A Monastic Sensorium: community experience and the built environment at eighth and ninth century Northern monastic sites.

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Abstract

The study of medieval Christian religious contexts has already benefited greatly from consideration of the historicity of cultural perceptions the senses and the spatial and sensory environments they create, however many of these studies pertain to the period subsequent to the writing of the *Regularis Concordia* in the late eighth century, for example (Gage 1982). For earlier periods, the sparsity of documentation relating specifically to liturgy (as noted by Harper 1997; Bedingfield 2002; Pfaff 2009) and problems in concretely identifying religious sites and buildings has made it difficult to link spatiality with action, thoughts and perceptions, let alone link this groundwork to wider narratives of the physical uses of the senses in the creation of abstract concepts such as community or place. This thesis aims to access this earlier period by focussing on key Northern monastic sites that have rich primary and secondary data and conducting various considerations of their sensory milieu, in order to comment on the extent to which sensory investigations can contribute to the narratives of these places.

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1. Introduction

> *Stone buildings such as these, with plastered and painted walls, red concrete floors, windows with coloured glass and stone slated or leaded roofs would have been an awe-inspiring if chilly reminder to their inmates as to how far the Northern English had made themselves the inheritors of what was left of Roman technological achievement."*
> *- (Cramp, 1969 p58)*

What power does a window of coloured glass have? What is the importance of a leaded roof? In Rosemary Cramp's conclusion to her 1969 interim report for excavations at the monastic sites of Wearmouth and Jarrow, she suggests that the various facets of the buildings have additional importance when considered as a whole. Through their ability to inspire awe and evoke a bygone era, they orientate "inmates" not only within the buildings, but within a much larger narrative of an idealised past and a future legacy. This statement may be a short conclusion in its original setting, but it represents the impetus for the research presented here.

The process which turns the experience of the habiliments of a monastic church into concepts of community, space and place warrants a closer exploration of the historicity of Anglo-Saxon perception. While this topic has been touched upon for this period by other research (Hawkes, 1999), many of the studies with the sensory experience of architecture as a primary concern pertain to the period subsequent to the writing of the *Regularis Concordia* in the late eighth century (Gage 1982; Kidson, 1987; Klukas,1995). This is likely due a sparsity of documentation relating to liturgy prior to this combined with difficulties in identifying the religious sites of earlier periods (Pfaff, 2009 1-6). Exploration of the culturally-bound nature of sensory experience has, however, seen considerable growth in the past few decades within archaeology (Howes, 2006; Skeates, 2010;) with various proposed methodologies for tackling this most subjective and transient of topics being proposed in situations with scant or non-existent historical evidence (Day, 2013). This thesis proposes to use some of these new research perspectives in order to access early medieval northern monasticism prior to the ninth century, in the hope that they can provide a new view on the crowded narrative of early medieval monasticism.

Objectives and Research Questions

In order to create a sensory analysis of early medieval monastic sites, three levels of analysis are required: a general inventory of the monastic sites and their communities, an investigation into the sensory properties and effects generated by these sites, and finally a dialogue on the possible effects of these properties and how they relate to concepts of place and community. These each raise their own sets of questions for examination.

The first set of research questions concentrate on the concrete: the where, when, what and who of early medieval monastic sites. This creation of an inventory of known facts is suggested as a primary step in sensory study by Skeates (2010), who utilises the “thick description” concept first proposed by anthropologist Clifford Geertz as he developed his ethnography of the development of symbols (Geertz, 1973). During a time in anthropology where common practice was to describe the shape and practices of a particular society, Geertz promoted surrounding these activities in a rich commentary of their wider social context in order to comment on their significance. Skeates applies this concept to cultures of the past who cannot be spoken to by creating an inventory of all of the sensory resources available to a particular culture.

In order to create this archaeological thick description, two distinct objectives present themselves: firstly to access the materiality of the sites as closely as possible through a critical synthesis of historical documents and source materials to create comprehensive biographies of key sites. A knowledge of the forms of buildings would not be useful, however, without also being matched by a knowledge of the people and groups who were active within them. Therefore a secondary objective must be to access the demographic groups who used these sites via historical evidence and mortuary archaeology, with consideration of culturally bound concepts of age, gender and class and the form, duration and frequency of activity at these sites that various groups were likely to have had.

The inventory or "thick description" of monastic sites lays the groundwork for an examination of the possible sensory effects that sites may have provided for participant communities, for example through lighting conditions, use of colour, acoustics and a manipulation of space through routes and access points. This is the stage of analysis which directly tackles the subjective, producing a requirement for a structure which considers clearly and logically a variety of different kinds of information with varying levels of conjecture. One possibility is to examine each sense individually, considering sight, hearing, smell etc. in turn, however this does not easily allow the synaesthetic nature of the senses to be explored. Another possibility is to examine the senses through varying categories of experiential environment. One example of a structure used in environmental science which does this is Auditory Scene analysis, which divides sounds into biological, non-biological and human (Bregman, 1990). Figure 1 indicates the categories used by Bregman's anaysis.

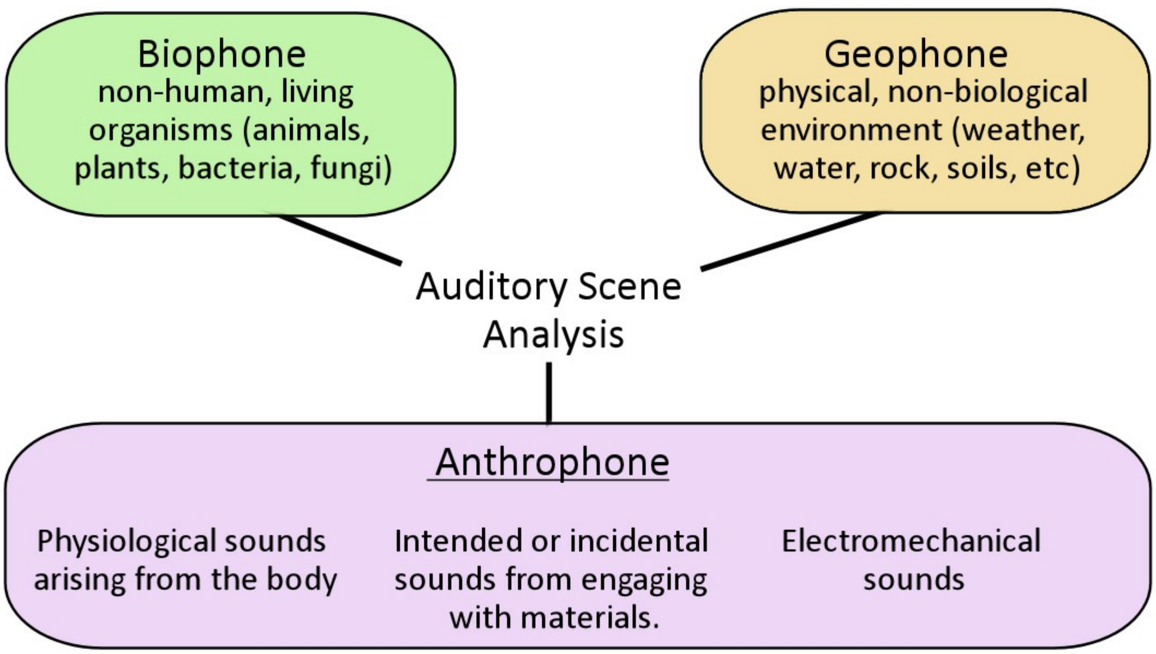


Figure 1: Categorising auditory spheres via auditory scene analysis (Bregman, 1990).

Examining broad categories such as these allows senses cross-sensory discussion. In addition, the strong link to physical locations suits archaeological evidence well. Therefore this study considers a variety of different spaces for sensory encounter: the effects of the human body and its generation of sensation within the world, the form of the built environment and how it creates a sensuous space which is affected by movement through it and site access and the experience of various routes to the sites.

Handling the Senses

As the collection of objectives above indicates, sensory experience is a principal concept of this study. It is therefore prudent before continuing to determine exactly what is meant by the senses and how the historicity of their conception affects how they are used within academic study. The Aristotelian tradition of five senses has often been an assumed fact in Western scholarship, with some scholars such as Nudds (2003) suggesting that it is "surprising, given the obviousness of the fact that we have five senses, that there should be so little agreement as to what account should be given of them" (p35 footnote 11). This obviousness does not translate well into cultural and anthropological studies, however, where groups such as Anlo-speakers who place a great emphasis on a sense of balance in order to carry objects on their heads (Geurts, 2002) or Yap Islanders who place a lot of cultural value in the perception of pain and empathy (Throop, 2012), have demonstrated that the senses are "culturally as well as biologically constructed" (Skeates, 2010 p3) and grouping all of them within the five categories can be tautological and limiting. Like many popular areas of interest within archaeology such as kinship and mortuary rituals, sensory experience is manifested from a biological universality which is processed with vast variation across different cultures (Coote and Shelton, 1992 1-15). This thesis therefore uses the idea of "sense" broadly, as a term for a perceptual process which allows a subject to gain information about the world which can be consciously processed (MacPherson 2010).

Archaeology and scholarship in the humanities more generally has an early history of separation from the senses and subjectivity as the process of efficient scientific study became one disassociated from human perception with the rise of new methods of measurement and automation (Frängsmyr et al 1990). The end of the 20^{th} century however saw a "sensorial revolution" within the social sciences and humanities (Howes, 2006 p14-15), which occurred during the post-processual deconstruction archaeological method. In particular, British prehistory studies became the nursery for the development of phenomenological approaches, which focus on people's ontological knowledge of their surroundings via the medium of inhabiting and experiencing bodily interactions. Examples include Tilley's (1994) study into Neolithic landscapes and how the placement of stone tombs may have drawn attention to particular landscape features for individuals walking certain routes, and Hamilton and Whitehouse's examination of "sentient landscapes" by assessing the distances of human impact created by the body: how far away it can be heard, seen and smelt. These studies, while useful and groundbreaking, have been reassessed and critiqued (Brück, 2005; Barret and Ko, 2009) for their homogenization and focus on the experience of individuals rather than groups, potentially obscuring images of children, women, the disabled and other subsections of society: areas that archaeology has traditionally had significant strengths in.

In the past 15 years, many studies have focussed on the development of process and methodologies to address these issues. Some that have particularly impacted this study include *'The Making Senses of the Past: Towards a Sensory Archaeology'* conference at the Centre for Archaeological Investigations at Southern Illinois University in 2010 and its subsequent publication (Day, 2013), for its variety of culturally-sensitive sensory schema. Mills' (2014) combination of experimental archaeology and acoustic technology to quantify auditory data is also especially useful for its critical, evaluative approach. There are also larger projects which have been important for sensory studies more generally. Skeates (2010) study of the physical and cultural environments of prehistoric Malta takes an approach of using "thick description" as promoted by anthropologist Clifford Geertz, where the particulars of a society are surrounded by a commentary on the wider social context in order to comment on their significance. Within medieval studies, Helen Gittos' work uniting historical sources, archaeology and architecture to comment on the spatiality of religious rites is a key example of how the various of information for the early medieval period can be utilised in an innovative way (Gittos, 2013). *'Rethinking the Medieval Senses'* (Nichols, Kablitz and Calhoun, 2008) provides another multi-faceted study. Although primarily not material culture based, it examines what the use of philology and rhetoric suggests about the psychology of the senses across the medieval period.

Source Materials

It is clear that there are a variety of studies which can be used as inspiration for a sensory examination, however access to primary and secondary information ultimately determines what is possible. In the case of early medieval monasticism, archaeological and historical information must be used in tandem to create the fullest picture possible.

<u>The Key Sites</u>

To allow for a balance between depth and breadth, this study focuses on six key monastic sites located in UK across the boundary between modern day England and Scotland: Wearmouth, Jarrow, Whitby, Hartlepool, Hoddom and Whithorn (see Figure 2).

Figure 2: Geographical locations of case study sites for this thesis.

These sites are all well documented, if not in primary literature then in extensive archaeological enquiry. This provides a solid foundation on which to base the inferences which sensory studies require, and also provides an opportunity to see how a consideration of the senses can contribute to pre-existing archaeological narratives. The sites share many elements (Pickles, 2011 36-55), including seeing a period of growth and development over the 7th - 9th centuries, a strong association with monumental sculpture (Hawkes, 2013) , evidence of axially aligned layouts (Blair, 196 – 204,) and coastal or riverine locations (Rodwell, 1984; Blair, 2005 182-196). This allows for a certain degree of comparison between them. The localised nature of construction techniques (Gardiner, 2013) and varying site histories allows for discussion of local innovation and how common trends may manifest differently across various locations, in particular between the east coast foundations with strong royal connections (Yorke, 2003 1-23) and the Scottish monasteries which show evidence of longer continuity as Christian sites (Lowe and Brooke, 2006 2-3).

Source Texts

Due to the materiality-focused nature of this study, the written texts of the period in modern translation act as a supplement rather than a discrete area of study. Many of the key references commenting on daily life for this period are within larger texts on many different topics. It is challenging to extrapolate broader implications from these small insights. Written texts also represent the experience and interpretation of a small number of individuals: a hindrance to an approach focused on the relationships between groups of people. Below is a table of the main texts used during this investigation and what translations are used:

Notation	Text	Translation	Notes
ALC	*The Anonymous Life of Ceolfrith*	(Whitelock, 1996 vol 1. 758-770)	Part of the EHD collection, developed as authoritative translations for academic use.
HA	*The History of the Abbots of Wearmouth and Jarrow*	(Martin and Hurst, 1991)	The most frequently cited modern translation of the text, updated from Hurst's 1955

			translation.
HE	*History of the English People*	(Sellar, 1907)	An older translation utilised extensively online by many academic institutions due to its inclusion in the Internet Medieval Sourcebook from Fordham University in 1996.
_	*The Miracles of Bishop Nynia*	(MacQueen, 2005) 88–101	The only English translation.
DT	*Bede - De temporibus*	(Kendall & Wallis 2010, 104–131.)	Widely used modern translation.
DNR	*Bede – De natura rerum*	(Kendall & Wallis 2010, 69–103.)	
DTR	*Bede De temporum ratione*	(Wallis, 1999 157–237.)	
_	*Bede's Homilies*	(Martin & Hurst, 1991)	
CUTH	*The Life of St Cuthbert*	(Colgrave, 1940 143-309)	Prose translation with notes.
BM	*Brevarium Monasticum*	(Doyle, 1948)	Frequently republished version used by many modern Benedictine institutions.
_	*The Letters of Alcuin*	(Allot, 1974)	Presents some letters with minor omissions
_	*Ælfric's Letter to the Monks of Eynsham*	(Jones, 1999)	Introductory chapters, Latin and English text.
	Aelfric's Sermons	(Thorpe, 1844)	An early translation made for the Aelfric society, presenting both the original old English and Thorpe's translation.

	Regularis Concordia	(Symons, 1953)	
	Cuthbert's Death of Bede	(Sellar, 1907)	

Table 1: *Historical sources, translations and notations.*

Outline of Structure

In order to best meet these objectives and closely examine the case study sites listed above, this thesis takes the following structure:

<u>Reconstruction</u>

Due to the precision and depth of groundwork needed to begin to comment on sensory experience, the first section of this thesis will concentrate on gathering and collating information about the monastic sites and monastic life. In **Chapter 2**, information about sites and buildings at the six key sites has been collated by critically synthesising historical literature and past archaeological approaches. **Chapter 3** then places people back into these environments by considering the demography of monastic communities and the variety of activities that can be seen on these sites through liturgy and archaeological evidence.

Having created a full picture of lived environments at these sites, the next section of this thesis uses this information to address aspects of sensory experience. **Chapter 4** presents a buildings-orientated examination of the sensory properties of key structures, comparing and contrasting various attributes that are difficult to ascertain for buildings of the past such as acoustics, smell, space and viewpoints and access routes. **Chapter 5** presents a more in-depth examination of the visual worlds of light and colour, using 3D modelling and reconstructions to comment on the uses and implications of both natural light and artificial light.

Further Implications and Conclusions

The final section of this thesis examines the wider implications of this sensory information, and discusses whether it can be used in the creation of wider narratives of community and change. **Chapter 6** discusses some of the implications of the previously highlighted sensory effects in creating concepts of space, place and time, and also reflects on hermeneutic limitations and what new information sensory studies can provide.

2. Sites and Buildings

It is fitting yet frustrating that institutions as closely associated with the production of manuscripts as early medieval monasteries should have an archaeological record best described with the nomenclature of the manuscript: a palimpsest, a fragment, a remnant. The entirety of these monastic sites is no longer available. It has often been subsumed by subsequent religious buildings or obscured by urban development. While some sites provide examples of religious buildings without the surrounding necessary habiliments of monastic life, others demonstrate the industrial or residential zones without any kind of ritual core. To continue the metaphor of the manuscript, these various texts can be stitched together to create something that is an approximation of the book in its entirety. The issue with this is whether the texts are truly part of a unified whole. They may be best viewed as individual works. This chapter will set out some of these "texts": the six sites which comprise the focus of this investigation. It will also discuss various interpretations of these sites and the conflicting goals of creating a story of unity and creating dialogues of local-scale innovation.

The Northumbrian Question

The sites of special focus in this study, Wearmouth, Jarrow, Whitby, Hartlepool, Whithorn and Hoddom, have all been cited as having connections to Northumbria, as will be discussed later in this chapter. However, "Northumbria" has been conceptualised in many ways, from geographical area, to material culture classification, to phenomenon of social change. A first step towards understanding the interrelationships of these sites is to establish what Northumbria means.

According to historical, etymological and material signifiers then Jarrow , Wearmouth Whitby and Hartlepool are perhaps heartlands or Northumbria, fitting well within the etymological and historic border of the Humber to the South. Whithorn and Hoddom are outside of the area often denoted by Northumbria, yet various historical sources may include them within Northumbrian land. For example, Edwin of Northumbria is said to have controlled the Mevanian islands between 616 and 633 suggesting that the Kingdom extended widely to the West. Bede describes Whithorn as belonging to the Kingdom of Bernica which had amalgamated with Northumbria by its foundation (Rollason, 2007, 20-57). Bearing this in mind, Figure 3 displays their locations without attempting to define Northumbria as a bound geographical area:

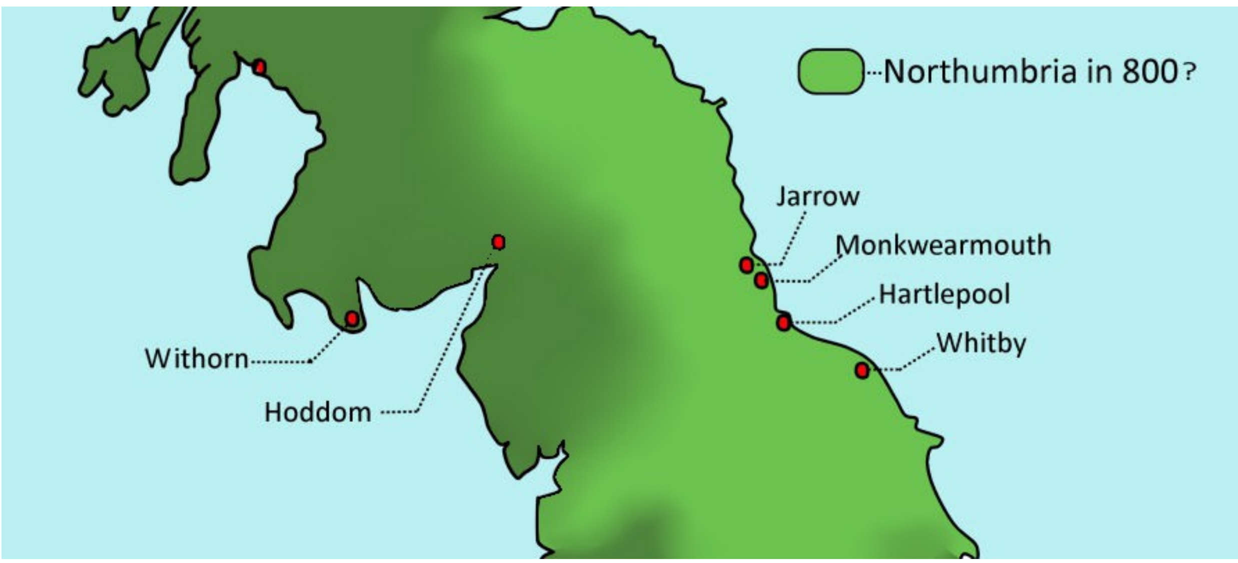


Figure 3: Possible gradations of Northumbrian borders in the 8th century.

The reason for a lack of definite border in the map above is because scholarship has generally turned away from viewing Northumbria as a rigidly defined, bordered kingdom. Instead, it is term for a particular phenomenon, "dually formed from word and image" (Cramp 1999). Although linked to the human and physical geography of a particular location, it is best described as process rather than place (Petts and Turner, 2007). Rollason (2007, 20-57) proposes in detail a graded continuum of Northumbria rather than a view of it as a state with borders, where frontier areas may be culturally Northumbrian to varying degrees in different criteria. For example, the typological similarities between sculpture from Ruthwell, with its close proximity to Hoddom, suggests an artistic and cultural affinity with Northumbria existed at some point at the site (Cramp, 2015) even if is political status as Northumbrian is contested. Even apparently concrete demarcations of physical space such as Hadrian's wall and Irish Sea can be re-conceptualized as permeable and related to ideas of control rather than the prevention of movement. This more nuanced approach has been addressed by thematic approaches such as Blair (1976), before becoming a specific focus of study, for example at the Early Medieval Northumbria conference at Newcastle University in 2006 (Petts and Turner, 2007).

This suggests that we can use Northumbria as an academic shorthand for an amorphous series of trends and unifying factors that affected a particular geographical area in a complex way. Northumbria exists in the mind of the medieval scholar. A more formidable question is whether Northumbria transcends being a modern category of classification. Did it exist in the minds of the people in the past? If it did, was this something that permeated all sections of society, or were there many different iterations of Northumbria between the "literate, lay, clerical, secular, male female, high status and low" (Lees and Overing, 2006, p9)?

Sociology provides one way of conceptualising this subjective experience through material culture in the concept of "imagined communities". These are socially constructed communities, not based on everyday face-to-face interaction between members. The concept was originally created as a commentary on the post-industrial world and nationalism by Benedict Anderson. He suggests that it is a phenomenon facilitated by the rise of maps, census taking, and the conjuration of the material culture of the past (Anderson, 1991 p163-207). While this clearly pertains to a perception of community, self and geography that does not align with the early medieval world, some have taken his assertion that "all communities larger than those of face-to-face contact (and perhaps even these) are imagined" as a prompt to examine whether the concept of "imagined communities" has merit within the cultures of the past (Canuto and Yaeger, 2000). Some of these concepts do resonate for the developments during this period even if the analogy is not an exact one. There is an elite group who are the creators of and the custodians of the cultural milieu, who may use it to create new sensory experiences which evoke connections and relationships that are not possible in physical reality.

The Sites

With this qualified concept of Northumbria in mind, this section will examine the specifics of the built environment at six Northern monastic sites. This will be done by examining the historical and archaeological record and assessing the size and form of the different establishments over time.

Wearmouth

Historical Texts

The historical accounts of Wearmouth and Jarrow are comparatively extensive. They appear in the Anonymous *Life of Ceolfrith*, Bede's *History of the Abbots of Wearmouth and Jarrow*, and in T*he History of the English People*. The founder, Benedict Biscop, also has a well-documented life: a Northumbrian noble who journeyed to Rome twice before becoming a monk in the islands of Lerins in France. He was later abbot of the monastery of St Peter and St Paul in Canterbury before King Ecgfrith, impressed by books and relics which he had acquired from his trips to Rome, granted him 50 hides of land (ALC) or 70 hides of land (HA) from his royal estates for the foundation of a monastery at the mouth of the Wear (Cramp 2005, p30).

The monastery is recorded as being formally founded in 673, with building beginning a year later (HA, 7). In the second year of the foundation, Benedict Biscop travelled to acquire masons to build him a stone church in the "Roman style" from Gaul (HA 7). This suggests that there must have been some wooden buildings initially on the site, before they were replaced. Glaziers from Gaul were sent to glaze the church, "the porticus and the caenacula," which may refer to a refectory or upper storey (Mayvaert 1979). Cramp (2005, pp32) suggests that the idea of multiple refectories is not unbelievable, but that in the context of the passage it is more likely to refer to a feature of the church.

There was a fifth journey to Rome in which books and relics were obtained, including paintings on boards. John, the abbot of St Martin's and the Archcantor of St Peter's, Rome, also returned to the monastery and taught Roman chanting and reading aloud (HA 3, 25). Cramp suggests that other artists or craftsmen may have also arrived in the community at this time to pass along the material culture from the wider world, and that this might have been teaching that affected not only the new community but other monks in nearby monasteries (2005, pp33).

The painting and decorative scheme of Wearmouth can be considered from Bede's text, as can various other features such as the entrance porch. There appear to have been an expansive selection of religious buildings. As well as mentions of additional oratories, there are specifically named buildings such as a chapel dedicated to St Mary (HA 9) and a possible chapel to St Lawrence, mentioned when Ceolfrith leaves the monasteries. In the Lives of the Abbots, there is mention of a dormitory, kitchen and bakehouse as well as agricultural buildings and sheds (Appendix A3.1 in Cramp 2005).

Excavation History

Excavations initially ran at Wearmouth between 1959-1962, ahead of a housing clearance scheme. These sessions were comparatively small scale in terms of their physical scope and the length of time available. They were later accompanied by three small excavations inside the church in 1970 (Eric Parsons) 1972 (Rosemary Cramp) and 1986 (Tadgh O'Keefe). The excavations were undertaken in large part by volunteers, some professional archaeologists acting in an unpaid capacity, which is a testament to the fascination that Wearmouth has long held. Cramp (2005, pp15) notes that Wearmouth had problems with 19th century cellared houses and service trenches, and the levelling of a slope to the south in the post-Conquest period. This meant that there were no real intact occupation levels and that most of the 8th - 9th century material from the site came from the infilling of negative features from later periods. New features were discovered however, and the foundations of the buildings were intact.

Between 2009-12, the “One Monastery in Two Places” project was funded by English Heritage. This project placed the monasteries within their wider landscape and discussed their impact on contemporary society. Sam Turner, Sarah Semple and Alex Turner examined new geophysical and palaeoenvironmental surveys and geological analysis of the building's fabric (Semple, Turner and Turner, 2011; Turner, 2014).

Site Development

Cramp postulates that some of the burials on the west of the site are indicative of an earlier settlement, which may be culturally affiliated with the Anglo-Saxons or a native population (Cramp, 2005 pp111). The fact that the extent of the monastic settlement is unknown leaves the possibility that there was still some form of lay settlement very near to the site, making the fact that the monastic buildings bear so little resemblance to any indigenous settlement forms all the more interesting.

Some other early features include a central cobble path aligned slightly north-west which is cut by many of the later Anglo-Saxon features and a structure known as Building D, a stone-footed building utilising flat slabs with some form of annexe or porch. These may be premonastic, or part of the earlier phase of occupation on the site before the Gaulish stonemasons arrived (*ibid,* 91). It can be deduced that the next structure on the site must have been the mortar mixer known as Structure A, a mechanical aid that would have been key to the subsequent building of the church.

A long building, B, extended north and south across the area. Its fabric contained limestone blocks overlain by stone set in cream mortar. One termination would be within the porticus of the church, while the other would be with “Wall K,” which may be a wall marking the southern enclosure of the monastery or the north wall of another, unknown building complex (Cramp, 2005 92). Cramp suggests that the sex of burials in early phases show discrepancies between the east side of building B and the west side, possibly indicating that it had an important function in dividing ritual space. It would have certainly been a striking building as evidenced by its lavish decorations: painted plaster and window glass. Unfortunately while there were many fragments of window glass alongside Buildng B, there are no in situ concentrations of glass. Cramp concludes that it would be impossible to postulate the positions of the windows, or the relationship of the collections of sculptural balusters from the site to them. There is another building adjoining building B: a small structure made of a rectangular hole lined with limestone blocks to form a 1.65 – 1.35m cavity with an unknown superstructure. The interpretations of this building include medieval latrines, or some form of well or cistern (*ibid* p100-101).

The second phase of building on the site sees a new ordered layout, with new walls creating a defined boundary to the monastic complex. There is the addition of a porch to St Peter's church, and the chancel or eastern porticus. Cramp notes that it may be that little time passed between these two phases. Phase three sees walls added around Building B to create a new range of buildings that were likely two storey and which could have been accessed through Building B. There is a lack of artefact evidence to suggest what the function of the buildings were, although some can be interpreted as living quarters (*ibid* 113-114).

Jarrow

Historical Evidence

Jarrow is as similarly well recorded as Wearmouth, although Cramp notes that Bede and the author of the Anonymous Life are not consistent with the exact chronology. She suggests that the formal date of foundation was probably 682, when Ceolfrith and some people from Wearmouth were sent to construct the key buildings, those "most necessary for the monastic way of life" (HA, 11), and that the dedication occurred in 685, according to the dedication stone (Cramp 2005, pp33). Benedict made a fifth journey to Rome and brought back paintings for Jarrow which are described by Bede with some detail. There are also references to cells at the site in the historical accounts of the deaths of Benedict and Bede.

Excavation History

While Jarrow may have slightly less information in the historical record than its counterpart at Wearmouth, it was more extensively explored through archaeology by virtue of a larger funded and scaled excavation and the lack of post 17th century buildings to disturb or destroy the occupation levels. There were a series of short seasons between 1963, 1965-7, 1969-71, 1973-78, with watching briefs in 1988 and 1992 when floodlighting and signage were installed on the site. There were also four seasons of rescue excavation between 1973 and 1976 under the direction of Christopher Morris as a result of proposals by the Jarrow Corporation to landscape areas around the church and churchyard. His area was termed Jarrow Slake, and included an area of tidal river which produced some notable ceramic fragments (Cramp, 2005 110-113). Jarrow was also featured in the One Monastery in Two Places project, as discussed in the section for Wearmouth.

Site Development

The striking centre of the complex is the two stone-built churches, aligned on an axis and potentially joined into a single complex at a latter date. The foundations of the Western church were found during the 1973 excavations while the current, present day church was being refloored. It is thought to have had a narrow nave, only 5.6m wide and 19.8m long internally lined by a row of round headed arches, with porticus to the south. The Eastern Church aligns with the present day chancel of the church. Cramp (2005) interprets this building as a possible funerary chapel. It has a fabric of partially Roman material and a first floor doorway, suggesting the existence of an external, possibly wooden stair structure up to the second floor.

Two buildings, A and B, are interpreted as early, initial phase developments. (Cramp, 1994, 289). Both buildings also appear to have been destroyed by fire. Building A is interpreted as a refectory, with the various rooms within it representing areas for preparing, eating and storing food. There is some evidence of an ornately decorated interior, with coloured glass that was concentrated towards its north site, while the south side revealed a concentration of plain glass. The roof was stone, with lead flashing. Building B was subdivided into three rooms, one large and two very small. Rosemary Cramp (1976, 238) suggests that there may have been a partitioning at the eastern end of the building, inferred from grooves where a wooden screen may have fitted. The larger of the two smaller rooms had some signs of activity such as a stylus, a pin and a small whetstone, leaving Cramp (*ibid* 239) to suggest that this building is partially domestic, perhaps a cell accompanied by an oratory, which may have been used by a senior monk or the abbot.

Building D was to the South East, and does not continue the strict alignment of the other buildings. It had *opus signinum* flooring and painted plaster. Coins found at the location allowed for dating to the first half of the 9th century. Glass waste, window glass and bronze tools suggest that this building may have been a kind of workshop from the ninth century, although it may have been used as a guest house in earlier phases (Cramp, 1976, 239-41). The space between the two sets of buildings contained a cemetery, meaning that the handling of the dead was a regular part of site activity. There may be some indication of a ditch enclosure revealed by excavations by Speak (1991, 62), however there was no dating evidence to suggest it existed before the 13th century.

Hartlepool

Historical Texts

In Bede's Ecclesiastical History, a monastic site is mentioned known as Heruteu that was founded in 657 by Abbess Hieu and later given to Abbess Hilda by Bishop Aiden of Lindisfarne in 650 (HA 2 24). Traditionally the geographical link with modern day Hartlepool was a product of reasonable conjecture, however radiocarbon dates (Marshall, 2007) from the archaeological site align very well with this historical account and add considerable weight to the suggestion that Hartlepool and Heruteu are one and the same.

Excavation History

Despite the fact that it is situated under the centre of modern day Hartlepool, the site has had large areas excavated allowing for a surprisingly comprehensive set of archaeological data for such an urban context. This is in large part due to the dedication of local people and archaeologists over many years, and various favourable factors on preservation, such as the limited building of deep 19th century cellars in key areas and the fact that blown sand sealed earlier occupation layers. The antiquarian importance of Hartlepool was recognized with the discovery of the Anglo-Saxon name stones at Cross Close in 1833. It was nearly one hundred years later before deliberate and well-recorded excavation was undertaken in 1932, spurred by the discovery of human remains during construction (Okasha, 1999). Thirty years later the main bulk of excavation began when the Hartlepool Archaeological and History Society was formed, inspired by the excavations directed by Rosemary Cramp for Durham University on the Romano-British settlement at Catcote. These provided information about the various cemeteries associated with the site as well as ancillary buildings. Daniels also notes the significance in the late 1970s and 1980s of a "fortuitous juxtaposition" of resources and opportunities as regeneration schemes allowed access to new areas (Daniels, 2001 p5). Unfortunately due to coastal erosion, it is likely that the material available is limited on the headland, which Daniels estimates has caused at least 100m of land to be lost to the South and the East.

Site Development

Creating an overarching chronology of the site is difficult as there is no stratigraphic linkage between the buildings and cemeteries. The earliest activity is termed 1a, and occurs within a boundary with individual timber posts. Spread around the headland are around five buildings characterized as irregular, but with a clear north-west to south-east orientation. A slightly later period, 1b, sees the boundary become a palisade trench. The structures of this period are increasingly regular which suggests a slight expansion and reorganization of activity at the site. It is likely that the cemeteries were also created around this time.

At some point subsequent to this, there is an expansion or reorganization of the monastic community. It is likely that after the foundation of Whitby in 657, the site was being actively managed and developed, possibly as one half of a "monastery in two places" analogous to Wearmouth and Jarrow. This is what Daniels terms the second phase. It is possible archaeologically that some of the previously mentioned buildings continued in use during this period, joined by a new concentration on post-in-trench buildings, that begin to extend beyond the lie of the palisade trench which suggests that it was filled in. The settlement at this point comprised of a crowd of buildings situated fairly close to each other. The larger community might also account extension of the Church Walk cemetery.

Phase 3 saw great changes to the feeling and character for the built environment with the arrival of nine stone-footed structures spread across the sites of Lumley Street, Church Close and Church Walk. Five of these are renovations to existing phase 2 buildings. There is also a reduction of buildings during this phase and a creation of pebble paths between them. This would have created a less dense but more durable set of buildings. Interestingly the reduction of buildings is accompanied by a rise in the amount of debris and artefacts, but this is likely a change in how the structures were floored rather than an indication of a rise in activity, as the new pebble floors might have been more difficult to clean than their timber predecessors (Daniels, 2007).

All three cemeteries are in use during this period, potentially dated to the mid 8th century, and a Christian tradition continues in the hinterland into the 9th century, despite the buildings going into decline. This might correspond to the rise of Whitby as a location of increased political and religious importance. Activity at the site seems to go into a slow decline around AD 900, with the last dates of occupation extending to the 11th century.

The buildings at Hartlepool can be used to comment extensively on religious change, however there is a lack of large church or hall type buildings. This suggests that they represent a possible industrial and residential area of a monastery, the area that is lacking from our plans of Wearmouth and Jarrow. This is corroborated by the presence of high quality crafts such as crucibles and moulds with residues of high quality silver and copper, casting moulds for a small free-armed cross, a ribbon animal, an apocalyptic calf of St Luke (Daniels 1988).

Whitby

Historical Texts

The site at Whitby is perhaps better known through historical evidence than archaeological evidence, under the name Streaneshalch. It features in both the Ecclesiastical History of the English People, and a Life of Pope Gregory the Great completed by an anonymous monk from Whitby. From these sources it is known that the monastery at Whitby was founded by the second abbess of Hartlepool, Hild. She was given the ten-hide estate by the King of Northumbria, Oswiu, in AD 657. Daniels argues that her focus shifted to there rather than Hartlepool, which is likely why the settling of the Easter controversy occurred there in 664 rather than at any other major sites, and later important figures and saints were affiliated with the monastery (Daniels, 2007).

Excavation History

The history of excavation at Whitby is a patchy one, beginning with excavations between 1920 and 1925 under the direction of Sir Charles Peers, the Principal Inspector of Ancient Monuments. These took place in a large area in the abbey precinct and focused on the monastic core. The documentation of these excavations have led to various misunderstandings and misconceptions as a result of most of the work being carried out by surveyors with little knowledge of archaeological procedure, although they were published in Peers and Radford (1943). Peer's excavations covered 0.5ha to the north of the medieval church (Johnson, 1993) however it is uncertain how far they extended to the south. Rahtz suggests that the method of excavation was to remove the stratification leaving the stone foundations, meaning that finds can be located with accuracy in the horizontal plane, but on the vertical it is nearly impossible. Subsequent reproductions of the diagrams of these excavations led to the assumption that the monastery consisted of individual separate cells, which were in fact parts of the larger complex. These issues have later been redressed, by both Philip Rahtz undertaking limited excavations in 1958 redrawing the plan of the 1920s excavations (Rahtz, 1962), and Rosemary Cramp reconsidering the finds from the North of the Abbey (Cramp, 1993).

In the 1989 excavations, two small trenches were excavated to the west of a terrace in front of the west end of the medieval abbey as part of the construction of a new visitor shop. Between 1993 and 2008 English Heritage began a campaign of rescue archaeology to save remains before they were lost to cliff erosion. In 1992 a watching brief for the laying of cables resulting in a discovery of medieval painted glass (Medieval Archaeology, 1992 pp274), and reports from 1996 reported sceatta coinage in three excavated graves and signs of an internal dividing wall and ditch (Medieval Archaeology, 1996).

Although currently unpublished, the Whitby Headland cemetery excavations from 2014 have also presented features of interest to this study, in particular the discovery of a possible burial chapel and the boundary of the monastic site. The chapel was discovered by the presence of a rectangular area in the headland cemetery surrounded by closely packed burials. Excavations in April 2014 revealed that it is a small stone-built building at only 4.8m square, with large foundation stones. The foundations of the north and south walls survive in part, however the east and west walls are distinguishable only by trenches. Radiocarbon dating from a contemporary primary cremation burial in the cemetery suggest that it dates from AD 620-680. The ditch was also excavated during this period: a large feature at almost 3 meters wide and 1.8 meters deep with what Wilmott describes as a "'V' shaped in profile." The presence of eight clay loom weights, animal bones and metalworking debris in the ditch suggest that exact dating for the ditch may be available. The excessive size of the boundary and the fact that it continued eastward away from the cemetery has prompted the conclusion that it is the boundary of St Hild's monastery, suggesting the large extent of headland divided off for monastic use (Wilmott 2015).

Site Development

The site shows some evidence of phasing such as graves showing various alignments and and some burials cutting through buildings. Cramp (1976, 228) suggests that some of the buildings that post-date the cemetery could be associated with a replanning of the site to align buildings along paths, potentially breaking out side of the old enclosure boundary. However a full phasing of the site has not been attempted.

Buildings to the south of the Abbey with stone foundations were found at Whitby, with potential remains of wattle and daub/clay construction that were initially misinterpreted as screens (Peers and Radford 1943, 27-28). To the north there were at least seven distinct buildings, and possibly many more. Buildings a, b, c and d had stone hearths, with a drain running to the outside. It is possible that these are self contained domestic units that could be used as guest houses. They are certainly similar in size and construction to building B from Jarrow, which is often described in those terms. E is a large rectangular building which may also be a guest house or store house. Building F had styli, needles, pins and a quern stone showing it was a place of productive activity (Cramp, 1976, 227). At the Western end of the site there is an L shaped building that might be a sign of industrial activity as it has a large hearth that is divided into two sections. As with many of the sites, the central religious focus of the site is difficult to ascertain. There are burials and grave slabs between the west wall of the north north transept and the west wall of the nave within the abbey, which Cramp (1976, 228) suggests indicate that part of the church was located there.

Hoddom

Historical Texts

There are no solid historical sources referring to this site, although a potential eighth century reference has been proposed by Parker (2012). Instead, a monastic connection has to be inferred primarily through the large number of monumental sculptures including that Lowe (1991, 11) suggests are indicative of a date around the latter part of the 7th century into of the first half of the 8th.

Excavation History

The first major period of excavation at Hoddom took place in 1991 amid fears of the site being destroyed due to quarrying, although there were small scale excavations in 1915, and again in 1952. The 1915 excavations were undertaken by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). This focused around the rectangular nave and chancel of the later, 12th or 13th century church, with its large amounts of Roman masonry including an inscription. The 1953 report by Raleigh Radford was the first to suggest that the current chancel had been butted against an earlier building. Between 1953 and 1991 various stray finds were found or attributed to Hoddom such as a crosier fragment and some grave slabs. In 1981, a resistivity survey was performed acting on cropmarks on aerial photographs. It suggested a possible ditch or enclosure around a variety of structures which could indicate a self-sufficient monastic community (Lowe and Brooke, 2006 20-23).

Site Development

The structures during the seventh and eighth centuries are examples of industrial or agricultural buildings rather than monastic ones, meaning that if Hoddom's legitimacy as a monastic site is accepted, the site can be seen to provide the range of outer buildings that Wearmouth and Jarrow are lacking, even though there is little knowledge of its ritual centre.

In order to create a picture of development at the site, Lowe infers how various different contexts in separate areas of the site correspond to each other, adding an element of inference on some occasions. Keeping that in mind, the most likely phasing suggested is as follows: phase one comprised of the earliest features at the site, an enclosure earthwork with a ditch radiocarbon dated to around 600-680. Lowe (1991 pp 14) suggests that the ditch was around 2.6-3m wide and 1m deep, and was surrounded by a palisade fence adjacent to the ditch. Around this time a large post-built mudwall structure was built parallel to the earthwork that comprised of wattle and daub, before 565-705. A trapezoid post built mudwall structure with wattle and daub panels and a corn-drying kiln to the north may be contemporary with this, and has the unusual feature of being partially buried within the bank as a kind of insulation to the heat at one end of the buildings, giving protection to other structures in the event of a kiln fire.

Phases two and three are placed between 650 and 750, and are characterised by a change of orientation, with the new buildings being aligned NE-SW, cutting across the footprint of the older buildings. The two buildings linked to this period had corn-drying kilns inside, a wide entrance in their SE walls, and a narrower, apparently porch-covered entrance. Lowe suggests that between phase 1 and 3, there would probably only be one or two buildings in use at any given time.

This changes with the transition into phase 4, dated to between 750- 900. Overall phase 4 is defined by an expansion of the peripheral zone with new subsidiary buildings. There are various sunken stone-built structure, one of them (S11.1) radiocarbon dated to between 685-900. At this point, stone has been chosen as a medium of construction and for making the base of a new type of kiln. The superstructure of the buildings probably remained the same remained the same, comprising of timber and posts with a mudwall construction. This suggests that the difference in appearance would have been subtle, but notable. Holden (1991 102 - 113) suggests that there may have been problems obtaining stone, as S1 uses reused dressed Roman masonry, S11.1 is roughly shaped sandstone blocks, sourced from different locations.

There are some doubts that these stone-footed buildings preceded the other structures. Lowe discusses the possibility that some of them are earlier due to their alignment, and there is also the potential for some of the buildings to be built using old timbers that would make them appear earlier in construction than they are if radiocarbon dating is considered in isolation. Phase five, between 800 and 900, sees S11 refurbished. There is a large, free-standing stone-built corn drying kiln, radiocarbon dating suggests between 685-940-1170. At this point post-built structures are further replaced by stone-wall bases (for example in building S7.1) with timber superstructures. The site continues onwards until around 1250, where the crop drying transitioned into Type 4 pear-shaped kilns. Lowe suggests there was a change in the economy during this time.

Whithorn

Whithorn's contribution to the picture of what makes a Northumbrian monastery is it's continuity and changing shape, as well as the wide scope of the archaeological data which includes both the religious core of the site, and the outer agricultural and residential areas. Unlike Hartlepool, Wearmouth or Jarrow it seems to have been a Christian centre before becoming a Northumbrian establishment, and indeed continued to be a site of religious importance afterwards.

Historical Texts

There are two references to Whithorn by Bede in HE. This first involves a description of Nynia and his church, which is "famous" and apparently still in existence in Bede's time (HE III iv,) and the second occurs during his summary of Britain, suggesting that fairly recently in Bede's present, Pechthelm had been appointed as bishop of a new Northumbrian diocese that has increased in numbers, (HE V xxIII) interpreted by Hill (1997 1) to be Whithorn. If this is the case, it is indicative of the fact that by the 730s, a scholar from heartland of

Northumbria considered Whithorn to be culturally Northumbrian. There are also two texts that are likely to have originated from Whithorn: the Miracles of Biship Nynia from the late eighth century, and an acrostic verse called the Humnus Sancti Nynie Episcopi that was sent to the scholar Alcuin at Aachen. Although these do not provide any information about the form or structure of the monastic establishment, they do show it's scholastic output, importance for its connection to St Nynia, and tangible connections to other monastic centres.

Excavation History

Whithorn has been revisited by archaeology at every step of the discipline's development, beginning with the antiquarian recording of the site by architect William Galloway that uncovered the Latinus stone, they key written source evidencing the early Christian community at Whithorn. This was followed by the excavations Ralegh Radford in 1949-51 and 1953, which implemented the ambitious and tightly-focused new excavation practices of the day to identify a plastered building ultimately determined by Radsford to be a oratory, and evidence of the early ecclesiastical center where Nynian's remains were held, as mentioned by Bede in (HE III iv) Later excavations from 1957 - 1969 by P R Ritchie remained unpublished and mostly pertained to the 13th 14th century burials of bishops. More knowledge was gained by C J Tabraham between 1972 and 1975 concentrating on the ruins f the priory church. Peter Hill between 1984 and 1991, the Whithorn Trust excavations, are published in full. The time periods covered are ambitious, ranging from the earliest Christian community through to 1600 (Hill, 1997 4-5).

Site Development

The long continuity at the site begins with a Roman roadway leading to a small stone building, with a small number of associated finds. (*ibid* 26-7) The Latinus stone found by

William Galloway was discovered to the North of this site, and may suggest the existence of Christian community there in the mid-5th century, however there are varying interpretations. (*ibid*, 9) By what Hill terms “phase 1B” in the late 5th and early 6th centuries, there is a distinct development of a potential monastic community. An enclosure ditch at the eastern end of the hill is interpreted by Hill to represent an Inner Precinct, the focus of the site. To the south of this there is an area of intensive settlement including shaping of the land through terraces and a path, and fairly insubstantial 8mx5m stake-walled bow-sided buildings.

Although more modest than the constructions of later periods at the site, the community in this time had access to Mediterranean pottery, and was engaging in iron working (*ibid* 28). Phase 1C (550 - 730) is of particular note to this investigation, as it appears to represent the monastic establishment before, or during, a period of connection with wider Northumbrian networks. The inner precinct is extended westwards and other boundary indicating a deiniated “outer zone.” While the inner zone has a juxtaposition of potentially “sacred” elements such as a shrine with industrial debris, the outer zone has a small sub-rectangular buildings and domestic waste (*ibid* 31).

The period known as Period 2, starting 730 is a period of building lasting 30-40 years that set the stage until the ninth century. A new inner precinct was created with a rectangular Inner Zone, divided into three parts with a building interpreted as a church in the central area and Two timber oratories and a burial enclosure with stone foundations to the South West. To the South East, a stone wall and path indicated the “Outer Zone.” This was lined by Hall-type timber buildings, which Hill (*ibid* 41) interprets as guest quarters. At some point the two oratories were replaced by a single timber church 17.5 by 4.5m wide, with one of the oratories becoming a chancel to the west, the other forming a nave to the east, and a door being created in the junction between the two. A clay walled burial chapel was also created to the east. These two buildings will be of special interest representing an example of specific ritual spaces that are absent from many other potential monastic settlements.

The joined oratories that formed a single church was likely not the principal church, that is hypothesized as being located elsewhere (*ibid* 43) however it does represent a surprising building with an unusual architectural history which is pertinent to this discourse. The coincidence with a desire for a larger church space with the "Northumbrian" period is notable, however rather than the stone building which may be expected for a community of prospective Northumbrians, the merging of the two timber churches is a decidedly indigenous form. The two original buildings were not on a precise alignment. A 3D recreation of the building in its "Phase 3" from was created by modelling posts from the known post holes, which revealed the asymmetrical nature of the building.

The ritual focus of the building is also unusual, relating to an earlier "shrine" - the positioning of a pillar stone of some description is indicated by two sockets. The form it took is unknown and Whithorn has an opulence of sculptural works which may provide a tantalising hypothetical examples. The presence of the famous Latinus stone may prompt images of a Romano-British relic. What is known is that the stone formed a principal ritual focus for the church's history and would have probably been visible through the nave, beyond the altar. One known incident in its tenure as a ritual focus was It was removed at some point and replaced into the same location, an event which Hill describes as the "relic hunt" - we can only presume motivations, but perhaps a search for the treasures in the past from the ground is an appealing one to the archaeologist. The discovery of a 4th century Roman coin and a sherd of Central Gaulish Samian (*ibid* 162-4) suggests an interest in the curation of Roman objects, perhaps because they are contemporary with the saint being venerated. The altar, on the other hand, was moved Parsons 1986, 105-7) was moved eastwards, and was dismantled before the fire of 845.

The burial chapel built to the east of the church will also be of specific interest. It is associated with the beginning of phase 2 in 845AD, and contained 4-5 coffin graves. The collapse of the coffin lids during the fire at the building provided evidence of the construction of the building, indicating that it was likely to have consisted of clay walls on stone foundations. The use of clay is notable as it is not usually associated with high-status buildings and is not a feature of the standard Whithorn vernacular, however the builders appear to have known what they were doing, both in terms of building with a material that does not appear to have any antecedants on the site indicating they gained their specialist knowledge from elsewhere, and in terms of choosing a specific material for a specific function. In this case, it resulted in the creation of a building that was fairly long lived with its stone base to prevent riding damp. The roof is assumed to be of timber construction due to a lack of straw or reeds from the charred material within the building and the existence of 145 nails. This would have deflected moisture in heavy rain and contributed to the insulation of the clay building, making the building cool in the Summer and warm in the winter with naturally controlled humidity. This environment would have been capable of storing human remains in the short term. More than the practicalities of mortuary practice was considered, however, and the building was lavishly decorated with coloured windows, evidenced by 114 fragments of window glass that were recovered from various deposits in and around the chapel. Most seem to have originated in two windows at the south end of the east wall and the east end of the south wall. We can assume that this means that the inside of the building was frequented in order for the windows to be appreciated.

Problems of Interpretation

This summery of the six sites and their buildings serves to illustrate the ways that monasteries have been considered and reconsidered over time and some of the issues of interpretation that have arisen. Wearmouth and Jarrow are notable for their stone churches, wealth of archaeological information and their importance in the historical record, however this record has also generated fixed ideas about the thought processes behind the sites. Without Bede's assertion that the churches were built “in the Roman style,” for example, would the connection to the Roman church be as immediate? The similarities between the two sites and their label as twin foundations can also lead to a temptation to conflate the two. Cramp (2005) avoids using information from one site to fill in gaps about the other for this reason.

Hartlepool and Whitby are also affected by their historical legacy and potential twinned nature. Both are linked to female figures, which has affected interpretation of craft and industry (Rahtz, 1962). Whitby in particular has had its legacy forged by one single event: the synod of Whitby in 664. Its notoriety as the "birth place of Easter" (Wilmott, 2015) prompted early excavations that were focused on uncovering the shape of buildings and therefore revealing an important place, rather than considering the holistic nature of the site and the importance of retaining knowledge of its temporal development. This famous association at Whitby is even present at the latest excavations in 2014. On finding the burial chapel, Wilmott naturally immediately views it in light of this known historical event: it was especially insightful because it was standing during the synod of Whitby.

As sites in modern Scotland, Whithorn and Hoddom have both been viewed under a different lens to their English counterparts. Whithorn contrasts with many of the other sites as there is little available in the historical record to suggest its place in wider political and ecclesiastical happenings. This provides a chance for a fresh look at a Northern monastic site, however it is also of a very different cultural and geographical character to the East coast monasteries, with a very different genesis. It has evidence of both oratories and chapels and industrial buildings, and has a longer apparent continuity of use than the other sites in this study. Hoddom conversely is the only site in this study that may not even be a monastic site, although Lowe and Brooke (2006) suggest it is highly likely that it is. The image given through archaeology is that of an active industrial hub.

Many of the early interpretations of the site seen through a ritual lens have been reconsidered, including the presence of a circular baptistery which may have a more obvious industrial explanation.   This examination of historical and archaeological evidence has demonstrated the uniqueness of all six sites, both in terms of what has been discovered through historical and archaeological evidence, and in terms of how that evidence has been conceptualised over time within the larger narrative of northern monasticism.

3. Liturgy and Activities

Eating, sleeping, tending for the sick, growing crops: the ubiquitousness of everyday life in the past can turn into the background white noise of strong narratives of great individuals, historical events and biblical exegesis which dominate our written accounts for this period. Ascertaining the rhythm of ordinary activities at sites is key, however, to move beyond an examination of empty architecture within blank landscapes and towards statements about group identity and experience. In the last chapter, the shape, layout and function of the built environment of northern monasteries from the 7th -9th centuries was the focus. This chapter repopulates this built environment by engaging with issues of who was active at these sites and what activities they took part in. An initial consideration is the demography of the monastic community or communities, in relation to the six key sites under discussion. This then leads to a reconstruction of daily life, both in terms of the religious calendar and year and other activities evidenced by archaeology at the sites.

Who was the monastic community?

In the Life of Abbot Ceolfrith, a substantial community "...of soliders of Christ of more than six hundred" is listed for Wearmouth and Jarrow when Abbot Ceolfrith left in AD 716. This usefulness of this quantification in a primary source is constrained by the fact that who the writer defined as the *cohortem militum Christi*, the soldiers of Christ, is difficult to ascertain. Was this group the people who lived and worked in the buildings discussed in Chapter 1, or did it include those who had travelled from further afield? John Blair notes that most of the population during this time were probably within walking distance of a minster (Blair 2005,145). Through Rogation days, processions and the calendar of the clergy, the key sites in this study may have been a core part of rural society in their respective areas.

This suggests that there is a need to identify various groups of participants in monastic work and life, and the various relationships with the sites that they may have had. This is also particularly important groundwork for wider discussions of sensory experience where a view of a singular, homogeneous monastic community would lack nuance, but accounting for all possible variations of experience are impossible. Demographic groups and the intersectionaly between them facilitates discussion of multiplicity of experience while keeping the focus on communities and groups rather than individuals. This discussion of demography consists of two sections: an overview of what the parameters for classifications of gender, age and class are and what they mean in the wider Anglo-Saxon context, followed by an application of these categories to the archaeological evidence from the six key sites in this study.

The Parameters of Demographic Groups

Male or female?

The interplay between monasteries and medieval conceptions of gender is a complex topic. Monasticism is associated with gender variation in many societies of the past, and into the present day (Raverty 2007). The seventh and eighth centuries saw the rise and decline of the Anglo-Saxon double monastery, housing both monks and nuns underneath the charge of an abbess, and consequently represents a time of fluctuation in the interactions between men and women in monastic settings. The egalitarian values of Christianity made a degree of equal participation a theological ideal. In Bede's history there is a focus on the historicity of these concepts, for example in the recounting Gregory's insistence that pregnancy should not prevent baptism: “Why should not a woman with child be baptized, since the fruitfulness of the flesh is no difference in the eyes of Almighty God? (I.xxvii)” or in his insistence that menstruation should not be a barrier to women entering church buildings (I.xxvii).

An ideal fundamentally equal ascribed status, however, does not indicate similarity in rights or obligations. Although there is no distinct gendering of liturgical practice recorded, there is a *de facto* distinction caused by the roles that men and women could access in both life and death (Muschiol, 2004). Lifshitz's study of Merovingian liturgical texts reveals distinct expectations for men and women in the gendering of language, where prayer to apostles, martyrs and confessors and rites for the ordinations of priests are generally masculine, while prayers to saints in the virgo category and words for the consecration of virgins and widows are feminine, and the ordination of abbots and abbesses has both masculine and feminine forms. Increased emphasis on Mary as a figure of devotion during this period (Clayton, 2003), coupled with this difficulty for men to be placed in a virginal category, may have prompted a focus on masculine virginity, as found in Aldhelm's *De virginitate.* Although separate from secular masculinity with its emphasis on procreation, Lifshitz (2008) suggests that monastic masculinity was not seen as effeminate, but an alternate and particularly difficult expression of masculinity that required significant strength and willpower.

Women in monastic settings are also likely to have performed a different brand of femininity to their secular counterparts. The lives of specific named women are difficult to access, with fewer individual hagiographies of females saints. Scholars such as Hollis, (1992 179 - 208) and Lees and Overing (2009, 15-17) note an element of systematic understatement of the role of women the History of the English People, however women are utilised occasionally in Bede's narrative: Bertha represents an introduction to Christianity for the Franks, Ethelberga is a worker of miracles and head of a monastery, and Hilda and Eelffaed are also monastic leaders taught by learned men. A commonality between these women is that they are from elite backgrounds, with links to royalty. A monastic life appears to have provided a parallel track for powerful women, not reliant on roles as wives or mothers, but facilitated by their roles as sisters and daughters to powerful men in the secular elite (Yorke 190 -191).

Differences between men and women were likely to have transcended liturgy to other activities on monastic sites. In the wider secular environment, there is evidence for some activities being weighted towards a particular gender. Woodworking tools, for example, are often associated with biological male burials, and male identified skeletal remains have increased instances of pathology consistent with heavy agricultural tasks (Lucy, 2012). Women often appear to have associations with the production of textiles; loom weights, spindle whorls, and possibly other clay objects (Walton Rogers, 2007 44). This varying configuration of solitary and communal activities, indoors and outdoors, presents a situation where men and women would experience settlements and buildings differently, as in Roger's examination of the concentration of loom weights in particular buildings at West Stow (Walton Rogers, 2007 p44). In a single sex community or double foundation monastery, a man may have to undertake tasks often associated with women and vice versa. This has been considered in the examination of monastic sites, for example Cramp (1976, 228) suggests that building F at Whitby could have been a domestic room for women rather than an area for metalworking due to the presence of dress fastenings and loom weights. Rahtz (1976) suggests that the artefacts indicative of female members of the monastic community should not be an instant reason to dismiss the possibility that metalworking did take place in the building, however without any other finds indicative of metalworking it is difficult to make conclusions.

Children or Elders?

There is a phenomenon of missing children in many Anglo Saxon cemeteries. This is partially a methodological one caused by the inconsistent use of terms such as "neonate" "child" "juvenile" in various excavation reports (Crawford, 1999 24-27), the lack of a focus on the narratives of children before the 1990s, and taphonomic issues of increased degradation especially in sandy or gravel soils (Buckberry, 2000). The consistent poverty of child remains appears to go beyond taphonomy, however. Crawford (1993) examined a sample of 1271 skeletons from across early cemetery sites, noting that less than 6% were under three years of age and only 11% were under five years of age. This is an unusual age distribution when the likelihood of a high infant mortality is considered, and when placed in comparison to the preservation on Romano-British sites (Molleson, 1991).

This indicates a cultural element to the lack of children's remains, possibly due to the use of shallower graves in different burial rites and locations. What did it mean, then, to be a classified as a child in early Anglo Saxon society? It is important not to see a lack of grave goods or a separate set of burial practices as indicative of a lesser status for children. Crawford (1993) notes that deceased children are likely to be succeeded by siblings who would receive the wealth which may have otherwise been used for grave goods. Where children are buried with elaborate objects, such as a child buried with a large spear at Edix Hill, it may indicate the position of that child as the last of their generation (Crawford 1991). The child as the symbolism of hope for the future is realised through the poem *The Fortunes of Men* in the Exeter book, (Delanto and Matto 2012 283) which describes the care and investment parents place in children and the hardship of uncertainty in their future.

In the monastic sphere with less emphasis on the succession of generational power, children may have had a very different role (Foot, 2006). Some children, like Bede, were born with in proximity of a monastery and would have been well placed to take part in processions and liturgical events, as well as industrial or agricultural activities. At age seven, Bede was consecrated into monastic life (HE 24) indicating a possible age at which children, or perhaps specifically boys, would enter a phase of life where they could be part of the central nucleus of monastic sites, living and working in the central community.

Even younger children also feature in Bede’s writings. One boy called Esica, featured in a female dominated establishment, is as young as three and “by reason of his infant age, was bred up among the virgins dedicated to god” (HE 4 8). Bede’s specification that the women caring for the boy are virgins indicates that his mother is not among them, although the story told by Bede of the boy crying out for one of the sisters before both die hints at a close bond between the two. As institutions that ran contrary to secular gender roles and family units, it may be that children were being raised in close groups with people who they were not necessarily related to. The fact that it was a female community that had charge of a younger child might also indicate that Nuns specifically had a role in caring for younger infants.

Peasants or Princes?

A final factor of consideration is the social class of the monastic community: how much wealth and power those associated with the monastery were likely to have. Although monasteries had ascetic practices that required a lack of personal possessions and wealth, the land and materials required for their foundation came from secular rulers, (Blair, 84 - 91) and these rulers would have been abundantly aware of the advantages of utilising ecclesiastical power through kin relationships. The intersectionality of class and gender has already been discussed in relation to powerful ecclesiastic women's familial relationships, and this applies to many notable named men too for example Benedict Biscop as a Nothumbrian noble and thegn of Oswiu, and Cuthbert as a potential member of a noble family from the Scottish Borders and Ceolfrith as part of a potentially elite family also including his brother Cynefrid and cousin Tunbert of Hexham (Yorke, 1997).

The wider population around monastic establishments are also likely to have had connections with the monastery: people who did not live a cloistered life or have familial ties to monasteries, but who may have taken part in the cycle of processions at the site. Gittos (2013, p734) discusses how written sources show that there was concern for how often the wider lay community who lived around the monastery had access to communion and how provision could be made for them. Bede describes in his letter to Egbert how many people only took communion at Christmas, Epiphany and Easter. It was suggested that daily communion would be ideal, however weekly would be more practical. This suggests the site was frequently accessed by the wider population.

Discussion of Communities at Key Sites

This discussion has highlighted the parameters of some of the most important demographic groups which intersect at monastic sites. It is now possible to examine the mortuary evidence of the six key sites to suggest how these groups can be seen through archaeological evidence.

Hartlepool

Out of the six key sites, Hartlepool lends itself best to an examination of distinct social groups as discussed in Daniels (1998, 2007). The presence of three known cemeteries (Church Walk, Cross Close and Back Gladstone) containing different populations allows for an examination of these different groups in a way that is not possible at the other sites. Both Gladstone and Church Walk share the same orientation as the known monastic buildings and are characterized by their stone-edged graves. Church Close, however, has a very different character, with north-South burials rather than East-West and the presence of sculpture in the form of name stones and pillow stones. Although Church Close and Church walk are physically close to one another, they represent a very different social group: there are a larger percentage of women in the Church Close cemetery, while Church Walk seems to have a larger proportion of men. This shows three potential groups:

<u>Gladstone street:</u> a general population with an even spread of men and women buried away from the core monastic buildings. This is potentially the wider community whose lives were influenced by the presence of the monastic foundation.

<u>Church Walk:</u> a male dominated group with high proportion of individuals in the 18-35 range. This is potentially an elite group, possibly monastic, not buried at the core of the site but disassociating themselves rest of the secular population in death. This cemetery also contains a cluster of infant burials.

Church Close: a group containing women indicated by the name-stones, buried near to the spiritual centre of the monastic site. This possibly represents women with prestigious religious positions.

At Hartlepool, children represent 37.5% of the total analysed group across the three cemeteries. Partial excavations mean that making suggestions how these numbers translate across the whole population is difficult, but it is a sign that children were being buried in association with the monastery, whether they were part of the lay population or children growing up as part of a monastic community. The cluster of younger individuals in Church Walk fits well with a wider trend for clusters of infants to be buried next to churches, particularly in later periods (Buckberry, 2000). This has been used to suggest that this is a possible location of a chapel (Daniels, 1992). These infants, either by virtue of not being baptised, not being weaned, achieving a certain age or some other factor, were a distinct demographic category.

Whitby

Unfortunately the excavations of burials at Whitby have not been published in sufficient detail to be analyzed to the same extent as those for Hartlepool, although excavations in 2014 indicate that this may be a valuable site for consideration in the future. Anglian cross fragments (Johnson, 1993) have confirmed the presence and possible extent of a monastic cemetery near to the later abbey building, perhaps comparable to cemeteries like Church Close. The link at Whitby with female figures such as Hild suggests that it, like Hartlepool, may have provided special provision for important female members of the community.

There is also a major Anglian cemetery on the headland to the South, separated from timber workshop buildings by a ditch that may represent the boundary of the monastery. A comparison with Hartlepool suggests that this cemetery may represent a group similar to the one at Gladstone Street, a wider population buried away from the main buildings of the monastery with a mixed demography. It contains a small burial chapel: evidence of ancillary religious buildings outside of the core monastic site, which has burials positioned closely alongside it (Wilmott 2015). If this is a similar practice to the burials alongside core monastic buildings at Wearmouth and Jarrow, this may represent the burials of important laypeople.

<u>Jarrow</u>

At Jarrow the burial evidence pertains to people who were buried in very close proximity to the main church site. Thirty-five of the 55 sexed adults were likely to be male, and 20 female. Twelve infants, twenty-two children and five adolescents were found. Although this means that more than half of the burials are male, it is not significantly outside of what might be expected for the general population. This indicates that a significant number of lay people from the surrounding community, including women, were incorporated into the community in death. There is no particular evidence of zoning by gender at the pre-Norman burial ground analogous to that at Hartlepool, however this may simply be because there is unclear phasing at the site and so any short lived zoning would be obscured. It is notable that these graves were positioned between the church and other central buildings, at the ritual centre rather than in a separate burial ground. This means that a broad range of people were being buried in areas that would have been frequented daily by those living and working on the site. Some of the burials were adjacent to the buildings, with five alongside building B and two in a similar position relative to building A. Of these, two are children and the rest are adults. This suggests a desire to place burials as close as possible to the monastic buildings, and that those who were buried in these positions were particularly prestigious or notable. There are a few occurrences of pairs of burials close enough to suggest they were intentionally linked, for example an adult female with adjacent infant and an adult male with adjacent child. It is possible that plots were reused over time by members of the same family or kin group (Cramp 2005 p184 – 185).

Wearmouth

The graves at Wearmouth are also positioned between the walls of the monastery. The percentages of male and female burials is comparable to Jarrow, with 56 males and 32 females. Here, more obvious phasing shows that the majority of female burials were buried west of building B during the building's use. This suggests that the monastic community may have been buried to the east, and the wider community to the west. An exception to this is a row near to the church that contains women. The discovery of gold thread at one of these burials indicates that this represents an elite group entitled to a more prestigious position alongside the core monastic community, regardless of gender.

There were 107 adults and 53 sub-adults, 11 adolescents, 25 children and 7 infants at the site, which shows the presence of various demographic groups even though there is little spatial segregation between them: if any existed it may have been short term and was obscured by the cemetery's continued use. The large number of sub-aults may represent boys admitted to the monastery. The group of burials with a male, female, infant and children may be a family group, similar to those at Jarrow. There is also evidence of elderly individuals: both Wearmouth and Jarrow appear to have good survival into old age, consistent with other sites such as Blackgate, Caister, and Nazeingbury (Daniels, 2007).

Whithorn

At Whithorn the graveyard has problems of preservation, with only 59 of a total of 118 graves producing skeletal material that was in reasonable condition. Of those, fourteen were classified male or ?male, seven were female or ?female. While this is a small sample size, it does indicate that Whithorn's graveyard was probably male-dominated, analogous with Church Walk in Hartlepool. If there is a cemetery for the wider population or the elite, it has not been found. At Whithorn, approximately three quarters of skeletal remains were adult, and one quarter immature. In support of the idea that this was a population of children who had entered the core monastic community, none were younger than about seven (Hill, 1997; Daniels 2007 pp552).

Demography and Social Actors

All of these sites have very different demographic characters, although the groups that are apparent from skeletal information is obviously very dependant on the available archaeology. At Hartlepool and Whitby, we see sites that have separate monastic and lay cemeteries, where the general population was buried some distance away from the monastery. Hartlepool may have evidence of a further tier of differentiation, with many younger men buried in Church Walk. At Wearmouth and Jarrow, there are no known separate lay cemeteries, although their possible existence cannot be dismissed and there is evidence for a separate area for lay burials at Wearmouth. In the available burials, social differentiation is shown by being buried in close proximity to the buildings. While it might be assumed that Whitby and Hartlepool would have greater numbers of female burials due to the likely presence of women within their monastic communities, in fact both Wearmouth and Jarrow have burial ranges within the normal population (Figure 4).

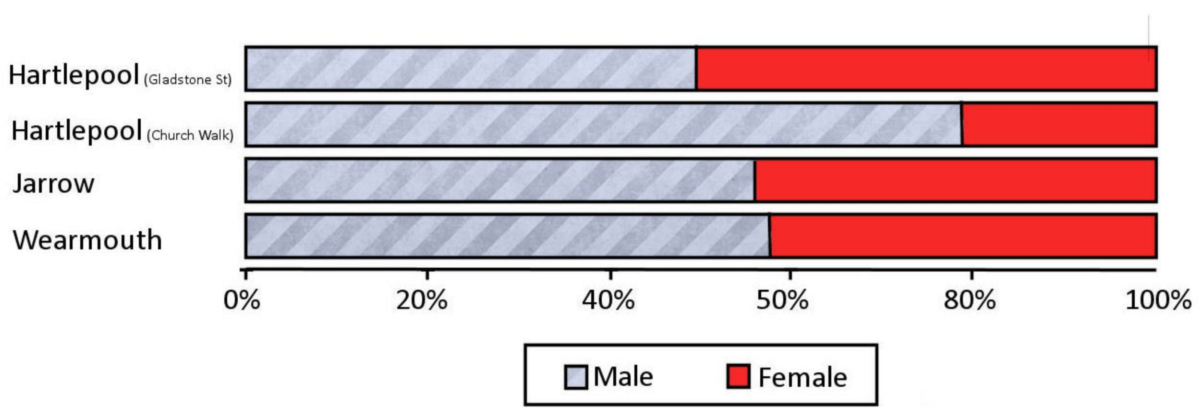


Figure 4: Percentages of male and female burials in cemeteries at Hartlepool, Wearmouth and Jarrow

This is an image of these communities in death. In order to transition into the next section of this chapter, which attempts to see these communities in terms of the activities they undertook during their lives, links must be made between the ritual of burial and the wider groups and activities that people were involved with. The demographic groups explored here would shape the social roles available to individuals (Archer 2000 284-286). In early medieval societies, social mobility was effectively non-existent. We can see in burial that some may attain movement from one group to another in death, for example a woman being buried within a male monastic foundation, and it can be hypothesised that this movement may apply to other liminal periods. For the most part, however, it is likely that the groupings of people in death is related to groups of people who undertook specific actions and possibly, as a result, shared similar perceptions during life.

From this, we can hypothesise how this demography translates into lived experience. It is clear that there was a core religious group who lived at the sites and undertook activities closer to them. This suggests people who would lead liturgical activity and be extremely familiar with it, with some privy to understanding that comes with being literate and viewing activities through the lens of the available texts. There is also the group that had elite power. Their ability to be incorporated closely into the religious group in death may suggest that they could have undertaken specialist ritual roles during life, although they were likely to be less involved with the daily activity at the sites. Finally there is the general population who lived and were often buried outside of the core monastic site, who would have experienced the monasteries as special places of that could be entered into, rather than as places to live within all the time.

Liturgy

What were these "social actors" enacting? The ritual activity at these sites was undertaken within an overarching liturgy, and a liturgical calendar can be understood as a series of interlinked cyclical events: the daily cycle of office and mass that links to a weekly cycle of particular components of worship which links to the annual cycle of liturgical seasons (the temporale), which in turn are affected by an annual cycle of feast days connected to the saints (sanctorale). People's lives would also be punctuated by events specific to the life cycle: rites of passage such as baptism, the burial of the dead, and vocational consecrations of those who were taking up new roles within the community such as monk, bishop, abbot or abbess (Keefer 1995).

The eighth and ninth centuries in Western Christianity are often seen as a time of fluctuation and variety, before the arrival of "synthesis and stability" in the tenth century, primarily as a result of the effects of both the reforms and codifications by Charlemagne and the revitalization of Benedictine monasticism in northern Europe (Harper 1997). Liturgical texts from this period are scarce and although there have been detailed analyses of the geographical spread of specific components of worship during this period they are often closely tied to continential churches (Toswell, 2014). It is an unfortunate paradox that the texts and worship books most likely to give specifics about daily practice are those least likely to have survived, by virtue of being working objects (Pfaff, 2009). This means that for this period, a way of approaching liturgy needs to be found that does not require the specifics available for later dates. This leads to a focus on actions and broad meaning, rather than the specifics of words said and sung.

Even for periods where texts are more prolific, it can be worthwhile to look beyond the seemingly rigid nature of liturgical texts to consider the more dynamic nature of their use. A service book might not just be created with practical intent. They can be tools for promotion, for example by an enthusiast advocating a new approach. They are also objects of exchange with intrinsic value. Even in a case where a particular group of people wish to follow an established liturgy in the way it is written down in a text, they may be constrained or inspired by the space that they are occupying. The positioning of wooden panelled images such as those mentioned by Bede at Jarrow, for example, might have influenced the locations and directions evoked during rituals (Mayvert, 1979).

The Liturgical Day

Prayer within the Liturgy of Hours was the core of the monastic day that provided a structure for other periods of activity to form around. Prayers at night time and dawn are a common theme in the earliest references to Christian worship, perhaps connected to Early Rabbinic Judaism's relationship with night watches for the tending of lights (Woolfenden 2003). By the time liturgy is being written about in the Western Roman tradition, there is a broad similarity to the monastic offices found at Roman basilicas (*ibid* 2003, pp209-201). The daily pattern of worship mainly focuses on reciting the psalter and other scriptures in a meditative and prayerful way. The most comprehensive document that is likely to have affected monastic practice in this region and arguably the most influential document for understanding Western monasticism today is the Breviarium Monasticum, written by St Benedict of Nursia. After being developed in Italy in the sixth century, the rule of St Benedict was brought to the South of England by St Augustine in 597.

There are thirteen chapters dedicated to the regulation of canonical hours, in the pattern shown in Figure 5. While the exact actions performed during each of these periods varied by region, we can see them present in the Irish offices of the late 7th century (Curran, 1984 pp272) as well as in the writing of Bede. It is reasonable to assume, therefore, that this structure of daily offices or one very similar applies to the Northumbrian and Scottish monasteries by this period.

The importance of this daily schedule at Jarrow is emphasized in the anonymous Life of Ceolfrith, where a plague leaves only two surviving individuals capable of observing the full offices: Ceolfrith himself, and a young boy who is possibly Bede. The two continue to keep these offices until the population of the monastery expands and the knowledge can be passed on. While Ceolfrith initially says that they will only recite the psalms using antiphons at vespers and matins, this is disregarded after a week and the full liturgy was restored.

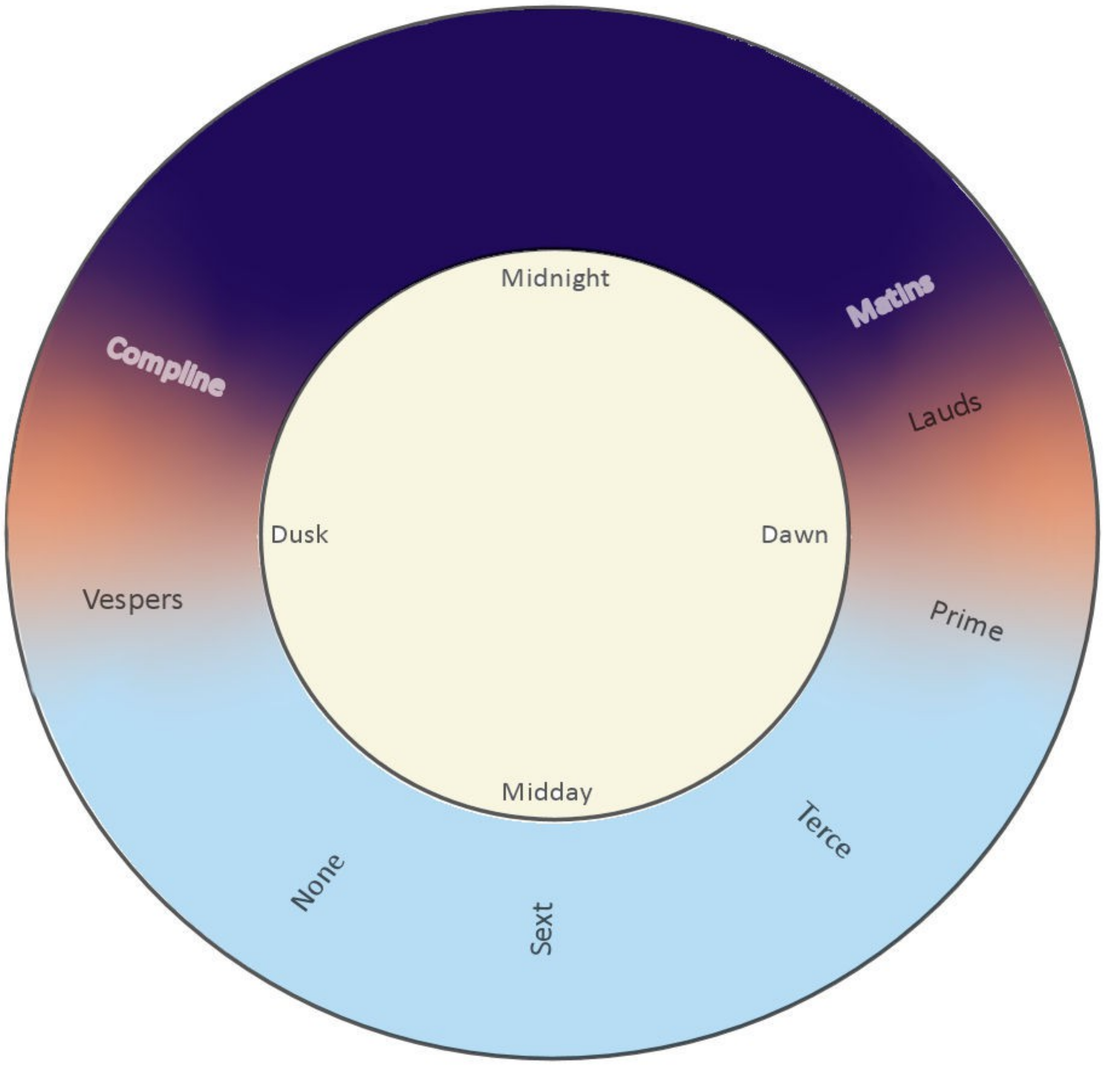


Figure 5: Relationship between the liturgical day and daylight hours.

*** Matins and Lauds appear to have often been conflated into one service particularly in the Summer due to their reliance on sunrise and sunset times. They are potentially labelled as separate so that the numbering the offices fits the "seven times a day" rule, See (Woolfenden 2004 pp9-27)*

In the account, the determination of Ceolfrith to continue prayers during the plague is being used as a didactic point within the life of a saint, however it also indicates the importance of these events for uniting the community. Many of the components of the liturgy would rely on shared practices and communal knowledge, and these times would be periods when the monastic group would enter the same physical space, before diverging into various activities.

There were apparently opportunities for individual contemplation as well, although many accounts of this pertain to saints who are being mentioned as undertaking unusual cases. There are records of people praying alone (for example Incuneningum's prayers in an oratory, HA B2 12) and the existence of small portable Gospel books such as Cuthbert's Gospel suggests the ability for at least a select few people to take their activities out of fixed locations to potentially have personal devotions in any location.

The Liturgical Year

The liturgical year is comprised of two different interlinked calendars: the Temporale, consisting of seasons that represent Christ's life and the Sanctorale, which consists of Saint's Days (Woolfenden 2014). Within these two cycles there is variation year on year depending on how both mesh together, and accounting for the varying date of Easter. The major yearly festivals and the evidence for their existence in the seventh, eighth and ninth centuries are discussed in Table 2. This account shows that specifics of liturgical activity are scarce, with reliance on connections to continental practice and continuity with the ninth and tenth century. Several characteristics are present across the evidence for various festivals: the temporal and physical renactment of events in the life of Christ by participants, the use of processions, the timing of activity to incorporate liminal periods of light such as sunrise and sunset, and the potential use of candles and artificial lighting. These ritualistic activities should not be considered in isolation, however, as they took place within a much wider range of activities.

Event/Link to life of Christ	Known Activities	Notes
Advent – expectation for the birth of Christ (four weeks before Christmas)	Midnight vigils – may be the event that Bede's homilies on the gospels were created for (Martin and Hurst, 1991)	All have strong connection with light/darkness imagery. This has been attributed to the Christianization of the Roman *Natale solis invicti* (Nocent, 1977 p157-158) however this is more frequently being seen as only a partial explanation which neglects consideration of Hebrew, Roman and Egyptian practice (Roberts, 1996).
Christmas - birth of Christ 24th - 6th January	Contrast to darkness - Dawn mass (Aelfric's Letter to the monk of Eynsham). Participants enacting "shepherd" roles, experiencing the arrival of tangible and metaphorical light (Bradford Bedingfield 2002)	
Epiphany – Visit of the Magi	Offices and readings (Bradford Bedingfield, 2002)	
Candlemass - cmmemoration of the purification of Mary, presentation of Christ to Simeon at the temple.	Perhaps reflecting the journey and arrival of the commemorated events, it has a strong link with processions (Clayton 1990 37) and the blessing of candles. Took place over a wide geographical area (Gittos, 2013, p105-108) increasing the incorporation of the wider community.	Links to both earlier Non-Christian religious practice (Clayton 1984) and the Roman church. Roman stations for candlemass are listed in books associated with the Jarrow Scriptorium (O Carragain, 2005). Aelfric's Sermon from 990-994 suggests those who cannot sing in Latin still take part. Eadner's Life of Dunstan has a mixed sex

		group taking part.
Lent Jesus’ time in the wilderness (40 days before Easter)	Possible ascetic practices – fasting by the tenth century (Bradford Bedingfield 2002 p52). Processions with ash applied to processor's heads (Aelfric’s second Old English letter to Wulfstan)	Very little is known about specifics before the tenth century.
Palm Sunday Jesus' triumphal and willing entry into Jerusalem. A week before Easter Sunday.	Palm holding processions. In the Regularis Concordia there is a complex sequence of processions between multiple churches with different sections of the community assuming variant roles. The children go ahead into the church and sing a call and response with the community outside.	Churches within communities may be evoking Biblical concepts of heavenly cities (Gittos 2013 p100-103). Lack of palm-holding processions in the Roman ordines suggests practice localised to France, Germany, Spain (see Bobbio Missal) and potentially England.
Holy Week and Easter Death and Resurrection of Christ	Vigils the night before Easter Sunday (Bede's Homilies) Sext prayers commemorating darkness falling over the Sun in Biblical events (Aelfric's sermon) By the 11th century Holy Saturday has the lighting of a “Paschal candle” (Sarum Missal)	Events that took place in one week are commemorated in one week. The time frame and range of activities seem to place participants within the events that they are marking, giving a sense of currency rather than a recreation of events that have long passed.

Rogationtide/Gangdagas Three days before Ascension, the bodily ascension of Jesus into Heaven.	“Walking days” - processing from a main church to a nearby chapel, although Gittos (2013) suggests that this would later incorporate boundaries.	Definitely enacted at Jarrow - Described in Cuthbert's account of the death of Bede. Has an origin in late fifth century Gaul.

Table 2: Events of the Liturgical Year

Other Activities

Liturgical activities only represent a fraction of the total kind of activities that must have been engaged in at these monastic sites. The necessary tasks of everyday living and of production must also be considered. From the vast variety of archaeological clues available at many of these sites, untangling the specifics of production activities is a deeply complex task. This section simply serves to broadly highlight the breadth of activities which monastic sites were the nucleus of.

The Wearmouth and Jarrow scriptoria are well known, and the process of acquisition and distribution of written knowledge features prominently in the historical record (HA 5 24). The council at Clofesho in 747 singled out reading as an especially important skill to cultivate. There are also other industrial activities associated with the production of goods and food. Hartlepool has evidence for a suite of industrial activities based on tools and waste materials, such as smithing, smelting, metalworking, stoneworking and woodworking (Daniels, 2007). Hoddom and Whithorn have similar evidence for metalwork, as well as the processing of crops (Holden 2006; Lowe and Brooke 2006; Hill 1997.) Whitby has loom weights as evidence of textile manufacture. It is likely that some variation on these activities took place across all of these sites, although local innovation based on available materials is also a consideration especially when considering monastic settlements with more restricted access to materials than those in this study, for example at

Inchmarnock where the working of local supplies of oil shale joined the more widespread metalworking and smithing (Lowe and Atkinson, 2008).

Rather than being a distracting necessity, manual labour is often framed in the historical record as something conducive to the monastic lifestyle. There is a notable doctrinal divide on this issue between various flavours of monasticism. While Columbanus approached labour as a means of bodily chastening, Benedictine doctrine emphases the spiritual value of labour, for example In the de opera monachorum, St Augustine suggests that working can be a form of contemplation where the psalms can be recited. The sixth century Regula magistri, the anonymous 6th century collection of monastic rules that was a likely influence on Benedict, suggests that labour is positive as it gives an occupation and can provide goods to give to the poor (Eberle, 1977). It also seems to have been held in high regard by Bede. In addition to mentioning various individuals as being notable for their proficiency in prayer and poetry, Bede highlights Eosterwine, a monk from Wearmouth renowned for sharing in the tasks of "winnowing and threshing, milking the cows and ewes, in the bake-house the garden, the kitchen, rejoicing to participate gladly and obediently in all the tasks of the minster" (HA 8). Eosterwine is suggested to be a spiritual model for his diligence.

Despite this resounding positivity from the didactic texts of monastic life, there is debate about the extent to which cloistered individuals took part in the more intensive manual labour available connected with the monasteries (Foot 2006, 186-188). This list of activities undertaken by Eosterwine is lacking some of the more intensive activities such as ploughing or grain processing. More demanding physical activities may have been the domain of the lay people, in situations where this was a possibility. This does seem to be corroborated by texts that consider manual labour an option for the limited number of cloistered individuals who are not suited to other work: Bede mentions a brother at Lastingham who is more interested in manual labour than reading. When the other brothers were reading inside he was working outside at the "necessary tasks." (HE 4) For those that were able to participate in more technically demanding activities such as writing and craftwork, the Regula Magistri suggests that their time is best spent there. The intensive nature of this work is evident in the statement that craft-workers “are to stay in their respective crafts every day, having their daily quota of work assigned and checked" (RM 50) suggesting that there was an overarching system of organization and expected levels of production for individuals. This also indicates that some people must have held positions as overseers and organisers, spending part of their day managing others.

In institutions notable for their adoption of a complex liturgy and their production of prestigious artefacts, it is easy to forget that other, more mundane activities must have also been conducted on these sites. There are insights into leisure activities, such as the game piece and flute found at Whithorn (Cramp 2005, 137). There are also frequent objects associated with grooming and personal hygiene, such as the extensive evidence of comb-making at Whithorn (Hill, 1997 p474-476).

Conclusions

This discussion has shown that there are various groups at these monastic sites that are discernible through mortuary evidence and the context of historical accounts, although it is difficult to translate burials into lived experience. While gender, class and age are all topics of great merit that are ideally studied in their own right, a brief consideration of them is important for accessing the multiplicity of experience, particularly for liturgical practice where different groups may have had very different roles and experiences. The liturgy from this period is creative and varied, but the specifics of it are difficult to ascertain. This makes it especially difficult to comment on which groups in society may have associated themselves with particular festivals. It is clear that it was performative and dramatic, with processions and elements of assuming different roles, times and places.

4. A Monastic Sensorium

This thesis has reconstructed buildings, landscapes, communities and activities, not to make the past more demonstrably "real" for people in the present day but to examine more closely the nature of these sites for the people who interacted with them in the past. This has served to answer the concrete research questions of life and activity at the key sites. This chapter builds on these findings to answer the next set of research questions: those pertaining to how the spaces at the sites affect experience and sensory schema. This examination is split into two sections: firstly a consideration of the known buildings and spaces within monastic sites, and then a consideration how those sites connect within the landscape. Some areas and some sites present more ontological difficulties than others, however even those with significant limitations will be explored here in order to best assess the scope of sensory discussions more generally.

Form and Access

The shape, form and function of known buildings varies considerably on the sites however there is one notable pattern of transformation which may have have affected most of the sites: an earlier phase where wooden buildings where vernacular building techniques dominate, and a later phase where culturally "Northumbrian" forms including the use of stone for construction and sculpture and new features arise in common between the sites (Fig 6). This section will consider the similarities of some of the buildings at these sites, before moving on to consider their unique aspects individually.

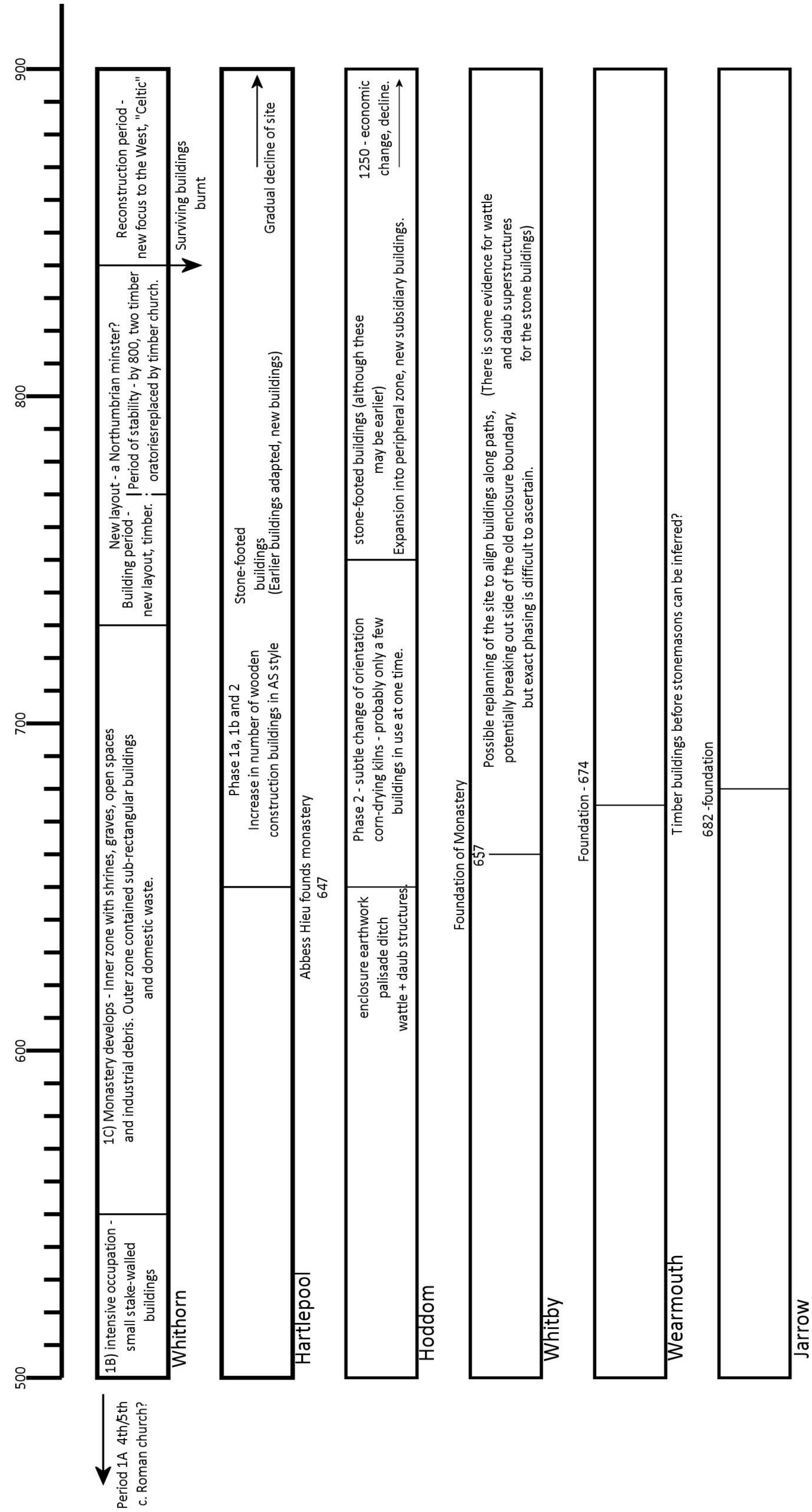


Figure 6: Timeline of changing use of stone at key sites

A first step to understanding these converging trends and their implications for the development of place is to consider how the buildings at the six sites fit into wider understandings of building traditions. An oft-cited paper concerning the classification of Anglo-Saxon building tradition is James et al (1984)'s characterisation of buildings purely by structural characteristics, in particular those that can be ascertained easily from the archaeological record such as the placement of doorways and the shape of buildings. Culturally this tradition has both elements of Germanic building styles, but also roots to earlier Romano-British building styles (James et al 1984). None of the sites in this study contain all of their labelled criteria, but they do contain many of them (Table 3).

	Rectangular	2-square module	Earth-fast foundations	Central opposed doors in long walls	Internal partition	Internal partitions	External raking timbers	Palisaded enclosure	Sunken-featured buildings	Planned layout	Ridge-top location
Hartlepool											
Whitby				?							
Hoddom											
Whithorn							?				
Yeavering											

Table 3: James et al (1984)'s criteria for Anglo-Saxon building tradition

This is to be expected, as the only place cited by James et al that does contain all of the criteria is the large-scale Cowdery's Down. Potential regional differences within this building tradition that are on the scale of foundation construction can be seen, for example Hoddom is notable for only one example of a centrally opposed door, and an absence of post-in-trench buildings (Lowe and Brooke, 2006). Broadly, however, the buildings at all of the sites were a variety of Anglo-Saxon tradition from the start of monastic-linked activity, and likely not too different from secular domestic sites in their basic form.

There is a more nuanced view than this check-box approach, which lies in the more transient superstructure of the buildings. Differences in building techniques and style in the superstructure, however, are more difficult to ascertain. Commenting on specifics of wooden buildings for which very little remains is difficult, and is a contentious area. Some studies rely on the construction techniques of many hundreds of years later for example Bruce Walker resorts to making comparisons to eighteenth century “creel houses,” with regards to eighth century buildings, (Walker and Brooke 2006 185-186) to argue the existence of “cruck” timbers at Hoddom. If cruck construction was present it would represent a region-specific vernacular building technique existing before a strong Northumbrian influence at the site, however the vast distance in time and the multitude of social and technological changes that occurred between the eighth and eighteenth century in Scotland makes it difficult to see these interpretations as reliable. Variation in the pitching of roofs in the North to combat wind speeds and a colder climate is logical but is an inference lacking basis in archaeology (Gardiner 2013).

There are some more accessible vernacular forms, for example by examining what tree species were available for construction and how this would affect the aesthetics of a building. At Whithorn, wattle walls and coppicing are implied by small stake-holes, (Hill, 1991) that indicate regional preparation of trees for construction. There were also some in situ planks, stakes and posts that were oak. At Hoddom there are sunken-featured, earth fast and timber built structures, some of which use of oak but also some traces of alder, hazel and poplar (Lowe and Brooke, 2006). It is also possible to use experimental archaeology to reveal some of the possible ways that a known ground plan may have translated to a completed building. Unfortunately there is only one building at these sites that has been reconstructed: building 26 from Hartlepool. This overview of the sites suggests that there may have been as much variation between the buildings as there were similarities, although they are all well within what may be expected for culturally Anglian affiliated sites.

For all these similarities and a unification of trends, an examination of the individual buildings at these key sites indicates considerable variety. The next section will discuss the significant buildings at these sites and how their form may have affected experience and activity within them. Here, “significant” is defined in terms of buildings that can be accessed most easily from the archaeological evidence, rather than by which buildings were given special importance for those living and working at the sites.

Wearmouth and Jarrow

Form

Conflating these two monasteries should be avoided as far as possible because despite their moniker as two parts of one twin foundation, they have entirely different locations and many variances of form. For this discussion their similarly distinctive stone architecture and shared references in the historical record makes comparison and contrast between the two the most expedient form of analysis.

The exact specifics of light levels and the effects of the form of the windows at both churches will be discussed in detail in the next chapter. This light would have illuminated interiors filled with decoration and colour. This is known archaeologically from the evidence of plaster in red, white and black, (see Chapter 2) and historically through the description in Bede’s Lives of the Abbots of Wearmouth and Jarrow, where Bede describes some of the images Benedict Biscop acquired for the monasteries in the positions featured in Figure 7. There is some debate as to what form these images may have taken due to beliefs that full sized paintings would have been difficult to bring from the continent in the late seventh century. One possibility is that this reference refers to small-scale prototypes that were copied, perhaps with illuminated manuscripts serving as templates, however Mayvert (1979) suggests that this does not credit Bede with care in choosing his words: he says “picturae” is clearly a classification of object separate from books and relics, and it is likely that if models or prototypes acquired from Rome, this would have been clear in the text. A likely explanation is that these images were portable and painted on wooden panels, similar to one recorded as being carried by Augustine and his companions on the Isle of Thanet in the Ecclesiastical History (HE 25). Bede is clearly familiar with painted panels as he mentions them in his commentary on Solomon: "why should it be considered contrary to the law to sculpture or to paint on panels the stories of the saints and martyrs of Christ..."

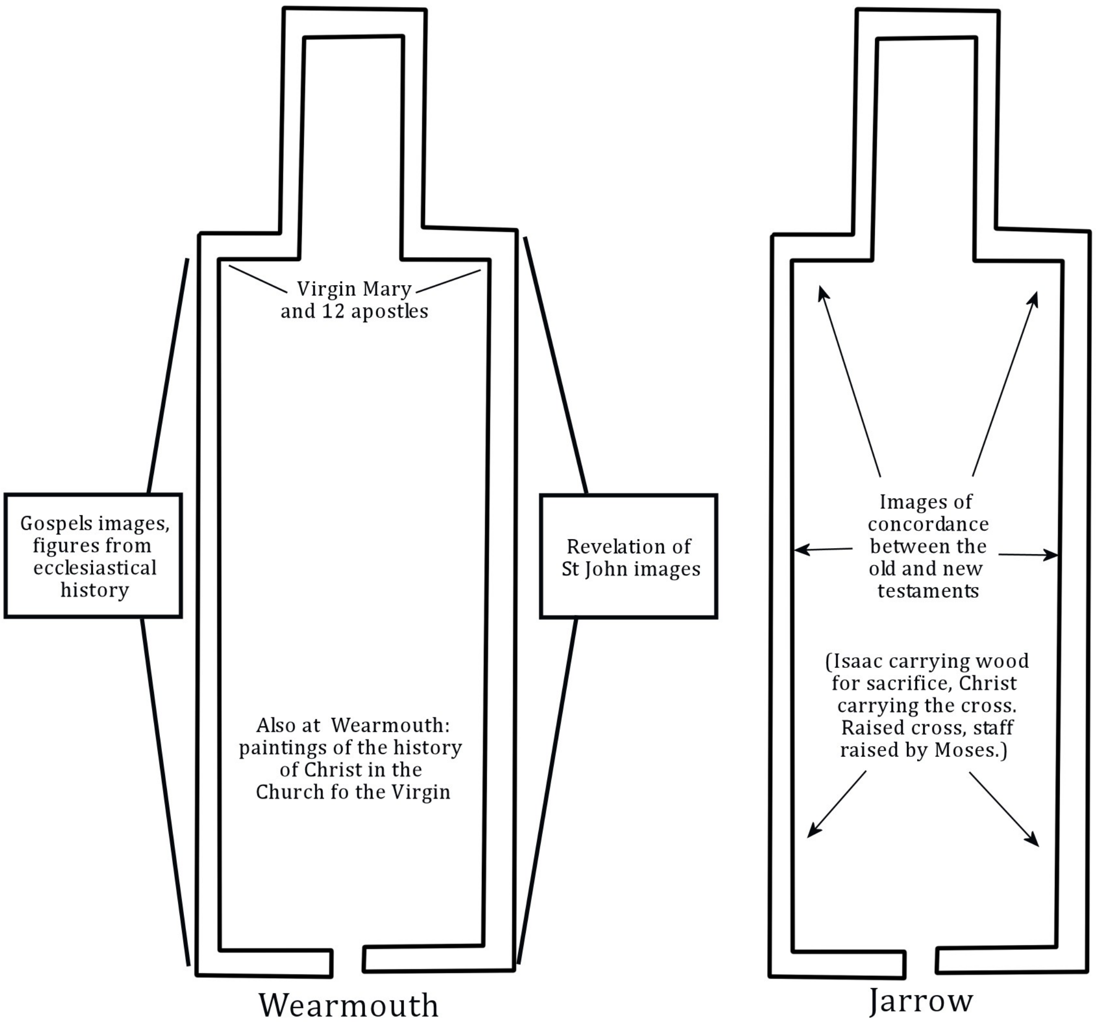


Figure 7: Position of wall paintings given in the Lives of the Abbots of Wearmouth and Jarrow

Although there are no archaeological remains of these images as there are for the striking red, black and red plaster patterns which also adorned the walls, they are likely to have been powerful images utilising shared iconography and symbols, similar to those which are preserved in the more robust media of stone. Bede describes this iconography in the History of the Abbots, where the pictorial schemes of both Wearmouth and Jarrow are highlighted.

At Wearmouth, the exact spatial layout of the imagery is given in some cases, for example apocalyptic images from the Revelation of St John were positioned on the north wall, while images of figures from ecclesiastical history were placed on the south. There is reference to a "likeness of the Virgin Mary and of the twelve Apostles, with which he intended to adorn the central nave, on boarding placed from one wall to the other." This could suggest that the panel paintings stretched across the arch separating the sanctuary, or that they formed a screen across it (Gem, 1990), perhaps akin to the later rood screens which appear to have increased importance after the twelfth century (Williams, 2008, 48-50).

Bede comments on the placement of these images and the intended process of experience. By being present on every wall, " ...every one who entered the church, even if they could not read, wherever they turned their eyes, might have before them the amiable countenance of Christ and his saints…" The intended effect is for the images to overwhelm and place the observer within a wider cosmology, calling themselves to ruminate on their place within it, "though it were but in a picture..." The placement of the apocalyptic pictures is seen as an important call to action: "...having before their eyes the perils of the last judgment, might examine their hearts the more strictly on that account." At Jarrow, images of concordance between the old and new testaments are described as being throughout the monastery, for example Isaac carrying wood for his own sacrifice juxtaposed with images of Christ carrying the cross, as well as the raised cross being adjacent to images of the staff raised by Moses. This shows an attempt to use the present spatiality of the church building and shared symbols to unite thematically disparate times and events, in order to give the viewer a call to action. Bede sees this especially important for those who cannot read, suggesting that the varying experience of the various groups using the site was a consideration.

These buildings were not purely focused on visual impact. We can also assume that they were aurally significant. Acoustically the two morphologically similar church buildings would have reflected more sound than similarly sized wooden buildings. The large apparently open spaces and opus signinum flooring would allow for less absorption and loss of sound. This suggests that the building would be especially conducive to chanting. This has produced a chicken-and-egg debate for those discussing the history of music and architecture, with some such as Rasmussen (1962) suggesting that chanting grew in popularity in ecclesiastical environments because the architecture facilitated it, rather than particular forms of architecture gaining popularity because of their acoustic effects. In the case of Jarrow, the obtaining of expertise in chanting from Rome in the form of Archcantor John (HA 6) suggests that there was a long-term dedication to putting resources and time into the reproduction of the sounds of Roman basilica churches. Ó Carragáin calculates monks would have chanted for three to four hours a day at Mass. This means that it may take ten years to train and memorise all of the cantors, which were likely passed on predominantly through oral tradition (Ó Carragáin, 2005) although Bede also makes reference to John giving texts to the monastery (HA 6).

The capacity of these buildings in terms of how many people may have used them at any given time is difficult to assess, as is the effect that a large number of people may have had on the acoustic specifications of the interior space. It is interesting to note that the church is around the same dimensions as many 18th century concert halls, such as the Hanover Square Rooms in London (Forsyth, 1985). Although very different constructions kinds of building, the acoustic problems of one might give a small insight into the acoustic properties of the other. These concert rooms could fit around 800 listeners at capacity, and relied on the sound absorption of a large number of people to lower echoes and make the music sound loud and crisp to listeners. Calculating the total capacity for churches such as St Peter and St Paul would be possible, but would not indicate how many people actually used them. Perhaps the most that can be said is that if they were used by a large number of people then it may have affected the acoustics by reducing echoes and reverberations, potentially making speaking easier, however it is likely that on most occasions such a large volume of people would be unlikely to be present and the buildings would have maintained their echoic qualities.

Access Routes and Space

The demarcation of space at Wearmouth is especially clear, with walls uniting a complex of buildings and creating a strong sense of interior and exterior. These would create set patterns of available movement and also restrict visibility, separating the site into a series of compartments, outdoor rooms, to be encountered (Fig 8).

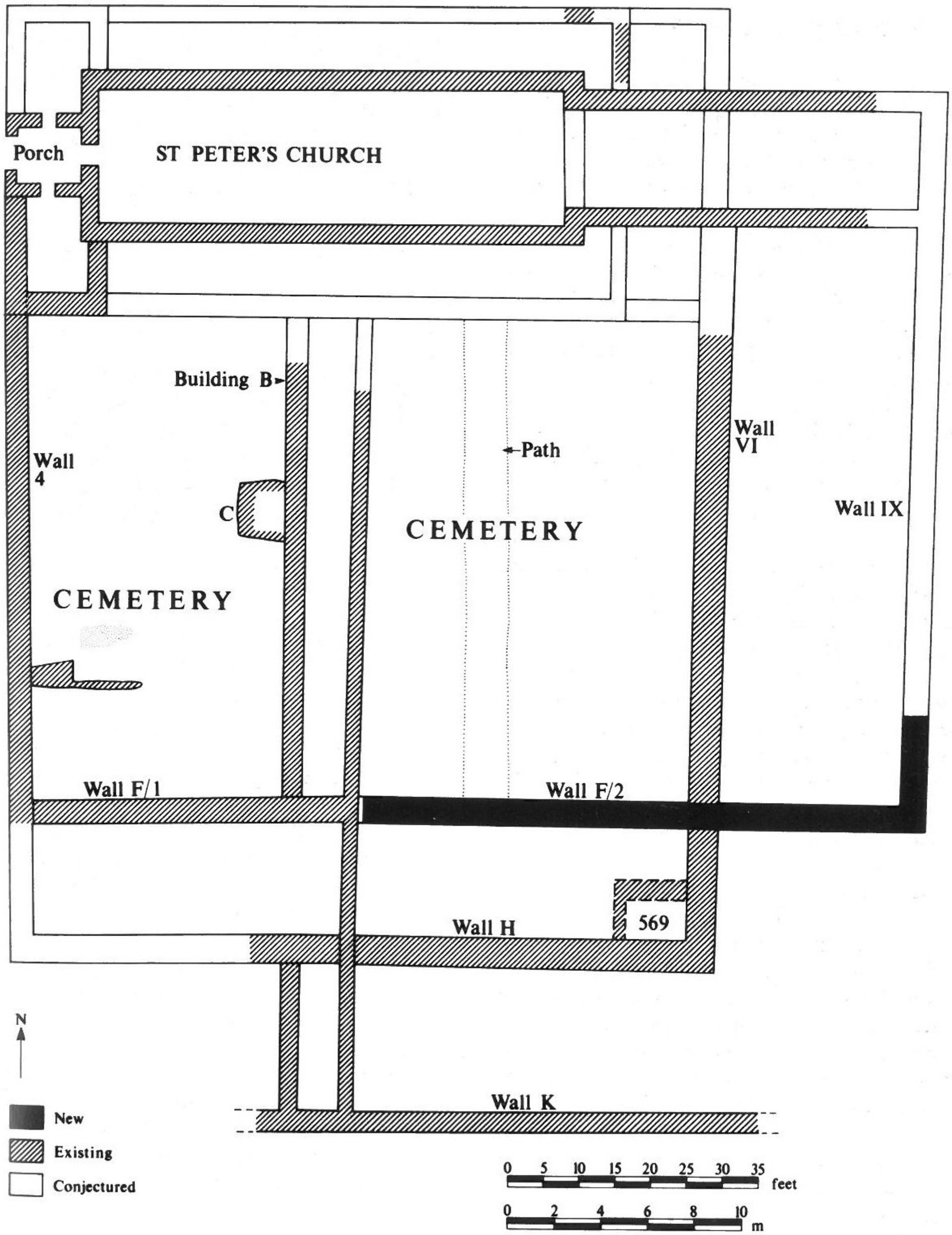


Figure 8: Wearmouth, phase 3 plan. From Fig 9.33, Cramp 2005.

These walls not only demarcate space for the living community, but for those who are buried within it, as discussed in Chapter . The church appears to have had two access points. The first is the western entrance, which allowed direct entry into the church building before the addition of the porch, the fabric of which is still in existence. The second entrance is between the long corridor-like structure, Building B. Both of these buildings serve to create liminal areas to be encountered prior to full entry into St Peters: an area of transition between the ordinary and the holy. The fact that there was a perceived need for two entrances, one particularly lavish one with coloured plaster and glass leading to other areas within the site and one leading to the exterior of the monastic complex, suggests that these entrances may have been used by different sections of the population. Jarrow, in contrast, has no evidence for an equivalent building to Building B, or for the walls that characterise the area around St Peters at Wearmouth. The other buildings make use of multiple rooms, dividing activities up by space.

Whithorn

As will be discussed in full in the next chapter, the church building at Whithorn would have been an interior environment low on natural light, with the effectiveness of windows potentially impeded by an overhanging roof and internal partitions (Figure 9). The use of wood as a building material may have been paired with a variety of ideological and cosmological subtexts for the inhabitants of Whithorn, straddling Christian and Pagan imagery and creating a constantly forming and reforming living building.

On a more visceral level, it is likely that the church at Whithorn was living in a more literal sense in that its timbers, in particular those affected by rot, would have played home to living creatures, and most importantly, fungas. The presence of fungas in a damp environment would continue the process of decay. For those using the building this is likely to have created an "earthy" smell, that might be most commonly found today in a woodland. This not have been unusual for a group of people who had spent their lives living in timber buildings and who were probably hardened veterans in the war against damp and rot. Many buildings from the period are built and rebuilt for subsequent generations, and at Whithorn the rise of the use of stone feet was likely related to a desire to make more long-lasting buildings. As a consequence of the move towards a stone base and therefore a more permanent church, this smell would be reduced. Intentional or not, this reduction in smell would likely have contributed to the building being a special space, not aligning with the typical smell of the built environment in the same way that a complete stone church would not.

Figure 9: Proposed 3D reconstruction of the church at Whithorn, based on excavations plans.

In terms of acoustics, the building contained modifications that would align fairly well with those that may be implemented by someone seeking to achieve an insulated environment with high absorption and a low reverberation time. Wood is already a soft, absorbent material and the addition of the screened interiors would provide further surfaces to deaden sounds. The altar and focal stone would have been stone and may have produced interesting acoustic effects, being more reflective than their surroundings. The predominance of wood as a building material would mean that chanting known to be specifically sought out at Wearmouth and Jarrow would likely not work as effectively here, however it may have been a prime environment for someone attempting to speak clearly to small numbers. This would have also been a fairly effective space for liturgical practices that relied on silence and quietness. The extra layer of insulation provided by the screens and the restriction of space provided by the demarcations would mean that self-generated sounds such as footsteps would dampen quickly. This has the potential to contribute to the feeling of the building being a special, even liminal place.

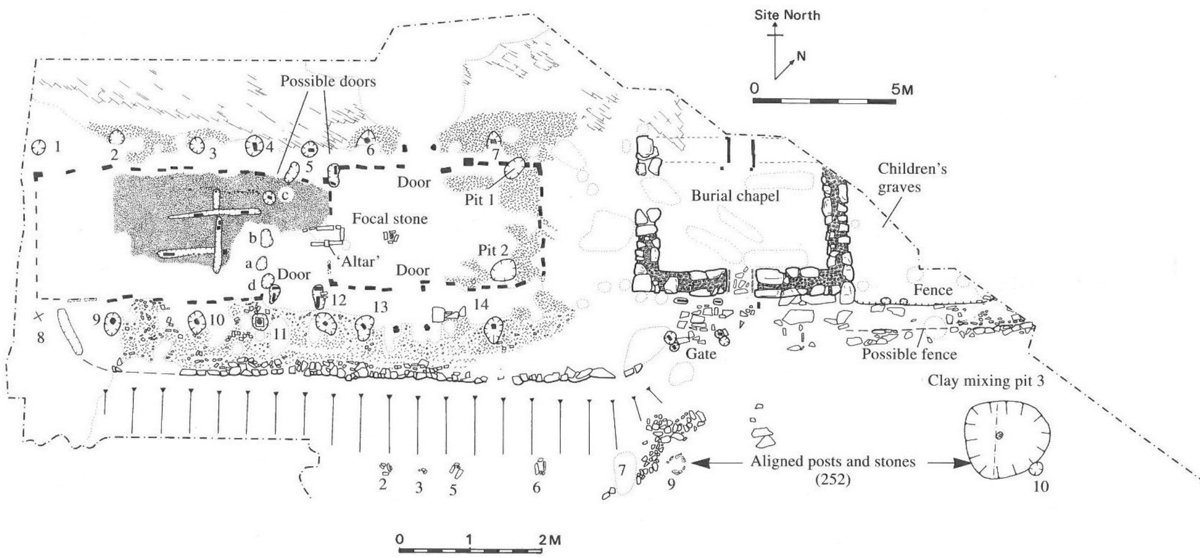


Figure 10: Composite section of Whithorn church and burial chapel, from Hill 1997

This would align well with the building's history as two small oratories that were merged together (see figure 10). Small oratories would not be ideal for group activities, rather they would be effective environments for individuals or small groups to use. As it is likely that this was not the primary church, (Hill 1997 6) it would follow that this building may represent a secondary space typified as being quiet and more solitary. The further development of the church supports this idea of a tendency towards creating small spaces, as after phase 4 a new wooden screen incorporating the pillar stone of the original shrine was inserted in a narrow slot, giving the church three chambers rather than two. There is also a trend for demarcation of space outside the building, as various paths and wall create an inner precinct over time. In particular, the building of a terrace revetment which is in place by the later eighth century (Hill, 1997154), may have created an enclosed exterior space that could only be entered from the church or a gateway in the south-west of the chapel. This was an outdoor space, but it can still be considered part of the building complex. The gated pathway outside also increased in complexity during this time, expanding to have at least four different zones. This would have allowed for increasingly complex ritual demarcation of space.

This trend towards dividing and defining disparate spatial areas engages the question as to why a need was felt to develop two separate oratories into a single building. There are multiple potential reasons, and it is likely that there were many catalysts for this building project. Firstly, we can fit this practice in with a wider Northumbrian influence bringing a desire for larger churches. Large timber halls with opposing doorways are part of the Anglo-Saxon building tradition that is often postulated as the herald of the Northumbrian cultural sphere. It is also possible that this form of building was partially inspired by Biblical descriptions of holy buildings.

This division of space would have had a profound influence on visibility (Figure 11). The demarcation of space via the use of screens restricts the line of sight, however the fact that there is one single building means that there is a more complex visual space to confine and control than when there were two distinct buildings. During the phase of having a single screen division, the configuration of the altar, the wooden screens and the focal stone would suggest that the focal stone was visible from the nave and that there was an intention to have a view through to it throughout the church. This would have been a visually intense space with the altar, focal stone and potentially other sculptural pieces that could have been encountered from many different angles and frames. There is also a potential for manipulation of visual space outside the building. The post holes outside of the building likely represent external timbers to support an overhanging roof, however Hill (155) suggests that they may also have been decorative pillars. In either case, these post holes may have produced “frames” through which particular views of the surrounding area may have been seen (Figure 12). Where vision was restricted, sound may not necessarily have been. This presents some interesting possibilities, for example if a group split into two as they do for the Palm Sunday liturgy described in the Regularis Concordia, it would be possible for a call and response to occur between the two sections of the church.

Figure 11: 3D model of possible visibility of sculptural features at the Whithorn church.

The neighbouring burial chapel at Whithorn presents an entirely different set of sensory characteristics. It represents a form of building distinct from either the stone Wearmouth Jarrow buildings, the wooden Hartlepool halls or the latterly stone footed Whithorn merged oratory. Instead, it is a smaller clay building with stone foundations and high status stained glass windows. This is likely to have been a distinctly unusual building for the inhabitants of Whithorn. Clay constructions of this type are not part of the known vernacular building tradition of Whithorn and the building has no clear antecedents. The builders seem to have been competent in their choices however, both in terms of having the skillset to create this very different form of construction and in terms of choosing their materials wisely to achieve a desired effect. The heavily insulated form of the building would mean that it would be cool in the Summer and warm in the winter, and the internal humidity would have been controlled naturally by the materials. This would make it an effective temporary mortuary for the short term storage of human remains, and there are burials within it. It is likely more than a mausoleum, however, as its accessible location and unusual decoration would make it an ideal space for use by the living.

It is interesting to note that many of the novel sensory experiences that a stone building may have provided to those at Wearmouth and Jarrow are provided at Whithorn by this clay building. The glass windows would suggest that this was a brighter space with ornate coloured windows. While clay is unlikely to be as reflective as stone acoustically, it may have produced more echoes and reverberations than the wooden chapel, despite its small size. The comparison of this building with its timber neighbour highlights that monasteries likely sought a variety of different sensory spaces within their buildings for the fulfilment of different activities.

The merging of the buildings and demarcation of space within them also allows for more complex movement around the building, creating many more possible entrances and exits. Entering and exiting the buildings seems to have been reconsidered in multiple ways throughout the buildings use (Figure 13), and different configurations were potentially used to create the most impactive experience. This may be more than a side effect of the extensive reorganisation, as various possibilities are attempted to create the most impactful entry and exit into the building. There is also a trend towards more extremes of demarcation outside, for example there was a revetment built angled north towards the west wall of the chapel, where a timber gate controlled access between the new church and the open space and buildings to the south.

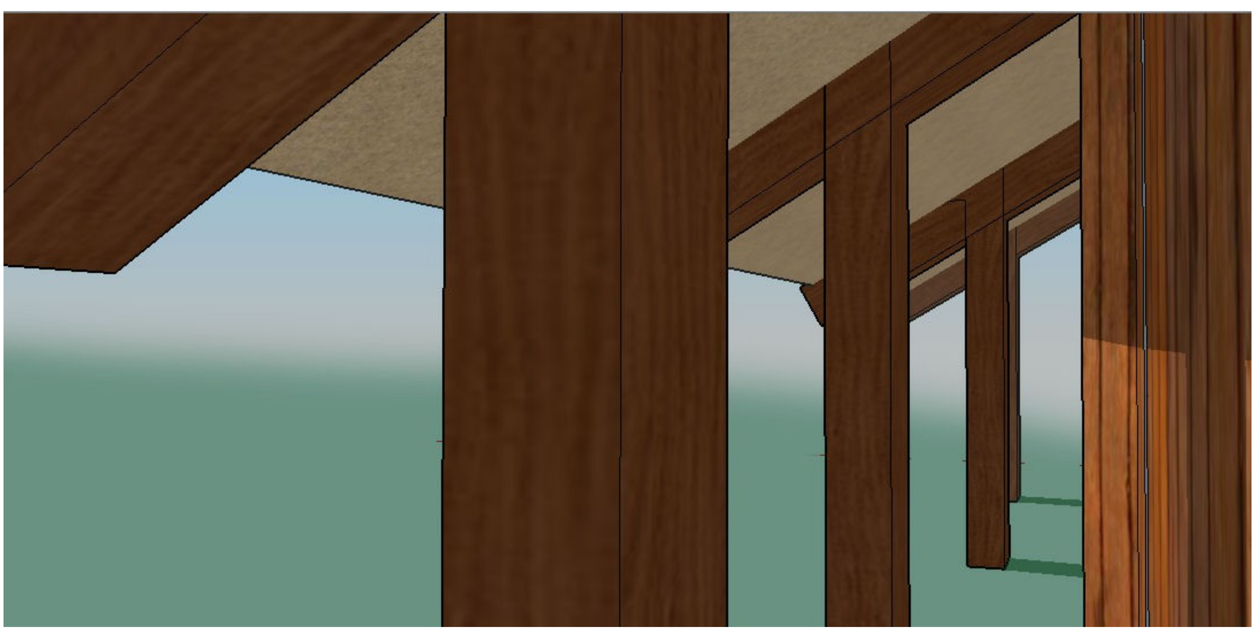
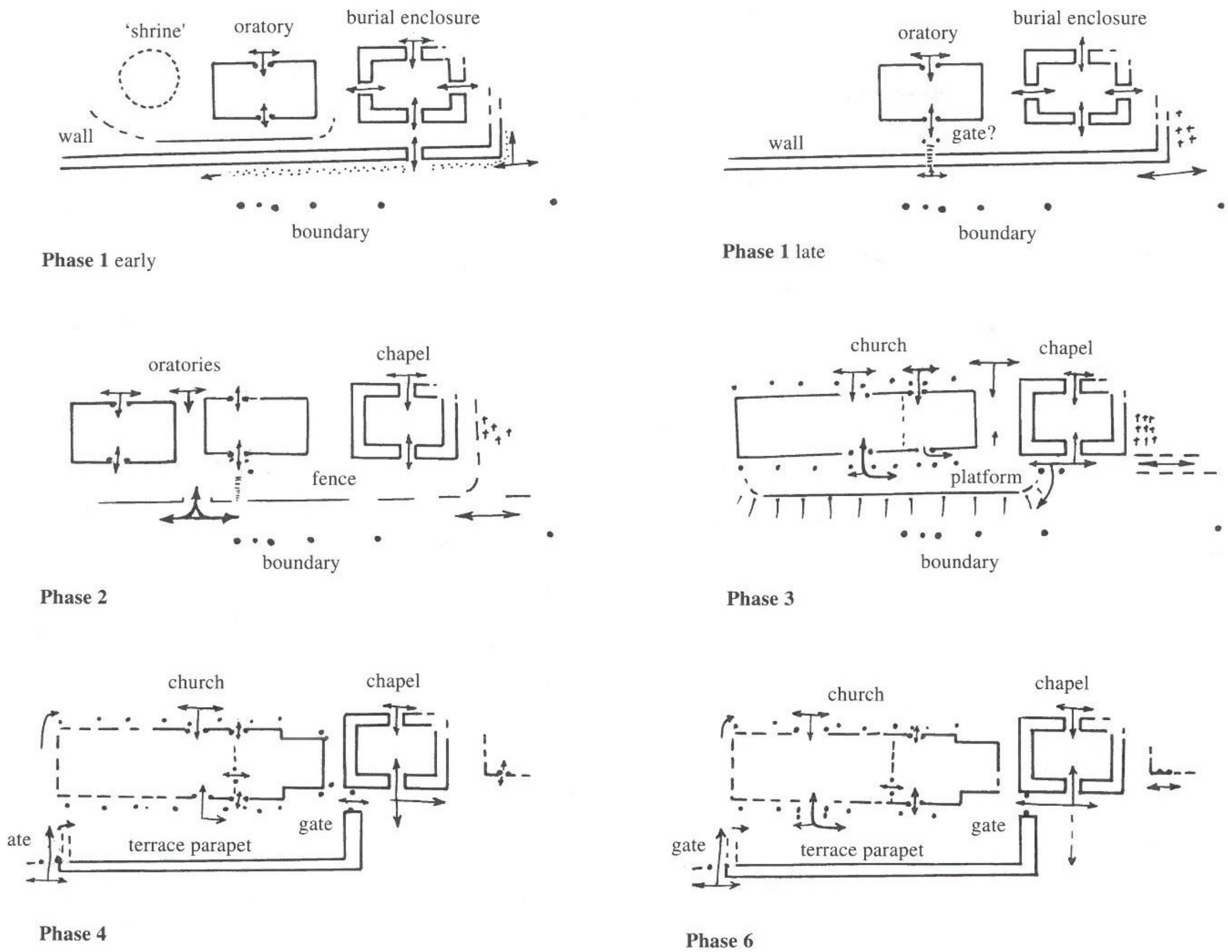


Figure 12: View through the raking timbers, Whithon merged oratory model.

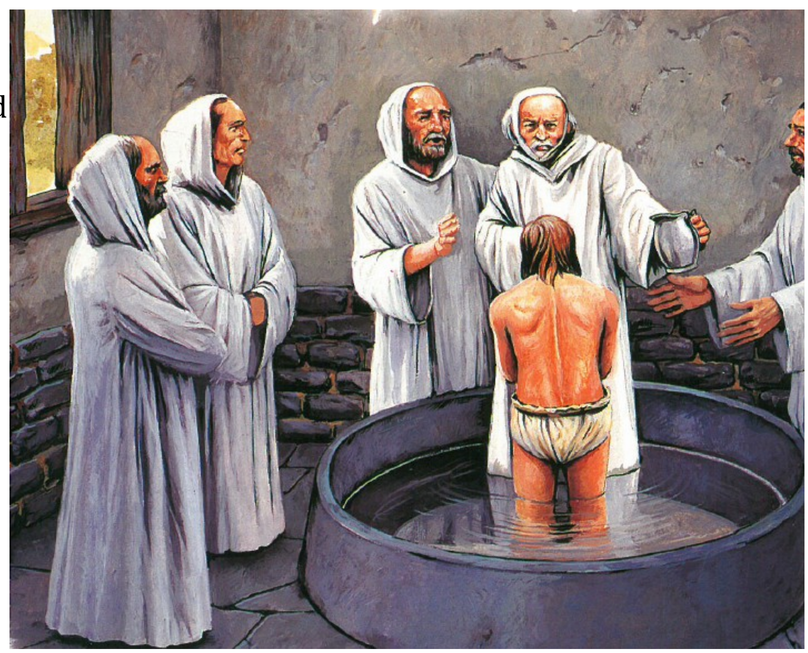


(from figure 2.13, Hill 1997)
Figure 13: Evolving patterns of access to ecclesiastical buildings at Whithorn over the eighth and ninth centuries

<u>Hoddom</u>

As discussed in chapter 2, a monastic connection at Hoddom seems likely due to its high prestige stonework and growth as an industrial centre, however it is by no means assured. It follows that there are no explicitly religious buildings at the site, and so fitting it the site into the narrative of monastic buildings becomes difficult.

There have been attempts to link buildings at Hoddom with religious function, in particular building 1, a relatively small subrectangular building that Lowe initially described as a baptistry (Lowe 1999) before adjusting his position to consider the building as most likely industrial (Lowe, 2006). This erstwhile baptistry reveals many of the problems of a consideration of a sensory approach, especially when the evidence that examinations are grounded on are relatively shallow. In this case, the reuse of Roman stone, the existence of a drain, an east-west orientation and deposits of charcoal and lime could easily be indicative of a post-Roman but pre-Northumbrian religious building that Lowe described as "sophisticated" and "conspicuous". This narrative tells of a brilliant white limewashed building that would have been a highly noticeable beacon, representative of purity, and notable in its complexity. If used as a baptistery, then the building would be supplied with water from a nearby spring that was placed in the sunken area or in a tank placed inside. An association with baptism at the site would was evocative enough to provide inspiration for the creation of a rendering of baptisms taking place in this building at the site (Figure 14) from From this interpretation, statements about the temperature and acoustics of the building could be made.



*f*rom Lowe 1999, pg 42. By Chris Brown.

Figure 14: Section of Kentigern's Last Baptism inspired by early evidence for a baptistry at Hoddom

This interpretation, however, did not survive the excavations of further buildings at Hoddom which were broadly of a similar type. Faced with a building that was no longer a unique oddity, Lowe reassessed the building as likely industrial and contemporary with the rest of the site. As vital and appealing as an early baptistery at the site would be, this latter interpretation is the most inkeeping with the general character of the site and accounts for much of the evidence, for example the extensive use of clay to create a water tight chamber could indicate that this was for storing water from industrial processes, and the lime rich deposits, rather than showing wall coverings, could be explained by being part of a tanning process. The use of a stone base is not unusual. This presents an entirely different kind of experience of small buildings with the smells and sounds of industrial process, shared with various other buildings at the same site. Hoddom, then, provides a cautionary tale in the extrapolation of evidence. It is possible to take a single building and interpret it as either a bright, gleaming religious building or a well constructed but inconspicuous non-religious industrial building based on the same archaeological evidence.

Hartlepool

At Hartlepool most of the structures are small buildings, likely intended as living places, but also potentially places to pray and engage in ritual activity. They are wooden with potential stone sculptural elements, meaning that many of the facets of wood discussed in relation to Whithorn apply here too. In comparison to Hoddom and Whithorn, Hartlepool appears more archetypal to the Anglo-Saxon building tradition as laid out by James et al (1984), potentially even beyond what may be expected for such small buildings.

These were not large constructions for the housing of family units, but monastic cells built for one or two individuals. Despite this, a reconstruction of building 26 at Bede's World museum (Figure 15) required as much timber as the larger reconstructed hall at the museum based on an example from Thirlings (Mills, 1991). Visitors to Bede's World who are not used to bending over in order to enter doorways may also be pleasantly surprised that the inset timbers of the building produced a full height doorway: likely a rare feature for a small timber building. From this we can envision the buildings as high status miniature halls, more lavish and ornate than structurally necessary and sharing more structural features with sites such as Yeavering than their small size may initially indicate. It is possible that due to Hartlepool's position as a foundation instigated by a royal Northumbrian Anglian under the guidance of an Irish religious leader, before the Synod of Whitby, there was a degree of display of Northumbrian identity through these traditionally Anglian forms. By creating robust buildings with high doorways, the physicality of these buildings reflected this. Their visual style and form was one associated with prestige, rather than ordinary domestic habitation.

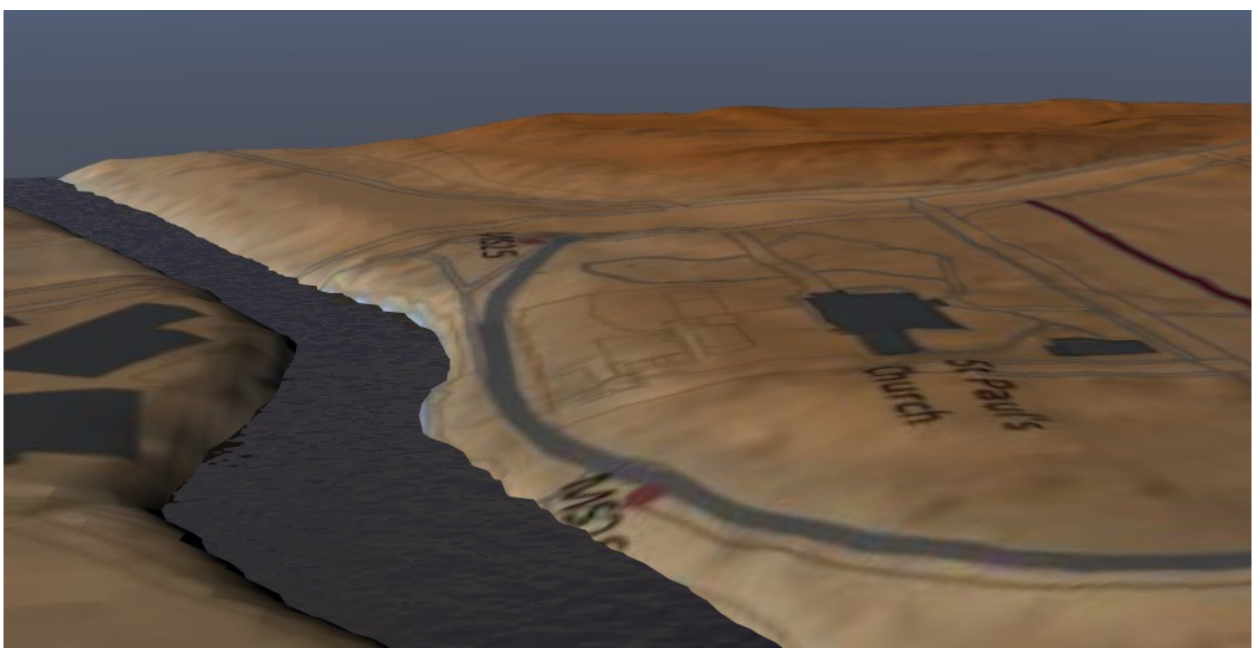
Figure 15: Reconstruction of building D, Hartlepool
Greetham, H. (2015) [photograph]

Landscapes and Wider Access

The placement of monastic sites impacts greatly how the process of entering and exiting them sites would have affected perceptions of them. There are certain traits that appear to have been associated with the placement of monasteries: high ground, proximity to river mouths and the sea, and associations with earlier sites of importance (Pickles, 2011) Factors such as proximity to the sea would give rise to many practical benefits: connections to other establishments, protection from attack, access to marine resources and a degree of visibility in the landscape. However, they would also affect the physical characteristics of these places. In the words of (Rainbird 2007 2) "A person approaching the sea from the land in a strong onshore breeze can attest to the bitter taste of salt that is driven by the wind into the mouth and drying the throat, providing both a tastescape and a physical reaction." This section will examine various approaches to the sites in relation to seas, rivers and land routes to suggest their differing character.

Whithorn is situated slightly inland, around 5.5km from the bay at the Isle of Whithorn, an area which forms a naturally enclosed harbour still used as an anchorage point today. Although the Ket Burn runs through Whithorn and to the sea, it is unlikely that it would be used for transportation due to its small size. This separation between the marine trade access point and the monastery itself lends importance to the routes that may have been taken from the bay to the monastic site. Here, the topography of the local landscape is key. Whithorn is situated in the Machars, a lowland area of rolling hills. The monastic site is within a lowland valley area surrounded by hills, which would have shielded it from view. Likely paths towards the monastery from the bay according to (Hill 1997 6) include the area covered by the modern road, and several potential ridgeways indicated by field boundaries. While the modern road weaves around the higher ground, the potential older ridgeway paths go over it. Walking to the site via these routes would produce a overhead revealing view of the monastery. It is notable that these paths appear to incorporate the site of the Petrus stone, a sculpture which can be hypothesized as the boundary of the core monastic site. This shows evidence of a carefully considered and planned approach for those entering the site, where sculpture acts as a herald to the larger monastic site (Figure 16.

Figure 16: Topographic data from Whithorn



Created using data from Turner, 2014.

Figure 17: Exaggerated rendering of Jarrow topography.

Jarrow, in contrast, is situated on the south bank of a river, the Tyne, which could be utilized as an entry and exit point from the site negating the need for an extended overland journey. The topography of the monastic site and the area known as Jarrow slake has been investigated by Turner (2014) a necessity as the shape of the site has been altered dramatically in recent times due to industrial backfilling, the development of the Port of Tyne and landscaping in the early 20th century. This data was used in the creation of Figure 16, which heightens the differences in elevation by 50% to make variations in elevation clearer. (Figure 17) It is likely that the monastery was surrounded by water or wetland on three sides, particularly at high tide, with the Tyne to the North, a large tributary to the south, and a low-lying marshland area to the East.

This riverside area was used for transportation of people as well as goods, as it is the route that Ceolfrith takes when leaving the monastery in the History of the Abbots. Anyone approaching by boat from the area known as Jarrow Slake would have to pass through areas likely used for fishing (HE 1) and the disposal of waste. After landing on the river bank, the walk to St Paul's church would have been an uphill one, past buildings with potential links to industrial processes such as Building D and buildings that have been interpreted as domestic (Cramp 2005). This raises the question of whether there is significance in a transition from the hubub of a busy port area, to the insulated environment of a stone church building. If the church was especially visible in its high position, then this has the dual effect of making it dominate the more visceral surroundings, as well as meaning that everyday activities of fishing, craft creation, travel would have been visible on emerging from the church.

Hartlepool has no nearby natural harbour in the way that Jarrow, Wearmouth and Whithorn do. Reconstructions of the coastline at Hartlepool suggests a shallow slope to the west as the most likely landing spot, as the headland plateau meets with cliffs to the south and east. Daniels (2007, 3) notes that this is hardly an ideal nautical haven, with rock outcrops adding significant danger. The topography of the headland during this period is uncertain, however there is evidence that peat beds cut the headland off from the mainland between the Mesolithic and Romano British activity at the site, and that the Hartlepool headland was effectively an island in a coastal wetland, particularly during high tides

(Waughman 2005 p 129-142). This suggests that despite the potential danger, accessing the site by boat may have been necessary, especially for trade purposes. This would have certainly been the easiest route between Hartlepool and the natural harbour at Whitby to the south. The routes that may have been taken from the coast towards the monastic site are not clear. The location of the church on this high headland ground is unknown. In (Figure 18) it is placed on prominent ground to the North near to Cross Close cemetery, which is indicated as a possibility in recent excavations. . The approach from the coast would mean going through the small industrial buildings at Church Close and Lumley Street before reaching the punitive chapel or the Cross Close cemetery.

Unfortunately the formalised boundaries that would be encountered from this approach from the West are less clear than the boundaries to the East of Lumley Street and Church Close. The excavated boundaries do potentially give insight into the intended character of boundaries at the site as a whole, however. There is a well defined hierachy of ditches, palisade trenches and other possible fences demarking space including an early series of "telegraph pole" sized posts which may have been joined together to form a fence of some

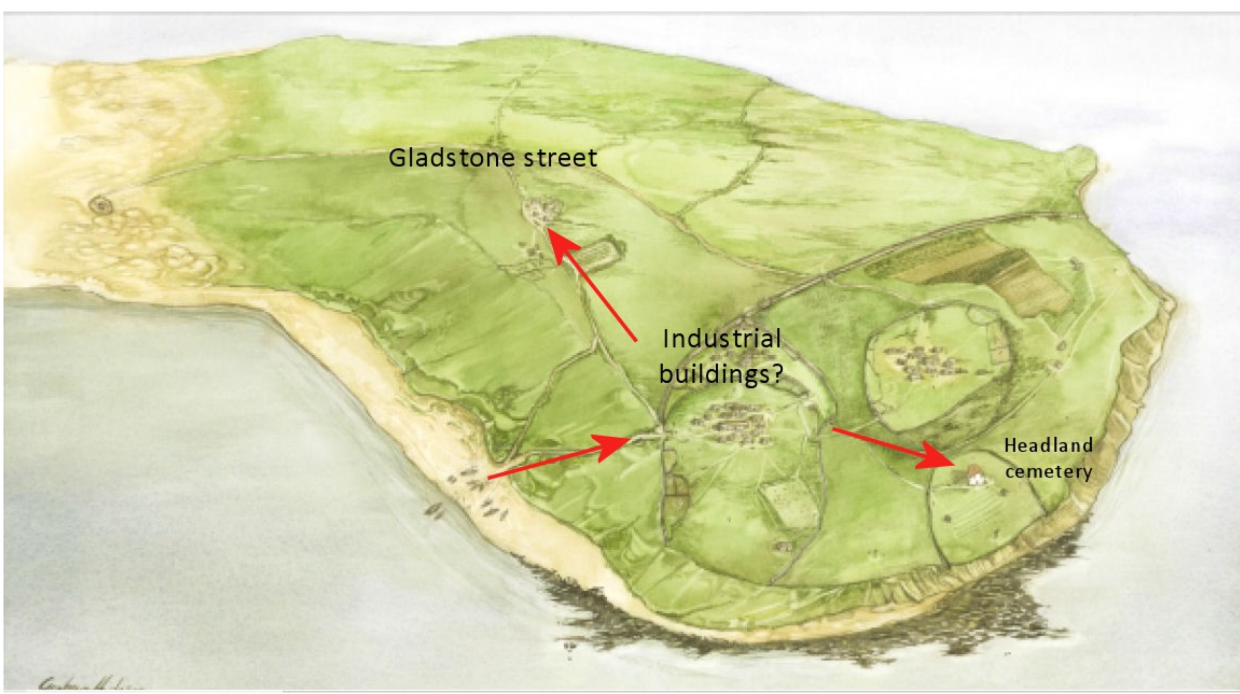


Figure 18: Access to the Hartlepool headland. Artwork by Graham Hodgeson, Tees Archaeology

kind, but which are more likely to have produced a visible symbolic barrier rather than a defensive one. The main palisade trench which formed the primary boundary of the site has at least three openings in close proximity, suggesting that restricting access is secondary in importance to providing a sense of division and passing between various characterised areas. Overall, Hill (157-152) characterises this system of boundaries as physically permitting entry, but visibly demarcating areas, possibly providing avenues and pathways that could not be mapped with greater detail unless further fieldwork revealed more of the boundary features.

This examination of movements at the sites suggests that there was a practical connection between these sites and the sea, as the proximity of marshland at Hartlepool, Wearmouth, and Jarrow would make them difficult, although not impossible, to access from inland. The buildings associated with industrial and craft activities often placed close to potential harbour points, which suggests the importance of seafaring for the management of the importation and exportation of goods and people. This would also add to the sensory journey of a route through the site, as the coastal sights, sounds and smells would transition into potentially busy port areas before the ritual heart of the monasteries could be accessed.

Conclusions

Despite a general trend towards the use of stone as a material for buildings, foundations and sculpture during this time, there is significant variation across the geographical area of this study in the specifics of building layout and function. This variation may, however, be superficial when the intention and experience of building form considered. Across all of the sites, particularly those with clear religious buildings, there is a movement in the eighth and ninth centuries towards increased multi-focalism accompanied by a range of new building styles with their own suites of sensory attributes. Although stone buildings such as St Pauls and St Peters at Jarrow were of a different form to buildings with wooden superstructures such as those at Whithorn and Hartlepool, they may both represent different interpretations of a single trend towards the utilisation of the experience generated by larger groups, providing an antimony to parallelled interest in practices of isolation and hermitage present in the written record and in smaller ritual spaces. This increased demarcation of space into particular niches is also present in the wider environments around these sites, where routes and access points served to guide participants through both the visceral and the supermundane, with liminal features such as porches and screens shaping the transition from one sensory schema to another.

In many cases, adding sensory information into these spaces to comment on their specifics is especially difficult: this chapter has shown the methodological issues in extrapolating sounds, smells and textures from archaeological material. The next chapter explores in greater detail the realm of the visual, and how variations and similarities between the use of light and colour are present at various monastic buildings.

5. Light and Colour

Light is the fundamental aspect of human vision: a small band of energy contained within the total electromagnetic spectrum that is the stimulus behind all that we see. While light's constant effects in the physical universe and the biological being have made it a topic of exploration for biologists and physicists fields such as psychology and anthropology have become interested in the vast variety of ways that these constants are perceived in different individuals, cultures and societies (Howes, 2011) In the previous chapter some of the difficulties in accessing many of the senses through material culture were ascertained. This chapter will focus on vision in closer detail, for two main reasons. Firstly, light and colour are more accessible in the material record than more transient forms of sensory experience. Secondly, light and vision appear to have had unique importance within the early medieval sensory paradigm, as discussed in Chapter 1. As with the previous chapter, the focus for this examination will be monastic buildings, with the aim of understanding how their construction as unique sensual spaces relates to the activities undertaken within them.

Light and Colour in Medieval Thought

Understanding the decisions that were made regarding the manipulation of light and colour at monastic sites requires an understanding of the wider cultural concepts about light drawn upon by members of the monastic community, particularly those who were instrumental in controlling the development of physical spaces. In Chapter 1, it was noted that the few clear examples of early medieval sensory hierarchies place sight in a prominent position. This conception is likely to have been formed from the scholarly texts uniquely available to the literate, connected population, through classical writers and biblical exegesis. This section will briefly consider these two sources, and what influence they may have imparted on those trying to utilise light within a liturgical environment. Of course, social practice does not necessarily follow formal divisions: it is likely that all of the senses had a synaesthetic fluidity in practice, particularly where concepts of divine interaction and communication were involved (Classen, 1993).

Christianity

A primary point of access for medieval monastic thought concerning visual experience is Christian theology, where light is given special value. The exact specifics of light imagery in the Bible varies significantly at various instances, which is to be expected from the wide variety of writers and cultures represented. Broadly, however, light can be characterized as something often external to human beings and representative of God's action in the world. This is best exemplified by the beginning of Genesis, where the establishment by God of light and its separation from darkness is part of the first act of creation: the event that begins the cycle of days, independently from the creation of luminaries. In contrast to the dualistic nature of other similar creation stories such as those from Bablylonia and Mesopotamia, (Dalley 1991 p228-278, Lambert p1-30) it is made clear that there is no war or struggle involved between light and darkness and that God is the creating force over both. The sun and the moon are associated with the existence of light and dark in many instances elsewhere implying that this initial light and dark without visible source represent a separate ontological category of light: a manifestation of God's power framed in the visual realm, but not part of mundane, corporeal light. This divine light is a component of many important displays of divine action in the New Testament, for example during the transfiguration and the conversion of Paul.

It follows that in literature more contemporary with monastic communities, light would continue to have metaphorical significance and be associated with divine happenings . In Bede's History of the English people, (HE 4 8) a female member of the monastery who is dying calls out for a candle to be extinguished, because she saw the house filled with so much light "that the candle seemed to be dark". A night-time miracle occurs where a light from heaven which "seemed to exceed the sun at noonday" appears which "removed to the south side of the monastery, that is, westward of the oratory" to indicate a new burial place. This event is described as "so great… that the rays of light which came in at the crannies of the doors and windows seemed to exceed the utmost brightness of daylight itself" (HE 7).

Divine light is also represented in influential artwork from the seventh and eighth centuries, especially in the form of the nimbus or halo around figures which was associated with depictions of Christ by the first century, before being expanded to feature in depictions of saints, angels, prophets and eventually in the case of the square nimbus, living persons (Ladner, 1941) While the origin of the nimbus may be linked to depictions of Roman clipeo shields in elite portraiture, (Janes 1998 114) the nimbus in religious artwork often contains experimentations with visualising the behaviour of earthly light. At Albenga, an architectural example is the mosaic vault with a monogram of Christ in a starry expanse in the Eastern apse of the building. The light being depicted gets less bright the further away it is: a possible experiment into depicting an after-image. In opposition to this, the apse mosaic of the Transfiguration of Christ from the sixth century has the light emanating from Christ's mandorla become whiter as it recedes from its source (Gage, 1993 114-116).

Figure 19: Representations of light and brightness in illuminated manuscripts

The circular nimbus is widespread in manuscripts that were either produced by, or within the general cultural sphere of, Northern monastic houses, for example in the Codex Amiatinus created around 700 at the behest of Abbot Ceolfrith with its clear Roman influence (Chazelle, 2006) and in the more insularly aligned iconographic stylings of the

Lichfield Gospels, the Lindisfarne Gospels, and the Book of Kells. It is only in cases such as the highly abstract curvilinear art of the Book of Durrow, reminiscent of La Tene patterns, that the nimbus is absent and replaced instead by the entoptic patterns (Figure 19). As with the continental examples given above, there are often gradations of colour used which may indicate deliberate experimentation with brightness and reflectiveness (Janes, 1998): in the Book Of Kells a dark inner circle emanates out into to bright gold leaf, while in the Lindisfarne gospels, yellow pigment transitions into red, a colour which (Baker 2013) suggests was the epitome of brightness in Anglo-Saxon chromatic schema. From this we can conclude that the imagery of the nimbus was widespread, and that experimenting with visualising the behaviour of Earthly light was part of the codification of holiness through material culture.

<u>Classical Influences</u>

As well as Christian concepts of light, it is useful to consider what knowledge of classical thinkers may have imparted onto these communities. Classical scholars were the primary commentaries influencing early medieval monastic thought on the mechanics of the universe, in particular Plato, whose work allowed for ready insertion of a higher reality and was therefore used as a gateway into Christian exogesis by early church scholarship (Vlach, 2013). This is clear in his use of light imagery, in particular the sun in his work, *The Republic.* Plato's sun is not light itself, but the source of light, in the same way "good" is not knowledge or being, being something beyond them. This can be seen in some of his most famous allegories from the work, for example in "The Cave" where sunlight is the vehicle through which shadowed facets of reality are viewed.

As well as light as the overarching symbol of goodness, Plato also considers the human sense of light. It's primacy is shown by the fact that the eyes are the most "sun-like" of all the instruments of sense, and are the first organs to be fashioned by the gods (Notopoulos 144, 228). He draws on a theory of vision where a light or fire burns within human beings, which joins with daylight in the world due to its similar nature and transmits information about the external objects that it “strikes” or “presses against” through the body and into the soul (Plato and Zeyl, 2000 p.33, para. 45b–d.) This highly tactile sense of light emanating from the being shows an ontological difference between the internal light used in seeing, and the light that is external. Marrying these two views together was the concern of classical writers, and similarly seems to have concerned Christian writers, perhaps in line with Biblical light metaphor as God as light beyond earthly or material sources of light. Augustine notes that "the light that is perceived by the eyes is one thing; the light which acts through the eyes so that sensation might occur is something else." (Huxable 2014, 30.)

Light at Monastic Sites

This discussion has concentrated so far on the textual and art history presentation of light, but to what extent would this have been represented in the form and architecture of monastic sites? Would any of these concepts been discernible in the lived experience and practices of the sites, integral to their form and architecture? To contribute answers to these questions, three facets of the case-study sites will be considered: daylight hours and the external seasonality of the placement of the sites, windows and the control of daylight within buildings, and artificial light.

Dark, Light and Seasonality at Monastic Sites

In contrast to societies where the subtleties of night-time are subsumed by electric lighting and a single long period of sleep, night time in the monastic world is characterized as full of variety and gradation. In *The Reckoning of Time*, Bede structures night into seven periods which suggest close attention to the qualities of light, sound and activity, and discusses the usefulness of night for both humans and the natural world (Kendall and Wallis, 2010, p108). It is apparent that the transitions between these temporal phases was incorporated into liturgy, for example in the daily interplay between night and dawn at Matins/Lauds, or the use of transitory periods for special feast day activities. The changing seasons and differences between latitudes may also be of significance: it is similarly noted by Bede, who states that in England “the nights are light in summer, so that at midnight the beholders are often in doubt whether the evening twilight still continues, or that of the morning is coming on” (HE 1 1). He frames this as a provision of God, allowing a rest from work in the cold winter darkness, and more time for work in the warmer summertime.

Bede's contemplation of summer twilight is understandable for a lifelong inhabitant of the North East of England. Northern monasteries such as Jarrow were in a unique position when compared to their Southern counterparts. Their high latitude provides much longer periods of usable twilight, especially nautical twilight, when the horizon is still able to be used for navigation at sea and major landmarks would be visible but indistinct from the ground, even on moonless nights. All latitudes above 54.5 degrees experience perpetual nautical twilight at the Summer solstice, a zone which encompasses the six monasteries in this study (Fig 20).

For a monastic community wishing to process from building to building or use outdoor spaces, this additional light may have been a key factor in determining the activities associated with different times of the year. There are known examples of the liturgy changing to account for daylight hours, for example the merging of Lauds and Matins during Summer (Woolfenden pp9-27). The increase in Marian processions such as the gangdagas is a hallmark of English liturgy from this period (Clayton 1984, 1990) and it is possible that processional activity found increased popularity in Northern monasteries in part due to the high levels of Summer visibility at night-time, although this would be difficult to ascertain with any certainty.

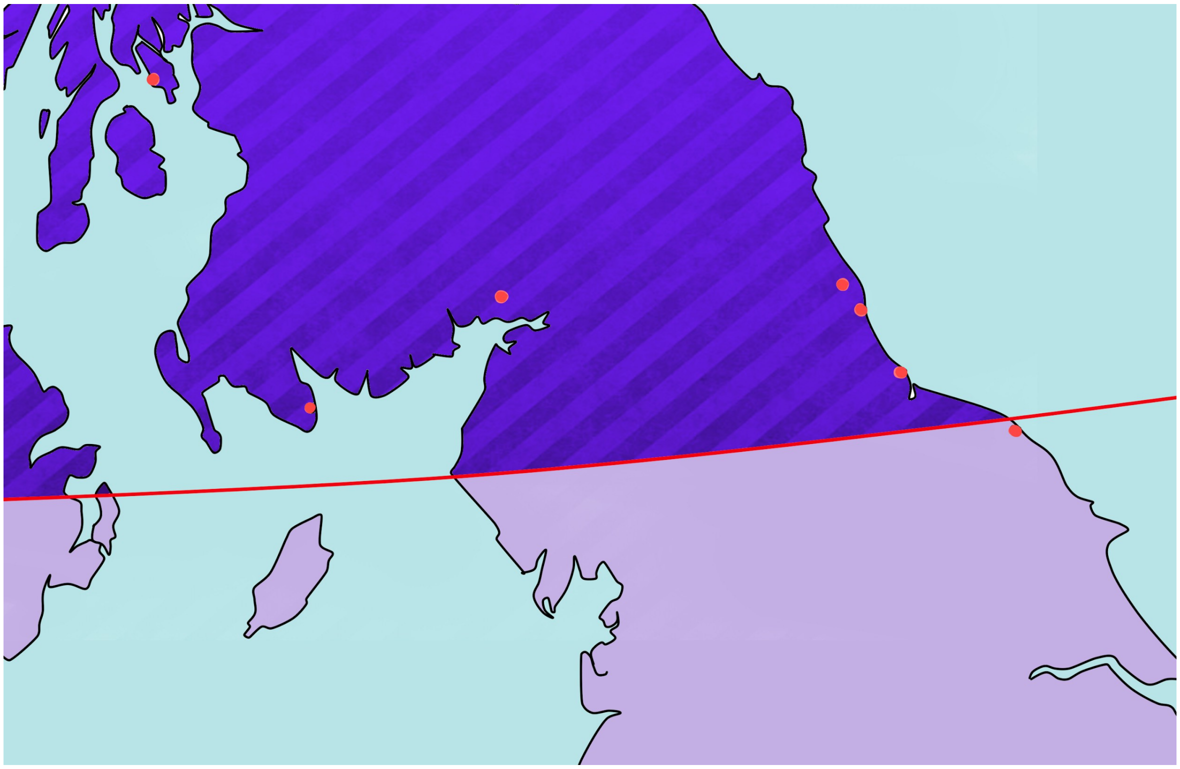


Figure 20: Areas experiencing perpetual nautical twilight at the Summer solstice

Window Modelling

More easily explored is how lighting interacted with the buildings and structures known about today through material evidence. The main juncture between the exterior lighting conditions and the daylight allowed into buildings is through the construction of windows. This section uses 3D modelling to discern the effects of windows and how the changing light levels throughout the day and year may have affected them. For this project, models were created using Google Sketchup, a freely available application that allows for the modeling of the shapes involved, and LightUp, a plug-in designed for architectural modelling of light that allows for greater accuracy.

Creating a model of many of the buildings at they key sites is difficult due to a sparsity of in-situ material and a poverty of certainties in construction methods. This would negate the usefulness of 3D modelling if the goal was to recreate an approximation of what was seen in the past, however this study is merely using modelling to consider a spatiality which is not easily accessed from plans that do not account for 3D space. How light, colour and buildings look is not important as much as the shape, form and direction of the buildings and light and the possible avenues of discussion that these possibilities open. Modelling the exact behaviour of light (directions, absorption and transmission), is possible due to its predictable nature, however doing so within the realms of the personal computer rather than the supercomputer is more difficult, and excessive for the scope of this project which is only concerned with light as it is perceived by human beings. For all of the models that follow, the movement of light is considered as two main separate events: direct lighting, where light arrives at a surface in the direction of the source of light, in this case the sun; and non-direct lighting, which has been reflected so much within an interior that it is not perceived as coming from any particular direction and can be considered ambient. Both of these need to be accounted for in the model.

As with similar computer modelling such as view sheds, light modelling cannot account for features which are no longer archaeologically discernible but which may have impacted light levels, such as foliage. A more accurate model would also have to account for the materials used for decoration, because interior furnishings would have had an impact on the absorption or reflection of the light within the building. This is especially pertinent for the reflective *opus signinum* flooring in Wearmouth and Jarrow, and for all buildings that may have featured reflective plaster. It is also notable that the heights of buildings are reasonable estimates as these measurements are not known with the accuracy of those on the horizontal plane, and so some calculations may be changed if the buildings were significantly taller, or shorter, than these models suggest. A final and fundamental issue with these computer models is one of epistemology: they may reveal situations that were physically possible, but it cannot comment on whether they were probable. The discussion below knowingly utilises imaginative conjecture of possibilities, in the hopes of presenting new ideas which may be dismissed or supported by other forms of evidence in future work.

Jarrow

A three-dimensional representation of Jarrow was created using plans from Cramp 2005 (Fig 21). This includes the main church, Eastern chapel before it was adjoined to the main church, and buildings A, B and D. These buildings were assigned the latitude, longditude and alignment of Jarrow for the purposes of sunlight modelling. It should be noted that the topography of the sites was not included due to the added complexity this would present and problems in accessing the nature of the ancient ground surface. The general topography can be assumed from liDAR data (Turner, 2014) showing that the site was located on a spur of ground which slopes in a north-west to south-east direction from Jarrow Hall to the River Don. Between the time of the monastery and the present day the topography has been affected by extensive back-filling with foreign ballast, rock and industrial waste, and more recently remodelling as part of the area becoming a public park and being involved with an extension to the Port of Tyne in the area known as Jarrow Slake. This means that it might be assumed that the church lay slightly uphill from the rest of the buildings

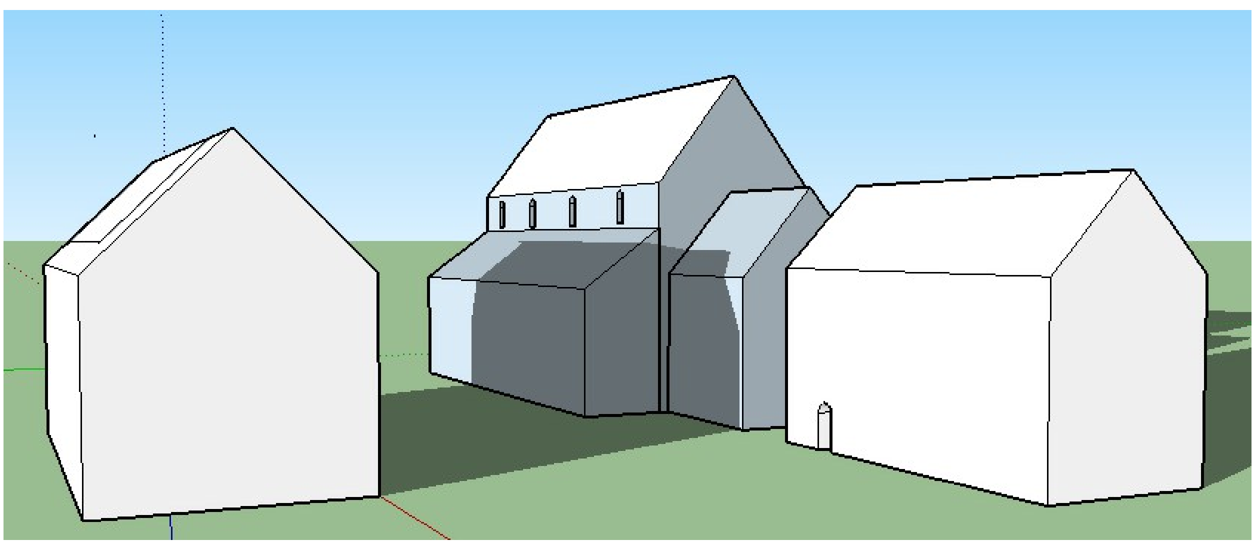


Figure 21: Simple model of Jarrow buildings demonstrating shadow placement for sunrises in December

The existence of in-situ windows in Jarrow, combined with a detailed knowledge of the ground plan as gained through excavation, provides a chance to model light in the 3D environment with greater accuracy than at many of the other sites. First, the form of the windows needs to be considered. The windows at Jarrow are encased in thick, single-splayed stone casing. The outer face of the wall remains flat, while the interior wall is shaped in a form to allow for the diffusion of the light. The glass in both windows only has a small aperture for light to go through, however the flayed shape helps to allow diffusion of the light and to counteract the thick walls. For the purposes of this model, the thickness and transmission capabilities of glass were not modelled, however these will be considered later in this study (Fig 22).

Once model windows were created, they were placed in the model of the eastern chancel at the exact location of the in-situ windows, and different heights and directions of sunlight were modelled. Although the light hitting the windows from the outside would have caused the coloured glass to appear illuminated from the interior, the windows in the building were found to provide very low-level ambient lighting due to their small apertures. A

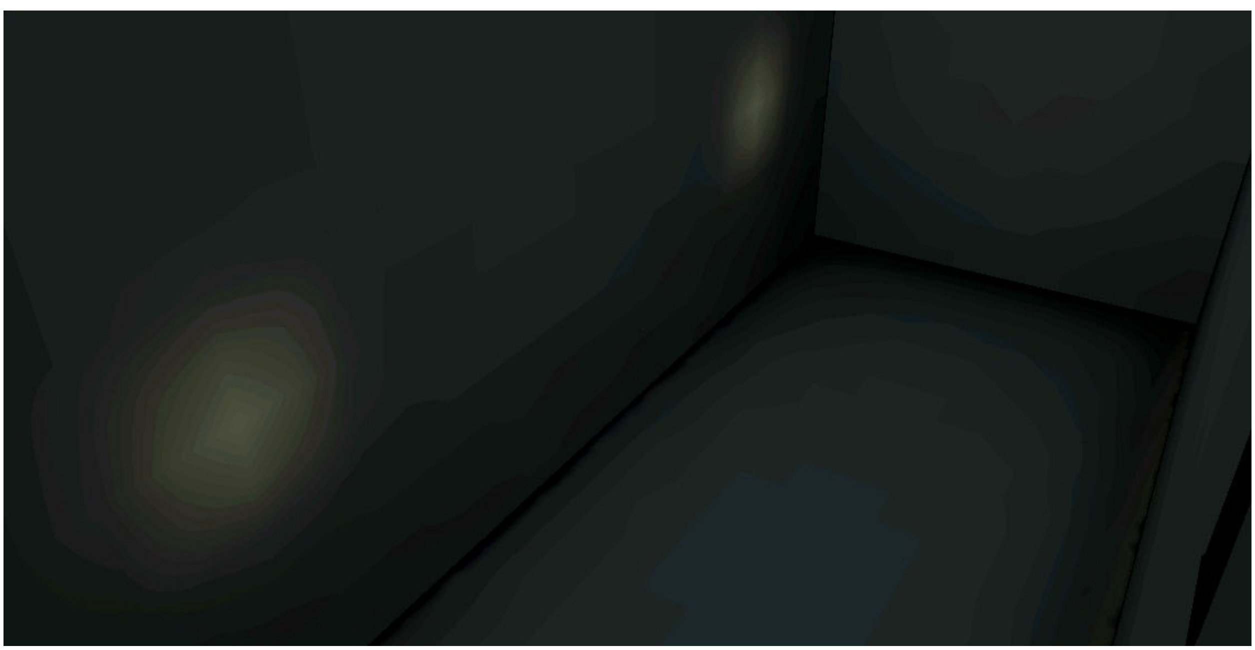


Figure 22: Spotlight effect present in winter months in the Jarrow model.

possible exception to this is the time around noon during November, December and

January, when the modelled building produced more focused spots of light on the wall opposing the windows due to a line of direct sunlight (Figure 23). In the model, shadows from the opposing buildings blocked this direct light hitting the windows in the early-afternoon, stopping this effect. Even if the nuances of the topography of the original buildings prevented this, the spotlight effect would be unlikely to persist past mid-afternoon. This means that it is a very temporally localized phenomenon: this effect would be at its greatest during the time of sext prayers during the seasons of Advent and Christmas, provided that the sky was not overcast.

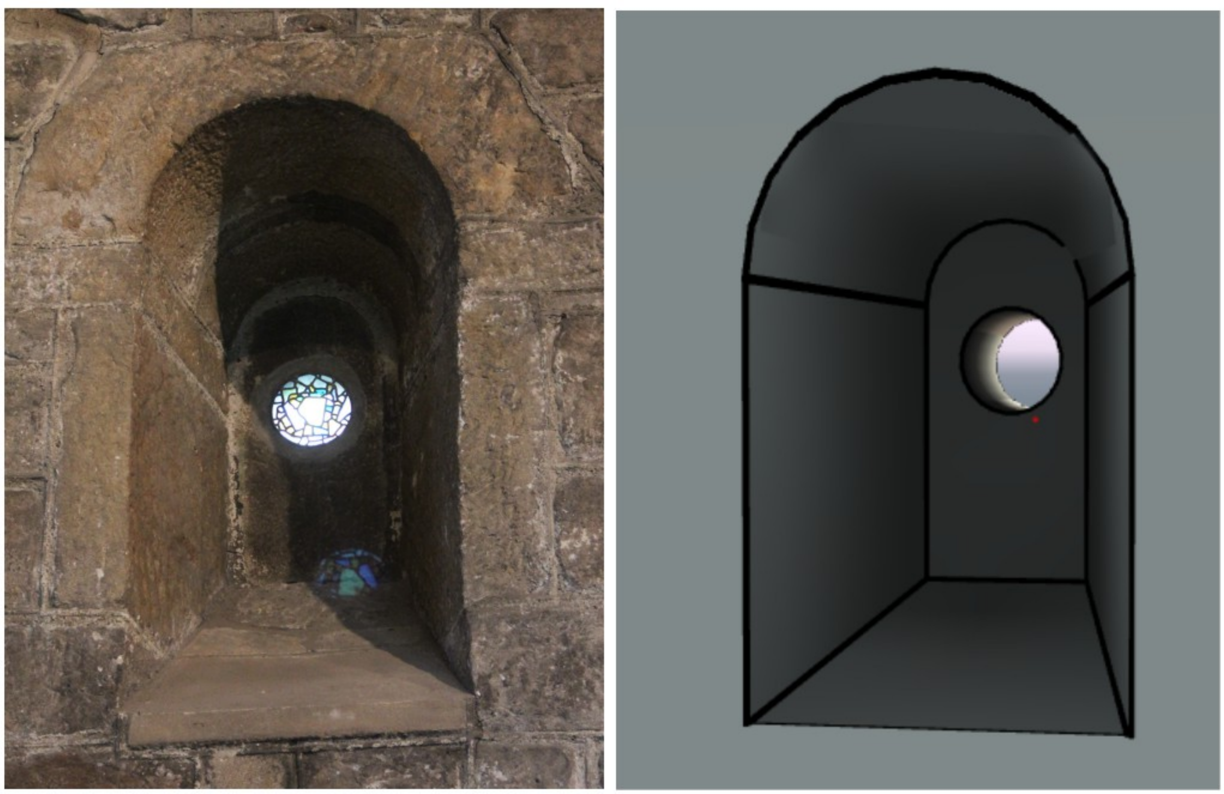


Figure 23: In-situ window at Jarrow (left) and its 3D model counterpart

Ascertaining whether this effect was deliberate, or at least utilized for ritual purposes, is conjecture. It can be imagined that wall paintings and imagery may have been placed on the wall to be purposefully illuminated during these times, or that the chapel might have been used with increased frequency for devotions related to the Winter festivals and the birth of

Christ due to the expedient lighting. If lighting conditions were manipulated in this way, it could have facilitated the rogational nature of the sites, with different buildings gaining relevance throughout the year. Unfortunately, only one wall's windows remain and so it is difficult to ascertain whether these windows were unusual, or simply part of a wider architectural feature which was spread throughout the church buildings. If similar windows were placed on the opposite, north facing wall that no longer exists, they would not have achieved a similar effect due to the orientation of the building. This may suggest that the placement of the surviving windows is more than a coincidence of preservation.

Although no additional in situ windows exist for the basilica-style church, a model of the church was created partially hypothesizing locations of windows based on the locations of window glass (Figure 24). The model windows were evenly spaced across the building, and in dimensions the same as the larger of the two in-situ windows. The renderings created using this model show the great capacity for the use of spotlights at the site, as a variety of shadow and spot effects would be created at different times of the day. Supposing the walls were adorned with differing imagery as mentioned by Bede, it is conceivable that different images could be lit up at different times.

Figure 24: Model of lighting conditions created by hypothetical windows similar to in-situ examples at Jarrow.

Wearmouth

St Peters at Wearmouth was very similar in dimensions to Jarrow, and it is assumed that the above discussion of lighting conditions may apply there also. A unique building of particular interest at Wearmouth is building B. Its shape and position have caused it to be conceived as a kind of hall or walkway between areas of the site, as well as a feature which demarcates different burial populations (Cramp 2005). The high concentrations of window glass associated with this building suggest that it may have featured windows similar to those in situ at Jarrow. Modelling a building of the correct dimensions and inserting a series of windows reveals the potential of this form for evoking qualities of light and brightness. This is especially interesting considering the building's potential importance in dividing zones of the site: it may be that it was given an especially lavish capacity for illumination in order to facilitate the transition into the special, ecclesiastical areas of the site from domestic areas (Figure 25)

Figure 25: 3D model of hypothetical lighting conditions in Building B, Wearmouth

<u>Whithorn</u>

The merged oratory church at Whithorn is a more complex building to model than those at Jarrow due to a lack of knowledge of the exact form that its timber construction may have taken. Plans from Hill (1997) were used to plot the probable form of the building based on the location of its post holes (Figure 26, Figure 27). This created an model that is approximate to the most likely shape that the building would have taken. As with the Jarrow and Wearmouth models, this 3D building was assigned the latitude, longditude and alignment of its real-life counterpart.

One architectural feature unique to this form of timber building are the external vertical timbers which form external arcades. These appear to have been added with the two oratories buildings were merged. The arcades are probably to carry the weight of extended eaves, protecting the load-bearing timber walls from moisture and decay, however Hill also considers other interpretations, such as ornamental posts or pylons (Hill, 1997).

The external raking timbers (Figure 27) are also indicative of an overhanging roof, which was modelled as an gable roof for this 3D reconstruction, but which may have been of a different style. In whichever case, the overhang of the roof would act as protection for the timber of the main walls of the chapel. The model also suggests that it would affect lighting conditions inside the building by shading the window and creating an absence of direct light. Unlike at Wearmouth and Jarrow, there would be no possibility for a spotlighting effect from any windows along the building, they could have only provided general ambient lighting. Later in the building’s life, a new wooden screen incorporating the pillar stone of the original shrine was inserted in a narrow slot, giving the church three chambers. This increasingly demarcated interior space is likely to have affected light levels, dividing off some spaces and making them darker.


Figure 26: Completed model of the merged oratory, Whithorn.

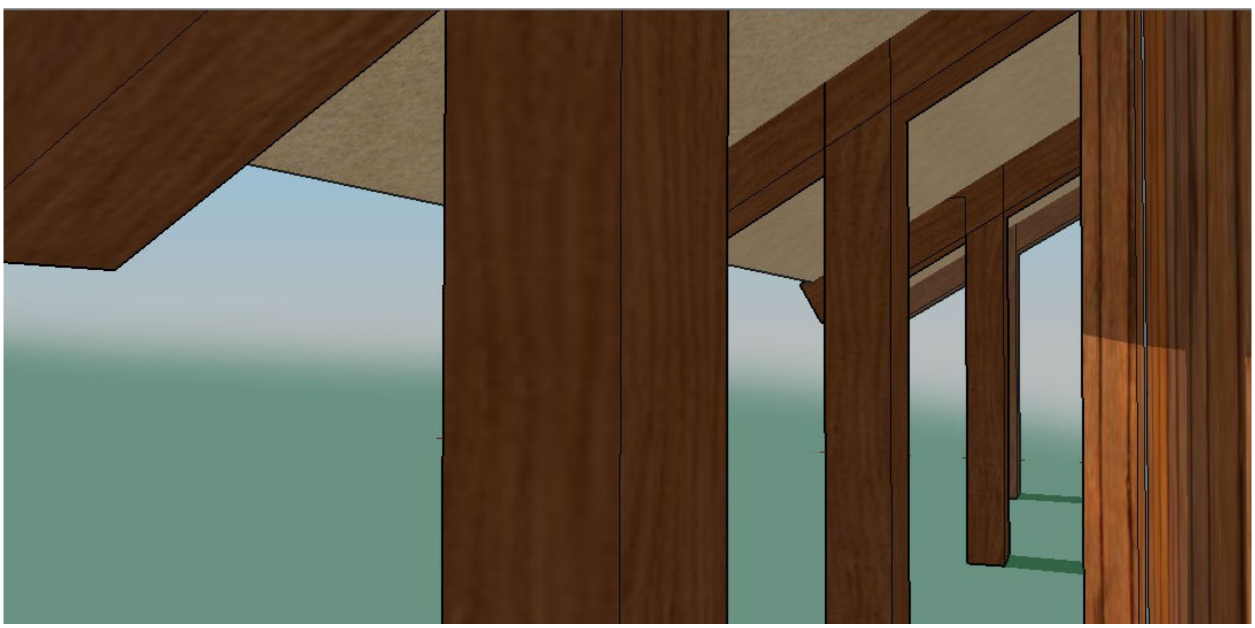


Figure 27: Model of external raking timbers at the merged oratory, Whithorn.

Whithorn - The Burial Chapel.

Fragments of window glass were recovered from in and around the clay burial chapel adjacent to the merged oratory. Their positioning suggests an eastern window with a range of blue, turquoise, green and dark brownish amber, as well as a possible window or windows to the North with similar colouration but less light blue. The lead calmes were not present suggesting the glass was held in a wooden frame (Hill 1997 162-163). At the phase 3 main church, some form of window can be hypothesised from fittings found at the north side of the building. The absence of an overhanging roof means that it is possible that this was a fairly brightly lit building, using light and stained glass in a similar way to Wearmouth and Jarrow: a sharp contrast to its neighbour, the joined oratory. The fact that it is such a different size and form of construction, however, means that it would be unwise to suggest a direct cultural association between the two, beyond representing two creative attempts at special, ritual spaces that utilised brightness.

Additional Influences on Window Light Effects

These models are able to consider the mechanics of windows and sunlight, however there additional ways in which the effects of sunlight entering buildings through windows can be shaped which are more difficult to model. Wearmouth, Jarrow and Whithorn all have extensive evidence of coloured glass, with another potential red glass fragment from Whitby (Medieval Archaeology 1992 274). For this period, however, “coloured” glass may be a misnomer with regards to the intended effect, as between the seventh and twelfth centuries there is a demonstrable trend in medieval ecclesiastical architecture for the use of glass the creates colourless light (Nesbit 2012) and many of the fragments with green or blue tinges that dominate the palette of colour from Whithorn, Wearmouth and Jarrow would have transmitted clear light. There is some evidence of creative use of transmitted light, however. Cramp notes that some of the Jarrow fragments of glass change colour from milky blue to clear amber in transmitted light due to minute quantities of gold and silver. It is not clear if this was a deliberately planned effect or an unintended product of the manufacturing process (Cramp, 1970). In this sense, the windows function as dual entities, the way they appear as objects used to create figures and patternation, and the effects they create when they transmit light.

Censers, which may be used to thicken the air and therefore create visible “beams” of light it situations where direct light was entering windows, may have been present at the sites, although this is by no means certain. They were not unknown to the Anglo-Saxon world, but only two certain examples survive: a sixth- to seventh-century import from Byzantium found near the precinct of Glastonbury Abbey , and a ninth-century example from the site of the Anglo-Saxon church at North Elmham in Norfolk, which is known to have been in existence between 803 and 840 (Norfolk Heritage Explorer, 2015). It can also be assumed that those travelling from Northern monastery to their continental counterparts may have seen censors in use. From this alone, however, it is very difficult to judge the extent and spread of censor use.

Simulating Lighting - Candles

So far, the use of natural darkness and sunlight at the sites has been considered, however these effects are likely to have been used in combination with artificial lighting. On a practical level, illuminating churches may allow more activities to take place, however it is likely that the use of artificial light was not simply a functional issue. We know from historical accounts that candles played important roles in rogational processions, especially the eponymous Candlemass (see Chapter 3). This would have been a notable event not only in the lives of the core monastic community, but in the wider population who appear to have been encouraged to take part. During these events the interior decoration of the church and the experience of travelling outside would be changed by the tonal quality of light available from the candles.

This is partially reliant on the materials candles were made from. Beeswax, a speciality material more easily obtained at monastic sites than other settlements, is a likely material for liturgical candles (Leahy, 2003 454). Banham and Faith (2014) discuss how beeswax was used for contemporary medical recipes with the implication that involvement in the liturgy gave them a esoteric, transcendent quality. The special qualities of beeswax are certainly noted by 1087 in the *Barberini Exultet Roll* created by the Benedictine abbey of Monte Casino, in central Italy, by being honoured in an image known as the "Praise of Bees,"(Figure 28) extolling the insects for their part in the production of the Paschal candle used in Easter worship. The vast majority of the population, in contrast, are likely to have used tallow candles which were widely available, but which would have had a less fragrant smell.

Figure 28: Praise of Bees, Barberini Exultet Roll. Vatican Library Archives

Computer modelling can assist in understanding the implications of the varying quality of light generated by both beeswax and tallow candles, by assessing their spectral qualities and whether the beeswax candles would have produced special lighting conditions, or whether they were used more for their smell, appearance and elite connotations.

A first step is to ascertain the spectral nature of candlelight. Although anthropology has demonstrated that cultural interpretations of colour vary greatly (see Chapter 1) the physical stimuli behind colour, the amount and nature of the light reaching the eye, is a scientific constant generated by both the frequency of light waves, which can be termed light's "physical quality," and the perception of the colour by red, green and blue cones that send a distinct signal to the brain (Kelleher 2015). It is therefore possible to create an accurate computer model of past lighting conditions, if the intensity and spectral values of the light is known. The following models use data gained by Devlin and Chalmers (2001), who created a variety of ancient light sources, including beeswax and tallow candles, through experimental archaeology in consultation with archaeologists from Bristol university. They then captured detailed spectral data using a spectroradiometer under controlled conditions. Ten readings were taken for each lamp type and an average was calculated.

Figure 29: RGB values for beeswax and tallow candles, based on data from Devlin and Chalmers (2001)

For use in this investigation, the original values from Devlin and Chalmers (2001) were converted into an RGB colour model. RGB colour models represent colour by additive colour mixing: primary colors of red, green and blue are added together to reproduce a wide range of colours. This conversion was a necessary step as RGB is primarily used by devices such as computers and television screens for display, and can be understood by LightUp, the modelling software used for this study. This conversion does present several issues. RGB values pertain to electronics rather than the human eye, and their appearance is dependant on the colour reproduction capabilities and calibration of the device they are being viewed on. This suggests that it is best not to view these values as an absolute representation of colour, but an indication of the general differences between colours.

It is also essential that this conversion into RGB values is done in a methodologically sound way. In Devlin and Chalmbers's work (2001), conversion calculations were as defined by the Commission International de l'Eclairage, the international body for coordinating lighting related technical standards, resulting in a decimal value between 0 and 1. For use in LightUp, a conversion to integer values between 1 and 225 was necessary, using a formula from Meyer (2007, 81). This involves a rounding up to the nearest whole number, which is unlikely to make a perceptual difference to the lighting environment. Through this process, swatches of colour representing the light emitted by beeswax and tallow candles can be created: (Fig 29) The complete lack of blue in the tallow light is probably representative of the small values for blue light being lost in this conversion process.

When combined with a hypothesised brightness and intensity, appropriate for the level of light a candle is likely to emit, these values can be used to model beeswax and tallow candles in a 3D environment. As a demonstration, (Fig 30) shows an environment containing one is a MacBeth chart, a color calibration target often used by photographers that was also used in the Bristol study, and a copy of Madonna and Child with Saints Felix and Adauctus. This is an image that Mayvert (1979) suggests may be comparable to the kinds of images mentioned by Bede depicting the life of Christ as Jarrow, and it is used here as an example of an image containing colours and pigments that may have been available in the Anglo-Saxon monastic world.

The spectrograph data and the demonstration both highlight that the tallow candles, the form of light most readily available for ordinary people at ordinary times, provide a more muted range of colours. While still spectrally restricted into earthy tones, the beeswax is a bluer light, creating a greater breadth of colour. With the addition of the sweeter smell of beeswax candles, we can start to see how sensory environment was shaped by this choice of material, creating vibrancy.

This demonstration is not itself an accurate representation of candlelight as it uses a steady light, as opposed to the flickering candlelight that would have played off the irregular surface of the walls to create a more dimensional look. Shadows can be important in creating a sense of size and scale, and so shifting shadows can infuse clarity that a fully lit environment may not have. They also endow an environment with a sense of animation that a static light would not, especially in situations where light are mobile, such as Candlemass processions.

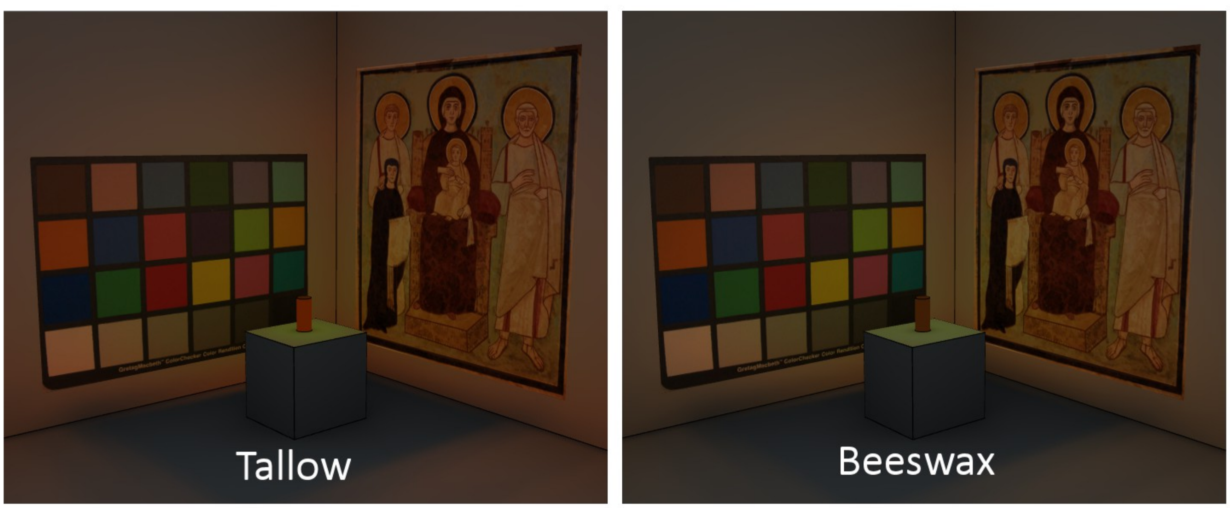


Figure 30: Digital lighting test demonstrating variation in hue between beeswax and tallow candle light.

Attitudes to Light

Despite the variety in size, shape and construction, the buildings examined in this study all have a trend towards restricting and compartmentalising light: different sizes of buildings using screens, coloured glass, coloured plaster, small window apertures and other architectural features to shape the illuminated environment. Although manifested very differently in buildings of different architectural and cultural circumstance, it may be that this common trend results from a shared comprehension of light in relation to religious and ritual spaces: a shared tactility born from prevalent attitudes towards light and seeing.

It may be tempting to dismiss some of the factors which restricted light as unwanted side-effects of a lack of materials and skill. Wearmouth and Jarrow were pioneers in the creation of glass in England. The fact that they were relying on cullet, the recycled remains of broken glass, and raw glass imported from the Levant (Brill, 2006) may suggest that the lack of large windows at St Peters and St Pauls is a result of the incipient development of technology and skills, rather than a deliberate choice, although difficulties in obtaining the correct materials and expertise does not appear to have fostered frugality in many other aspects of Wearmouth and Jarrow's development. At Whithorn, a case could be made that the lack of direct light was simply a byproduct of an architectural style. Viewing the trends for window sizes within the larger European context, however, reveals that the church buildings which provided the inspirational models for Wearmouth and Jarrow may have also have been involved in a general trend towards restricted light. Nesbit's (2012) study of buildings in Byzantium show that levels of natural light were reduced considerably from the early to middle Byzantine period: a transition which covered the seventh ninth centuries. The long continuity of building and rebuilding at Byzantine churches means that the disparity between the potential area available to allow light to enter compared to the actual illumination churches can be plotted chronologically to show this decrease, a level of examination not available at the monastic sites in this study. In the case of continental churches, this decrease in light levels caused lighting to become increasingly ritualised

(Louth, 2004). The Pantokrator typikon, a book responsible for recording the correct method of Byzantine liturgical rites, places great focus on the various lighting schema to be utilised at various times: "For the feast of the Annunciation, the amount of lighting will be half as much [as the feast of the Nativity]... the feast of the Holy Apostles will have the lighting and the provisioning of the feast of the Annunciation…" (in Nesbit 2012) This shows light used to not only illuminate an environment to allow it to be seen, but also to imbue it with special, supramundane qualities. If the trends in Northern monasteries were echoing the features of their continental counterparts, this link between architecture, liturgy and practice may have also been present.

Another commonality between the sites is a trend towards using balanced spectral light, either in the form of beeswax candles or blue and green stained glass that allowed the creation of decoration and glass patterns while also permitting clear light. This is an important consideration for buildings that were lavishly decorated through the the white plaster of Wearmouth, Jarrow and the Whithorn burial chapel, the red and black plaster at Wearmouth, as it would contribute to the richness and intensity of these how these colours were experienced: in a way unlike any other indoor space.

Both of these factors can be seen as emphasising the buildings as generator of light rather than passive receptacles of it, creating spaces that could fluctuate between darkness and intense light with qualities not found in ordinary daylight. This is another idea present in the Byzantine tradition of the 6th century, with (Prococius Buildings 1.1.29-30 in ") describing a church building's capacity of light: *"It abounds exceedingly in sunlight and in the reflection of the sun's rays from the marble. Indeed, one might say that its interior is not illuminated from without by the sun but that the radiance comes into being within it, such an abundance of light bathes this shrine."*

Although this is potentially a metaphorical conceit from a spiritual exegesis text, with all of the propensity to hyperbole that brings, it is a description that has resonance with attitudes towards light and architecture addressed here. As with the classical concept of light emanating from the body to create a tactile form of perception, light emanates from religious buildings in order to access the ontologically holy light associated with the liminality of the presence of God. What is an individual and subjective process to Plato becomes shared experience through the creation of architecture and activities that can unite a community in the process of being within light.

6. Space and Place

In chapter 1, this thesis demonstrated that there is significant variety in the built environment of the key sites under investigation, as indigenous styles combine with imported concepts. Despite being physically different, however, subsequent chapters have demonstrated ways in which they may have aligned in generating similar sensory effects. As many of the sites grew during the seventh and eighth centuries they became delineated and multi-focal, with interlinking zones for industry, religious activity and burial of the dead. Individual buildings and the access routes to them became more compartmentalised, with larger spaces being segmented by the addition of elements such as the porch at Wearmouth and additional screened compartments in the oratory in Whithorn. Combining this information with a knowledge of the delineation of ritual time in the liturgy has shown that the control of light, sound and movement became a common goal for these monastic sites, despite their varying forms. This chapter aims to gauge some of the ways that these elements may have been used by communities to calibrate themselves in relation to other groups and spatiotemporal events. First a working definition of space, place and time will be discussed.

The idioms of the English language acknowledge the ductile nature of time in the human mind. We know that "a watched pot never boils," and also that "time flies when you are having fun." Although time can be measured by timepieces or by examining the place of the sun in the sky, the human mind is not a computer which situates itself in perfect, linear time. Understanding where and when we are is a constant renegotiation, and human creations such as material culture, ritual calendars and symbols facilitate this renegotiation.

<u>Space and Place</u>

Space and place are in danger of becoming counterwords in cultural studies since the influx of an “almost inflationary amount of publications contesting the meaning of space in anthropology” (Kokot, 2007 10-23) which have appeared since the 1980s. The reasons for this intense interest are complex and possibly related to globalisation as well as a general trend towards considerations of the subjective and bodiliness in the social sciences. To avoid falling too deeply into this theoretical debate, *place* here is used to mean a concept with cognitive relevance: an environment with qualities that have become indistinguishable from the world as a whole, where individuals can become actors who imbue identity onto a place to achieve shared goals. This is a continuing process as new actors establish themselves and goals change (Huigen and Meijering, 2005). To take an analogy from Ingold (1993 98-99) the difference between space and place is like the difference between a cartographer who is creating an independent rendering of an environment, and a person who moves within that environment. Both are orientated around the same space, but only the person in the environment experiences it as *place*.

<u>Time</u>

Time to human beings is a similar mediation between the self and a perceived external axis, however it comes with its own peculiarities of theory for the archaeologist. When Augustine states “"Quid est enim tempus? Quis hoc facile breviterque explicaverit?" (For what is time? WHo can explain it easily and briefly?")(Augustine, Confessions, Book XI, Ch XIV p202) he foreshadows the multitude of views of horology, the study of time, given by physicists, theologians, psychologists and philosophers. It is the social value of time which is important for this study, but a brief consideration of the general mechanism of time perception on an individual level can help to highlight the specific importance that the senses have in the creation of time.

An individual's memories are formed through sensory experiences and interactions, which are initially atemporal before cognitive processes work to assign memories connections to specific temporal landmarks (Friedman, 2001). Through this process, things become temporally near and far, in the same way that they can seem near or far spatially. From the individual's point of view, certain events have already happened, others are currently taking place, and more are yet to come. There are also events that are mythological or fictitious, seemingly taking place outside of historical time: the self is not orientated within them (Hoerl and McCormack: 2001, 1-10).

The form of spatiotemporal organization discussed here can easily be manipulated for various communal goals. The remainder of this chapter will examine what the goals of monastic communities may have been, and how they may have utilized the senses to manipulate human perceptions of space and time to achieve them. Four potential goals being highlighted: the goal of creating a conscious shared connection with the Roman church, past and present, the goal of utilizing symbols of order and wilderness as a didactic tool relating to concepts of heavenly cities, the goal of managing the mundane and the supramundane so that they emphasise each other, strengthening the effects of ascetic practices, and the goal of perpetuating the significance of events in the life of Christ and the Saints by placing people as social actors within those events.

Connections within communities and with other communities.

A persistent facet of the discussion of ecclesiastical material culture in both historical records and past academic discussions is the extent to which these sites were purposefully imbued with the cultural milieu of a culturally constructed Roman past: the concept of Romanitas (Hawkes 2007) and also the extent to which connections to the Roman church were of significance to sites with varying apparent degrees of contact with the continent. Two elements of this discussion that are particularly apparent in the architecture of monastic sites will be discussed here. Firstly, the inclusion of Roman liturgical elements creating a spatial connection with the city of Rome, and secondly the rise of stone as a building material potentially creating a shared physicality with both the Roman past and the continental churches of the then present.

Liturgical Romanitas

Bede and others construct a narrative where Roman tradition has “won,” and where the synod of Whitby was the pivotal moment where establishments such as Hartlepool, Whitby Wearmouth and Jarrow would have aligned themselves liturgically with Rome. This is reflected in documents from the annual council at Clofesho in 747, specifically a series of canons that seem to be created to solidify the relationship with Rome. Seven of these are liturgical, mandating that certain feast days of the martyrs, the previously discussed seven canonical hours, and an emphasis on celebrating feast days of Gregory and Augustine of Canterbury, who were important figures in Roman tradition. At Wearmouth and Jarrow, written accounts make clear that Benedict is making a specific attempt to instate some Roman liturgy by bringing Abbot John to Wearmouth after his trip to Rome in 680, to instruct the members of the monastery in the chants for the church year in the style of those that were sung at St Peter's Basilica in Rome. This creates a shared bodiliness of words and actions between people in Jarrow and people in Rome, as well as blending their communities by having an individual from a Roman church community welcomed into a Northumbrian church community.

There is further evidence of intense interest in Roman practice in the knowledge that Wearmouth and Jarrow had of the Roman stational liturgy. The main evidence for this is a gospel lectionary containing a copy of the stationing, bought by Burchard to his new see at Wurzburg in 743 but originating from England and very likely from the Wearmouth-Jarrow scriptoria (Praff, 2009). Gittos describes how the physicality of the Roman stations may not have been present at Wearmouth Jarrow, but the act of processing between churches using a mental framework of those churches is. We have a vivid example of this in the account of Abbot Ceolfrith saying farewell to his community by processing around the churches in 716 (HA). On Wednesday 3rd June he goes to St Pauls in Jarrow to say goodbye to those there, but on the following day he arrives at St Marys and then St Peters, where the whole community had gathered. The six miles between the two monasteries is not unlike a journey across Rome, and this fact may have been known and exploited in rogational practices to bodily re-enacting being part of the central Church in Rome. The community can trace "on foot, more often in their imagination, the routes between the city's shrines" (Gittos, 2013). This not only gives a sense of community with the other members of the worldwide church, but between individuals within a community due to their shared knowledge and experience.

This study has indicated that similar potential for imaginative rogational practice is present at other sites, however, including Whithorn which does not share Wearmouth and Jarrow's close documented relationship with the Roman church. The earlier site at Whithorn, dated from 500 – 730 featured an enclosure ditch around a smaller "inner precinct" (Hill, 1997). From 730 into the ninth century, however, the site saw a period of development shared by Hartlepool and Whitby, with the addition of new religious buildings including multiple oratories, burial enclosures, stone walls, coloured glass and sculptural elements, paths and additional entrance ways to existing buildings. This suite of material culture indicates that Whithorn was developed throughout the eighth century to be a complex multi-focal site with multiple approaches, assisted by the topographical location of the monastic buildings in a lowland area adding to possibilities for a variety of approaches and views of buildings (Fig 15).

Unlike Wearmouth and Jarrow these developments took place with a distinctly indigenous focus with timber and clay construction buildings and unique building forms such as the combined oratory. This could be ascribed to a desire to create a site with a sensory connection to the continental church but without the same access to materials and expertise present at Wearmouth and Jarrow, however this would be a narrow view for a site with such a long history of monastic activity and a wide sphere of cultural connections. It is perhaps more likely that sites on the fringes of Northumbrian influence like Whithorn were negotiating between new cultural trends and the development existing ones, creating connections with the past and the wider world of the present.

Even at Wearmouth and Jarrow it is worthwhile to consider the wider spheres of influence which may have impacted the form of the sites and the activities that took place within them. Eighth century accounts from Alcuin, who was educated in the cathedral school at York, present a diverse liturgy that may be comparable to the influences of the Northern monasteries in its eclectic nature: he mentions Epiphany-tide antiphons of Greek origin that had come from Mid-Eighth century Rome, a set of ten "O" antiphons for the last days of Advent which might be unique to England, and Marian antiphons that suggest there was a specific cult of the Virgin in the Northern church, a fact corroborated at monastic and minster sites by a prevalence of Marian churches and focus on events linked to Mary (Clayton, 1990). Although connections with Rome were important, this mechanism of evoking other places and times is not confined to Rome. Connections with other areas and between sites in England and Scotland were equally important.

The Use of Stone

Bede's account of the foundation of Wearmouth and Jarrow highlights a connection with Rome through the importation of the Gaulish stonemasons into Northumbria for the construction of Wearmouth and Jarrow. The other monasteries in this study also utilize stone in the seventh and eighth centuries, although in different forms. In the case of Whitby, the chronology of the use of stone bases is difficult to ascertain. For Hartlepool, Hoddom and Whithorn, stone bases are an adaptation that occurs broadly around the 8th century (Fig 6). The effort this would have taken at Whithorn is considered in detail by Hill (1997): wall timbers must have been trimmed above ground level allowing for the insertion of a stone damp course and stones wedged under the original timbers, work which would have been completed in short stretches over a period of time. This practice of using stone was accompanied by a desire for larger buildings. At both Hartlepool and Whithorn, there is evidence for the joining of two buildings to make larger structures, in the case of Whithorn to make an oratory, and at Hartlepool, building 32 involved two buildings joining to make a larger industrial building.

The use of stone as a building material, particularly as a stone base or foundation, does have a practical application. It is able expand the life of buildings that would otherwise have been frequently rebuilt which is an economic use of materials (Reynolds 1995). If the rise of stone feet at these sites is simply adoption of new technology, however, stone-footed buildings might be expected to appear in comparable secular environments too, in particular in elite contexts that could have had access to stone. Stone was rarely used domestically in England or Scotland until the tenth century, however, with Shapland (2014, 21-45) mapping only nine domestic sites with masonry evidence, many of which can be attributed to unusual circumstances: examples at Simy Folds and Ribblehead are of Scandinavian origin, for example, and mid-late ninth century houses at Green Shiel near Lindisfarne were footed with stones from an adjacent beach during a period of collapsed infrastructure following the departure of the monks from Holy Island (O'Sullivan 95, 78-88.) Similarly there is no sign that stone sculpture existed in anything other than ecclesiastical contexts during this period (Hawkes 2003). It is worth adding an epistemological caveat to this observation: if stone architecture is seen as a hallmark of classifying a monastic site, it would follow that it would be present at sites that archaeologists consider monastic. This is particularly important in the case of Hoddom, where a lack of clearly religious architecture and historical evidence has placed more weight on apparent ecclesiastic architecture as evidence for its monastic origins (Lowe, 1991).

If buildings incorporating stone were not simply a practical development but a visibly a new style, as demonstrated by Lowe's reconstructions of the stone footed buildings at Hoddom where the stone bases provide a subtle yet visible change the the appearance of the structures (Walker 2006), and this new style was adopted by the religious elite rather the secular elite, this suggests that there was some kind of specific cultural implication of stone and wood.

A well-discussed argument is that the use of stone is an example of Romanitas: the reusing of Roman stone and styles as a method of evoking a continuity of Christian worship in England, and links to the current day relationships with the Roman church. Jane Hawkes' influential study of sculpture suggests that stone was deliberately used to proclaim the existence of ecclesiastical centres with a bold visual signal that would stand out in the landscape and evoke Romanitas, being brightly coloured and possibly inlaid with glass and metal (Hawkes, 1999) and similar concepts are found in Cramp's assessment of the use of stone in Wearmouth and Jarrow (Cramp 1969 58).

Accounts of the perceived mystique of stone as a building material across different regions need to consider the diversity of its use at Anglian monastic sites. A significant difference between the adoption of stone feet at Hoddom and Hartlepool, for example, is that while Hartlepool has a picture of adaptation and change as older buildings are given new foundations as part of a natural progression, at Hoddom this rebuilding phase is accompanied by a replacement of buildings that have a new alignment. This could be viewed as a partially political move: a hinterland coming under the influence of Northumbria and wishing to associate with its constructed cultural legacy. It may also be explained by local innovation and stylistic changes. At Whithorn, where stone bases are added to existing buildings and new buildings such as the burial chapel utilize new materials not associated with continental buildings, local innovation is abundantly present. The sounds and sights of stone may have been used to mentally transport a community into a narrative in continuity with a Roman legacy or with their Northumbrian counterparts, but the indigenous value of stone and wood in these communities must also be considered. Therefore the considerations of stone and wood will be returned to in the next section, which considers how monasteries process their ritual and more visceral aspects.

The Mundane and the Supermundane

Monasteries were environments which juxtaposed the holy and the visceral, managing rather than banishing the ordinary. Foot (2006) suggests that like prisons, hospitals and boarding schools, monasteries have elements of being “total institutions”. Activities of work, sleep, play and even death take place within the same spaces and in the company of a limited community of people. This means that space and time must be carefully sub-divided to maintain functional order and a strong group identity in a restricted environment.

The Creation of Liminality

One way in which his was achieved at the sites is through the creation of liminal areas between various kinds of activities, particularly around religious buildings. This was partially achieved by the creation of ritualised approaches and demarcations. Rather than producing immutable barriers, the sites have symbolic features which create minor physical restrictions to signify the transition between zones. These physical barriers would have created different experiences between those visiting the core of the sites from the hinterland and those who lived more centrally, helping to define roles within the community.

The topography of monastic sites often facilitates a gradual entry into the site for a new visitor: all of the key sites with known ecclesiastical centres required an upland journey from a marine access point and past industrial buildings before religious buildings were encountered. This may also apply to Hoddom due to its known industrial buildings being in lower ground close to the river, although the location of possible religious buildings are unknown. Further constructed barriers were added to the sites over time in order to reinforce this natural topographical barrier, such as Hartlepool's hierarchy of ditches, palisade trenches and fences restricting free access to the monastic core and Whithorn's revetments around the oratory buildings.

Elements such as Wearmouth's porch and the main Whithorn multiple screened sections may have been a further attempt to separate the religious building from the wider activity at the site, creating a buffer space to be encountered before entry to the church. Multiple entranceway creates a possibility for different groups approaching the sites differently. At Wearmouth in particular, the contrast of the porch leading to the exterior of the core known monastic complex and building B leading towards other known monastic buildings suggests two distinct entranceway with differing experiences: one defined by its coloured glass and role dividing space within the cemetery area for those approaching from within the monastic complex, and the other defined by its sculptural elements, size and visibility for those entering from outside.

The creation of liminal barriers around the supermundane was not just a spatial consideration. Setting aside periods of time for mundane or supermundane activity was also important. The investigation of light found in Chapter 5 indicates the potential for special lighting conditions in combination with other special elements such as coloured glass, wall paintings and sculpture to signify entry into special times in the liturgical day and year. The existence of multiple spaces for ritual use was also important for linking spatiality with ritualised time, allowing for the association of particular buildings or routes with certain festivals or times of year.

Mirroring the complex routes and access points, the monasteries also developed complex spatial schema for handling the placement of cemeteries and the dead. In chapter 3, the burial profiles of various demographic groups at the sites was discussed, revealing a tension between a desire to separate the living and the dead and a desire to incorporate individuals into ecclesiastical sites in death. While the bulk of the wider population may have been buried in cemeteries separated from the core ritual focus of the sites such as Gladstone Street at Hartlepool or the inland cemetery at Whitby, many individuals were not just buried close to ecclesiastical buildings, but directly alongside them. While some of these were likely those who lived on monastic sites, such as the male group to the east of building B at Wearmouth, many were not individuals who lived on monastic sites but were part of other groups given special consideration: the elite, groups and families (Cramp, 2005 184-85) or infants. With frequent burial occurring at the heart of the sites, it marks out the ecclesiastic buildings as spaces which exist for both the living and the dead.

Use of stone and wood as building materials

There are many anthropological examples of societies in which stone buildings form the place of the dead or eternity, in contrast to wooden buildings which form places for the living (Silverman, Small and Aragon, 2002 145-150) In the Neolithic British landscape, the links between human interactions with stone and natural outcrops has been extensively discussed (Parker-Pearson and Ramilisonia :1998; Bradley: 2000). It is unsurprising, then, that there was already a great cultural mileu in Anglo-Saxon society linked to stone and wood that does not directly link to the present relationships with Rome, which can be traced back to pre-Christian religion and mythology. Stone has a close connection in late Anglo-Saxon writing with giants, with various ruins being described as the technically ingenious work of giants (Semple: 2013 179-180). Saunders (2010, 94-96) suggests that stone in this context was a reminder of transience, however stone is also the strikingly visible remnant able to endure and testify about the past. The fact that remnant of the past is not metaphorically perceived as occurring under human hands evokes permanence beyond human means. Therefore, the duality of stone as a material becomes apparent: it evokes the past through its existence in ruins, but also has atemporal permanence in metaphor.

Wood, on the other hand, is often linked to mortality and transience. Early Anglo-Saxon buildings appear to have often been left to decay in situ or dismantled (Hamerow, 2009: 134,136) with buildings in the mid to late Anglo-Saxon period as evidenced by those at Flixborough likely lasting only around 25-50 years, with frequent periods of repair and rebuilding (Loveluck, 2007 50). This ties wooden buildings within human time-scales and mortality. It is fitting that secular sites, with their focus on successive generations of power, would gravitate towards the use of a transient material allowing for frequent renewal, while monasteries would gravitate towards the use of stone can be removed from the ordinary passage of time. This is not to say that wood did not also hold duality of meaning, however: despite its association with life and mortality, it may have also had transcendental properties through pre-Christian tree symbolism and connections to the Christian cross (Hooke, 2010). Therefore it seems that the move towards stone elements at monastic sites was a complex issue compounding practical considerations and a variety of cultural precedents.

Creating a Sense of the Built in the Wilderness

In chapter 5, the locations of the monasteries along coastal and riverine estuaries was discussed, as well as their preference for elevated ground on peninsulas or headlands. These positions have many practical advantages, but may also have cosmological potency to the monastic way of life, encapsulating and promoting concepts of civilization and wilderness. In Anglo-Saxon poetic discourse, the anthropocentric order of the built environment banishes chaos and danger like penicillin killing bacteria as it grows in a Petri dish, creating a safe area against that danger lurks beyond. This makes the liminal intersections between chaos and order, built and wild, land and water, especially disturbing aspects of the Anglo-Saxon psychological landscape. This can be seen in Grendal's mere in Beowulf (Ball, 2011), the water-monster ridden river of undrinkable water in Alexander's Letter to Aristotle (Orchard, 1996 45-46) and in a concept that Donald Fry (1987) terms the Cliff of Death, a common archetypal landscape aligning with concepts of a hellish Otherworld, appearing in various texts characterised by "cliffs, serpants, darkness, deprivation and occasionally wolves and wind." The reason for the use of water and cliffs in this cosmological map is possibly linked to the rising of sea levels in during this period creating a landscape characterised by its marshes, fens and water meadows, (Wickham-Crowley, 2006) as well as the importance of the sea as a method of transportation.

If these liminal areas of cliffs, water and fenland were considered deviant areas, we must ascertain why monasteries became so associated with them. There are various cultural concepts which this zoning may have tapped into. The fact that pre-Christian sites also gravitate towards the intersection of land and water may have served to place Christianity in a wider narrative of conversion and transformation, the renegotiation of religious beliefs finding an apt metaphor in mutable boundaries that were in a constant state of flux. There is also a precedence for the importance of wild and wilderness in Christian ascetic activity. The writings of both Athanasius and Jerome focus on the transformation of the desert, a place associated with wilderness, into a locus amoenus, a tamed human landscape that can foreshadow the arrival of the heavenly city (Curtius, 1953 183-202). It may be that in the Anglo-Saxon world, the desert wilderness in this enduring literary model was replaced by marshes and fenland, elements with their own long mythological heritage.

The sea, an important presence in many Anglo-Saxon monasteries, also has a history of being perceived as a chaotic wilderness in Biblical tradition: an uninhabitable area divided and set apart by God, potentially home to allegorical beasts such as the Leviathan. This metaphorical vein is mined frequently by subsequent writers in Christian tradition who often liken to the separation between the tribulations of secular life and the safe harbour of the monastic life, as in the writings of Jerome in Tractatus de Psalmo, and Aldhelm. (Ryken et al, 1998 41). Bede uses a similar metaphor in his commentary on the building of the Tabernacle, where the western side looks out to sea because the Church is settled on the firm shores of the eternal God, looking out at present sins (Bede, De Tabernaculo, lines 939-67). The fact that there are many New Testament stories centered around the sea and that various miraculous events focus around bodies of water and fishing may have also been seen as a benefit to these locations, the environment prompting a general reflection on these associations, in particular for monasteries situated at harbours.

Social Roles through Time

This chapter has discussed how the liturgical calendar may have been used to create connections between communities, particularly continental Roman churches, by sharing actions and physicality. It is also possible that the dramatic liturgy was used by communities to place themselves within wider cosmology, which is normally considered to be beyond or outside of personal timelines (Hoerl and McCormack: 2001, 1-10). This is achieved through the use of social roles and memory as a form of spatio-temporal organisation.

Sections of monastic communities had more opportunity than other kinds of community to imbue time with constructed meaning due to being syncopated from the reproductive cycle. The core monastic community was not one directly reliant on reproductive lineages: something that has been associated with variant conceptions of time(Halberstam 2005). While deaths might occur and individuals may gain new ranks causing rites of passage to mark these events, there are no easy successive generations to be marked. Replacing a marking of the turning wheel of successive generations is a yearly program of festivals marking the birth, life and death of Christ. It is especially notable that these monasteries had a special affinity to Mary: McAvoy suggests that linear temporality, with lines of heirs, is often a masculine frame, and the female temporality which orientates around female bodily experiences such as the menstrual cycle and successive childbearing, as being a circular temporal framework (Cox, McAvoy and Magnani, 2015) . Marian festivals and buildings may have been ideal places to explore alternate forms of time.

The wider monastic population, including all demographic segments of society, could also appreciate this recurring performative liturgy. Since sensory experiences are key to internalising memories and can easily unite events which may otherwise be spatially or temporally distant, linking particular experiences to biblical narratives allows for past events to be brought into the present and internalised by participants. In order for this to occur, however, sensory experiences must be easily recreated and given longevity despite their fleeting nature. This places the built environment as a generator of memory. Through the use of arrays of buildings of different sizes, temperatures, acoustics and lighting conditions, cosmology could be stored in a buildings fabric and drawn upon by multiple generations. At the beginning of this thesis, the question was raised of the importance of disparate elements such as coloured glass or a leaded roof. A possible answer is that when taken together, they can become storage for community, cosmology, memory and relationships.

Studying the Senses

With these conclusions in place, it is worthwhile to consider the process by which they were formed and the extent to which they may contribute to understanding the development of monasticism across the seventh to ninth centuries in England and Scotland. The written texts available concerning Anglo-Saxon monasteries are relatively scant, and so those which exist have often formed a cornerstone for studies which consider the topic. This study is no different, frequently relying on written accounts to gauge possible cultural perceptions of topics and to find answers about the nature of transient activities which may have occurred on the sites. By taking phenomenological and sensory approaches that have often been utilised in periods without historical sources, however, it has allowed for new commentary on the ways that the physical forms of the built environment may have ultimately affected thoughts, actions and perceptions. This has highlighted commonalities between sites which is not initially apparent from their differing physical forms, and offered insight on the relationships between traditionally Northumbrian monasteries and their Scottish counterparts.

This process can also feed back in to historical texts, offering new insight. Bede's account of Ceolfrith departing for Rome, for example, can be given additional meaning when it is considered that although the monastic community cannot join in the visit to Rome, the multi-focal site with a variety of buildings with their own unique sensory features can send the community on an imaginative journey alongside Ceolfrith, linking themselves through physicality with other communities. Other information may be less immediately useful for broader scholarship, but adds tangibility to the past and provide new information about the places known about through archaeology and historical accounts, for example by knowing how the buildings were lit by the rising sun in the documented events, and how this may have impacted the described approaches to buildings.

The modelling of buildings and consideration of topography used in this study would benefit from being attempted on a larger scale. The models of light, for example, would benefit from the inclusion of topographical data gained through archaeological excavation. Commentary on acoustics and sound in this study has been conjectural due to the complexity of modelling them , however the technology to model the acoustics of buildings is a growing area and investigation into the validity of modelling buildings which can be reconstructed from archaeological evidence could be a future area of growth in the field. This study has also limited itself primarily to the built environment, however it is clear that the wider hinterlands of monastic sites were incredibly important to their function in society. There is the significant possibility to expand into considering wider landscapes, view sheds and access in more detail.

The conclusions of this study could be viewed as highly speculative, particularly in this final chapter which takes an exploration of potential sensory effects created by these sites, and attempts to ascertain reasons why those effects may have been created and what meanings they held to the people of the past. The limitations of historical sources, archaeological enquiry and the technology to create models are perhaps not as significant as the hermeneutic limitations which must be considered in a study of this type, which touches on the edges of what can be known. By moving in incremental steps away from the tangible, it is hoped that each conclusion is supported by solid foundations.

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