

# LIVED EXPERIENCE AT BODIAM AND IGHTHAM

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**Abstract.** This chapter explores the theme of ‘lived experience’ at Bodiam and Ightham, through the lens of digital techniques and a phenomenological approach. It is based on my PhD thesis *The exploration of lived experience in medieval buildings through the use of digital technology* (2015). Phenomenology has initiated a number of discussions concerning how we can think about human experience in the past based on bodily experience in the world. However, it has been rarely applied to medieval studies despite a much richer dataset compared to earlier archaeological periods. In this chapter I present two case studies that demonstrate alternative and complementary techniques to explore the notion and implementation of a digital lived experience of late medieval buildings. My first case study based at Bodiam Castle uses digital visualisation techniques to explore the lived experience of the private apartments. I propose a mixed media approach for the presentation of visualisations. In my second case study I present an assessment of a series of auralisations of Ightham Mote. I demonstrate that digital techniques that work across senses can provide a robust mechanism for exploring the concept of lived experience, and for exploring the lived experience of specific medieval buildings.

## Introduction

Successive chapters in this book have introduced the idea of lived experience and explored different dimensions of this concept in relation to the sites and landscapes of Bodiam, Scotney, Knole and Ightham. The aim of this chapter focuses on two case studies at Bodiam and Ightham, exploring how digital technologies can add further depth to this discussion.

From the publication and following critique of Tilley’s (1994) *Phenomenology of Landscape* the study of prehistory has focused on exploring everyday life and experience in the past. Medievalists have traditionally held back from the lived experience/phenomenological

way of thinking, instead accessing the study of the day-to-day through historical sources and traditional remains (see Woolgar 2006). However, the medieval dataset is rich in remains and resources which would be well suited to an exploration of this type, an area of research led by Gilchrist (2012).

The use of digital images and computer graphics to visualise scenes is not something new to the study of the past. Digital images in this context have been biased towards aesthetic appraisal, although analytical approaches have also been championed to a fairly limited degree. However, the process of digital creation of these scenes can be used as a method for looking at the experience of life in the past. Multisensory perspectives and experiences of the past only exist, to date, in a limited sense (Tilley 1994; 2004; 2008; Gillings 2005; Hamilton *et al.* 2006) and again they focus overwhelmingly on prehistoric settings (Johnson

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<sup>1</sup> This chapter was written by Catriona Cooper, based on her PhD research, which was supervised by Matthew Johnson, Graeme Earl, Alison Gascoigne, Caroline Thackray and Nathalie Cohen.

2012a). I will take the process a step further; apply the same methodology to the study of the acoustical properties of a space.

In this chapter I present two case studies showing how different methodologies (visualisation and auralisation) can further our understanding of medieval life in a 14th-century secular building.

### Phenomenology and the Medieval Past

Lived experience has been discussed in prehistory through a phenomenological approach. Phenomenology emerged as a theoretical approach to address issues of subjectivity and meaning in landscape studies (Hodder 1987; Tilley 1990; Hodder *et al.* 1995; Hodder & Hutson 2003; Johnson 2012a). Research (for example Ingold 1993; Gosden 1994; Tilley 1994; Bender 1998; Cummings 2002; Cosgrove 2006) has explored the subjective understanding of landscape, or rather the understanding of landscape based on bodily experience, and in doing so has moved away from the Cartesian (thinking about space in a geometric; x, y, z coordinate system) or 'objective' way of thinking about space, which when carefully analysed is not really objective at all (Cosgrove 2006; Cosgrove & Daniels 1988, Rose 1993; Massey 1994; Johnson 2011). Lived experience provides a way to think about life focusing on the elements which make people understand the world around them on a multisensory level: how people move, their activities, everyday paths and places and memory. Documentary and physical evidence are not enough, because the living in the past goes beyond these remains, it is a subjective experience of each individual memory: both personal and inherited are important (Johnson 2012a; Hamilakis 2014).

The phenomenological approach has been critiqued at length due, according to its critics, to the lack of empirical, or objective, evaluation often associated with its reflections. This critique has been particularly sharp where it has been applied to prehistory (Gosden 1994; Bender 1998; Pollard & Gillings 1998; Tilley 2004; Brück 2005; Ingold 2005; Fleming 2006; A.M. Jones 2007).

The subject of living in the Middle Ages, approached in a phenomenological way, has to a great extent been avoided by archaeologists, despite the richer dataset and the many books entitled 'Daily/Everyday Life' in the literature. Medieval archaeologists have tended to focus on the abundant material culture and documentary evidence without addressing, at least in any considerable depth, questions on the experience of living (exceptions include Giles 2007; Gies & Gies 2010; Gilchrist 2012

and Johnson 2012b). Historians, although appearing to approach questions of the experience of living, rarely engage with phenomenology in a direct way. An exception is Stephen Murray, who states that [we need to be] 'reconciling our experiential responses with the task of dealing with buildings as entities that can go beyond the written document in providing vital access to the past'. (Murray 2008: 383). Murray's ideas have rarely been applied to medieval sites or buildings. Murray's work also highlights the link between phenomenology and lived experience.

The phenomenological approach has been described as the interrogation of lived experience (Johnson 2012a). It is however just one in several ways to approach the experience of living in the past. By taking the approaches suggested in phenomenology we can begin to move towards lived experience by taking these ideas and supporting them with the quantity and quality of data available from the medieval period.

### What is a Medieval Building?

Buildings are the product of human construction and inhabitation (Hillier & Hanson 1989; Parker Pearson & Richards 1994; Steane 2001). Buildings define the spaces (rooms) they create. This is a social process, in that the building is created (like any artefact), according to some previously conceived plan by the builder according to socially conceived ideas about the use of space. Therefore, I suggest that there is a connection between the realm of the social and the organisation of space which can be seen through the study of buildings. Buildings both mediate the space they create as well as being designed according to social concepts about how domestic, ecclesiastical or working space should be ordered (Fig. 9.1).

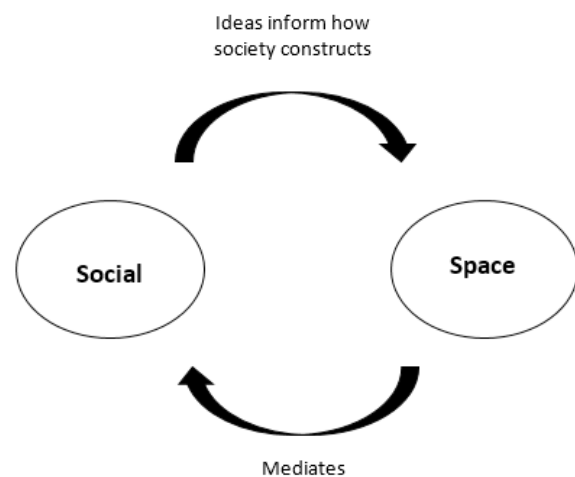


Fig. 9.1: This diagram shows how social ideas are linked to space.



*Fig. 9.2: The eastern elevation of Bodiam Castle, taken from the west. Photo by Penny Copeland.*

There is an underlying assumption in much of the literature that houses built between the late 14th and early 15th century straddle the gap between the austere castle keeps of the medieval period and the comforts of Tudor palaces and gentry houses (Tipping 1921; Curzon 1926: 10-11; Brown 1970: 144; Platt 1982: 118). For those subscribing to this assumption, buildings of this period are presented as 'transitional' in evolutionary terms. They form an interim phase between two groups of buildings. In so doing, an understanding of these changes and the reasons for them is bypassed (Johnson 2002: 133-4). I suggest that we should move away from considering them in this way and instead think about buildings as agents which stage social interactions and how the use of space defines this. Focusing on the individual elements of buildings allows us to explore the social context within which these buildings were constructed, and to explore builders' intentions in their creations instead of focusing on their position in a timeline (Olsen 2003: 100). We can therefore present a holistic picture of how they were lived in.

Although the subject of living in buildings in the medieval period is not one that has been neglected (Wood 1965; Woolgar 1999; Emery 1996; 2006; Airs & Barnwell 2011) there are remarkably few texts discussing late medieval secular buildings beyond collections which foreground architectural interest or act as gazetteers (Turner & Parker 1859; Nairn & Pevsner 1965; Pearson 1994; Emery 2006a; Woolgar 2006 and Brears 2010 are exceptions). Where social life has been addressed, there has been a particular focus on the study of castles (Hohler 1966; Fairclough 1992; Dixon & Lott 1993; Mathieu 1999; Creighton 2005; Liddiard 2005a). Also underrepresented from the literature is work on buildings of the middling classes and gentry society. Neglecting this category of building

(secular dwelling) during this period means our understanding of the built environment is lacking. The general structure of these buildings has been discussed in detail by first Faulkner (1975) in reference to castles and then by Johnson with a focus on the vernacular (Johnson 2002; 2010). The classic plan develops from early medieval buildings (pre 1200 CE) centring on the hall, with an extension at one end containing a buttery and pantry (services) and passage through to an external kitchen (Wood 1965: 247; Gardiner 2000). This develops to also include a withdrawing chamber, private apartments and chapel; a pattern which is seen across both castles and other secular dwellings.

Space is traditionally explored in plan view, using floor plans. In the earlier chapters of this book we followed this convention by presenting a series of plans of Bodiam Castle to disseminate our research about the building. Elevations were also presented, but these still do not give an impression of how the space exists in three dimensions. By contrast, much phenomenological work has discussed how spaces are experienced in terms of moving through them in the present. However, movement through space can be overlooked and it is even more likely that internal furnishings will not be considered. For example, modern understandings of medieval French cathedrals are of large open spaces, when in fact the buildings in the middle ages would have been divided by screens and encumbered by liturgical furniture and tombs (Murray 2008: 390).

To approach questions focused on living in these buildings I have chosen to explore the social interpretations of Bodiam (a castle) and Ightham (a moated manor house) alongside the physical buildings of Bodiam Castle (Figs 9.2 & 3.1) and Ightham Mote (Figs 8.1, 8.5 & 8.6), their furnishings, fittings and three dimensional construction.

## Bodiam Castle

As discussed in Chapter Three most of the literature relating to Bodiam explores the exterior and overall appearance of the building (Grose 1791; Turner & Parker 1859; Blaauw 1861; Savery 1868; Timbs & Gunn 1872; Clark 1884; Mackenzie 1896; Sands 1903; Thompson 1912; Tipping 1921; Braun 1936; Toy 1953; O'Neil 1960; Brown 1970; Harvey 1978; Kenyon 1981; Platt 1982; 2007; Hohler 1966; Turner 1986; Stocker 1992; Saul 1995; Johnson *et al.* 2000; Morris 2003; Creighton 2005; Liddiard 2005a; Creighton & Liddiard 2008). In what follows, I will examine the interior of the building alongside research on medieval interiors and landscape. Visualisation is the perfect tool for this, allowing a range of different datasets to be observed together. The recording of the building (discussed in Chapter Three), detailed research into the furnishings, fittings and decorations of domestic rooms, and an understanding of the use of the rooms, and how this can be interpreted visually, can all be presented in one image. The undertaking of this research is just as important as the final image, or images, as the very nature of this creation process can allow for multiple views of a space to be produced. The images themselves are a stage in an interpretation of the evidence about medieval life. Researching how to create these images requires rigorous questioning and critiquing of a huge range of evidence for each stage of the creation process. Therefore, the final images seen here are not the final product; they can be continually updated and adapted based on new research and further critique.

The digital media approach has, until recently, been mostly concerned with the visualisation of the past through a variety of media. This has mostly been described as 'Reconstruction' and is mostly made up of standalone images, websites, animations or virtual realities. It has met with much criticism from wider areas of the discipline, being understood as expensive, technically demanding and of little interpretive value (see discussion in Goodrick & Earl 2004). The technology was driven by a 'this would be cool' (Kantner 2000) mind set and an experimental approach. The results of this approach have meant that in most cases the focus is on the aesthetics of the models. Further, the models have been produced with the intention of displaying results of data collection rather than as a method for interpretation (Gillings 2005). Exceptions include analysis projects such as those discussed by Wittur (2013).

This situation led to the assumption that display was the only use for computer-generated images in archaeology.

Therefore, the critique of these images has been towards the display of 'results', rather than being part of a process of reflection and revision. Technologically produced visualisations fall into a void between technological products and subjective renderings of archaeological material. They engage elements of both practices but frequently fail in embracing the advantages of both. For example, they do not engage with the ability to change and develop the renderings following presentation of the final image (Bateman 2000).

When produced as a method for displaying results, images of this kind are often incorrectly perceived as being 'self-explanatory and less theory-laden' (Moser 1992: 832). Instead the images need to be approached with the same critical eye that is applied to other areas of archaeological illustration. The process of engaging with images is the beginning; they need to be critiqued, explored and further developed before being presented. They also need to be engaged with in a state beyond the final presentation of results: they can be used to develop an interpretation and as a method for recording.

Presenting multiple interpretations has been a popular suggestion by digital specialists (Fawcett *et al.* 2008; Koerner & Russell 2010: 327; Lozny 2011: vii). Through this method multiple interpretations of the past can be presented through a series of images detailing the development of the simulation. However, this ideal has yet to be fully realised. I believe that this technique can be applied as more than a mechanism for interpretation and engagement but also as a method for exploring space. These images can be used as a method for fostering discussion about the use of space allowing the subjective nature of the creation process to be questioned at every step, encouraging further engagement with the building from the public. The intention is to explore how to engage with the building and respond to it through the use of visualisation to try and understand its lived experience. Instead of presenting a series of images in creation, or completed images, I bring together the final images produced through the 3D model alongside elements of the research which created it (furniture, manuscripts, art).

Presenting multiple images in this way is a phenomenon which has been developed in social media over the last few years. The most popular examples of this can be found on the internet service and company Pinterest. It allows users to create and catalogue collections of visual bookmarks. Catalogues are chosen by the user and the visual bookmarks can be added via upload, searching the internet, other people's boards or through other media content (Pinterest 2014).



I have isolated a small but complicated area of the building to envision, the eastern elevation, focusing on the 'private apartments' (Fig. 9.2; see also Chapter Three, Figs 3.1, 3.7 & 3.33). In my visualisation, the apartments are not only furnished appropriately, they are decorated according to the period and populated in the same manner. The modelling process allows us to consider how the building fulfils the 'spatial grammar of expectation' (Johnson 2002: 20) that govern the layout of late medieval buildings but equally how Bodiam differs from the expected norms associated with such buildings. In essence, it explores how the spaces are both individual and part of a conforming dataset by looking at the building as an artefact of medieval society. The project itself is also concerned with the concept of an interpretative methodology. Creating visualisations is the method for interpretation of the site. A narrative is produced from the observation of the archaeological record through to how the 'real' of the simulated past is perceived. Through the recording of the entire process of creation, an understanding is achieved of how the uncertainty and assumption inherent in the simulation process is important: it can therefore be highlighted and it can be critiqued. Choices made during the recording of Bodiam: research into decoration of medieval chambers, furniture and social uses of space, are all included as part of the creation process. Making these decisions informs the creation of the final image; therefore the decision-making process is embedded in the appearance of the final image and is an important part of the interpretation.

One recent study (Frankland 2012) has suggested that visualisations are not considered as compelling to the public as their creators like to think. It is understood that the final image is an interpretation and viewers are interested in the creation process. 'Mood boards' bring together multiple media to present a single concept or idea. I present the final CGI images which intend to show a particular concept or theme alongside the images that went into creating it (furniture and fittings, illustrations from medieval manuscripts and paintings from the 14th century). In doing so, the images allow the viewer to consider the sources of the visualisation and question them. By being capable of producing a number of images the same space can be considered in a number of ways and further allow the viewer to think about the experience of living in that space.

All of the decisions concerning materials, structure and furnishings inform our understanding of the space, and the parts of my work that are discarded are as important as those used. These issues with uncertainty and subjectivity are unavoidable when

using digital technologies: I propose them as a method for engagement and not as an overarching issue.

The models were based on the survey data discussed in Chapter Three. This was done by importing the survey into 3DS MAX, a modelling and rendering software, and using the survey as a guide. The survey methodology informed much of the visualisation process. Putting together the spaces was more complex than just examining the survey data, which only really considers one wall of the suites (see eastern elevation drawing). Decisions concerning the layout of windows, walls and room partitions had to be considered, as well as the nature of the roofing and flooring. Evidence for building materials was drawn from Kathryn Catlin's report on the finds found in Appendix One, in combination with careful examination of the standing remains and comparisons with other contemporary buildings.

Decorations, furnishings and fittings were a different challenge. As Kathryn Catlin's report (Appendix One) suggests, there are remarkably few finds relating directly to Bodiam; although these can inform types of ceramic found within the building they are otherwise limiting. As discussed in Chapter Three, this has led scholars to question whether Bodiam was inhabited for any length of time. The documentary sources are equally as fragmentary, focusing on building construction with no written wills or other ordinances. As such, evidence had to be drawn more generally from other documentary sources such as the Will of Thomas Couen and James Peckham concerning Ightham Mote. More generally, other wills of the period (<http://name.umdl.umich.edu/EEWills>, accessed 26th April 2016), illustrated manuscripts, and paintings (such as Fig. 9.3) were helpful at visualising and sourcing appropriate items. Extant furnishings, although limited, were possible to find (Fig. 9.4) and recent physical reconstructions (Fig. 9.5) could be used to further envision spaces. Unfortunately, there is not the space here to discuss each decision and each item modelled but as one example I will review some of the evidence for the construction of the bed.

Jude Jones (2007) undertook research into sleeping and the construction of gender between 1350-1750, for which she created a catalogue of beds between those dates. She discussed the presence of two types of bed: the four poster (such as the Great Bed of Ware) and the hung bed. The four poster bed, although first appearing in 1242, did not become popular until the 15th century (Eames 1977: 75). The relative lack of medieval examples has been attributed to the peripatetic nature of medieval elite life. The hung bed provides an elegant



Fig. 9.3: *The Arnolfini Portrait* by Jan van Eyck (© Copyright The National Gallery, London 2016). Another hung bed can be seen in the background.

bed that can be constructed and taken down easily and taken to the next house, whereas the four poster is not so easily transported (Hunt 1965: 22).

The bed was not totally devoted to nocturnal use. By lifting and tying back the curtains, the bed could be used as part of a living room (Ash 1965: 33). There are

no surviving examples of these beds remaining from the late 14th century (Eames, 1977: 75). However, the bed hangings appear frequently in documents from the end of the 13th century onwards. The textiles were very valuable and appear as part of inventories such as that of John Chelmyswk, Esq of Shropshire (Furnivall 1882) and John Rogerysson of London (Furnivall 1882), and the more popular examples of the Inventory of the Duke of Burgundy from 1404. They are also found in wills, such as The Will of Richard Earl of Arundel in 1392, and the wills of James Peckham and Thomas Couen (of Ightham Mote) which also feature bed hangings. These examples support the argument that beds of this type were not just of the upper classes but also the middling and gentry classes (Eames, 1977: 78-83). There is a quotation from Chaucer's *Book of the Duchess* that reveals how highly valued textiles were in this period:

*I will give him a feather bed of down of pure white doves, arrayed with gold and finely covered in fine black satin from abroad, and many pillows, and every pillowcase of linen from Reynes, to sleep softly he will not need to toss and turn so often. And I will give him everything that belongs to a bedchamber, and all his rooms I will have painted with pure gold and arrayed with many matching tapestries.*

(Chaucer, *Book of the Duchess*: EChaucer 2011: 269)

These pieces of evidence discuss the existence of the textiles but do not help much with our understanding of how they appeared. The best resource we have for this is iconography. Paintings by Van der Weyden (1400-1464: Fig. 9.6), van Eyck (1390-1441: Fig. 9.3) and other illuminations such as Fig. 9.7 show hung beds as part of their images.



Fig. 9.4: *Medieval chest*, Chester Cathedral.





*Fig. 9.5: Dover Castle, reconstructed interior. Particularly of interest is the hung bed. For more information on the creation of the furnishings at Dover Castle see Blog Post 'The Making of the Great Tower at Dover Castle' via my blog <http://catrionacooper.wordpress.com>.*

While no beds remain from this period a number of replicas have been produced. The reconstructed Bayleaf at the Weald and Downland Museum, The Medieval Merchant's House in Southampton, and Dover Castle (Fig. 9.5) are just three examples of them. As replicas their construction can be carefully examined to see how they are hung from the ceiling, taken apart and put together, particularly at the Medieval Merchant's house in Southampton.

3DS max allows lighting systems to be built in. These allow sunlight and daylight to be added to a scene according to location. Location is set based on latitude, longitude and direction (north can be set). Implementing this type of lighting system allows a scene

to be lit from the correct angles, and allows movement over time, meaning that they are physically plausible and allow accurate rendering of daylight scenes. I also added lighting from a fire and from candles (that change position and number in the later visualisations), and these effects are also considered here.

I undertook a basic lighting assessment allowing me to see how the lighting conditions changed over the course of the day. In the first instance I used a plain, non-reflective, material to observe how light responded with the geometry, before adding materials and textures appropriate to the space. A few of the images were reproduced to show the changing conditions (Fig. 9.8). From this, I chose to light my spaces later in the day as I

*Fig. 9.6: The Annunciation by Rogier van der Weyden. This image is one of the representations of a hung bed from the 14th-15th century (Musee Du Louvre 2014).*





Fig. 9.7: Detail of a miniature of the birth of Alexander the Great, at the beginning of Book Five, from the *Miroir Historial* (translated by Jean de Vignay from Vincent of Beauvais's *Speculum Historiale*), Netherlands (Bruges), 1479-1480 (British Library, MS Royal).

felt the play of light in the room was more engaging. Fig. 9.9 is an example of one of the final images. I found it particularly frustrating and theoretically difficult to select a lighting condition as my choices were largely aesthetic. Also, once the scene was close to completion, with appropriate decorations and surface textures applied, the scenes appeared particularly dark when printed. It was hard to resist using photographic correction software to increase the brightness and contrast to make the image more aesthetically pleasing and easier to see. However, this added to our understanding of the lived experience of

the visualisation. The images were dark because they were produced using physically accurate lighting techniques, (Figs 9.10 and 9.11 have been included in this printed book to demonstrate the darkness of the images).

From the creation of the model, a series of concepts or themes were selected as the subjects for the mood boards (Figs 9.12 & 9.13). Some of these themes are connected with the use of Bodiam Castle specifically (Business and Status) while others use visuals to try to invoke an idea of the multisensory experience of the past (touch, scent, reverberation). I then selected ten images to represent each concept. These images were a mixture of renders, photographs of the site, photographs of period furniture, photographs of reconstructed domestic interiors and images from medieval manuscripts. Many of these sources were used as references when creating the model.

Some of the mood boards were easier to create than others. Reading (Fig. 9.12) for example drew on a range of images from manuscripts showing people reading, as well as the addition of books and documents that could easily suggest the theme; the more abstract or ephemeral concepts were harder to construct. Sound (Fig. 9.13) had to incorporate images that suggested sound. Chris Woolgar's discussion of the senses in medieval England (2006) was particularly useful in thinking about sound as a sense of the mouth while I could also consider presenting things that created sound.

Lived experience is complex. It brings together so many elements of personal understanding of a space. As a result, it is theoretically and practically difficult to assess whether I have been successful, and what the criteria for 'success' should be. As a research methodology, I felt the creation of the digital model allowed me to bring together a whole range of different resources and material evidence for the use of that space at Bodiam



Fig. 9.8: Lighting assessment of the modelled private apartments of Bodiam Castle. The top left image is for lighting conditions of 21st June at 6 a.m. with the bottom right being 21st June 6 p.m.





Fig. 9.9: An example of the modelled space.

Castle in the first instance. Through this I achieved a better understanding of how the space could have been used during the medieval period, and I could question the accepted understanding of its experience. I have also brought together a whole range of different pieces of evidence for the furnishings of late medieval domestic spaces of the gentry.

However, we no longer need to focus on only visualising the past. When creating the mood boards I struggled to find images that presented sound (and for that matter smell, touch and taste). Understanding experience goes beyond visual engagement and is multisensory. Therefore the second case study at Ightham Mote looks at using auralisation as a methodology for understanding the experience of a space.

### Ightham Mote

*general characteristic of contemporary society is our fascination, indeed obsession, with the visual*  
(Moser 2001: 266)

This chapter so far has been primarily concerned with the visual and the visual simulation of the past. To move beyond this visual focus to the study of the past, my work at Ightham Mote has explored acoustical methods. As discussed in Chapter Eight Ightham Mote is a late medieval building which has been latterly developed. I explored how the Great Hall has been understood. The Great Hall here is of a middling size but has a very high ceiling (Figs 9.14 & 9.15). Of particular interest to this study are a number of carved minstrel figures at

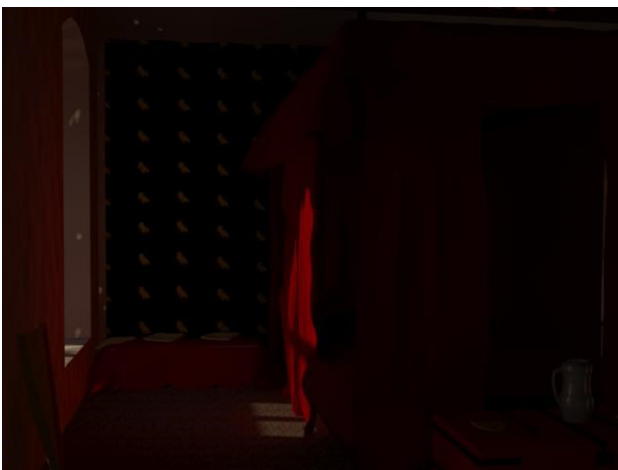


Fig. 9.10: Internal space which appears dark when printed without adjustments for lighting.



Fig. 9.11: The same image lighted for printing.

the base of the beams (Fig. 9.16) who appear to be part of a play, suggesting this as a possible use for the space. More generally there is an abundance of literature referring to Great Halls during this period (James *et al.* 1984; Thompson 1995; Johnson 2012b), and these discussions tend to focus on the appearance and use of the space. Much of our understanding has to do with the different functions of the space: a lord giving judgement, assemblies, mealtimes, music, poetry and conversation. However, how the space sounds and its acoustic properties have rarely been considered.

The visual focus of research is unsurprising. It is estimated that 60% of human mental processing power is devoted to visual processing (Hermon & Fabian 2000); consequently, humans are programmed to experience the world in a primarily visual way (Ray 2008). However, it is not the only way. The first applications of Geographical Information Systems (GIS) were critiqued as being ‘primarily visual and distanced’, far removed from the way past communities would have engaged with the landscape and environment (Thomas & Jorge 2008: 1). Although visual analysis of the past is the most accessible today, our understanding of the world is based on all of the senses in combination not just one in isolation (Chalmers & Zanyi 2010). This is not the only reason it is a focus in the wider field of archaeology – there is a huge amount of visually engaging material left behind, whereas smells, sounds and tastes have arguably gone (Dawson *et al.* 2007).

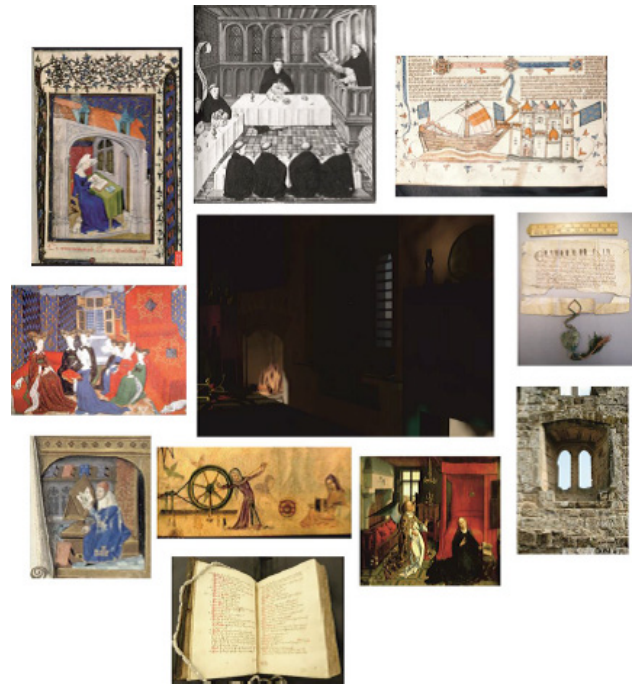


Fig. 9.12: Reading mood board.

In the creation of visualisations, without explicit consideration of the other senses, we are creating a past that is ‘silent, odourless and intangible’ (Mlekuz 2004). We can use visual analysis to explore the other senses, thereby presenting a multisensory past. There has also been a move to try and embrace the study of the senses in archaeology, both as a method for simulating past experiences as well as to explore how the senses were

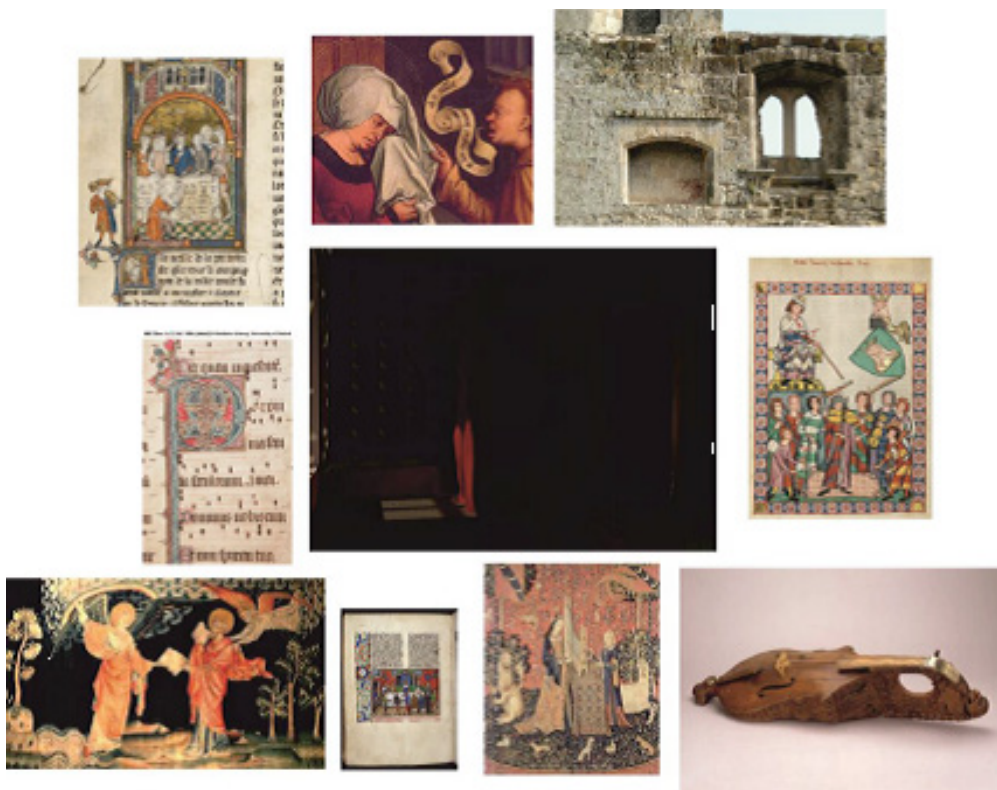


Fig. 9.13: Sound mood board.





*Fig. 9.14: The Great Hall at Ightham Mote from the courtyard.*

perceived in the past. When simulating the past through senses other than visual, they are often portrayed with accompanying images, as without the visual they lack the authenticity required to make them believable (Thomas & Jorge 2008). Technological approaches should be complemented by a more human experience of place. When discussing societies whose sensory map is different to our own this becomes particularly relevant.



*Fig. 9.15: The Great Hall at Ightham Mote looking towards the upper end of the Hall.*



*Fig. 9.16: Minstrel carved into the beam ends.*

Devereux and Jahn stated that the reason sound has been overlooked in archaeology is 'it is instinctively felt that sound is too immediate and ephemeral to have significance for archaeological investigation' (1996: 665). Unlike the visual or tangible remains of the past, sound does not leave a mark. It has to be studied indirectly through recreation of soundfields, the soundmakers, or experiences. Since their statement, the study of archaeology has moved towards trying to explore the experience of the past through phenomenological discourse, critiquing its overly visual methods (Hamilakis 2002; Weiss 2008: 15). Through these studies, focusing on the ephemeral or intangible, such as work undertaken by Daisy Abbott of the Glasgow School of Art (discussed in Hamilakis 2011), aspects of the past have become more important to archaeological investigation. These include papers discussing oral histories, echoes, and weather, which also have no method for quantitative enquiry but engage with the lived experience of the past.

I have created a series of auralisations of the Great Hall at Ightham Mote as it stands today to explore its acoustical characteristics and, by inference, the lived experience of the space. I have also modelled the Great Hall as it would have stood in the late medieval period and



created auralisations in that space. In undertaking this, the same issues associated with creating visualisations are still present and become more complicated by using software that is still developing. Therefore, the modelled space of the Great Hall as it stands today has been calibrated using a series of measurements taken in the space: making the technique most appropriate for a space like Ightham which is not ruined. Then, as the development of the space has been traced so carefully, it is possible to take apart and rebuild the same space adjusting for wooden panelling, changes in windows and changes in furnishings. We use a program called CATT-Acoustic to produce these models and as a means to generate numerical values that can also give visual descriptions of these results. Finally, and most importantly for this project, they can present results by auralisation (Vigran 2008: 144).

Auralisation is the technique of making audible the acoustical parameters of a specific environment (Kleiner *et al.* 1993). Vigran (2008: 144), when discussing the technique in reference to room design, describes it more succinctly as suggesting the technique ‘...implies that one may listen to music or speech ‘played’ in a room at the design stage’. That is, just as architects can model buildings before their construction, acousticians can model the acoustical properties of a space allowing people to listen to their soundfield. Like visualisation this is based on numerical data collected via survey of the specific environment, either acoustically or visually (which will lead to a prediction of the responses). When applied to archaeological environments this gives us the opportunity to interpret soundfields of past

environments. We know we cannot record the response of a space as it stood in the past so we are, therefore, already having to consider how we predict (accurately) the environment we will be working with.

Modelling and recording the acoustical properties of spaces requires information about the physical space (size and shape) and the properties of the building materials. These both affect how sound is reflected and absorbed and therefore dictate the experience of sound within a space. For the standing remains at Bodiam, the space was surveyed using the same methodology we discussed in Chapter Three, with a second survey recording the nature of furnishings and fittings within the space such as tapestries and wooden panelling, plastered walls, and other features. To begin to understand the experience of the space, impulse responses of the space were measured and recorded (with the support of the Institute of Sound and Vibration at the University of Southampton (ISVR); see Fig. 9.17). Impulse Response is in essence the sound pressure recorded at a point in a room following the excitation of the room by a source (ISO 2008). This can be used as a method for obtaining the decay curves (results of the Room Impulse Response, or RIR) needed to calculate a series of measures that can be used to discuss the experience of the space according to numerical values.

I will focus specifically on reverberation time. This value is very useful when determining the reverberation of a space in response to standing noise volume (Vigran 2008: 106). It has also been used as a measure to suggest whether a space is suitable for different types of music,



Fig. 9.17:  
Undertaking the  
acoustical survey  
at Ightham  
Mote.

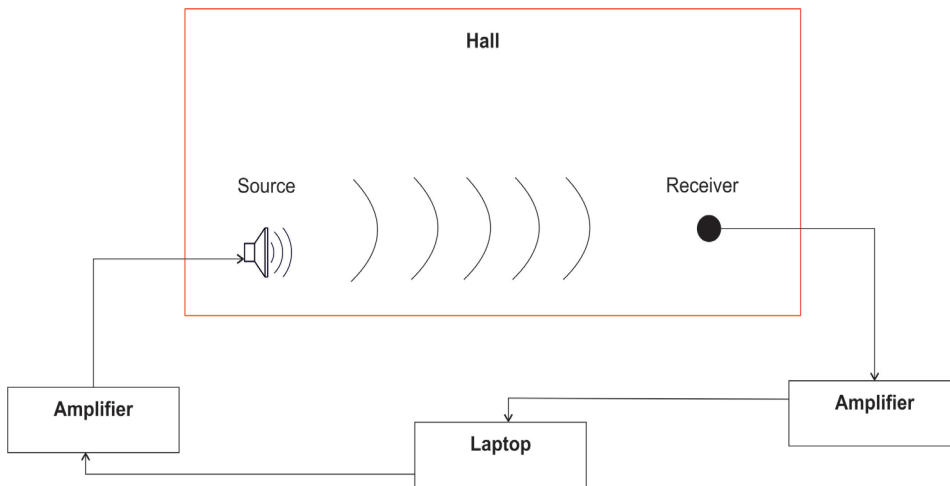


Fig. 9.18: Equipment setup for recording acoustical properties.

and public or private speaking (Barron 2009: 30). Music written to be played by an organ, for example, sounds best with a long reverberation time as the polyphonic nature of the instrument allows notes to overlap and for pieces written for it to embrace this feature, for example, Bach's *Tocatta* and *Fugue in D minor* (MovieMongerHZ 2010). In contrast, early classical music tends to be homophonic with compositions being lighter and clearer without overlapping; a shorter reverberation time is required for this to be clear, but not so short as to sound dry. An example of this is the iconic *Eine kleine Nachtmusik* (Mozart 2011).

Broadly, the methodology for creating auralisations involves estimating the RIR, making the convolution with anechoic audio material, and reproducing the result through a sound reproduction system. This means using a piece of software to model the space (shape, surface properties, position of source and receiver), this can be used to calculate the specified measurements. To create the auralisation one needs a sound file of an anechoic recording (something recorded in a room that does not reverberate) which one will convolute (where the sound signal is adapted to sound like the room that has been modelled) to represent the designated sound and speaker combination (Vigran 2008: 144; Kuttruff 2009: 101).

The basic set up for recording the acoustics of a space can be seen in Fig. 9.18. The laptop sends out a signal noise which is passed through an amplifier to the source which excites the room; the receiver records the response to the source which is sent back through an amplifier to the laptop. By recording the range of frequencies we can look at how noises of different pitch are affected by the space. Frequency is proportional to wavelength which has a significant affect in small spaces.

To help establish the nature of the models that were being compared we recorded myself reading a sentence

about Ightham: 'This is the great hall at Ightham Mote near Sevenoaks in Kent. It is one of the oldest areas of the building dating from the 14th century.' This was undertaken in the anechoic chamber in the ISVR at the University of Southampton, and allowed us to not only use it during modelling but also for auralising the recorded characteristics from the survey.

The model is created by defining planes and surface properties of the space. The geometry is taken from the basic building survey discussed above; surface properties of each plane are defined according to their material. This contains information about the scattering and absorption properties of the fabric (see Fig. 9.19: Model of Ightham Mote, each colour represents a different surface property). Information about the physical properties of the materials has been taken from a number of references (Vorländer 2007; Dalenbäck 2011). These can be later adjusted as the model is calibrated using the results taken from the measured recordings of the space.

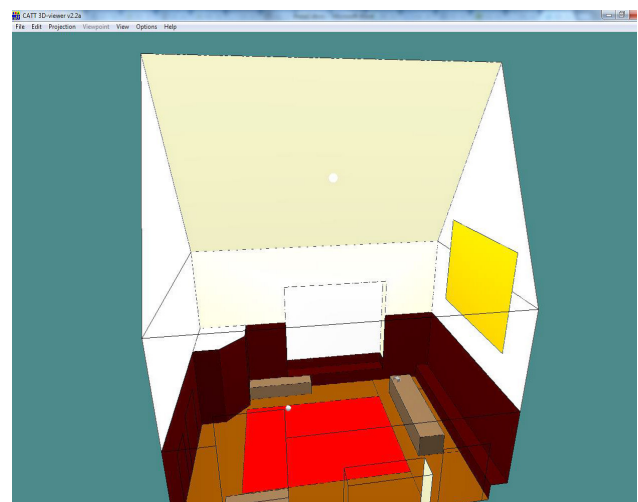
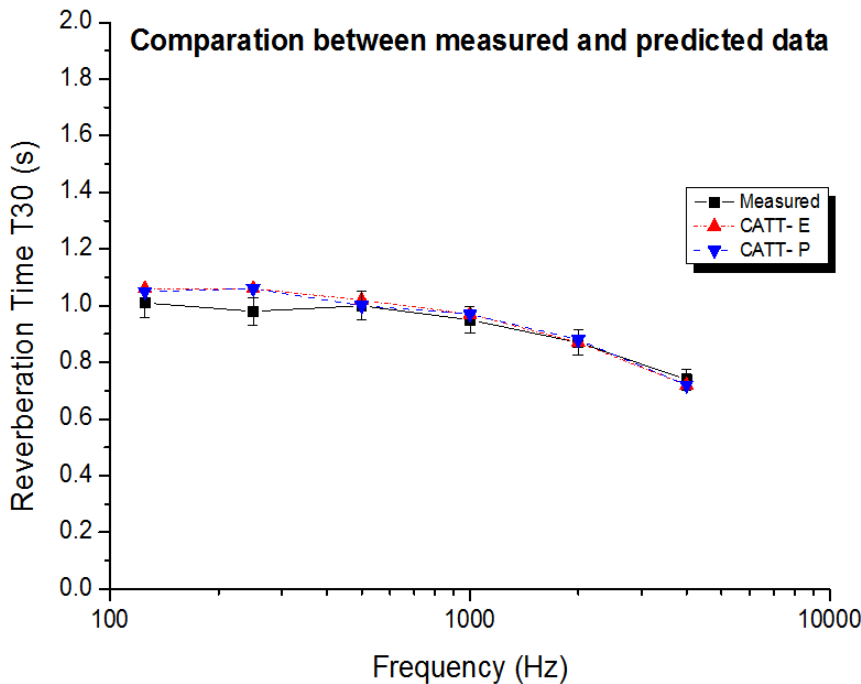


Fig. 9.19: Model of Ightham Mote. Each colour represents a different surface property.



*Fig. 9.20: This graph shows the differences between the modelled and simulated Great Halls.*

The graph (Fig. 9.20) shows that the final model and measured responses to the Hall were nearly the same, allowing us to assume that we could correctly refurbish the space as it would have stood in the late medieval period.

The numerical results of the modelling show that the reverberation of the space remained fairly consistent despite the changes in furnishing and fittings; this is likely to be a result of the height of the ceiling. The reverberation time was short for such a large space (around one second), suggesting that it is a perfect space for drama and the spoken word (Barron 2009: 452) but not really for music (Barron 2009: 30). This is on the proviso that the measurements were recorded when the space was empty; when full, we can take away 0.2 seconds which would make it even less suitable for music (AV INFO, 1995). The results of this case study lend some support to Woolgar's discussion, based on the documentary evidence, of halls as generally quiet places (Woolgar 2006) allowing the acoustical properties to encourage a ritualised decorum not polluted by excess sound. Ightham Great Hall was perhaps more suited to formal readings and public speeches rather than music. It was perhaps more suited to formal, ritualised dining, akin to an Oxbridge college hall, than the raucous music and boisterous laughter and shouting often associated with the medieval hall.

It was particularly interesting that the reverberation time was constant across the board. This means that the experience of sound was the same for those seated at the lowest and highest ends of the hall. Because of this,

we can assume that the lord did not have any better experience of any of the performances and, therefore, there was no class restriction of the experience of being in the hall. Some forms of church architecture limit sound from reaching the ends of the church building meaning that the experience of the service was different across the classes. These results may have been affected by the size and regularity of the space. It would be interesting to undertake the same analysis in a much larger hall like that at Penshurst.

The print format of this publication does not allow me to share the resulting auralisations with the reader but they can be accessed via the project website at <http://sites.northwestern.edu/medieval-buildings/>. To assess the results of the auralisations I ran a basic listening test, getting people to listen, compare and contrast the models of the old and new hall. Modelling the old hall and comparing the subjective experience to the new hall suggests that the experience of reverberation was less in the new hall. It was also slightly easier to understand speech in the new hall. This highlighted that in this case it was still not a space in which to listen to music, at least according to my suggestion for the furnishings within the space. However, these are only preliminary investigations.

To summarise: these models allow us to consider the aural experience of Ightham Mote as a space where speeches can be given easily, but music would fall short. The research therefore suggests that Ightham Mote Great Hall may have been an intimate and calm space, particularly well suited for private conversation rather



than entertainment. This interpretation appears at odds with the room decorations; the carved minstrels give the impression of a much less formal space. In this way it is easy to highlight how a great hall can have multiple uses, without it necessarily being particularly well suited to any environment. The experience of sound in the space suggests that while the hall was a place with a variety of functions and activities, it was not the best suited space for music, and the size of the hall not the most well suited for dancing.

## **Conclusion**

The chapter shows how digital techniques can be used to explore lived experience in late medieval buildings. I have presented work at Bodiam and Ightham that implements two different techniques to investigate living within late medieval buildings. This shows the

advantages of two separate methodologies for exploring lived experience in late medieval buildings. It provides new ways to think about the experience of a building beyond a written narrative.

It is important to add a caution that these methodologies, taken independently, do not allow us to access the totality of lived experience of a medieval building. Both case studies in fact isolate a single sense when in fact experience is multisensory. To take these first steps further the next stage would be to combine both visualisation and auralisation techniques to explore a range of spaces. By consuming both visual and aural outputs at the same time a more multisensory engagement could be achieved. Undertaking the studies across a range of buildings will allow us to discuss in more depth the commonality and differences in buildings of the period.