T. Micklethwaite, 'Patrington Church', *YAJ* 9 (1886): 99-104.

42 Maddock, *St. Patrick's church*.

43 Maddock, *St. Patrick's church*, pp. 18-24.

44 Bilson, 'St. Patrick's church', pp. 141-147

and 1348 with completion of chancel and spire sometime in the last half of the fourteenth century. His time frame is somewhat too compressed and Bilson glossed over much of the important variation in the details. There is a long gap between Bilson and Pevsner in 1972. During this time the only published notice of the church is a brief but important discussion of the roodscreen by Aymer Vallance in 1917.[45] Pevsner's comments represent a step backward in that he appears to have been somewhat taken in by the apparent uniformity of the building.[46] His comments that the tower must be a survival of the earlier thirteenth century church, based on the lancet-style ornament inside and outside the tower, did not withstand Maddison's keen eye.

The most detailed and definitive architectural history was presented in 1983. Based on a meticulous analysis of St. Patrick's moulding profiles and sculpture John Maddison confidently established in detail its constructional history as well as its place in the architectural history of Yorkshire.[47] Maddison demonstrated that the enormous variety of the church's details extended the chronology of the rebuilding back into the early to mid thirteenth century. He identified at least six phases of work spread throughout the thirteenth and fourteenth centuries concluding that most of the standing fabric dates from between *c*1305 and *c*1340, but the initial plan and design were largely dictated by work of at least *c*1280 and perhaps earlier. What appears at first glance to be a unified, single-period building Maddison demonstrated to be the result of slow and sometimes sporadic rebuilding, especially in the nave. He also tentatively placed Patrington's early reticulated tracery in the forefront of its kind, suggesting that it could be one of the earliest appearances of the type in the country and therefore pivotal in understanding the development and origins of the Decorated style.[48]

Architectural History and Acoustics

Architectural history

The architectural history as described by Maddison begins with the pier base fragments of the earlier church used as footings for pier nNV which he dates to *c*1200-1220 (Fig. 69, a plan of the acoustic model which did not require porches or vestry, indicates pier and window numbers).[49] He adds to this the base of pier nSII and the two round-headed niches in the south nave aisle wall. The second campaign is not given a date but consists mostly of the lower parts of the outer walls of the south transept including the Lady Chapel apse.[50] The final thirteenth century phase is represented by the bases of the nave, crossing and chancel piers as well as the full height of the nave's western responds. To this stage

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45 Vallance, 'Roods, screens and lofts', pp. 162-165.
46 N. Pevsner, *BoE: Yorkshire: York and the East Riding* (Harmondsworth, 1972), pp. 322-324.
47 Maddison, 'Patrington church'.
48 Maddison, 'Patrington Church', pp. 137-141.
49 Maddison, 'Patrington church,' p. 137. I have relabeled the various piers and windows of the church rather than use Maddison's numbering. Maddison's numbering does not reveal where the various elements are positioned in the building or in relationship to each other, whereas a system more akin to the usual method of numbering windows in a church appears more appropriate. My numbering is included on the accompanying plan (Fig. 69) along with Maddison's system in brackets.
50 Maddison, 'Patrington church,' pp. 136-137.

may also belong the full height of the southern responds of the south transept, but Maddison is unclear.[51] Soon after, major rebuilding work began on the south transept and most of it Maddison dates *c*1305 but governed to some extent by the pre-existing work.[52] Next, but with some minor changes of detail, most notably in the section of the pier shafts, came the north transept and tower by *c*1320.[53] Finally, the nave and chancel were completed *c*1340-1350. The nave had been begun as early as 1305 along with the south transept, continued by the north transept mason and completed by the chancel mason who seems to have not adhered as closely to the design set by the south transept mason.[54] The porches belong to the same period as the nave and chancel windows since porches, windows and parapets all 'respect' each other, with no element cutting another. However, the details of the north porch are suspect based on Maddock's comment that it was rebuilt in 1889.[55] The spire with its corona and the east window tracery Maddison tentatively dates to the last half of the fourteenth century based on their affinities with the Lady Chapel and Presbytery of York Minster which were under the supervision of master masons probably from Patrington and Hedon.

An archaeological survey of the church supports Bilson's and Maddison's general chronology. However, some details in the fabric indicate that the stylistically-based analysis employed by Maddison may be complicated or skewed by widespread and frequently random reuse of materials. For instance, while the distribution of masons' marks in discrete groups in each arm of the church accords well with Maddison's results as does the nature of the stone tooling, there are important exceptions. Some masons' marks most frequently found in the later phases of the building also occur sporadically in the oldest parts of the church; on walling as well as architectural elements such as window frames. Tooling also generally confirms the accepted chronology with typically thirteenth century patterns in the older parts and later, claw-marked patterns in the newer. But, a sufficient amount of later tooling is mixed into the older areas to suggest widespread re-use of or alteration of old, *in situ* fabric. Therefore, while the outline of the church development is supported by the fabric, one or two corrections and additions of importance remain to be made.

The first correction is that the majority of the south nave wall is *in situ* fabric of the thirteenth century church and that the windows are later insertions. This is confirmed by the medieval mason's drawings setting out the arcs of the aisle window heads on the interior wall below window nSWinIII.[56] This is important because it means that some of the church's eccentricities of design such as the offset pier in the west arcade of the south transept are intentional. Second, the exterior coursing of the upper parts of the Lady

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51 Maddison, 'Patrington church,' pp. 134, 137.
52 Maddison, 'Patrington church,' p. 139.
53 Maddison, 'Patrington church,' pp. 143-144. He is unclear on the date of the north transept and tower work.
54 Maddison, 'Patrington church,' pp. 144-145.
55 Maddock, *St. Patrick's church*, p. 36.
56 The wall below the window, therefore, must be earlier than the window head above. Also, the window jambs in this wall do not course well with the walling as opposed to the north aisle where they almost always course.

Chapel apse suggests that the south transept east aisle vaulting is a later insertion. Therefore, although it was always intended to vault all of the aisles of the church, even the east aisle of the south transept was, for a time, open to the rafters. This is important to the acoustic development of the church and the use of its space. The third correction takes the form of a caveat in dating a building based on moulding profiles and decoration alone. The capital of the northeast tower pier possesses two profiles with the change occurring mid-stone and for no apparent reason (such as a transition from work of one period to another) (Pl. 45). Although the change seems inexplicable it should serve as a warning that masons could and did change their profiles at will. Finally, the roodscreen and roodloft must be considered as part of the architectural history of the building. Aymer Vallance dates the surviving fragments of the screen to near the end of the fourteenth century. The screen was always meant to carry a substantial roodloft which, based on the positions of chases in the nearby fabric, spanned most of the width of the bay east of the crossing. A roodloft of these proportions was not originally envisioned for the space, and, when it was inserted, required some substantial alteration to the fabric itself. To this may be attributed the square-headed windows inserted into the upper parts of the walls of the roodloft bay and probably the similar windows inserted into the west wall of the first stage of the crossing. If the roodloft and roodscreen were contemporary and date to the end of the fourteenth century, as Vallance suggested, then by that time Patrington had three main foci: the High Altar, the Lady Chapel, and the roodloft. The final alteration which resulted in the roodloft, effectively reorganised the use of the entire church, as we shall see; or rather, hear.

Acoustics

Late medieval church space was incomplete without sound. While churches played numerous roles within their communities, the leading role was as a space for acts of worship officially dependent on at least one altar. These acts of worship were visually and audially focal, centering on the altar and its immediate surroundings. The visual experience was an outside-in process. That is, the experience is dependent on the focusing effects of the larger surrounding area including, on the largest scale, the horizontal and vertical arrangement of the architectural elements of the church building, and, on smaller scales, the effects of painting, stained-glass, and sculpted ornament, finally being drawn in to the centre by points of candle flame. The church and its ornaments are a kind of funnel channeling the attention of the observer to the centre. The visual aspect of Mass at a particular altar cannot be experienced from all positions in the church. People in the transepts at Patrington, for instance, could not visually participate in the worship by the celebrant at the High Altar in the chancel. But, the Mass was not visual alone. It was fundamentally audial. The auditory experience of the Mass was an inside-out process emanating from the celebrant and the other clergy present, depending on the occasion and type of Mass and moving outward to fill the rest of the building. High Mass was a musically elaborate occasion employing a choir and more clerical attendants and servers. It would generally only be celebrated in parish churches on Sundays and the most important

Feasts at the High Altar. Low Mass, by contrast, required only the presence of the celebrant and one assistant who chanted the priest's part and the responses, respectively. Low Masses would have been performed every day in parish churches and were especially the domain of the chantry or gild chaplains (and their patrons) at subsidiary altars.[57] In parish churches, Patrington included, the Masses at any altar could be heard even if they were not visible. This audial experience is arguably more important than the visual, although its transitory nature makes it less apparent when it is not occurring. In the use of sacred space in the Middle Ages in general and St. Patrick specifically the acoustic properties of the space itself played an important role.

While the science of acoustics is now a complex and advanced study with claims to venerable roots, the application of that science to the study of historic space in the past has not been pursued until fairly recently.[58] There are several important reasons for this. First, the science of acoustics has developed along forward-looking lines which emphasise the present and how to alter it to produce desired results in the future. Second, it is much more difficult to evaluate a space acoustically which no longer exists. Third, what sounds were intended to be produced in a space at a time in the past are difficult and sometimes impossible to recover. However, with the rise in the importance of creating spaces optimised for maximum enjoyment of particular types of sound, it has been thought useful to acoustically analyse historic spaces in order to re-create their properties in the present.[59] Also, the recent curiosity of some acousticians, and now the research interests of scholars in other fields as well (archaeology in particular) who take a phenomenological approach have begun to open the way toward understanding past acoustics and what this may suggest for the past use of specific spaces.

Perhaps the most well-known forays into archaeological acoustics have been conducted by Devereux, Jahn and Ibison, Watson and Keating and others in prehistoric spaces, usually tombs and standing stone circles.[60] Their techniques have also been the simplest, centring primarily on determining the modes of a space (standing waves or room resonances) through a relatively simple process.[61] What the results of these investigations signify, however, is less certain and all that can be determined at this time is what was

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57 J. Harper, *The forms and orders of the Western liturgy from the tenth to the eighteenth centuries: A history, introduction and guide for students and musicians* (Oxford, 1991), pp. 26, 113-114, 121, 40-42; E. Duffy, *The stripping of the altars: Traditional religion in England c.1400-c.1580*, 2nd edn (London, 2005), p. 112.

58 For the roots of acoustics see F.V. Hunt, *Origins in Acoustics* (London, 1978).

59 A. Baussuet, 'Acoustics of early music spaces from the 11th to 18th century: Rediscovery of the acoustical excellence of medium-sized rooms', *147th ASA Meeting* (New York, 2004), Available: http://www.acoustics.org/press/147th/Baussuet.htm

60 R.G. Jahn, P. Devereux, and M. Ibison, 'Acoustical resonances of assorted ancient structures', *Journal of the Acoustic Society of America*, 99:2 (Feb. 1996): 649-658; P. Devereux and R.G. Jahn, 'Preliminary investigations and cognitive considerations of the acoustical resonances of selected archaeological sites', *Antiquity* 70 (1996): 665-666; A. Watson and D. Keating, 'Architecture and sound: An acoustic analysis of megalithic monuments in prehistoric Britain', *Antiquity* 73 (1999): 325-336. At Cambridge the work of G. Lawson, C. Scarre, I. Cross, C. Hills, 'Mounds, megaliths, music and mind: Some thoughts on the acoustical properties and purposes of archaeological spaces', *ARfC* 15:1 (1998): 111-134 covering the prehistoric and historic periods.

61 Jahn, Devereux, and Ibison, 'Acoustical resonances', p. 649; Watson and Keating, 'Architecture and sound', pp. 326-328.

acoustically possible, rather than what was intended to occur. In the historic period the investigations of Vassilantonopoulos and Mourjopoulos on Classical Greek and Roman temples is more sophisticated and the results more certain because sufficient complementary documentary information survives to allow a plausible reconstruction of intended purposes.[62] This work involves not only the measured response of surviving Classical spaces, but the reconstruction of several which have mostly disappeared. The main concern here is in determining the suitability of the space for its known intended use. This is primarily achieved by determining the Reverberation Time (RT) or Early Decay Time (EDT) of a space. To achieve this for vanished spaces physical, mathematical and computer models of the spaces have been created and analysed using a variety of acoustic tools and techniques.

Such sophisticated study of medieval churches is surprisingly rare.[63] It is surprising given that so many medieval churches survive, some of them relatively little altered acoustically, and that there is an abundance of liturgical music as texts. When churches have been considered by acousticians it has usually been to determine the effectiveness of acoustic jars. A small number of medieval churches throughout Europe were fitted with acoustic jars which were the medieval manifestations of those described by Vitruvius in the context of theatres.[64] These jars, still used in many modern Russian Orthodox churches, are the ancient equivalent of modern Helmholtz resonators which are designed to amplify specific frequencies of sound.[65] Vitruvius intended specifically-tuned, free-standing series of bronze jars to be installed under the seating of theatres. In the Middle Ages pottery jars were occasionally installed either under choir stalls or in the choir walls. They do not seem to have ever been free-standing, nor intentionally-tuned, nor present in large numbers as Vitruvius recommended. In the Middle Ages there is evidence that some considered them to be too expensive and of little effect.[66] Modern tests have confirmed this.[67] What the presence of these jars does indicate, regardless of their actual effectiveness, is that there

62 S. Vassilantonopoulos and J. Mourjopoulos, 'Virtual acoustic reconstruction of ritual and public spaces of ancient Greece', *Acustica* 87 (2001): 604-609.

63 Baussuet, 'Acoustics of early music spaces' describes in general terms the results of their 'field tests' of some medieval spaces. Lawson *et al.*, 'Mounds, megaliths, music and mind', pp. 128-129 briefly review the available literature on medieval churches. The most important published study focusing on the acoustic effects of the full range of church architectural styles within a historical and musicological context is Antonio Carvalho's work in Portugal published A. Carvalho, A. Morgado, and L. Henrique, 'Analysis of subjective acoustic measures and speech intelligibility in Portuguese churches', in *131st Meeting of the Acoustical Society of America*, (Indianapolis, 1996), pp. 1-24. See also Carvalho's PhD work - A. Carvalho, 'Influence of architectural features and styles on various acoustical measures in churches' (PhD diss., University of Florida, 1994). For a study of the acoustical properties of the Cambridge chapels see R. Kelly, 'The acoustics for church music: A study of the chapels of Cambridge University' (MA diss., University of Cambridge, 1993).

64 Vitruvius, *Ten books on architecture*, Trans. I.D. Rowland, Commentary and ill. T. N. Howe, (Cambridge, 1999), pp. 67-68 and illustrations on p. 256.

65 T. Pretlove, 'Helmholtz Resonators for the New Russian Orthodox Church in London', *Acoustics Bulletin* (Jan./Feb. 1998): 11-15.

66 In 1432 the Celestine prior of Metz hastily installed acoustic jars in his own church after seeing some in another church. The chronicler was not impressed with the results. R. Merrifield, *The archaeology of ritual and magic* (London, 1987), pp. 122-123.

67 V. Desarnaulds, Y. Loerincik, and A. Carvalho, 'Efficience of 13th century acoustic ceramic pots in two Swiss churches', in *Noise-Con 2001* (Portland (Maine), 2001).; A. Carvalho, V. Desarnaulds, and Y. Loerincik, 'Acoustic behavior of ceramic pots used in middle age worship spaces–A laboratory analysis', in *Ninth international congress on sound and vibration, ICSV9* (Orlando, 2002), pp. 1-8.

was an awareness of architectural acoustics in the Middle Ages and some sought to alter spaces to achieve better results for their purposes. Despite this established and explicit interest in acoustics in the Middle Ages in an ecclesiastic setting, the published analysis of the acoustic properties of medieval churches, especially of medieval churches as they existed in the Middle Ages, is rare.

St. Patrick is a good place to start. Its coherence of design (despite the extreme variation of detail) allows conclusions about its intended use to be made. The readily identifiable subsequent alterations give dramatic evidence for how that design was altered and why. While numerous approaches to this spectacular church could be taken, the acoustic approach ties them all together because Patrington's three main foci are also three very different types of acoustic space and, I argue, were intended to function acoustically as well as visually and liturgically. Also, because the development of St. Patrick is fairly well established (with archaeological caveats), study of the development of its acoustic properties can be conducted. Conclusions about how the acoustic properties of the space at different times effected the use of the space can be made.

At Patrington there were at least eight locations from which sound was intended to originate by 1350 when the chancel was probably completed. These were the altars and the belfry. The belfry was intended to produce sound that would travel beyond the church itself and, although the present bells can be heard from within the church, are not of interest to this discussion because they were primarily intended for listeners outside the church. The sounds at the altars, however, were very much intended for audibility inside the building. For whom this audibility was intended is questionable, and it will be shown that the auditory experience of a Mass in St. Patrick was experienced unequally by different groups within the church. To the seven known altars one more sound source can be added: the roodloft by *c*1400. The roodloft is a special case because it is likely that it carried an organ and so was the source of a different, non-vocal sound system.[68] Of these eight sound sources three were especially important: the High Altar against the east wall of the chancel, the Lady Altar against the east wall of the apse in the south transept, and the roodloft organ just above capital height in the westernmost bay of the chancel. These three areas are the most important, visually and acoustically, in the church. The Lady Chapel was constructed first (*c*1305), but without completed vaults. The present chancel was probably complete by 1350. At this time, based on similarities with the chancel furniture, the Lady Chapel received its stone reredos and, possibly, its vaults. By the close of the fourteenth century, the present roodscreen and loft with their attendant windows were inserted.

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68 'ij pair of orgains' are recorded in a 1552 inventory of church goods at Patrington - W. Page (ed.), *The inventories of church goods for the Counties of York, Durham and Northumberland,* SS 97 (1896), pp. 48-49; for the use of roodlofts as spaces for altars and as spaces for music generally in the Middle Ages see F. Bond, *Screens and galleries in English churches* (London, 1908), pp. 107-123; F. B. Bond and B. Camm, *Roodscreens and roodlofts* (London, 1909), 1: 82-87; F. Harrison, *Music in medieval Britain* (London, 1963), pp. 197-213.

An acoustics primer

Analysis of acoustic space requires at least one sound source (a performer) and one sound receiver (a listener). The measured acoustic response of any space is localised at the receiver position. Thus, if only one receiver is used, the acoustic response measured is not that of the room *per se*, rather it is that of the room *from the position of the receiver*. In order to understand better the response of the entire space, a number of listeners are required. These can be placed wherever one wishes and, because Patrington's acoustic response was evaluated using a computer model, there is theoretically no limit to the number that can be placed. The more receivers measured, the greater the overall understanding of the acoustic properties of a space are, but it is a time-consuming process both in the real world and virtually. Therefore, for the purposes of this study, six primary receivers have been placed both with a view to provide good coverage of the space as well as in positions where people were clearly intended to gather, based on the location of altars and stone benches around the crossing piers (Fig. 70). These positions are: in the second bay from the west in the central vessel of the nave (R1), in the centre of the crossing (R2), underneath the roodloft (R3), in the stalls along the south wall of the chancel in the second bay from the west (R4), in the central vessel of the south transept opposite the Lady Chapel (R5), and in a similar position in the central vessel of the north transept (R6). In order to provide optimum coverage of the ground floor generally, however, a grid response showing the acoustic response for the measurements described below based on sounds from the High Altar has been calculated with one receiver every square metre (Figs. 71, 72, 73, 74).

In order to listen to the Mass in medieval Patrington appropriate recordings in a controlled environment needed to be made. Using the York Missal published by the Surtees Society, recordings of some of the music during the ordinary and canon of the Mass were made in an anechoic chamber (Tracks 1-13).[69] These portions of the Mass were chanted by Nigel Holdsworth, cantor of All Saints North Street, York. The spoken parts of the Mass (the Bidding Prayer and the more occasional Great Cursing) were read in fifteenth century original pronunciation by Michael Tyler in the anechoic chamber as well.[70] In the model, sources were placed at the High Altar (S1) where most of the liturgical singing by the priest would have taken place; in the roodloft (S3) where it is possible that the Gospel would have been chanted and also from which the Great Cursing may have been expounded; at the roodscreen door (S4) where the Bidding Prayer would have been said at the end of the Sunday procession and before the Ordinary of the Mass began, and near the northeast pier of the crossing (S5) where it is also possible the Gospel may have been chanted if there was a medieval pulpit. Another source was placed at the altar in the Lady Chapel (S2) (Fig. 70). The various recordings were then convolved through their appropriate sources using the acoustic software and 'listened to' in the crossing. An unanechoic, but serviceable, recording of a typical small medieval organ is also included,

69 W.G. Henderson (ed.), *Missale ad usum insignis ecclesiae Eboracensis*, SS 59 (1874).
70 W.G. Henderson (ed.), *Manuale et processionale ecclesiae Eboracensis*, SS 63 (1875), pp. 119-127.

playing from the roodloft.[71] These recordings are on the accompanying audio CD (Volume Four).

Before the church's response for the three important foci is discussed, however, some mention needs to be made of the most important and most variable, as well as the most unknown factors influencing a room's response. A room's response depends on numerous factors the most basic of which are room geometry, the materials out of which it is made and what fills the space. The geometry determines how the sound waves are reflected through the room and the materials determine how scattered that sound is and how much of that sound energy gets absorbed (the diffusion and absorption coefficients, respectively). Geometry is relatively simple and measurable (Fig. 75 is an isometric view of the acoustic model). In late medieval ecclesiastic space it does not regularly change with the exception of the drawing of the Lenten veil across the chancel.[72] Determining the diffusion and absorption coefficients of materials is a much more difficult and less well-established process. Most acousticians rely on predetermined numbers derived by a variety of methods the results of which all differ slightly. Therefore, the most basic stage of measuring the response of a virtual acoustic space, the assigning of material properties, is fraught with probable inaccuracies. For historic spaces this is especially the case since the various tables of material coefficients have been compiled for materials used in present-day construction techniques and not for past techniques which are not commonly used (no one builds simply out of stone and solid oak beams anymore). Therefore one must make an educated guess at the diffusing and absorbing properties of the materials that were likely to be present in the room. However, as long as these materials are not changed between measurements, the results will at least be useful for comparison of how the space behaves acoustically for different sources and receivers in different locations. The results will probably also come fairly close to resembling the actual performance of the space. But it must be understood that this is only an approximation of reality, not reality itself. Finally, the audience itself has a great but difficult to calculate impact on the acoustic response of the space. When the space is empty of people, the acoustics are generally stable, but, since this would never occur during a live performance (someone, at the very least, must be present to perform), it is important to evaluate the space with an audience present. In this case, I have included thirty laity scattered throughout the crossing and nave in a pattern dictated by the details of the space (Fig. 70) and resembling that which I observed in the recreation of the fifteenth century Corpus Christi Mass at All Saints North Street, York in July 2004. Since there were probably well over a hundred regularly-attending parishioners at Patrington,[73] this number is quite low, but the arrangement and number of people is useful as an indicator of the effects of an audience while still being small enough not to over-complicate the room's geometry. The material coefficients of modern people, let alone past people, is relatively indeterminable. For the purposes of this study I have given

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71 The source recording for the organetto, or portative organ, is available at: http://www.twingroves.district96.k12.il.us/Renaissance/Town/Music/RenSound/OrganPrin.snd

72 Duffy, *The stripping of the altars*, p. 111.

73 There were 372 poll-tax payers in Patrington in 1377 - Allison, 'Patrington', p. 101.

them the properties of moderately upholstered seating, which seems to me to accord well with the heavier materials of late medieval clothing.

A few words of explanation of acoustics terminology is also helpful at this point. The most important measurement of a room's acoustic response is reverberation time which is defined as the time it takes a sound created in that room to diminish 60 decibels (dB) from its starting level. In reality this measure is impracticable and it has been found that the first thirty dB are most noticeable, therefore the calculation is usually represented as T_{30} (T30). Generally speaking, the larger the room, the higher the T30 and the 'worse' the acoustic performance by today's standards which value intelligibility and clarity. There are numerous methods for reducing T30 which are employed in concert hall and auditorium design today with the aim of achieving the ideal average T30 of about 1.8 seconds for music and .8 seconds for speech.[74] All of the following measurements are based on T30. The measure of the intensity of sound energy in any given position is called the Sound Pressure Level (SPL) and is expressed in dB. 60 dB is the sound energy of an average face-to-face conversation.[75] The clarity of sound in a specific location is important in determining how articulate the sounds, especially music, are perceived to be. This is called C_{80} (C80) and is expressed again in dB both positive and negative with a value between -3 and 3dB being generally accepted as optimum.[76] Finally, there is the intelligibility of speech, the Speech Transmission Index (STI), which is expressed on a decimal scale between 0 and 1 with 1 being the most intelligible. STI values below .45 are generally considered poor and below .3 bad.[77] There are other measures of a room's acoustics, but the above measures seem most appropriate for this case. Finally, all of these measures vary significantly with the frequency of the sound generated. The human voice generally operates in the 500 to 2000 Hertz (Hz) range and therefore the values at 1000Hz will be considered below.

Patrington's acoustic response in the Middle Ages

Liturgically, the High Altar was the most important altar in a late medieval church. Judging from the relative levels of decoration and architectural complexity, however, at Patrington the Lady Altar in the south transept was almost as important to the laity. This accords well with written evidence found in the Patrington wills.[78] Both altars went through periods of decorative and architectural modification. The High Altar was embellished by the early fifteenth century insertion of the Perpendicular tracery in the east window which made special accommodation for a very large reredos by blocking the lower

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74 M. Mehta, J. Johnson, and J. Rocafort, *Architectural acoustics: Principles and design* (London, 1999), table 10.12, p. 218. The table notes that the ideal T30 for church music is about 2.25 seconds. P.H. Parker and H.R. Humphreys, *Acoustics noise and buildings*, 3rd edn. (London, 1969), p. 109 suggest that 4 seconds is best for polyphonic liturgical music.

75 Table 2.1 in D.M. Howard and J. Angus, *Acoustics and psychoacoustics* (Oxford, 2001), p. 82.

76 Table 12.5 in Mehta, Johnson, Rocafort, *Architectural acoustics*, p. 266.

77 C.L. Christensen, *ODEON Room Acoustics Program Version 7.0, User Manual* (Lyngby, 2003), p.7.71.

78 Wills show that the parishioners gave more to the Lady Altar and its associated gild and imagery than to the High Altar and its imagery. For example, in 1537 John Jeffrason gave 12d to the High Altar but 2s 8d 'to our ladie chapell' - York, BI Prob. Reg. v.11. f. 277.

tier of lights. This would have had a minimal impact on the acoustics of the otherwise unmodified chancel east of the roodscreen. The Lady Chapel altar, however, received an ornate stone reredos (probably at the time of the completion of the chancel, based on stylistic affinities with the chancel Easter Sepulchre and sedilia) and the stone vaulting which altered the Lady Chapel's acoustic properties. It is important to begin with what was officially the chief liturgical and auditory focus of the church both because of its official authority and because of its stable acoustic environment. I will begin with the space as it was *c*1400 after completion of the roodloft and work backwards chronologically in my discussion.

For sounds emanating from near the High Altar the average T30 for the six receivers at 1000Hz was 3.53 seconds. This varied between 3.23 seconds in the chancel to 3.81 at the back of the nave but this difference is just noticeable and we can say that the church is diffuse. That is, it distributes sound fairly evenly throughout the space. The grid response (Fig. 71) illustrates this. Therefore, acoustically speaking, the space is relatively successful in terms of its even distribution of sound reflections. The T30 is about twice as long as is ideal, but, given a suitable music or manner of speaking, the space would respond very well and would be relatively easy to fill with sound from this location. Interestingly, the average T30 for St. Patrick's High Altar is comparable to that found at St. Augustine, Skirlaugh, which is a much smaller building with very different geometry. Many more churches would have to be tested in order to determine if a 3 to 3.5 second T30 was intentional in late medieval parish churches. If it was, it would say something about the preferred acoustic aesthetic of the period – one that is quite different from ours.

While the T30 for sounds originating at the High Altar is diffuse, the SPL (the actual volume of sound) is not as evenly distributed (Fig. 72). The average SPL at 1000Hz is 44.6dB but it varies between 40dB in the back of the nave and 52.5dB in the chancel. The 12.5dB difference between the two is significant and would have been noticeable. This is to be expected, as sound energy decreases the farther one is from the source. However, in one position, under the roodloft, the SPL does not follow the expected even falloff of sound energy. The SPL for a listener standing in the crossing is 43.7dB; 3.7dB greater than a listener standing 12 metres farther back in the nave, or a diminishing of .308dB per metre. The SPL for a listener standing under the roodloft just 4.5 metres farther forward of the crossing listener is 46.7dB for an increase of .667dB per metre. The SPL under the roodloft does not follow the same gradual falloff per meter as it does in the nave which indicates that sound under the roodloft is artificially more powerful, dropping sharply once one moves west of the roodloft into the relatively open space of the crossing and nave. This can be seen in the grid response where the area under the roodloft shows a concentration of higher SPL than the crossing or nave. This is because the coving under the loft focuses sound energy. In the chancel the falloff is 1.316dB per metre which indicates that more sound energy is present both because of its nearness to the source and because the chancel walls and, to a lesser extent, the roodscreen and loft concentrate sound energy in this tighter space (Movie 16).

The measurements for clarity are even less well distributed among the six receivers (Fig. 73). The average C80 at 1000Hz for sounds originating at the High Altar is -8.0dB but this is an average of two very different and very perceptible extremes of -3.1dB (approaching the ideal for modern concert halls) under the roodloft and -13.5dB in the back of the nave. The results are surprising. Whereas one would expect sound to be clearest nearer the source, this is not the case. The C80 for the listener in the choir stalls in the chancel is -4.0dB, which is a good value. But the C80 for a listener under the roodloft is -3.1dB; a small improvement, but an improvement nonetheless. For everywhere else in the church, the C80 values become increasingly worse resulting in a very 'muddy' sound quality at the back of the nave and in the transepts. Both the focusing effects of the roodloft coving and the diffusing effects of the roodscreen itself must play a part in improving the clarity of sound heard underneath the roodloft, whereas the boxlike structure of the chancel probably contributes to its lesser clarity as the sound is diffused less by the highly specular (reflective) surfaces of the chancel. A large and ornate reredos and similarly ornate choir stalls would have helped to diffuse the sound energy and improve the acoustics of the chancel.

Finally, the intelligibility of speech, the STI, is likewise varied for each location (Fig. 74). The average STI is about .375, generally poor. Again, the poorest rating is at the back of the nave which rates at .32. The chancel STI is .39, as expected, since it is nearest the High Altar, but the space under the loft again proves to be the area of most speech intelligibility at .43. These differences in STI are not highly noticeable in real terms, and all are generally poor, but there are areas in the church where the poor quality of speech intelligibility is slightly less so.

All of these measurements are the acoustic response of the space as it existed in about 1400 – over a century after its design was created by the master of the south transept and after at least three alterations which changed the acoustic of the space. The first alteration was the building of the chancel to a somewhat different general design than that of the rest of the church which greatly affected the local acoustics of that space, and correspondingly, of the whole church. The chancel was complete by 1371 when the Minster Treasurer Robert Thurgolts was buried there. Based on stylistic evidence, Maddison pushed the chancel date back to *c*1350 which accords well with Thurgolts' will dated 1349 requesting burial at Patrington. For the purposes of this investigation the existing chancel (with the exception of the new tracery of the east window) is considered the starting point of analysis of St. Patrick's space since the previous chancel is completely unknown. The church of *c*1350 would have lacked the roodloft and possibly the vaults of the south transept east aisle both of which affect the acoustic of the space. Without the focusing effects of the roodloft, the quality of sound in the parts of the church west of the chancel arch is diminished making the chancel itself the best position from which to hear Mass at the High Altar. When the south transept vaulting was installed, the acoustics of the church changed. To hear the difference in sound quality between the High Altar and the Lady Chapel from the point of view of a listener standing in the crossing, play tracks 40

through 42 listening to them with headphones. Each track is a brief portion of the priest's part during Mass according to the Use of York repeated three times: the first is the original anechoic recording, the second originates from the High Altar, and the final time comes from the Lady Chapel.

Acoustically speaking, sounds emanating from the Lady Altar were heard with a better quality from most of the six listening positions than sounds emanating from the High Altar itself. The only position where quality is worse is the chancel, where the sound quality is quite poor. Whereas with the High Altar the optimum listening position was under the roodloft as opposed to in the chancel itself, for the Lady Altar the best listening position is in the central vessel of the south transept. If the south transept listening position for sounds produced at the Lady Altar is compared with the chancel listening position for the same sounds produced at the High Altar, the quality of listening to Mass in the south transept at the Lady Altar is significantly clearer, more intelligible and with a more favourable T30. If identical sounds produced at the High Altar and the Lady Altar are heard from the position under the roodloft, those from the Lady Altar are of better clarity and intelligibility. The situation is similar for a listener standing at the back of the nave. The better acoustic performance of the Lady Altar must be in large part due to the vaults. It is clear that after the insertion of these vaults the Lady Altar became the most prominent auditory focus in the church eclipsing the High Altar itself. All of the pieces from the Mass (except the Bidding Prayer, Gospel and Great Cursing) are recorded from both the High Altar (tracks 14-26) and the Lady Chapel (tracks 27-35).

The audible difference between the two foci of the church was somewhat, although not completely, balanced by the insertion of the roodloft which now no longer exists. Based on the remaining fragments and scars in the fabric of the westernmost bay of the chancel, the general dimensions and appearance of the roodscreen and loft can be determined. The loft stretched almost the full length of the bay, nearly twelve feet (3.7 metres), and was fixed to the north and south walls of the bay just above the capitals of the transept aisle responds which placed the heads of the aisle end arches within the roodloft space itself and may have provided a point of access into the loft. The loft was probably supported by two layers of screen. The westernmost layer was most likely open to the floor, consisting of only three or five wooden arches or even simple posts.[79] The easternmost layer consisted of the remaining roodscreen. There was fairly ornate wooden vaulting and coving stretching up from the roodscreen to the underside of the loft as well. This elaborate work provided a spacious loft. What was in the loft is unknown. It is possible, however, that the loft contained an altar as some lofts in other churches did, although there is now no evidence for this at Patrington. Lofts were also popular locations for organs and it is entirely possible that one of these was also placed in the space.[80] Whatever was placed in

79 Double-screens of one type or another were typical in greater churches, but were also known in parish churches and are especially suited to cruciform plans. Deep lofts could also be carried on single-screens including some of prodigious size such as that at Winshom or Axbridge, Som. which extended across the full depth of the central tower. Double-screens and deep lofts are discussed in Bond and Camm, *Roodscreens and roodlofts*, pp. 84-85; Bond, *Screens and galleries*, p. 113.

80 Discussions of medieval organs and their positions within medieval churches are in P. Williams, *The*

the loft, the space was, like all roodlofts, intended to function at least as the place from which some portions of the liturgy might be performed including the reading of the Gospel and perhaps more occasional elements such as the singing of the Passion (on the CD the Great Cursing is read from the roodloft (Track 26)). The space before the roodscreen doors (and therefore under the loft) was important too since it is from this position that the Bidding Prayer was read in English at the end of the Sunday Procession immediately before Mass (Track 14 is the Bidding Prayer spoken from the roodscreen doors).[81] The overwhelming evidence for the purpose of the loft, however, was as a place for an organ (Track 37).[82] Therefore its purpose is explicitly as a platform for sound. The average acoustic measurements for the space reveal that sounds originating from the loft are heard with slightly better quality than those from the High Altar, but still fall slightly short of those achieved by the Lady Altar. For sounds from the roodloft the best listening position is either in the crossing or in the south transept. In fact, the C80 is actually better for listeners in the south transept than for those in the crossing and this may be because of the sound from the loft passing under the head of the south transept east arcade end arch and along the vaults on the other side. It is notable that the quality of sound for a listener standing in the north transept, which lacks vaulting, is significantly worse. However, the great advantage to the roodloft is not just increased visibility (which would actually increase speech intelligibility since intelligibility is linked to the listener's view of the speaker) but also a more even audibility in both the chancel and the western parts of the church.

Once the roodloft was completed, the liturgy of the High Altar was greatly enhanced acoustically since it could take advantage of two acoustic positions. Primarily because of its nearer location to the laity but also because of its elevation, sounds coming from the loft are louder and much more intelligible to a listener standing in the crossing than those coming from the High Altar or Lady Chapel. The acoustic space of the High Altar was well suited for singing, but the roodloft was better suited for the spoken word. By using both locations during the High Mass, the extreme dynamic variability of the Mass, from whisper to jubilant singing, could be better heard by those standing west of the roodscreen by placing the important spoken elements of the Mass in or under the loft while leaving the sung parts in the chancel. An organ placed in the loft (Track 37) would be equally audible to those in the chancel as well as those in the rest of the church and would thereby be of equal use to services in the chancel and the transepts.

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organ in Western culture 750-1250 (Cambridge, 1993), pp. 103-134; S. Bicknell, *The history of the English organ* (Cambridge, 1996), pp. 11-40.

81 T. Bailey, *The processions of Sarum and the Western Church* (Toronto, 1971), p.15; Henderson (ed.), *Manuale et processionale,* pp. 119-127.

82 F.B. Bond recorded that 'until lately' there were medieval roodloft organs surviving at Tong, Shrops. and Old Radnor - Bond and Camm, *Roodscreens and roodlofts,* p. 87; Bond, *Screens and galleries*, pp. 109, 121 discusses the evidence for the reading of the Gospel and other more occasional liturgical events from the loft (although he says that this only happened in churches with large, easily accessible lofts).

Resonances

In the acoustic analysis of prehistoric spaces, researchers have generally concentrated on standing wave phenomena. This is because they are relatively easy to produce and can be dramatic once established. A standing wave is a soundwave at a specific frequency that stabilises within a given space based on that space's geometry and is therefore significantly but unevenly amplified. A loud standing wave in a space can be quite disorienting and the effects of this on human listeners in prehistoric spaces has been studied.[83] The prevalence of the effect of standing waves, which are generated by every enclosed space but usually at frequencies too low or too far apart to be noticeable, can be predicted through fairly simple mathematical equations. In prehistoric stone tombs the noticeable modal frequencies seem to fall between 95 and 110Hz, a low frequency but within the range of the singing male human voice.[84] What this signifies for the original users of prehistoric tombs will, of course, never be completely understood, but the uniformity of the range of resonant frequencies of the geographically scattered sites that have been tested is remarkable and suggests a common, purposeful connection.

While the western three arms of St. Patrick do not give rise to particularly noticeable modal frequencies, there is the possibility of noticeable modes existing in the chancel which is, essentially, a stone box. Indeed, a simulation of sound waves moving through the space reveals that, in the chancel, the sound energy does not disburse into a random pattern, but focuses into fairly constant waveforms reverberating between the north and south walls (Movie 17). This standing wave phenomenon seems to be most concentrated and potentially disturbing in the range of 177Hz to 235Hz (roughly G_3 to A_3 – the G to A below middle C).[85] This is just below the lowest frequency first formants of the average human male voice speaking normally but easily within singing range.[86] In other words, the chancel favours certain frequencies over others. While strong modal frequency effects are generally considered undesirable, perhaps the effect at Patrington is beneficial in that it amplifies certain types of speaking and chanting, especially in the notes below middle C.

Conclusions

The conclusions to be drawn from this analysis are many. I will concentrate on several here. The methodology allows the simple question of 'What did Mass sound like in medieval Patrington?' to be more confidently answered. The measurements taken in the

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83 Watson and Keating, 'Architecture and sound', pp. 329-333; Lawson *et al.*, 'Mounds, megaliths, music and mind', pp. 117-118.

84 For the general modal frequencies of a number of prehistoric monuments see Devereux and Jahn, 'Preliminary investigations', pp. 665-666; For the typical frequencies of the male human voice see Table 4.3 in Howard and Angus, *Acoustics and psychoacoustics*, p. 205.

85 St. Patrick's chancel room modes predicted using ModeCalc (RealTraps, *ModeCalc*, Available: http://www.realtraps.com/pmodecalc.htm) and Jeff Szymanski's MODESv2p (J.D. Szymanski, 'MODESv2p', Available: http://www.studiotips.com/tools); Frequency of notes in Table 9.2 in T. Rossing, *The science of sound*, 2nd edn. (Wokingham, 1990), p.179.

86 Table 4.3 in Howard and Angus, *Acoustics and psychoacoustics*, p. 205.

simulation can then be convolved with anechoic recordings of parts of the Mass according the Use of York to allow one to 'listen' to Mass in St. Patrick *c*1400.

It is immediately apparent from listening to the recordings on the CD that chanted and sung sounds are the clearest and most easily understandable. The higher the pitch, the better the clarity and intelligibility. When the singing or chanting is fairly slow and evenly measured the experience of listening to the music is most enjoyable. When it is rushed, or when the words are simply spoken, the sound becomes 'muddied' and difficult to comprehend. This is because a long T30 demands relatively slow, even and stable sound in order to overcome the highly reflective nature of the space. Also noticeable is the lack of warmth or bass to the sound. This is because St. Patrick 'swallows up' lower frequency sounds. The T30 would need to be significantly reduced in order to hear lower frequency sounds clearly. As an example, listen to the anechoic recording of Bach's *Toccata and Fugue in D-Minor* first (Track 38), paying special attention to the bass notes, then listen to it convolved through the Patrington High Altar source (Track 39). Although an anachronistic example, the difference in bass is well demonstrated.

The conclusion is that sounds associated with the medieval Mass were well suited to the spaces in which it was usually performed. This is unsurprising. However, it does lead to further speculation on the role of church space in the development of church music. Did the space evolve to fit the music or did the music evolve to fit the space? Since the essentials of ecclesiastic space were set by the Roman basilica long before Gregory the Great is credited with authorising chant, perhaps the answer is that the music is dependent on the space. The development of the organ, a very ancient instrument, into the impressive instrument it often is today has been shown to have been guided by church space as well.[87] Professional acousticians have indeed determined that historical music in general sounds best in the spaces for which it was originally intended.[88]

But these observations may reveal more about the late medieval musical aesthetic and the use of church space, specifically at St. Patrick. It is certain that the accepted musical aesthetic in a culture changes over time. What is not certain is how to determine what past aesthetics were. From a study of medieval musical instruments and contemporary written impressions of medieval musical performances, Page has suggested that the late medieval musical aesthetic was tuned somewhat higher and brighter but with less bass warmth than our own.[89] This suggestion seems to be well supported by the acoustics of St. Patrick (and St. Augustine, Skirlaugh) which give the best clarity to higher frequencies, while absorbing the lower.

In terms of the use of church space, the St. Patrick acoustics indicate that the space was designed from the celebrating priest's point of view, both in the chancel and the Lady Chapel. The disproportionately greater SPL in the chancel as well as the standing wave phenomenon could act as a kind of monitor or foldback system whereby the priest and the choir could tune themselves to the space and monitor their own performance in much the

87 C.B. Fisk, *The architect as organ maker*, Available: http://www.cbfisk.com
88 Baussuet, 'Acoustics of early music spaces'
89 C. Page, 'Ancestral voices', in P. Kruth and H. Stobat (eds.), *Sound* (Cambridge, 2000), pp. 133-150.

same way as a modern performer will listen to their own performance through a speaker directed toward them while they sing. The vaults in the Lady Chapel perform a similar function, but here the effect is even more pronounced since the apsidal form of the chapel and the domical shape of the vaults focus the sound back toward their origin at the altar (Movie 18). To the priest, his voice becomes powerfully amplified and his performance greatly improves as he is better able to fine-tune himself to the space much in the same way a singer in the bath sounds very good to him/herself. In a more open church where there are aisles to the chancel, high choir stalls and surrounding screens can act as acoustic reflectors again directing sound energy back to the source and favouring the singer. The high T30 for most late medieval ecclesiastical space (it can be seven to eight seconds or longer in large cathedrals or abbey churches) can have a detrimental effect on the experience of listening by those not participating in the actual singing itself.[90] Likewise, regularly spoken words are rendered unintelligible. This suggests that, for the laity, the Mass at the High Altar especially was still a visual experience, and thus the need to focus visual attention to the altar by the surrounding architecture and decoration. The auditory experience, mostly delivered in a foreign language, would have been indistinct, serving only as cues to direct the visual attention of the laity to the altar at specific times. As long as the space was filled with sound (as it was fairly evenly at Patrington) the laity could be assured that the great machine of the liturgy was in motion. When that sound level changed or dropped away altogether, (as it does for much of the canon) the laity would be alerted to both the progress of the service as well as to the important parts in which they could visually participate. What was said, and who understood what was said, appears to be the concern only of the celebrant and the choir or servers.

At Patrington specifically, the Mass was much more accessible spatially, visually and audially at the Lady Altar than in the chancel and it is unsurprising that the most decorative and architectural detail would also be lavished here than in the relatively plain chancel. The church appears to have been envisioned from the start as a dual-focus space concentrated on the High Altar and the Lady Altar. Pre-1400, however, the visual and audial focus of both spaces lay in the sacrifice of the Mass itself, occurring at the altar. By the placing of benches around the crossing piers, the designer clearly intended the crossing to be the natural gathering point for those west of the chancel. This places them in a good position for watching and hearing both liturgical foci. However, the installation of the roodloft altered this balance. The roodloft was part of a larger effort which placed more attention on the Rood itself. By the time the chancel was completed the chancel arch no longer served a structural purpose, and the Rood had probably been moved forward into the crossing. The roodloft became an elaborate audial and visual backdrop for the Rood itself. Windows were pierced in the upper parts of the westernmost chancel bay north and south walls, the splays of which directed light toward the roodloft and its occupants. Further windows were let into the upper reaches of the first stage of the tower west wall, illuminating both the roodloft and the interior face of the tower's east wall where it is likely

90 Parker and Humphreys, *Acoustics noise and buildings*, p. 109.

the Rood now stood. While these alterations powerfully shifted visual attention away from both the Lady Chapel or the High Altar,[91] they also added a third auditory focus. It also served to improve the quality of sound heard from the High Altar itself in the crossing, the region where the initial designer of the space had always intended the people to gather. This probably lay-driven campaign changed the focus from the sacrifice of the altar to one of the sacrifice on the cross – to affective piety. But it also drew attention from the Lady Chapel by amplifying the High Altar sounds, thereby increasing the laity's auditory participation in the High Mass. The use of the space contracted from a relatively free and open use loosely concentrated in the crossing to one specifically concentrated in the crossing; especially under the coving of the roodloft itself. The people had drawn themselves into the worship at the High Altar and become more participant in and more attentive to the sacrifice offered both visually, in the newly-emphasised Rood, and audially, in the newly amplified acoustic.

91 Although not, perhaps, from the east chancel window, against which the Rood would have been seen from the nave, and which was also renewed about the time the roodloft was erected.

Chapter Six: Visibility and Motion
St. Mary, Thirsk, North Yorkshire

Introduction

In 1563 John Foxe copied into in an appendix of *The Acts and Monuments* the tragic story of Thomas Parkinson, former anchorite of Thirsk. Set in a rural English market town with a close-knit and thoroughly conservative populace, it is a tale of love and grief, loss and exile worthy of Thomas Hardy. The discovery of the story's central tragedy by 'the people and the priest' occurs 'near unto the churchyard of Thirsk, upon a Saturday, a little before even-song time' in 1509.[1] While the heart of the story is beyond the compass of this study, this detail of the setting and time of the key event gives a glimpse of the heart of the building. St. Mary was the domain of the parishioners, was the place where they formally experienced relationship with God and expressed their devotion. Their devotion was gathered into two complementary expressions: images and liturgy. The parishioners' wills emphasise the imagery, which at Thirsk was not designed to move on its own. Foxe's story emphasises the communal importance of the daily liturgy which was always in motion. Contemplation and action are likewise the twin foundations upon which St. Mary, Thirsk was designed. The expression of these paired activities was framed and ordered through the medium of space. At Thirsk this was achieved through separate encounters with individual points of liturgical or devotional focus contained within a unified design composed of discrete spaces and views. That is, the church cannot be completely comprehended from a single point of view; a full experience can only be gained by moving through it.

St. Mary is a good candidate for examination of the relationship between space, people, the divine and liturgy in the late Middle Ages. The medieval divisions of space formed chiefly by the arrangement of arcades and furniture survive relatively intact or can be reconstructed with a satisfactory degree of confidence. Testamentary evidence presents a reasonably clear outline of the interior devotional topography and gives some idea of the level of ceremonial practiced within the church. From the application of visibility and spatial analysis, both statically and in motion, it becomes clear that, although unified in design, Thirsk is not unified spatially. The building is composed of a series of individual spaces which open and close as the observer moves through the building. It is important to understand this space in motion, in four dimensions, because it reveals how the space guided the devotional, social and liturgical experiences of those within. Engagement with

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1 J. Foxe, 'The examination and trouble of Thomas Parkinson, a sely poor hermit, driven to open penance by the Papist', in J. Foxe, *The acts and monuments*, Ed. J. Pratt, 4th edn. (London, 1877), 8: 745-748. Since the action of this event in the story occurred just before evensong but was seen by the priest and people together there is a possibility that this may have occurred during a vespers procession. In the surviving York Processionals no vespers processions are prescribed except for one on Easter Sunday, and therefore clearly not the day of the event in Foxe - W.G. Henderson (ed.), *Manuale et processionale ecclesiae Eboracensis*, SS 63 (1875), pp.177-180. According to the more fully rubricated Sarum Processionals to which the York Use was generally similar, vespers processions during the week would only have occurred if it were the regular Saturday vespers procession in summer, or if it was the eve of a feast of a saint with an altar in the church. There may have been vespers processions during Advent as well, which would have made the story (the death of a newborn) even more poignant - T. Bailey, *The processions of Sarum and the Western Church* (Toronto, 1971), pp. 18, 26, 108-9, 118.

the space appears to have been intended by its designers to be both four-dimensional (i.e. in motion) and two-dimensional, or still. This is determined not by random action, but through the identification of set views within the space and specific routes of motion. These are reconstructed from the combined evidence of the liturgy of the Use of York, the surviving documentary record, and the constraints of the space itself. The space provides the setting, the testamentary evidence provides the foci, and the liturgical works provide a path by which to experience them. It will be shown that St. Mary, Thirsk was a space created by the predominantly lay understanding of the relationship between man and God.

The church today

St. Mary stands in the medieval market town of Thirsk twenty-three miles (thirty-seven kilometres) north of York on the main north road (Fig. 76).[2] The majority of the present fabric dates from the early to mid-fifteenth century. The church is composed of western tower, south porch of two storeys, rectangular nave with north and south aisles all of six bays, and an unaisled chancel of two bays, each about twice as long as the individual nave bays (Fig. 77, Pl. 46, Movie 19). Beneath the chancel is a crypt necessitated by the steeply sloping ground of the eastern portion of the churchyard. Access to the crypt from a north door in the chancel and the presence of a fireplace suggest that the crypt functioned as a vestry. Out of service times it would have been ideal as a school room for the school attached to the Gild of the Blessed Mary in the Porch.[3] The eighty foot (24.4 metre) tower possesses enormous angle buttresses which have been interpreted as evidence that the present tower is only part of what was originally intended.[4] Testamentary evidence reveals that a steeple (i.e. tower) project was active during the first half of the sixteenth century. Whether this project was completed or if events of the mid-sixteenth century prematurely ended it, is debatable. Regardless of the tower's completion, it is now one of the most important buildings in the region. As Nikolaus Pevsner noted, 'Without question, this is the most spectacular Perp. church in the North Riding...' and was no doubt intended as such; an edifice in which the parishioners were and continue to be justifiably proud.[5]

Two doors in the north and south aisle walls at the second bay from the west provide the main entries into the church. That on the south is the primary entrance and is approached through the south porch which is a later addition. The original door, covered with traceried panels (Pl. 47) and containing a small wicket, survives and is in daily use.

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2 For Thirsk's markets and fairs see M. Weston, 'Thirsk', in W. Page (ed.), *The Victoria history of the county of York, North Riding*, Victoria history of the counties of England (1923), 2: 61-62.

3 A school is recorded in Thirsk from as early as 1396 (Weston, 'Thirsk', p. 69) and a school attached to the gild altar of the Gild of the Blessed Mary in the Porch is recorded in the chantry certificates for Thirsk in 1546 (W. Page (ed.), *The certificates of the commissioners appointed to survey the chantries, guilds, hospitals, etc. in the county of York*, SS 91 (1894-1895),p. 92); however, whether the gild itself dates as far back as 1396 is unknown. Therefore, the school may not have originally been the responsibility of this organisation. Other organisations or foundations at Thirsk, such as the chantries, could also have taken part in administrating the school. It seems that one of the chaplains of the St. Anne chantry also acted as schoolmaster *c*1436, if the numerous bequests of small amounts of money which he gave to children in the town can be interpreted as his students (York, BI, Prob. Reg. v.3, f.452). No other Thirsk chaplain whose will survives made such bequests.

4 A.H. Thompson, 'Thirsk, church of St. Mary', *YAJ* 22 (1912): 209.

5 N. Pevsner, *BoE: Yorkshire: the North Riding* (Harmondsworth, 1966), p. 365.

The north door, also original, is no longer in use. A priest's door gives access into the second bay of the south side of the chancel. The crypt is now accessible directly from the churchyard via a door at the bottom of the steps but whether this was the case originally is doubtful. Indeed the entire staircase structure shows enough irregularities in the stonework to throw the origins of access into the crypt into some question, although it must always have been accessed from the chancel on the north side since the door into the stairway is original to the chancel.

The tower is lit only by a two-centred, three-light window with regular, gridiron tracery in its west wall. Two-centred, three-light windows with Perpendicular tracery different than the tower but similar to that in the belfry openings in Minster west towers light each aisle bay (except the second bay from the west where doors replace the windows). Four-centred windows with Perpendicular tracery differing somewhat from the aisle tracery light each bay of the clerestory. Three-centred windows with tracery identical to the clerestory light the chancel. A five-light variation of the standard clerestory tracery pattern under a four-centred head is set in the east wall of the chancel. The window moulding profiles are identical throughout the church, with the exception of the tower window.

Inside, (Figs. 78, 79, 80; Pl. 48, Movie 20)[6] the nave is articulated by its fine arcades composed of piers of four shafts and four hollows supporting richly moulded two-centred arches. The chancel arch is a nineteenth-century fiction possibly by Street as is the entirety of the east nave wall.[7] This is the only part of the church to have suffered major, and repeated, rebuilding. The form of the original chancel arch is unknown. The glory of Thirsk is its roofs (Pl. 49). They follow similar designs in both aisles and nave (Fig. 81). The lean-to roofs of the aisles are composed of a grid of richly moulded timbers supported by wall-posts, themselves supported by carved wooden corbels. At the intersections of this timber grid are finely-carved wooden bosses. The bosses in the north aisle are predominantly foliage or male human heads in various manners of secular dress (Pl. 50). Those in the south aisle are predominantly foliage to the west and interspersed with angels to the east. The corbels supporting the south aisle trusses are angels from the remains of what appears to have been a Passion-themed series (Pl. 51). 'Sunbursts' of decorative paneling radiate from the bosses adding curvilinear relief to the regular grid of the roof members. The nave ceiling, while following the formula of the aisle roofs, consists of a series of steeply-pitched, curving trusses forming an open-coffered, barrel vault. It is

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6 This movie is a multi-node *QuickTimeVR* movie allowing the user to explore the church from any of the six viewpoints displayed on the plan in the left-hand frame or interactively within the movies in the right-hand frame.

7 Street's 1876/7 restoration of Thirsk is the only nineteenth century faculty to survive It does not mention alteration of the chancel arch or the nave east wall (York, BI, FAC 1876/13). According to Weston, 'Thirsk', p. 66, there were restorations in 1844 and 1899 as well, but she gives no references. Pictorial evidence from before 1844 and photographic evidence before 1877 show that the chancel arch had indeed undergone significant alteration (undated interior perspective view from the chancel published in G.A. Poole, *St. Mary, Thirsk* (Leeds, 1844), 'Interior of Thirsk church' (Fig.. 85); a similar undated engraving but from a different perspective is displayed in the church; a post-1844 but pre-1877 photograph of the church interior from the former west gallery is also displayed in the church (Pl. 59). Whether the present chancel arch is Street's work or the result of another restoration cannot be determined.

arguably the finest timber roof in the Riding. Substantial remains of the parclose screenwork (Pl. 52), font cover (Pl. 53), benches (Pl. 54), and choir desks (Pl. 55) also survive. Enough mid-fifteenth century glass remains to fill the east window of the south aisle (Pl. 56) and the tracery of the west window of the north aisle (Pl. 57). Post-medieval wall paintings of the twelve apostles, now badly faded, stand between the clerestory windows.

History

The town of Thirsk consists of Old Thirsk and New Thirsk, the two standing on the east and west banks of the Cod Beck, respectively. In the medieval period the town was comprised of Old Thirsk and, across the Beck to the west, the complex of church and castle, reduced after 1176 to church and manor.[8] The church stands between the common and the seigneurial halves of the town and its development appears to have been the concern of the local parishioners as well as the gentry of the surrounding region. Although it made up part of the original endowment of Newburgh Priory in 1145 and continued to be a holding of that house until the Dissolution, the holders of the benefice themselves seem inconspicuous in their administration.[9] St. Mary itself controlled the chapel of St. James which stood on the green in Old Thirsk on the opposite bank of the Beck. The semi-independent chapelries of Carlton Miniott, Sand Hutton and Sowerby within the large parish were obliged to contribute to the cost of maintaining the mother church's fabric. Some, though not all, of their laity were buried at Thirsk.[10] St. Mary was served by at least four priests, two well-endowed and active chantries, a strong gild of St. Mary; and, towards the end of the period, an anchorite, as well as a host of images and lights. It was a regionally important church, being used as a base for two of Archbishop Bowet's visitations to the area in the early fifteenth century.[11]

The church was rebuilt in the early to mid-fifteenth century leaving almost nothing but the eastern tower wall and portions of the chancel of the previous building *in situ* but heavily modified. Although the rebuilding seems to have taken several decades to complete, care was taken to match each build to the previous one resulting in a generally unified, coherent design. No church at Thirsk is recorded in Domesday, and the date of the first church in Thirsk is unknown.[12] St. Mary stands next to the manor house and the remains of the earlier castle which suggests that the origins of the church in Thirsk, as in so

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8 Weston, 'Thirsk', pp. 59-60.

9 Weston, 'Thirsk', pp. 62, 69. Newburgh Priory, a house of Augustinian cannons, appears most regularly in the wills of the parishioners who give the Prior and Convent their tithes forgotten and request absolution. Otherwise, Newburgh appears infrequently in the documentary history of the parish. In the fifteenth-century it is presumed by Thompson, 'Thirsk, church of St. Mary', p. 208, that the Priory financed the rebuilding of the chancel. The Priory itself has almost entirely disappeared both physically and in documents.

10 For St. Mary's holding of St. James chapel and the semi-independent status of the other chapels see Weston, 'Thirsk', p. 69, 69 n.40; for the duty owed to St. Mary by the chapels within the parish see Thompson, 'Thirsk, church of St. Mary',pp. 208-209.

11 K.E. Bayley, (ed.), 'Documents relating to visitations of the diocese and province of York, 1407, 1423', in *Miscellanea. Vol II,* SS 127 (1916), pp. 140, 189, 263.

12 D.M. Palliser and F.R. Thom (eds.), *The Yorkshire Domesday* (London, 1992), ff. 300v, 327r.

many other parishes, are connected to the local lords.[13] It was the lord of the manor, Roger Mowbray, who in the twelfth century gave the church to Newburgh Priory which he established. It is likely that previously the advowson of the church was in the hands of the lords.[14] Afterwards, the lords of the manor continued to exercise their influence over the church by the foundation of the St. John Baptist chantry.[15] It may be their influence which began the rebuilding of the church, to which the founder of the St. Anne chantry, the members of the Gild of the Blessed Mary, individual parishioners and the stipendiary clergy all contributed making the present building very much the domain of the whole parish.

The parishioners produced the largest body of documentary evidence. There are seventy-nine entries in the Archbishops' probate registers from Thirsk parishioners between 1395 and 1552.[16] Testamentary evidence is the primary written record for pre-Reformation Thirsk. Other than these, only the brief but important 'charter' of the St. Anne chantry survives as written medieval evidence having any bearing on the fabric, arrangements and use of the church building.[17] Of the testators, many gave, and some gave lavishly, to their parish church. Numerous bequests to the 'kirke warke' and, after 1514/15 to the 'steple beldyng' shows that they took an active interest in the fabric of their church. In the case of the steeple project it is probable that they were the principal patrons and even the directors. They also gave regularly to the imagery in the church. In the latter part of the fifteenth and into the sixteenth centuries no less than fifteen images are mentioned, most with associated lights.[18]

Two chantries are known at Thirsk: the above mentioned chantry of St. John the Baptist and the chantry of St. Anne. In 1395 John Barker gave 6s8d 'porchie sci Johis si fabricet.'[19] Barker's bequest suggests that plans to add a new chapel to the church were in progress at this early date. The chapel of St. John is probably that of the Mowbrays

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13 R. Morris, *Churches in the Landscape*, pp. 231-232, 248-262 summarises the strong relationship between high-status secular sites and what would later become parish churches.

14 Weston, 'Thirsk', pp. 62, 69.

15 The St. John Baptist chantry is attributed to the Mowbrays in the 1546 chantry certificate (Page (ed.), *Chantries*, p.92). It is possible that the chantry was founded by one of the Johns Lord Mowbray who held Thirsk in the fourteenth and early fifteenth centuries (Weston, 'Thirsk', p. 63). If Dodsworth's 'north quire' can be interpreted as the enclosure at the east end of the north aisle, then the main heraldic display in the windows of this bay seem to have emphasised the Strangeways family who lived near Northallerton but whose connection to Thirsk is not entirely clear (R. Dodsworth, *Yorkshire church notes, 1619-1631*, Ed., J. W. Clay, Yorkshire Archaeological Society, Record Series 34 (1904), pp. 216-17; W. Brown, 'On the heraldry at Thirsk', *YAJ* 22 (1912): 211-12). One of the Sir James Strangeways (there were several generations) appears as a patron in several of the Thirsk wills. It is likely that by the mid fifteenth century (based on Brown's dating of the Strangeways arms formerly in the east window of the north aisle) that this chantry was serving both the Mowbrays and the Strangeways.

16 W. Brown, 'Extracts from wills relating to the church', *YAJ* 22 (1912): 217-225, extracted most of the important information concerning the church fabric and fittings from these wills from 1436 to 1547.

17 Chancery, *Calendar of patent rolls Henry V* (London, 1910-1911), 1: 361; Chancery, *Calendar of patent rolls Henry VI* (London, 1901-1910), 2: 212.

18 Three Maries of Thirsk in the will of Robert Cawton, York, BI, Prob. Reg. v.9, f.457. The other images mentioned in wills are St. Christopher and St. John in the will of John Barker, York, BI, Pro. Reg. v.1, f.89; St. Thomas of Canterbury, St. John Baptist, St. Erasmus and Henry VI in the will of Thomas Nosterfeld, BI, Prob. Reg. v.3, f.342; St. Katherine in the will of Thomas Stevynson, York, BI, Prob. Reg. v.9, f.174; St. Sith, St. Peter, St. Anne, St. Lawrence, St. Ninian, St. Anthony and St. Loy in the will of Richard Dobson, York, BI, Prob. Reg. v.9, f. 208.

19 York, BI, Prob. Reg. v.1, f.89.

recorded in the sixteenth century although the location of the Mowbray chantry is not given in the surviving documents. Given that there were only two chantries in the church proper, and that the location of the St. Anne chantry in the south aisle is well established, it is likely that the Mowbray chantry of St. John occupied the east end of the north aisle where fifteenth century parclose screens survive and where a representation of the Mowbray arms once appeared in the glass.[20] The enclosure at the east end of the south aisle was the chantry of St. Anne. It is an important foundation, perhaps providing the stimulus for the fifteenth century rebuilding of the church.[21] Much is known about its foundation. In 1415 Robert Thresk, rector of Market Bosworth, Leicestershire, King's clerk, originating from Thirsk, obtained royal letters patent granting him the right to found a chantry served by two or three priests at the altar of St. Anne in Thirsk parish church endowed with either £20 of land or £40 of advowsons. Thresk died in 1419 before he could gather the resources to found the chantry. It was not until 1431 that Nicholas Dixon, one of Thresk's feoffees finally founded the chantry which was served by two priests, a senior and a second.[22] A monument to Thresk now lies in the second bay from the east in the south aisle complete with its original brass showing Thresk in mass vestments with two inscriptions which are now illegible (Pl. 58).[23] Dugdale, however, did record the inscriptions when he visited Thirsk in 1665. They identify Thresk as the founder of the chantry ('fundator istius cantarie,' implying the monument lay within the confines of the chantry originally; it does not now). An epitaph in Latin verse follows asking the reader to remember Thresk's soul to Christ.[24]

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20 J.B. Jefferson, *The history of Thirsk; including an account of its once celebrated castle, Topcliffe, Byland, and Rievalx abbeys etc. etc., and other remains of antiquity in the neighbourhood, with biographical notices of eminent men* (Thirsk, 1821), p. 52; Dodsworth, however, does not mention these arms in this position (Dodsworth, *Yorkshire church notes*, pp. 216-17).

21 For the theory that the St. Anne chantry was the catalyst for the rebuilding of the church see Pevsner, *The North Riding*, p. 365; and see below. While the founder certainly provided the largest sum of capital for such a rebuilding, he may have only been injecting money into a rebuilding plan which had been current in the parish for some time.

22 Weston, 'Thirsk', p. 69; Chancery, *Patent rolls Henry V*, 1: 361; Chancery, *Patent rolls Henry VI*, 2:212; Thompson, 'Thirsk, church of St. Mary', pp. 206-207; M. Stephenson, 'Monumental brasses in the North Riding', *YAJ* 17 (1903): 321.

23 S. Badham, 'Monumental brasses: The development of the York workshops in the fourteenth and fifteenth centuries', in C. Wilson (ed.), *Medieval art and architecture: The East Riding of Yorkshire*, British Archaeological Association Conference Transactions for 1983 (Leeds, 1984), p. 181 dates the brass to 1419, probably on the basis that Thresk died in 1419. However, it is likely that this brass was not made until at least 1431 when the chantry was finally founded.

24 "hic iacet Rob'tus Thresk cl'icus nup' Rector Eccl'ie de/ [fundator istius cantarie]/ Boseworth [et rememorator regis in scc'io] qui obiit XVII/ Kl' dece'br Ao d'ni M' CCCCo XIX cui' ai'e p'picietur d's amen/ Es testis xpe q'd [non] iacet hic lapis iste/ Corpus ut [ornetur sed spiritus ut] memoretur/ h'c tu qui trans'is [vir vel] mulier puer an sis/ pro me funde p'ces q'a sic michi sit venie spes" - Text given in Stephenson, 'Monumental brasses', p. 321. It is possible that Thresk's stone was moved in the 1876/7 internal reordering. In the faculty specifications is an item for the re-laying of the floor and the removal of tomb stones. These were to be relayed as near as possible to their original positions, if convenient. Since Street's reseating plan shows that the St. Anne chapel was to be filled with seating, perhaps it was thought better to move Thresk's brass into the aisle outside the parclose screens (Fig. 82 - Lambeth Palace Library, Church Building Society, ICBS 7787 plan; York, BI, FAC 1876/13).

The Gild of the Blessed Mary in the Porch received much testamentary attention.[25] It appears to have centred upon an image of Mary the name of which suggests that it was housed in the parvise chamber in the south porch.[26] The image was one of the Three Maries of Thirsk church, the other two being the patronal image of Mary in the niche to the north of the high altar and the image of Our Lady of Pity, the position of which is unknown. Perhaps it was in the niche on the south side of the high altar. Between at least 1513 and 1529 the image of Mary in the Porch may have been kept by an anchorite resident in the parvise.[27] The gild was wealthy enough to have its own chaplain and maintain a light before its image. It is probable that the gild is responsible for the erection of the porch itself since it was the body most concerned with this part of the church, and since the fabric of the porch clearly shows it to be a later addition. Henry Lokwood, undoubtedly a member, was buried in the porch in 1484.[28] The gild and its image attracted numerous bequests including money, garments, and land.[29]

The duties of the gild seem to have been religious and civic. Thomas Nosterfeld some time before 1499 founded an obit with the gild chaplain after the death of a son, and it appears that the purchase of a pair of organs for 'our Lady messe' was planned in 1521 which may have been for use in gild Masses.[30] The gild also maintained the school mentioned above, which extended the influence of the gild into the wider parish community. If the 'Ladie preste' mentioned in 1544/5 is the gild chaplain to whom the rents of a manor house were to go, then the gild was active at that late date.[31] In the chantry survey of 1546 a Lady altar endowed 'by dyvers weldysposed persons' is included among the three chantries at Thirsk and this is probably the gild altar.[32]

Historiography

Although Robert Glover, Dodsworth and Dugdale described the church monuments and glass in the sixteenth and seventeenth centuries, it was not until 1821 that an architectural description was published.[33] The description is part of J.B. Jefferson's *History*

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25 The origins of the Gild are uncertain. While it does not appear in the returns for the Gild Proclamation of 1389, the surviving returns for Yorkshire are not a reliable measure of gild activity in the diocese. It is likely that gilds were active in the towns in which the Proclamation was proclaimed regardless of whether or not a return for that town survives; Thirsk was one of these towns (D. Crouch, *Piety, fraternity and power: Religious gilds in late medieval Yorkshire, 1389-1547* (York, 2000), p. 21). It is possible that the Gild was in existence by 1436 when the altar dedicated to its patronal image is first mentioned (York, BI, Prob. Reg. v.3, f.481), although the first firm reference to the Gild itself does not occur until 1484 (York, BI, Prob. Reg. v.5, f.250).

26 This cannot be stated with absolute certainty since the 'Gilde Beatae Marie in porticu' (York, BI, Prob. Reg. v.5, f.250) might refer only to the meeting place of the gild itself and not the location of the image. An image of St. Mary in the Porch was in existence by 1437; an early but not entirely implausible date for the existing porch (York, BI, Prob. Reg. v.3, f.481).

27 Thomas Parkinson moved into the parvise *c*1513 (Foxe, 'Thomas Parkinson', 8: 746); an anchorite is also mentioned in 1529 (BI, Prob. Reg. v.9, f.457).

28 York, BI, Prob. Reg. v.5, f.250.

29 Bequests to the Gild of Our Lady of the Porch can be found in York, BI, Prob. Reg. v.3, ff.342, 481; v.5, f.250; v.6, ff.46, 68; v.9, ff.174, 208, 457; v.13, f.145.

30 Thomas Nosterfeld's obit in York, BI, Prob. Reg. v.3, f.342; York, BI, Prob. Reg. v.9, f.174.

31 York, BI, Prob. Reg. v.13, f.145.

32 Page (ed.), *Chantries*, pp. 92-93.

33 Robert Glover made a heraldic visitation in 1584 (Brown, 'Heraldry and Thirsk', p. 210). Dodsworth visited Thirsk in 1622, see Dodsworth, *Yorkshire church notes*, pp. 216-217. Dugdale in 1665 recorded

of Thirsk which also includes the earliest dateable published picture of the church (Fig. 83). After this, specific references to the church architecture become fairly regular. In 1827 Sir Stephen Glynne visited the church and included it among his Yorkshire Church notes.[34] In 1844 Poole's *Yorkshire Churches* with its numerous illustrations and detailed text was published (Figs. 84 - 85). His are the last comments in print concerning St. Mary before the first of a series of restorations carried out in 1844, 1857, 1877 and 1899.[35] An anonymous photograph of the interior taken after the 1844 restoration and before the 1877 restoration/repewing hangs in the church (Pl. 59). The next architectural description of the church was published by Whellan in 1859 who was followed in 1912 by A. Hamilton Thompson and William Brown in what is perhaps the most historically rigorous description of the church in print.[36] Their study was produced as a guide to members of the Yorkshire Archaeological Society who visited the church in 1912. They were followed in 1923 by the Victoria County History which is useful because it places the church within its local historical context.[37] Sometime in the 1950s the incumbent, H. Broughton, wrote a well-informed guide to the church and commented on damage to the glass during an air raid.[38] Finally, Pevsner visited the church before 1966 and gave an enthusiastic but brief description of the building.[39]

Architectural history

Pevsner upheld what has become the accepted chronology of the church, relying on Thompson's work. Based on the join of tower and aisle west ends this chronology identifies the tower as the first part of the rebuilding. Thompson suggested that the lower stages of the tower were raised in the 1420s or 30s, although his evidence for this seems only to be that the tower appears to have been built before the south aisle, which he dated by the 1431 foundation of the St. Anne chantry. According to Thompson, after the tower came the rebuilding or the addition of the south and then the north aisles. Next was the nave, then a break before the crypt and chancel along with the clerestory by 1460 or 70.[40] Thompson does not place the south porch within his chronology, but it is obvious from its fabric that it was added sometime after the south aisle was completed. Based on testamentary and fabric evidence, the belfry stage of the tower was completed last.

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inscriptions in the church, including the inscription of Robert Thresk's brass, see Stephenson, 'Monumental brasses', p. 321. The first architectural description is in Jefferson, *Thirsk*, pp. 47-65.

34 S. Glynne, 'Notes on Yorkshire churches: St. Mary, Thirsk', *YAJ* 13 (1895): 392.

35 Weston's VCH entry on Thirsk parish church (p. 66) mentions the 1844, 1877 and 1899 restorations without describing the extent of these or who by (or citing her source for these dates). The 1857 restoration, which may only have affected the porch, is mentioned in T. Whellan, *The history and topography of the city of York and the North Riding of Yorkshire*, 2 vols. (Beverley, 1857-1859), 2: 153.

36 Thompson, 'Thirsk, church of St. Mary', pp. 205-210; Brown, 'Heraldry at Thirsk', pp. 210-216; Brown, 'Extracts from wills', pp. 214-225.

37 Weston, 'Thirsk', pp. 58-70.

38 H. Broughton, *The parish church of St. Mary the Virgin, Thirsk: Yesterday, today and tomorrow* (Thirsk, 1958), p. 3.

39 Pevsner, *The North Riding*, pp. 365-366.

40 Thompson, 'Thirsk, church of St. Mary', pp.206-208; on p. 208 he states that the clerestory is later than the arcades. His evidence is the change in window heads from two to four-centred from the the aisle to the clerestory windows. A date of 1460 or 70 is implied by Brown's dating of the heraldry in the glass in the east window in Dodsworth's time (Brown, 'Heraldry at Thirsk', pp. 211-212).

Re-examination of the fabric reveals that the details of Thirsk's architectural history differ considerably from Thompson's chronology. In the east wall of the tower up to the apex of the nave roof arch braces is the oldest standing fabric. It is probably twelfth century in origin, based on the size and shape of the stones and the remains of the springings for the previous tower arch (Pl. 53). If the arc suggested by the springings is completed it appears that the original arch was round-headed which, stylistically, places the former arch in the twelfth century. Just above these remains are the ends of a roofline indicating that the previous church nave lacked a clerestory. Other fabric from the previous church survives elsewhere. A large stone projects from the base of the south aisle west wall under the window. Externally, the southeastern buttress of the tower stands atop this block and other older remains (Pl. 60). The buttress also stands against a surviving twelfth century pilaster buttress from the earlier tower. Masonry of twelfth-century character similar to that visible internally on the east face of the tower also survives at the base of the west wall of the north aisle beneath the southern end of the window sill (Pl. 61). This ends in a vertical joint to the north, and to the south it is cut through by the northeast tower buttress. This buttress also cuts through the south springing of the north aisle west window hoodmould which suggests that this part of the tower is later than the west end of the north aisle.[41] Finally, roughly chamfered stones at the base of the chancel west bay probably indicate the position of the previous chancel (Pl. 62).

When this twelfth century church was rebuilt and why is suggested by written evidence which helps place the irregularities in the church fabric into context. In 1322 the Mowbray manor house on the site of the castle, next to the church, was destroyed by the Scots.[42] It is possible that the eleventh century church also suffered damage and was in need of repair. In 1327 Archbishop Melton ruled that repairs to the church would be chargeable to the chapelry of Sowerby at the rate of one penny from Sowerby for every two of Thirsk's.[43] The dispute over payment for repairs indicates that work on the fabric was going on or was planned at Thirsk at this time. The southeast buttress of the present tower is probably part of these repairs. This buttress possesses a plinth unlike any other at the church. The buttress' height and the proportions of its three stages were made in reference to the height of the twelfth century tower (represented by the course of large blocks just below the stringcourse at the top of the first stage of the present tower). The buttress leans into the twelfth century pilaster, suggesting it was remedial work to stabilise the fabric. Other fourteenth century fabric may stand *in situ* in the chancel, especially above the priest's door where the masonry bedding appears to have subsided only to be enclosed by later stonework in straighter courses. The present chancel appears to be more of a remodeling project than one of total rebuilding.

The fifteenth century rebuilding was possibly contemplated as early as the late fourteenth century. John Barker's will, mentioned above, appears to refer to plans for

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41 I am grateful to Jane Grenville for bringing this to my attention.
42 Weston, 'Thirsk', pp. 59-60.
43 Thompson, 'Thirsk, church of St. Mary', p.208.

adding a chapel of St. John in 1395.[44] Slight evidence remains to suggest that it may have been complete by 1429. The name 'Lance' is graffitied in roughly medieval letterforms into the western parclose screen of the former north aisle chapel of St. John the Baptist. If this screen is more or less in its original position, then there is the possibility that 'Lance' was Lancenow Rand, a chaplain referred to in the 1429 will of Thomas Kylvyngton.[45] Because the two aisles are so similar, it is not unlikely that they were built at the same time. The letters patent of 1415 gave permission to Thresk to found a chantry at the altar of St. Anne in Thirsk church.[46] This suggests that the altar was already in existence. And, although there is the possibility that the altar was simply moved from elsewhere in the church, the 1415 date would coincide well with the early fifteenth century date suggested for the north aisle. A 1436 bequest to the roof of the St. Anne chantry, therefore, may not be a contribution towards the completion of the building, as Thompson thought, so much as it may have been for maintenance or embellishment.[47]

Based on the preceding documentary and physical evidence a chronology up to *c*1429 may be suggested. The twelfth century tower was subject to repairs in the fourteenth century which included the present southwest tower buttress. The chancel may also have been substantially rebuilt or modified. Between 1395 and 1429 the north and south aisles were built; the south aisle partially engaging the southwest tower buttress. It is not possible to determine now when the first stage of the tower was rebuilt, but it likely involved a refacing of the twelfth-century fabric and strengthening of the buttresses which resulted in the northeast buttress cutting through the hoodmould of the west window of the north aisle. This refacing and strengthening could have been preparatory to the next phase of rebuilding.

Testamentary evidence suggests that the next part of the church to be built was the porch by 1436 (Pl. 63) when a torch was bequeathed to the 'Altare bte Marie in porticu.'[48] The present porch fabric clearly indicates that it was built against the pre-existing buttresses of the south aisle second bay from the west, although the porch fabric was made to blend as much as possible with these buttresses (Pl. 64). The porch is also slightly out of alignment with the south aisle, indicating that they were set out at different times. The designer of the porch took care to match the plinth moulding to that of the aisle. The porch was never finished, as the springers for vaulting show (Pl. 65).

Absolutely no documentary evidence survives to assist dating the rest of the building until the tower project of 1502. Therefore, between 1429 and 1502 the only clues to the architectural development of the church are in the fabric itself. Leveling courses near the top of the tower first stage suggest that there was a pause before work on the tower

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44 York, BI, Prob. Reg. v.1, f.89.

45 York, BI, Prob. Reg. v.2, f.555. Thomas Kylvyngton held the small manor of Woodhill in Thirsk, which was associated both with the Mowbrays and with the King. His family's connections with the local gentry then make him an ideal candidate as a patron of the St. John chantry (and its chaplain), since this chantry appears to have been a place for the commemoration of individuals from the landholding gentry (Weston, 'Thirsk', p. 64.).

46 *Patent rolls Henry V*, 1: 361.

47 York, BI, Prob. Reg. v.3, f.452.

48 York, BI, Prob. Reg. v.3, f.481.

continued. When it did continue it was likely in response to the building of the arcades and clerestory. Internally, there is a clear leveling course running along the tops of the arcades which suggests that the clerestory was a later addition. How much later is debatable. The arcades rise too high to be accommodated under the twelfth century roofline of the nave and it is therefore likely that arcades and clerestory were designed together, the leveling course between only representing a general evening-up of work at the top of the arcades before the clerestory was attempted. The tower was carried up to the height of the present nave roof and there work stopped, as the courses of stonework clearly show (Pl. 66). Belonging to the same time as the clerestory, based on tracery patterns, are the chancel windows along with the whole of the chancel east wall. The chancel windows do not integrate with the coursing of the walling and neither does the east wall where a break in the plinth is evidence for a total rebuilding or lengthening of the east end of the chancel (Pl. 67). The north and south chancel windows are simply insertions in older fabric.

The church was, in terms of the interior space, finished after the arcades, clerestory and chancel were completed by *c*1460 at the latest, based on the heraldic evidence of the glass (see above). By 1502 the parishioners had turned their attention to heightening the tower.[49] The tower work is prominent in most wills between 1502 and 1545. These bequests most often come immediately after the testator requests their burial place or after they specify their mortuary payment. This association suggests that the tower was both a devotional project (which may explain the insertion of a niche and fourteenth century image in the west face - Pl. 66) associated with death and burial. After 1529 it is the only recurring bequest to any specific aspect of the church or its contents, with the exception of two later references to the roodloft. The long period of time during which testators contributed to the tower, and the numerous irregularities of the masonry of upper parts of the tower itself confirm that completion of the tower was a lengthy process. It may only have been completed sometime in or just after 1545 when the last bequest to it was made.[50]

Devotionally, the interior of the rebuilt church offered numerous foci. Today, two piscinae, two niches and one bracket, the parclose screens, a series of bench ends and the font cover survive which suggest something of the interior topography and appearance of furniture, fixtures and imagery. Testamentary evidence is relatively rich in references to specific points of devotional interest. In 1395 the high altar received two funerary candles and the lights of St. Mary in the Choir, St. Christopher and St. John received sums of money.[51] In 1434 the crucifix light was first mentioned.[52] By 1436 the St. Anne chantry in the south aisle was well established with its altar receiving two funeral torches. The altar of St. John the Baptist (presumably in the north aisle) also received a torch this year as well as the altar of the Blessed Virgin Mary in the porch.[53] Henry Lokwood's will of 1484 provides the first mention of the Gild of Blessed Mary in the Porch, which was presumably

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49 York, BI, Prob. Reg. v.6, f.30.
50 York, BI, Prob. Reg. v.13, f.141.
51 York, BI, Prob. Reg. v.1, f.89.
52 York, BI, Prob. Reg. v.2, f.302.
53 York, BI, Prob. Reg. v.2, ff.452, 481.

centred upon the altar mentioned in 1436.[54] In 1499 the lights of St. John the Baptist, St. Erasmus, King Henry VI, and the Blessed Mary of Pity are mentioned.[55] The final year any new imagery or lights are mentioned is 1521. In this year the light of St. Katherine received a candle and images of St. Sith, St. Peter, St. Laurence, St. Ninian, St. Anthony and St. Loy all received small sums.[56] It is likely that the church was furnished with pews from at least the completion of the nave, but they are not referenced in testamentary evidence until a trend of 'stall burials' began in 1527 and continued until 1543.[57] Their association with burial location indicates that they played a role in the religious and social lives of the testators.[58] The final new devotional focus mentioned is in Robert Cawton's will of 1529 where he bequeathed 12d 'to the hanker.'[59] Thomas Parkinson, the anchorite, had moved from Thirsk's parvise by 1526 when he had taken up residence over the chapter house at Mt. Grace Priory.[60] This anchorite, then, was his successor. Lights in the roodloft continued to be requested or to have money left to them until 1545.[61]

The last images to receive bequests were 'the thre mares in thirske church and sancte sithe' in 1529.[62] After this there is a sharp decline in specifically devotional bequests, with only the roodlight receiving attention. After 1538 the Royal Injunctions against image veneration may have been influential.[63] In 1547 Isabelle Barton bequeathed a coverlet, cautiously intended for use during the churching of women, if 'the belman curate or churche wardens thinke conveniente', and a linen towel which she also relied on the church officials to decide what to do with.[64] By 1551 the poor men's box had become the standard object of church furniture treated with any sense of religious duty, although attachment to the old ways was still strong in the parish, as the reference to 'popish vestments' at Thirsk in an entry in the Archiepiscopal Visitation Court book for 1586 makes clear.[65]

An argument can be made that the complete rebuilding of St. Mary was intended from the start of work on the aisles and that, tracery aside, this design was adhered to from start to finish, despite the number of decades over which the work seems to have stretched. The evidence for this comes from the geometry of the nave planning. The geometry of the present nave plan and a good deal of its elevation is generated entirely from $\sqrt{2}$ and its

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54 York, BI, Prob. Reg. v.5, f.250.
55 York, BI, Prob. Reg. v.3, f.342.
56 York, BI, Prob. Reg. v.9, ff.174, 208.
57 The surviving bench end details are identical to the detailing of the choir desks and the screens, the north aisle screen possibly in existence by 1429. The 'stall burials' are York, BI, Prob. Reg. v.9, f.375; v.11, ff.313, 585, 722.
58 For the crystallisation of the use of church space by the introduction of pews see C.P. Graves, 'Social space in the English medieval parish church', *Economy and society* 18 (1989): 317; also K. French, *The people of the parish: Community life in a late medieval English diocese* (Philadelphia, 2001), pp. 154-155, 167-174; for pews and the relationship to devotional practices see R. Marks, *Image and devotion in late medieval England* (Stroud, 2004), p. 174.
59 York, BI, Prob. Reg. v.9, f.457.
60 Foxe, 'Thomas Parkinson', p. 746.
61 York, BI, Prob. Reg. v.13, f.145.
62 York, BI, Prob. Reg. v.9, f.457.
63 Marks, *Image and devotion*, pp. 250-262; E. Duffy, *The stripping of the altars: Traditional religion in England c.1400-c.1580*, 2nd edn (London, 2005), pp. 398, 407.
64 York, BI, Prob. Reg. v.13, f.742.
65 York, BI, Prob. Reg. v.13, f.832; York, BI, V.1586/CB.

derivative √3 proportions, all of which stem from the same base unit of one bay length from pier centre to pier centre (Figs. 86 - 87). This is classic medieval design practice and does not in itself require that the design for the entire church be of one period.[66] If the present arcades stand in the same position as the twelfth century nave walls, then the nave plan could have been generated from the pre-existing church. However, based on the position of older fabric at the base of the west walls of the aisles and on the extent of the roofline cut through by the present tower arch, the twelfth century nave was narrower than at present and was flanked by aisles. Therefore, when the aisles were built, they were built in reference to a plan which also included the eventual widening of the nave. Since arcades and clerestory appear to have been designed together, it is therefore likely that the complete rebuilding of the church to something like its present form was intended from the outset.

The post-medieval history of the fabric is much less complex. The published antiquarian descriptions above are witness to the fact that, despite several restorations, the building and its surviving medieval furniture have changed very little in the last 180 years. The greatest post-medieval changes to the interior fittings have been the loss of all of the devotional imagery, the vast majority of its stained glass and any wall paintings.[67] Also lost are the roodscreen and loft. Enough survives physically and in documents, however, to allow a confident reconstruction, and analysis of the church's space in the past. The two most significant areas of uncertainty in reconstructing the fifteenth century church are the form of the original chancel arch and the roodscreen and loft associated with it. The earliest images of the arch possibly date to the eighteenth century. They show a round-headed, square-sectioned arch lower and narrower than the arch today (Fig. 85). What can be seen of its detailing appears post-Reformation rather than Norman in character.[68] The arch standing between 1844 and 1877 was a broader version of the arcade arches. The responds match the arcade arches, which is in keeping with the character of the tower arch responds. It is possible that this chancel arch is the original one, the later alterations having been removed (Pl. 59). Whatever its details, the original arch could not have been wider than the chancel nor could it have been taller than the chancel roof which would leave ample space above for a large Rood and associated painting. The arch shown in Plate 59 has been used in the reconstruction.

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66 E. Fernie, 'A beginner's guide to the study of architectural proportions and systems of length', in E. Fernie and P. Crossley (eds.), *Medieval architecture in its intellectual context* (London, 1990), pp. 229-238.

67 Only a possibly fourteenth century Virgin and Child (Pevsner, *The North Riding*, p. 366) in a niche in the west face of the tower, two shallow image niches flanking the High Altar, and a bracket carved into an angel survive. The jumble of imagery in the surviving glass shows that the tracery lights were generally given to heraldic display while the main lights contained architectural canopies in their heads, the main lights containing a variety of imagery including donor figures, figures of St. Leonard and St. Giles, parts of an Annunciation and at least one panel from a life of St. Anne showing her and Cleophas. Probably in the early seventeenth century figures of the Apostles were painted between the clerestory windows, and perhaps the 'curious antique paintings of the devices commonly attached to the twelve tribes of Israel' over the chancel arch which Jefferson spoke of in 1821 (Jefferson, *Thirsk*, p. 51). Scriptural texts had also been painted on the aisle walls (Poole, *Thirsk*, p. 12). These may have overlain medieval paintings, especially on the east wall which would have been a superb place for a large Doom and Rood. Perhaps the apostles in the clerestory are later memories of what had been before.

68 Glynne, 'St. Mary, Thirsk', p. 392 recorded that this arch was low and had been altered.

Spatial Analysis

If it can be assumed that part of a building's design is a response to what was intended to occur there, the concern at Thirsk to produce an architecturally homogeneous structure demonstrates a concern for suitability of purpose, despite the long period over which it was built and the many groups who must have had a hand in building it. St. Mary is a church and therefore its explicit purpose is as a place for prescribed ritual use. The wills of the parishioners demonstrate that the space was also a place for devotional expression and practice, which is not necessarily liturgical or ritual in nature. How well the space was suited to these twin purposes can be examined through various methods of two, three and four-dimensional spatial analysis. The analysis of space in motion is a complex endeavour and the following analyses will build from simplest to most complex culminating in a schematic system which reduces the complexities of four dimensional analysis to a quantifiable level. Many stages, each important in yielding insights into the space, are involved in producing the final analysis.

'Spatial analysis' is a staple in the study of the built environment, having been applied to spaces of all complexities and of all periods. It is a blanket term covering an astonishing array of techniques and methodologies. In practice, however, these various methodologies concentrate on the two-dimensional analysis of space, and are especially concerned with patterns of access (or permeability) within complex spatial systems. They offer an omniscient view of built environments reduced to their most basic elements. The assumption upon which all forms of spatial analysis within an architectural context operate is, as Fairclough writes, 'that the fundamental structures of a society condition the ways in which groups negotiate rights over space within a building.'[69] Most approaches share three purposes: to reduce the complexities of individual buildings into a standardised abstraction which allows for comparison of buildings, to better understand individual buildings, and to study social organisation.[70]

For the analysis of Thirsk, the two-dimensional methods of 'access analysis' developed by Hillier and Hanson, and the 'visibility graphs' of Turner *et al.* are used as preliminary tools to identify the basic properties of the space in terms of access and visibility.[71] These reveal a dichotomy in this particular space involving where one can go versus where one can see. This basic dichotomy is then explored using new approaches to the analysis of space concentrating on individual points-of-view and motion to describe the real-world experiential properties of the space. It is an approach well suited to analysis of spaces which Hillier and Hanson would classify as 'elementary buildings' and which are

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69 G. Fairclough, 'Meaningful constructions - spatial and functional analysis of medieval buildings', *Antiquity* 66 (1992): p. 348.

70 Fairclough, 'Meaningful constructions', p. 355.

71 B. Hillier and J. Hanson, *The social logic of space* (Cambridge, 1984); B. Hillier, *Space is the machine: A configurational theory of architecture* (Cambridge, 1996); A. Turner, M. Doxa, D. O'Sullivan, and A. Penn, 'From isovists to visibility graphs: A methodology for the analysis of architectural space', *Environment and planning B: Planning and design* 28 (2001): 103-121; A. Turner, 'Depthmap: A program to perform visibility graph analysis', in *Proceedings, 3rd international space syntax symposium,* (Atlanta, 2001), pp.31.1-31.9.

difficult to examine using conventional access analysis or visibility graphs.[72] The approach is also well adapted to religious buildings in particular where Fairclough's formulation of the basic assumption of spatial analysis is not always applicable. Although parish church space was subject to division or negotiation by the complex social organisation of the parish,[73] the role of the numinous is particularly important in the organisation and use of medieval sacred space. In churches space is not organised simply through a process of negotiation of rights, but is also shaped by the expression of devotion and relationship to the divine. At Thirsk space is manipulated to facilitate a particular understanding of this relationship which is largely lay-oriented. The numerous points of devotional focus referenced in the testamentary evidence are given their own, separate regions of spatial domination by an architectural history driven by individual devotion and a resultant architecture that displays unity while creating division of spatial experience. The dichotomy is well illustrated when the space is seen through the individual points-of-view of both human and divine occupants and it is resolved when those points-of-view are experienced in motion.

Access analysis and visibility

St. Mary may be unified in terms of its architectural details and design, but its space functions both as a collection of single units as well as a single entity. A Gamma Map (access diagram) of Thirsk using divisions of the space indicated by both the fabric and what is known from wills clearly shows the different spatial units and their relationship to each other via access (Fig. 88). It is not the vertically 'deep' structure typical of Hillier and Hanson's 'shrine' type of elementary building and this is because Hillier and Hanson's parish church example is not representative of the majority of medieval parish churches in that it lacks a priest's door (Fig. 89).[74] The inclusion of a priest's door 'flattens' the map and emphasises the role of the nave as a distributor of access to numerous self-contained units.[75] In access analysis the role of the nave is that of a through-space, or a passage from one space to the next, much like a corridor in a school, prison or hospital. It is a place to pass through as well as a space to occupy. This, then is the first indication that motion is an integral part of space at Thirsk.

The visibility graph of St. Mary generated at eye level shows a very different space from the one described by the Gamma Map (Fig. 90).[76] Here the space is visually well-integrated with the area of maximum visibility concentrated in the eastern half of the nave. It is not surprising, therefore, that this area was probably furnished with pews and

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72 Hillier and Hanson, *The social logic of space*, pp. 176-197.

73 Graves, 'Social space', *passim* and C.P. Graves, *The form and fabric of belief: An archaeology of the lay experience of religion in medieval Norfolk and Devon*, BAR, British Series 311 (2000); French, *The people of the parish*; E. Duffy, *The voices of Morebath: Reformation and rebellion in an English village* (London, 2001).

74 Hillier and Hanson, *The social logic of space*, pp. 180-181.

75 Distributor spaces are represented in the diagram by black elements.

76 A visibility graph is a plan of a space showing areas of greater (warm colours) and lesser (cold colours) visual integration. That is, a person located in a position coloured red on the graph would be able to see more of the total space than a person located in a position coloured blue.

dominated by the most important devotional image: the Rood. However, this graph only represents the visual integration of all possible isovists (points-of-view) at eye level where screens do not form a complete visual barrier.[77] When a graph is generated at ground level where screens block vision, the difference is clear (Fig. 91). The space becomes much more visually divided into clearly definable units which correspond well with the separate spaces served by the nave illustrated by the Gamma Map. The two visibility graphs show clearly the difference in where one can see versus where one can go. Visually, the church is a relatively unified space but in terms of access the space is clearly divided. To understand this dichotomy of a space simultaneously functioning as one and many, an approach that takes into account the experience of space is needed.

Point-of-view in stasis

St. Mary can be viewed in terms of static and dynamic forces. The static forces which do not move on their own are those of the imagery, lights, altars and fixed furniture of the building to which the parishioners gave so much attention in their wills. The dynamic forces are those present in the liturgy which was guided by the church's staff of clergy and which was vicariously participated in by the parishioners. This can be expressed in terms of two, three and four dimensions; of plan, perspective and motion. Access analysis and visibility graphs describe space in two dimensions. By moving into the third dimension the omniscient point-of-view of two-dimensional representations must be discarded. Such omniscience is impossible to represent three-dimensionally and is never the lived experience of space. In three dimensions it is no longer possible nor is it helpful to consider all possible isovists, or points-of-view, at once, as is done with a visibility graph. Rather, specific points-of-view must be considered. These points-of-view are determined by the known locations of important objects as determined by the physical and documentary evidence. The visibility relationships between objects can then be expressed in terms of a static visibility diagram. Later, the positions of human occupants within the space both still and in motion will be used in conjunction with the static visibility diagram to produce dynamic isovists and schematic four-dimensional analyses. The results suggest how the creators and users of the space understood their relationship to the divine.

The points-of-view of the imagery, the representations of the divine presence, must be considered in the analysis of the space. When the space is viewed through the images' 'eyes' it becomes clear that the separate spatial units of the church described by the Gamma Map and floor-level visibility graph are controlled by the images themselves (Figs. 92, 93, 94). Baxandall described this as the 'arc of address' – the spatial region dominated by the object's 'gaze'.[78] Through their separate gazes the images organise the space and, through this organisation, the use of the space. To clearly see each image a human observer must

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77 Isovist - A polygon representing the (usually two-dimensional) area of space visible to any single point-of-view.

78 M. Baxandall, *The limewood sculptors of Renaissance Germany* (London, 1980), Quoted in Marks, *Image and devotion*, p. 21.

stand in the presence of each image separately, within the image's particular spatial domain. Motion, on the part of the human member of the relationship, must be kept to a minimum in order for the visual connection with the image to be maintained. The encounter is face-to-face, individual, still and therefore contemplative. The space is used by the human and divine occupants to facilitate a devotional relationship; one which is reflected repeatedly in the testimony of the laity in their wills. The divisions of space are not simply the result of interactions between human social groups; they are also the result of the relationship of the human and the divine.

Visual relationships between the points-of-view, the isovists, of individual devotional and liturgical foci can be represented schematically in a static visibility diagram which describes the visual control the various representations of the divine exercise over the space (Fig. 95).[79] This diagram suggests that the separate spatial domains at Thirsk also functioned together. The static diagram of Thirsk reveals at once that from the point-of-view of the important devotional and liturgical points, there is a visual 'sweetspot': the font.[80] All of the important liturgical and devotional foci can be seen from the font although some, like the side altars, are seen through the intervening layers of arcades and parclose screens (the importance of quality of vision will play an important role in the dynamic visibility diagrams below). None of the foci are behind the font, so all of the foci are visible at once – the only location in the church where this happens. The remaining foci group themselves into those which are visible only to the font and those which are visible to the font and at least one other focus. Ostensibly the most important liturgical focus in the church, the High Altar, commands the most confined view. Only the font is visible from this, and it is 'behind' the altar, so that an observer at the altar must turn around in order to view it. How much this view would have been obscured by the roodscreen depends entirely on how 'open' the screen itself was. If the parclose screens bear any affinity to the roodscreen, it would have been quite easy to see through. Most important, however, is that from the point-of-view of the High Altar only the chancel and nave are visible. Only the spaces necessary for the practice of 'official' parish devotion – the liturgy of High Mass and the administration of the Sacraments – exist. The 'unofficial', votive, and individual devotion practised at the altars in the aisles is not included.

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79 The static visibility diagram is keyed to a plan of the space with the principal devotional and liturgical points represented by numbers. The lines connecting the numbers in the diagram are determined by the isovists of each devotional or liturgical point. If the isovists of any two points overlap, a line is drawn connecting them. In this way the network of intervisibility of important points within the space is represented.

80 This analysis is based on the strong assumption that the font lay in its present position. This is a standard medieval position for fonts - F. Bond, *Fonts and font covers* (London, 1908), pp. 88-89. The only medieval reference to the font occurs in 1506 when William Howpye requested burial near the font although his will does not say where it stood in the church - York, BI, Prob. Reg. v.6, f.166. The present font is not medieval and was installed in Street's 1876/7 restoration - York, BI, FAC 1876/13. The previous font is pictured in the undated nineteenth century photograph (Pl. 59). Its origin is uncertain, but the strapwork details appear to be Elizabethan or Jacobean in character. The pre-1844 font is illustrated in Poole, *Thirsk*, p.12 as well as in the possibly eighteenth century engraving in the church where it has a plain bowl, octagonal stem and a square plinth and may be pre-Reformation. These fonts occupied the position of the present font.

Similarly isolated in terms of visibility is the most important devotional focus: the Rood. Again, the only other focus visible to it is the font, which it directly faces. The side altars are intervisible, and they also command a narrow but obscured view of the font. The St. Anne altar also has an oblique view of the parvise door making it the second most visible focus in the church; a status befitting the importance of the chantry. A somewhat special case is the parvise where it is possible there was an altar and, by the early sixteenth century, an anchorite. The position of this doorway, a later alteration to the south aisle, makes it visible to both the font and the St. Anne altar. Altar and font are the two most important elements in a church and it may be significant that the parvise door was placed with a view of both. Perhaps the parvise chamber played some role in the practice of occasional liturgies at Thirsk.

What is clear from these static analyses of the points-of-view of the devotional and liturgical foci is that the church functions from these perspectives as a group of individual spaces: chancel, nave, north aisle and south aisle. The separate spaces visually unite in sharing the font. Although not part of the static diagram because it is not, in itself, an object, one other position unifies the space: the easternmost bay of the nave before the roodscreen door. These visually unifying positions help the collection of individual domains function together as a whole. The roodscreen door and the font were the most important stations in the Sunday and Principal Feast processions. It is motion, then, that resolves the dichotomy of a space that, from the point-of-view of an observer in the pews in the nave is unified, but which can only be used for religious and devotional purposes as a series of separate views dominated by the 'arcs of address' of liturgical and devotional objects.

Point-of-view in motion

In motion St. Mary is composed of a series of separate views which can be studied by schematic and qualitative representations of visibility and how visibility changes as an observer moves through the space. As the observer moves their view opens and closes based on the configuration of the space, rendering differing experiences of the building depending upon the observer's position. These changing views can be described schematically. The visual organisation of the space in motion creates specific opportunities to interact in particular ways with the objects and people within it. At Thirsk, the singularity of each view acts as a setting posing a limited set of possibilities for specific parts of the liturgy at different times.

The analysis of space in motion requires an accurate representation of that space in three dimensions, known points of importance, and at least one path of motion through the space. At Thirsk the five most important liturgical and devotional foci were the High Altar, the altars of St. John the Baptist and St. Anne, the Rood, the font, and the image of the Blessed Mary in the Porch. Most of these foci included associated devotional and liturgical furniture such as images and screens which attracted bequests in the fifteenth and sixteenth centuries and these groupings are treated largely as one since they usually stood within

close proximity to the main focus. The paths of motion most likely to have regularly occurred within the space and the most important points along those paths in the late Middle Ages are reconstructed from available liturgical texts of the Use of York augmented by rubrics from the more completely surviving Sarum Use which the York Use closely resembled.[81]

Processions

Processions are not Christian in origin. There are processions mentioned in the Old Testament associated with the Ark of the Covenant and the Temple.[82] Christ's triumphal entry into Jerusalem could be seen as New Testament justification for the adoption of processions in Christian ritual.[83] However, the primary source for processions was pagan antiquity where they occurred as public expressions of joy or supplication.[84] Early Christian processions seem to have had similar purposes but also began to develop into regular events in Rome which served the practical purpose of conducting the Pope to the numerous Roman churches for the celebration of Mass which was frequently held away from the Lateran.[85] These processions before Mass became a part, although not an integral part, of the total 'Roman' liturgy which was exported widely to Western Christendom from Charlemagne's court at the end of the eighth century.[86] Perhaps the numerous altars and the processions to them before Mass in many of the early great church buildings on the Continent and in England created a purposeful micro-topography inside each building which was, in some way, a recreation of Rome. In the later Middle Ages altars and separate chapels began to multiply at the parish level creating buildings which frequently had little in common with the Great Churches and in which processions served little practical purpose. By the mid-thirteenth century the force driving this multiplication was prayer commissioned by lay and clerical individuals for the living and overwhelmingly for the dead in Purgatory.[87] Thirsk in the mid-fifteenth century was no exception. Long before the fifteenth century, however, processions before Mass had entirely lost touch with their Roman origins, becoming an ornament to the liturgy.[88] As ornaments they could be adapted to suit individual spaces. If they served any practical purpose at parish level it must have been to allow the sprinkling of the altars and other important devotional and

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81 The York and Sarum Processionals are published in Henderson (ed.), *Manuale et processionale.*

82 Old Testament events that could be interpreted as processions before the ark are mentioned in Joshua 4:13 and I Chronicles 13:7-8; processions during the transfer of the Ark to Jerusalem and then to the Temple are mentioned in II Samuel 6:4-5 and I Kings 8:1-11; some verses mentioned in Bailey, *The processions of Sarum*, p. 93, nn. 4-6.

83 Matthew 21:6-12, Mark 11:7-11, Luke 20:35-44 and John 12:12-19; Bailey, *The processions of Sarum*, p. 93, nn. 4-6..

84 Bailey, *The processions of Sarum*, pp. 93-95

85 Bailey, *The processions of Sarum*, pp. 98-100.

86 G. Dix, *The shape of the liturgy*, 2nd edn. reprint (London, 2001), pp. 584-587.

87 J. Le Goff, *The birth of Purgatory,* Trans. A. Goldhammer (Aldershot, 1990) pp.214, 290-294. An early example of chantry chapel foundation which had profound effects upon church fabric is Archbishop Walter de Gray's chapel of St. Michael founded in 1241 in the 'archiepiscopal mausoleum' of the rebuilt Minster south transept - S. Brown, *'Our magnificent fabrick' York Minster: An architectural history c1220-1500* (Swindon, 2003), pp. 15, 37-38.

88 Bailey, *The processions of Sarum*, pp. 103-105.

liturgical foci within the church before High Mass thereby drawing a building composed of numerous separate spaces into a unified whole – if only for the duration of the processions themselves.

The Surtees Society edition of the sixteenth century York Processional notes that the rubrics make little mention of the ideal processional route. To amend this, W.G. Henderson supplied the more complete rubrics from the Sarum Processional assuming that the two Uses differed only in minor details in this respect.[89] In other respects the liturgies of the two cathedrals are quite similar with only small differences in the Mass, in the number of sequences and proper hymns used, and in the marriage ceremony.[90] Since none of these differences has any bearing on liturgical movement on anything greater than an individual level, Henderson's assumption about the similarity and general interchangeability of the York and Sarum Uses retains most of its validity.

However, the processional routes prescribed by the Sarum rubrics cannot be followed in their entirety at York because York Minster lacks a cloister. At Sarum the cloister is an important part of the processions before Mass on every double feast including the especially elaborate processions on Palm Sunday, Ascension, Easter and Pentecost.[91] It is possible, then, that most processions before Mass at York followed the same route regardless of the rank of the feast and that this route was similar to the standard Sarum route. That is, the procession left the presbytery by the north door, went round the ambulatory to the south choir aisle sprinkling the altars as they were passed, into the south transept to sprinkle the altars there, into the nave via the south aisle, crossing to the north aisle at the font,[92] going into the north transept with its altars, then returning into the choir through the pulpitum west door.[93] On ordinary Sundays in the Sarum Use the priest and assistants then went out into the cemetery to pray for the dead while the choir continued the preparations for Mass.[94] Whether or not this was done at York depends on where the Minster's cemetery was or whether there was one at all. In parish churches this could usually be accommodated by the priest's door commonly found in most chancels. These prayers probably formed an important part of the service for the laity given the strong ties between the living and the dead in the late Middle Ages.[95] At Thirsk, Thomas Cawton wished to be buried 'in the church earthe besides my father stone at the quere doore where my father and my mother doithe be' suggesting that the priest's door was important at Thirsk.[96] In the majority of parish churches in the diocese of York the Minster route could

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89 Henderson (ed.), *Manuale et processionale*, p.133n.

90 H. Thurston, 'Use of York', in C.G. Herbermann, ed., *The Catholic encyclopedia,* Vol. 15 (London, 1912), Available: http://www.newadvent.org/cathen/15735a.htm

91 Bailey, *The processions of Sarum*, pp. 14-18.

92 If the font at York Minster stood below the dragon in north nave triforium in the fourth bay from the east, then the procession would not include the entire nave. This too would be a difference from Sarum.

93 Standard Sunday processional route based on the Sarum route given in Bailey, *The processions of Sarum*, p. 14. The transepts are not mentioned but are assumed to be included in the usual route to allow for the sprinkling of all of the altars in the church.

94 Bailey, *The processions of Sarum*, p.15.

95 Duffy, *The stripping of the altars*, pp. 301-303, 327-337.

96 York, BI, Prob. Reg., v.13, f.145; 'church earthe' is here interpreted as the cemetery rather than within the church itself. Cawton's is one of only two wills that use the term 'church earth' at Thirsk (the other is York, BI, Prob. Reg. v.13, f.791), but it is frequently used by testators at St. Michael-le-Belfrey where it

not be followed since many parish churches lack two aisles in the nave, more lack aisles in the choir, and almost none include an ambulatory.[97] Whereas most cathedrals seem to have been built with some reference to the full ceremonial of the processions, this seems not to have been the case for most parish churches whose diversity of plan development was driven by other forces not purely liturgical in nature.[98] The processional practice for most parish churches, therefore, was subject to much individual variation.[99]

The York Processional, while extremely brief in its rubrics, does make one reference to parish practice: at Easter. This rubric is so general that most of the processions could occur in any space so long as it had the standard elements of font and Rood.[100] The rest of the Holy Week liturgy processions are designed for Minster use. On Palm Sunday there was an elaborate procession which involved circumambulation of the church exterior where there was to be a station at the west door of the church.[101] Later in the week, on Maundy Thursday, the altars of the church were washed as part of a special procession.[102] A major part of the special procession takes place at the west door of the church and, later in the procession, there are specific prayers for the washing of each of the Minster's altars. In many parish churches of the diocese a west door was lacking, most had far fewer than the fifteen altars mentioned, and the dedications of the altars that were in each parish church were usually different from those given in the Processional. Therefore, there must have been a degree of improvisation on the part of the local clergy on these days. That such improvisation to make the procession fit the available space and resources was expected is addressed directly in several of the rubrics in the York Processional. The dawn procession on Easter in parish churches has already been noted. A second occurrence

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refers exclusively to the churchyard.

97 St. Mary, Beverley has an ambulatory which would accommodate the unmodified York processional.

98 See P. Draper, 'Architecture and liturgy', in J. Alexander and P. Binski (eds.), *The age of chivalry: Art in Plantagenet England 1200-1400* (London, 1987), pp. 83-91; R.E. Reynolds, 'Liturgy and the monument', in V. Raguin, K. Brush, and P. Draper (eds.), *Artistic integration in Gothic buildings* (London, 2000), pp. 57-68;K. van der Ploeg, *Art, architecture and liturgy: Siena Cathedral in the Middle Ages*, Mediaevalia Groningana fasc. 12 (1993) for discussions of the influence of the liturgy on architecture and vice-versa. Of course, the standard cathedral plan with aisled choirs and ambulatory is older than any extant Sarum processional and it may be that the processional routes were formulated after the usual cathedral plan had become fixed. However, the persistence of the ambulatory plan in rebuilt cathedrals including Salisbury itself which is a *de novo* foundation, indicates that this plan had become by the thirteenth century indispensable to Cathedral liturgy, by which time many cathedral east end rebuildings could have been designed with as much reference to the processional requirements of the liturgy as to any previous structure on the site. The origin of the Sarum processional routes is obscure and it is plausible that the surviving MS copies of the processional simply codify established practice which could have influence the design of twelfth and late eleventh century cathedrals in England as well. But this is an unprovable 'chicken-or-egg' argument.

99 Very little, if any, surviving documentation on liturgical practices in parish churches in England survives. In Sweden, however, such records do survive which show that liturgical performance in parish churches there was largely dependent on the availability of clergy and qualified assistants as well as the resources of the parish; variation in practice was widespread, constant, and acceptable (S. Helander, 'The liturgical profile of the parish church in medieval Sweden', in T.J. Hefferman and E.A. Matter (eds.), *The liturgy of the medieval church* (Kalamazoo, 2001), pp. 145-186.)

100 Henderson (ed.), *Manuale et processionale*, p.170.

101 Henderson (ed.), *Manuale et processionale*, pp. 149-150; Even here the rubrics of the Processional were impossible to follow in many Yorkshire parish churches, including Thirsk, where there was no west door. This also demonstrates that parish church plans were not entirely controlled by the requirements of liturgical texts.

102 The Maundy Thursday procession is given in Henderson (ed.), *Manuale et processionale*, pp. 152-156.

appears after the readings on the Easter Vigil where the rubric calls for seven boys to sing a Kyrie but it can be sung by 'tres ubi plures non habentur.'[103]

The general nature of the York Processional for the remaining processions for the rest of the year makes no special demands upon standard ecclesiastic space and would present no trouble for parish clergy when adapting it to their own church. Where the greatest difficulty would be encountered would have been with the number of clerical participants in the processions. The Processional clearly expects the presence of a choir, several deacons and subdeacons, and four or five priests. In larger parish churches, if stipendiary priests were included – and such priests were often expected to assist with the regular church services – the processions would not be too difficult to assemble according to the requirements of the Processional.[104] However, in smaller or poorer churches or in dependent chapels, the full complement of clergy would be difficult to come by. A scaled-down version of the processions must have occurred with the available clergy, even if only the priest, the deacon, subdeacon, and clerk took on the duties of the choir and other ministers. The flexibility indicated by the rubrics concerning the number of participants clearly shows that improvisation to suit local circumstances was permissible.

Processions at Thirsk

Given that processions were clearly expected to occur and that there was a degree of flexibility concerning their route and composition, how might such a procession have appeared in a prosperous fifteenth century church such as Thirsk? It is unlikely that at Thirsk there was no difficulty in obtaining the minimum required participants. Thomas Stevynson in 1521 expected the church to provide twelve priests and twenty-three scholars for his annual obit although here he was likely drawing on the clergy serving the other chapels in the parish as well. Numerous other testators left money for the parish clerks and any other clerks (suggesting the availability of multiple clerks) present at their burials. [105] There were at least four and possibly five priests regularly at the church if the chantry chaplains participated in regular services. The parish school probably provided choristers.[106] The attendant crucifers, thurifers, aquabajulus, taperers, etc. could have likewise been drawn from this school, from the other minor clergy in the church, or perhaps from the parishioners themselves. The parish clerk and the deacons would certainly have been present. With this full complement of participants assembled and prepared how did they process?

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103 Henderson (ed.), *Manuale et processionale*, p. 166.

104 For the assistance of stipendiary clergy in the regular services of the host church in the city of York, see York, City Library, Chantry Deeds, YC/AT G70:1-40; see also G.H. Cook, *Medieval chantries and chantry chapels* (London, 1963), *passim*; Gilds also augmented their church's services. For a clear account of gilds and whom they benefited see K. Farnhill, *Guilds and the parish community in late medieval East Anglia c1470-1550* (York, 2001), pp. 42-80;

105 Stevynson's will is York, BI Prob. Reg. v.8, f.174; wills providing for multiple clerks are York, BI Prob. Reg. v.2, ff.302, 490, 511, 555; v.3, f.342; v.5, f.37; v.6, f.46; v.11, f.623.

106 Late medieval parish schools usually taught boys to 'learn, read and sing.' (N. Orme, *English schools in the Middle Ages* (London, 1973), pp. 66-67, 172-194.)

Two routes for ordinary Sundays are possible at Thirsk given the requirements of the York Processional and the plan of St. Mary. Which one was taken depends on whether the side altars were sprinkled directly or from a distance. In the first option, the procession left the choir via the roodscreen door singing an Antiphon followed by an Oration (Movie 21).[107] It is possible that the procession stopped in the nave outside the roodscreen door while these were sung then proceeded, or they could have been sung while moving through the church. The rubrics are not clear. If the side altars were to be directly sprinkled, and if the procession was not to experience an awkward bunching-up, a nave entrance into the St. Anne chapel would have had to have been present in order for the choir to turn south[108] to allow the priest to sprinkle the St. Anne altar directly as the choir moved through the chapel and out the western parclose door. Alternatively, the procession could have simply stopped at the western parclose door while the priest went into the chapel to sprinkle the altar. They would then continue down the south aisle, the priest probably sprinkling holy water toward the parvise as they passed by, turning northward in the westernmost bay to continue past the font. Only during Eastertide would they have made a separate station at the font itself.[109] They would then turn eastward and process up the north aisle, through the St. John Baptist chapel, and back into the nave before the roodscreen, where they would make a station. Here they would sing a Response with Versicles and there would be another Oration.[110] The Bidding Prayer would then be spoken in English, led by the priest from the choir step.[111] Then the procession would re-enter the choir with a Response or Antiphon appropriate to St. Mary (the patron of the church) with its Versicle and Oration.[112] The priest would then formally conclude the procession before exiting through the priest's door to pray for the dead in the cemetery. If it was sufficient to simply sprinkle *toward* the side altars from the station before the roodscreen doors, then it is conceivable that the procession simply moved down the nave to the font, round the font and back again into the choir, thereby limiting itself to only that part of the church visible from the High Altar (Movie 22). Regardless of the route, the accompanying singing would be the same. Special processions would generally include the same route through the church itself, but would have included stations at the font, wherever the Gospel was read (at Thirsk this is unknown),[113] or around the exterior of the church[114] and all of these would have been subject to the same amount of site-specific adaptation as the ordinary Sunday processions. The movies show these routes from the points-of-view of both someone standing in the nave (left frame) and someone participating in the procession (right frame). The movement of the procession unites the space for those in the procession itself by guiding their movement and for those watching by guiding their gaze.

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107 Henderson, *Manuale et processionale*, pp. 133-135.
108 In the Sarum Rite the procession exited the choir by the north door, but their main westward progress occurred on the south side of the church - Bailey, *The processions of Sarum*, p.14.
109 Henderson, *Manuale et processionale*, pp.168-181.
110 Henderson, *Manuale et processionale*, pp.135-136.
111 Bailey, *The processions of Sarum*, p.15.
112 Henderson, *Manuale et processionale*, p. 136.
113 Henderson, *Manuale et processionale*, pp. 183-186.
114 Henderson, *Manuale et processionale*, pp. 149-151.

Liturgical movement and visibility analysis

The degree and type of visual change experienced at Thirsk during processions can be analysed using dynamic visibility diagrams. Ultimately, these diagrams suggest insights into how the space was unified through motion and how space at Thirsk compares to space in other churches. The diagrams are created using all of the spatial analysis methods described above and it is important to understand this process before analysing specific paths of motion through the space. Using a model of the building the isovist of each focus is determined and then associated schematically according to stations within the church. These are shown on a plan of the building where the foci are labeled numerically and the stations alphabetically (Fig. 95). Visibility of the foci from the point-of-view of the stations is determined by 'dynamic isovists'. That is, an animation of a single light source moving through the model (Movie23) in which the light source represents the individual in motion. What is visible is represented by white areas and what is not visible by black. Which foci are visible from each station is determined by overlap of the dynamic isovist with the foci isovists. A visibility diagram which includes qualitative information about the visibility of each focus at each station is then produced.[115] The visibility diagram for each of the separate stations is then shown in sequence representing the degree of visual change experienced along a specific path of motion through the space (Fig.95). The resultant schematic is used in conjunction with the known historical context of the space as the basis for analysis and interpretation.

Dynamic visibility diagrams of the ordinary Sunday processional routes at Thirsk reveal that at each station the views were variable both in number of foci visible and in the quality of their visibility (Fig. 95). Generally, the more unobstructed, face-to-face the view of an object, the more that object dominates the viewer. Frames such as niches, brackets or arches enhance and channel this experience.[116] In the choir, where the procession assembled, visibility was polar between the two processional axes: high altar in the east,

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115 The dynamic visibility diagrams are based in part on the principles of Hillier and Hanson's access analysis diagrams and also Harris Matrices describing archaeological stratigraphy (E. Harris, *Principles of Archaeological Stratigraphy,* 2nd edn. (London, 1989)). Access analysis diagrams show the relationship of units in a spatial system in terms of access. A Harris matrix shows the relationship of layers of archaeological stratigraphy to each other. The layers are organised from oldest to most recent from the bottom up. Harris matrices organise relationships by time. A combination of the two schematic systems organising visibility in terms of the position of an observer over time provides a way to quantify and compare the degree of visual change an observer experiences while moving through a space. Dynamic visibility diagrams are organised according to a path of motion linking a set of stations in space. The quality of visibility of important foci are determined from the isovist at each station and represented by a system of symbols (see the key to symbols in Fig. 95). Each station occupies a layer in the diagram which also represents a moment of time in a progression. Symbols placed above and below the central line at each station indicate foci that are in front of or behind the viewer and cannot be seen at the same time. The greater the variation from one station to the next indicates the degree of separation of views the space produces. Comparison of the quality of view for individual foci through the path of motion show how much the view of each focus varies in four dimensions. Each symbol is given a numerical value which contributes to the 'score' of each station. The difference between the scores of each station is averaged to find the degree of visual change produced by the space. The higher the percentage, the more visual variation is experienced by moving through the space.

116 On the importance of frames for devotional imagery and for the face-to-face, individual engagement with imagery see Marks, *Image and devotion*, pp. 21-24.

which was experienced in unobstructed elevation, and the font in the west, seen in framed elevation through the roodscreen doors. Upon entering the nave, the view is at its most expansive, taking into its vision framed elevation views of all three main altars and the font. The Rood towered above and behind the procession, clearly visible in oblique perspective. This point of visual command was the site of the most important station in the ordinary Sunday procession before Mass. Once the procession moved into the aisles, the view closed again, providing generally polar views of either the side altars or the font, although this time the view of the font flickered in and out behind piers as the procession progressed down the aisles. The aisles are commanded by their altars. The font, though visible, is unimportant because it is so obscured by the architecture. Almost mirroring the view at the roodscreen door, the view from the font as the procession passed by is universal, although the side altars would appear and disappear behind obstructions as the members of the procession moved northward across the nave. On ordinary Sundays the procession did not stop here, using the font only as a pivot-point and so this commanding place would only be experienced in passing on the way into the more exclusive and individual space of the north aisle. Finally, before disappearing into the most visually limited space, the chancel, the procession would stop before the roodscreen door again and the priest would invite the entire congregation to join the clergy in the Bidding Prayers. It is one of the few moments of clerical and lay unity during the Mass and it occurs in one of the two most visually unified locations in the space.[117]

The dynamic visibility diagram can also be quantified to represent the degree of visual change experienced by moving through a space. This is useful for comparative study of visual change for different routes through the same space or for similar routes through different spaces. For example, when the diagrams of standardised routes through the spaces of all of the churches in this study are compared (Fig. 96), Thirsk is revealed to offer the viewer in motion a high degree of visual change, while a space such as St. Augustine, Skirlaugh remains virtually static. From this comparison a link may be made between the degree of visual change and the importance of the high altar. In spaces like Skirlaugh, St. Michael-le-Belfrey and Skelton where the degree of visual change is relatively low, the high altar is the most important spatial focus. In these spaces prescribed forms of relationship with God seem to have been most important to the space's creators. When the strong role of high-ranking clergy in the creation of these three spaces is remembered, their spatial emphasis on 'official' religion is understandable. At Patrington and Thirsk, which were image-filled spaces, the high degree of visual change reflects the importance of many separate foci – of the importance of 'unofficial' religion in the form of individual devotion localised by multiple images and their associated altars. In these two spaces the evidence suggests that the laity played a large role in the creation of space and the guidance of its use. These differences indicate conceptual differences in how sacred space was perceived and used. The lay conception of sacred space was one of individual domains controlled by a particular representation of divine presence meant to be engaged

117 Henderson, *Manuale et processionale*, pp. 119-127.

with individually and devotionally. Such spaces necessitated a high degree of separation and visual change in response to motion. The clerical conception of sacred space seems to be one focused almost exclusively on the Sacraments, especially that of the altar, thereby necessitating a visually integrated space which changed little in response to motion. The two conceptions united in processional movement.

Conclusions

Despite being built to a unified design, St. Mary is not a unified space. For an individual to experience the entire space, one must move through it, taking the opening and closing vistas one at a time. This is the point-of-view of a participant in the processions. From the point-of-view of an observer not in the procession, however, the space demands that each of its primary divisions housed in each of its three vessels be engaged with from a stationary and parallel position; that is, without moving and facing it straight-on. Benches and framed views (views of important devotional points such as the altars and images which are given a decorative or architectural frame) reinforce the space's demands for static and individual engagement. In a space provisioned with seating, the observer's experience is limited. It can become channeled.

In a building built over a long period of unrelated campaigns such a division of space naturally arises as each new space is designed to serve the different purposes of its patrons and users. This is the case in the majority of parish churches. However, Thirsk was rebuilt essentially in one long campaign with little reference to the previous building on the site, yet it still retained a separateness of space. This separateness, then, appears to have been desirable; a kind of ideal. Many reasons for this could be suggested. This arrangement reflects the division in 'ownership' of church space with the aisles which are the province of their respective chantry chapels, being kept separate from the more public nave. Likewise, the chancel is separated from the secular concerns of both the nave and aisles while still controlling the nave itself. Although these spaces were the separate provinces of the laity and the clergy, the laity were not barred from participation in them, as numerous wills testify. If it was possible for the laity to participate in all of the separate spatial divisions within the church, then perhaps the division of the space operated spiritually. This could certainly be the case in the aisles where anyone sitting in the benches provided there would have their attention drawn to the altars and the imagery at the east ends as an insistent reminder to pray for the founders of the chantries there. In the nave the main eastern focus is not the high altar but the Rood and its associated furniture and imagery. Here, the channeled spiritual attention of the seated laity could be drawn not only to the imagery, but to the numerous tomb stones before the roodscreen. The division of space must also function devotionally by framing and therefore separating the devotional foci. This separation of the foci themselves directs the observer to consider each one individually, contemplatively. For each focus, the spatial context is flattened by the frame; three and four-dimensionality are lost and the timeless eternity of length and breadth but without the confusion of depth is highlighted. The major divisions of the four-dimensional

church space are thereby controlled by purposefully two-dimensional devotional foci. The altars and images 'own' the space and exercise their control over it. St. Mary is ruled by the spiritual and the otherworldly. It is a microcosm where worldly individuals meet otherworldly powers on those powers' terms. A space like St. Mary may have been what Bishop Pecock had in mind when he wrote that, 'Also herewithal into the *open sight* of ymagis in open chirchis alle peple (men and wommen and children) mowe come whanne ever thei wolen in ech tyme of the day.'[118]

Only by moving through the space are all of the separate spaces united and this is a specifically clerical act. While the people sitting in the nave can see the procession for its entire duration, they themselves do not draw the space and its devotional foci together. Processions then, like the Mass itself, seem to function as spatial and temporal intercessions between the people and God. While the people can engage one-at-a-time with individual foci, in 'the open sight of ymagis', only the clergy can interact with them in a single action – an action which was meant to be watched by and performed on behalf of the people. For the people, Thirsk functions primarily two-dimensionally reflecting their contemplative concerns while for the clergy it functions in four dimensions which express their more active roles in working for the people. It is the church building, built from the point-of-view of the foci themselves, which guides both of these experiences simultaneously.

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118 Quoted in Marks, *Image and devotion*, p. 31; my italics.

Conclusion

Space was used in late medieval Yorkshire parish churches to focus attention on objects and activities of importance to the creators and users of each church. Ways of focusing attention were varied, making use of numerous physical and experiential guides to order and prioritise the space. Conventional analytical methods concentrating on the written or fabric evidence of a church are important but limited in what they reveal about the use of that space. Some of the medieval spatial focusing strategies leave little or no lasting physical or documentary evidence. Other procedures for analysing space, procedures which rely upon experience and dynamic representation, can push exploration of these sacred spaces deeper. The fabric of a church was only one of the strategies used for organising sacred space. Less substantial or permanent material elements such as furniture and wall renderings could also be used to create a system of spatial priorities. Even less material but no less fundamental to focusing space were light and sound which could shape the experience of those within the space, drawing their attention to important objects and actions. Experience itself in terms of individual points-of-view and paths of movement could also be enlisted by church designers to transform the static possibilities present in a space into a dynamic series of approaching and receding focal points playing an active role in the enabling of the human/divine relationships which defined the church. Focus among the buildings studied was not constant although the official relationship between man and God as expressed by the liturgy remained stable throughout the period. Spatial focus varied from church to church and changed within individual churches. It is the daily, lived relationship between man and God that finds expression in the continual change of sacred space.

This has been a study of the late medieval English parish church through complementary conventional and developing methodologies querying how space can be examined, the physical nature of sacred space, and the primary relationships which define such spaces as sacred. It is an approach which is both qualitative and quantitative, applied to carefully chosen cases. The cases were chosen because they represent coherent expressions of the concerns and priorities of church builders when they were presented with the opportunity to design complete buildings. That is, these buildings are the result of ideal conditions which allowed for the creation of architectural, and therefore spatial, expressions unified by a single design. The fact that, in reality, only one of the five churches studied is a true single-phase *tabula rasa* construction (Skelton) is not important. That each church adheres to a readily identifiable unifying design is critical, for it is the design which gives form to the space and the relationships meant to occur within the space which guide the design.

The study has been presented in an order which moves from the conventional and static to the unconventional and dynamic, each chapter's approach building upon that of the previous chapter. The churches themselves have taken the position of case-studies in which each particular aspect of space and the methods and techniques used to explore it are applied. While this generates a narrative of increasing analytical complexity, it does not

present a meaningful historical narrative. This arrangement does not take advantage of the opportunities for comparison and broader application inherent in the choice of case studies. The five churches are fairly well distributed over the three centuries from 1240 to 1540 which allows a narrative of the use of church space to be told. In this concluding discussion of space and relationship the case studies have been arranged in chronological order to allow a narrative of spatial use to be developed which will in turn inform the final discussion of the changing nature of the relationship between man and God within these spaces. The preceding conclusions concerning the analytical techniques and methods used retain the order of the chapters thereby preserving the sequence of increasing methodological complexity.

Analytical Techniques and Methods

Each case-study chapter was organised around a framework which integrated conventional and developing analytical methodologies, demonstrating that the two are inter-dependent. At the heart of each chapter was a model of a church which served the particular purposes of the chapter. The model was based on survey of the real-world structure using hand, photographic and instrument techniques integrated with archaeological and historical research. At this stage of analysis the primary written evidence was as important as the physical evidence. Concerning the fabric, the historical sources supplied evidence for architectural development, the existence and location of imagery and furniture, and clues to the specific use of each space. Written evidence also provided the specific historical and social contexts within which each church developed, influencing the conception, creation and alteration of each space. This context is as important as the fabric. Therefore, each model represents more than a simple virtual copy of a physical space. It is a collation of written and material sources. It was necessary to establish the relevant historical and material basis at the outset of each chapter before analysis of the space itself could be introduced. The result is that each chapter employed a uniform (and unifying) set of conventional historical and archaeological methods as well as the more unconventional methods employed separately.

The careful scrutiny of the relevant historical documents and the fabric of each church is a universal methodology which cannot be neglected. Unconventional methods, although visually and audially appealing, must be used with more forethought and after careful consideration. The resources required to generate an accurate computer model of something as geometrically complex as a late medieval parish church are considerable. The geometry alone of each model used in this study took a minimum of one month to create and required the use of expensive survey and computer hardware and software. Each of these requires a period of training to become proficient. Even then, there is no guarantee that the model created will be genuinely useful for the research purpose at hand. Models and computer-dependent analytical techniques are more appropriately used for the analysis of the experience of a building, especially where time (motion) is an essential element. Such techniques are also appropriate for presentation of research when the

audience may not necessarily be composed of experts in the field. Much buildings research is not concerned with the qualitative issues of space or presentation. Rather, it is focused on establishing a sequence of development within a context. For example, Sarah Brown's recent architectural history of York Minster makes no use of computer models yet has revealed numerous facets of the Minster's history and development which were unknown or little understood.[1] Its chief sources were historical documents and the fabric from which only two-dimensional representations were created when necessary (either drawn by hand or computer or through photography). Because questions of experience were not part of Brown's research agenda more complex representations of the Minster would have been superfluous. Even when questions of experience and presentation are asked, computer-aided techniques are not always the most efficient or effective means of answering them. Markus and Fairclough, in their studies of architectures of power and control were concerned with issues of space and how the experience of space was used by the societies that created and inhabited them to organise relationships.[2] They achieved their goals through the inexpensive but, in these cases, illuminating methods of space syntax. Paul Barnwell's discussion of Blisworth church, Northamptonshire was explicitly concerned with presentation of reconstructions of space in the past.[3] However, using the relatively inexpensive methods of photography in conjunction with basic measurements he and his illustrator were able to produce conventional yet successful drawings of Blisworth's interior at different times of day on 2 October, 1528.[4]

With these caveats in mind, however, computer-assisted analysis can extend a researcher's domain by making available dimensions of study impossible to represent in the conventional two-dimensional world of documents, drawings and photography. It also makes certain types of investigation both more precise and more controllable. Alternative interpretations can be produced and presented side-by-side. Finally, it makes the results of some forms of investigation – acoustic analysis, for example – intuitively understandable.

At its most basic, computer assisted analysis is capable of quickly manipulating data and making calculations based on that data that would be time-consuming or difficult to manage. This is the principal attraction of CAD software which has become a standard tool in buildings archaeology. The data captured by my building surveys was managed by CAD software to produce two and three-dimensional representations of these buildings described in real-world units. In two-dimensions this greatly facilitated the analysis of the generative geometries of St. Michael-le-Belfrey and Thirsk. The real-world measures managed by CAD made the computer rectification of photographs of St. Michael-le-Belfrey's exterior possible from which accurate stone-by-stone drawings were made. These were then further managed by CAD through the use of layering which allows

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1 S. Brown, *'Our magnificent fabrick' York Minster: An architectural history c1220-1500* (Swindon, 2003).

2 T.A. Markus, *Buildings and power: Freedom and control in the origins of modern building types* (London, 1993); G. Fairclough, 'Meaningful constructions - spatial and functional analysis of medieval buildings', *Antiquity* 66 (1992): 348-366.

3 P.S. Barnwell, 'The Use of the Church: Blisworth, Northamptonshire, on the Eve of the Reformation', Paper presented to the eighth annual Ecclesiological Society conference (unpublished, 2004), pp. 5-13.

4 P. Barnwell, pers. comm.

complex interpretations of the same data set to be displayed in any combination desired. This approach makes relationships within building fabric more clearly identifiable. In three-dimensions CAD data creates the primary model, keyed to real-world measurements, which is then exported to other computer software which is incapable of working with such measurements. Thus, for the purposes of this study CAD was as indispensable and universal as the historical and material sources.

The most common use of computer models is in the visualisation of past objects and places. This is principally a matter of presentation and as such has received some criticism as an expensive tool unsuited to more research-driven inquiry.[5] But this is to overlook the simple but important value of visual representation as an effective and efficient means of expressing the results of research. Computer models can be used as research-driven arguments. Their flexibility means that they can be used to test hypotheses and present alternative arguments, which makes computer models worthwhile research tools. The models presented in this study were not made entirely for the purposes of presentation. The very creation of such models is a valuable research tool. For example, seven bench ends set in an original curb survive in the south aisle at Thirsk. Using these as a basic measurement coupled with testamentary evidence indicating that the aisles and nave had been provided with pews, the medieval pewing was virtually restored. In the process of creating this restoration, the importance of the distribution of pews in guiding movement through the space became apparent. The process of virtual restoration also established connections between the more abstract visibility graph of Thirsk and the possible location and extent of seating. It was obvious that the seating occupied the most visually integrated space and was therefore ideally suited for maximum visual command of the space during service time suggesting that the laity, while stationary, were careful to position themselves so that they could see as much of the church space as possible. This is in opposition to the clergy who could only experience the totality of the space in motion.

Issues of experience as explored through computer-assisted techniques widen the researcher's scope by allowing impermanent and intangible dimensions of sacred space to be studied. Computer models offer total control of time and space as well as ways to quantify experience. Models produce both intuitively understandable images and sounds but also calculated abstractions which make comparison of different spaces possible and repeatable. Thus, at Skelton the play of sunlight through the church for a whole day can be experienced in seven seconds while the precise quantities of light for any instant of the day, any day of the year can be measured, charted and compared to any other space. At Patrington the priest's part of the Mass can be heard in a past space which was acoustically different from the present space. The behaviour of sound waves, which are invisible and which move throughout a space the size of Patrington in less than a second, can be seen in motion one millisecond at a time. The acoustic response of the space can be calculated according to numerous measures which make precise statements about the suitability of the

5 K. Devlin, A Chalmers and D. Brown, 'Predictive lighting and perception in archaeological representations', *UNESCO world heritage in the Digital Age: 30th anniversary digital congress* (2003), http://www.virtualworldheritage.org/index.cfm?pg=Home&l=en, p. 1.

space to specific types of sound possible. Without such powerful and precise tools the ephemeral but vitally important elements of light and sound within these spaces would be inaccessible to the researcher. Finally, these experiential dimensions can be observed from multiple points of view simultaneously. At Skelton this technique was used to facilitate study of the play of sunlight. At Thirsk the very different experiences of the clergy and laity during a High Mass procession were shown side-by-side. Such insights are valuable in deepening our understanding of sacred space and are only achievable through unconventional methods which are not limited to the two-dimensions of 'paper' space.

Space

Space, as a medium, is manipulated by its creators to express their desires, concerns and understanding. This is not a statement of function like the formulation in Hillier that 'space is the machine.'[6] A functional statement concerns the use of space to fulfill a purpose. 'Space is the medium' is a statement of essence. It is one concerned with the nature of the thing itself and how that nature is manipulated in a church context to manifest the spiritual concerns of its creators. Throughout, this has been the guiding principle of this study. To draw an analogy, a study of painting based on functional statements or questions might state that paint is the technology whereby a surface can be covered with pigment. An essential approach would state that paint is the substance used to give visual expression to the painter's deepest thoughts.

The late medieval creators of sacred space deliberately manipulated that space to focus and to guide the experience of those within. They used every means available to them – material and immaterial – to achieve their goals. This study has sought to understand the ways in which the medium of sacred space was formed, manipulated and re-formed according to the developing needs and understanding of its creators and users. It has examined the most elemental physical and decorative components of the building and progressed through the intangibilities of light and sound to finish with the multiplicity of subjective points-of-view both still and in motion,

The case studies are five very different spaces in terms of their physical dimensions and internal divisions. They range in size from less than 1400 sq.ft. (426.7 sq.metres) at Skelton to almost 6300 sq.ft. (1911.7 sq.metres) at St. Michael-le-Belfrey, York's largest parish church. Their internal divisions range from the complex double-aisled cruciform plan of Patrington to the single cell of Skirlaugh. And yet comparisons are possible. In terms of the use of space, the differences of the division of internal space are important. For example, the single cell of Skirlaugh is a hint that the intentions of its patron were somewhat different from the intentions of the patron of Skelton, which is clearly divided into nine units, despite its small size. However, even this can be misleading. Again, if one considers Skirlaugh after the insertion of its roodscreen, the interior is divided into two basic regions; three if the bay containing the altar is considered as the presbytery. St.

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6 B. Hillier, *Space is the machine: A configurational theory of architecture* (Cambridge, 1996), p. frontispiece.

Michael-le-Belfrey, although three times larger with nine units, is composed essentially of three parallel repetitions of nave, chancel and presbytery just like Skirlaugh at the end of the period. The central east-west vessel of Patrington reflects this same division. The seven transept chapels, however, make use of only two: presbytery and 'nave', if the bays of the central vessel of each transept are considered as part of their respective east aisle chapels. Before the roodscreen was installed at Skirlaugh this two-part division was also apparent. It appears, therefore, that the tripartite spatial division was the 'base unit' of late medieval sacred space intended for regular parish worship. Thus, when Skirlaugh moved from functioning as a chantry to acting as a parochial chapel, the spatial division became less ambiguous by the insertion of a roodscreen. For spaces intended for the use of private, votive or occasional worship it appears that a two-part division was considered sufficient. Sometimes this division is only suggested by an elevation of the floor level or the presence of the altar alone as opposed to screens or clear architectural divisions such as chancel arches. In some cases this division is reduced again to a single cell containing an altar. Such was probably the arrangement in the parvises at Patrington and Thirsk. The parvise spaces conform to Bond's definition of the basic purpose of a church as a shelter for an altar.[7] However, the greater division of the primary ground floor spaces of all five churches suggests that more is intended than the simple housing of an item of liturgical equipment. The tripartite division of sacred space is found in the parochial areas of every church in this study and is one of the few constants.

While the tripartite division of space appears to have been universally accepted, it did not result in experientially identical spaces. Despite their identical interior division, Skelton and St. Michael-le-Belfrey share little else in common as physical spaces. The differences between them and between every other church studied begin with how their fabric guides the experience or perception of the space. Fabric can open up or close a space. The heavy chancel arch, the low north and south walls, the solid walls between the altar spaces at Skelton all contribute to creating a space that is solidly and unambiguously divided into separate compartments. By contrast, St. Michael-le-Belfrey is open, the fabric of the building playing less of a confining role. This is achieved chiefly through the use of wide, four-centred arcade arches which reduce the amount of fabric intruding into the space to a minimum while retaining a conventionally divided interior. At St. Michael-le-Belfrey the majority of the fabric 'hangs in the air' far above the floor, effecting spatial divisions from a distance. At Skelton, however, most of the fabric is solidly rooted to the ground, lessening with height. Patrington and Thirsk (Skirlaugh is an exceptional case in this respect) are less open than St. Michael-le-Belfrey, but more open than Skelton. Together the four form a sequence of space moving from deliberately closed to deliberately open. At St. Michael-le-Belfrey this sequence is preserved in its very fabric which was deliberately altered to create a single open space out of a collection of earlier, closed ones. It is a sequence which is encountered in other aspects of the development of late medieval sacred space.

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7 F. Bond, *The chancel of English churches*, (Oxford, 1916), p. 1.

While the structure of the building provided the spatial envelope, sacred space consisted of more than just the places between the stonework. Sound could also be used to guide spatial experience. While only two of the five churches were acoustically modeled some general conclusions can be made. Both Patrington and Skirlaugh were acoustically diffuse spaces, meaning that sound was well distributed throughout the space, unifying it in a way that was impossible visually. However, within this diffusion there were areas which were better than others. In both cases this concentrated on the chancel and the area immediately west of the roodscreen and roodloft. In a highly divided space such as Patrington, where there were at least eight altars and numerous images arranged within a cruciform spatial envelope, sound could be used to draw attention to the most important areas. The form of the chancel meant that, at close range, it was audially dominant. However, its distance from the lay domains of the church reduced its acoustic effectiveness. The transept altars, the Lady Chapel altar especially, were more acoustically prominent in the western areas of the church. However, the insertion of a roodscreen and deep roodloft altered the acoustic properties of the space to a point where the crossing became the most acoustically satisfying position in the church. From this position the chancel regained some of its prominence while the Lady Chapel was not diminished. Sound ensured that even in visually segregated spaces the Mass could be perceived. Sound provided a unifying element to the space while at the same time giving special prominence to areas of more importance.

Openness or confinement, which was controlled by the fabric, was perceived visually. How fabric guided vision in each of the case studies is well illustrated by comparing their visibility graphs (Fig. 97). A clear progression toward greater visual integration is evident (Skirlaugh is, again, something of an exception because it was originally envisaged as a chantry chapel rather than as a space for conventional parochial worship). Visual perception was guided in other ways as well. Most important was the use of light. It has been demonstrated that this could be quite precise. At Skelton light is deliberately used to draw attention to the High Altar which was consistently more illuminated throughout the day than any other space. The play of light through space throughout the day at St. Giles was engineered to ensure maximum illumination of the chancel at times when it was in liturgical use. The font, too, was deliberately placed at Skelton to take advantage of the region of the nave which consistently received the most light. The rest of the church was kept dark in order to place as much emphasis as possible on the objects and actions within the chancel. The most dramatic uses of light occur at Skelton and at Patrington. If the Rood was associated with the opening above the chancel arch at Skelton, then at sunrise and sunset, especially on days near the feast day of the patron saint, the Rood was especially illuminated. A similar use of precise lighting occurred at Patrington after the insertion of the roodloft. Windows were inserted in the roodloft bay and in the west wall of the tower, the splays of which guide light into the centre of the roodloft bay and to the centre of the eastern tower arch, respectively. It is clear that these were intended to light the roodloft and its occupants – whether imagery or

people. By contrast, in the rest of Patrington and in the other churches an alternative approach to interior illumination was taken which admitted as much light as possible into all parts of the church. Even here, however, some differentiation of lighting is evident. At Patrington and Thirsk the chancels were always better-lit than the rest of the church because light was admitted directly into the chancel space since there were no chancel aisles. Clerestories at Thirsk and St. Michael-le-Belfry ensured more light entered the naves than entered the aisles which again resulted in a differentiation between the primary and secondary spaces of the church. It also ensured that lighting levels within the central vessel were more diffuse and less variable throughout the day. Even at Skirlaugh, where the single cell of its space is uniformly provisioned with identical windows, there is light differentiation. The east window, the largest in the church, ensures that the altar directly beneath always receives more light and is brighter than any other object. From the deliberate focusing uses of light at Skelton, interior illumination quickly moved toward more and more uniformity of light throughout the building in later churches. The domains of the laity were brought into parity with the domains of the clergy until, at St. Michael-le-Belfrey, the situation was reversed with the largest window piercing the west wall, admitting more light into the traditionally lay domain.

Nothing so clearly demonstrates the changing nature of late medieval sacred space than analysis of the space from different points of view and in motion. The different spatial compartments of parish churches were dominated by the 'arcs of address' of their important liturgical or devotional foci; especially the images. Most important of these at Patrington, Skirlaugh, and Thirsk was the Rood which dominated the largest space. At Skelton, the most dominant feature was the High Altar, visually addressing both the chancel and the nave. St. Michael-le-Belfrey appears to lack any strong focus, just as its spatial divisions are weak. These foci represent the divine presence or presences within the building. By occupying separate spaces the foci can only be interacted or engaged with on an individual basis. Moving through the space has the effect of creating a series of opening and closing views which correspondingly bring each focus into momentary prominence in sequence. The importance of engagement with individual devotional foci in any church can be described in terms of the degree of visual change experienced as one moves through the space. Comparison of the five churches shows that the churches with a high degree of visual change were also image-filled, splitting their focus into multiple areas contained within discrete spatial units. These were churches where the laity played a strong and active roll. In the churches where the laity were less active and the founding patrons more ecclesiastic the spaces offer less visual change with focus better concentrated on the high altar.

In summary, then, space in late medieval parish churches was used to focus the experience (especially the visual and audial experience) of its occupants toward areas of liturgical and devotional importance. In general, sacred space experienced a progression from focus on the High Altar and subsidiary altars of the church to focus on the Rood and finally, lack of focus all together. The shift from altar to Rood is especially observable at

Patrington where the later roodloft reorganised the space both visually and audially, and at Skirlaugh where the insertion of the roodscreen and roodloft divided a previously unified space, moving the focus forward from the altar.

The Human/Divine Relationship

Sacred space is of a different nature from secular space. The active presence and role of the numinous, of the divine, must be seriously considered. If Markus' concept of space as the medium in which relationships are enacted is accepted, then the human/divine relationship must be considered among those which were mediated by sacred space.[8] Likewise, if relationships within space can be viewed in terms of inhabitant/visitor as Hillier and Hanson see them, the divine must be considered among the chief inhabitants, since the essence of sacred space is as a place where the numinous and the human meet.[9] The historical context within which these five churches stand can be seen as the record of changes in the understanding of the relationship between man and God. The buildings are products of this history.

The reality of the presence of God in the consecrated Host was officially affirmed in the first canon of the Fourth Lateran Council in 1215.[10] It was the culmination of centuries of theological and pastoral debate throughout western Christendom.[11] Its fundamental concern was the relationship between man and God, as the wording of the canon makes explicit.[12] The chief mediator of this relationship was the priest and, in consequence of his role, virtually every aspect of Church life, action and relationship was redefined. Two emphases of the Council were to have direct impact upon the way in which parochial church space was used and the priorities which dictated its design: the long-term campaign of education of the laity and the clergy, and the redefinition and subsequent reorganisation of relationships throughout the Church. The foundations for clerical education were laid by canons six, seven, eleven and twenty-seven where the importance of priestly competency is stressed. The council also laid strong emphasis on the extension of education to the laity in

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8 Markus, *Buildings and power,* pp. 21-25.

9 B. Hillier and J. Hanson, *The social logic of space* (Cambridge, 1984), pp. 183-184; M. Eliade, 'The sacred and the profane', in J.D. Bettis (ed.), *Phenomenology of religion* (London, 1969), pp. 205-218.

10 The text of the Canons of Lateran IV are printed in H.J. Schroeder (ed.), *Disciplinary decrees of the General Councils* (London, 1937), pp. 236-296; Paul Halsall has made this text available as part of the Internet Medieval Source Book at http://www.fordham.edu/halsall/basis/lateran4.html

11 For the theological and pastoral debate see the summary given in M. Rubin, *Corpus Christi: The Eucharist in late medieval culture* (Cambridge,1991), pp. 28-32; The impact of Transubstantiation on the liturgy and therefore the use of sacred space in a monastic setting had already been demonstrated in the eleventh century by Lanfranc, a major influence in the formulation of the doctrine of Transubstantiation, who had reorganised the liturgy and structure of the Benedictines at Canterbury Cathedral in accord with his understanding of the doctrine (M. Kobialka, 'Staging place/space in the eleventh-century monastic practices', in B.A. Hanawalt and M. Kobialka (eds.), *Medieval practices of space.* Medieval Cultures 23 (2000), pp. 128-148.).

12 'There is one Universal Church of the faithful, outside of which there is absolutely no salvation. In which there is the same priest and sacrifice, Jesus Christ, whose body and blood are truly contained in the Sacrament of the altar under the forms of bread and wine; the bread being changed *(transsubstantiatio)* by divine power into the body, and the wine into the blood, so that *to realize the mystery of unity we may receive of Him what He has received of us.* And this Sacrament no one can effect except the priest who has been duly ordained in accordance with the keys of the Church, which Jesus Christ Himself gave to the Apostles and their successors.' From the online edition of Schroeder's translation available at http://www.fordham.edu/halsall/basis/lateran4.html, my italics.

canons ten, eleven and especially twenty-one where annual confession was commanded. In England the educational goals were later given a formal structure and impetus by Archbishop Pecham in 1281. The results of his constitutions were to manifest themselves physically in the greater investment of the laity in the creation, adornment, maintenance and direction of their parish churches; an investment which would fundamentally alter the use of parochial space.[13] Relationships, especially ones concerning the laity and the clergy, were redefined by numerous canons; a process which had already begun in some individual ecclesiastic foundations but which was made obligatory by the Council.[14] The impact on the parish churches was initiated in canons nineteen, twenty and fifty-six. Much of the subsequent history of church space is the record of the changing nature of these relationships as they were guided by the canons of Lateran IV.

In England the impact of Lateran IV on parish church fabric and ornamentation was given its first formulation in 1240 by Archbishop Walter de Gray of York.[15] At about the same time the chapel of St. Giles was being built just outside York's city walls in Skelton which not only accommodated all of the Archbishop's new requirements but dramatically expressed the priorities and intentions of its post-Lateran IV clerical builders. Although small, it exemplified the priorities held important by de Gray and the members of his newly reorganised Chapter. There was a clear separation and elevation of the clergy from the people. The font was prominent, as was the south door where the Sacrament of marriage was administered. Enshrined within an architecturally superb space and literally highlighted, the Eucharist stood at the centre of the chapel's spatial focus. When de Gray officially defined the minimum requirements for a worthy church, which included the presence of the patronal image to the north of the High Altar, Skelton quickly conformed by inserting an image bracket which shared in the spatial focus and broadened the possibilities of relationship with the heavenly.

The centrality of the Eucharist was never displaced, but the scope for engagement with the divine was quickly widened. When St. Patrick, Patrington was first designed the importance of the Eucharist in the space was ensured by provision for at least seven altars. Along with the altars were their associated images and space for them was duly included. However, other forces were at work in the relationship between man and God. With the rise in the importance of worthiness to participate in the sacramental system of relationship defined by Lateran IV came the rise in awareness of one's unworthiness and one's separation from God. This was ameliorated in the growth of the place of Purgatory in daily religious life. Purgatory resolved the tension between the assurance of salvation, which Christ offered and which the people witnessed every day at Mass, with their increasing

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13 For a summary of the effects of Pecham's constitutions known as *Ignorantia sacerdotum* see E. Duffy, *The stripping of the altars: Traditional religion in England c.1400-c.1580,* 2nd edn. (London, 2005), pp. 53-88.

14 Canons 14, 16, 21, 42, 43, 45,46, and 66 are especially concerned with the definition and ordering of clergy and their relationship to the laity.

15 Archbishop de Gray's injuctions for parish churches are printed in Walter de Gray, *The register or rolls of Walter Gray, Lord Archbishop of York: with appendices of illustrative documents,* Ed., J. Raine, SS 56 (1872), pp. 217-219.

awareness of their distance from God. Purgatory was the place where this distance was justly and equitably closed. It was, by necessity, an unpleasant but certain place. However, the gap could be closed in life through constancy in efforts of personal holiness and after death by the prayers of the living. This had two effects on sacred space. The first was the expansion and fragmentation of church space to include altars at which prayers for the living and the dead were offered outside the regular services of the High Altar. The second was the increasingly personal, internalised and affective piety of the people. The affective nature of piety was especially powerful. Contemplation on Christ's Passion and its salvific power resulted in the rise of a second important spatial focus: the Rood. This additional focus, which was originally insufficient at Patrington, was given greater prominence by the later insertion of the deep roodloft and the direction of light sources to specifically light its position. The two foci should not, perhaps, be seen in opposition with the rise of the Rood eclipsing the place of the altar. At Patrington, the greater visual prominence given to the Rood by the deep roodloft and its associated alterations to the church fabric also resulted in a rise of the audial quality of sounds emanating from the vicinity of the High Altar.

At Skirlaugh the importance of the altar as the centre of relational space between man and God and the rise in the importance of the Rood is placed within its social context. Bishop Walter Skirlaw re-founded and rebuilt the chapel of St. Augustine in his native village to function primarily as a perpetual chantry to pray for him and his family in life and their souls in Purgatory after death. Skirlaw's own personal devotion emphasised the central place of Christ's death and resurrection in human history expressed in terms of typological theology. In this theology, the chapel was a type of Temple, both the earthly Temple in Jerusalem and the Temple in Heaven of St. John's Revelation. The Temple was the earthly abode of the divine presence, which was manifest daily in the Eucharist in which Skirlaw's hopes for salvation ultimately rested. As St. Augustine moved into regular parochial as well as chantry use the interior space was recreated by alterations to the painting scheme which included figural imagery and by the installation of a roodscreen and loft which divided the space into the conventional tripartite parochial arrangement. In this space, while the altar remained prominent, the Rood became focally central. Other avenues of relationship with the heavenly and the divine were also emphasised in the parochial reordering. The High Altar was more strongly associated with imagery with the insertion of a new bracket which was also provided with a pricket for a candle. Interaction with the divine was made possible through the miracle of the Eucharist at the altar, through contemplation of and devotion to Christ and his Passion in the image of the Rood, and through the intercession of the saints represented by the candle at the image bracket and the figures painted on the walls.

The complexity of human/divine relationships from the fifteenth century until the end of the period is fully observable at St. Mary, Thirsk. Here the rebuilding of the church was probably due to the increase of the importance of prayers for the dead in Purgatory through the establishment of chantries at their own altars. By the end of the first quarter of the sixteenth century the church possessed at least fifteen devotional images, most of which

also had associated lights. Four images were especially important: three images of the Virgin, one of which was the focus of a gild, and the Rood. Testamentary evidence and the surviving fragments of fifteenth century glass show that the human/divine relationship was personal in that individuals within the community expressed their own internal devotion. This devotion was also specific in that it was directed to particular saints and attributes of God. This created a multifocal space that encompassed the Eucharist, the Rood and the whole host of heaven. Thirsk was a space organised around the numerous individual foci, with each of the most important commanding their own individual spatial units. But relationship with the divine was also experienced corporately by the entire community gathered in the pews during Mass. The liturgy, centred at the High Altar, was the force that tied all of the disparate devotional interests together.

Even as the Thirsk parishioners invested in the numerous expressions of the human/divine relationship in their church, a change was finding monumental expression in early sixteenth century York. The old parish church of St. Michael-le-Belfrey underwent a period of substantial remodeling which transformed its space from a multi-focal collection of heterogeneous units into a space without any emphatic focus. The conventional components of altars, Rood and associated furniture in a three-vessel tripartite division of space remained, but the barriers between the spaces had become less material, the command of discrete regions by important liturgical and devotional foci less precise. The space had opened up. Testamentary evidence after the remodeling lacks all but two references to imagery within the church. Of the five altars known from pre-remodeling wills only three appeared after. Whether the new St. Michael-le-Belfrey truly lacked points of devotional interest, or if the parishioners were obeying Royal Injunctions against imagery is not known. In some ways, the distinction is not important. The sacramental and educational impact of Lateran IV in England had ended in the advent of anti-sacramental legislation which moved the relationship between man and God into an understanding that had profound and lasting impact on church buildings and sacred space. It would result in the re-ordering of interior arrangements, the sweeping away of many screens and of all altars. Imagery was to lose its place, supplanted by text. Worship became more a matter of internal individual relationship reinforced by corporate participation in an altered liturgy which was directed at the people themselves rather than relationship with God through the intermediaries of priest, saint and Sacrament. At St. Michael-le-Belfrey, designed before the 1534 Act of Supremacy which made such official radical religious change possible, the changes had in some measure already been expressed. The open nature of the space, its lack of focus, allowed the focus to be placed anywhere according to the interests of those using the church. For a funeral, the focus could be the body of the deceased, for a sermon it would be the preacher, for the Mass it would be the altar. The almost universal visibility afforded by the church's fabric made it possible for as many people as the space could accommodate to participate visually and audially in whatever action was occurring. St. Michael-le-Belfrey was not designed around the objects of divine presence. It was designed around the people themselves engaged as a body with

God who was everywhere. When the time came to sweep away the altars and images, St. Michael-le-Belfrey moved quietly into the new world made by the constantly changing nature of the relationship between man and God.

The historical process begun by Lateran IV and the preceding two hundred years of theological debate is observable in many sources. There is little in the later Middle Ages that was not affected, directly or indirectly, by the formal definition of the relationship between man and God expressed in the Council's first canon. The canon did not effect immediate and uniform change. Rather, it set in motion forces which would exert their influence over generations, manifesting themselves in countless ways. Not least among these were the changes wrought on sacred space where the relationship between man and God was formally engaged. Space was the medium moulded by this relationship and, in turn, space moulded the experience of that relationship. By examining late medieval sacred space in all of its dimensions, by expanding the realm of inquiry beyond the confines of 'paper space', one can trace the influence of the changing nature of the relationship between man and God in the later Middle Ages. A wide range of methodologies is required, from conventional and two-dimensional techniques to unconventional ways of working in three and four-dimensions. By employing these carefully and purposefully something of the medieval human/divine encounter, of the way in which it was created, channeled and changed, can be restored and understood. The relationship between man and God in the last centuries of the Middle Ages is expressed in the churches and sacred spaces created during that time. It can be seen in their fabric, their decoration and division. It can be experienced in the ways in which they manipulated light and sound and were themselves manipulated by these intangibilities. It can be traced in how specific spaces organised an individual's visual experience, or how spaces were moved through, and the way in which these sacred spaces mediated the encounter between the mundane and the numinous. In the end it can be concluded that this relationship, despite its unchanging official formulation, was a living relationship distinguished by continual change which affected people together and individually in every dimension of their lives. It is an experience open to any today who encounter these spaces with open eyes and ears and who are prepared to be moved. *Qui habet aures audiendi, audiat.*

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