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Experimental and Experiential Approaches to the Past: Reconstructing and Understanding Roman Domesticity through Recreated Places

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Experiential, or sensory, studies of the past are often viewed in opposition to the ‘scientific’ nature of experimental archaeology despite obvious overlaps between these two fields. However, recent research has argued for more humanistic experimental archaeology to enhance our engagement between the present and the past. This study focuses on how we can, theoretically and methodologically, utilise contemporary research into the experimental archaeology of Iron Age and Roman Britain to gain insights into the sensory experiences of past people. Focusing on the Empire’s northernmost frontier, this paper will explore how experiential approaches can be utilised within reconstructed buildings and Open-Air Museums to provide a more agency-driven and experience-based understanding of past archaeological sites across time and space. This paper concludes by considering the methodological directions in which a broader experimental/experiential holistic approach could take in the future, incorporating digital technologies and differing viewpoints of academics and non-academics alike.



Introduction

This paper examines the use of reconstructed Roman buildings to assist in developing a theoretical and methodological understanding of sensory experience in the past. In Britain, few standing remains of the Roman period survive into the present. Roman structures have been recreated or rebuilt as visitor attractions within Open-Air Museums. Open-Air Museums are defined as a ‘permanent institution with outdoor architectural reconstructions primarily based on archaeological sources’, which ‘provides an interpretation of how people lived and acted in the past’ (EXARC 2008). These museums provide visitors with a material and visceral gateway to the past by allowing them to interact with architectural reconstructions of ancient buildings that ‘are made according to the strictest scientific methods’ and with authentic materials and techniques (EXARC 2008). Architectural reconstructions, a subset of the practice of experimental archaeology,¹ are rigorously researched and executed building projects, drawing on often incomplete archaeological evidence, such as recovered artefacts, structural features and floor plans, supplemented engineering principles, ethnographic information, and precise experimentation (O’Sullivan and O’Neill 2019: 5). Although our knowledge of past buildings may be incomplete, these rigorous methods ensure that many reconstructions buildings represent a scientifically supported interpretation of what architecture in the past may look like, although built through a modern lens. This paper argues that, although these reconstructions bring a unique set of interpretative difficulties (e.g. accuracy, mode of presentation), they provide a ready-made backdrop onto which methodological robust sensory studies could be (re)enacted.

This paper begins by exploring the ways in which people currently experience the Iron Age and Roman past through surviving remains and experimental archaeology, namely reconstructed buildings and Open-Air Museums. This section is followed by an examination of the development of experimental archaeology over the last forty years and the recent focus on a more humanistic experimental archaeology, one that ‘integrate[s] practical, technological and sensory/emotional aspects’ within a single study (Pettersson and Narmo 2011: 34). Contextualized within the theoretical and methodological advancements made in recent years in sensory or experiential archaeology; this paper proposes a ‘sensorial bricolage’—an interdisciplinary theoretical and methodological process that combines experimental and experiential into a more nuanced reconstruction and understanding of the past. This approach is outlined in an example from Rome’s northern frontier: The Commanding Officer’s House, which was constructed at Arbeia in 2002. In the early fourth century AD, Arbeia stood at the eastern end of Hadrian’s Wall, the northern frontier of the Roman Empire, today, the fort is a tourist attraction within the town of South Shields,

Tyne and Wear. Reconstructed partially on the footprint of the original structure, the Commanding Officer's House retains its original setting, positioned on the periphery of the fort at Arbeia and within the broader landscape of the Tyne Estuary. Building on the theoretical premise I outline a methodological framework within this architectural reconstruction to demonstrate how we could put theory into practice. This methodology, although preliminary within this study, begins to demonstrate how using different media (both visual and audio) has the ability, in a phenomenological sense, to experience physiological responses that may not be immediately apparent from the empirical evidence.

This paper concludes by reflecting on the arguments presented and considering the possible methodological directions in which a combined experimental/experiential holistic approach could be taken in the future. Incorporating digital technologies could enhance our sensory experience of reconstructed buildings by exploring different seasons, stages of construction, decoration, furnishings, and even inhabitants (e.g. Eve 2012; Demetrescu et al. 2016; Morgan 2023). Moreover, Open-Air Museums are situated in a unique position that intersects academic interpretation, craft expertise, and public presentation to allow the investigation of both tangible and intangible knowledge of the past (Hurcombe 2015). Together, these perspectives may allow us to explore the past from diverse but complementary viewpoints.

Reconstructing and Experiencing the Past

For archaeologists, evidence of the past, whether artefact, site, or landscape, is often partial and provides only a glimpse into what life was like for ancient people. In rare instances, environments are uncovered that provide extraordinary preservation of past structures and artefacts, such as the Vindolanda tablets (Bowman and Thomas 1984) or, more recently, the Bronze Age buildings at the site of Must Farm (Knight et al. 2019). However, even in these ideal conditions, this evidence only partially represents their previous form, making it difficult for people in the present to comprehend what daily life may have been like for people in the past.

Reconstructed buildings offer a powerful medium through which contemporary society can, in a manner, 'time travel', defined here as an embodied experience that brings the past to life (Holtorf 2017: 1–2). A recent example is offered by the artistic endeavour by Morag Myerscough in 2022 at Housesteads Roman Fort, along Hadrian's Wall (**Figure 1**). Here, Myerscough built a reconstruction of the fort's gatehouse that 'echoes the original building in size' (English Heritage 2022). Although not faithful to the original, this exhibit drew much public attention and large numbers of visitors (BBC News 2022), demonstrating the impact that reconstructed buildings can have on the public consciousness.



Figure 1: 'The Future Belongs To What Was As Much As What Is' – reconstructed gatehouse at Housesteads Roman Fort (Author).

While original standing Iron Age or Roman structures are lacking in Britain, reconstructed buildings, usually presented through the medium of Open-Air Museums, are widespread. There are examples of reconstructed Iron Age roundhouses and Roman villas in Britain at sites such as Butser Ancient Farm, Hampshire, and Wroxeter Roman City in Shropshire. Although produced for educational purposes and/or as visitor attractions, these buildings provide a reconstruction of the past that provides an entryway for people to experience and understand buildings from each of these periods. However, these sites are not without their complexities. Architectural reconstructions bring a unique set of interpretative difficulties and modern biases, meaning that they merely interpret rather than explain the past (Townend 2007: 99). In part, these difficulties are inherent in the way these buildings are constructed, often as scientific experiments (more below), but also the practicalities of creating and maintaining such structures. Facilitating an Open-Air Museum mean that issues such as finances, visitor numbers, conservation, and maintenance are dealt with hand in hand with context and interpretation (Paardekooper 2020a). Other issues relate specifically to the efficacy of reconstructed buildings as tools for sensory analysis. Samida (2017: 135), for example, has argued that although living history performances at Open-Air Museums are beneficial, as they allow the viewer to interact with history through their senses, they can equally create and maintain 'stereotypical presentations of the past'. Moreover, while some Open-Air Museums are located on the site in which archaeological remains were originally uncovered (e.g. Vindolanda Roman Fort), others are created in distinct areas away from the archaeological evidence used to reconstruct them (e.g. Butser Ancient Farm).

In contrast, reconstructed buildings and Open-Air Museums provide a series of opportunities that may facilitate the ‘time travel’ described above. For example, they are multifunctional and useful in a manner of ways. Open-Air Museums can serve as areas for archaeological research (related mainly to experimental archaeology), to showcase ancient crafts, to tell stories about the past of a particular region or to educate contemporary society about relevant issues, such as environmental sustainability or political citizenship (Paardekooper 2020b). Many of these activities could enhance a multisensory interpretation of the past (see below). They also allow researchers to access a wide pool of potential observers. In comparison to other kinds of museums, Open-Air Museums have significant numbers of visitors (Paardekooper 2013: 23), these numbers vary based on both the age of the museum and the presence of ‘crowd pullers’, i.e. significant attractions (Paardekooper 2013: 103–104).

Reconstructed Buildings and Open-Air Museums are not without their difficulties, and it is unwise to utilise these sites without careful critical analysis of these interpretative problems. Despite these issues, these buildings are often useful interpretive replications of what we currently understand about the past, incorporating realistic tools, materials, and techniques. For the purposes of sensory research, they may provide a backdrop onto which methodological rigorous sensory studies could be (re)enacted.

Experimental or Experiential Archaeology?

Before we consider how reconstructed buildings could be used within sensory studies of the past, we should examine in greater detail the context in which these buildings have been developed within experimental archaeology. Experimental archaeology encompasses a wide range of subjects, theoretical perspectives and techniques ranging from artefact analysis and craft processing to the reconstruction of buildings and even small settlements (see Schöbel 2019 for a recent overview). Experimental archaeology has in the past often been viewed as predominantly ‘scientific’ in nature, in part in contrast to sensory or experiential approaches (Reynolds 1999; Kelterborn 2005; Lammers-Keijsers 2005; Outram 2008). However, recent research suggests that many of the core tenets of the field share the same theoretical assertions and humanistic qualities of sensory-based approaches (e.g. Petersson and Narmo 2011; Hurcombe 2015; O’Neill and O’Sullivan 2019).

The Concise Oxford Dictionary of Archaeology defines experimental archaeology as:

‘A branch of archaeological investigation in which carefully controlled experiments are undertaken provide data and insights that aid in the interpretation of the archaeological record. These experiments vary widely in their nature and purpose’ (Darvill 2021).

Peter Reynolds (1999), an influential figure in the development of experimental archaeology in the 1980s and 90s, identified five types (Table 1). These subtypes include the more commonly known forms, including building structures (1) and testing past technologies (2), the somewhat rarer exploration of taphonomy and post-depositional processes (3), or testing modern archaeological equipment (5).

	Type	Description
1	Construct	1:1 scale construction that tests a hypothetical design for a structure (e.g. house, workshop) based upon excavated archaeological evidence.
2	Process and function experiments	Investigations into how activities were achieved in the past, including investigations into what tools were for, how they were used and how other technological processes (e.g. pit storage) were achieved.
3	Simulation	Experimental investigations into formation processes of the archaeological record and post-depositional taphonomy.
4	Eventuality trial	Combination of categories 1–3. Large-scale, often <i>longue durée</i> , experiments that can investigate complex systems (i.e. agriculture) and chart variations caused by unexpected or rare eventualities (e.g. extreme weather).
5	Technological innovation	Archaeological techniques are trialled in realistic scenarios, e.g. the testing of geophysical equipment over a simulated, buried archaeological site.

Table 1: Reynolds' (1999) five types of experimental archaeology, compiled and adapted from Outram (2008: 3).

There has, and continues to be, extensive academic debate about what constitutes 'experimental archaeology' (e.g. Cunningham et al. 2008; Outram 2008; Petersson and Narmo 2011). Today, experimental archaeology is associated by many with the wider fields of heritage re-enactment, education, and other forms of public presentation that demonstrate 'past life and technology' (Outram 2008: 3). However, many reject these broader associations, instead opting for a strict 'scientific' based definition; one that 'follows the principles of research, and a hypothesis [that] should be proved or disproved using a methodology appropriate to the task' (Hansen 2014: 167). This hypothesis testing approach is shared by each of the five techniques described above and was argued by Reynolds (1999: 156–157) to represent a 'dissociation' between true experimental archaeology and other forms of education and experience in archaeological studies more generally. Outram (2008: 1–2) argued that the nature of experimental archaeology means it shares more in common with archaeological science more generally, a facet of the field which continues to feature strongly in

ongoing research (e.g. Bell 2009; Shillito et al. 2015). This positivist approach remains in some experimental archaeology circles, where the prevailing opinion is to separate the work of experimental archaeology from experiential or sensory-based approaches (e.g. Reynolds 1999: 156; Outram 2008). For example, Outram (2008, 3–4) argues that the consideration of experiential activities has the by-product of confusing the aims of experimental research despite also admitting that a certain level of experience is required for practitioners to properly undertake any true experiments in the first place.

The debate between positivistic or scientific methods of archaeology and more humanistic approaches is one that is not exclusive to experimental archaeology but is part of a wider discussion of the changes in archaeological thought over the last 50 years.² Recent developments are unified in part by the rejection of dualisms, the categorisation of an approach into two opposed viewpoints (Harris and Cipolla 2017: 4–5). Science and humanism are one such dualism, Nature and Culture another, but each represents a contemporary view of the world, which when imposed assumes a universality of thought that impedes how we understand the past (Harris and Cipolla 2017: 5). In experimental archaeology, the adoption of this dualism, between ‘scientific’ and ‘humanistic’, appears to be in part an attempt to legitimise the field within mainstream academic archaeology, by activity separating the field from phenomenological or taskscape approaches (Cunningham et al. 2008: vii). This continued connection with ‘positivistic science’ remains a likely key component as to why experimental archaeology has not engaged with post-processual academic archaeology more closely (Petersson and Narmo 2011: 29). The fields of experimental archaeological and sensory archaeology continue to be viewed as dichotomous research themes; however, this opposition appears to be a fallacy.

A recent Facebook discussion conducted by EXARC, a global network of professionals active in archaeological Open-Air Museums, experimental archaeology, ancient technology and interpretation, demonstrates both a continued rationalistic perspective but also the changing viewpoint of many in the field (Deady et al. 2015). Here, opinions varied between those who continue to see the division between academically rigorous experiments and the ‘personal motivation’ of experiential approaches and those who saw experience and experiment as part of the same interpretative cycle of activity (Deady et al. 2015). What is apparent is that rather than being opposites, experimental and experiential studies could instead be viewed as a continuum of discovery, a sliding scale of investigation of the past that shares much in theory, process, and methodology (Deady et al. 2015). Both approaches are interdisciplinary and multi-faceted in nature, require intimate involvement with action or agency, and help us to reveal a greater understanding of the past. It could also be argued that one approach could not exist without the other.

The ‘products’ of experimental archaeology are, after all, not a physical entity but ‘data and knowledge gained by experience’ (Paardekooper 2019: 2). The difficulty, therefore, appears to be not the type of archaeological research undertaken (experimental or experiential) but the mode in which it is undertaken. Cunningham et al. (2008: vii) argue that ‘there is ... always an element of experience in an experiment, but not always an experiment in an experience’. Some attempt to explore the human aspect of experimental archaeology has been undertaken for Iron Age buildings (e.g. Townend 2007); however, these approaches focused on the sensory experience and apparent meaning extrapolated from experimental building techniques. If specific experiential methods were to adopt some of the rigorous hyper deductive basis present in much of experimental research, would they be considered more valid by the wider archaeological world?

A Sensorial Bricolage

Having considered the development of reconstructed buildings in experimental archaeology, we now turn attention to the theoretical and methodological advancements of sensory or experiential archaeology. Sensory Archaeology represents a growing body of research that has emerged over the last 40 years, which has correlated with emerging theoretical and methodological traditions, including academic discussions of landscape, place, materiality, performance, and phenomenology, among others (see Skeates and Day 2019: 1). Over the last two decades this emerging research field has continued to grow (Skeates and Day 2019: 1–4), including within classical studies (e.g. Betts 2017b). In terms of the genesis of sensory studies in archaeology, the influence of phenomenological archaeology cannot be overstated (e.g. Thomas 1993; Tilley 1994). Archaeological phenomenology emphasises the physical engagement of the human body with the world to interact with and understand landscapes shared with people of past societies (Brück 2005: 45–7). Crucially, the role of a ‘phenomenological approach is the manner in which people experience and understand the world’ (Tilley 1994: 11–12). The well-known rejection of phenomenological archaeology (see Brück 2005 for greater detail) in recent research has focused on the excessive subjectiveness of the approach, which seeks to privilege the sensory experience (usually vision) of the solitary lone observer over ‘intercommunicating people’ and more ‘full-bodied experiences of the world’ (Skeates and Day 2019: 2). These critiques are rightly received and crucially have allowed researchers to build upon early theoretical perspectives to create more rigorous methodologies to reconstruct a full body exploration of the past.³ Modern research instead focuses less on attempting to understand the past through contemporary experiences and more towards understanding the sensations that emerge in the connections between humans and the material world (Hamilakis 2013: 5–7).

Methodologically speaking, undertaking a subjective and rigorous experiential based exploration of past senses and experiences has been difficult to achieve. In part, this is due to the need to engage with our inherent modern biases and how they might influence our interpretation of sensory data (Hamilakis 2013: 55–56; Tringham and Danis 2019). We should appreciate that the ‘diversity of multisensorial experience for each person [is] in a constant entanglement with other trajectories of people, places, and things’ (Tringham and Danis 2019: 50). For archaeologists, these influences stem in part from comprehending the effect that changing archaeological paradigms have had on how we understand embodied experiences of the past (Hamilakis 2013: 48–55), including how these biases affect our treatment of reconstructed buildings (e.g. Hingley 2020). Understanding and accepting our anachronisms within experimental based studies, i.e. those things that we get wrong or do not fit, will go some way to help uncover new approaches that overcome modern bias by forcing us to examine our contemporary perspectives (Petersson 2017). Scale is also an important factor. Past methodological approaches tend to focus on individual experience (embodiment) or engagement with architecture and the wider landscape (phenomenology or experiential) without drawing these two divergent but closely interrelated scales of enquiry together (Tringham and Danis 2019: 50). As argued by Tringham and Danis (2019: 51) the goal is to achieve a study that accesses and engages with sensory data to fundamentally change research questions and methods. For classical sensory studies, where historic literature and epigraphy are commonly utilised, it has been argued that combining textual and material studies (whether artefactual or architectural) is ‘likely to provide the starting point for any future studies’ (Betts 2017a: 196). Moreover, a call for multisensory and interdisciplinary ‘on the ground’ experimentation (Betts 2017a: 197–198) provides several interesting avenues to explore.

Arguably, the most successful application of this approach has been achieved by Hamilton and Whitehouse (2006a; 2006b; 2020), whose research as part of the Tavoliere–Gargano Prehistory Project sought to develop multisensory phenomenological archaeological fieldwork techniques and combine these approaches with traditional landscape approaches. Here, social and sensory experiments were designed with research aims and objectives in mind to supplement more ‘traditional’ approaches, including the use of aerial photography and GIS spatial analysis (Hamilton and Whitehouse 2020: 75–76). These experiments drew from embodiment within the landscape and were adapted in the field to pose and answer specific research questions (Hamilton and Whitehouse 2020: 76). These experiments were diverse and included mapping visibility from a single position (within a Neolithic enclosure) using ‘circular view’ drawings, understanding different sensory perceptions (sounds, movement)

across distance and in different environments, and a phenomenologically driven site catchment analysis, which mapped sensory journeys across the landscape alongside topographic information and vegetation cover (Hamilton and Whitehouse 2006a: 38–65). These experiments sought to consider multisensory perspectives (Hamilton and Whitehouse 2020: 2–3) that go beyond the usual focus on vision over other senses (Frieman and Gillings 2007). The design of the experiments also pursued differences in age, gender, group size as well as the scale of past activities (Hamilton and Whitehouse 2006a: 35). These experiments, which were conducted in both Italy and the UK, also produced a wealth of sensory-based data (visibility, sound, smell) that provides a useful baseline for future sensory studies (Hamilton and Whitehouse 2020: Appendix 4). Essentially, this approach creates a ‘method of field enquiry’ of experiencing and ‘being in the world’ that can be incorporated within methodologically rigorous and diverse landscape analyses (Hamilton 2011: 271).

So how are holistic and contextually driven sensorial approaches enhanced through experimental archaeology, and specifically the use of reconstructed buildings and Open-Air Museums? Multisensory holistic approaches are key, drawing on the extensive insights provided by experimental archaeology but also all additional available evidence. While the research of Hamilton and Whitehouse (2020: 47–56) focused on sensory experiments in bare open landscapes, reconstructed buildings allow us a physical structure onto which sensory experience can be mapped. O’Neill and O’Sullivan (2019: 452) describe their approach to reconstructed buildings as a bricolage, namely a method that is constructed from the diverse array of evidence at their disposal. They state that

‘we use ... archaeological evidence, ... documentary sources, experimental archaeology, experiential archaeology, and our own imaginations to try and explore how the people ... used all their senses to enable them to come to an understanding of the social worlds, and technologies, they encountered on a daily basis’ (O’Neill and O’Sullivan 2019: 452).

A major focus of recent research that demonstrates this approach in practice is the examination of houses. Townend (2007) explored the ‘meaning embedded in skilled practice’ by considering how structural design, engineering and technology in Iron Age house (re)construction could inform us about the meaning of these buildings in the past. Also, research by members of the University College Dublin (UCD) Centre for Experimental Archaeology and Material Culture has sought to explore the benefits of experiential and experimental archaeology in relation to the construction of domestic buildings constructed in early medieval Ireland (O’Sullivan et al. 2017; O’Neill and

O’Sullivan 2019; O’Sullivan and O’Neill 2019). The majority of sensory studies have focused either on urban (e.g. Betts 2011; Flohr 2017) or ritual contexts (e.g. Tilley 1994; Weddle 2017; Graham 2021: 41–76). However, the consideration of houses enables us to understand ‘the habitual experiences of everyday life, taking place in mainly domestic environments’ (Hamilton and Whitehouse 2006a: 35). Domestic architecture is inseparable from our daily lives and includes with it the experiences, senses, and emotions that form part of that life (Love 2016: 226). Moreover, architectural forms are active components in creating and affecting our emotional state and sensory engagement with the world (Bille and Sørensen 2016: 159).

In what manner can we access sensory states from structural remains and reconstructed buildings? Understanding our sensory connection to buildings starts with their construction; how we build our domestic spaces and the different materials involved, invoke differences in experiences and emotions (e.g. Love 2016; Townend 2007). Moreover, once complete, the flow of light, sound, and air through the building all affect our sensuous experience of that space, which in turn can be manipulated through ‘the use of lighting technologies, heating and so forth’ (Bille and Sørensen 2016: 159). Reconstructed buildings equally allow us to explore different living conditions, whether light levels or air quality (each of which can be scientifically measured) or the effect of different seasons and weather conditions on habitation (O’Sullivan and O’Neill 2019: 10–11). Within reconstructed spaces, daily activities such as cooking, weaving, or even sleeping, can equally be recreated to analyse the effects that atmospheric or seasonal changes may have on daily lives in the past (O’Sullivan and O’Neill 2019: 11). The use of these reconstructions allows us to experience, in a multisensory way, the physical manifestation of habitation in the past. Although it is not possible to entirely experience what buildings in the past were like to live in, ‘we can by experiencing them ourselves appreciate to some extent what people would have encountered and dealt with in their daily lives’ (O’Sullivan and O’Neill 2019: 13). As argued by O’Neill and O’Sullivan (2019: 463), the use of reconstructed buildings ‘can offer us a means of asking more in-depth questions about how people moved, engaged, and acted with materials, technologies, and things in their daily lives’.

Insights from Roman archaeology provide useful parallels for sensory approaches to this specific period and, potentially, within reconstructed buildings. Sensory approaches in Roman studies have been important in the experiential understanding of structures and houses (e.g. Betts 2017b). These studies have largely focused on structures within urban centres, such as Rome or Pompeii (e.g. Betts 2011; Flohr 2017; Veitch 2019), in part due to the usefulness of standing (or near-standing) architectural remains to provide a three-dimensional recreation of past environments and experience. Platts’s (2019: 17) examination of Roman houses highlighted that the layout of such buildings, as well as

the way space was divided (e.g. doors, curtains, and windows), could drastically affect sensory access to different spaces. Moreover, Platts (2017: 229–230) examined the specific function and role of different rooms, such as the kitchen or toilet, and how the multisensory experience of each may have influenced the architectural organisation of a house. In terms of military installations specifically, particularly on the northern frontier, Derrick's (2017: 86) examination of the smellscape of Vindolanda in the third century AD revealed the multi-dimensional nature of the 'olfactory geography of the site'. Although focusing on a single (but often overlooked) sense, this research examined both micro (structures) and macro (landscape) environments and considered detailed aspects such as position, topography, and wind direction (Derrick 2017). Finally, Veitch's (2017) examination of the effect of the built environment on suppressing and enhancing sound demonstrates that distance is the only factor in determining whether something or someone can be heard. Understanding how sounds travel inside and outside of buildings is important in the way this sense is comprehended and is uniquely suited to a physical space such as a reconstructed building.

The field of sensory archaeology allows us to think of 'the ways in which we make sense of the world around us and the ways in which different contexts shape our perceptions' (Skeates and Day 2019: 4). Reconstructed buildings and sites, however, offer a framework onto which we can map our sensory experience in the present and begin to unravel how those experiences may have compared or differed to the past.

Putting Theory into Practice – Domestic Architecture on the Northern Frontier

Having considered a theoretical approach that combines experimental and experiential into a single sensorial bricolage, the following section considers how this type of analysis could be put into practice. This method provides an outline approach and the practicalities of a sensorial investigation within a reconstructed building in the hope that this will be improved upon in future research. There is insufficient room here to provide a detailed breakdown of the method or a full and detailed account of the historical, archaeological, and architectural evidence for this reconstructed building. References to original source materials have been included where relevant. As with many such studies (e.g. Hamilton and Whitehouse 2006a), it is important to highlight the role of the observer and as such, the following text will include references to the author as the subject of the sentence (e.g. 'I observed...').

Below, I demonstrate the application of a sensorial bricolage within domestic architecture along Rome's northern frontier. The examination of such a reconstruction, through both empirical evidence and sensory methods, provides a unique opportunity to investigate military experience along this frontier. This reconstruction has been built using information from excavated archaeological evidence, which, alongside additional

insights within the rebuilt space (i.e. floor surface, underfloor heating), can be used to access a multisensory experience. Positioning ourselves within this (re)constructed space also has the ability, in a phenomenological sense, to experience physiological responses that may not be immediately apparent from the empirical evidence.

This investigation utilises a reconstructed building of Roman date to answer a specific research question, namely, what were the living conditions like in this region during the fourth century AD? This multisensory exploration utilised information from archaeological excavations, documentary evidence, and wider academic research. As part of this study, several digital tools were utilised to enable the recording of experiences of the lone observer (the author) throughout the site and the building itself. Specifically, I used the Rescaper Tracker app (Honest Partners 2020), which was developed by Dr Stelios Lekakis, for ethnographic research. The app, which is downloadable to a smartphone, enables experience recording via route tracking, images, videos, and note-taking. The use of an app is not required for this type of research, however, as a modern smartphone will usually have the capability to record such media and track location data. Digital technologies are a useful tool in experiential research in two ways: to create data that can be used to generate innovative modes of presentation for a wide audience and to generate reusable data for others to utilise in future sensory research (e.g. Hamilton and Whitehouse 2020: Appendix 4).

Case Study: Arbeia Roman Fort

The Roman fort of Arbeia (**Figure 2**) was originally constructed in the mid-second century AD and forms the easternmost military fortification along Hadrian's Wall, the northernmost frontier of the Roman Empire. The fort was not initially built in an entirely unoccupied area. Archaeological excavations undertaken in the 1990s revealed evidence of a Middle Iron Age farmstead, including a roundhouse and a later cultivation layer dating to the Late Iron Age (Hodgson et al. 2001). Whether the land was occupied and taken from the indigenous population prior to the construction of the fort is unknown; however, it is generally understood that the construction of the frontier did cause major local upheaval, particularly on the Northumberland coastal plain (i.e. Hodgson et al. 2012).

The fort was initially constructed in the second century AD for a small cohort but was extended at some point after AD 208, corresponding with Severan campaigns in northern Britain (Breeze 2006: 115–117). After this point, the fort was likely utilised as a supply base at the mouth of the River Tyne, evidenced by the presence of thirteen additional granary structures within the northern part of the fort (Breeze 2006: 117–118). In the late third or early fourth century AD, the southern part of the fort and surrounding area was destroyed by an extensive fire of uncertain origin, leading

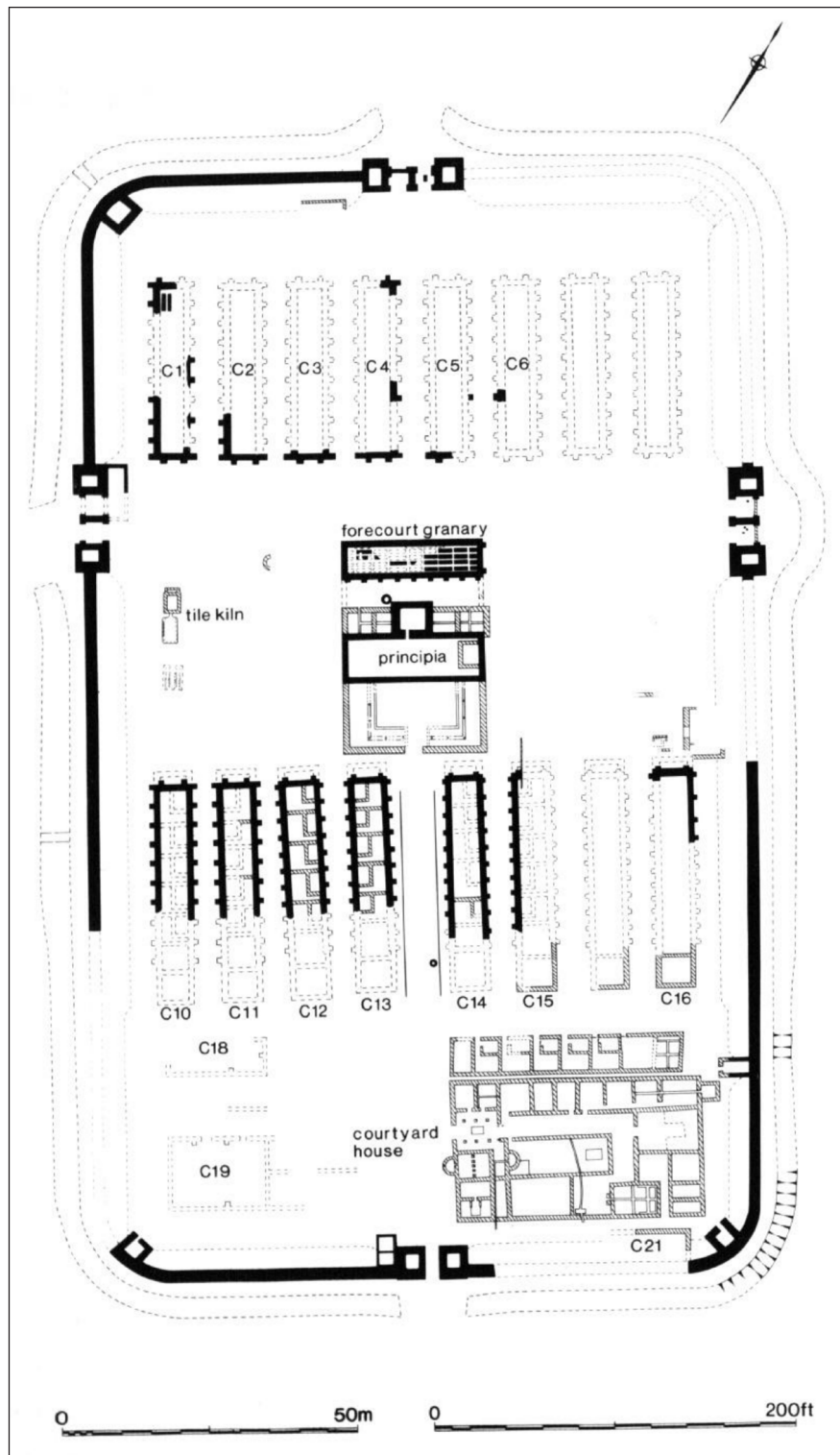


Figure 2: Arbeia Roman fort in the Late Roman period (After: Hodgson 1996: 136, Fig 12.1, Archaeology Data Service <https://doi.org/10.5284/1081795>. Reproduced in accordance with the ADS Terms of Use).

to replanning and reconstruction (Bidwell and Speak 1994: 33). This reconfiguration included the construction of at least ten new barrack blocks, reconfigured from the existing granaries, and a courtyard house. Each new building suggested the arrival of a new garrison, with the house representing the residence of the new commanding officer of that new unit (Hodgson 1996: 142). The fort has long been associated with Arbeia in the *Notitia Dignitatum*, which suggests that in this later period, the fort was occupied by a unit of Tigran bargemen (Hodgson 1996: 142; Breeze 2006: 115).

As a public attraction, Arbeia began life in 1880, when the archaeological remains of the fort were uncovered during development and later turned into the first public presentation of a Roman fort anywhere in Britain (Breeze 2006: 115–116). Later, following further excavations and demolition of modern buildings, the site was consolidated into a full archaeological attraction, which saw the construction of several archaeological reconstructions. The earliest reconstruction on the site was undertaken in the 1980s when the proposed construction of the south-west gateway caused much controversy and led to a planning application appeal (Hingley 2012: 279–280). The controversy was caused in part by the proposal to build the reconstruction directly on top of the archaeological remains, to retain the original position, but also to build using new materials rather than recycled Roman materials, as had been seen elsewhere along Hadrian's Wall (Hingley 2012: 280). Both techniques were considered at the time to represent an antithesis to current conservation practice. Other reconstructed military buildings followed, including a barracks block and, in 2002, the fourth-century courtyard house, named the Commanding Officer's House, which is the focus of this study. Each of these buildings was constructed with considerable care using detailed knowledge drawn from the excavation of the site (Hingley 2012: 277), making them, as far as possible, rigorously researched and executed building projects that provide an interpretation of the original buildings. For example, the decorative style of the wall plaster utilised in the reconstruction of the Commanding Officer's house was derived from finds made during the original excavations of the building (Hingley 2012: 281).

The Commanding Officer's House

The Commanding Officer's House was reconstructed on the footprint of the original structure, retaining its original position and setting on the periphery of the fort at Arbeia and within the Tyne estuary. However, the building was not fully rebuilt and excluded the rooms on the southern side of the house. Moreover, while the position of the building within the fort was correct, the presence of surrounding development meant that it was difficult to appreciate the context of the building and the fort within the wider landscape. Evidence from the original archaeological excavations provides a

detailed reconstruction of the original plan of the house, including the original function of many of the rooms (**Figure 3**). The house was originally built around AD 300 and was reconfigured later in the fourth century; see Hodgson (1996) for a full and detailed account of the archaeological excavations, as well as an interpretation of the remains. This data was collected and consulted in detail before the visit. The examination of such a reconstruction, through both empirical evidence and sensory methods, provides an excellent opportunity to investigate military experience on the northern frontier.

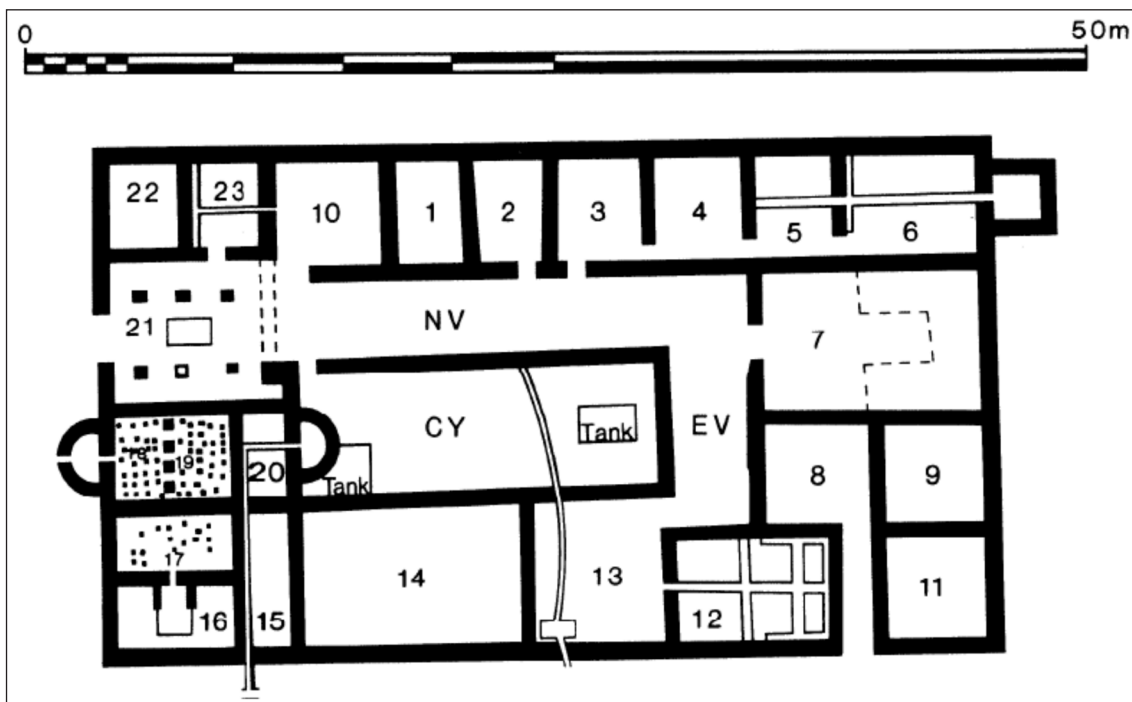


Figure 3: Commanding Officer's House (After: Hodgson 1996: 138, Fig 12.3, Archaeology Data Service, <https://doi.org/10.5284/1081795>. Reproduced in accordance with the [ADS Terms of Use](#)). 1: Store/service room, 2–6: Residential rooms, 7: Dining room, 8–9: Kitchen/service rooms, 10: Unknown, 11: Kitchen/service room, 12: Winter dining room, 13: Furnace room, 14: Stable, 15: Latrine(?), 16: Praefurnium (furnace), 17: Hot bath, 18: Caldarium (hot plunge bath), 19: Tepidarium (warm room), 20: Frigidarium (cold room), 21: Entrance court, 22: Unknown.

Sensorial insights

I undertook research on the site and this building prior to my visit. I undertook a single visit to the site on 26 September 2018 and recorded insights using the Rescaper tracking app (**Figure 4**). To consider this building in a multisensory way and to gather insights that do not privilege one sense (i.e. vision) over another, I have compiled some initial perceptions from my visit to the Commanding Officer's House under a series of thematic



Figure 4: View of the reconstruction of the Commanding Officer's House at Arbeia Roman Fort. To the left of the main building is a reconstructed barrack block (Author).

headings. What follows represents my sensory perceptions gained from a single visit, which could be improved and supported by both additional visits and multiple observers. Related room numbers are provided in brackets and relate to the plan from **Figure 3**.

Privacy/Sanctuary

The layout of the building, surrounding a central courtyard, certainly provided privacy to the inhabitants of the building from the remainder of the fort. This format parallels similar courtyard houses found in North Africa, the Eastern Mediterranean, and Ostia (Hodgson 1996: 144–145). Here, light flowed into the central space of the house and the surrounding porticos at all times of the day. The visit to the site by the author was undertaken on an uncharacteristically sunny day but demonstrated the impact of the light within this central area despite the lack of visual interaction between the interior of the house and the surrounding fort (**Figure 5**). However, in considering this space a sanctuary from the outside world, sound and smell must also be considered. This approach reflects a multisensory perspective, in contrast to the visual dominance of previous analyses (see above) and is due to the role of this structure. A domestic space in which occupants both lived, and cooking was undertaken in, would both create noise and produce smells through cooking and other activities. From within the building, traffic noise could easily be heard from the modern housing surrounding the fort. The relative distance between the structure



Figure 5: View of the central courtyard within the Commanding Officer's House, looking east towards the dining room (Author).

and the soldier's barracks blocks (**Figure 2**), c. 20–30 m, meant that although the soldiers could not be seen, they would have possibly been heard and maybe smelt.

The layout of the house suggests that the dignitary who owned and occupied it was likely using the space in part to receive and entertain guests. As Hodgson (1996: 149) suggests, the entranceway (21), portico, and the *triclinium* in the dining room (7) each served as stages of a graduated admission for visitors, possibly reflecting the status of the admitted guests. The covered and enclosed space (7) for the *triclinium* provided privacy from sight and sound to those both within the house and from the outside sensory impact of the fort. The positioning of the kitchen (11), located immediately to the south, may have served to cover some of the less-appreciated smells of the soldiers and the fort. The inclusion of the winter dining room (12) with hypocaust (as discussed below) provides additional evidence for the need for privacy for dignitaries and guests during the winter due to the harsher weather of northern Britain.

Comfort

The courtyard-style house was designed for comfort. In part, this was serviced by the reconstructed furniture (see below) but also in terms of the relative tactile experience of occupying the space within the building. It was stark how cold the walls and floors were during my visit in September. The relative heat offered by sunshine in the central courtyard was apparent. Several additional heating elements of the building design would have increased the comfort of its inhabitants; however, these were not included in the reconstruction, presumably due to the cost of building technical elements of the courtyard house. This included hypocausts underneath rooms on the north and north-western sides of the building, including bedrooms and the winter dining room (**Figure 3**, Rooms 2–6 and 12). Without these elements, the sensory experience of the building demonstrated how cold the building would have been without sufficient heating, particularly during the winter along the northern frontier. Other elements not reconstructed that aided in the comfort of occupying the house included a bathhouse (16 to 20) attached to the western side of the building, flanking the main entranceway. These possible prestige elements may have added a layer of comfort that was in stark contrast to the relative comfort of the remaining cohort within the fort.

Status

The status of the inhabitants was immediate from the size and complexity of the building as you entered. The entranceway (21), a double doorway flanked by porticos to each side (albeit only one of which was reconstructed), provided a sense of exclusion from the remainder of the fort (**Figure 6**). This entrance funnelled (likely select) people from the everyday activities of the fort into a plush and spacious interior. The reconstructed rooms were large, spacious and filled with light, in contrast to the reconstructed barrack block that stood adjacent, a designed aspect of this reconstruction (Hodgson 2008: 39). The reconstruction of the furniture was borrowed in part from similar sites, however, painted wall plaster recovered from the excavation allowed for the approximately decorative nature of the house (Hodgson 2008: 38). The impression it gave was of a well-ordered and highly maintained building that displayed the wealth and status of its residents. Moreover, and as discussed above, additional elements such as underfloor heating in both the bedrooms (5 and 6) and dining room (7), as well as the attached bathhouse (16 to 20), added a sense of grandiose spectacle and comfort to the building that displayed a high status to those who occupied or visited.

It was notable that some of the 'lower' status areas of the building, i.e. those occupied by servants and possibly enslaved people, were omitted from the reconstruction (**Figure 3**, Rooms 8–9, 11–20). As such, it was difficult to sensorily compare the differences



Figure 6: View of the entranceway of the Commanding Officer's House. The area to the right shows the part of the building that was not reconstructed. (Author).

between experiences and rooms. It should be noted that some of these rooms, such as the kitchen and associated service rooms (8–11), did immediately flank the dining areas. Although spacious in design, the relative size of the building (40 m by 20 m) suggests that the occupants, whether dignitary or servant, would have lived in proximity and interacted at regular intervals.

Conclusion

This paper demonstrates the theoretical basis behind an experimental/experiential, holistic approach and provides a preliminary examination of how this process could be articulated within an outline methodology, which could be applied to sites of different periods. The case study of Arbeia provided several theoretical and methodological insights that could be evaluated when utilising reconstructed buildings for experiential research in the future. I present these themes below as a possible blueprint for future experiential based research.

Experimentation: There is much to learn from researchers in experimental archaeology, whose rigorous and repeatable experiments allows archaeologists to test theoretical perspectives and sensorial hypothesis and develop new interpretations of how we understand the past. Experiments could be designed to test specific experiential insights gathered during the visit to the building. How well does the building insulate sound? To what extent could smells from the stables or kitchen affect the dining areas? How much warmth was generated from hypocausts within and surrounding specific rooms? We should be wary, however, of approaching sensory studies with too great of a 'scientific' eye. How observers think and feel in a space should remain the key drivers of enquiry (Hamilton 2011: 271).

Authenticity and Context: The Commanding Officer's House was constructed with great attention to detail, providing a detailed interpretation of that building and its position in the fort. However, archaeological evidence is often incomplete, and analogies are used to fill in details. By understanding what can (whether artefact, furnishings, or function) and cannot be associated with the building, we can refine and adapt our interpretations to provide a more detailed and complex understanding of the past. Moreover, the position of the Commanding Officer's House was exact; however, the replica of the barrack block immediately adjacent to it was of a different period. Without understanding the proper context and archaeological stratigraphy of the site and, as such, its impact on the (re)construction, our experience of the building could demonstrably be altered while undertaking sensorial experiments.

Time: Reconstructed buildings, by their nature, represent a single iteration of a structure in time. The (re)construction of the Commanding Officer's House (where built) represents its initial construction; however, shortly after it was built, it underwent a series of changes in layout and room function (Hodgson 1996). Moreover, as stated above, the flanking reconstructed barrack block was not initially of a contemporary date. Experience of the (re)constructed building, therefore, reflects a specific point in time; however, complementary digital technologies (see below) and imaginative temporary modifications (i.e. the doorway on Bodmin Moor) could allow a wider temporal and experience-based understanding of these structures. For example, the biography of other earlier buildings can be recreated by examining other reconstructed buildings as proxies. Townend (2007), in his analysis of the Iron Age roundhouse, utilised anthropological techniques, interviewing the builders and gaining their perspective in determining the human involvement in the construction of the building. At Arbeia, the Commanding Officer's House was preceded by some centuries by a Middle Iron Age roundhouse. By utilising reconstructed buildings elsewhere, we can generate a compendium of sensory experiences over time to understand how domestic space was built and utilised across different periods.

Digital technology: In the outline method detailed above, digital technologies were used as a means of recording the sensorial experiences of the building and the wider fort in text, image, and video. However, geolocating digital outputs remains the minimal involvement of modern technology within an experiential methodology. Digital reconstructions and the spatial analyses conducted within those reconstructions recreate sensory experiences not present within a (re)constructed building (e.g. Anderson 2005; 2021; Eve 2012). Digital reconstructions also allow for greater flexibility in both the observer and the space that it inhabited. For the observer, changes could theoretically be made for height, disability, and/or differences in vision/hearing, while for the space, we could alter decoration, weather, and time of year. Moreover,

three-dimensional models of these buildings ascertained through photogrammetry could allow us to model sensory experiences ascertained from reconstructed buildings within 3D digital space. By creating 3D models of reconstructed buildings, we could potentially overlay the experiential data collected and map these experiences on sites found elsewhere. Some challenges remain, particularly the low levels of digital documentation currently found in many Open-Air Museums (Hansen and Kelm 2021); however, the potential of such technologies is vast.

A community sensorium: As discussed above, experiential approaches benefit from the participation of more than a sole observer (Hamilton and Whitehouse 2006a). Sensory experiments are enhanced by considering differences in age, gender, and group size and are consequently simplified when only considering the 'lone male' (and usually white) observer (Hamilton et al. 2006: 35). However, Open-Air Museums provide the ideal venue for drawing together views and sensory viewpoints from academics, reenactors, craft workers, and visitors alike. By utilising these divergent views and experiences, we strengthen our understanding of sensory experience and broaden our perspectives to encompass a wider spectrum of society. These venues allow us, in a unique sense, to combine theoretical perspectives, experimental and experiential methodologies and, possibly, provide a space for public participation in archaeological research that is unseen elsewhere.

Notes

- ¹ Experimental Archaeology is defined as a subfield of archaeological research that employs different methods, techniques, analyses, and approaches, as part of a controllable and repeatable experiment to replicate past phenomena (Mathieu 2002).
- ² For a recent and detailed summary see Harris and Cipolla 2017: 1–9.
- ³ A large number of authors have previously discussed in detail the subjective nature of sensory or experiential approaches to the past and as such this debate has not been outlined in full here. For further information into this debate please see Brück 2005; Hamilton and Whitehouse 2006a: 31–35; Hamilakis 2014: 16–56; Platts 2017: 9–11.

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Competing Interests

The author has no competing interests to declare.

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