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Frontiers of Food: Identity and Food Preparation in Roman Britain

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A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts

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FRONTIERS OF FOOD: IDENTITY AND FOOD PREPARATION IN ROMAN BRITAIN

(Monograph)

by

Sarah Taylor

Graduate Program in Classics

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts

The School of Graduate and Postdoctoral Studies
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Abstract

Food preparation and consumption are culturally specific practices. This thesis uses literary and archaeological evidence from the military fort at Vindolanda on Hadrian’s Wall as a case study for understanding the cultural identities of diverse communities on the frontier of Roman Britain. This involves the investigation of the dietary identities of various social groups within the broader framework of the maintenance of cultural identity by conquered peoples. The distinctive preservation of archaeological materials at Vindolanda provides the opportunity to include implements not usually preserved (e.g. wooden objects and environmental data). In addition, the Vindolanda writing tablets contextualize the artefact assemblages. The tablets found within the early forts (ca. AD 85-120), consist of correspondences and inventory lists, some of which catalogue the food that was actually within the fort storehouses. Furthermore, this project provides a pathway to applying models of anthropological food theory to archaeological evidence and to studying ancient foodways.

Keywords

Roman, foodways, military, Britain, Iron Age, cultural identity
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# Table of Contents

Abstract ................................................................................................................................. ii
Acknowledgments .................................................................................................................. iii
Table of Contents .................................................................................................................. iv
List of Appendices ................................................................................................................ vi
List of Figures ....................................................................................................................... vii

## Chapter 1 ......................................................................................................................... 1
INTRODUCTION, LITERATURE REVIEW AND METHODOLOGY .............................. 1

1.1 Introduction ...................................................................................................................... 1

1.2 Literature Review ............................................................................................................. 4
   1.2.1 The End of Clear Divides ......................................................................................... 7
   1.2.2 Constructing Identity ............................................................................................... 11
   1.2.3 The Anthropology of Food ..................................................................................... 13
   1.2.4 Food in Antiquity .................................................................................................... 15

1.3 Methodology .................................................................................................................... 24

## Chapter 2 ......................................................................................................................... 28
BACKGROUND TO THE CASE STUDY: ............................................................................ 28
VINDOLANDA AND ITS PLACE IN ROMAN BRITAIN .................................................. 28

2.1 The Iron Age in Britain at the point of Roman conquest ............................................... 28

2.2 The Roman Army in England .......................................................................................... 30

2.3 Vindolanda and its role on the Romano-British frontier .............................................. 34

2.4 Period IV at Vindolanda (ca. AD 105-120) .................................................................. 39
   2.4.1 Area 1 – The Period IV Schola at Vindolanda (excavated in 2001/2) .................. 39
   2.4.2 Area 2 – Building 1 of Period IV (excavated in 2003/4) ...................................... 44
   2.4.3 Area 3 – The Period IV extramural houses (excavated in 2013) ......................... 46
2.5 Conclusions

Chapter 3 ................................................................. 51
THE CASE STUDY: ARTEFACTS FROM THE VINDOLANDA STUDY AREAS... 51
3.1 Analysis of the Archaeological Assemblages........................................... 51
3.2 Implements for Cheese Production........................................................... 51
3.3 The Knives.......................................................................................... 57
3.4 The Spoons.......................................................................................... 65
3.5 The Mortaria......................................................................................... 68
3.6 The Querns............................................................................................ 71
3.7 Epigraphic Evidence ............................................................................ 75
3.8 Pewter in Roman Britain....................................................................... 80
3.9 Conclusions.......................................................................................... 82

Chapter 4 ................................................................................................. 85
ANALYSIS OF THE FINDS FROM THE PERIOD IV FORT AND SETTLEMENT.. 85
4.1 Introduction........................................................................................... 85
4.2 Area 3 – The Period IV Extramural Houses ........................................... 85
4.3 Area 2 – Building 1 of Period IV............................................................. 92
4.4 Area 1 – The Schola............................................................................. 99
4.5 Conclusions.......................................................................................... 108

Chapter 5 ................................................................................................. 110
DISCUSSION AND CONCLUSION ......................................................... 110
Appendices............................................................................................... 115
Figures....................................................................................................... 124
Bibliography............................................................................................. 138
Curriculum Vitae ..................................................................................... 147
List of Appendices

Appendix A: The Domestic Artefacts ................................................................. 115

Appendix B: The Wooden Artefacts ................................................................. 120

Appendix C: Mortaria Stamps .......................................................................... 121

Appendix D: Context Data ................................................................................ 122
## List of Figures

Figure 1: The Stanegate frontier with garrisons. ................................................................. 124

Figure 2: The Position of the Period 1 Fort and Ditches in Relation to the Visible Remains.  ................................................................................................................................. 125

Figure 3: Outline plan of the positions of the early wooden forts in relation to the 3rd century stone fort .................................................................................................................. 126

Figure 4: Plan of period IV fort in red, visible stone remains in black................................. 127

Figure 5: Plan of period IV palatial building and schola...................................................... 128

Figure 6: Plan of the period IV Schola ................................................................................ 129

Figure 7: Plan of period IV Building 1 ................................................................................ 130

Figure 8: Plan of Area 3........................................................................................................ 131

Figure 9: Sumerian Relief of first depiction of dairying....................................................... 132

Figure 10: Typology of Cheese Presses............................................................................... 132

Figure 11: Modern knife set used by students in the Culinary Arts program at Fanshawe College ......................................................................................................................... 133

Figure 12: A complete mortarium ....................................................................................... 134

Figure 13: Quern typology................................................................................................... 134

Figure 14: Hod Hill – Praetorium 1 ................................................................................... 135

Figure 15: Hod Hill – Praetorium 2 ................................................................................... 136

Figure 16: Potential schola at Housesteads, Building VII................................................... 137
Chapter 1
INTRODUCTION, LITERATURE REVIEW AND METHODOLOGY

1.1 Introduction

Food is central to human life. Wherever one finds evidence for humans there is usually evidence of consumption. Most of us, however, do not eat just to satisfy a biological imperative and, therefore, food and food preparation are also full of social implications. Through food one can study gender relations, economic activity, social and cultural interaction and intimate details about individual lives. Communal eating satisfies emotional needs just as much as it fulfills biological needs and the importance of food for continued life is mirrored by its importance in anthropological studies of cultural groups. Counihan states that: “The examination of foodways […] reveals much about power relations and conceptions of sex and gender, for every coherent social group has its own unique foodways. Food is a proficient means through which to study cultural identity because it is a language that—through its structure and components—conveys meaning and contributes to the organization of the natural and social world.”

Despite its universal importance, aspects of food preparation have been largely ignored in excavation reports of individual sites making the research presented here necessary and

\footnote{Counihan 1999, 6.}
valuable for other researchers. This type of work has already been proven useful by Swan in her analysis of North African pottery types found on the Northern frontiers of Roman Britain.\textsuperscript{2} James called for the examination of ceramics related to domestic and dietary traditions of residents of military complexes in order to understand the ethnicity of individual soldiers and their immediate dependants more clearly.\textsuperscript{3} The aim of this thesis is to do similar analysis on the cooking implements, a finds category that is often ignored in larger site assemblages but may prove very useful in understanding the population of frontier sites.

Food consumption is commonly understood as a culturally specific practice. In our contemporary world these practices are highly visible and differ from each other in many ways including: who was involved in the meal, the timing of meals, the preparation of various dishes and the recipes used.\textsuperscript{4} The objective of this research is to learn from food preparation implements about the cultural, ethnic and group identities of the inhabitants of Roman forts and their extramural settlements in Northern England.

This project seeks to examine the available food preparation and consumption equipment found within selected contexts from the Roman military site of Vindolanda. Since food preparation and consumption are so culturally driven, the depositional patterns of different types of artefacts between different areas of the site, and even the comparison between neighbouring households, may be used as cultural signifiers about those that

\textsuperscript{2} Swan 2009, \textit{passim}.
\textsuperscript{3} James 2001a, 77-89.
\textsuperscript{4} King 1984, 187.
lived in these spaces. Furthermore, this project provides a pathway to applying models of anthropological food theory to archaeological evidence and to studying ancient foodways. It is possible that through the study of the domestic domain, we may learn more about the individual identities of the inhabitants of the frontier. For example, female members of the household may retain aspects of their native identity through elements of their private lives.\textsuperscript{5} Much work has been done on the pottery, but in most cases the cooking implements have been left unexamined.

In the following chapters research on the artefact assemblages from selected areas of the fort at Vindolanda is presented. The focus of this thesis is on three study areas selected from the period IV occupation period: Area 1 is a \textit{schola} or officer’s mess, Area 2 is an unidentified building labelled Building 1, and Area 3 is made up of two neighbouring houses within the extramural settlement. In order to understand the context of the artefact assemblages, Chapter 2 contains the relevant history of Roman Britain and the forts at Vindolanda. This is followed by an in-depth survey of the present state of knowledge of the three study areas including information from the original excavation reports, descriptions of the buildings, their construction and the domestic artefacts recovered from within them and any new information about the buildings published since their excavation.

In Chapter 3 the individual artefacts are examined in detail. The artefacts recovered from each study area are divided by type in order to discuss the significance and typology of each individual artefact. The information gathered in this chapter is important for

\textsuperscript{5} Kurchin 1995, \textit{passim}. 
understanding any cultural or social significance attached to the artefacts from the study area. Finally in Chapter 4, this data set is considered in combination with the information presented in Chapter 2. In this chapter the artefacts will be interpreted as whole assemblages in consideration with the building from which they were recovered. Here all possible conclusions about the assemblages will be drawn, which may include information about the building type or the cultural affiliation of the inhabitants.

1.2 Literature Review

The study of identity has long been central to Romano-British archaeology in some way. As an area conquered by an invading people, the major focus for early historical and archaeological inquiry was to discern the distinction between what belonged to the invading Romans and what remained of the culture of the native populations.6 The categories of Roman and native originally assumed homogeneity and consequently the evidence was analyzed with respect to its degree of Romanitas.7 Over the last 30 years, the homogeneous nature of these two groups has been questioned and the use of the concept of Romanization has been generally dismissed.8 Scholars have now realized that while the styles of material culture associated with the Romans or native groups may indeed have been involved in the generation and expression of identity, it cannot be assumed that this meaning is fixed.9 The adoption of any element of Roman material

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6 Haverfield 1909, 1912, 1924; Mommsen 1996; Pelham 1897; see Freeman 1997 for an in-depth discussion of these early approaches.
7 For example, the approach taken in Haverfield 1912.
culture by a native group does not necessarily confer Roman identity nor does it signify a cultural transition.\textsuperscript{10} It is necessary to dissolve the matrix of preconceived ideas about cultural groups in order to fully study the concept of ethnicity.\textsuperscript{11} No individual’s identity is fixed but rather interactions between members of society cause social structures to continually evolve.\textsuperscript{12} This has led to new discussion of the nature of identity including breaking down the dichotomies of Roman vs. Native and Civilian vs. Military,\textsuperscript{13} as well as including investigation of ‘Romanization’\textsuperscript{14} and the presence and role of women in certain communities.\textsuperscript{15}

As a result many new models and approaches to the evidence have been proposed. Artefacts have been re-evaluated based on new theories of identity, items have become interesting for new and different reasons, traditional gender assignments have been questioned and entire artefact categories that were overlooked are now the focus of new consideration.\textsuperscript{16} In addition, archaeologists have become interested in asking how and why social changes occur instead of simply recording them.\textsuperscript{17}

\textsuperscript{10} Jones 1997, 134; specifically with regards to the Roman army, see Haynes 1999.
\textsuperscript{11} Jones 1997, 39.
\textsuperscript{12} Gardner 2007, 43.
\textsuperscript{13} Woolf 1997; Hanson 1997; Alston 1999; Allason-Jones 1999b; James 1999 and 2001; Hunter 2001; Birley 2013a.
\textsuperscript{14} Millett 1990a and 1990b; Haynes 1993; Freeman 1997; Hingley 1996 and 2005.
\textsuperscript{15} van Driel-Murray 1998; Allason-Jones 1997 and 1999a; Goldsworthy and Haynes 1999; Allison 2006 and 2008; Stoll 2006; Greene 2013.
\textsuperscript{16} Among others, new ways of approaching the evidence have been investigated by: Allason-Jones 1999b and 2001; Allison 2006; Birley 2013a; Freeman 1993; Kurchin 1995; Hill 2001.
\textsuperscript{17} Jones 1997, 26; also see citations above.
The following literature review is designed to provide the necessary background on the state of Romano-British research as it relates specifically to the study of identity and material culture. The history and archaeology of Roman Britain has been the subject of scholarly investigation for centuries during which time the method of investigation has evolved dramatically. In this section (1.2.1) the relevant evolutions will be presented and examined in order to situate the present thesis. This section will begin by examining the ways in which the study of identity in the context of the Roman military has changed. This includes developments from abandoning assumptions about gender and material culture to breaking down old stereotypes about Romanization. The first set of scholarship discussed focuses on the importance of not relying on old assumptions about artefacts when investigating the identity of their owners. This idea is important for this thesis because it is essential that the present research does not follow these outdated assumptions.

The following section (1.2.2) investigates new models proposed for the study of identity though archaeology. These models, which include concepts like *habitus* and agency, are vital for moving forward with the study of identity. This scholarship recognizes current approaches and attempts to construct models for understanding the identity of past individuals and their interrelationships in a more comprehensive manner. This is followed by section 1.2.3 which introduces present studies of food and foodways in anthropology. The anthropological viewpoint recommends the possibility of ethnographic comparisons. Finally section 1.2.5 is a discussion of the available evidence related to the study of food from the ancient world. This section includes a brief discussion on the present state of
knowledge, ancient literature and studies of faunal data which have focused on Roman Britain.

1.2.1 The End of Clear Divides

Post-colonial scholarship has seen a great change in how we study Romanization, viewed now not as a form of moral and social progress but as a two-way relationship that resulted in cultural changes for both the conquered and conquering state.\(^{18}\) The core concepts of Romanization were questioned as it became clear that no monolithic Roman entity like the one assumed previously seems to have ever existed. Freeman upset the foundation of traceable *romanitas* when he pointed out that many of the objects which make up ‘Roman material culture’ originated in different parts of the empire and appear to have different functions in different places.\(^{19}\) Thus it can be inferred that when Britain was conquered by the Roman army it “became more Gaulish, more Rhinelandish, more Spanish, a little more Italian, a very little more African, and a little more Danubian.”\(^{20}\) Upon asking in detail what it meant to be ‘Roman,’ more questions followed including: what was native

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\(^{18}\) Since the early 20th century, the term Romanization has been applied to the process of the incorporation of conquered people into the Roman Empire. Generally, this term assumes the concept of ‘Roman’ as the starting point and assigns to it a homogeneous cultural system. Implied in the processes of Romanization was the imposition of civilization upon barbarian races which assumed the superiority of the Romans over the conquered peoples. The process also involves a relatively autonomous indigenous culture which adopts *romanitas* through conquest. This traditional model of Romanization has been looked upon with suspicion in modern scholarship. In retrospect, it appears that the term was used and developed by historians in a way that reflected their contemporary political situations. Freeman (1997, 28) in his discussion of the major late 19th century studies of Romanization drew attention to the use of Rome’s unification of Italy as a model for German unification by Mommsen and general recognition that Mommsen’s *Römische Geschichte* could be considered “more as a political pamphlet than a history.” For further discussion see: Freeman 1997; cf. Hingley 1996, 35-48 for further discussion on the use of Roman imperialism in British imperialist agendas.

\(^{19}\) Freeman 1993, 438-45.

\(^{20}\) Reece 1988, 11.
culture before the Romans? Was Roman culture accepted or imposed equally everywhere? How should we interpret the material remains?

As identity has become the subject of in-depth study, the concept has become less clear cut. Where once scholars thought they could make easy and convenient distinctions between soldier and civilian or Roman and native, or even roles of men and women, based on material evidence, these lines have become blurred. Allason-Jones has discussed these difficulties and has re-evaluated some of her own previous work in light of new finds and theories. In particular she has noted that artefacts like needles, nail-cleaners, tweezers and items identified with personal adornment such as brooches, which were previously understood as signs of a civilian or female presence, can also be identified with the military and a male presence.\(^{21}\) She also challenges the traditional gender assignments given to small finds with evidence for particular brooch types used by both sexes, ear-rings worn by men, and beads worn in necklaces by women and children of both sexes, as well as used to decorate *dolabra* sheaths.\(^{22}\) This has led Allason-Jones to question whether it is even possible to identify objects used specifically by any demographic. Allason-Jones summed up her previous research and issues with the categorization of small finds and suggested a middle ground which should be taken when classifying objects.\(^{23}\) Moving forward she advised that objects only be classified based on certain associations and that the context of the find also be considered. For example, items such as swords, helmets and shields are definitely military items but any other item

\[^{21}\text{Allason-Jones 2001, 11.}\]
\[^{22}\text{Allason-Jones 1995, *passim*.}\]
\[^{23}\text{Allason-Jones 1999b.}\]
found within a military fort also had a military use because they were used by soldiers or
people associated with soldiers.24

It is not surprising that the questioning of traditional associations of small-finds has led to
a disturbance of the bigger picture, in this case the archaeology of Roman military sites in
the province of Britannia. A. Birley has now broken down the divide of the fort wall even
further.25 He has collected find spot data for a variety of types of artefacts from within the
fort and settlement at Vindolanda in order to determine whether there was a great divide
between military and civilian residents of forts and their extramural settlements. The
artefacts used in the study include: militaria such as weapons, armor, crossbow brooches
and shield bosses, jewellery items and artefacts associated with weaving.26 A. Birley does
not ignore the challenges with assigning a gendered use to these artefacts and is carefully
selective in the way he uses them. For example, crossbow brooches are analyzed
separately from other types of brooches because they are found more frequently on
military sites and are often associated with soldiers.27 The major trend noted in the
artefact deposition patterns studied by A. Birley shows that there were significant
numbers of items associated with the military recovered from the extramural settlement
in the 3rd century AD.28 Identifying the presence of non-combatants within the fort is
significantly more difficult. Based on the deposition of spindle whorls, bracelets, hairpins

24 Allason-Jones 1999b, 3.
25 A. Birley 2013a, passim.
26 A. Birley 2013a, 90-101.
27 A. Birley 2013a, 91.
28 A. Birley 2013a, 101.
and beads, A. Birley argues that there is no foundation for the claim that adult women did not live within the fort. Overall, he has concluded that there is no great divide between civilians and soldiers on military sites. A more complex relationship exists than was previously assumed and a more in-depth examination technique must be developed in order to fully understand the archaeology of military sites.\(^{29}\)

These developments in archaeological theory and investigation will be applied to the present research question. It is important that the previously accepted assumptions about the nature of military sites do not play a role in the investigation of domestic artefacts. For example, it is no longer unexpected to find evidence for women living within the fort outside of the \textit{praetorium} (commanding officer’s residence).\(^{30}\) Additionally, it is recognized that the inhabitants of the fort were not culturally homogeneous. In order to avoid such generalizations the identity of the inhabitants of the fort will be analysed as closely as possible. In this thesis the analysis will be based on living spaces. Each defined living space and their associated domestic artefact assemblage will be studied individually and then they will be compared with each other in order to gather evidence about the inhabitants. Together these study areas provide a diverse image of life at a Roman fort in Britain.

\(^{29}\) A. Birley 2013a, 102-103.
1.2.2 Constructing Identity

The deconstruction of outdated methods of approaching the study of identity through the material record has necessitated that researchers create new approaches to understand identity formation and expression in the past. Hill has argued that artefacts and ecofacts should be re-evaluated in light of new theories.\(^{31}\) Material culture is no longer a “passive product of people’s lives” but an active part of “sustaining existing social identities and creating new ones.”\(^{32}\) It should not be underestimated that people in Roman Britain made choices regarding their material possessions and presented their identity in a way which they intended to be read by others in their community. For example, based on the typology of items such as quern stones and knives, which have been recovered from Roman sites across Britain, we know that a variety of items were available for purchase. Typologies vary in shape, size and construction material and certain types of artefacts appear more prevalently at certain types of sites (this will be seen most clearly in the discussion of querns in section 3.6). Based on the variety of styles of items found within the study area it appears that there was a certain amount of choice available to the purchaser. It is necessary to move beyond examining the objects in isolation to exploring them within the context of the *habitus* that led to their creation.

*Habitus* is a concept that is often used in sociology and psychology that explores the “acquired system of generative schemata.”\(^{33}\) It is the embodiment of the cultural aspects

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33 Stam 2009, 708.
which are affixed to the daily practices of individuals, groups and societies. This includes non-discursive knowledge such as habits, styles and tastes.\textsuperscript{34} In his article on the architectural symbolism of houses in military zones of Roman Britain, Clarke has shown how the house embodies \textit{habitus}; architecture and lifestyle are combined in order to “encode complex cosmological ideas and value systems.”\textsuperscript{35} Hill has suggested that \textit{habitus} is exhibited through the types of foodstuffs consumed and how they are prepared, dress and physical appearance in addition to dwellings.\textsuperscript{36} These elements make up the individual’s identity and have deep psychological roots. They are a part of who the individual is happy to be.\textsuperscript{37} Kurchin has taken this point further by suggesting that elements of the \textit{habitus} can be identified as expressing a form of resistance in some areas of the Roman Empire. While she admits that the intent behind the use of certain objects is difficult to infer, Kurchin opens up new possibilities by suggesting that domestic conservatism could constitute resistance. Continuing to use native clothing styles, jewellery and cooking technology could be identified as a desire to maintain one’s indigenous culture in the home and therefore resistance against the Roman army.\textsuperscript{38}

For decades the Roman Army was studied as a unified group which had the same impact on the landscape regardless of the different individuals which made up the whole. The major focus was largely on the anatomy of the army and its installations, for example

\textsuperscript{34} Bourdieu 1990, 53.  
\textsuperscript{35} Clarke 1999, 37.  
\textsuperscript{36} Hill 2001, 14.  
\textsuperscript{37} Hill 2001, 14.  
\textsuperscript{38} Kurchin 1995, 128.
movements of particular cohorts. This focus led to accusations that scholarship on the Roman Army was too unimaginative and introverted.\textsuperscript{39} Recently, James has argued that social groupings cannot be studied as monolithic groups in his discussions of civilian and military communities emphasizing that the Roman Army was a human organization not a machine.\textsuperscript{40} By the time Britain was incorporated into the Roman Empire, Roman soldiers were being recruited from all areas of the empire. To treat these people as a monolithic entity would be to ignore the vast variation of cultural groups and influences that existed within the army. Given the complexity of both civilian and military groups, it is difficult to interpret their interaction, especially considering the level of difficulty involved in assigning identity associations with artefact types. In response, James has suggested that ‘foodways’ may be able to illustrate the relationships in question and has called for the examination of ceramics related to dietary traditions of residents of military complexes in order to understand the ethnicity of individual soldiers and their immediate dependants more clearly.\textsuperscript{41} This thesis addresses this call by looking closely at the implements of food preparation on a single site.

1.2.3 The Anthropology of Food

What are foodways? According to Merriam-Webster foodways are “the eating habits and culinary practices of a people, region, or historical period” and came into use

\textsuperscript{39} James 2002, 5.
\textsuperscript{40} James 2001a, 78.
\textsuperscript{41} James 2001a, 85-86.
as an anthropological term in 1946.\textsuperscript{42} The study of foodways covers a vast range of topics and has been employed in the study of large numbers of cultural groups both ancient and contemporary. Individuals articulate their own distinctiveness through their use of food and how they prepare it; this could mean adhering to a vegetarian diet or using traditional methods of food preparation passed down by family members. Foodways also reveal information about how humans mediate their relationship both within and across cultural groups. Because we are dependent on food for survival, it is also a means of power and a political concern.\textsuperscript{43}

This importance has led to a large amount of scholarly work on the subject and as many methods of investigating the material. Important areas of research have involved the study of food in literature and folklore to understand its symbolism and cultural meaning in context\textsuperscript{44} as well as individual foodstuffs and their meaning within a culture.\textsuperscript{45} Dietary restrictions,\textsuperscript{46} both voluntary and religious, as well as individual likes and dislikes provide a view into personal identity.\textsuperscript{47} The health and nourishment of individuals and communities has been studied in order to understand how groups and individuals care for themselves and understand their own needs.\textsuperscript{48} The importance of communal eating in a

\begin{thebibliography}{99}
\bibitem{}\textsuperscript{43} Counihan 1999, 7.
\bibitem{}\textsuperscript{44} Counihan 1999, 21-23 and 129-155.
\bibitem{}\textsuperscript{45} Counihan 1999, 25-42.
\bibitem{}\textsuperscript{46} Twigg 1983, 18-30.
\bibitem{}\textsuperscript{47} Palmerino 1983, 19-40.
\bibitem{}\textsuperscript{48} Pill 1983, 117-140; Garnsey 1999.
\end{thebibliography}
variety of social contexts,\textsuperscript{49} as well as the role of food in the organization of the household,\textsuperscript{50} offer insight into the organization and structure of a community. Finally, the ways which food is manipulated and prepared can supply information about the identity of the preparer.\textsuperscript{51} All of these areas provide information about individual and communal identity and while many of them deal with the study of contemporary societies their methods can be used for studying antiquity.

1.2.4 Food in Antiquity

Studying foodways in antiquity poses challenges that are not faced when studying contemporary societies. The ancient literature on food belonged, for the most part, to the elite members of society and because of the tendency in archaeology to excavate high-status areas the assemblages of material remains can also be distorted. Surviving literary accounts of ‘average’ Roman meals are skewed by the fact that they were recorded by elite Romans (e.g. Petronius’ \textit{Satyricon} and Juvenal’s fourteenth \textit{Satire}).\textsuperscript{52} Still, a large amount of information about food in antiquity has survived.

Much of the information about food that survives from the extant sources is scattered among literary works. Very few works specifically relating to food exist; the most obvious exception to this is the cookbook attributed to Apicius. The cookbook, \textit{De Re Coquinaria}, has been the subject of much interest because it is the only cookbook to

\textsuperscript{49} Delamont 1983, 141-151; Grignon 2001, 23-36.
\textsuperscript{50} T. Adler 1983, 45-54; Counihan 1999, \textit{passim}.
\textsuperscript{51} E. M. Adler 1983, 4-10.
\textsuperscript{52} Nielson 1998, 59.
survive from antiquity. The book itself appears to be a compilation put together in the 3rd or 4th century AD. The author attributed to the collection may or may not have been a real person; there were three legendary cooks named Apicius but none of them lived late enough to be responsible for the book. Apicius may have been attached to the collection because the name had become synonymous with good living. The contents of the book appear to be directed at people who already knew the basics of cooking. Ingredients are listed but no quantities are given and cooking instructions are abbreviated. De Re Coquinaria gives a glimpse into what was considered good food but unfortunately does not contain any literary content and is simply a reference book.

Other cookbooks are known to have existed, the titles and authors of which were recorded by Athenaeus in his work the Deipnosophistai or the dinner-philosophers. Athenaeus also recorded fragments of what can be termed ‘culinary literature’ which the Romans inherited from the Greeks. The Deipnosophistai records the conversations of guests at a dinner party. The surviving sections tell us that by the time they were written in the early 3rd century other books were being written in order to share recipes of regional specialties and discussions on specific aspects of cooking. The works from which the fragments originate are now lost largely because of a lack of interest by medieval scribes. While it would be useful to have extant works, the fragments do help us to understand how important the topic was to 3rd and 4th century Romans. Earlier Romans also must have felt that food preparation was a topic worthy of serious

53 Cool 2006, 33.
54 Cool 2006, 33.
discussion. This is evident in Cato’s *De Agricultura* (mid-second century BC), an author who is often characterized as a ‘stern moralist,’ which contained multiple chapters on making cakes and doughnuts.\textsuperscript{55}

Other works on farming and nature also contain useful information for the study of food. Pliny the Elder’s *Naturalis Historia*, written before his death in AD 79, contains an overview of wine-producing areas with information about the quality of the product. The wines mentioned by Pliny can be matched with labels on first century amphorae and because of Pliny we have insight into how the people drinking the products may have regarded them.\textsuperscript{56} Columella’s *De Re Rustica*, a treatise on farming from the 60s AD, complements the information in Pliny by explaining the processes by which wine was customarily made. Columella also discusses the preservation of produce which has been helpful for interpreting archaeological evidence. For example, when a complete London 555 type amphora was found at Pan Sand in an estuary of the Thames, residue analysis was able to detect two sources of sugar and olive oil. On its own the information from the scientific analysis did not fully explain what the original contents of the amphora were. By examining the olive pits and comparing the scientific analysis to recipes in Columella it was concluded that the amphora had contained olives from Spain which were preserved in syrup made from grape juice and in not brine or olive oil, as we would do today.\textsuperscript{57}

\textsuperscript{56} Cool 2006, 32.
\textsuperscript{57} Colum. V.viii.4; V.iii.6; XII.xlix.7; XII.i.1-3; cf. Sealey and Tyers 1989, 58.
Information about food in antiquity also comes to us from sources that may at first appear unlikely: medical texts. It is inferred from our sources that ancient practitioners viewed food as an important medical tool. Dioscorides and Galen, who wrote in the first and second centuries respectively, both wrote at length on the use of food and drink as treatment. In addition to treatments, Dioscorides included detailed information about how the recommended foods were prepared.

Information that is more specific to Roman Britain and the study area is provided in the Vindolanda writing tablets. The tablets are a unique set of documents which include many types of records including inventory lists, strength reports, supply orders and both official and personal correspondences between various officials, associates and friends.\(^5^8\) A few of the tablets record lists of foodstuffs including sums received\(^5^9\) and cooking utensils.\(^6^0\) One particular letter from Severus to Candidus is of interest because it concerns a cooking-pot for the Saturnalia called a ‘\textit{souxtum}’ which appears to be derived from a Celtic word for a type of cooking-vessel.\(^6^1\) These documents are difficult to work with because of their fragmentary nature but they may provide some interesting insight when compared with the remains of utensils and cookwares from Vindolanda.

Aside from literature, the archaeological remains of foodstuffs and cooking implements have been increasingly used as a means for studying the inhabitants of Roman forts. The

\(^{58}\) Bowman and Thomas 1994, 6; also see Bowman and Thomas 2003.

\(^{59}\) Tab. Vindol. II 182. For transcription and translation of the Vindolanda tablets, see Bowman and Thomas 1994 and 2003. For further discussion of the life at the fort based on information from the writing tablets, see A.R. Birley 2011.

\(^{60}\) Tab. Vindol. III 590.

\(^{61}\) Bowman 1994, 138; Tab. Vindol. II 301.
material remains from military sites often include animal bones, cooking tools and implements and sometimes even written evidence regarding food, including inscriptions and writing tablets, as discussed above. The study of food in this context has developed greatly since the 1970s, and the continual improvement of methods of data collection and scientific analysis has given rise to more precise results.

The best starting point for studying food in the Roman army is Davies’ 1971 article ‘The Roman Military Diet.’ This article was the first survey of its kind to make use of archaeological evidence to any great extent. Davies presents information from ancient sources including Herodian, Appian and Vegetius and uses archaeological evidence from various sites to support claims about the type of food eaten by the military. While Davies’ study was ground-breaking there are a number of problems in the way he handled the evidence. First, he—like many of his contemporaries—treated the Roman army as a monolithic whole. Davies makes pronouncement such as: “The basic diet, then, in peace-time will have consisted of corn, bacon, cheese, and probably vegetables to eat and sour wine to drink; the soldier would also have access to salt and olive-oil.” Statements and others like these within the article are formulated based on evidence from all over the empire and applied to all soldiers equally, not taking into consideration the possibility of regional differentiation. There are also issues with the way he treats the animal remains: Davies categorized the bones in terms of type of animal but does not

\[\text{62} \text{ King 1984, 188.} \]
\[\text{63} \text{ Davies 1971, \textit{passim}.} \]
\[\text{64} \text{ Davies 1971, 125.} \]
analyze the evidence any further. No consideration is made regarding types or numbers of bones found.65

In 1984, King took up some of the problems found in Davies’ article and attempted to analyse the animal bones in a more in-depth manner. King noted that since Davies’ article was published, several detailed bone reports had been published. It is important here to note that the extensive development in archaeological method between 1971 and 1984 immensely improved the ability to study the animal remains.

The major flaw in Davies’ argument according to King was the statement that meat consumption by soldiers and civilians was remarkably similar.66 King introduces count numbers of fragments for each species studied as the most valuable statistic from the reports on animal bones from military sites. These count numbers are used to examine the contribution of ox, sheep and goat, and pig bones to the assemblages of various sites in Roman Britain. These sites are then compared in three ways: military vs. non-military, 1st and 2nd century vs. 3rd and 4th century, and lowland vs. highland. Through this analysis King concluded that there were major differences between the diets of soldiers and civilians, but that there is less variability in the Roman diet in later centuries. This data was then compared to the provinces of Gaul, Germany and Italy at which point King concluded that the animal bones suggest that the province of Roman Britain was influenced more by the diet of Germans and Gauls than Italians.67

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65 Davies 1971, 127, Table I.
66 King 1984, 189.
67 King 1984, 198.
King’s research is very well laid out: his parameters are clearly illustrated and he defines his data sets clearly. There are, however, still issues with the way he handles the data. King only uses the fragment count numbers in his comparisons and treats each fragment as if it represents a meat joint.\textsuperscript{68} Cool has recently illustrated the potential issues and bias that may appear in bone data based on archaeological methodology and the problems associated with using fragment-count data. Fragment-counts do not take into account that two of the exact same animal may be left in the material record in vastly different numbers of fragments based on differences in butchery practices or even removal by dogs.\textsuperscript{69} Despite these problems no satisfactory replacement method has been found.

Stallibrass has studied the faunal assemblages from sites in Roman Britain with the goal of understanding the supply and production systems which fed the Roman army in the frontier regions.\textsuperscript{70} Stallibrass noted that the Roman occupation of the frontier zones dramatically affected the local economies and led to a sharp increase in demand for food, especially meat.\textsuperscript{71} The available faunal assemblages from across the Roman frontier in Britain persistently demonstrate that beef was consumed in large amounts at military and military-related sites.\textsuperscript{72} In order to understand how the army was supplied with such large quantities of beef, Stallibrass has proposed that the long distance droving of livestock from Scotland in the post-Medieval period be used as a model for the Romano-British

\textsuperscript{68} King 1984, 189.
\textsuperscript{69} Cool 2006, 9-10.
\textsuperscript{70} Stallibrass 2008; Stallibrass and Thomas 2008.
\textsuperscript{71} Stallibrass 2008, 101-103.
\textsuperscript{72} Stallibrass 2008, 103.
Stallibrass and Thomas have also analysed some of the challenges associated with studying foodstuffs in antiquity and especially faunal assemblages. These challenges include scarcity of evidence because of poor recovery of materials or poor preservation and the trend in archaeology for post-excision specialists to focus on their own particular area of interest. These challenges obscure the information available to researchers who are investigating sites at which they have not excavated because a large amount of vital data is either unpublished or unrecorded.

Within the context of Romano-British archaeology, studies of food and cookwares have increased significantly in the last few decades. This increase mirrors the changes in study relating to Romanization and identity in general. In 2002 Pearce produced a review of studies which had been published to date on subjects relating to the Roman military diet. Pearce noted that most of the study of food thus far had related only to supply and demand or ingredients and recipes. Pearce sought to illustrate how anthropological concepts of food as symbol can be applied to the Roman army. Using the Vindolanda tablets as evidence, Pearce set out to understand the consumption habits of various elements of the military community in order to illuminate “both the army's impact on the societies from which it was recruited and among which it was garrisoned, as well as our

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74 Stallibrass and Thomas 2008.
75 Stallibrass and Thomas 2008, 148-150.
76 Pearce 2002.
77 Pearce 2002, 931.
78 Pearce 2002, 931-942.
understanding of its operation as a community.” Because the writing tablet evidence is biased towards the praetorium Pearce was only able to discuss its inhabitants. By comparing the faunal evidence and the tablet evidence to King’s study of meat preferences at military sites in the Roman Empire, Pearce concluded that there were major differences between the meat consumption of the Batavian commanding officers and the trends recorded by King for the region from which they originated. If this reflects a change in diet upon becoming a part of the Roman army it is not clear whether it reflects changes in preference or availability of meat sources. Pearce suggests that this may also be a reflection of status. Other foodstuff associated with the praetorium suggests that the inhabitants still preferred many of their native foods including beer and ‘Batavian mos’ which is only known from a fragmentary reference in the tablets.

Some studies have been done on the relationship between ceramic dining and cooking vessels and the expression of identity. This includes Pitts’ article ‘I Drink Therefore I Am?’ which analysed the use of certain vessels related to feasting and upholding power structures and Swan’s discovery of distinct North African ceramic casserole pots in Northern Frontier contexts. Cooking implements, however, have been largely ignored.

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79 Pearce 2002, 931.
80 King 1984.
81 Pearce 2002, 941; for Batavian mos see Tab. Vindol 208.
82 Pitts 2004.
83 Swan 2009.
1.3 Methodology

In order to interpret the archaeological data, previous studies of multicultural settlements will be used as models for this study. This research will use as models the work of Deagan on Spanish colonial systems in eighteenth century Florida\textsuperscript{84} and Stein’s study of the world's earliest known colonial network in fourth millennium BC southern Mesopotamia.\textsuperscript{85} Deagan studied the archaeological remains of households inhabited by cross-cultural marriage units and hypothesized that the material culture of the household would be gender specific. The testable implications of this hypothesis were that household activities such as food preparation techniques, equipment and location would remain primarily the activity of the native woman and would retain their form, while male related activities, including house style, construction techniques and hunting weapons would reveal less evidence of native infusion. The crafts of women, including ceramic work, would reflect primarily adherence to native techniques, while items that function to differentiate social rank within society would mostly be Spanish in order to carry more prestige. Deagan proposed that over the course of time native elements would be increasingly absorbed into Spanish forms and functions.\textsuperscript{86}

While recognizing that a single gendered model cannot explain all instances of colonial-indigenous interactions, Stein recognized that Deagan had produced a very useful,

\textsuperscript{84} Deagan 1973, 55-65.
\textsuperscript{85} Stein 2012.
\textsuperscript{86} Deagan 1973, 63-64.
archaeologically testable model for examining the role of gender interactions in his own study. He hypothesized:

If the Uruk enclave was characterized by a colonial gender imbalance and a pattern of systematic marriage alliances with local Anatolian women, then we would expect to see socially visible male activities associated with Uruk styles of material culture. We would also expect to see clear differences in these activities between the Mesopotamian and Anatolian parts of the site. By contrast, female activities should be associated with local Anatolian material culture. Since Anatolian women would be present in all parts of the site, we would expect to see no differences between Mesopotamian and Anatolian deposits in the artifacts associated with female activities.  

The conclusion that Stein arrived at based on this hypothesis was that it is indeed possible to see cultural markers in the way people handle their food. In particular, different styles of butchery appear in different areas of the site. Stein suggests that these differences are the results of males from two distinct cultural groups choosing to use the methods with which they are familiar. Men also present their cultural identity through use of traditional serving dishes while women are able to preserve their own culture in their cooking practices. The scope of this project cannot deal with all of the implications as laid out by Deagan and Stein. It will, however, focus on those regarding food preparation and house styles.

The scope of this thesis involves three main study areas as mentioned in section 1.1. The three areas all belong to the period IV fort and extramural settlement dating to the first quarter of the 2nd century AD. Area 1 is a schola, or officer’s mess, which is located

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87 Stein 2012, 53.
88 Stein 2012, 60.
beside the *praetorium*. Area 2, located to the west of the *schola*, is an unidentified building labelled Building 1, while Area 3 is made up of two neighbouring houses within the extramural settlement north of the fort walls. The domestic artefacts and, where possible, the faunal remains recovered from each of these areas are analysed in the following chapters in order to gain information about the inhabitants of these buildings.

In order to understand these artefacts fully they have been separated by category and analysed by typology. In chapter 3 a history of each item, its evolution and typology are presented in order to understand the importance of each type of artefact. These sections contain information regarding the cultural origins of the artefacts and affiliations which are known to be associated with typology. Each individual artefact has been compared to the existing accepted typology for its category, for example knives have been assigned typology according to the Manning styles. The purpose associated with that type is discussed and in some cases additions are made based on further research. The methodology used for each category is discussed at the beginning of each section in chapter 3.

In chapter 4 the artefact assemblages are discussed as a whole in combination with the building from which they were recovered. The only faunal remains available for study were from Area 3. The data from each context was separated according to the living space for analysis. The total number of ox, sheep/goat and pig bones and the relative percentages from each house were compared with each other and with information gathered from the northern provinces of the Roman Empire. The comparative data was gathered from King because it is comprehensive and still supported by recent
scholarship.\textsuperscript{89} King’s data offers comparisons to other types of sites from the whole of Britannia, Gaul, Germany, the Rhine region and Italy.

Each of the buildings has been compared with other buildings of a similar type. This is useful for determining the function and meaning for each building. Comparative material is predominantly taken from other sites in Britain. Finally, all of the collected data has been evaluated as a whole in order to understand better the identity of the inhabitants of the study area as completely as possible. Hypotheses have been put forward regarding the cultural and social identity of the inhabitants based on the artefacts recovered from the individual residences and in comparison to the other contemporary inhabitants of the period IV fort at Vindolanda.

\textsuperscript{89} King 1984.
Chapter 2

BACKGROUND TO THE CASE STUDY:
VINDOLANDA AND ITS PLACE IN ROMAN BRITAIN

2.1 The Iron Age in Britain at the point of Roman conquest

The British Iron Age describes the period of prehistoric civilization which ranges from
the first use of iron around 800 BC until the island was conquered by the Romans in the
first century AD. The archaeological study of the British Iron Age is intensely
challenging because of the paucity of material remains. Many excavation reports of Iron
Age settlements introduce their material with caveats regarding the contamination of the
remains by later habitation or the unsatisfactory depth of the strata which limits the
available information. Nevertheless, studies which consider large areas have been able to
compile enough evidence to create a picture, albeit fragmentary, of the material culture of
the Iron Age in Britain. This period, particularly the late Iron Age, is of interest to this
study because we can identify the changes that took place during and after Roman
conquest.

In 1975 Challis and Harding compiled the available pottery, metalwork, wood, bone,
antler and stone evidence as well as structure and settlement plans from all known Iron
Age settlements ranging from the Trent to the Tyne in a two volume report. Their
purpose was to present the material remains of this period in a provisional chronological

\[^{90}\text{Challis and Harding 1975.}\]
sequence. Challis and Harding were able to provide a periodized report of the common Iron Age ceramic and metalwork types which had been previously excavated, as well as a discussion of fortifications, domestic settlements, dwelling structure, food-production economy, and religious and burial sites.91 This information is not only useful for studying the Iron Age but retains its importance in studying the period of Roman conquest. Iron Age culture in Britain was not immediately and cleanly replaced by Roman culture, but rather certain elements were retained and modified within the structures of Roman dominance. Understanding the material remains of the late Iron Age can help formulate a more full understanding of the relationship between the native Britons and the conquering Romans. It is especially important when trying to nuance the common perception of these two population groups as binary opposites, when in reality Roman conquest facilitates cultural blending with both groups adopting or accepting new characteristics.92 The importance of this comingling of traits will be especially visible below in the discussion of the period IV extramural settlement at Vindolanda, in which distinct elements of Iron Age culture were discovered side by side with material typical of Roman assemblages.

91 Challis and Harding 1975, passim.

92 The topic of ‘discrepant experience’ of empire and ‘discrepant identities’ within provincial communities is the focus of much debate. The debate has been dominated by Mattingly who has attempted to understand the experience and impact of empire from all perspectives. He asserts that individual and group identities were multifaceted and dynamic and therefore they interacted with the empire in varied ways (2011, 213-214). The work of Jones is also highly relevant to this debate. Her focus on the archaeology of ethnicity is crucial for understanding the various ways that society constructs identity and, in particular, how modern concepts of ethnicity cannot be used as models for ancient conceptions of ethnicity (1997). For further information see Mattingly 1997, a selection of papers from the first Roman Archaeology Conference which addressed issues in scholarship on Roman imperialism and utilized the tools of post-colonial theory to deal with these problems. Also see Sommer 1999 for a discussion of the transition from conquered territory to Roman province in SW Germany.
The material culture and social trends of the British Iron Age which are most important to this research project will be discussed below. Rather than providing a full overview of the Iron Age, the important elements will be discussed within the context of their relevance to the study of Vindolanda specifically and Roman conquest more generally. This discussion will be useful for understanding the identities of the individuals who inhabited the spaces of the study area.

2.2 The Roman Army in England

Iron Age society in Britain had already established links with the Roman Empire over a century before the army conquered the island in AD 43 under Claudius. Julius Caesar invaded Britain in 55 and again in 54 BC and the inhabitants of the island had established cultural and economic links with mainland Europe before that. In the early years of the empire, however, Britain remained in the periphery of Roman thought. Britain was not a serious objective of Roman policy until AD 40 when the emperor Gaius (Caligula) led forces to Boulogne with the goal of invading the island. This expedition by Gaius was the source of much ridicule as it never left the shores of France; nevertheless Gaius did have a lighthouse built which would provide an assembly point for the successful invasion three years later and perhaps more importantly, his attempt brought Britain well into the Roman consciousness as a target for conquest.

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93 Creighton 2006, 19-20; for an overview of continental trade and contact between Britain and continental Europe beginning in the 7th century BC see Cunliffe 1974, 127-151.

94 As reported by Suetonius: Suet. Cal. 44-46.

95 Todd 2007, 45.
Claudius became emperor of Rome early in AD 41 and began planning to invade Britain soon after. The successful invasion of the island solidified the legitimacy of Claudius’ reign and provided him with military honour. The exact location where the invading troops made landfall is disputed but it is agreed that the fleet made a short crossing from the location of Gaius’ lighthouse in France to Southern England in AD 43.96 Once the troops established a foothold on the island they advanced northward, crossing the Thames and taking control of Londinium within the same year.97 When Claudius left Britain after his brief 16-day stay he left the head of the expeditionary force, Aulus Plautius, with the instruction to conquer the rest.98

Over the next several decades the Roman Army continued north and east conquering Wales and moving into Scotland, though they did not remain in Scotland long.99 The longest serving governor of Britain, Gnaeus Julius Agricola, brought the troops into Scotland but the early occupation of the far north only lasted a few years. Tacitus reports that troops were recalled from Britain following military disasters on the Danube and in 84 AD Agricola himself was recalled from the province.100

Over the course of conquest the army had set up a system of roads and communications across the island. These systems usually consisted of a strategically important road guarded by towers and forts at crucial junctions. When Agricola was recalled from

97 Todd 2007, 46-47.
98 Dio 60.21.5; cf. A.R. Birley 2011, 57.
99 For more information on the Roman conquest of Wales, see Manning 2007, 60-74.
100 Tac. Agr. 41.
Britain the Roman Army was forced to fall back from Scotland abandoning forts including the legionary fortress of Inchtuthil which was never completed.⁠¹⁰¹ At this time Roman forces established the defensive line of what is now called the Stanegate frontier and the first fort at Vindolanda was established shortly after in AD 85 (figure 1). This early frontier was in reality a communication system which connected the established Roman forts of Luguvalium in the west and Coria in the east by nothing more than a road defended by forts and signal towers.⁠¹⁰² This defensive line increased in importance as the territory to the north was abandoned by Roman troops and Vindolanda’s position in the center of this line would take on greater significance.⁠¹⁰³

After AD 84 the focus of Roman foreign interest remained in the Danube region. Subsequently, the thrust of Trajan’s military activities in the early 2nd century remained with the Dacian campaigns and Britain was shifted to the periphery. Trajan’s immediate successors, especially Hadrian, shifted focus from conquest to consolidation. Upon his succession, Hadrian was more concerned with solidifying control throughout the existing empire rather than adding new territory.⁠¹⁰⁴ In Britain this is seen most clearly in the construction of Hadrian’s Wall beginning in around AD 122. The wall was constructed across the Tyne-Solway isthmus and ran parallel to the earlier Stanegate road which was still in use to its south. It consisted of six major elements: the stone wall and its system of

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¹⁰¹ For more information on the Roman conquest of the far north of Britain and Scotland, see Maxwell 2007, 75-90. For the excavation of Inchtuthil, see Pitts and St. Joseph 1985.

¹⁰² Hodgson 2000, 18; Hodgson 2009, 10-12.


¹⁰⁴ Frere 1967, 125.
ditches to the north, milecastles placed every Roman mile along the wall, two turrets evenly spaced between each milecastle, garrison forts, the large ditch that demarcates the military zone south of the wall now called the Vallum, and a road running south of the wall.\textsuperscript{105} The wall was designed to demarcate Roman territory and control traffic and trade with the areas to the north, but it is important to note that the wall did not create an absolute barrier between peoples and movement around the frontier.\textsuperscript{106} An artificial barrier was deemed necessary where no natural one existed in order to mark out the territory of the Roman Empire.\textsuperscript{107} Outpost forts were always present north of the Wall and movement through the Wall zone was always expected, hence the gates through every fort and milecastle.\textsuperscript{108} These gates were large enough to facilitate the passage of men, horses and carts and could have been used by both the military and civilians.\textsuperscript{109} Additionally, gates present points of weakness therefore the large number of them along the wall suggests a lack of any strong perceived threat from the other side of the wall.\textsuperscript{110}

With the construction of Hadrian’s Wall the frontier region truly became a military zone. Military installations were constructed at every Roman mile between the Solway Firth and the mouth of the Tyne River with cohorts garrisoned at each fort. In addition, the Vallum demarcated a visible Roman military zone south of the Wall. The occupation of

\textsuperscript{105} For full discussion of Hadrian’s Wall, see Breeze and Dobson 2000.
\textsuperscript{106} Dobson 1993, 437; Frere 1967, 130.
\textsuperscript{107} Breeze and Dobson 1993, 391.
\textsuperscript{108} For further reading on the purpose of Hadrian’s wall, the difficulties associated with interpreting its purpose and its history after Hadrian, see Breeze and Dobson 1972. Most recently, see Graafstal 2012.
\textsuperscript{109} Dobson 1993, 439.
\textsuperscript{110} Dobson 1993, 442.
the frontier zone by the Roman army dramatically changed the social landscape of
northern Britain as the army became a new and important driving force of the local economy.\footnote{Pearce 2002, 931.}

\section*{2.3 Vindolanda and its role on the Romano-British frontier}

Vindolanda is located exactly in between the North Sea and Solway Firth on the line of
the Stanegate frontier. The layers of occupation at Vindolanda are traditionally divided
into nine distinct phases of settlement with each phase having been built roughly on top
of the demolished remains of its predecessor. Fort periods I-V were built primarily from
timber with subsequent forts constructed in stone. Robin Birley has noted the possibility
that there was an Agricolan occupation of the site in the AD 70s, especially in the field to
the north of the main site, based on anomalies seen in aerial photography.\footnote{R. Birley 2009, 42. Excavations are currently taking place in this part of the site with final results not yet analyzed and published.}

The first phase of the site (\textit{figure 2}), which dates to ca. AD 85, lays buried below
numerous later structures including the visible stone remains of periods 6 and 7 (2\textsuperscript{nd} and
3\textsuperscript{rd} centuries AD).\footnote{For full report of the early timber layers at Vindolanda, see R. Birley 1994.} Writing tablets have been found in the first occupation level which
provide information regarding the garrison of the fort. A military strength report from a
period I context testifies that the first unit present on site was the First Cohort of
Tungrians, a unit originally raised from Germania Inferior.\footnote{Tab. Vindol. 154.} This tablet reports that the
cohort comprised 752 men which is almost the size of a double infantry cohort (800), but

\footnotesize
\begin{enumerate}
  \item[111] Pearce 2002, 931.
  \item[112] R. Birley 2009, 42. Excavations are currently taking place in this part of the site with final results not yet analyzed and published.
  \item[113] For full report of the early timber layers at Vindolanda, see R. Birley 1994.
  \item[114] Tab. Vindol. 154.
\end{enumerate}
only 296 soldiers were actually present at Vindolanda. The remaining 456 were absent in various places including Londinium and Coria, while others are listed as sick or wounded.115

Not long after AD 90 the decision was made that the fort at Vindolanda should be doubled in size and that a cavalry unit should be stationed there. The second and third periods of occupation at Vindolanda took place from ca. AD 90/92 until 105 and were both garrisoned by the Ninth Cohort of Batavians (figure 3).116 This cohort was made up of a mixture of infantry and cavalry. The fortifications of these forts were less robust than those of the first phase suggesting that whatever prompted the insecurity of period I had been dealt with.117 The third fort is marked by modifications and upgrades made to the second fort such as a stone bath-house which was constructed just outside the walls of the fort to the south.118 In the summer of AD 105 the Batavians left Vindolanda after having been summoned to reinforce the army on the Danube front for Trajan’s Second Dacian War.119

The period IV fort was occupied from roughly AD 105 to 120, which were the years leading up to the construction of Hadrian’s Wall. Information about the dating of the site and its inhabitants is gleaned mainly from the writing tablets and dendrochronology, as well as other available evidence such as pottery and coins. The large timbers from this

118 A. Birley 2001, 15-34.
fort available for dendrochronological testing indicated felling in AD 104\textsuperscript{120} while writing tablets attest to the continued presence of the period III prefect Flavius Cerialis until mid-AD 105.\textsuperscript{121} A late autumn start for construction is supported by the large number of fallen leaves and hordes of hazelnuts deposited by squirrels which were trapped between the period III and IV phases.\textsuperscript{122} At this point, the First cohort of Tungrians returned to Vindolanda occupying the period IV fort and would remain at the fort perhaps as late as the AD 140s.\textsuperscript{123}

The Tungrians, a Germanic tribal group originating from the area around modern Belgium, lived on both sides of the River Meuse. They first occupied the province of Gallia Belgica but were attached to Lower Germany after Domitian reorganized the military districts of the Rhineland. Their presence at Vindolanda is best attested by writing tablets, specifically tablet 295, a letter to Priscinus, the prefect of the Tungrians.\textsuperscript{124} Tablet 181 shows that a cavalry unit, the First Cohort of Vardulli originally raised in northern Spain, had been stationed at Vindolanda at the same time as the Tungrians.\textsuperscript{125} Legionary soldiers were also present during this time; their presence was registered in tablet 180 and is supported by material finds such as a military medal with the name of an individual best identified as a soldier of the legions.\textsuperscript{126} Legionaries were

\textsuperscript{120} Tyers 2007, 130-137.
\textsuperscript{121} Tab. Vindol. III 581; cf. R. Birley 2009, 91.
\textsuperscript{122} R. Birley 2009, 91.
\textsuperscript{123} At some point after the construction of Hadrian’s Wall the Tungrians moved to the fort at Housesteads: Rushworth 2009, 183.
\textsuperscript{124} Tab. Vindol. 295.
\textsuperscript{125} Tab. Vindol. 181; cf. A.R. Birley 2011, 72.
\textsuperscript{126} A. Birley and Blake 2007, 142-3, and esp. 102-4.
likely present for the construction of the Wall and their arrival may have been the reason that the period IV structures were modified after about 15 years of use.\textsuperscript{127}

Pinning down a final date for this phase is more difficult and the transition into period V appears more like a modification than a clean break.\textsuperscript{128} The latest coin evidence is an issue of Hadrian which dates to AD 119-121.\textsuperscript{129} A.R. Birley has suggested an end date of AD 122 because of the contents of tablet 344 which appears to be addressed to the emperor whose visit was anticipated in the summer of AD 122.\textsuperscript{130} The present hypothesis is that the period IV fort was expanded into the period V fort in around AD 122 in order to make room for the construction units employed to build Hadrian’s Wall.\textsuperscript{131} That Vindolanda played an important role in either the planning or construction phases of the Wall is also indicated by an exceptionally large storage building present on the site in period IV and an abundance of workshops active in the area.\textsuperscript{132} It is possible that Hadrian stayed at Vindolanda during the construction of the wall; evidence for this is found in tablet 344 which is addressed to someone with a title of \textit{maiestatem}, translated as ‘your majesty.’\textsuperscript{133} If we take a historical perspective and look beyond Vindolanda, it seems reasonable to suggest that period V probably lasted until 128 when the forts on the wall were completed.\textsuperscript{134}

\textsuperscript{127} A.R. Birley 2011, 45.
\textsuperscript{128} For excavation of this transitional period see A. Birley and Blake 2005, 34-37.
\textsuperscript{129} R. Birley 2009, 109.
\textsuperscript{130} \textit{Tab. Vindol.} 344; A.R. Birley 2011, 72-75.
\textsuperscript{131} A.R. Birley 2011, 76.
\textsuperscript{132} Blake 2007, 54-72.
\textsuperscript{133} \textit{Tab. Vindol.} 344; cf. A.R. Birley 2011, 75.
\textsuperscript{134} R. Birley 2009, 112.
The period VI fort is divided into two phases called VIa and VIb. Period VIa, also known as Stone Fort I, is the least well understood period at Vindolanda. This phase of occupation is difficult to investigate because the remains of the period VII stone fort sit directly over top of it. The majority of the material associated with the period VIa occupation period was recovered from narrow areas of excavations, chosen in order to avoid damaging the period VII remains above. As a result, it is possible to get a clear view of only parts of the period VIa fort. The dates for this fort are unclear but epigraphic and archaeological evidence suggest a range from approximately AD 124-160. Period VIb, the Severan period fort, appears to have been short-lived and unorthodox in its size and layout. Again, precise dates are unknown but numismatic evidence has placed this phase firmly within the Severan period (AD 193-235). A historical perspective might place its construction in around AD 208-211 when Severus undertook campaigns in the north of Britain.

The remaining Roman occupation of Vindolanda is broken up into three phases. Period VII (Stone Fort II) was constructed sometime around AD 213 and was altered and repaired many times throughout the next several decades. At some unknown point the fort fell into disuse for a short time towards the end of the 3rd century, but was reconstructed to form the period VIII fort. Over the course of the fourth century,

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137 R. Birley 2009, 135-140.
138 Blake 2001, 1-6; A. Birley and Blake 2007, 31-51; Bidwell 1985, 34-87; for phases of the praetorium site inside the fort, see R. Birley et al. 1998, 1-53; for alterations made to the granaries after AD 213, see A. Birley 2013b; for the inscription naming Caracalla and dating the construction to 213 see, E. Birley 1934, 127-37.
however, the garrison appears to have dwindled until a sudden and final burst of activity in the mid-5th century.  

The period IX fort is marked by further reconstruction and is followed by a sub-Roman phase of sparse occupation into the 6th century AD. The research presented here will not deal with these later settlement phases, but focuses closely on the earliest occupation at Vindolanda in the late 1st and early 2nd centuries when consideration of the effects of conquest is most relevant.

2.4 Period IV at Vindolanda (ca. AD 105-120)

The period IV fort has been specifically chosen for this study because it is an excellent case study with its range of building types and exceptional preservation of artefacts (figure 4). Three areas have been selected from the period IV fort for study. This limitation has been made in order to ensure that the investigation can be as thorough as possible given the amount of time and space available. Two of the areas come from within the fort while the third is from the extramural settlement; this variation of site locations ensures that the comparative areas will cover a broad range of occupancy.

2.4.1 Area 1 – The Period IV Schola at Vindolanda (excavated in 2001/2)

The 2001 and 2002 seasons of excavation were carried out to the west of an area that had been heavily excavated between the years of 1991 to 1994. The earlier excavations had uncovered a large building which was described as ‘a palatial building of Hadrianic date.

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139 A. Birley 2013b, 36-71.
140 R. Birley 2009, 141-168; for the sub-Roman phases at Vindolanda, see A. Birley 2013b, 15-25 and Collins 2012.
141 For an in depth debate about the identity of military and non-combatant individuals living on site in the 3rd and 4th centuries, see A. Birley 2010, unpublished dissertation, University of Leicester; A. Birley 2013a, 85-104.
(figure 4). This building was later labeled the period IV praetorium after further excavations in the area allowed a better view of the complex. The 2002 excavations proved that there were two completely separate buildings: the praetorium found in the 1991-4 excavations and a building which was the focus of the 2001/2 excavations. These two structures were separated by a narrow corridor less than 50cms wide, but nonetheless constituted a clear separation between the two structures (figure 5). This building proved difficult to identify at first; the typical plan of a Roman auxiliary fort would suggest that the principia (headquarters building) or granaries would be found beside the praetorium. However, Roman forts do have a fair amount of internal variation and the layout of this structure did not fit any of these typical building types. Based on this fact and the artefacts found within the building, such as large numbers of drinking cups and other ceramics associated with provisions, it has been suggested to be a schola.

The schola, or officer’s mess, is a building which would have been necessary within the fort but is difficult to recognize. Tablet 656, found in the period III fort, mentions that there is a schola in the fort, which suggests that we could expect to find one on site. It is commonly accepted that soldiers lived in barrack blocks with a larger room at the end

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143 A. Birley 2003, 18-19; cf. R. Birley 2009, 103.
144 A. Birley 2003, 18-40.
145 A. Birley 2003, 35-38.
146 Tab. Vindol. 656. The time between periods III and IV is very short and this tablet sets a precedents for finding this type of structure at Vindolanda.
of the building for the centurion’s quarters;\textsuperscript{147} however, it is not known where the other officers lived. These officers included optiones (deputy centurions), curatores (precise function unknown), standard bearers, quartermasters, doctors, veterinarians and beneficiarii (precise function unknown). These men would potentially need office space which could not be supplied by the principia alone and presumably they would not be made to live in the normal barracks amongst the common soldiers. Parallels for the period IV schola can be seen at various sites including Housesteads, Corbridge, Pen Llysten and Oberstimm.\textsuperscript{148} These comparisons are based primarily on the plans of the buildings because few to no artefacts were recovered from these buildings. The comparison with Housesteads will be discussed further in section 4.4.

The layout of the schola, shown in figure 6, was comprised of 8 individual rooms connected by interior corridors. It was a wooden structure consisting of accommodations and office space for officers below the rank of centurion; it also included a small bath suite and the southern range of the building held kitchens and storage rooms.\textsuperscript{149}

Room 1 was probably the entrance room. There were relatively few artefacts, almost no animal remains and no leather, but there were many wooden objects in this space. Room 2 had no laminated carpet, only a flagged floor on top of which was a mixture of cattle and domestic pig bones.\textsuperscript{150} Almost all of the bones show butchery marks suggesting that

\begin{itemize}
  \item \textsuperscript{147} Hoffman 1994, 111, 139-142.
  \item \textsuperscript{148} For specific examples see: Johnson 1983, 192-3; Richmond 1943, 157-22; Smith 1972, 479-500.
  \item \textsuperscript{149} All contexts from the schola are recorded in: A. Birley and Blake 2003. See this volume for more details about the specific archaeological data.
  \item \textsuperscript{150} Laminated carpet is the name associated with the floor covering in the rooms of the pre-Hadrianic buildings. It is composed of layers of organic materials including straw, grasses, heather and bracken which have been heavily trodden down. These layers of carpeting were presumably replaced each year as they
\end{itemize}
this room was used for the storage of meat or general perishables. Very little pottery was recovered from this room and the lack of barrel or bucket staves, which would have been preserved in the anaerobic environment present in this part of the site, supports the hypothesis that non-perishables were not stored in this room.\textsuperscript{151} The lack of carpeted flooring suggests that it was probably not used as a permanent living space. Some personal items were retrieved from this room including six shoes belonging to both men and women.\textsuperscript{152} Room 3 was mostly bare except for large ovens which were built over older ovens in order to mitigate the problems of subsidence within the room.\textsuperscript{153}

Room 4 appears to have originally been an office space but was modified at some point with ovens built inside. A large quantity of grain was recovered from the area immediately surrounding the small oven. The floor material was mostly made up of burnt clay and turf with a fine mix of ash. There was a false wall dividing the eastern range of rooms in the building from the higher terrace to the west.\textsuperscript{154} Room 5 had a floor of hard baked clay, but unfortunately the purpose of this room is unknown.\textsuperscript{155} Room 6 was a small storage room. A wooden drain ran through it which was filled with a white paste that may be the residue of a food substance.\textsuperscript{156} Many barrel staves were found within this room suggesting that this part of the complex was used to store non-perishables. The

\begin{flushleft}
\textsuperscript{151} A. Birley 2003, 22-24.
\textsuperscript{152} Greene 2013, 25.
\textsuperscript{153} A. Birley 2003, 24.
\textsuperscript{154} A. Birley 2003, 28-30.
\textsuperscript{155} A. Birley 2003, 31.
\textsuperscript{156} A. Birley 2003, 31-32. Final analysis of residues was inconclusive for these remains.
\end{flushleft}
floor of this room was scattered with a large number of butchered animal bones, mixed with pottery and some iron objects. There were wattle and daub fences remaining, but they were badly damaged. Room 7 was badly damaged by subsequent construction and it is therefore not possible to define the purpose of this room.\footnote{A. Birley 2003, 32. Some hypotheses are presented by the excavators but definitive conclusions cannot be made.} Room 8 is situated west of the main kitchen and storage rooms. It was also badly damaged by later construction, in particular a major ditch from later fort defenses which ran through the center of the room cutting out most of its internal area.\footnote{A. Birley 2003, 33. This fire damage indicates that the building was destroyed in one event and the remains were spread locally for subsequent construction.}

Corridor 1 (the east-west corridor) was packed with material debris including a mortarium, a heavy ceramic vessel used for grinding or pounding foodstuffs, which was recovered upside down. The room had a heavily flagged floor, with a mixed laminate and dirty turf layer. There was much evidence of burning, with the top 4-8cms of laminate intact but clearly damaged by fire.\footnote{A. Birley 2003, 25.} Corridor 2 is the north-south corridor linking rooms 1, 2, 3, 4, and 6. It contained a complete quern stone with its iron and lead attachments intact. A second external wall was built to the west of rooms 1, 2, 3, 4, 5 and 7 which appears to have been load bearing. Both the inner and outer walls were of similar construction. The cavity between the two walls produced a large amount of exceptionally fine pottery including terra sigillata and a face pot of Mercury.\footnote{A. Birley 2003, 26-27.}
A number of domestic items were uncovered in the *schola*. The following list includes all of the data along with the catalogue number of each item (see appendix A): seven knives all with different amounts of damage (D1, D2, D3, D4, D5, D6, and D11), two querns (D7, D8), a spoon (D9), an inscribed amphora handle (D10) and an amphora with a painted inscription with the residue of its original contents still glued inside (D12). One wooden artefact, a wooden Spatula (W1), was found in the *schola* (see appendix B).

2.4.2 Area 2 – Building 1 of Period IV (excavated in 2003/4)

The areas of excavation during the 2003 and 2004 seasons uncovered sections of period IV buildings. Unfortunately, these were somewhat damaged by subsequent construction and a few areas produced unsatisfactory information. A trend did emerge, however, that the northern sections of period IV buildings continued to be used while the southern sections were demolished. Four principal features emerged during this excavation: a major north-south roadway, a fairly flimsy wattle and daub structure to the east of the roadway (Building 1, *figures* 4 and 7), a more substantial building, also of wattle and daub construction, which had its own drainage system (Building 2, *figure* 4) and fragmented remains of an unidentifiable structure (Building 3, *figure* 4). All rooms were only partially excavated.

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161 All Vindolanda artefacts discussed in this thesis are listed in Appendix A with a description and photograph of the object. They are referred to throughout the text with their catalogue number, e.g. ‘D1.’

162 The wooden artefacts which were recovered from the study area will be mentioned in the context of where they were found. They will not, however, receive their own discussion section as there has been insufficient research conducted on wooden objects associated with the Roman Empire. Appendix B contains additional information and photographs of the wooden artefacts. They are referred to throughout the text with their catalogue number, e.g. ‘W1.’

163 All contexts from the 2003/4 excavations are recorded in: A. Birley and Blake 2005. See this volume for more details about the specific archaeological data.
Buildings 2 and 3 and the roadway will require additional excavation for further analysis to be worthwhile, especially for those associated artefact assemblages that currently do not include domestic artefacts. The excavators hypothesized that Building 2, which is located to the west of the north-south roadway, was potentially a barrack block. The excavated remains of Building 3 were very fragmentary consisting of partially surviving walls to the north and post-holes to the south. The function of this building is impossible to ascertain. It has been identified possibly as a barrack because the length of this building is very similar to Building 2. The roadway ran north-south and was rather substantial with a width of 4-4.5m. The cobbled surface of the roadway was 70-80cms deep on top of about 50cms of clay packing. The clay packing was cut into natural yellow boulder clay. A drain ran down the west side of the road but not on the east. The drain of the road was full of pottery and artefacts which were similar to period IV/V material from elsewhere on site. The present state of the evidence for Buildings 2 and 3 does not allow for any further discussion of their function or inhabitants and without further excavation the present hypotheses remain the most plausible.

A substantial enough amount of Building 1 was excavated that in-depth analysis of the building and the domestic artefacts recovered from within it can be undertaken in this thesis. Building 1 was a combination of 16 separate rooms surrounding a central courtyard labelled room 11 (figure 7). None of the floors in this building were fully intact upon excavation. The floors of rooms 1, 6, and 11 were made up of organic carpet

164 A. Birley and Blake 2005, 33.
165 A. Birley and Blake 2005, 32-37.
material. Room 7 appears to have contained two storage areas. A narrow corridor, labelled room 10, runs adjacent to the north-south roadway. This corridor separates rooms 6, 7, 8 and 9 from rooms 12 and courtyard 11. Very little of the floor surface of the central courtyard was intact. The remaining carpets were damaged because of the later construction of an oven complex at the north-east end of the trench. Room 13 is located north-east of the north end of the central courtyard. Some floor boards survived from this room and a wooden water pipe was found running between this floor of building 1 and the earlier period II/III structures.\textsuperscript{166}

Some very interesting artefacts were recovered from Building 1. The artefacts, which were clustered in rooms 1-5, 11 and 13, are a pewter bowl (D13), a knife (D14), a knife handle (D15), a bronze spoon (D16), a silver spoon (D17) and a fragmented cheese press (D18). Wooden domestic items from Building 1 include a wooden bowl (W2) and a wooden spoon (W3).

2.4.3 Area 3\textsuperscript{167} – The Period IV extramural houses (excavated in 2013)
During the 2013 excavation season an area of the extramural settlement was explored, in which two separate households were uncovered which displayed very distinct cultural markers.\textsuperscript{168} Both houses were constructed of wattle and daub; however, one was rectilinear in shape while its neighbour was round (see \textit{figure 8}). There was also a narrow

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\textsuperscript{166} A. Birley and Blake 2005, 28-30.
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\begin{flushright}
\textsuperscript{167} Publication of the context material for the 2013 material is in progress. This information is taken from site excavation records and will be part of a forthcoming publication by Andrew Birley.
\end{flushright}

\begin{flushright}
\textsuperscript{168} Blake 2014, 107-111.
\end{flushright}
alleyway which ran between the two houses. Large amounts of material culture came from each house, which indicated that the households were of similar economic standing.

The Rectilinear House is located to the south of the round house. It was divided into multiple rooms by wattle and daub walls which were also woven with leather; this was likely for the purpose of insulating the walls. The floor consisted of laminated carpet up to 30cms deep.\textsuperscript{169} Modifications appear to have been made to the interior structure of the house over time as some of the carpet was laid over sections of fallen wattle fencing. The final form of the house was divided into two large rooms with a wall running east-west. There was a pit sealed with a clay cap under the carpet of the southern room. The contents of the pit comprised only hundreds of hazelnuts.

The Round House is located to the north of the rectilinear house. It was also constructed of wattle and daub with leather pieces woven into the wall. In most places the outer walls were two fences thick. The area in between the double fences was full of organic material. The floor was composed of laminated carpet sitting on top of a burnt clay floor. There was a circular feature in the east side of the round house constructed of posts. There was no sign of a pit below the floor level of the circular feature so therefore it must have been associated with something above ground. Immediately to the north of the round house there was a drain which surrounded it and was cut through natural clay. Both the round and rectilinear houses were buried as a result of the digging for the period V ditches. The upcast from that process constitutes material in the upper fill layers above the levels associated with the structure.

\textsuperscript{169} For laminated carpet, see note 150.
The shape of the round house is particularly intriguing as a cultural marker and will be discussed in detail in the following chapters. This house shape is typically associated with British Iron Age culture but originated in the Bronze Age and continued to be used by the native population in the Roman period. Research on the round house has found that until the point of Roman conquest, there was a universal preference for living in circular houses among native Britons which remained remarkably stable.\textsuperscript{170} This appears to stem from an adherence to a common set of beliefs or principles which exceeds local ethnic distinctions. This idea helps to explain why the Britons continue to live in round houses even when rectilinear structures were being used for other types of buildings such as storage. The presence of rectilinear buildings proves that they did not lack the technological knowledge to build houses in other styles.\textsuperscript{171}

It has been suggested that the early Britons viewed the house as the microcosm of the world and that this influenced the design and placement of the round house.\textsuperscript{172} There is a significant trend towards placing the entrance of the house towards the east during the Bronze Age with a shift towards the south-east during the Iron Age and later periods. The entrance of the round house from the study area conforms to this pattern as it faces southeast. This orientation appears to have ritual significance associated with astronomical factors including sunrise at certain times of the year. There appears to be a connection between practical factors such as maximizing sunlight, providing shelter from

\textsuperscript{170} Haselgrove 2004, 18.
\textsuperscript{171} Haselgrove 2004, 18.
\textsuperscript{172} Parker Pearson 1996, 119.
the wind, and for ritual ideology.\textsuperscript{173} The ideology behind these choices may have faded from the collective memory over time while continuing to live in round houses remained a comfortable choice because tradition dictated it.\textsuperscript{174}

A small variety of domestic finds were uncovered in both houses. The initial analysis of the artefacts found within both houses has suggested that these neighbours were of similar economic standing while also presenting themselves as culturally distinct. Within the rectilinear house one knife (D19) and one quern (D20) were found, while one knife (D21), \emph{a terra sigillata} cup (D22) and a quern (D23) were recovered from the round house, all of which will be discussed in detail in the following chapters.

\subsubsection*{2.5 Conclusions}

The broad changes seen in a region conquered by and incorporated into a large imperial body can be fascinating for understanding how people respond to sudden and sometimes violent cultural change. The ways in which a group of people either adhere to old cultural ways or adopt new habits, which may be indicative of some level of acceptance of a hegemonic power, can help us to understand the process of acculturation. At Vindolanda, a site located on the very edge of the empire in a volatile frontier zone, we see an interesting hybridity taking shape on a site occupied by a multicultural population of non-citizen soldiers recruited from other conquered lands, Roman citizens and probably some local Britons. The site is a perfect case study to explore some of these ideas about the

\textsuperscript{173} Clark 1999, 38-39, see figure 2; Parker Pearson 1996, 128.

\textsuperscript{174} Clark 1999, 39.
adoption or rejection of material culture in the creation of hybrid identities both on the corporate and individual level.

The material presented in this chapter constitutes the base upon which the analysis that follows is built. Each of the three study areas will be discussed in greater detail in the following chapters, especially the artefact assemblages that allow a more nuanced understanding of the material used by the inhabitants of these fort structures. Each category of artefact has an interesting history and typology which will be useful for understanding the cultural markers associated with them. Understanding the artefacts mentioned in this chapter within the context of the building from which they were recovered will be critical for understanding their importance in relation to the study of identity.

The extramural houses outside the fort are the most interesting in terms of the whole cultural package presented. The close proximity of a round house and a rectilinear structure is indicative of this hybridity and suggests that native habits can be retained while at the same time new forms of material expression were adopted. In the following chapters this and similar trends will be noted in order to understand how individuals from the various social groups represented in the study area related to the cultural groups and influences at Vindolanda.
3.1 Analysis of the Archaeological Assemblages

In the following sections the domestic artefacts chosen for study from the three areas will be discussed by category. The categories chosen are: artefacts associated with cheese production, knives, spoons, stamps and graffiti on domestic items, mortaria, querns, pewter items and domestic items carved from wood. In order to provide a background for each artefact case study, each category will include a discussion of relevant material from primary sources where possible. This will be followed by previous research on each type of artefact including any scientific research (e.g. lipid analysis) and typological studies. The details of this study will be used in order to understand the buildings and their inhabitants on an individual level.

3.2 Implements for Cheese Production

When exactly humans learned to make cheese is unknown but it is generally thought that this knowledge closely followed the domestication of lactating animals. The earliest archaeological evidence for cheese making comes from the Fertile Crescent in the form of a Sumerian relief dating to the fourth millennium BC which portrays the process of dairying (figure 9). The practical motivation for dairying is that turning milk into cheese

175 Sometime between 9000-7000 BC depending on geographic location. Cf. Encyclopedia of Food and Culture 2003, s.v. “Cheese” (Firebaugh).
allows for the preservation of an otherwise highly perishable foodstuff.\textsuperscript{176} Additionally, cheese production would have special importance in early societies as a method of managing high levels of adult lactose intolerance.\textsuperscript{177} It is evident that humans realized very early that eating cheese was a safe way to make the nutrition of milk accessible to adults.

Cheese production was also a common practice in the Greco-Roman world. The first instance of cheese production in literature comes from the Greek world found in Homer’s \textit{Odyssey}. Already in the ca. 8\textsuperscript{th} century BC the \textit{Odyssey} preserved techniques used for producing cheese, the basics of which have only changed in minor ways. In Book 9, the Cyclops is depicted as a giant shepherd whose livelihood is based in subsistence farming. Polyphemus guides his flocks into his cave where he milks the ewes and the she-goats and then carefully places them with their respective young. He sets half of the milk aside for drinking and curdles the rest by allowing it to thicken in wicker baskets.\textsuperscript{178} Almost a millennium later Columella, a Roman agricultural author of the 1\textsuperscript{st} century AD, recorded his instructions for making cheese. He begins by expressing the importance of not neglecting the task of cheese-making then proceeds with instructions which are reminiscent of the process carried out by the Cyclops. Cheese ought to be made with pure milk which is as fresh as possible. The only development in the process as described by Columella is the addition of rennet which acts as a coagulant before placing it in a wicker

\textsuperscript{176} Encyclopedia of Food and Culture 2003, s.v. “Cheese” (Firebaugh).
\textsuperscript{177} Kindstedt 2012, 10-11.
\textsuperscript{178} Hom. \textit{Od.} 9.244-249.
basket called a *calathos*.\textsuperscript{179} The milk is kept warm in the early stages of the process to allow bacteria to grow and for the rennet to encourage curdling.\textsuperscript{180} Columella’s text offers a detailed explanation of the complete process and explains more fully the purpose of placing the milk in a wicker basket. It is in the basket that the whey percolates and becomes separated from the solid matter. The whey must be pressed out in order to form cheese.

The cheese production process is visible in the archaeological record at two stages: the containers used for warming and the containers used for draining and forming. There is no specific type of container designed for the purpose of warming the milk; it is possible to use any ceramic or metal vessel at this stage. It has been suggested that *mortaria*, the vessel typically used for grinding food stuffs in Roman contexts, may have been used for warming milk because they are often found near hearths with soot on the underside. Additionally, the irregular interior of the *mortaria* may have been useful for developing the curds. This use, however, is only one possibility for *mortaria* and as will be discussed below the *mortaria* were likely used as multipurpose bowls.\textsuperscript{181}

Archaeological evidence for draining and forming cheese often occurs in the form of ceramic presses referred to in Latin literature as a *calathos*. The term *calathos* originally referred to any sort of wicker basket used for numerous other purposes including gathering flowers and wool.\textsuperscript{182} At some point the term began to be used metonymically to

\textsuperscript{179} Colum. VII.viii.1-5
\textsuperscript{180} Cool 2006, 95.
\textsuperscript{181} Cool 2006, 95.
\textsuperscript{182} Vitr. 4.1.9
refer to similar styled objects made in different materials. Drainage vessels could be made from any durable material including, but not limited to, ceramic, cloth and wood. Ceramic presses are found in the archaeological record most often and appear to have developed from the wicker basket by borrowing its basic ribbed shape. Because the ceramic does not drain naturally like wicker, holes were punched into the bottom and occasionally the sides in order to separate the whey from the cheese.

Evidence for cheese making is quite rare which has led some scholars to suggest that strainers and presses were being overlooked during data collection and material analysis. However, a recent study by specialists has suggested that the rarity is real and that these ceramic vessels were a sign of a specialized craft. This conclusion is based on the fact that strainer and cheese press fragments, because of their characteristic ridges and holes, are very distinctive and are unlikely to be overlooked by pottery specialists. A historical study of the types of cheese made in Britain and their formation process has shown that different types of cheese could have quite precise requirements with respect to the implements used to prepare them. This has led to the hypothesis that ceramic cheese making implements did not replace organic styles but rather that ceramic vessels represent a highly specialized cheese making process.

\[183\text{ Cool 2006, 95.}\]
\[184\text{ Cool 2006, 97.}\]
\[185\text{ D. Hartley 1954, 486-91; cf. Cool 2006, 96.}\]
\[186\text{ Cool 2006, 97.}\]
Archaeologically detectable evidence for the cheese making process does not exist in Britain before the Roman conquest.\textsuperscript{187} This lack does not necessarily mean that the knowledge of making cheese was introduced by the Romans, but rather that the Romans brought with them new, hardier tools that remain archaeologically visible. Because cheese making is so important for a society which is active in dairying it is assumed that the Iron Age Britons were using organic materials to make cheese much like the wicker baskets described in the \textit{Odyssey}.\textsuperscript{188} This pattern is similar to the one detectable with the use of \textit{mortaria} (see below); however, ceramic cheese presses are much less common.

There is significant evidence that ceramic cheese presses were introduced by the Roman army. The excavation of military kilns which date to the AD 50s at the fortress at Longthorpe found that cheese presses and strainer bowls were being produced by or for the Roman army.\textsuperscript{189} Thirty-eight cheese presses were recovered from the kiln site, a remarkably high number for one site. These thirty-eight cheese presses were initially broken down into three distinct categories based on shape, but further examination of typology led to breaking down one of the categories into seven subgroups based primarily on the number of ridges and relative proportions of the vessels.\textsuperscript{190} Detailed records indicated that anywhere between one and thirteen of each style of press was being produced at one time. This wide range of typologies, which all produce a slightly

\textsuperscript{187} Cool 2006, 95.

\textsuperscript{188} Cool 2006, 97. Roman sources such as Pliny (\textit{Nat. XI.} 239) have asserted that people outside of the Roman Empire either lack the ability or choose not to make cheese, preferring curds or butter. While this is impossible to prove or disprove it is not likely to be the case.

\textsuperscript{189} Dannel and Wild 1987, 151-153.

\textsuperscript{190} Dannel and Wild 1987, 151-153, see especially figures 65-67 on page 148 for typology.
different cheese, supports the idea put forth by Hartley that cheese making was a specialized craft. This pattern can also be seen at Holt (Chester) and York.\textsuperscript{191}

A kiln at Dragonby also seems to have produced at least one cheese press. This kiln, which is connected with a civilian settlement and dates to the late first century, has been particularly interesting because it appears to have produced both native and Roman styled vessels, indicating that there was a need for both types. These vessels, including the cheese press and a tripod cooking vessel, were very high quality and specialized items. The analysis of the assemblages from the kiln in comparison with the assemblages from the rest of the site by May et al. concluded that there was no evidence for local demand for the cheese presses or tripod cooking vessels.\textsuperscript{192} Because of the early date associated with the kiln, she concluded that the items were being produced for a romanized clientele, either military or upper class.\textsuperscript{193}

Based on cheese presses recovered from a variety of sites in Roman Britain, Cool has developed a typology of six basic styles of cheese press (\textbf{figure 10}).\textsuperscript{194} One cheese press was recovered from the study area at Vindolanda. It was found at the southern end of room 11 in Building 1 of Area 2 (D18). Only a few pieces were found but enough exists to see the general shape and the holes used for drainage. It is difficult to assign a definite typology based on these fragments but considering the shallow curve of the available pieces these appear to have made up a type 3 cheese press. Two presses of this type were

\begin{footnotesize}
\begin{enumerate}
\item May, Gregory and Swan 1996, 575-577.
\item May 1996, 106; May, Gregory and Swan 1996, 575-577.
\item Cool 2006, 96, figure 10.1.
\end{enumerate}
\end{footnotesize}
found in the kiln at Longthorpe; these bowl-shaped cheese presses all had three internal ridges and three rings of holes. It is presumed that these presses produced a small, disc-shaped cheese.\textsuperscript{195}

In the case study buildings there was no further evidence for cheese production aside from building 1,\textsuperscript{196} but the discovery of even a single cheese press is interesting. Cheese production was a highly specialized craft and therefore one would not expect to find multiple instances of this type of item in any single residence. Therefore it is not surprising to find only one cheese press in the study area and the small number certainly does not render this item unimportant. The specialized nature of the ceramic cheese press suggests that at least one individual was using this space for preparing high-end foodstuffs. In addition to the cheese press, two other items were recovered from Building 1 which are both rare and valuable. These two items are a pewter bowl and a silver spoon and will be discussed in detail below. These items together suggest that Building 1 may have served a specific function. The importance of these items in relation to Building 1 will be discussed in depth in section 4.3.

\subsection*{3.3 The Knives}

The Roman conquest of Britain marked a great change in the availability of certain everyday materials. There is a visible trend in the archaeological record towards an increase in the use of iron for everyday tasks during the early Roman period. Native settlements across the country record an increase in knives made of iron as well as

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{195} Dannel and Wild 1987, 153.
  \item \textsuperscript{196} Evidence for cheese production is present in other phases at Vindolanda.
\end{itemize}
\end{footnotesize}
increased typological variation. Based on the pervasiveness of knives at all types of sites it has been assumed that iron knives became available to all strata of society at this time.\textsuperscript{197} Manning, who has studied the various assemblages from Britain and defined the typology which will be used here, has concluded that the Roman army brought with them a variety of different knife types used for different jobs.\textsuperscript{198} Most dramatic is the introduction of cleavers for cleaning large carcasses. This practise leaves distinct butchery marks on the bone and maximises the utilization of meat. The Roman tools appear to be significantly more efficient than their Iron Age predecessors.\textsuperscript{199} By the 2\textsuperscript{nd} century this change is apparent among military, urban and rural populations throughout Britain.\textsuperscript{200} At the Romano-British settlement of Dragonby, the occupation of which spans from the Bronze Age well into the Roman period, all of the iron knives are firmly situated in Roman occupation levels.\textsuperscript{201}

Knives have different shapes of blades and handle styles that are required for very precise production and preparation needs in both ancient and modern practice, such as butchering, skinning or de-boning. Based on the types of knives found in various contexts at Vindolanda it may be possible to use this information to help identify the activities taking place in various buildings and, as a result, also to discover something about the inhabitants occupying and working in these spaces. In modern cookery very precise blade

\textsuperscript{197} Cool 2006, 50.
\textsuperscript{198} Manning 1985, 108-23.
\textsuperscript{199} Maltby 1985, 20-21.
\textsuperscript{200} Cool 2006, 89; Maltby 1998, 358.
\textsuperscript{201} Manning and McDonald 1996, 286-310.
shapes are used for specific tasks. Though we cannot use direct modern comparisons to identify the specific use of a knife in antiquity with certainty, it is striking how similar some of the shapes are from both the Roman and modern period. This is particularly interesting considering that the precise actions that a knife would need to perform for various types of cutting, skinning or cleaving have not changed drastically, particularly in a household context. It may be possible to create hypotheses about the use of certain knife shapes. For example, a quick look at a knife sellers wares advertised on the Culinary Arts pages at Fanshawe College (figure 11) shows the complete set of knives required by culinary arts students today. The shape of many of these knives are strikingly similar to knives recovered from the study area. For example, the blade of knife D2 has the same curves as the knife labeled “Gourmet Boning Knife.” While these knives do not offer a direct comparison, the modern examples will be used in the discussion that follows to suggest specific purposes related to food preparation for the knives recovered from the study area based on similarity of shape.

A general survey of butchery marks from Romano-British settlements has uncovered several trends with respect to the uses of knives in antiquity. In addition to the clear chop marks left by the cleaver there is strong evidence for filleting, marrow processing and skinning. Marrow processing can be carried out in two different ways: axial splitting of limb bones with a cleaver or horizontal breakages with a stone or similar object. Marks left from filleting are seen most often on the upper limb bones and scapulae of cattle.

204 Maltby 2007, 64-68.
Filleting removes the meat off the bone along with any protrusions on the bone; this leaves a distinct blade mark. A heavy but flexible blade would be the ideal tool for this job. Marks from skinning are less common but are sometimes found on phalanges. Here a knife is inserted to remove the skin from the bones. The ideal knife blade for this purpose would be small, manoeuvrable and sturdy.

Analysis of the knives found in the three areas of study is quite enlightening. Using the Manning typology each knife is identified and its purpose is described. This may be helpful in cases where the function of the building is unknown. Manning has noted that typology is often difficult to identify because types tend to morph into one another and wear from use and whetting will change the knife from its original shape. Although it appears that most knives have some use in the domestic context not all of them are obviously for food preparation. Knives could have easily been used for multiple purposes which means that a knife labelled as a ‘razor’ could have been used to prepare foodstuffs. This does, however, most likely rule out a specialized cooking process.

There were seven knives recovered from Area 1 (the schola) at Vindolanda. They vary greatly in preservation; some are missing handles and some have broken blades. One knife was found in room 1, the entrance to the schola (D6). This knife is most similar to a Manning type 6b, a subgroup of type 6. This group is characterized by a hooked blade with most variation occurring in the handle and end loop. Type 6b has a longer handle

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205 Maltby 2007, 62.
207 Manning 1985, 108.
with a small end loop compared to the other type 6 subgroups. Manning suggests that this
knife is more likely to be a razor than a true knife. This knife will be excluded from
further analysis because it does not appear to have a function associated with food
preparation.  

Two knives (D2 and D3) were found in room 2 of the schola which appears to have been
used for butchering cattle and pigs. Both knives belong to the Manning type 7 group but
represent two different subgroups. Diagnostic features of this type include a sharp down-
turned blade with a curved edge. The handles of these knives are usually decorated bone
plates riveted to a plate-tang and often have a loop at the end. The primary difference
between the type 7 subgroups is the degree to which the blade curves.  D2 is the blade
of a type 7a knife; it is missing its handle but it can be presumed that it would have had a
handle similar to D3. The blade of D3 is broken making it difficult to place within the
type 7 subgroup. The amount of curve on the remaining blade suggests that this knife
belongs to subgroup b. Manning has suggested that the knives of this style are ideally
suited to use as razors because of their curved blade. He supports this claim with
evidence that a larger number are found during the earlier periods when it was more
fashionable to be clean shaven. This may be true; however, this connection is tenuous
at best and it seems far more likely that an implement of this sort was used for food
production. The curve of the blade, in fact, makes it very useful for both boning and
skinning. The curved blade on D2 would be very useful for cutting around bones while

208 Manning 1985, 111.
209 Manning 1985, 111-112.
210 Manning 1985, 112.
D3 would be more useful for skinning or boning smaller animals. Both knives were found among large amounts of animal bones which showed signs of butchery. This evidence strongly indicates that these knives were used in the butchering process. It is important to keep in mind, however, that multiple purposes for one knife style are very possible.

Room 7 yielded one knife which was heavily damaged (D1). Only part of the knife blade remains rendering a conclusive type assignment impossible but the best hypothesis is that the knife is either a Manning type 11b knife or a type 3 cleaver. Both the cleaver and the knife have a straight back which continues the line of the handle while the blade forms a right-angled triangle.\textsuperscript{211} It is impossible to tell which category this piece of blade belongs to as the only difference between the knife and cleaver is the size.

Room 8 is separated from the main areas identified as preparation space by a corridor and was also badly damaged by later construction. Knife D11, a Manning type 2b cleaver, was recovered from this room. This style of cleaver is marked by a distinct downward curve on the back of the blade and is usually socketed, as is the case with this example. According to Manning this is the most common type of cleaver and is often used in artistic representations of sacrifice.\textsuperscript{212} This cleaver was designed to be used for butchering animals; its blade is large enough to cut through thick chunks of meat and bone. Knife D4 was also found in this room and is a Manning type 11. This knife has a

\textsuperscript{211} Manning 1985, 114 and 122.

\textsuperscript{212} Manning 1985, 122.
very narrow blade with straight back and edge.\textsuperscript{213} This knife shape would be very useful for preparing meat after initial butchery. It appears to be quite similar to a modern fillet knife which must be thin, narrow and flexible. This allows for good control while processing both meat and fish.

Knife D5 was found in corridor 1 and is a Manning type 19. It is an unusual style of knife characterized by an almost straight cutting edge while the back dips slightly before forming a concave curve to the tip. Manning states that this knife is atypical and that there appears to be no parallel to its form.\textsuperscript{214} It is not clear whether this style of knife would have use in food preparation. It does appear to be similar to a modern paring knife but also bears resemblance to ancient blades which are described as ‘razors’. The main difference between this blade and the blade of a razor is the characteristic curve. This blade is very thin which suggests that it would be maneuverable rendering it useful for activities such as peeling.

There were three knives found within Area 2. Knives D14 and D15 both come from the northern area of Building 1. Knife D14 is a Manning type 11b; it is triangular in shape but too small to be a cleaver. The most obvious function for this knife is general food preparation but not butchery. All that remains of D15 is the handle. It is impossible to tell what type of blade was attached but the design of the handle is very similar to other type 7 ‘razors’.

\textsuperscript{213} Manning 1985, 114.

\textsuperscript{214} Manning 1985, 117.
Two knives were found in Area 3 (the extramural buildings), one from each house. D19 was located in the rectilinear house and was unfortunately badly damaged. It appears to be a Manning type 11a but the breakage and level of corrosion makes it impossible to tell with certainty. The blade of this knife was probably originally 11cms long and no more than 2cms at its widest point. This could very well have been used for secondary processing of foodstuffs. D21 was located in the round house and is a Manning type 7b. As mentioned above, this type is considered by Manning to be a razor. It seems most likely that this style of knife would have multiple uses especially considering its popularity. It is well suited to boning, skinning, carving and dining, in addition to its possible identification as a shaving implement.

The knives are important to the study of identity because they represent interaction between British Iron Age culture and the Roman army. The styles of knives on their own do not appear to contain cultural markers in this setting but the presence of iron knives represents a change in material culture from the Iron Age in Britain to the period of occupation by the Roman army. In chapter 4 more analysis of this material within each context will be provided. This aspect of food preparation is important because iron knives were recovered from the entire study area including the round house, a building typically associated with Iron Age culture. It is unexpected that few cleavers were recovered especially considering the clear evidence for butchery found on the animal remains. It is possible, however, that the cleavers were still in good shape when the garrison moved and therefore the cleavers were removed. The situation at Vindolanda exemplifies the trend of increased use of iron for everyday objects which is true of the Roman army.
3.4 The Spoons

Spoons crafted from non-ferrous metals are fairly common in Roman contexts. Three have been uncovered from the study area and will be discussed individually here. Spoons of this nature are often thought to be used primarily for dining and are frequently part of services of tableware. Wooden spoons (which will be discussed separately) are usually the only spoons associated with food preparation, though they are generally less commonly found because of poor preservation conditions. Typology of Roman spoons was developed by Walters in his *Catalogue of the Silver Plate in the British Museum* and this typology has been applied to the assemblage of Vindolanda spoons by Heide Birley. The catalogue information collected by H. Birley will be reproduced here followed by a discussion of the spoons in the contexts specific to the current study.

All three of the spoons from the study area are *cochlearia* (sg. *cochlearium* or *cochlear*). One spoon was located in room 6 of the *schola* (D9), the non-perishables storage room. All that remains of this spoon is the circular bowl and part of the handle. The spoon was made of bronze and has been identified as type 32a. Two spoons were found in Building 1 of Area 2 (D16 and D17). D16 was found in the northern section of the building; the handle is totally intact and measures 13.3 cm. The bowl of the spoon was heavily damaged by corrosion of the metal. This spoon is also a type 32a and it is made

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216 Walters 1921, *passim*.
218 H. Birley 2003, 40 no. 21.
of copper-alloy.\textsuperscript{219} D17 was found in room 1 and consists of a fully intact bowl with a broken handle. This spoon is a type 36a and was made of silver.\textsuperscript{220}

The \emph{cochlear} was written about quite a lot in Latin literature. The variety of sources provides a very diverse and interesting idea of the uses of this spoon type. The most interesting of these sources is an epigram by Martial which is written in the voice of the spoon itself. The spoon is made to say: “I am handy for snails, but no less useful for eggs./ do you know why I am preferably called a snail spoon?”\textsuperscript{221} The actual root of the name comes from the Greek word \textit{kóχλος} which refers to ‘a shell-fish with a spiral shell.’\textsuperscript{222} In Martial’s epigram the spoon questions why it is named after snails because it is just as useful for eating eggs. From another poem of Martial it can be gathered that the \emph{cochlear} was quite small.\textsuperscript{223} The expression that the spoon weighed less than a needle may be a poetic exaggeration but it must not have been too far off in order for the audience to relate to the statement.

The term \emph{cochlear} appears in a recipe by Columella for preserving wine with must. In this text it is used as a term of measurement and is often translated as ‘spoonfuls’ of particular ingredients. In this passage the \emph{cochlear} measurement is contrasted with that of a \emph{ligula}.\textsuperscript{224} The \emph{ligula} is a different type of spoon which is larger in size, not to be

\textsuperscript{219} H. Birley 2003, 41 no. 22.
\textsuperscript{220} H. Birley 2003, 41 no. 23.
\textsuperscript{221} Mart. XIV 121: \textit{Sum cocleis habilis, sed nec minus utilis ovis./ Numquid scis, potius cur coeleare vocer?} All translations in this thesis are my own.
\textsuperscript{222} H. Birley 2003, 21.
\textsuperscript{223} Mart. 8.71.10.
\textsuperscript{224} Colum. XII, XXI.2-3.
confused with the personal hygiene implement. Additionally, the term of measurement appears in Pliny the Elders’ *Naturalis Historia*. Pliny uses the *cochlear* in order to specify the amount of ingredients added in medical recipes. This reminds us again that some cooking implements did have purposes other than cooking and eating. The size of the bowl of both spoon types must have been somewhat standardized in order for these instructions to be effective. In this way, the *cochlear* is reminiscent of the modern teaspoon and tablespoon.

This brief overview of the usage of *cochlear* in Latin literature suggests that this style of spoon had many purposes. It is possible that the silver spoon, D17, was originally part of a tableware service and used for fine dining. However, the other two spoons, D9 and D16 which were made of copper-alloy and bronze, could have been used for any number of purposes: dining, cooking and measuring medical ingredients being the most prominent.

The presence of these spoons is interesting considering their ‘Roman’ nature. Metallic spoons are not typically associated with the cultural packages of Iron Age sites. While the spoons recovered from the study area are all considered common types this is only true in contexts associated with the Roman Empire and the army. These spoons are further connected to the Roman cultural package through the epigrams of the Roman poet Martial, as well as through the practical use as a measurement in recipes that are clearly part of a Roman way of cooking as demonstrated in Latin literature. It appears that both the material marker and the activity associated with these items was adopted; the

\[225\] This spoon also receives its own epigram from Martial: XIV 120.

ownership of the spoon indicates the use of a Roman-made product, but it also may show acceptance of ideas of food preparation technique that accompanies the item. The single silver spoon may be understood as a sign of wealth in contrast to the two other spoons made from copper-alloy.

3.5 The **Mortaria**

Roman sites throughout the empire have uncovered such a large number of *mortaria* that it is difficult to imagine a Roman kitchen without one. For example, at the site of Elginhaugh just north of Hadrian’s Wall, which has only one period of occupation, excavations uncovered 496 *mortaria* sherds. *Mortaria* vary in shape and size but their basic structure remains the same. The *mortarium* is characterized by a round shallow bowl with a wide overhanging rim (figure 12); the body of the bowl has a very rough inner surface formed by tiny gritty stones which are embedded in the surface of the bowl to facilitate grinding.\(^{227}\) The earliest known *mortaria* found in Britain date to the later Iron Age. They are continental imports and are found predominantly in the south-east.\(^{228}\) In a recent study by Cramp *et al.* on British Iron Age and Roman sites it was discovered that there is no British Iron Age equivalent for the *mortarium* and that its presence suggests either “a shift in cultural practices involving either new commodities, especially plants, or new apparatus or new recipes.”\(^{229}\) They note that analysis of faunal and botanical assemblages from both Iron Age and Roman sites suggest that a dietary transition occurred over this period but that the appearance of the *mortarium* does not

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\(^{227}\) Grocock and Grainger 2006, 351.


\(^{229}\) Cramp, Evershed and Eckhardt 2011, 1349.
directly reflect this change. Residue analysis was conducted on the available mortaria and cooking pots from across the Iron Age and Roman periods with no marked difference having been found. It appears most likely that the mortaria were being used to fulfill a function that had been previously performed by a different utensil.\textsuperscript{230}

In her dissertation, Cramp analysed the residue from a large assemblage of mortaria across Roman Britain. The general conclusions show that mortaria were sometimes used for heating up contents but were not used on a regular basis as cooking pots.\textsuperscript{231} About 80 percent of the residues were from animal fats with the majority of fats coming from cattle or sheep, which is consistent with the associated faunal assemblages. While it is unclear exactly how mortaria were used in the preparation of meat it is important to note that the residue left behind by meat is exponentially higher per use than that of herbs or spices. This skews the data because the residue left behind by only a single use with meat immediately overpowers the residues of herbs and spices.\textsuperscript{232}

In Latin literature, Plautus mentions the mortarium as one of the utensils that the neighbours are always coming over to use.\textsuperscript{233} The evidence from Cato, who wrote his agricultural treatise in the 2\textsuperscript{nd} century BC, shows how versatile the mortarium could be and may help with understanding the lipid analysis done by Cramp. It does not explain the meat residues but it does suggest that the Romans were using the mortarium as a general purpose bowl rather than primarily for grinding. Cato prescribes the use of the

\begin{footnotesize}
\textsuperscript{230} Cramp et al. 2011, 1349.
\textsuperscript{231} Cramp 2008, 199.
\textsuperscript{232} Cramp 2008, 216.
\textsuperscript{233} Plaut. Aul. 1.2.17-18: cultrum, securim, pistillum, mortarium/ quae utenda vasa semper vicini rogant.
\end{footnotesize}
mortarium in three recipes, all for making cake. One of these recipes is for libum which reads like a cross between cheesecake and pancakes: “This is how to make Libum. Grind 2 pounds of cheese well in a mortar. When it is ground well, add one pound of wheat flour or, if you wish the cake to be softer, half a pound of finest wheat flour, and mix it well with the cheese. Add one egg and mix well. Form it into a loaf, place it on leaves and bake it slowly in a warm hearth under a lid.” In all of Cato’s cake recipes he specifies that the mixing and kneading of the dough should be done in a mortarium.

Apicius recorded a sauce which was named after the mortarium in which it was mixed. The sauce is made up of a mixture of mint, rue, coriander, fennel (all fresh), with lovage, pepper, honey and garum. Vinegar could be added if required. This sauce needed to be made specifically in a mortarium in order to grind the fresh herbs. Columella also recorded recipes for various types of sauce which were made in a mortarium including mustard. The ingredients listed in these recipes are common in many other recipes but they do not leave behind a strong residue; therefore, when lipid analysis is conducted they are difficult to detect. If meat had been introduced, the lipid from the meat would have taken over.

Mortaria were found in most of the contexts of this study with a large variation in styles and production sites across the assemblages. Appendix C records the stamps on mortaria

235 Apicius. 1.35.
236 Colum. XII. 57-58.
found within the study area. The stamps record the minimum number of vessels recovered from each area. Some of the stamps are illegible but it is still possible to tell that they are different from the others listed here. Three stamps were found in the *schola*; two from room 8 and one from corridor 1. Three stamps were recovered from the extramural houses; one from the rectilinear timber structure and two from the round house.

It is very interesting that *mortaria* sherds were found in the round house along with a typical British style quern, as will be discussed below in more detail in chapter 4. The presence of these sherds shows that various levels of adoption were being practiced by the individual or family who lived in the round house. The *mortaria* sherds, in combination with the native style quern, supports the conclusion by Cramp *et al.* that *mortaria* were added to the traditional implements used by native Britons but that this does not reflect a dramatic change in food preparation habits by those conquered.

### 3.6 The Querns

Quern-stones are stone tools used for grinding a variety of materials but most often they were used to grind cereals in order to make flour. They are made of two parts: the lower stone which is stationary and the upper which is rotated by hand and often has a handle attached to it. In Britain, the first style of quern was introduced sometime in the Neolithic period. This style is referred to as a saddle quern and was used like a large *mortarium*. The main development in this phase was the use of a larger, heavier handstone which was rolled back and forth rather than in a circular motion. In the 5th or 4th century BC, a new
style of quern was introduced to Britain: the rotary quern. This new quern represents a major technological innovation during the British Iron Age, replacing a tool which relied upon a simple crushing action with one that exerted force onto the grain through a horizontal rotary action.

The rotary querns which have been uncovered from the period IV study area can be divided into two categories: beehive querns and disc querns. The visible difference between these types is their shape; the beehive quern (E.G. D23) is named for its conical shape whereas the disc quern (E.G. D20) is flat. The beehive style is the first type of rotary quern to appear in Britain. The earliest examples are associated with Iron Age B sites (500-300 BCE) and they continue to be used into the third-century AD even though the more advanced disc quern was readily available during the Roman period. The handle was usually inserted into a socket on the side (see figure 13 for diagram and comparison to disc quern). The position of the handle and wear patterns on the stones suggest that these querns were used in a back and forth motion processing the grain with a tearing and crushing action. The beehive querns are divided into two main categories: the Wessex and Sussex type, with a third category, the Hunsbury type, apparently derived from the Wessex type.

237 For a more in depth discussion on the date of the introduction of rotary querns, see Heslop 2008, 19.
238 Heslop 2008, 18.
239 For evidence of the use of beehive querns in third-century contexts, see Wrathmell and Nicholson 1990, 43-45.
240 Cool 2006, 72.
241 Curwen 1937, 142.
The disc quern arrived with the Roman army and was generally a more streamlined tool.\textsuperscript{242} Not only were the stones more elegantly cut, they were made of lava stone which is significantly lighter than the sandstone used by the Britons to make beehive querns. Additionally, the space between the two faces is adjustable which ensures a finer ground product. Disc querns generally have vertical handles which would allow for a rotary action; however, the wear patterns on some querns show that they were also used in a back and forth motion. The improved features of the disc quern ensure ease of use and also process the grain in a shearing and grinding action rather than crushing.\textsuperscript{243} Many of the quarries in Britain adopted the new and improved disc quern. By the end of the first century there are many examples of Roman army styled querns made from British rock types.\textsuperscript{244}

There were four querns which were recovered from the study area. Two disc querns were uncovered in the \textit{schola}—one in room 6 (D7) and one in corridor 1 (D8). Another disc quern (D20) was found in the rectilinear timber structure and a beehive quern (D23) was found in the round house beside it. The disc querns were all recovered from within the fort and the Roman style rectilinear structure, a trend that can be seen site-wide and on a larger scale as well. The presence of a beehive quern is not common at Vindolanda; in fact, this is the only one on record. This particular quern is most like the Hunsbury type: the upper stone is thick and conical in shape but it is distinguished from the other early types of querns by its flat grinding surface. The largest assemblage of Hunsbury type querns

\textsuperscript{242} Heslop 2008, 19.
\textsuperscript{243} Cool 2006, 72.
\textsuperscript{244} For example: Millstone Grit from the Pennines. For more information see Cool 2006, 73.
querns from a single site comes from the Iron Age AB hill-fort of Hunsbury, near Northampton.²⁴⁵

The quern uncovered within the neighbouring rectilinear timber structure appears most like the type described by Curwen as the projecting hopper type. This style of quern shows a development from the more clumsy Iron Age form; by increasing the diameter of the upper stone it is possible to reduce the thickness making it neater and easier to use. This particular type is generally found in later Roman deposits and is a more elegantly cut stone tool. It should be noted that quern stones have a relatively long life span and may be used for 70 or 80 years. Dating based on quern stones alone should be avoided; however, their style may still carry interesting cultural implications.²⁴⁶

As will be discussed in detail in chapter 4 the choices associated with house style and quern type have very interesting implications for the study of cultural identity of individuals and households. In this situation it is possible that the inhabitants of the round house were projecting a native British identity through their cultural choices. Their neighbours living in the rectilinear timber structure next door, however, project elements of the identity package imported with the Roman army through their house style and appear to identify with Roman cultural habits through their selection of quern style.

The querns found in the *schola* also have interesting implications. The quern found in room 6 of the *schola*, which is believed to have been used as a store room for non-

²⁴⁵ Curwen 1937, 142.
²⁴⁶ Curwen 1937, 144.
perishables because much of the pottery is associated with food preparation,\textsuperscript{247} suggests that some processing may also have been carried out within the storage facility. The inscribed quern found within corridor 1, while fragmentary, suggests that querns, even though they are large in size, were likely personal items even among soldiers or possibly smaller groups in the army. The inscription on this item will be discussed more fully in section 3.7.

3.7 Epigraphic Evidence

The epigraphic evidence related to the domestic items exists in the form of three graffiti, one painted inscription and one stone inscription. There are five items from the study area to discuss. Area 1 produced an inscribed quern (D8), an amphora handle with the name Tagomas inscribed on it (D10),\textsuperscript{248} and a whole amphora with a \textit{titulus pictus} (D12). Area 2 produced an interesting pewter dish with the name of its owner etched into it (D13) and Area 3 produced a terra sigillata cup with X scratched into the bottom (D22).

D8 is a complete disc quern with an inscription incised on its side that reads: []IDII//I\textsuperscript{249}. This quern had been repaired at some point, represented by the black marks on the image. Unfortunately the repairs appear to have damaged the beginning of the inscription rendering it difficult to read. Nevertheless, A.R. Birley has attempted to reconstruct the meaning of this inscription. Because the quern was found within the \textit{schola} and because the name is written in the genitive case, A.R. Birley has suggested that the repair

\textsuperscript{247} A. Birley 2003, 31-32.
\textsuperscript{248} A. Birley 2003, 32.
\textsuperscript{249} Cf. artist’s rendering in appendix A.
destroyed either a 7 for *centuria* or a D for *decuria* and possibly the first letter of the name. Further difficulty in interpreting this inscription is added by the possibility that this part of the quern only represents half of the inscription. The lower stone also may have been carved with the bottom half of the name. The letters marked as // are distinctly curved and carry the possibility of having been CC, SS or one of each (e.g. CS). The most plausible readings of the quern inscription are: [D I]IDIICCI or [D I]IPIICCI i.e. ‘decuria of Edecc(i)us or Epecc(i)us’. The assumption that the named individual was a decurion of the *equites Vardulli* is fitting considering the piece of graffiti discussed next, which also belonged to a Vardulli officer. It is interesting to note, especially if the second reading Epecc(i)us is correct, that names beginning with Ep- are generally connected with the Celtic *epos*, meaning horse.\(^{250}\)

In his interpretation of this inscription, A.R. Birley maintained that it marked an individual’s ownership of the quern stone. Inscriptions with this formula, however, are fairly common on military sites and Johnson has provided another plausible explanation. In her discussion of food supply and preparation in Roman forts, Johnson suggests that items with the graffiti which bear the name of a centurion in the genitive belong to the entire century itself, rather than the centurion. Johnson also provides evidence for items which belong to the *contubernia*.\(^{251}\) This allocation of items like querns, amphorae, pots and pans to a larger group rather than to an individual would make food preparation in the military setting more efficient. Rather than having every soldier carry a large quern

\(^{250}\) A. R. Birley 2003, 84.

\(^{251}\) Johnson 1983, 199.
stone, each unit is allocated the number necessary to mill flour for the entire group. While this explanation may be plausible, it is equally likely that a centurion or decurion would mark their personal items by inscribing their own name in the genitive case, as A.R. Birley argues. What is important here, however, is the primary evidence which is the inscribed name of an individual. The name alone provides valuable information. If the reconstruction of Epecc(i)us, as discussed above, is correct then at least one individual who resided in this building was of Celtic origin.

The second item from Area 1 is the handle of a Dressel 20 amphora with the name TAGOMAS deeply scored into it (D10). The evidence for the individual Tagomas is remarkable because in addition to this graffito his name appears in two writing tablets. The graffito on its own suggests that this individual owned a food item which was his alone and did not belong to the mess. It also suggests that this item held some worth to the owner, either personal, monetary or both. Based on the amphora type it is certain that this item was imported from Spain and most likely contained olives preserved in wine.252

The accompanying writing tablets allow for deeper insight into the individual who would otherwise have been unidentifiable in the archaeological record. Writing tablet 861 was found four metres to the south of the handle in the same layer and records Tagomas as a vexellarius.253 This rank is understood as the ‘flag-bearer’ which explains why Tagomas stored his belongings in the schola. The vexillarius was an NCO in a cavalry unit, junior to the decurio, which places Tagomas as a junior NCO probably of the equites

252 A. Birley 2003, 117.
253 Tab. Vindol. 861.
Vardulli. Table 181 also refers to Tagomas and was found 45 meters south-east of the amphora handle in 1988. This tablet is a ledger which records a debt of three *denarii* for the *contubernalis Tagamatis vexcsillari* translated as “the messmate of the flag-bearer Tagomas.” Nothing new can be inferred from this tablet about the identity of Tagomas but R. Birley has suggested that the unnamed messmate may be a spouse who lived with Tagomas. The first syllable of Tagomas’ name has been interpreted as Celtic in origin. This indicates that at least some of the members of the *Vardulli* unit stationed at Vindolanda were recruited from Northern Spain as mentioned by Pliny.

The second amphora recovered from this building was found in room 4 (D12). This amphora was complete at the time of recovery with its original contents inside and a *titulus pictus* or painted inscription. The amphora itself is a London 555 type which is the same as the amphora recovered from Pan Sand discussed in section 1.2.4. It is very likely that these two amphorae were carrying the same goods to Britain. The *titulus pictus* on the neck of the amphora at Vindolanda was written in two registers. The first register was written horizontally and names the contents of the amphora as Ol(iva) Al(ba) or white olives. The second register is written vertically and most likely names the producer and seller of the olives, L(…) (et) L(…) LVCII (…) and L(…) C( ) H(…). This amphora was used to transport white olives which had most likely been stewed in *defrutum* or

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254 A Birley 2003, 97.
255 Spellings can vary, even with names; cf. Bowman and Thomas 1994, 130-131.
258 Marlière 2005, 158.
heated wine in a similar manner to the amphora found at Pan Sand. It is possible that olives from Spain were transported to a resident of the schola in this amphora and, if so, it may be argued that the types of food being eaten were imported specifically to satisfy the tastes of a particular cultural group on site.

The pewter bowl from Area 2 (D13) was also inscribed with the name of its owner. This graffito reads: PIIRIIGRINI/ 7 CAN(didi). The owner’s name, Peregrinus, is written in the genitive case marking his possession of the bowl. There is no one with this name previously attested at Vindolanda but the name is very common. The second line records the first three letters of the name of Peregrinus’ centurion, confirming that Peregrinus was a soldier. A.R. Birley has suggested the centurion’s name should be expanded to the genitive form of Candidus. This name is also extremely popular and is attested in writing tablets from period III and IV. Most notably tablet 343 is a letter written by Octavius to Candidus. An individual with the name Candidus is also mentioned in tablets 180 and 181. These could very well refer to the same Candidus and it is possible that this man is our centurion.259

The only graffito uncovered from Area 3 was a terra sigillata cup with the letter X etched into the bottom recovered from the round house (D22). Unfortunately, no interpretation can be offered for this graffito. There are a number of examples of the letter X scratched into terra sigillata vessels throughout the site’s occupation periods with no possible interpretation.260

259 A. Birley and Blake 2005, 94.
260 A. Birley and Blake 2005, 95-96.
3.8 Pewter in Roman Britain

Throughout most of its history, there has been no exact composition of pewter. Generally, pewter is a tin alloyed with varying amounts of lead, silver or copper. It has been suggested that pewter was a Romano-British invention because of its relative scarcity outside of Britain and the availability of both lead and tin, particularly from the areas of the Mendips and Cornwall respectively.\textsuperscript{261} The details of what constitutes pewter in the Roman period are highly imprecise. A recent survey of references to pewter in Latin literature has concluded that the earliest known mentions of pewter, or \textit{stagnum}, are found in Suetonius and Pliny. There are, however, many places where the use of the word \textit{stagnum} refers to other substances leading to the conclusion that the definition of this noun was often confused.\textsuperscript{262} Pliny the Elder, who wrote on the subject in the most detail, records several different tin-alloys which he divides into subgroups, all of which are composed of tin and lead. Additionally, Pliny records the price of pure tin at 80 denarii per pound, and lead at 7 denarii per pound.\textsuperscript{263} Scientific analysis of pewter vessels from Roman contexts in Britain has shown most vessels were composed of 45-95\% tin combined with lead and a small amount of copper to strengthen the vessel.\textsuperscript{264} Pewter appears to have been used as a cheaper, but still not inexpensive, substitute for silver or silver-alloys.\textsuperscript{265}

\textsuperscript{261} Lee 2008, 24 and 27.

\textsuperscript{262} Beagrie 1989, 170.


\textsuperscript{264} Beagrie 1989, 171.

\textsuperscript{265} May 1996, 311.
Pewter vessels are very rare in the early phases of the Roman occupation of Britain. The vast majority of Romano-British pewter has been recovered from Late Roman contexts from approximately AD 250 to 410. While pewter vessels that predate c. 250 remain rare, recent excavations have uncovered more early vessels. Most notably a large number of pewter objects including a cup, plates and various utensils were recovered from the Walbrook stream bed in London which must predate AD 155.\(^{266}\) It must be noted that the scarcity of pewter finds may be related to natural corrosion if the items were not preserved in waterlogged contexts.\(^{267}\)

Disproportionately high numbers of pewter vessels have been found in hordes or burials leading to the conclusion that the items were buried in sacred contexts or for safe keeping with the intention of returning to retrieve them.\(^{268}\) Pewter is much less often found in the north but a handful of vessels have been uncovered at Vindolanda and at a few other nearby sites including High Rochester and Carrawburgh.\(^{269}\) Additionally, there is some evidence for pewter working at Corbridge, a nearby fort on the northern British frontier.\(^{270}\)

The single pewter vessel from the study area (D13) has already been briefly discussed above because of its graffito. The early date for this vessel is particularly interesting because of the rarity of pewter before 240 AD. This vessel is a small bowl, 97 mm in

\(^{266}\) Beagrie 1989, 175-6.

\(^{267}\) Hatcher 1974, 7-20.


\(^{269}\) Beagrie 1989, 176.

\(^{270}\) Beagrie 1989, 189.
diameter and 20 mm high. Half of the bowl has been damaged by corrosion. The description of this bowl in the excavation records says that the bowl as ‘silvered’ pewter which suggests that composition of the metal is approximately 75% tin. This cannot be proven without scientific analysis which would be destructive. If this estimate is remotely accurate, the value of this vessel must be quite high. As noted by the graffito, it appears to have belonged to a soldier lower than the rank of centurion. Even if the bowl was damaged before deposition it would still be valuable for its metal content. This suggests that the bowl was either dropped accidently, deposited as an offering or for safekeeping as it is entirely unlikely that an item of such worth would be simply thrown out.

Regardless of how the pewter bowl ended up in this location in Building 1, it can tell us something about the context in which it was found. The fact that it was made from pewter, a metal that is very rare at this time, suggests that its owner possessed elevated social standing. In combination with the other artefacts recovered from this building, the importance of the pewter bowl for understanding the identity of the inhabitants of Building 1 is quite interesting and will be discussed in greater detail in chapter 4.

3.9 Conclusions

The analysis of each type of artefact category carried out in this chapter has led to some very interesting preliminary conclusions, which will be elaborated upon in the analysis in chapter 4. Each artefact category provides different information about the space in which it was found and therefore also potentially about those individuals that used these artefacts in antiquity. Some artefacts are revealing simply by their presence while others provide more specific information based on their typology and use for food preparation and consumption. In this case study, the most interesting information with respect to the
identity of the owners is provided by the quern stones and the inscribed items. Types of quern stones and certain advances in technology that these items indicate took place are strongly associated with cultural groups. Habits that remained constant observed together with new adoptions can reveal a great deal about old technologies that were maintained or new ones that were accepted and embraced by native groups. In conjunction with evidence such as house form and other material associated with food preparation, which will be discussed in detail in chapter 4, it becomes possible to track some of the choices made by individuals on a site with a mixed population such as a frontier military fort.

The epigraphic evidence from the study area mostly consists of names scratched or inscribed onto personal objects. The study of these names and their cultural associations is also interesting for asserting the cultural affiliations of an individual. In other instances, items like cheese presses and artefacts made from pewter and silver are interesting because of their specialized natures and the fact that they sometimes represent the adoption of new ideas or technologies. These artefacts represent either specialized skills or increased wealth in relation to the rest of the study area. Finally, artefacts such as spoons, iron knives and mortaria, which are strongly associated with the cultural package of the Roman army provide information based on the context from which they were recovered. For example, finding iron knives in an area which is otherwise associated with Native Britons, such as the roundhouse outside the period IV fort, suggests some level of adoption by locals of items introduced to Britain by the Roman army.

This chapter focused on analysis of the artefacts by category in order to shed light on their significance to the research question. In chapter 4 each study area will be analysed individually taking into consideration the information discussed in this chapter in order to
understand the entire spatial context. This will include its architectural style when important and the material package that appears to be associated with these spaces. This holistic view will allow a better interpretation of the various choices made by individual households or of discreet spaces within the fort and will facilitate a discussion of some of the visual markers of identity employed in this frontier and multicultural context.
Chapter 4
ANALYSIS OF THE FINDS FROM THE PERIOD IV FORT AND SETTLEMENT

4.1 Introduction

In this chapter the information presented in chapters 2 and 3 will be considered together. Each building assemblage will be analyzed as a whole in order to understand whether aspects of the identity of the individuals who resided in each building can be understood from the artefacts and other information about the space. This analysis involves close investigation of the artefacts themselves and a comparison of each individual building as a whole to similar spatial contexts at other sites in Roman Britain. Finally, all three study areas at Vindolanda will be considered in relation to each other to give a clearer picture of this military settlement in the period only a few decades after conquest and consolidation of this region by the Roman army (ca. AD 105-120). The assemblages from the buildings within and outside the fort will be compared in order to understand the differences and similarities between the study areas with discussion about how these data might be interpreted. This comparison will be useful in order to understand how the inhabitants of each area relate, if they appear to identify with elements from the same cultural package, and if they appear to belong to similar social and economic classes.

4.2 Area 3 – The Period IV Extramural Houses

Relatively small but very interesting assemblages of domestic artefacts were recovered from each of the two residences located outside the fort walls. It appears that the levels of adoption of various practices differ between the two residences. As presented above in chapter 2, the two spaces which make up Area 3 are both timber structures located
outside the walls of the period IV fort. One of these structures is a rectilinear house while the other is round. Both of these houses represent traditional styles; the choice to live in a round house is typical of native British settlements while the rectilinear house style belongs to the Roman cultural packages imported with the army. The distinct shapes of the houses in combination with their respective assemblages each contain cultural markers.

The assemblage from the rectilinear house is made up of a Manning type 11a knife (D20) which is a general purpose cooking implement, a disc quern (D21), which is the typical style associated with the Roman army, and a minimum of one mortarium. The assemblage from the round house was composed of a Manning type 7b knife (D22), which also appears to be multi-purpose but perhaps with a tendency towards secondary butchery practices such as boning or skinning, a terra sigillata cup with X graffito (D23), a beehive quern which is a British style tool (D24), and a minimum of two mortaria.

The type of quern which was found within each house matches the traditional style of the house. The beehive quern, native to Britain, was found in the round house and the disc quern, similar in style to those used by the Roman army, was found in the rectilinear house. These artefacts suggest a certain level of cultural retention of food preparation implements, especially since the disc quern was a much more efficient tool and clearly available to the residents of the roundhouse if they chose to obtain this tool.

Although the inhabitants of the round house retained some elements of a native cultural identity, the remaining artefacts suggest that they had adopted some new practices as well. One iron knife and at least two mortaria were recovered from the round house.
These items were made readily available to the native population by the presence of the Roman army. While this does not seem to reflect a major change in dietary practices, it does suggest that native Britons were adopting new ways of preparing traditional foodstuffs at certain levels.

Faunal evidence was also recovered from this area and is available for limited analysis. The recovery strategy for faunal evidence was the same in both areas; no random sampling was carried out but rather every bone was collected. Bones were recovered from the study area through careful hand sieving. These layers are full of organic anaerobic material rendering it impossible to process in a mesh sieve and time constraints disallow the use of a wet sieve on all soil excavated. The bone totals used in this thesis are taken from a preliminary report and represent a total bone fragment count. Final analysis of the faunal assemblage is in process to determine number of potential meat joints and other conclusions.

Only the bones from ox, pigs and sheep/goats will be analysed here because they are most abundant, most obviously associated with food consumption and have the most comparable data within Britain in the Roman period. The bones of the selected animals are usually recovered more thoroughly than the bones from smaller animals such as birds and fish because they are relatively large in size. Because it is almost impossible to tell the difference between the bones of sheep and goats, these categories are combined.

271 Bennett, forthcoming. Dr. Deb Bennett is currently working on the faunal analysis from this study area and I am grateful for her willingness to provide preliminary data to be used in this thesis.
The total bone fragment counts for each house are as follows: The rectilinear house had a total of 507 bones of which 256 (50.5%) were ox, 118 (23.3%) were pig and 133 (26.2%) were from sheep/goat. The round house had a total of 97 bones of which 57 (58.8%) were ox, 16 (16.5%) were pig and 24 (24.7%) were sheep/goat. At first glance the most obvious difference between the faunal data from these houses is that significantly more bone fragments were recovered from the rectilinear house than the round house. This suggests that the inhabitants of the round house were either eating much less meat or they had entirely different ideas about how they deal with the remains.

In order to analyze fully the importance of these bone assemblages this data set will be compared to those compiled and assessed by King, who investigated faunal assemblages from different types of sites within Britain during the Roman period.\textsuperscript{272} Important trends which King noticed were that military sites in Britain generally have a higher concentration of ox bones while non-military sites have a higher concentration of sheep/goat bones.\textsuperscript{273} Additionally, legionary sites tend to have high pig and ox percentages.\textsuperscript{274} Among the assemblages related to the native British population, King noticed that settlements with a strong representation of Roman imports also show more ox and pig bones than sheep/goat bones.\textsuperscript{275} This suggests that the meat intake of native Britons shifts towards ox and pig consumption as they interact and trade with the Roman army.

\textsuperscript{272} King 1984. All data is displayed in the form of tripole graphs by King.
\textsuperscript{273} King 1984, 189-190, figs. 1 and 2.
\textsuperscript{274} King 1984, 190.
\textsuperscript{275} King 1984, 193.
When King compared his data sets to other provinces he noticed that sheep/goat bones had a higher representation in Britain than other provinces but that sites in Britain, Germany and Gaul consistently had a higher representation of ox bones than pig bones. This suggests that ox and sheep/goat were consumed in greater number where they were available but that there is a general tendency towards lower consumption of pig in Britain, Germany and Gaul. When King added data sets from Italy he noted that the assemblages were very pig-dominant. The Italian assemblages resemble the trends noticed at legionary sites in the provinces but differed significantly from the non-legionary assemblages analysed in the same provincial areas.

Comparison of the faunal data from the period IV extramural houses at Vindolanda suggests that the proportions of each type of meat consumed were relatively similar between the two households. While the fragment count from the rectilinear house was 5.22 times larger than that of the round house, the relative proportions of each type of animal bone are similar. The proportions of bone type recovered from the rectilinear house are not surprising and fit within the trends noticed by King. Pig consumption is fairly low in each house with a very low percentage of 16.5 in the round house. This is consistent with King’s observation that preference for pig consumption appears to be rooted in Italy and decreased with distance from Rome. It is somewhat surprising that the ox percentage (58.8%) is so high in the round house because one may expect the majority of bone fragments to have belonged to the sheep/goat category. This result may be a

276 King 1984, 197-198.
277 King 1984, 201; King 1999, 189; Cool 2006, 82.
reflection of long-term interaction with the Roman army or increased availability of cattle connected with their presence, especially in a household so clearly dependent in some way on the military unit housed next door. This conclusion also may highlight the need to do a more in-depth analysis of the individual fragments. Ox bones are naturally much larger than sheep/goat remains which could explain the recovery of a higher proportion of ox bones, though both species produce large fragments that are recoverable by hand. It would be useful here to determine the minimum number of individuals and of meat joints from these assemblages in order to gain a clearer idea of the meat consumption practices of the people who resided in these houses. Further study of the assemblages from these two houses will be immensely useful for the study and comparison of butchery and consumption practices of the inhabitants in the future.278

Together the artefact and faunal assemblages reflect varying degrees of association with the cultural packages typical of both the native Britons and the Roman Army. In order to further analyze these complete material packages from each household I will turn to the testable implications as laid out by Deagan, discussed above in section 2.5. According to Deagan we should expect to find that household activities, which include food preparation techniques and equipment, would retain their native form because they were primarily the activities of women.279 By contrast, male related activities which include house style and construction techniques would reflect the identity package of the new dominant social group, in this case the Roman army. This trend is expected regardless of

278 Complete analysis of the faunal remains is currently under way.

279 Deagan 1972, 63-64.
the actual cultural identity of the man; even if he was raised in the native British culture, he may adopt elements of the Roman military cultural package in order to be a part of the social cues and status building framework of the conquering society. The woman of the household, whose domain is in the private sphere, was able to retain native tools and techniques as these do not affect the man’s social standing.

In this situation, Deagan’s model suggests that the inhabitants of the round house were projecting a native British identity through their cultural choices. This is seen both externally and internally, which is sometimes described as the male and female spheres of influence in a settlement. Choosing to build a round house suggests that the individual placed high value on tradition as it would certainly be possible to build a house of any shape desired during this period. The importance of maintaining traditional habits is also possible to observe through the continued use of the beehive quern. It is impossible to know how long this quern was in use but it is apparent that the lighter, more efficient models were available since a disc quern was found in the neighbouring structure and they are found elsewhere on the site in all periods. Yet there are food preparation implements from the round house which were imported into Britain by the Roman army. The presence of a knife made of iron and in a style popular within the fort, as well as at least two mortaria suggests that the inhabitant was exposed to Roman military culture and used some of the available tools which the army imported into Britain.

280 Deagan 1973, 63.
281 For the complete breakdown of male vs. female sphere of influence according to Deagan, see Deagan 1973, 63-64.
283 Stein 2012, 54.
possible that the quern was inherited and therefore carried sentimental importance to the owner but that in other cases they preferred to use the more efficient tools which were available to them. In combination with the faunal evidence, which in its preliminary form shows similarity to the assemblage from the rectilinear house, it appears that the inhabitants of this round house were selective about which cultural practices they adopted. Perhaps the elements retained from native cultural identity represent those which were most important to the individuals.

The rectilinear timber structure next door reflects a more cohesive identity package. All of the elements which are available for analysis suggest that the inhabitants of this household either originally adhered to the social and material structures of the Roman military community or chose to fully immerse themselves in the new cultural package which the army introduced. This is visible through their house style and the artefact and faunal assemblages, which all reflect the cultural package of the Roman army. It seems likely that the inhabitants of this household, perhaps a family or an individual, lived alongside the Roman army for a prolonged period of time. This hypothesis is based on the high level of adoption of elements associated with the Roman army in the domestic sphere of the house. All of the artefacts recovered from this household are similar in style and material to those found within the fort.

4.3 Area 2 – Building 1 of Period IV

The function of Building 1 is still not entirely clear. This building does not have any unique architectural features which suggest a particular building type. Its wattle and daub construction is consistent with other buildings constructed during the period IV
occupation of the fort. Preliminary analysis of Building 1 led to an initial conclusion that this building was a valetudinarium, or hospital, because the layout is similar to other known valetudinaria. This conclusion was supported by the general cleanliness of the structure and the dearth of artefacts recovered from within it. The analysis of the artefacts, however, does not support this conclusion as six domestic artefacts of various types and two wooden artefacts were recovered from this building. It may be possible to interpret a new function for Building 1 based on the in-depth study of domestic artefacts recovered from within its walls and comparison to other sites.

In order to discuss building identification, it is necessary to depart from the model previously set up by Petrikovits in his book Die Innenbauten römischer Legionslager während der Prinzipatszeit. In this work Petrikovits used literary, epigraphic and archaeological evidence in order identify the plans of the internal buildings of legionary fortresses. His final objective was to gain new understanding of the legion based on these buildings, but the result was that the structures inside military forts received monolithic definitions and the flexibility of the use of space disappeared. This study created a model against which the inner buildings of forts and fortresses were compared and identified elsewhere, but it allowed for very little differentiation between garrisons and assumed unrealistic uniform definitions of space across the military sphere. This model has discouraged scholars from looking for other types of buildings within a fort or for multiple uses of a single space, which must have been a reality. In her forthcoming paper,

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284 A. Birley and Blake 2005, 28.
285 Greene 2013, 27.
286 Petrikovits 1975.
Allison has emphasized the need to reanalyze some of these building attributions set out by Petrikovits and has considered their purpose based on the artefact assemblages in addition to the plan and location of the building.\textsuperscript{287} For example, Petrikovits had previously identified Building S at Vetera (a legionary fort in Germany) as a barrack for \textit{immunes}, or soldiers with special duties, based on its location beside the \textit{principia} and proximity to tribunes’ houses.\textsuperscript{288} Allison, however, argues that the artefact assemblage recovered from Building S has more in common with the assemblages associated with that of officer’s houses at the same site (K, J and M).\textsuperscript{289} Allison has demonstrated how artefacts found within a building can help us to identify the function of certain structures. Similar analysis of the domestic artefacts recovered from Building 1, discussed in detail in chapter 3, can be used in order to understand the use of this building better. Cultural and social markers associated with the artefacts may suggest it had parallels with certain types of buildings when compared with the assemblages associated with other structures in the fort.

Domestic artefacts were recovered from three main areas of Building 1: the northern section comprised of rooms 1-5, the courtyard labelled room 11 and room 13. The artefacts from the northern section include the pewter bowl (D13), a Manning type 11b knife (D14), one knife handle (D15) and two \textit{cochlearia}, one made from bronze (D16) and one made from silver (D17). All of these items are fairly general in their form. The blade of the knife (D14) is suited to general use but was probably used for food

\textsuperscript{287} Allison, forthcoming.

\textsuperscript{288} Petrikovits 1975, 43 and fig. 4.10; cf. Allison, forthcoming.

\textsuperscript{289} Allison, forthcoming.
preparation. It is the material from which some of these items were made which makes them interesting, in particular the pewter bowl and silver spoon. Pewter is very rare in Britain before 250 AD and most deposits of pewter from the period before are considered ritual burials. This bowl was not ritually deposited.\textsuperscript{290} Even more remarkable is the graffito which survived on the bottom of the bowl. The owner inscribed it with his name and century: Peregrinus from the century of Candidus. Certainly this bowl was very important to the owner. These two items made from expensive materials, found in the northern section of the building and both designed for food consumption suggest that their owner had access to some wealth.

Room 13 is just south of the northern section, separated by a hallway. A wooden bowl (W2) was recovered from this room. A wooden spoon (W3) was recovered from room 11, the courtyard, along with fragments of a cheese press (D18). Additionally, at least one mortaria was found in this area along with the sherds of many others. Together these items suggest that food preparation was taking place in this building. All of the items can be connected with food preparation and consumption at some level, for example the knife (D14) was very likely used for cooking based on its size and shape. The wooden objects are most likely implements of food preparation but their range of use is too wide to make any secure conclusions. The cheese press is the most specific item located in this building and suggests a level of specialized craft.\textsuperscript{291}

\textsuperscript{290} A. Birley and Blake 2005, 28-30; see section 3.8 above for further discussion of pewter.
\textsuperscript{291} See section 3.2 above for further discussion of cheese making in antiquity.
Further excavation of the period IV fort is currently in progress and these reports will help immensely to further identify and understand this building. It may be possible, however, to form a new hypothesis about the use of this structure based on the evidence available so far. Close consideration of the artefacts recovered from within the structure can help to understand the somewhat generic architectural remains. Additionally, comparison to structures with similar plans in other forts in Britain help to identify a possible function for this building. Building 1 bears striking resemblance to one of two praetoria present at the fort of Hod Hill in Dorset. The Roman fortress at Hod Hill was occupied for a short period of time, about 43-51 AD, during the conquest of Britain.\textsuperscript{292} The garrison was composed of a mix of auxiliary, legionary, infantry, and cavalry units, which appear to have permanently abandoned the fort when they were summoned to assist in the campaign against the Silures in South Wales.\textsuperscript{293} The plan of this fort is remarkable because the original excavators identified two praetoria within the fort walls (see figure 14 for praetorium 1, figure 15 for praetorium 2). The need for a second praetorium was created by the presence of multiple units residing within the fort. Richmond hypothesized that individual housing was required for both the centurion who commanded the legionary detachment and the commander of the cavalry unit.\textsuperscript{294} Both buildings share a similar layout and both certainly seem to have been residences suggesting that they may have been used for the same purpose. The noticeable difference

\textsuperscript{292} Richmond 1968, 119.
\textsuperscript{293} Richmond 1968, 78 and 123.
\textsuperscript{294} Richmond 1968, 78.
in size of the two residences likely corresponds to difference in social standing between the two men.

At Vindolanda this situation is mirrored in period IV. We know with certainty from epigraphic evidence that two units were present during the period IV occupation period: the infantry cohort of the First Tungrians and a cavalry unit from the First Cohort of the Vardulli. The presence of these two separate units suggests that we should be looking for spaces which could accommodate both units, including their commanders. The plan of Building 1 appears very similar to the building labelled ‘praetorium 1’ at Hod Hill. Both buildings have a central courtyard surrounded by multiple rooms with a separate, potentially private set of rooms to the north of the courtyard. Additionally, room 1 of building 1 is similar to the dining room of the Hod Hill praetorium 1 in position and relative size. If building 1 in period IV at Vindolanda is a second praetorium, or at least the residence of an officer of one of the units, this would help to explain the high status items found within the building. Both the pewter bowl and silver spoon represent wealth beyond what is available to an average soldier. Also, the presence of a ceramic cheese press suggests that the individual producing cheese in this building had the time and skills to participate in this highly specialized craft.

Further support that this building was the residence of an officer is provided by the analysis of the shoe assemblage by Greene. A total of 14 shoes of measurable size were recovered from building 1 of which only 5 (36%) belonged to males. The remaining shoes are composed of 7 (50%) female or adolescent shoes and 2 (14%) which belonged

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to a child.\footnote{Greene 2013, 28.} Based on the range of sizes, Greene has hypothesized that if this group of shoes represents another household within the fort it was probably composed of “one small child, one female, with probably at least one, possibly two more individuals in the female/adolescent category, in addition to one or two grown males.”\footnote{Greene 2013, 28.} This set of data supports the theory that this building was the residence of an officer.

While it is not possible to say with certainty that this building was a second praetorium, the evidence suggests that it was a residence. The number of domestic artefacts recovered from this structure does suggest that food preparation was taking place in this building and the presence of the cheese press suggests that these activities were highly specialized. The presence of silver and pewter in this building imply that the owner of these items possessed considerable wealth in comparison to the majority of the residents of the fort. This suggests that this building may have been the residence of one of the commanding officers present at Vindolanda during the period IV period of occupation. If this is the case, it also explains the characteristics of the artefact assemblage; it appears to be a cultural package consistent with our expectations of a ranked officer in the Roman military in both type and wealth represented by the items.

The hypothesis that Building 1 was an additional praetorium is fitting because of the presence of two different cohorts of soldiers during the period IV occupation of the fort. Evidence in the writing tablets attests to the presence of both the First Cohort of
Tungrians and the First Cohort of Vardulli.\textsuperscript{298} The Vardulli and the Tungrians had their own structure of commanding officers who would each require living quarters. This trend has been noted at other Roman forts including Hod Hill as discussed above and is also recorded by Tacitus as the arrangement at Gorneae in Armenia.\textsuperscript{299} It is not clear whether or not this building can be specifically labeled a \textit{praetorium} but it was certainly the residence of a wealthier individual. This individual appears to have been accompanied by his family and was most likely a senior officer of one of the cohorts stationed at Vindolanda during period IV. This example illustrates how it is possible to use food preparation implements in order to help determine the function of particular buildings and to investigate deeper the identity of the inhabitants occupying the space.

4.4 Area 1 – The \textit{Schola}

When this building was excavated its function was difficult to determine. As noted in section 2.4.1 the structure was not easily identifiable and a number of suggestions were made before it was labelled a \textit{schola}. This label is supported by comparisons to buildings found at Housesteads, Corbridge, Pen Llysten and Oberstimm; however, none of these sites offer an exact parallel.\textsuperscript{300} For example, the building at Housesteads (\textbf{figure 16}) was originally called a \textit{schola} by Bosanquet because, although the plan appears to be very similar to a barrack block, an extra space to house soldiers would have been unnecessary based on the presumed number of soldiers present.\textsuperscript{301} Similarly, later excavators

\begin{itemize}
\item \textsuperscript{298} \textit{Tab. Vindol.} 295 and 181.
\item \textsuperscript{299} Tac. \textit{Ann.} xii, 45; cf. Richmond 1968, 78.
\item \textsuperscript{300} A. Birley 2003, 19.
\item \textsuperscript{301} Bosanquet 1904, 241.
\end{itemize}
hypothesized that this building, which is located just north of the central range of buildings, did not function as a regular barrack block because if it did then this fort would have eleven blocks in total. This number is one more than a milliary infantry cohort (1000 men) would require but less than the necessary number for a cavalry unit. In his report, Rushworth has suggested that this building was used to house irregulars who may have been billeted at Housesteads.\textsuperscript{302} While this explanation is plausible, this building may also have functioned as a \textit{schola}, as originally posited by Bosanquet. No other building within the fort at Housesteads has yet been identified as a \textit{schola} but the function that this building performs is necessary for the unit. Unfortunately, there are no artefacts from within this building which can assist in securing dates for the phases of the building or its functions.

This example illustrates that there is a problematic lack of baseline material against which one could compare a potential \textit{schola}. This lack of material makes the Vindolanda example exceptionally important as it may be the first assemblage of evidence for this important building type. \textit{Scholae} are buildings generally associated with legionary fortresses, but now are known to have existed in auxiliary forts as well. In 1983 when Johnson wrote her seminal work on the layout and function of Roman forts there were no certain examples of \textit{scholae} in auxiliary forts, although she suggested that rooms in the \textit{principia} may have fulfilled a similar function.\textsuperscript{303} It appears that when the \textit{schola} at Vindolanda was excavated during the 2001/2 seasons this was still the case. This lack of

\textsuperscript{302} Rushworth 2009, 292-293.

\textsuperscript{303} Johnson 1983, 111.
comparable material creates a certain level of difficulty for finding suitable comparative data. A review of buildings from auxiliary forts which may resemble *scholae* has found that all of the buildings which have similar plans were not fully excavated and there is no artefact assemblage to which a comparison can be made.

As discussed above in section 2.4.1, this building was identified as a *schola* for a number of reasons. No other building belonging to the period IV occupation had been identified as a *schola* and this type of building performed a function that was necessary for the garrison providing living, storage and office space for senior officers. In addition, tablet 656 mentioned the existence of a *schola* at Vindolanda which confirms that we should expect to find one within the fort.\(^{304}\) The artefacts found within this building, including the ones associated with eating, drinking and literacy, further support the label of this building as a *schola*.

The amphora handle inscribed with the name Tagomas (D10), which was recovered from room 8, is one of the best pieces of supporting evidence for the function of this building as a *schola*. This inscription marks the amphora as the personal property of Tagomas who is known from the writing tablets to have been a *vexellarius* of the *equites Vardulli*.\(^{305}\) As an officer Tagomas would have lived and stored his personal goods within a *schola*. The fact that this amphora handle, naming a known officer, was found within this building strongly supports the conclusion that it functioned as a *schola*.

\(^{304}\) *Tab. Vindol.* 656.

\(^{305}\) *Tab. Vindol.* 181 and 861.
The items associated with food preparation which were recovered from this building will be discussed in detail below in order to provide a better understanding of the types of artefacts which are expected to be found within *scholae*.

The detailed analysis of domestic artefacts from the *schola* building at Vindolanda supports the conclusions reached in the initial excavation report. The large amount of cattle and pig bones with butchery marks found within room 2 led to the conclusion that this room was used for storage of meat and perishables. The two knives found within the room (D2 and D3) support this conclusion as their shape indicates they were used for boning and skinning.

Whether or not the initial butchery occurred in this room is impossible to tell. Partially butchered sections of the animals may have been transported to this room and stored until they were further processed and consumed. These two knives suggest that at the very least the secondary butchery did occur in this room. The purpose of the wooden spatula (W1) in this room is less clear. If room 2 was used for the storage of other perishable goods then one would expect to find a larger presence of ceramics including amphorae.

The presence of a room used for butchery and storage within the *schola* is logical because the function of this type of building was to provide a space for senior officers to live. Therefore, it is fitting that the foodstuffs allotted to the senior officers would also be stored separately from the rest of the soldiers, near to their own quarters.

Room 6 also appears to have been used as a storage room for non-perishable goods judging from the large number of barrel staves. The substance most likely stored in these barrels was beer as it was transported in barrels and the Vindolanda writing tablets record

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that the cohorts stationed at Vindolanda at this time preferred beer over wine.\textsuperscript{307} In this room a disc quern (D7) and a copper alloy spoon (D9) were found. The presence of a quern in this room suggests that some level of preparation was being carried out within the storage areas. It is possible that when the officers received their ration of grain it was stored here in one of the breathable barrels before being ground into flour. This hypothesis, that some level of preparation took place in the storage areas, is attractive because it would be necessary to conserve space in the cramped environment of the schola. The copper alloy cochlear (D9) also found within the room was badly damaged and could have been deposited there for any number of reasons including discard. There was also a knife (D1) found in room 7 that was probably used for food preparation.

Room 8 is located west of the main kitchen and storage rooms and contained the largest number of artefacts identifiable with food preparation in the schola. Two very different knives were recovered in this room: a Manning type 11 knife (D4) which was most likely used for filleting or processing meat post butchery and a Manning type 2b cleaver (D11).

Multiple items of interest were recovered from corridor 1, the main corridor of the schola. These include a Manning type 19 knife (D6) which appears most like a paring knife. The blade of this knife is potentially useful for a number of common food preparation tasks. The inscribed disc quern was also recovered from this corridor (D8). Along with the Tagomas amphora handle recovered from room 8, the inscription on this quern provides the strongest supporting evidence that this building was a schola. This quern appears to bear the name of a decurion of the equites Vardulli as a mark of

\textsuperscript{307} Tab. Vindol. 190.
ownership.\textsuperscript{308} Together these two inscriptions provide strong evidence that this building was inhabited by the senior officers of the First Cohort of Vardulli.

Other factors aside from intentional placement will have affected the find location of the individual artefacts. Artefacts may have been dropped accidentally or moved from their original location and subsequently lost, or archaeological layers might represent levelling up or demolition of the site. These possibilities may help to explain why some artefacts appear in unexpected locations. Regardless of whether or not they always belonged in the room they were recovered from, the location within the \textit{schola} particularly at the time of its destruction is more certain because the \textit{schola} was burnt down in a single conflagration. Judging by the spread of the ashes, the remains of the building were spread out in a very localized area centered over the remains of the structure.\textsuperscript{309}

Overall the assemblage from the \textit{schola} is made up of fairly typical material associated with the Roman army. The presence of multiple styles of iron knives within this building is not surprising. As mentioned in section 3.3 the Roman army brought with it increased availability of iron for everyday objects and increased the variety of knife types available. The officers who inhabited this \textit{schola} must have had access to Roman style knives. This is made evident by the minimum of four different styles of knives present in this building, and particularly the cleaver, a type of implement introduced only during the Roman period. The \textit{mortaria} and the disc querns are also items that one would expect from a Roman military fort. Generally there is no item from this assemblage that is surprising.

\textsuperscript{308} See section 3.7 for the discussion of this inscription.

\textsuperscript{309} A. Birley 2003, 34-35.
The artefacts recovered from the *schola* look like a typical assemblage from Roman military spaces. The detailed study of the typology of the artefacts has shown that they are all types which are commonly recovered from other Roman forts. Aside from typology, however, some of the items bear markers of personal identity which are very interesting.

The most remarkable artefacts to be recovered from the *schola* are the two inscribed items that support the presence of *Vardulli* officers: the quern inscribed with the name Epeccius and the amphora handle with the Tagomas graffito. The ownership of both of these artefacts is marked by their respective inscriptions. Both Epeccius and Tagomas have been identified as senior officers of the First Cohort of Vardulli, which supports the label of this buildings as a *schola*. These inscriptions also provide some information about the identity of some of its inhabitants. The roots of both Epeccius, which is Ep-, and Tagomas, which is Tag-, suggest that these names are Celtic in origin. A closer reading of tablet 861 strongly suggests that many members of this cohort did indeed originate in Spain. Column ii of sheet 1 provides very interesting information in connection with the amphora handle, it reads:

```
1    .Ar[te]j[ctus]
2    lan[ce]a[s]  * ii
3    G.une[u]s
4    men...j  * ii
5    lan[ce]a[s]  * i
6    d  Alb[in]us
7    lan[ce]a[s]  * ii
8    d  Liber[..]s
9    sagum  * ii
10   y(e)?  Tagomas vex[ellari]us
11   lanceas  * i
12   d  Victor venat[or]
13   lanceas  * v
14   d  Epron[ius]
15   .....  * .
```

Perhaps a longer name: ?Albijan[i]us

The last letter, *s*, is on the next sheet.
In his commentary on this tablet, A.R. Birley argues for the Celtic origin of Tagomas.\textsuperscript{310} He supplies many other examples of individuals who bear names with the same root and two rivers in northern Spain called the Tagus and Tagonius in support of his argument. The repeated reference to \textit{laceas}, which refers to a cavalryman’s regular all-purpose weapon, supports the claim that the men listed in this tablet were members of the \textit{equites Vardulli}. Additionally A.R. Birley reminds the reader that Pliny places the Vardulli, who must be Celtic in origin, in northern Spain.\textsuperscript{311}

At least two inhabitants of the \textit{schola} had Celtic names and yet at first glance the artefact assemblage suggests that they fully adopted the cultural package of the Roman army. The tools recovered from the \textit{schola}, including the iron knives and cleaver, the querns and \textit{mortaria} all certainly belong to the cultural package associated with the Roman army. But does using these tools necessarily mean that these individuals completely adopted the entire cultural package? The scholarship discussed in chapter 3 would not support this conclusion. \textit{Mortaria}, as discussed in section 3.5, are recovered from native British settlements dating to before the Roman conquest of Britain. Cramp’s analysis of these \textit{mortaria} concluded that they were being used in place of older, potentially less effective, tools in order to complete the same tasks.\textsuperscript{312} Therefore, if the presence of \textit{mortaria} in Iron Age contexts does not signal a change in dietary identity than the \textit{mortaria} in a space inhabited by individuals who originated from Spain also could have been used in a similar manner and do not necessarily signify a dramatic change. It is possible that

\textsuperscript{310} A. R. Birley 2009, 278-282.
\textsuperscript{311} A. R. Birley 2009, 282.
\textsuperscript{312} Cramp et al. 2011, 1349.
cooking implements in military assemblages are very similar because of the nature of supply and availability to the soldiers.

The amphora handle inscribed with Tagomas’ name and the whole amphora (D12), however, both support that the inhabitants of this building sought out foods from their place of origin when possible. The inscribed handle was part of a Dressel 20 type amphora which originated from Spain, though they were exported extensively, and the excavators concluded that this vessel had contained olives stewed in wine from Spain. Amphora D12 is classified as a London 555 which originated in Gaul. The *titulus pictus* on the amphora marks its contents as white olives. As noted above in section 3.7, this amphora is remarkably similar to the vessel recovered from the Thames estuary which was the same type of amphora and also carried olives stewed in wine from Spain. It is possible that assemblages from the *schola*, which appear to be consistent with the Roman army cultural package at first, also represents varied levels of adoption. The inhabitants of the *schola* were certainly using tools which have cultural markers associated with the Roman army but the food remains which have been available for study suggest that the inhabitants continued to favor foodstuffs from their place of origin. This pattern is similar to the one noticed in Area 3 that there are different levels of adoption associated with different practices.

The lack of directly comparable material for a *schola* increases the importance of this assemblage. The *schola* at Vindolanda necessarily forms the baseline data for domestic

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313 Both of these amphorae are discussed in detail in section 3.7.

314 A. Birley 2003, 117.
artefact assemblages within this type of space. This assemblage suggests that future excavators of scholae may find evidence for storage and preparation of all types of foodstuffs within the building. Multiple rooms of this schola were used for food preparation related activities including separate rooms for the storage of perishables and non-perishables and cooking.

4.5 Conclusions

Overall, the analysis of the assemblages from each area of study led to different conclusions in each situation and allowed for a new or more nuanced interpretation of the structures under investigation. The extramural houses were most fruitful for the study of individual identity; the combination of artefact and faunal data sets allowed for an in-depth study of each house and the choices made by the inhabitants of the space. Additionally, the juxtaposition of these two similar but different houses allowed for productive comparisons of the material. The rectilinear house appears to have been inhabited by individuals who associated fully with the cultural package of the Roman army, while the round house was inhabited by individuals who likely belonged to the native British cultural group but who were slowly adopting elements of the cultural identity imported by the Romans and especially the military.

In Area 2 it was possible to use the artefact assemblages and building plan to identify a potential purpose for Building 1. Based on comparison to the fortress at Hod Hill the hypothesis has been set forth that this building was the residence of one of the commanding officers of the multiple units which garrisoned the fort during this period. The generic architectural plan was given some nuance by the associated artefact assemblage, which indicated a person or group of higher status individuals occupied the
space. Considering the known occupants of the fort generally, it is possible to argue that this space was the residence of an individual of the officer class and that the material choices of those living here were consistent with Roman military material culture.

The artefact assemblage from area 3 supports the conclusion that this building was indeed a *schola*. This assemblage is particularly important because there is no other comparative material available for *scholae* except for this example. The material from the *schola* is typical of the types of artefacts that one would expect to find from a Roman fort during this period with a few very telling exceptions. Two artefacts, the amphora handle and the inscribed quern, were adorned with the names of their owners which provides more insight into the individual identities of the inhabitants than is usually available. These artefacts indicate that at least two residents of the *schola* were of Celtic origin and were senior officers of the First Cohort of Vardulli. Moreover, it appears that choices related to food preparation were in some cases consistent with a Spanish identity.
Chapter 5  
DISCUSSION AND CONCLUSION

The artefact assemblages from within and outside the walls of the fort are remarkably similar. Quern stones, *mortaria* and knives were found in all areas of study in similar number and material type. Economic and cultural distinctions are, however, detectable in the assemblages. Three major trends across the study area were noticed. First is the considerably greater wealth associated with objects recovered from Building 1; secondly, aside from the commanding officers there is no distinct difference in economic standing between people who live within or outside of the fort walls; and finally, there are elements in a few places associated with a cultural package other than that typical of the Roman army. It was possible to detect something of native British culture from the round house, while the possible remains of foodstuffs in the *schola* suggest a retention of Vardulli culture in this officers’ quarters. These trends reflect the social and cultural variation between the individual members of the community and illustrate its diverse nature. Especially considering that all the spaces discussed here were in active use in the same time period, one must conclude that this frontier military settlement was a thriving multicultural center in which one could find material markers of original non-Roman identities, both native Briton and other provincial origins of auxiliary soldiers, layered with the adoption of new, typically ‘Roman’ goods and practices.

Within the fort the artefacts reflect a difference in economic standing between the inhabitants of Building 1 and the *schola*. The artefacts recovered from Building 1 suggest that it was inhabited by a high status individual who could afford objects made from
silver and pewter. Also, the specialized nature of the cheese press signifies that someone living in this building had the time and knowledge required to make this distinct product. Perhaps this person was one of the women whose presence is signaled by the women’s shoes recovered from Building 1.315 The assemblage from the schola, on the other hand, does not contain any artefacts which reflect specialized food preparation or which are made from expensive materials, indicating a fairly high level of assimilation by the officers in this non-citizen cohort of Vardulli. The iron knives, querns and copper alloy spoon are certainly all artefact types commonly associated with a Roman military fort. It is possible that the two amphorae, which appear to have been imported from Spain, reflect an ability to purchase special foodstuffs; however, without thorough excavation of the period IV barracks, it is impossible to tell whether or not this is a sign of the higher status of the officers over the common soldiers.

Generally, the artefact assemblages from the schola reflect a similar social standing to the inhabitants of the extramural houses. Iron knives and querns were recovered from both the round house and rectilinear house. A larger variety of knives were recovered from the schola but this may reflect a larger number of inhabitants rather than a higher level of wealth. The assemblages from these two areas suggest that the inhabitants of each of them enjoyed similar social status or wealth. The presence of artefacts associated with the Roman army suggests that the inhabitants of the houses outside of the fort had access to the same materials as the individuals who lived within its walls.

315 Greene 2013, 28.
The major cultural variation noticed in this data set is the difference between the round house and its inhabitants and the rest of the study area. The round house itself is a marker associated with British Iron Age culture. This association is supported further by the beehive quern which was recovered from within this residence. As noted above (in section 4.2) the quern and the building style strongly suggest that the inhabitants of this house associated themselves with the culture of the native Britons and went to some lengths to visually advertise this fact, particularly the form of the house itself. The other artefacts recovered from this house, the iron knife and mortaria sherds, show that the inhabitants adopted some implements introduced by the Roman army and that they also had access to similar supplies. The mixed nature of this assemblage suggests that some residents of the extramural settlement continued to identify with British Iron Age culture at the beginning of the second century AD, but these same individuals were comfortable with adopting some of the more efficient tools which the Roman army introduced. The inhabitants of the round house appear to have adopted certain tools which belonged to the cultural package associated with the Roman army, but also visibly differentiating themselves culturally from their neighbours by continuing to live in a round house.

The amphorae recovered from the schola may also reflect some level of cultural retention through food choices. If these amphorae and their contents did indeed originate in Spain it is possible that they were ordered by the members of the Vardulli cohort as a way of maintaining elements of their native culture. This example is less dramatic than the round house; however, the circumstances of living outside of the fort may allow for greater expression of cultural identity through food and cooking.
Overall it is not the fort wall which differentiates the residents of the various areas but personal choice and access to wealth. The assemblage recovered from the extramural rectilinear house and its similarity to the assemblage from the *schola* illustrates how individuals who lived within or outside of the fort had access to the same styles and quality of domestic items. Taking into consideration that the inhabitants of the round house and the rectilinear house seem to be of similar social standing, it does not appear that cultural differentiation reflects difference in access to wealth or status. The inhabitant of Building 1 did have access to more wealth than the other inhabitants of the study area; however, this situation is most likely a reflection of elevated social status of a particular individual based on rank within the military. Further excavation of the period IV occupation at Vindolanda in the future will allow for further investigation of the themes noted in this thesis. It would be particularly interesting to compare these findings to assemblages from barracks and additional extramural residences elsewhere in the period IV fort.

The variety of individuals represented in the study area is what we should expect to see in a frontier, auxiliary fort. The community of inhabitants of the period IV fort and extramural settlement is made up of a mixture of soldiers of various rank and non-combatants associated with the unit who could have originated anywhere in the empire. At this point in the early second century it is not surprising to see cultural markers associated with Rome and Italy as well as Germany and Britain or any other province. It is logical to expect this sort of collection of cultural choices in all aspects of daily life from architectural choices to food items.
In the future this method of understanding personal identity through food preparation can be applied to larger areas. This method of using food preparation implements and foodways in order to understand the individual residents of a building has been very enlightening in this small study area and has proven its usefulness for studying cultural and social identity at the most detailed level possible. It would be useful to incorporate the faunal assemblages which have been studied with modern techniques (i.e. assessing the number of meat joints rather than simply using fragment counts) to the study of preparation implements in order to gain a full understanding of all of the available datasets. Once more sites have been evaluated comprehensively in terms of the artefacts associated with food preparation, not only will the comparable data lead to a more fruitful study but regional comparisons can be made in order to see larger trends. Thus it would be possible to compile a study of trends in food preparation which incorporate data from across provinces rather than being restricted to a single site.
Appendices

Appendix A: The Domestic Artefacts

<table>
<thead>
<tr>
<th>Catalogue No.</th>
<th>Vindolanda Database Number</th>
<th>Sub Category</th>
<th>Basic Description</th>
<th>Archaeological Info</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Knife</td>
<td>Knife blade, snapped off before the tang. Most like Manning type 11b knife or type 3 cleaver.</td>
<td>V01-09A Room 7</td>
<td><img src="image1" alt="Image" /></td>
</tr>
<tr>
<td>D1</td>
<td>SF8139</td>
<td>Knife</td>
<td>Iron knife blade of Manning type 7a.</td>
<td>V01-16A Room 2</td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>D2</td>
<td>SF8165</td>
<td>Knife</td>
<td>Manning type 7b knife.</td>
<td>V01-19A Room 2</td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td>D3</td>
<td>SF8329</td>
<td>Knife</td>
<td>Manning type 11a knife.</td>
<td>V01-36A Room 8</td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td>D4</td>
<td>SF8402</td>
<td>Knife</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>SF Number</td>
<td>Item</td>
<td>Description</td>
<td>Location</td>
<td>Notes</td>
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<td>--------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>D5</td>
<td>SF8414</td>
<td>Knife</td>
<td>Almost complete iron knife with bone handle. Manning type 19</td>
<td>V01-37A Corridor 1</td>
<td>Photo</td>
</tr>
<tr>
<td>D6</td>
<td>SF8801</td>
<td>Knife</td>
<td>This knife is similar to Manning’s type 6b</td>
<td>V02-27A Room 1</td>
<td>Not photographed</td>
</tr>
<tr>
<td>D7</td>
<td>SF8154</td>
<td>Quern</td>
<td>Complete disc quern</td>
<td>V01-12A Room 6</td>
<td>Not photographed</td>
</tr>
<tr>
<td>D8</td>
<td>SF8383</td>
<td>Quern</td>
<td>Disc quern, inscribed: []IDII//I</td>
<td>V01-37A Corridor 1</td>
<td>thumbsup</td>
</tr>
<tr>
<td>D9</td>
<td>SF8128</td>
<td>Spoon</td>
<td>Spoon, copper-alloy Cochlear type 32a</td>
<td>V01-04A Room 6</td>
<td>Photo</td>
</tr>
<tr>
<td>D10</td>
<td>SF8487</td>
<td>Amphora Handle</td>
<td>Dressel 20 Graffito: TAGAMAS</td>
<td>V01-49A Room 6</td>
<td>Photo</td>
</tr>
<tr>
<td>D11</td>
<td>SF8839</td>
<td>Cleaver</td>
<td>Manning type 2b cleaver</td>
<td>V02-36A Room 8</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>---------</td>
<td>-------------------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>D12</td>
<td>SF8516</td>
<td>Amphora</td>
<td>London 555 type with <em>tituls pictus:</em></td>
<td>V01-48A Room 4</td>
<td></td>
</tr>
</tbody>
</table>

1. **1st Register:** OL(iva) AL(ba)
2. **2nd Register:** L( ) (et) L( ) LVCI( ) and L( ) C( ) H( )

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**Area 2 – The 2003/4 Complex**

| D13 | SF9213 | Bowl | Pewter dish Graffito: ♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂♂userInfo| V03-15A Northern area of Building 1 |

<p>| D14 | SF9111 | Knife | Iron knife blade Manning type 11b | V03-15A Northern area of Building 1 |</p>
<table>
<thead>
<tr>
<th>D15</th>
<th>SF9184</th>
<th>Knife</th>
<th>Bone knife handle Possibly Manning type 7</th>
<th>V03-15A Northern area of Building 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>D16</td>
<td>SF9190</td>
<td>Spoon</td>
<td>Bronze spoon, bowl is badly corroded <em>Cochlear</em> type 32a</td>
<td>V03-15A Northern area of Building 1</td>
</tr>
<tr>
<td>D17</td>
<td>SF9118</td>
<td>Spoon</td>
<td>Silver spoon, bowl on part of handle <em>Cochlear</em> type 36a</td>
<td>V03-23A Room 1 organic carpet</td>
</tr>
<tr>
<td>D18</td>
<td>SF9138</td>
<td>Cheese Press</td>
<td>Cheese press, fragmented into three pieces. Type 3 cheese press</td>
<td>V03-36N Southern end of room 11</td>
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</table>

**Area 3 – The 2013 Extramural Houses**

<table>
<thead>
<tr>
<th>D19</th>
<th>SF17552</th>
<th>Knife</th>
<th>Knife with bone handle Manning type 11a</th>
<th>V13-10B Rectilinear house</th>
</tr>
</thead>
<tbody>
<tr>
<td>D20</td>
<td>SF#TBA</td>
<td>Quern</td>
<td>Disc Quern</td>
<td>Rectilinear house</td>
</tr>
<tr>
<td>D21</td>
<td>SF17652</td>
<td>Knife</td>
<td>Knife with bone handle Manning type 7b</td>
<td>V13-15B Round house</td>
</tr>
<tr>
<td>D22</td>
<td>SF17570</td>
<td>Terra sigillata</td>
<td>Cup with graffito</td>
<td>V13-16B Round house</td>
</tr>
</tbody>
</table>

Not photographed Graffito = X
<table>
<thead>
<tr>
<th>D23</th>
<th>SF#TBA</th>
<th>Quern</th>
<th>Beehive quern</th>
<th>Round house</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Appendix B: The Wooden Artefacts

<table>
<thead>
<tr>
<th>Catalogue No.</th>
<th>Vindolanda Catalogue Number</th>
<th>Sub Category</th>
<th>Basic Description</th>
<th>Archaeological Info</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area 1 – The Schola</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1</td>
<td>W-02-30A</td>
<td>Spatula</td>
<td>Wooden spatula</td>
<td>V02-11A Room 2</td>
<td>Not Photographed</td>
</tr>
<tr>
<td><strong>Area 2 – The 2003/4 Complex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W2</td>
<td>W-03-110A</td>
<td>Bowl</td>
<td>Partial wooden bowl</td>
<td>V03-25A Building 1 room 13</td>
<td>Not photographed – did not survive conservation</td>
</tr>
<tr>
<td>W3</td>
<td>W-04-36A</td>
<td>Spoon</td>
<td>Partial wooden spoon</td>
<td>Building 1 room 11</td>
<td></td>
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</table>
Appendix C: *Mortaria* Stamps

<table>
<thead>
<tr>
<th>Location</th>
<th>Vindolanda Catalogue and Context Numbers</th>
<th>Stamp</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area 1 - Room 8</strong></td>
<td>SF8504 – C01-36A</td>
<td>QAAF</td>
</tr>
<tr>
<td></td>
<td>- Corridor 1 SF8830 – V02-34A</td>
<td>Illegible</td>
</tr>
<tr>
<td></td>
<td>- Corridor 1 SF8376 – V01-37A</td>
<td>SULLON</td>
</tr>
<tr>
<td><strong>Area 3 - Rectilinear House</strong></td>
<td>SF17530 – V13-03B</td>
<td>IIXIII</td>
</tr>
<tr>
<td></td>
<td>- Round House SF17647 – V13-15B</td>
<td>Illegible</td>
</tr>
<tr>
<td></td>
<td>- Round House SF17630 – V13-15B</td>
<td>Illegible</td>
</tr>
</tbody>
</table>
## Appendix D: Context Data

<table>
<thead>
<tr>
<th>Room</th>
<th>Vindolanda Context numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area 1 – The Schola</strong></td>
<td></td>
</tr>
<tr>
<td>Room 1</td>
<td>V02-25A, V02-27A, V02-30A</td>
</tr>
<tr>
<td>Room 2</td>
<td>V01-16A, V01-19A, V02-11A</td>
</tr>
<tr>
<td>Room 3</td>
<td>V01-35A</td>
</tr>
<tr>
<td>Room 4</td>
<td>V01-38A, V01-48A</td>
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<tr>
<td>Room 5</td>
<td>V01-49A</td>
</tr>
<tr>
<td>Room 6</td>
<td>V01-04A, V01-12A, V01-13A</td>
</tr>
<tr>
<td>Room 7</td>
<td>V01-09A</td>
</tr>
<tr>
<td>Room 8</td>
<td>V01-36A, V02-34A, V02-32A, V02-36A</td>
</tr>
<tr>
<td>Corridor 1</td>
<td>V01-13A, V01-37A</td>
</tr>
<tr>
<td>Corridor 2</td>
<td>V01-39A</td>
</tr>
<tr>
<td>Partition wall to the west of rooms 1, 2, 3, 4, 5 and 7</td>
<td>V02-03A, V02-04A, V02-05A</td>
</tr>
<tr>
<td><strong>Area 2 – Building 1</strong></td>
<td></td>
</tr>
<tr>
<td>Rooms east of N/S roadway</td>
<td>V03-15A, V04-33A</td>
</tr>
<tr>
<td>Room 1</td>
<td>V03-19A, V03-23A</td>
</tr>
<tr>
<td>Room 6</td>
<td>V03-22A</td>
</tr>
<tr>
<td>Small corridor 10</td>
<td>V03-21A</td>
</tr>
<tr>
<td>Room 13</td>
<td>V03-25A</td>
</tr>
<tr>
<td>Foundation clay from east side of trench</td>
<td>V04-47A</td>
</tr>
<tr>
<td>Water pipe trench under Building 1</td>
<td>V03-29A, V03-46A</td>
</tr>
<tr>
<td>Building foundations</td>
<td>V04-21A, V04-34A</td>
</tr>
<tr>
<td><strong>Area 3 – The 2013 Extramural Houses</strong></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>Levels</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>The alleyway</td>
<td>V13-15B</td>
</tr>
<tr>
<td>Upcast from period V ditch</td>
<td>V13-05B, V13-22B, V13-23B</td>
</tr>
<tr>
<td>Period V ditch</td>
<td>V13-08B, V13-19B</td>
</tr>
<tr>
<td></td>
<td>V13-06B, V13-07B, V13-09B</td>
</tr>
</tbody>
</table>
Figures

Figure 1: The Stanegate frontier with garrisons. (Image from: Hodgson 2009, 10).
**Figure 2**: The position of the period 1 fort and ditches in relation to the visible remains.

(Plan copyright of Andrew Birley and The Vindolanda Trust).
Figure 3: Outline plan of the positions of the early wooden forts in relation to the 3rd century stone fort. Period I is shown in red, periods II-III in blue with the visible stone remains shown in black. (Image from: R. Birley 2009, colour plate 6).
**Figure 4:** Plan of period IV fort in red, visible stone remains in black. No plan is available for Area 2, Building 3. (Plan copyright of Andrew Birley and the Vindolanda Trust).
Figure 5: Plan of period IV ‘palatial’ building and *schola*. The ‘palatial’ building is probably the *praetorium* from period IV. The *schola* is the structure immediately to the west divided from the *praetorium* by a narrow alley. (Image from: R. Birley 2009, 102).
Figure 6: Plan of the period IV Schola. (Plan copyright of Andrew Birley and The Vindolanda Trust).

Room Function Key:
Room 1 = Entrance
Room 2 = Meat and perishable item storage
Room 3 = Location of ovens
Room 4 = Office space, modified to include ovens
Room 5 = Unknown
Room 6 = Small storage room for non-perishables
Room 7 = Unknown
Room 8 = Storage room
Figure 7: Plan of period IV Building 1. This structure is not definitely identified. It was originally thought to be a hospital but may be a secondary praetorium of an officer’s quarters. (Image from: A. Birley and Blake 2005, 29).
Figure 8: Plan of Area 3. The round house is on the right; visible features include the circular feature and some planks which remained in situ. The rectilinear structure is on the left; some planks are also visible in this plan as well as the sealed pit and disc quern. (Plan copyright of Andrew Birley and the Vindolanda Trust).
Figure 9: Sumerian relief of first depiction of dairying. (Image from: Simoons 1971, 433).

Figure 10: Typology of cheese presses. (Image from: Cool 2006, 96).
**Figure 11:** Modern knife set used by students in the Culinary Arts program at Fanshawe College. (Copyright of Wüsthof: https://www.fanshawec.ca/sites/default/files/assets/tourism/equipment/WU_knife_set.pdf).
Figure 12: A complete *mortarium*. (Image from: Cool 2006, 42).

Figure 13: Quern typology - beehive quern (left) and disc quern (right). (Image from: Cool 2006, 72).
Figure 14: Hod Hill – Praetorium 1. (Image from: Richmond 1968, fig. 43).
Figure 15: Hod Hill – Praetorium 2. (Image from: Richmond 1968, fig. 44).
Figure 16: Potential *schola* at Housesteads, Building VII. (Image from: Rushworth 2009, 292).
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2015