TRAC 2014

Proceedings of the Twenty-Fourth Annual
THEORETICAL ROMAN ARCHAEOLOGY CONFERENCE



edited by

Tom Brindle
Martyn Allen
Emma Durham
Alex Smith

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Front cover: Early first century AD copper-alloy figurine of Harpocrates, found during the University of Reading's excavations at Silchester. © University of Reading.

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Preface

The twenty-fourth Theoretical Roman Archaeology Conference (TRAC) was held at the University of Reading between 27th and 30th March 2014, in conjunction with the eleventh Roman Archaeology Conference (RAC). Alongside TRAC/RAC, sessions were also organised by the Study Group for Roman Pottery and the Roman Finds Group. A total of 24 sessions were held during the course of the conference, ten of which were official TRAC sessions, comprising 59 papers. Twenty-five posters were also presented. The conference was attended by just fewer than 400 delegates, making it the largest joint TRAC/RAC yet. This volume contains a selection of papers presented at TRAC 2014, as well as some invited contributions.

In keeping with the aims of TRAC, several of the papers presented here make innovative use of interdisciplinary theory: Darrell Rohl discusses developments in the theory of humanistic geography, philosophy and archaeology and proposes a long-term, place-centred theoretical approach towards the study of Roman monuments; Anna Walas considers how recent work in the field of social psychology can be used to explore social relationships within Roman military communities; and Blanka Misic critically considers the extent to which recent work in the cognitive science of religion can be applied to ancient religions, in particular the cult of Mithras.

A further group of papers share a common theme: the critical interpretation of archaeological evidence. Ed Biddulph argues for a more careful consideration of non-grave good pottery sherds from graves, normally regarded as residual or redeposited, suggesting that these potentially shed light on funerary rites which are usually considered to be invisible; Lisa Lodwick considers how plant remains have traditionally been an understudied aspect of ritual deposits and, focussing in particular upon occurrences of stone pine in Roman Britain, emphasises the importance of examining the taphonomy and context of rare plant species in order to better understand their use; and Nico Roymans and Manuel Fernández-Götz present a new perspective on the Roman conquest of Northern Gaul, drawing together evidence from settlement patterns, environmental data and historical sources in order to consider the negative impact of the conquest.

Two papers present new approaches towards our understanding of space and landscape in the Roman world: Matthew Mandich advocates an Ekistical approach towards the study of the suburbs of ancient Rome, allowing for a better understanding of the '*suburbium*' as a diverse and dynamic space; and Lázaro Lagóstena, María-del-Mar Castro and Ángel Bastos present the preliminary results of an ongoing project exploring the relationship between wetland landscapes and domestic settlements, presenting a case study from Fuente De Piedra Lagoon, Spain.

The hosting of TRAC by the University of Reading in 2014 coincided with the final year of the Department of Archaeology's field school at Silchester Roman town. It seems appropriate therefore to close the volume with a contribution from Prof. Michael Fulford, who, along with Amanda Clarke, directed the field school at Silchester since it began in 1997. Prof. Fulford's paper presents an overview of the excavations at Silchester, reflecting on the challenges and opportunities associated with such a long-term project, as well as considering the development of strategies which enabled the successful completion of the fieldwork.

Readers may note that this volume contains fewer papers than is typical for a TRAC proceedings. The reason for this is that papers from two sessions are currently in the process of being published as respective stand-alone volumes. Papers from the session 'Small Finds and Ancient Social Practices' (organised by Alissa Whitmore and Stefanie Hoss) are to be published alongside those from the Roman Finds Group session 'Roman Metal Small Finds in Context', whilst papers from the session 'Romans and Barbarians Beyond the Frontiers: Archaeology, Ideology and Identities in the North' (organised by Sergio Gonzalez Sanchez and Alexandra Guglielmi) are scheduled to appear as the first volume in a new and exciting series, 'TRAC Themes in Roman Archaeology', published by Oxbow Books. The fact that this proceedings is of slightly reduced size is therefore reflective of the continuing success of TRAC as a forum for the presentation of important new ideas, and the independent publication of whole sessions as separate volumes is testament to the quality of the sessions on offer.

Many individuals and organisations contributed to a successful conference and to the production of this volume. Particular thanks must go to John Creighton and Hella Eckardt for their roles in the organisation of the joint conference, and to Sue Beasley, Heather Browning and the many student volunteers who helped the conference to run smoothly. Members of the TRAC Standing Committee provided helpful advice leading up to the conference and during development of the publication. Darrell Rohl of the TRAC Standing Committee kindly chaired the TRAC general session as all of the local organising committee were engaged with presenting papers in other sessions. Thanks are due to the anonymous referees who provided prompt and thorough reviews of papers submitted for the publication. The editorial committee are grateful for the generous financial support provided by the Society for the Promotion of Roman Studies and Barbican Research Associates which provided bursaries for student speakers, and this was of particular importance for attracting international speakers. We would also like to thank the Social Archaeology Research Group at the University of Reading for funding the typesetting of this volume, and to Val Lamb for undertaking this work. Special thanks are due to Val Lamb and Clare Litt at Oxbow for their help with production of the volume, and to Sarah Lambert-Gates at the University of Reading for providing the cover photograph. Finally, the editors would like to thank the session organisers, speakers, and all who attended TRAC 2014 and contributed to such a stimulating conference.

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Place Theory, Genealogy, and the Cultural Biography of Roman Monuments

Darrell J. Rohl

Introduction

This paper draws on developments in humanistic geography, philosophy, and archaeology to develop a long-term place-centered theoretical perspective on monuments of the Roman Empire. The emphasis is on theory-building and an exploration of the implications of applying the proposed perspective, rather than a detailed case study of a particular Roman monument. It is argued that monuments and heritage sites are too frequently viewed as time capsules for which perceived significance derives from their original function and period of construction and primary use: the glory days effectively define the monument and set the parameters of present-day management, public presentation, and research agendas. Sites and monuments are often pigeon-holed, branded, and carefully circumscribed by chronological and thematic parameters that allow for simple and digestable messaging, but this practice establishes and reinforces a reductionist perspective in which only certain periods and functions are seen to really matter. This perspective also artificially elides time, creating the false impression that archaeological research is able to compress centuries or millennia of chronological overburden in order to bring today's experts and interested public into contact with the (supposedly) most significant period(s) in a site's past. For sites and monuments inscribed as World Heritage Sites, recent operational guidelines (UNESCO 2005) have further entrenched this reductionist perspective through the new – and retrospective – requirement for each site to have a formal and comprehensive 'Statement of Outstanding Universal Value' that objectively outlines its (allegedly) intrinsic values and authenticity (for a wide-ranging critique, see Labadi 2013). As a result, we become blind to the long and interesting lives and afterlives of these sites and monuments that, sadly, become bereft of biography in terms of research and public presentation.

This paper merges place theory and genealogy to propose and explore an alternative perspective that allows for the continued celebration of key episodes in a site's life, but that also allows for the explicit recognition that significance is cumulative and changing, and that a wider range of activities, events, memories, and stories augment and enrich traditional period-limited views; such a perspective also provides opportunities for new research, cross-disciplinary and cross-period collaboration, and (hopefully) an expanded pool of potential funding sources. As this paper is primarily concerned with outlining a theoretical perspective that draws on developments outside of archaeology, the bibliography emphasises non-archaeological publications. Further, while the paper targets an audience that is chiefly concerned with Roman archaeology, it is hoped that it will offer stimulation and points for wider debate across disciplines and period/regional specialisations.

Place Theory

Current perspectives on place have been most rigorously developed in the fields of geography and philosophy. Among foundational works are those of the geographers Tuan (1974, 1977) and Relph (1976) and the philosophers Casey (1993, 1996) and Malpas (1999). Other writers have elaborated on the ideas of these theorists, creating a rich body of place-centred works across multiple disciplines (e.g. Agnew 2002, 2005; Auburn and Barnes 2006; Cresswell 1996; Devine-Wright and Lyons 1997; Feld and Basso 1996; Hornstein 2011; Massey 1994; Saar and Palang 2009; Sack 1992, 1997; Seamon 1979). There is not always general agreement, and important differences abound within the works of these various scholars, but several key ideas dominate. Human geographer Cresswell (2004) has provided a succinct and useful summary and introduction to this broad discourse, including an excellent overview of the genealogy of place (Cresswell 2004: 15–51). Drawing on this summary, and some of the individual works included, I will now set out to define place as used within this paper. This primarily references works from the disciplines of geography and philosophy, where place has been most substantially theorised; archaeologists – particularly in North American anthropological archaeology (e.g. papers in the *Journal of Archaeological Method and Theory*, 11.1–2) – have made some use of these sources, but archaeologists of all periods and regional specialisms will benefit from exposure to these ideas.

Cresswell (2004: 7) simplifies the concept of place and its emerging discourse by offering what he calls 'the most straightforward and common definition of place – a meaningful location.' Citing Agnew (2002), Cresswell identifies three key elements of place: *location*, *locale*, and a *sense of place*. Agnew (2002: 16) gives initial definition to each element, as follows:

> *Location* – a 'node that links the place to both wider networks and the territorial ambit it is embedded in.'
>
> *Locale* – a 'setting in which everyday life is most concentrated for a group of people.'
>
> *Sense of place* – 'symbolic identification with a place as distinctive and constitutive of a personal identity and a set of personal interests.'

Cresswell (2004: 7–8) further elaborates these elements. In common usage, the term place usually refers to a *location*: typically a fixed spot that can be mapped at a certain set of objective coordinates on the earth's surface, or in relationship to other fixed objects, e.g. on the table, in the room, etc. 'Places are not always stationary,' though, and this is illustrated by the example of a ship, which 'may become a special kind of place for people who share it on a long voyage, even though its location is constantly changing' (Cresswell 2004: 7). For *locale*, Cresswell (2004: 7) moves slightly beyond Agnew's initial definition to emphasise that this 'means the material setting for social relations.' 'Places, then, are material things' (Cresswell 2004: 7), made up of concrete objects and a tangible materiality of surfaces, structures, geology, vegetation and other possible forms of biological life, etc. Using the example of the Harry Potter novels' Hogwarts School, Cresswell (2004: 7) notes that 'even imaginary places […] have an imaginary materiality of rooms, staircases and tunnels that make the novel work.' For Agnew's *sense of place*, Cresswell (2004: 7) re-states this as 'the subjective and emotional attachment people have to place' – this gives place a 'relationship to humans and the human capacity to produce and consume meaning.'

Much of the work on place since the mid-1970s has centred on moving place from a relatively universal concept of fixed location, as exemplified in the then-dominant spatial analysis approach,

and toward a conception that emphasised the roles of human experience and attributing meaning to such locations. In the introduction to the seminal work on contemporary place theory, Tuan (1977: 4) raises two interesting questions: 'What is a place? What gives a place its identity, its aura?' Citing a conversation that occurred between the physicists Niels Bohr and Werner Heisenberg during a joint visit to Denmark's Kronberg Castle, Tuan highlights the way in which human experience – and the communication of such experience, even in the form of myth and legend – helps to shape the way in which places are perceived. Bohr tells Heisenberg:

> Isn't it strange how this castle changes as soon as one imagines that Hamlet lived here? As scientists we believe that a castle consists only of stones, and admire the way the architect put them together. The stones, the green roof with its patina, the wood carvings in the church, constitute the whole castle. None of this should be changed by the fact that Hamlet lived here, and yet it is changed completely […] No one can prove that he really lived, let alone that he lived here. But everyone knows the questions Shakespeare had him ask, the human depth he was made to reveal, and so he, too, had to be found a place on earth, here in Kronberg. And once we know that, Kronberg becomes quite a different castle for us. (Tuan 1977: 4; originally published in Heisenberg 1972: 51)

Tuan uses this example to argue for a new type of geographical approach to place, one that moves beyond the purely spatial methodologies of mapping and measuring of space and place to include consideration of the psychological and sensory experience of human engagement with place. Along with his earlier (Tuan 1974) book *Topophilia*, Tuan's (1977) *Space and Place* is central to many current approaches to place across a variety of disciplines, and served as a focal point for a developing form of humanistic geography.

Experience. For Tuan, the key term is 'experience.' Tuan (1977: 199) also distinguishes between 'space' and 'place:' space is abstract and unknown – 'lacking significance other than strangeness' – while place is concrete and meaningful. It is the phenomenon of experience that allows space to become place: 'what begins as undifferentiated space becomes place as we get to know it better and endow it with value' (Tuan 1977: 6). Later, Tuan (1977: 136) remarks that 'space is transformed into place as it acquires definition and meaning.' Tuan (1977: 6) also notes that space and place are integral to one another, each requiring the other for definition. While space can be seen as a geometrically bound area that has volume and room for occupancy, places are more localised and – by definition – already inhabited. Space can be *moved through*, while a place is the particular location at which *movement is paused* (Tuan 1977: 6). It is in these pauses that real experience occurs, and place is called into being. This draws on ideas of phenomenology, a philosophical concept that many place theorists (e.g. Casey 1993, 1996; Malpas 1999; Relph 1976; Sack 1997; Seamon 1979; Tuan 1977) draw from the writings of Heidegger (1962) and Merleau-Ponty (1996). As demonstrated in Bohr's remarks to Heisenberg, quoted above, place can be 'experienced' through first-hand emplacement or vicariously via the reception of written or spoken communication, whereby knowledge, ideas and understanding of a place are gained.

Phenomenology. Before moving on, it may be useful to briefly examine this concept of phenomenology, just mentioned. It is also important to emphasise at this point that while phenomenology is an important element in the definition of "place," it is used here in an entirely separate context from the now-familiar and much-contested adoption of the term in prehistoric landscape archaeology (e.g., Tilley 1994; Bender 1993; Bender *et al.* 1997). While

'phenomenology' in recent archaeological parlance often relies on the practice of embodied experience – wherein the researcher enters the landscape and examines his/her modern-day responses to sensory stimuli of vision and, less frequently, sounds – with the researcher serving as a type of analogue for peoples of the past, it frequently emphasises particular pasts without accounting for the multiplicity of pasts that have been experienced in a particular location over time. Just as traditional approaches tend to artificially compress – or reduce the significance of – the time between the present and the period under investigation, this type of phenomenology may perpetuate the reduction of an archaeological landscape's current value to the significance it derives from the narrow parameters of the distant past; it also tends to over-privilege the role of the present-day archaeological 'expert' (for a selection of wide-ranging critiques, see Bintliff 2000; Eve 2012; Fleming 1999, 2005, 2006; Forbes 2008: 18–44; Hamilton 2011: 32–36). A full discussion of the utility of present-day phenomenology to recreate perceptions of past landscapes is beyond the scope of this paper, but it is important to briefly outline the role of phenomenology as a more elementary philosophical concept in the definition and redefinition of 'place.'

Phenomenology was primarily developed throughout the first half of the twentieth century in the writings of Husserl (1963, 2001), Heidegger (1962, 1982), Merleau-Ponty (1996), and Sartre (1956), though the term itself was first used in 1736 by the theosopher Oetinger (Smith 2011). Important differences abound between these authors, and they each provide separate visions of what phenomenology is and how it works. Husserl (1963: 33) defined it as 'the science of the essence of consciousness […] in the first person.' It is about the way we experience the world, from the perspective of the experiencing subject, and is bound up with *intentionality*, by which is meant 'the directedness of experience toward things in the world, the property of consciousness that it is a consciousness of or about something,' which serves to establish meaning (Smith 2011). Heidegger, a former assistant to Husserl, developed his own version of phenomenology, which was more existential, as a part of what he described as the essence of human being: 'being-in-the-world' (Heidegger 1962). This is a sharp turn away from the Cartesian perspective of much of Husserl's thinking. For Heidegger, we are not, as Descartes (1983) argued, merely thinking things that contemplate the world from some detached perspective but are, rather, active beings who engage with other beings and entities through encounters in a shared world.

Heidegger (1962: 58) defined his phenomenology as a method 'to let that which shows itself be seen from itself in the very way in which it shows itself from itself.' Despite the often arcane and inaccessible nature of much of his work, Heidegger remains highly influential, and his ideas have been widely adopted within recent theorisations of place. Also influential in this regard has been Merleau-Ponty (1996), who drew on Husserl and Heidegger, but also on work in experimental psychology to develop a form of phenomenology that emphasised the body and its essential role in human experience; this has led to much of the recent literature on 'embodied experience,' some of which also forms part of the extensive literature on place. As may be evident from this short discussion, phenomenology is a complex topic; for the purposes of this paper, we may leave it for now with the following summary:

> [Phenomenology] address[es] the meaning things have in our experience, notably, the significance of objects, events, tools, the flow of time, the self, and others, as these things arise and are experienced in our 'life-world.' […] Basically, phenomenology studies the structure of various types of experience ranging from perception, thought, memory, imagination, emotion, desire, and volition to bodily awareness, embodied action, and social activity[.] (Smith 2011)

Space vs Place. Returning now to the distinction between space and place, Cresswell (2004: 10) notes that the difference between whether areas are perceived as space or place can be relative, citing the example (from Raban 1999) of how colonial explorers in the pacific northwest of America had a different sense of what constituted space and place from the perspective held by native Tlingit peoples. The explorers saw the sea as a barren, open, space, while the Tlingit recognised it as a navigable homeland full of named locations and places with mutually understood characters and associations.

> Space, then, has been seen in distinction to place as a realm without meaning – as a 'fact of life' which, like time, produces the basic coordinates for human life. When humans invest meaning in a portion of space and then become attached to it in some way (naming is one such way) it becomes a place. (Cresswell 2004: 10)

While this distinction between space and place is now well-entrenched within the field of human geography (especially following Tuan 1977), the broader literature across disciplines can sometimes cause confusion, as space and place are sometimes used interchangeably. Importantly, much work on the social 'production of space' (e.g. Lefebvre 1991) uses the term 'space' in a manner that is very similar to the function of 'place' in human geography. From the perspective of Tuan (1977) and those who have followed his form of humanistic geography, however, space cannot be *produced*, but is, rather, *transformed into place* through the agency of individual and communal experiences and memories. Thus, if one is situated within this perspective, it would be preferable to re-state the 'production of space' as the 'production of place,' but even this may be redundant, as the term place, by itself already presupposes a process of production, a process grounded in phenomenological experience.

Scale. 'Places exist at different scales' (Tuan 1977: 149), from an armchair or corner in a room to the entire earth (Tuan 1974: 245, 1977: 149). This matter of scale adds greater tension to the relationship between place and space, and raises important problems for purely spatial analysis approaches. This is further complicated by the fact that individual places may be nested, e.g. a chair is located in a particular room, in a particular flat, on the third floor of a building, in a certain area of the city, etc. The relationship between such nested places – as individual locations of particular meaning and significance – may be one of independence, but is more likely to involve inheritance, whereby two or more are defined – at least in part – by the characteristics and meanings of the other(s). Such inheritance may work in either direction: a chair may hold particular meaning and significance because of its location within a certain room, or the room may derive its essential character from the existence of the chair; of course, it could also be argued that the relationship is bi-directional, with both the chair and room depending on one another for meaning and definition.

Static or Dynamic? If place is pause, as Tuan (1977: 6) notes, it may logically follow that 'place […] is essentially a static concept' (Tuan 1977: 179). In his chapter on 'Time and Place,' Tuan (1977: 179–226) says that 'place is an organized world of meaning [… and] if we see the world as a process, constantly changing, we should not be able to develop any sense of place' (Tuan 1977: 179). This view has been challenged by the geographer Pred (1984: 279), who criticised the humanistic geographers' conception of 'place as an inert, experienced scene,' and offered his own formulation of place as 'what takes place ceaselessly, what contributes to history in a specific context through the creation and utilisation of a physical setting.' Building on the ideas of Giddens' (1984) structuration theory – which seeks to understand the relationships between structures and individual agency – Pred's (1984) argument is that, while the structures

of place (e.g. institutions, ideologies, established routeways, etc.) give meaning to our actions, human agents are responsible for the creation of such structures and, through this agency of action, the structures of place can be overturned, transformed and supplanted by new structures through repetitive practices that may change over time. From this perspective, place cannot be viewed as static but, rather, as a continual process. In this respect, a place is never completed, but is constantly in the process of becoming.

Is it possible, however, to reconcile these contradictory perspectives: can place be both static and dynamic, both pause and action? I think so. If we return to Tuan's original idea of place as a meaningful location constructed by experience, this formula suggests that the meanings we ascribe to a place are based on the *totality* of our experience in and of that location. From this perspective, the place – as a particular combination of location and meanings derived from this totality – is constructed and exists only in the present, for moment-by-moment and experience-by-experience, place gives way to new place. Going back to the previous discussion on phenomenology, whether place exists within our consciousness, following Husserl's (1963, 2001) neo-Cartesian phenomenology, or is a more elemental aspect of our mode of being-in-the-world, as in the existentialist form of phenomenology developed by Heidegger (1962, 1982), it is always perceived and experienced in the present. Thus, place as the comingling of location and experience in the present is static, and provides a type of snapshot image that encapsulates the particularities of that present experience, building on previous iterations.

Time, too, is experienced in the present: while we may have memories of the past and hopes or fears for the future, we can live only in the present. As with place, moment-by-moment and experience-by-experience, each present gives way to new present. This, I argue, is where the dynamic nature of time and place comes in: not in slight or even substantial changes to the nature of a particular place or a particular present, but in the passing of one for another. This may be illustrated by the notion of *nostalgia*, literally meaning an 'aching to return home' (νόστος, 'return home' + ἄλγος, 'pain, grief, sufferings'; Liddell and Scott 1940), that is the emotional longing for the places and experiences of the past, from which we have become dislocated. Malpas (2011) effectively argues for an understanding of nostalgia as relating to both place and time, and reinvests the term with its original meaning of 'suffering and estrangement,' rather than the more common idea of nostalgia as thoughts of 'familiarity and comfort.' While it is possible that the act of remembering, and dwelling on the memories of past places and experiences, may help to soothe the longing for them, the pain of loss can never be fully satisfied because the sought-after places and experiences can never be truly revisited, as they belong to a past-present. With this in mind, we can accept both Tuan's and Pred's notions, as the dynamic 'process of becoming' is reframed as an iterative transition from place-to-place and present-to-present. In this reconciliation of the notions of place as static or dynamic, the dynamic nature of place is not one of biography but, rather, genealogy.

Contestation. Places are often loci of contestation, and may be characterised as areas of inclusion, exclusion and, sometimes, both simultaneously. Cresswell (2004: 25–29) summarises this issue with several insightful examples, including works by a variety of feminist and so-called 'radical' geographers. While many humanistic geographers have regarded the idea of 'home' as the most familiar and ultimate type of place, providing senses of rootedness, security, rest, and nurturing (e.g. Tuan 1991; Seamon 1979), Rose (1993: 55) has called this into question, noting that 'to white feminists who argue that the home was "the central site of the oppression of women," there seemed little reason to celebrate a sense of belonging to the home.' In contrast, the black feminist writer bell hooks (name intentionally uncapitalised at hooks' preference) describes her

childhood home as a place of refuge, care, and a centre of resistance in a segregated world of white oppression (hooks 1990). Beyond these examples, it is important to acknowledge that the very process of definition, while bringing clarity, is essentially a process of exclusion: by specifying what is included in a term's or place's meaning, many things – or, many people, ideas, etc. – are left out. If places are socially produced or constructed, 'these constructions are founded on acts of exclusion' (Cresswell 2004: 26), and from this critical perspective, places are socially bound up with issues such as power, class, gender, and race. Sometimes places can be means of empowerment and normalisation – as in the case of the incorporation of West Hollywood by the gay community in the 1980s (Forest 1995). Other times, social norms and expectations of what/whom is accepted in certain places may be mechanisms of devaluation and oppression, whereby certain people and practices are viewed as transgressors or transgressions of place, and some people may choose to respond to this through various types of subversive action (Cresswell 1996).

Particular locations may also be at the heart of competing place definitions, where two or more individuals or groups may hold contradictory interpretations, claims, and valuations; sometimes these locations may bear multiple names, depending on which place concept is accepted. Some key contemporary examples include Tawain/Chinese Taipei, Jerusalem/Al-Quds, Falkland Islands/Islas Malvinas, and important cultural locations such as Stonehenge. Some of these competing places are parts of disputes over territorial control and access to resources, while others are about historical claims, interpretation, and the ability to have a hand in determining daily activities and the future; all are tangled up in issues of power, politics, ideology, and identity.

Summary. To summarise so far, places are more than just sets of coordinates or dots on a map and can be seen as a combination of *location*, *locale*, and *sense of place*. These terms, when unpacked, invest place with important ideas of (sometimes) mobility, materiality, memory, and meaning. Places do not exist *ab aeterno* ('from the beginning of time'), but are created, made, and produced – by individuals, communities, and at the national and global levels. Places depend upon experience, and are thus inhabited spaces where human activity occurs and time is spent. Places can also be seen as paradoxically static and dynamic, as forming and existing only in the present, but also participating in an iterative genealogy in which place gives way to place as present gives way to present. Places also exist at multiple scales and are often nested, from a single chair to the room it is in, to the house, town, region, country, etc., and the experience and meaning of sub-places within a larger enclosing place may differ from one another and for different people; there may also be a bi-directional relationship, whereby nested places depend on one another for definition. Unless an experience of place is shallow and superficial, the meaning and essence of place is often cumulative, with each new activity and experience adding new layers and nuances to the ways in which a place is perceived and valued. Following Foucault's (1972, 1977a, 2002) ideas on the 'archaeology' and genealogy of knowledge, ideas and concepts, this process is even more complex through time, with ideas being dislocated, lost, and re-discovered – or re-excavated – rather than being merely cumulative. Taken altogether, this is the conception of place adopted in this paper.

Genealogy

I have already mentioned genealogy, a theory and methodology developed in the writings of Michel Foucault, whose development of a genealogical approach centred on the investigation and writing of 'history,' but I want to take this concept beyond the examination of written texts

to apply it to broader approaches to place that involve both written accounts and the unwritten engagements people have with place and the ways in which this creates new and multiple meanings.

For Foucault (1977b: 139), 'genealogy is gray, meticulous, and patiently documentary. It operates on a field of entangled and confused parchments, on documents that have been scratched over and recopied many times.' Foucauldian genealogy, as a new mode of historical writing, rejects linear concepts of time and the evolution of ideas on a preset trajectory; genealogy is, thus, opposed to teleology and 'the search for 'origins' (Foucault 1977b: 140). Such a search, Foucault argues, is a particularly 'English tendency' but Foucault's approach is substantially different: genealogists do not assume that words retain their initial meaning, that desires continue to point in a single direction, or that ideas maintain an original logic; rather, genealogists recognise that 'the world of speech and desires has known invasions, struggles, plundering, disguises, [and] ploys' (Foucault 1977b: 139). To understand history and its deeper complexities, Foucault's genealogists must look beyond received knowledge to investigate pluralities and contradictions, and to write new histories that include normally excluded, forgotten, and marginal discourses (Best and Kellner 1991: 49–50). The aim is to develop an understanding of the past that is freed from the limited concerns and sanctioned views of established power structures and 'the tyranny of globalizing discourses,' or established epistemes (Foucault 1980: 82).

Following Nietzsche (1887), Foucault (1977b) particularly targets the notion of 'origins.' He challenges the metaphysical view of essential essences, noting that things do not appear with some 'primordial truth fully adequate to [their] nature[s]' but, rather, reveal 'the secret that they have no essence or that their essence was fabricated in a piecemeal fashion from alien forms' (Foucault 1977b: 142). Foucault (1977b: 143) also attacks lofty views of the solemnity of origins: 'we tend to think that this is the moment of their greatest perfection, when they emerged dazzling from the hands of a creator or in the shadowless light of a first morning. The origin always precedes the Fall.' Origins – and the quest for origins – are also closely related to notions of 'truth,' which Foucault (1977b: 144) brands an 'error,' but one which 'cannot be refuted because it was hardened into an unalterable form in the long baking process of history.' Thus, while the term 'genealogy' has connotations of origins and descent, viewed by many as a linear development that can be traced from one end to another – as in family genealogies – Foucault subverts the term to directly challenge the supposed 'truths' of linearity, origins and descent. Importantly, Foucault does not completely reject the idea of descent but, rather, seeks to problematise the complex ways in which knowledge and ideas develop and spread, are detained and submerged, and sometimes re-emerge from obscurity.

While much of Foucault's writing is abstruse and – perhaps intentionally – open to conflicting interpretations, particular aspects of his genealogical approach are sometimes clearly communicated, e.g.:

> Genealogy does not pretend to go back in time to restore an unbroken continuity that operates beyond the dispersion of forgotten things; its duty is not to demonstrate that the past actively exists in the present, that it continues secretly to animate the present, having imposed a predetermined form to all its vicissitudes. Genealogy does not resemble the evolution of a species and does not map the destiny of a people. On the contrary, to follow the complex course of descent is to maintain passing events in their proper dispersion; it is to identify the accidents, the minute deviations – or conversely, the complete reversals – the errors, the false appraisals, and the faulty calculations that gave birth to those things that continue to exist and have value for

> us; it is to discover that truth or being do not lie at the root of what we know and what we are, but the exteriority of accidents. (Foucault 1977b: 146)

A full exposition of Foucault's genealogy is beyond the scope of this paper, but what is important here is that genealogy provides an alternative approach to the past, and an alternative to standard modes of reading and writing history. This approach seeks to reinvest the past with the people, events, and ideas that typically lie outside of traditional 'history,' particularly emphasising those aspects that have not necessarily provided a direct contribution to present-day standard interpretations. When combined with the concept of 'place' defined above, genealogy also provides a valuable framework for the interrogation of places and their meanings, particularly in terms of the noted iterative nature of place, but also its fragmentation and non-linear development as former concepts are re-appropriated to forge new – and sometimes competing or contradictory – concepts of place. Here, the 'genealogy of place' is not limited to just the physical development and activities that have taken place in the past, but also the experiences, stories, and various significances that have accumulated (and sometimes disappeared and, perhaps, resurfaced later) to create the wide range of meanings that are associated with a particular location.

Discussion

So far this paper has provided a detailed theoretical breakdown of the definition of 'place,' and a summary description of Foucault's genealogy, along with some thoughts regarding the use of genealogy beyond Foucault's textual emphasis. But how can this be useful in archaeology and, more specifically, what benefits would it have for the investigation and presentation of Roman sites and monuments?

The term 'monument,' I argue, is problematic and its wide use to describe archaeological sites requires challenging: there is a sense in which this term has become synonymous with 'artefact,' a seemingly static object that can be carefully circumscribed by typology and chronology and conceptually/ideologically separated from the present and more recent pasts. When sites are viewed from the *monument* or *artefact* perspective, their primary relevance may be constrained to their period of construction and initial use, and this often becomes the sole focus of archaeological research. Within the wider discipline, however, some practitioners have moved away from a focus on the initial use-life of artefacts to adopt a welcome long-term *biographical* approach to objects (e.g. Gosden and Marshall 1999). Similar biographical approaches to sites and monuments have also been adopted, notably in prehistory (e.g. Bradley 2002) and the early medieval period (e.g. Semple 1998; Williams 1998), but Roman archaeologists have made comparatively little contribution to this field of study (see, however, Hingley 2012 for a recent example). *Monument* and *artefact* both connote something that belongs – or points, as a reminder – to the (sometimes very specific) past; *biography*, also, implies that significance is to be found within the past. For this reason, I remain uneasy with the 'biography of monuments' approach, although it offers perhaps the closest parallel to the perspective I advocate in this paper.

If the biography of monuments approach remains unsatisfactory, what does an archaeological 'genealogy of place' offer? Most importantly (but also, perhaps, controversially?), it shifts the frame of reference from the past to the present. By considering archaeological sites as 'places,' using the definition discussed above, we begin not with a site's chronological point of origin, but with its present-day existence. This requires an explicit recognition that archaeology is not a means of time-travel to some 'authentic' past but, rather, a field of practice in which elements

and material remains of the past are explored and interrogated because of their relevance in the present (Shanks 1992, 2012). An archaeological genealogy of place does not necessarily attempt to reconstruct sites as they existed in the past, nor as they may have been subjectively experienced by past peoples; rather, it focuses on each site as it exists today, as a present-day place that has been physically and ideologically produced, re-produced, and transformed from the time of its original construction until the present (see Rohl 2014 for an example centred on the Antonine Wall in Scotland). This requires investigation of the site's material remains and its history as an object of discourse; using archaeology in the traditional sense, but also as a metaphor, examining the formation processes that have created the site as it exists – physically and cognitively – today, 'excavating' and peeling back the layers of material evidence, written accounts, varied interpretations, and antiquarian and/or archaeological investigations that have been selectively curated to form the basis for its currently accepted significance. This approach is necessarily diachronic and wide-ranging, and does not privilege any one period over others, although it may reveal that particular episodes in the past exert greater influence over the present than others, and may help to expose disparities in the level of knowledge currently possessed for each period due to the biases and agendas of inhabitants, officials, and researchers. Rather than pigeon-hole archaeological sites, monuments, and landscapes into rigidly circumscribed historical periods and functional use categories, such an approach will illuminate aspects that are often overlooked and under-investigated, but which could genealogically contribute to the place as it exists in the present.

Deep narrative approaches to archaeological sites and landscapes are about more than just presenting long-term sequences of material evidence, and share much with the classical and renaissance tradition of 'chorography,' which characterised much antiquarian work before the establishment of modern 'scientific' archaeology as its own discipline (see Rohl 2011, 2012; Shanks 2012; Shanks and Witmore 2010). Folklore can play an important role in such deep narrative approaches, providing key insights into the ways in which people engaged with the site, and revealing memories and meanings that are not visible within the material archaeological record or in authoritative historical documents. Although archaeology and folklore have had a contentious past throughout the twentieth century, they have substantially shared genealogical roots (Gazin-Schwarts and Holtorf 1999; Paphitis 2013). The approach to folklore often taken by archaeologists, however, is to leave such traditions unconsidered, as they are deemed of little or no value to understanding 'the actual past.' This lack of consideration of – or engagement with – folkloric traditions betrays many modern archaeologists' obsession with the identification of the discipline as an 'objective' science. Shanks (1992: 15) calls this 'the sovereignty of science in archaeology, the methodological hegemony that would have of archaeology an empirical science.' Such a perspective, largely held by those archaeologists who identify as 'processual', has been subjected to significant critique by post-processualists (Shanks 1992: 20–25 provides a good summary), yet whether archaeology is a science or part of the humanities remains open to interpretation with strong proponents on either side (see, for example, recent sessions and discussions at the Theoretical Archaeology Group conferences: http://journal.antiquity.ac.uk/antplus/tag).

The common rejection of myth, legend and folklore may be justified by rigid adherence to a scientific, facts-based, approach to archaeology. This fundamentally misunderstands, however, the essential purposes and characteristics of such traditions. In many cases, literal interpretations are neither required nor desirable, and folk traditions are not designed to communicate objective facts nor reliable and authentic accounts of the past but, rather, subjective meaning and significance:

> When meaning is taken as the most significant aspect of folklore, the question of its authenticity becomes moot: if it has become part of the folk tradition about the past, it is part of that tradition whether or not its origins are in literature or commercial invention. (Gazin-Schwartz and Holtorf 1999: 12)

Archaeologists' noted aversion to the inclusion of folklore also highlights a particular problem in common approaches to archaeological sites, monuments, and artefacts. In modern practice there is a tendency to assign sites or artefacts to carefully circumscribed periods based on generally accepted dating of the most obvious features, time of initial construction, and the period in which these features were primarily used for their initial purpose(s). Thus, the sites of Roman forts are often labeled 'Roman' and are primarily investigated by period-specific (i.e. Roman period) and genre-specific (i.e. Roman Military) experts. This leads to research agendas shaped by the concerns of a limited subset of archaeologists and historians, emphasising particular questions of direct relevance for the assigned period and site type. While this allows for specialised analyses that contribute to a shared discourse, it also serves to pigeon-hole sites into just one or two primary periods, leaving subsequent or intervening periods unconsidered and seemingly irrelevant.

Such is the case with the most recent edition of John Collingwood Bruce's *Handbook to the Roman* [i.e. Hadrian's] *Wall* (Breeze 2006): while the volume remains 'the primary source for those who wish to study the monument in detail' (Hingley 2011), there is virtually nothing about the Wall's later history and, while previous editions had included a variety of folk traditions (e.g. Blair 1921: 133–35; Richmond 1966: 108–10; Daniels 1978: 79–80, 134–35), these have been excised in the new edition. The recent AHRC-funded 'Tales of the Frontier' Project (http://www.dur.ac.uk/roman.centre/hadrianswall/), drawing on academic and popular sources from the time of Bede until the present, has helped to fill the gap by exploring the continued significance and reception of Hadrian's Wall (some selected publications from this project include: Hingley 2010a, 2010b; Nesbitt and Tolia-Kelly 2009; Witcher 2010a, 2010b; Witcher *et al*. 2010). In his recent book on Hadrian's Wall, Hingley (2012) compares the approaches of imaginative antiquaries and artists (Hingley 2012: 203–29) to those of scientific archaeologists (Hingley 2012: 231–53). While the scientific approach emphasises certainty and has provided much valuable information about Hadrian's Wall's structural details and chronology, the accumulation of detailed facts has been unable to establish its exact sequence or the reasons behind particular feature locations and changes, and also serves to kill the monument by erecting a rigid barrier between a 'closed' Roman past and the present: 'the monument becomes effectively dead – a product of a past society, highly relevant and accessible in the present but also entirely closed to imaginative interpretation' (Hingley 2012: 253). The imaginative approach represented by some antiquarians and popular writers, on the other hand, 'collapse[s] time into place […] draw[ing] upon archaeological materials to create "eddies in time" that bring the writer and reader into contact with the Roman population of the Wall' (Hingley 2012: 229).

To return to archaeology and heritage more generally, instead of pigeon-holing sites and monuments into particular periods for which the physical evidence is most abundant, or wherein the particular interests of our specialisations lie, archaeologists should seek to investigate all periods, and to think beyond the detailed analyses of form, structure and original function. This diachronism is an important part of the chorographic place theory approach, building on the premise that:

> archaeological sites and artefacts belong to all the times following their building or manufacture. If we are interested in what monuments mean, it is our task as archaeologists to study the complete history of monuments rather than restrict our interest to the motivations that led to their first construction. (Gazin-Schwartz and Holtorf 1999: 15)

Coupled with other historical and archaeological material, folklore – when available and considered appropriately – can provide access to the meanings and significances of monuments and sites for later periods. While it is difficult, or even impossible in some cases, to tie myths, legends and folklore to specific sites via firmly contextualised material evidence, the consideration and analysis of these tales can still qualify as a legitimate part of archaeological practice. This need not imply that the researcher grants any degree of authenticity or factuality to the myths, but merely reflects an acknowledgment of the role such stories have played in the life of the site, monument, landscape, or artefacts under investigation. Consideration of myth, legend, and folklore should, thus, have an important role in the exploration of archaeological landscapes, which 'incorporate aspects of mythic, past, and current histories concurrently' (Anschuetz *et al*. 2001: 186). Paphitis (2013) has offered a valuable deep narrative case study using folklore to inform archaeological understanding at Cadbury Castle (also known as South Cadbury hill fort; Somerset, England), concluding that 'a deeper examination of the investigative history of a […] site […] shows that we can say much more about it than its simple "archaeological" narrative, and view it within wider contexts through its folklore, which is just as important as, say, finding out what clay was used for a particular pot' (Paphitis 2013: 15).

More broadly, specialisation and fragmentation are endemic within the academic world, creating an environment of competing 'academic tribes' with overlapping intellectual territories (Becher and Trowler 2001). Within archaeology, our tribes are often defined by a combination of factors that include regional and period specialisations, methodological and theoretical outlook, and academic or professional identity, among others. Periodisation is one of the key mechanisms used to set boundaries between archaeological specialisms, and those who specialise in the Roman period frequently use terms like 'Pre-Roman' and 'Post-Roman' to refer to dates and materials that fall outside accepted chronological parameters for Roman occupation and/or domination in particular regions. It is unfortunate that – for many within the discipline – these could probably be restated as 'Pre-Interesting' and 'Post-Interesting,' highlighting that Roman archaeologists are chiefly concerned with the Roman past at the expense of ignoring or side-lining other periods (it is important to note that this type of period-privileging is not unique to Roman archaeologists). There is nothing wrong with holding tightly bound personal or professional interests in any particular period or theme, and generalists benefit greatly from the insights that only very detailed and targeted research by specialists can offer. In an era of austerity, however, funding is increasingly difficult to acquire, for both new archaeological research and for the protection and preservation of archaeological sites. Sadly, not everyone is interested in the past and – perhaps to the horror of those of us within Roman archaeology – even some of those with historical interests find the Romans boring, stuffy, and Pre- or Post-Interesting (Mills 2013: 1–4); taking a broader view of Roman sites/landscapes and their continued – and changing – significance into other periods may help to address this problem.

Reframing sites and monuments as places (i.e. meaningful locations) in the present opens a wide range of interdisciplinary and cross-period collaboration opportunities, while also providing a coherent framework for communicating rich layers of meaning and significance that may

attract wider public interest and more sustainable funding (e.g. a present – rather than narrow past – focus may provide increased opportunities for 'engagement' and 'impact,' which are increasingly required for many grant funding schemes) for future research and site preservation.

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An Integrated Cognitive and Epigraphic Approach to Social Networks within the Community of a Roman Military Base

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Introduction

This paper discusses Roman military communities from the perspective of models for human capacity to create social networks. The adopted approach applies these models to consider how the scale of a military base impacted on the experience of being stationed there, and critiques them in the light of the available epigraphic data regarding professional associations in the Roman army. Each military base was a locale for a unique, web-like array of social bonds of different strength, formed in a variety of official and un-official contexts. From the perspective of a printed site plan, an auxiliary base is a miniature version of a legionary base, but in social terms the experiences of occupants at the different types of base would probably have been very different. A legionary would certainly know a fair number of people by name and visually recognise even more, but clearly not all of the five to ten thousand soldiers and dependants who made up a full legionary community. The discussion of social networks within the army has seen considerable interest: notably Greene's (2013a; 2013b; 2012) papers on female social networks in the light of evidence fromVindolanda, Haynes' (2013) and Pegler's (2000) work on *genii* and *collegia* and Collar's (2013) work on networks of worshippers of Jupiter Dolichenus. This paper aims to contribute to the discussion by considering the fort environment as the spatial underpinning for relationships within the military community and the interplay between physical and social distance. The applicability of models developed by social psychologists such as Robin Dunbar and H. Russell Bernard are tested and the results compared with modern military cohesion studies.

Psychological prediction for the size of social networks

In social psychology there has been considerable debate on the human capacity to produce social networks, partially reflecting a surge in social networking technology. Two major models for understanding local networks are of particular relevance to this study: the work of Dunbar (1998) and Bernard (McCarty *et al.* 2001), discussed in detail below. Dunbar, for instance, incorporated discussion of both modern and ancient armies in his work on the size of social groups, noting that the sizes of military units conformed to his wider findings, and speculated about the relevance of this for finding the optimum between the largest possible size of a unit and its internal social cohesion (Dunbar 1993: 689). The models find support in studies of cohesion

and bonding in modern military units, which propose similar numbers in terms of peer group bonding within units (Siebold 2007).

Dunbar's number (1993) is a suggested cognitive limit to the number of people with whom one can maintain regular (monthly to yearly) personal contact. These are relationships in which an individual knows who other people in the group are and the nature of relations between others in the group (Dunbar 2010: 31). The number does not include ceased social relationships, nor people one simply is able to recognise. The estimated value is around 150 individuals and is based on studies from a number of social contexts including academic networks and businesses (Hill and Dunbar 2003: 187; Price and Beaver 1966). As examples drawn on by Dunbar often describe workplaces (and military units) rather than casual social networks, the number is especially suited to institutionalised contexts, suggesting the maximum size of a command chain, which, while hierarchically structured, still allows for personal knowledge of members of the group (Dunbar 2010: 27–29).

A Roman military base was a type of institutionalised environment, as life within the complex was clearly structured by an organisation (the army). Furthermore, only groups under intense survival pressure are believed to achieve Dunbar's membership number of 150 (Hill and Dunbar 2003: 187). Dunbar discusses groups that are often physically close, suggesting that the size of a network depends partially on the amount of time people spend together (Dunbar 1993: 686–688, 691). Being part of an occupying military force stationed in a cramped base would arguably meet these conditions. Similarly, the importance of close proximity, time spent together and shared intense experiences of war are recognised as building blocks of unit cohesion in modern armies (Granovetter 1973: 1361; Bartone 1998: 87; Vaitkus 1990: 224) with, for example, the size of a company in the British Army being roughly equal to Dunbar's number. Dunbar's criterion suggests a roughly constant upper limit on the size of social networks, which permits the network to work effectively as a social unit.

The other model (Bernard *et al.* 2001: 21) draws on much looser criteria for defining a network - contact in the last two years requiring only knowledge by name or by sight (McCarty *et al.* 2001: 29). Instead of describing a coherent social network, this estimation reflects the predicted maximum number of an individual's contacts, where the people known by a given person may not know each other. The suggested value approaches around 300 and was estimated by calculating the relative proportions of individuals of pre-defined categories (e.g. of Polish nationality) that a given person should statistically know in relation to the gross population size of the USA (McCarty *et al.* 2001; Zheng *et al.* 2006). Given the large size of the present-day USA population, a looser definition of network and the influence of modern technology on communication patterns probably make this estimate too high for the context of regular contacts in the Roman era, or at best a generous estimate.

Thinking to scale

Being one of a community of 500 in an auxiliary base must have been significantly different to living within a group of up to 5,000 in a legionary base in terms of the number and nature of encounters between people. We can use the above discussed psychological estimates to hypothesise about the proportion that one's predicted social network would constitute in the context of our knowledge of the size and structure of Roman army units, as well as the wider estimated extended community of a garrison. Using this method it is possible to explore how groups of people within the military community, including centuries, cohorts and different strata

within the extended community, may have interacted in the context of the social environment of the fort, rather than study the fort itself.

Since we are working with communities for which there are significant limitations for proposing a reconstruction of their size and composition, we will be operating in the order of general proportions. The maximum strength of a unit does not include non-fighting personnel and the extended community who did not feature in the formal structure of the unit, but who were likely to have been present on site and in any associated extramural settlement, for example, slaves, servants, traders and soldiers' dependants. Magnetometer surveys have revealed that some extramural settlements could be up to two to three times larger than the garrison itself. The *vicus* at Newstead is illustrative, with the total street frontage amounting to one kilometre (Clarke 1996:7). As a rough and rather conservative estimate of one dependant per soldier, we can imagine an 'extended community' of maybe around 1,000 people for an auxiliary base, and perhaps 10,000 for a legionary base. There were also periods when the base was not full. This could amount to around half of the unit, as Vindolanda duty rosters reveal (Tab. Vindol. 154). Soldiers may have been away from base for a variety of reasons, including duties outside the fort, leave or for illicit purposes (James 2001: 82). The barracks may not always have been full; some *contubernia* were used as store rooms or went out of use and some of the attached personnel (for example women, as suggested by evidence from shoes) shared accommodation with the soldiers (Greene 2013a). These issues have implications for the application of Dunbar's number and fuller consideration is given to these in the case studies below.

The consequences of thinking in terms of psychological models are interesting in the context of the old paradigm which tended to view a legion as a monolithic entity (James 1999: 19). According to the numbers proposed above, in a 5,000 strong legionary base an individual is likely to have kept regular contact with a maximum of between three and six percent of the population. Following the estimates, even within a fairly small auxiliary base, an individual was likely to have maintained regular contact with between quarter and half of a fully occupied base (counting military personnel only). This suggestion has significance for our understanding of personal familiarity and unfamiliarity within a garrison and social networks at the scale of the periphery of regular contacts. Building on this, a more nuanced picture is developed here through two case studies, focussing on the military communities of Inchtuthil and Vindolanda, selected because of the epigraphic and sub-literary sources produced by units associated with them. Such nuances allow recognition of the limitations of the approach and provide the opportunity to move from abstract numbers to specifics, as revealed by the archaeological and epigraphic record, in order to give a clearer picture of social distance and propose how psychological estimations could work in relation to the social space of a Roman military base.

Social relations operate on a fluid spectrum, where both smaller and larger scales of interaction are fundamental to a sense of community. In order to play a fully functional role in something as big as a military unit it would have been necessary to participate in the community at various scales, from a loose level of being known only by association with somebody, to smaller and tighter groups. Dunbar (1998: 67) termed these different scales 'support cliques' (around five individuals), 'sympathy groups' (12–15) and 'bands' (around 35). Bonding in modern military units occurs primarily within such smaller networks, identified at the level of either a squad or section (7–12) or a platoon (15–30). These are found to be the primary social matrix within which the experience of an individual's service is framed (Siebold 2007: 286). In the latter part of this article I consider how epigraphic data recording voluntary associations in the Roman army and dedications to *genii* may be indicative of the prevailing identities within military sub-

units. It is possible to discuss the sorts of bonds these associations perhaps represented and the tensions between theory and data.

Inchtuthil – A legionary base

The implications of thinking about military bases in the context of social networks are clear when we consider the legionary base as the hub of a population of 5,000–10,000 people. The legionary base at Inchtuthil, Scotland, has the best understood plan and the legion it hosted (*Legio* XX) is one of the better attested epigraphically in Britain. While designed as a permanent military fortress, the site was occupied only between A.D. 83 and 86 (Pitts and Joseph 1985: 31). A series of pits outside the main perimeter have been identified as the remains of rubbish pits related to the presence of an extended community (Pitts and Joseph 1985: 229). In a place like Inchtuthil, in relation to the size of the complex, all personal networks would have seemed very localised, as based on the models an individual was likely to maintain regular contact with only a minimal proportion of the total population.

The huge number of people in the base and the highly complex nature of military communities had implications for the ability of individuals to assess one another's personal patronage and status within the military hierarchy. Here we need to make a distinction between the ability to recognise an impersonal figure of authority (through dress), as opposed to knowing personally or having knowledge about the individual behind that authority. Based on the psychological estimates and by comparison with modern military units, where the primary networks (i.e. fitting Dunbar's criteria) rarely exceed that of a platoon in size and the secondary network (knowledge by name, face, position in the organisation, with no personal knowledge) rarely exceeds a company (80–250 individuals) (Siebold 2007: 289), one can propose that an ordinary legionary soldier probably knew the officers under whom he served, but did not necessary recognise the faces of, or know personally, all of the officers in the legionary base. Conversely, it is a reasonable hypothesis to suggest that the degree to which officers were familiar with soldiers serving in other centuries was likely to be limited too; one probably knew the people serving under him or the *centuriae* based next to his, but was unlikely to have known in person many other ordinary soldiers within a community of 5,000. One way for an ordinary soldier to gain more recognition within a legion was by showing special bravery in combat (Lendon 2001: 244–245). The difficulty of having one's face remembered by superiors brings an interesting insight into the desire by Roman soldiers to strive for military glory, recognition and ultimately career-boosting patronage.

The small proportion of known individuals in comparison with the total population of a legionary base suggested by the models raises the question of anonymity among ordinary soldiers within a legion. Due to the high number of unfamiliar people in a large base one would need to be quite careful about what one said and to whom one said it. Although sociological studies of modern militaries provide evidence indicating that gossip about other soldiers is the easiest icebreaker and a great way to deal with boredom (Caforio 2006: 167–186), concern for watching one's mouth must have been vital in the Roman armies. These were highly competitive communities (Lendon 2001: 239–241) in which the respect or disapproval of peers and superiors was crucial (Caes. *BG* 7.80) and where status was based on the amount of power one had over another. Here, the psychological pressure to have a good reputation and the consequences of undermining somebody else's good name were severe (see for example Tac. *Hist*. 2.88 on the loss of a sword and Tac. *Hist.* 2. 68 on the consequences of mocking). With an ethos placing

emphasis on collective responsibility and 'one for all, all for one' punishment measures, mutual surveillance among the soldiers, as well as discipline-induced self-surveillance (James 2011: 171) would have contributed to the potential stress of a busy legionary base.

There may have been places, such as areas around barracks at the other end of the legionary base, where one would have been a stranger, even though technically one belonged to the same unit. The legionary base is unlikely to have been openly dangerous, particularly to soldiers and especially in main streets during daylight. However, occasionally there might have been times when one would prefer to avoid certain areas, such as back alleys at night in an area where one owed money, or where involved in some personal or group tensions. A case in point might be that of *cohortes equitatae*, which had a mixture of infantry and cavalry within the same unit, and which in literary tradition did not get along (Vegetius II.21). We can perhaps infer this from attested clashes between units (Tac. Hist. 2.68) and a tendency for rivalry and jealousy among soldiers (Lendon 2001: 244).

Frequenting the same functional facilities, ovens for example, would be a factor in structuring social networks. At Inchtuthil the area of the *via sagularis,* if all four sides are added together, stretched for around 1.8 kilometres. The excavated stretch of the route way suggests that it was dotted with groups of ovens spaced some distance apart, placed near to corresponding century barracks. This arrangement evokes an image of small groups of soldiers scattered along the road during meal preparation, perhaps within their own centuries, as inscriptions on utensils denoting century ownership (RIB 2449.8, RIB 2496.2, RIB 2501.3) and *contubernium* ownership (RIB 2496.3) indicate. Similarly, the distribution of food rations may also have happened locally, with granaries located in four different parts of the base, reducing the need to visit its distant parts.

Anonymity would diminish as one built one's immediate and extended networks. The outer periphery of an extended network would have been demarcated by the ability to recognise faces. Even if individuals are not known personally, knowledge of someone through peers or being able to recall an individual's face provides a sense of familiarity with one's environment. This time-consuming process would have been especially important on enlistment, when one's connections were not yet established. Here, time must have played a role. In open-ended question interviews I carried out with an ex-RAF driver and an ex-infantry soldier they both indicated that whilst on campaign within a contingent of 2,000 soldiers, over a nine month tour, it would be impossible to meet everybody with whom one was stationed (pers. comm. Chris Panteli). In contrast, individuals in a unit rooted in place over several generations would accumulate contacts, especially in the context of the attached extramural settlement.

There also would have been individuals with larger networks than Dunbar's proposed average of 150 (Dunbar 2010: 22), for example long-serving soldiers such as centurions. Their contacts would have spanned different centuries and across units, with considerable insider knowledge of relations between other soldiers. Particularly notable in this regard are inscriptions from three tombstones, which provide information about the careers of soldiers of the XXth legion, dating from the late first century and early second century A.D. These include Claudius Fatalis (AE 1939.157), whose service in the XXth fell around the time it was stationed in Chester (after 83 AD) and who had served in six different legions (Malone 2006: 112); L.Valerius Proculus (CIL III 12411), whose career lies in either the Flavian or Hadrianic period (Malone 2006: 131), with service across five different legions; and an anonymous centurion (RIB 509) buried in Chester in the Flavian period who had served in four different legions. Familial networks would also have added to the complexity; tablets from Vindonissa, Switzerland (Tab. Vindon 28), reveal

two brothers, or otherwise closely related men, serving in the XIth Legion, but most likely in different centuries (Speidel 1996: 53).

Vindolanda – A small community

Dynamics within smaller, tight knit communities where people know each other, are different to those in large population hubs. Vindolanda, with its sub-literary evidence, provides a useful case study. Here, we can expect something akin to 'small town syndrome'. Secrets and mistakes are hard to keep private in tight-knit communities, as modern mining community parallels indicate (Robinson and Wilkinson 1995:139). Like ancient Roman military units, mining communities share potential danger, risk to life, the provision of subsistence and housing by an institution, close comradeship and a sense of special pride in their profession (Stone 2007). Intuitively, both of the above psychological predictions seem rather small in the context of such tight-knit and settled in one place communities. Members of small village communities which have developed over years of living in one place learn to recognise each other by sight, name or by association, with family formation processes playing a part. We can expect this sort of contextual knowledge of local people in the small and remote community of an auxiliary base such as Vindolanda. For the majority of ordinary soldiers before the third century A.D., their dependants would have lived in the extramural settlement (Hodgson and Bidwell 2004: 153–154), though members of the extended military community would have entered the base, as research into the distribution of gendered finds, suggests areas of probable female activity (i.e. dress accessories, textile working, footwear) (Allison 2006). However, their business in the base is likely to have been different to that of the soldiers, meaning that their social networks might not have contained as many soldiers as the networks of the serving personnel did, with more extensive relationships within the extramural community instead.

Slaves may have maintained more contacts with the paramilitary personnel. This would have been facilitated by the tasks they needed to complete for their masters. The chores that needed to be done, especially in cavalry units, where horses needed to be groomed and equipment kept from rust, would have taken a considerable number of hours (Ian Haynes pers. comm.). Similarly, servants in the *praetorium* at Vindolanda would have been busy running the household (Tab. Vindol. 302). Evers (2011: 41) showed how Vindolanda slaves called on their social contacts among other slaves for the purpose of securing good deals on transactions for running their masters' households. The slaves were part of a wider system of 'social economy', functioning along the lines of social stratification. Vindolanda tablets provide evidence for slaves forming very close bonds, referring to each other, for example, as *frater* and asking for favours *(*Tab. Vindol. 347*).* Another letter records correspondence, probably between two slaves, although the content is obscured (Tabl. Vindol. 303). Some of these men, especially those attached to the household of a commanding officer, could have been quite powerful within their own networks (Tab. Vindol 311; Tab. Vindol. 301). During daytime in the summer, when the soldiers were training, parts of the base may temporarily have predominantly been occupied by such attached personnel.

For some of the soldiers' dependant women, developing an association with one soldier could potentially have an impact on their ability to create contacts with other male members of the military community, rendering them inappropriate. Others, such as Belica, the inn keeper at Vindonissa (Tab. Vindon. 41), due to their profession, would presumably have been familiar with a significant number of people, exceeding the average maximum proposed by psychological

studies and perhaps knowing more soldiers then other members of the extended community would. Differences also probably existed, depending on a woman's status. For example, a commanding officer's wife, such as Sulpicia Lepidina (Tabl. Vindol. 291), was likely to be part of a larger on regional scale and more influential network than a woman associated with an ordinary soldier. At the same time one can imagine Sulpicia's status might have been restrictive too, in the sense that she may have had limited freedom of movement around the fort. Evidence from Vindolanda tablets referring to women as *soror* - sister (Tabl. Vindol. 310; 335; 389) indicates that women could also enjoy esteem and were an integral part of the soldiers' immediate communities. However, whilst some modern armies have introduced programs aimed at integrating military families, it is unlikely that such initiatives would have existed in the Roman period.

Extramural settlements under military jurisdiction could be dangerous places for traders (e.g. Tab. Vindol 344), servants, women and children, especially during an encounter with an unfamiliar drunken soldier. The example of a child burial from Vindolanda, deposited beneath a floor layer in a barrack room suggests that they could sometimes become the subject of attacks, for example, as an attempt to cause economic harm as revenge for an unpaid loan (Chapman *et al.* 2011: 343). A similar discovery was made in the extramural settlement at Housesteads, where, in Building VIII, the bodies of a man and of a woman were found under a thick, undisturbed layer of clean clay (Birley *et al.* 1933). A tip of the knife *in situ* in the spine of the male suggests that even large and robust men may not always have been safe in the extramural settlement. Both in the case of Vindolanda and Housesteads, the most likely reason why the bodies stayed in the buildings and within the settlement (where burials were not allowed officially), was probably the difficulty associated with removing the bodies without being seen.

Smaller networks within a unit

The findings discussed above are suggestive in terms of numbers, but perhaps also to an extent in terms of mapping social networks on the ground. Dunbar's findings are interesting on the one hand in the context of the tradition of working in maniples (two centuries) (Vegetius 2.13, but see Speidel 2005 and Mann 1997) as roughly equal with the extent of the predicted size of a social network; and on the other hand, of a century and its dependants in light of the previous estimate of one dependant per soldier. A couple of *centuriae* could have been a fairly real cognitive boundary. This suggests that two facing barracks did not only delimit unit structure on the ground, but also defined it as a socio-spatial unit within the base, the outer periphery of a network based on regular personal knowledge. Networks of barracks could well have been the most important reality of day-to-day life for ordinary *milites caligati* as well as for junior officers, also encouraged by the communal space in between the barracks and access to light afforded there. Work by Lendon (2006) suggests that variation in the language used by soldiers reflected social differentiation, with soldiers using the term *commanipularis* to refer to those belonging to the same infantry century and *commilito* to others.

The cult of *genii* provides epigraphic material recording associations below the level of a unit, further strengthening the importance of centurial networks. *Genii* are spirits of either a community or a place, embodying its vitality and energy and ensuring good fortune (Haynes 2013: 3:19, Speidel and Dimitrova 1978: 1550). While many *genii* watched over the whole unit, one also finds dedications from individuals who sought protection in the name of their more immediate networks. The popularity of *genii* of certain sub-units over others can be taken to reflect the prevalent forms of sub-unit identity (Haynes 2013: 319). At least within the legions,

the strongest associations visible in the dedications to *genii* are those of *centuriae* (Speidel and Dimitrova 1978: 1546). The importance of centurial networks for daily practices within the army (rather than the wider community of the whole legion, which would be largely intangible on a day-to-day basis of working in small subdivisions), is underlined by dedications to centurial *genii* outnumbering those to *genius legionis*. A century's officers often chose to refer back to their immediate community, around whom they would presumably spend most time on a daily basis and felt the strongest association with. Q. Caeclius Kalendius (ILS 2290) set up separately a dedication to his legion and to his best fellow soldiers from the century (*commanipulorum bonorum*). In some cases spatial association between the dedications to *genii* of *centuriae* and the barracks, as the areas where the community was most likely to reside, is visible. The chapels to the *genii* of the *centuriae* at legionary Laembesis were placed by the unit's barracks (Cagnat, 1908: 55). At Niederbieber too, dedications to centurial *genii* appeared exclusively in the accommodation areas (Stoll 2001: 167, e.g. CIL XIII 7750).

Speidel and Dimitrova (1978: 1544) observed a paucity of dedications from legionary cohorts and explained it by the lack of officers at the cohort level and the resultant lack of collective cohort identity. In a legion this points towards a multitude of smaller centurial networks, for which membership in a cohort did not play a significant role. The small number of cohort *genii* reminds us of the extent to which the figure of a powerful leader provided an embodied marker of identity for the group. Incidentally, based on the psychological predictions, the 500 strong cohort (also equal in size to an auxiliary regiment) would also seem too large a group to form a coherent and functional social network. The epigraphic medium, however, may not always reflect the reality of social bonds. Even though the *contubernium* (the smallest unit composed of eight men) was likely to be the strongest social sub-unit, no dedications to *genii* of *contubernia* have been attested (Haynes 2013: 321). A likely reason is that the *contubernium* as a grouping of ordinary soldiers may not have been deemed appropriate to receive patronage of a *genius* (Haynes 2013: 321). Another contributing factor may be the very small number within the group, resulting in its limited financial capability to set up an inscribed monument. The general Empire-wide pattern is repeated in Britain, with two dedications to *genius legionis,* including one from *Legio XX* (RIB 449), and four *genii* of *centuriae.* These included three legionary examples from *Legio XX* (RIB 446, RIB 447, RIB 448) and one auxiliary example from Carlisle (RIB 944). The dedications to *genii* so far have helped us to understand which networks based on unit structure were more meaningful in social terms than others, confirming that these fell within the brackets of 150 individuals proposed by the psychological models and providing support for the idea of *centuriae* being the strongest socio-spatial units.

There are limitations in applying psychological models to try to determine the threshold of what constitutes a social network, particularly with regard to the issue of smaller groups working across sub-unit divisions. The lower stratum of officers at the century-level within a legionary base is a good example. Through their position in the career ladder the junior officers constituted a separate base-wide interest group. For a large part of the day they were presumably spatially dispersed, working in different areas of the base. A large proportion of their daily business would have been within their own *centuriae*, with their networks overlapping with those of ordinary soldiers. Junior officers would have had the capacity to recognise each other's identity through dress and, over time, would remember faces of fellow *duplicarii* and *sesquiplicarii,* but would they constitute a coherent sub-group based on personal knowledge in Dunbar's sense? There were occasions on which they gathered in large groups on official business, such as all centurions during morning order taking (*salutatio*) (Jos. *BJ* 3.5), but if we add up all centurions,

optiones, signiferii, tesserarii and *cornicines* from all sixty centuries we achieve a number of 250 junior officers. The social experience of the military base was fragmented into a multitude of smaller, yet no doubt, partially overlapping networks. To explore these further we need to turn towards the epigraphic evidence for smaller social networks within the army - inscriptions carrying information about the group with whom one identified, ideally also listing the names and ranks of the dedicants.

Dedications to *genii* of specific ranks and inscriptions set up by associations of specialists (*collegia*) provide appropriate evidence for small networks operating across unit subdivisions (Haynes 2013: 321). Together it seems that all groups of ranking officers and specialists worshipped their *genii* (Speidel and Dimitrova 1978: 1548). The cult of the *genii* served to distinguish them from the common soldiers (Haynes 2013: 320). Inscriptions set up by *collegia* provide evidence for associations of *duplicarii, beneficiarii, tesserarii, cornicularii, optiones*, musicians, decurions, hospital staff, accountants, *librarii* and armoury wardens among others (Tudor 1963: 248). Epigraphic evidence records two specialist networks in the XXth legion, including the dedication to *genius* of *signiferii* (RIB 451) and the funding of a funeral by the *collegium* of armourers (RIB 156). The dedications do not reveal anything of the composition of the groups, and in any case the *collegium* inscription is of first century date (Malone 2006: 165), from the period before *collegia* were permitted to perform social functions beyond that of providing a burial fund.

Particularly good evidence in regard to the social fabric of *collegia* comes from Niederbieber, a site destroyed during a Germanic attack in A.D 259/260, preserving material *in situ* (Stoll 2001: 169). A group of dedications to *genii* of *collegia* sheds light on the social fabric of the two *numeri* units, together amounting to around 1,000 men. The inscriptions reveal an array of small specialist groups of mid-ranking officers networking together under the umbrella of one *collegium*. Counting the maximum number of officers in a given rank in the two units combined, each specialist group would consist of no more than 10–15 men. Members of at least three such groups joined forces in the *Collegium Victorensium Signiferorum*, whose meeting room was in the *principi*a which both units shared (Stoll 2001: 170). From the room comes a dedication to a *genius* watching over both the *Vexillarii* and the *Imaginiferii* (CIL XIII 07753) founded in A.D. 239 (Stoll 2001: 169). A later dedication (246 A.D.) to the *genius* of the same *collegium* (CIL XIII 07754) reveals that in the *collegium* were included also the *baioli* (couriers, or dispatch riders) who jointly with *vexillarii* founded the dedication. Fourteen names of men of varying origins dedicating the monument are listed on the sides of the base. *Collegium Victorensium Signiferorum* joined together people of different origins and specialisations. The relatively small number of men in each profession caused them to work together in a bigger group, perhaps of a few dozen in total. Since there is no reference to any particular unit, likely the *collegium* was open to men from both units, similar to the legionary *collegium* of scouts at Aquincum (CIL III 3524). Through the *collegium* smaller interest groups came together for mutual benefit. The *collegium* as a bigger group no doubt enjoyed prestige and held a degree of power (Haynes 2013: 313). A separate snapshot of networking within the same unit, potentially at a level higher than the *collegium* (that of high ranking officers), is preserved in a dedication to the *genius* of *capsarii* (medics or bandage carriers) (CIL XIII 11979). This was erected by the *medicus ordinatus*, the highest ranking doctor, consecrated under the authority of the *praefectus* of the unit (Stoll 2001: 170), providing a window to a more exclusive interest group.

In contrast to smaller auxiliary units, associations within the legions could potentially be fairly big communities; *collegia* of officers of whom there was one for each century, or *collegia*

open to men of different specialisations. A good example of the size of such communities is provided by a list of 205 *duplicarii* of *Legio III Augusta* who set up a monument on their return from Parthia (CIL VIII 2564). The group does not identify itself specifically as a *collegium*, but it was very diverse, encompassing men of various titles, including *tesserarii, tubicinii, cornicenes, bucinatores, mensores, scutores*, among others. Within the same legion a *collegium* of *optiones* consisted of at least 64 members, whose names are preserved on an inscription commemorating the establishment of their meeting hall (CIL VIII 2554). A club of horn players consisted of at least 36 men recorded on the club's list of fiscal regulations (CIL VIII 2557). All of these clubs would have worked across centurial divisions as well as between cohorts; men from six cohorts are named in one fragmentary dedication (CIL VIII 2536–2541). Some men were clearly very active in their participation in *collegia*; Cattianus and Surus appear on dedications set up by the *optiones* (CIL VIII 2554) and in another *collegium* inscription (ILS 9100) dedicated by clerks; *librarii, exacti* and an *actarius*. Similarly to Niederbieber, there is also evidence for more exclusive networks including officers higher up within the hierarchy, such as the group of *optiones* and *adiutores* of the first cohort dedicating an inscription in the *tabularium* (CIL VIII 2555).

A question remains as to what sort of bonds the *collegia* represented. The fairly small group at the base at Niederbieber is likely to have been a tight-knit community. In a similar setting of an auxiliary unit at Slaveni, Haynes (2013: 224) observes that Marinus, who set up a dedication to *collegium duplariorum,* provided little detail about himself, probably because it was unnecessary; within a group of a couple of dozen his identity would be obvious. In sociology a *collegium* of this size would parallel a sympathy group (Buys 1992; Zhou *et al.* 2005) – bound with special ties, but typically contacted on a less regular, perhaps monthly basis. In military cohesion studies the sizes of the *collegia* at Niederbieber and Slaveni indicate that they were potentially the soldiers' 'primary networks', alongside their *centuriae,* capable of providing substantial support and a meaningful identity marker. However, in the context of the list of over 200 names, membership of such a vast association in defence of one's professional interest may not be equivalent to a social network in Dunbar's sense. Participating in a dedication alongside two hundred other men would have been a fairly formalised matter, with considerable effort needed to collect funds and carry out the initiative. Unity within such a large group would presumably have been achieved through administration. Association with such a large community may not have extended beyond semi-official realms, in terms of military cohesion comparable to a 'secondary group', where the knowledge of other individuals rests primarily on their position within the institution rather than a personal bond, with the group providing little escape from the anonymity of a vast organisation. In practical terms, feasts evidenced in civilian *collegia* (Pegler 2000: 38) would have been difficult to execute for such a large group in a military setting due to a lack of an appropriate venue.

There also would have been an array of deeply complex variables, with many affiliations formed based on those with whom one was associating by the virtue of situational circumstances; duty distribution, frequenting the same functional facilities such as ovens, gambling dens, leisure habits, social venues such as bars and cultural affiliations, many of which would never be suitable for commemoration via an inscription. There also would have been groups formed not only of military personnel but also consisting of women, freedmen, veterans and civilians. One such sympathy group is alluded to in the Vindolanda tablets (Tab. Vindol. 310), which included a woman, a veterinary doctor and two soldiers; one of 'Celtic' and the other of 'Germanic' origin. This was perhaps an informal group working across gender and status categories.

Eighteen religious dedications from within and around the third *Mithraeum* at Poitovio, Slovenia, near the base of a legion are another good example. The inscriptions reveal that the group worshipping the deity included people from all walks of life; an imperial slave (AIJ 311), a freedman, civilians (AIJ 312; AIJ 318), an equestrian commander from a legion (AIJ 313), joint groups of minor officers such as *tesserarii* and *custodes armorum* from both *Legio V Macedonica* and *Legio XIII Gemina* (AIJ 315) and a group of clerks from both legions (AIJ 314). A shared dedication like this differed from the network-forming activities of the informal friendship group from Vindolanda. Participation in a Mithraic community was formal, structured, hierarchical: and a strong religious focus provided an opportunity to become part of an exclusive social organisation, one which could also be a useful tool in terms of getting ahead in the military society.

Conclusions

Thinking about the experience of being part of the community of a military base in the context of the predicted extent of social networks has largely been an experiment based on comparative information on human groups and military units. However, it has been possible to identify some distinctions between the experiences of individuals stationed at legionary and auxiliary bases. The case study focusing on a legionary base pointed towards anonymity and unfamiliarity in a large legionary hub and the way in which the institutionalised nature of the establishment was likely to influence the structuring of social networks. The small settled community of Vindolanda provided information for how, within a spatially small place, there would have been enough room for significant social distance. The tension between theoretical proposals and the archaeological data is most visible in the epigraphic record. The limitations of the approach are particularly recognisable at the level of smaller groups (i.e. *contubernium*), which, while likely to represent the strongest bond between individuals, are not attested epigraphically. This demonstrates that the available data is partial in that it is only useful for revealing networks formal enough to set up an inscription. *Centuriae* are the most prevalent sub-unit identity forms visible in the epigraphic record, but they are also, according to the psychological models incorporated in this study apparently real socio-spatial units which defined a periphery of regular personal contacts. The *collegia* in auxiliary units recall modern military ‘primary groups’, with strong personal bonds, including an example visible in the dedication at Slaveni. The large *collegia* at Laembesis, on the other hand, are likely to have been fairly formal affairs. Our knowledge of informal groups cutting across gender and status categories is perhaps the most limited. The findings indicate that Roman military unit identity was not nested in personal knowledge of all people within it, but instead within abstract values of social identify at varying scales.

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Abbreviations

AE	*L'Anné Epigraphique,* 1881–
AIJ	Hoffiller, V. and Saria, B. (eds). (1938) *Antike Inschriften aus Jugoslawien. Noricum und Pannonia Superior.* Zagreb: Druck der Fondsdruckerei der "Narodne novine".
Caes. BG	Caesar (see Ancient Sources, below).
Jos. BJ	*Josephus* (see Ancient Sources, below).
CIL	*Corpus Inscriptionum Latinarum,* 1863–
ILS	Dessau, H. (ed.) *Inscriptiones Latinae Selectae,* Berlin: Wiedmann.
RIB	*Roman Inscriptions of Britain,* 1965–
Tab. Vindol.	Vindolanda Writing Tablets (see Ancient Sources, below).
Tab. Vindon.	Vindonissa Writing Tablets (see Ancient Sources, below).
Tac. Hist	Tacitus (see Ancient Sources, below).

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Cognitive Theory and Religious Integration: The Case of the Poetovian Mithraea

Blanka Misic

Introduction

In recent years a trend of applying interdisciplinary theoretical frameworks to the study of ancient cultural and religious change has become ever more popular amongst scholars of antiquity. Although anthropological and sociological models have been popular in the past, recent scholarship has started to focus more on psychological and cognitive theoretical approaches. One area which has grown rapidly among scholars working on religion in Graeco-Roman antiquity is the study of cognitive science of religion, which attempts to examine human thought processes and behaviours in order to explain how humans formulate and transfer religious concepts.

The current predominant theory of cognitive science of religion among researchers of antiquity is Harvey Whitehouse's theory of 'modes of religiosity'. Whitehouse's (2009: 1, 10) theory seeks to explain patterns of deviation with respect to religious rituals: how religious notions are transferred among individuals and communities, and how they vary and evolve from society to society. His theory proposes two divergent routes of religious transmission: doctrinal and imagistic (Whitehouse 1995; 2000: 124, 130; 2002: 293–294, 309; 2004a: 216; 2004b; 2009: 5). The doctrinal mode can be found most often in literate societies, which exhibit some kind of centralised leadership. In the doctrinal mode, religion and religious meaning are transmitted in written form, through official religious texts, as well as in oral form, through leaders who, by frequent repetition of religious rituals and ideas can transmit these to wide audiences and embed them in the participants' consciousness and semantic memory. Thus, an 'imagined community' is formed among various worshippers who, although they do not know each other personally, share the same religious beliefs and values, creating solidarity between themselves and loyalty to their cult (Whitehouse 2009: 5). Therefore, as they spread and become more popular, religions exhibiting the doctrinal mode tend to develop a clear centralised hierarchy among their members (Whitehouse 2002: 304; Martin 2004: 10; Whitehouse 2004b: 8; Wiebe 2004: 198; Whitehouse 2009: 5; Whitehouse 2013: 77).

Contrastingly, the imagistic mode of religiosity is characteristic of non-literate societies. The imagistic mode is transmitted in oral and visual form through infrequent but highly visually arousing and emotional rituals so that in this manner, the religious rituals and ideas can become embedded in the participants' consciousness and episodic memory. Due to the high emotional appeal of this mode, each worshipper experiences and interprets this imagistic religious experience in their own way. According to this conception of the imagistic mode, loyalty to the cult is cemented through the emotional experience offered, and solidarity bonds between cult members are formed on the basis of a shared (although not the same) religious experience, creating a small but tightly-knit group of worshippers (Whitehouse 2002: 304; Martin 2004:

10; Whitehouse 2004b: 4, 8; Wiebe 2004: 198; Whitehouse 2009: 5–6; Whitehouse 2013: 77).

Although Whitehouse's theories of modes of religiosity were developed and tested in modern societies (Whitehouse 1995), few scholars have yet applied them to the study of ancient cults (Whitehouse and Martin 2004; Martin and Pachis 2009). This paper will attempt to show that neither Whitehouse's doctrinal nor imagistic modes by themselves are fully representative of Mithraic religious trends, especially with respect to votive evidence found in the Pannonian colony of Poetovio, and that this evidence displays not a polarity but an integration of both modes (e.g. Wiebe 2004: 200–201). The *colonia* of Poetovio is the best documented and the richest site in terms of Mithraic evidence in southern Pannonia and it is for this reason that this settlement was chosen for study. Additionally, since material culture in itself is an embodiment of one's cognitive framework, examining Mithraic votive evidence from Poetovio may offer an insight into this settlement's wider cultural and social framework.

Imagistic and Doctrinal Modes of Religiosity in Mithraism

Mithraism, as far as we know, does not have a recorded, cult-wide doctrine in the form of official sacred texts (Burkert 1987: 70; Chalupa 2011: 113). While it must be acknowledged that we do have evidence of Mithraic 'mystical utterings', recorded in the form of fragmented verses on the walls of the Santa Prisca Mithraeum (Vermaseren and Essen 1965: 148–172, 179–240), we must question the official, cult-wide use of these, as they are not reproduced in any other Mithraea throughout the Empire. The same is the case with the Egyptian prayer-texts (Betz 1993: 48–54; Clauss 2000: 105–108), consisting of seven prayers instructing the initiate on how to achieve an enlightened state. According to Clauss, these prayers were 'performed' in an oral and visual form, in such a manner as to solicit a state of high emotional arousal, rendering them more imagistic than doctrinal in nature (Clauss 2000: 106–107). Thus, with respect to these texts, we cannot claim with certainty that they were part of widespread, 'official' Mithraic teachings, but we must instead entertain the idea that they could have been particular to a specific Mithraic congregation, a specific locale, and even a specific time period (Vermaseren and Essen 1965: 173–178), reflecting perhaps a local emphasis or variation of particular aspects of Mithraic worship (Clauss 2000: 16; Gordon 2001: 258–259; Martin 2006:140–141; Whitehouse 2009: 4). What we do find more often is that Mithras' mythology and origin are conveyed in the form of iconographic depictions, set up by his worshippers, which may display local variations. The exact meaning and the divine message behind these depictions can often be interpreted in several ways by the viewer and/or the worshipper (Will 1970: 634–635; Whitehouse 2004b: 4). The images most frequently depicted, such as the tauroctony, Mithras' birth out of a rock, and Mithras shaking hands with Sol, are often constructed as complex group-scene narratives, appealing to the emotive side of the viewer and/or worshipper, more like a mythological narrative and less like a rigid religious code of conduct. In this respect, Mithraism would seem to fit the imagistic criteria.

However, although Mithraism appears to lack an official sacred text, part of Mithraic worship, in addition to the setting up of reliefs, consists of setting up inscribed votive altars. Although these do not strictly adhere to the doctrinal requirement of official written texts, inscribed dedications do display some elements which could be attributed to the doctrinal mode of religiosity. For example, there are specific formulae for addressing the god ('*Deo Invicto Mithrae*' and '*Deo Soli Invicto Mithrae*' being among the most frequently used), including the use of specific epithets ('*Invictus*') to pay proper respect to the divinity. Thus we see that although inscribed

altars do not offer us with an official religious code in the manner that Whitehouse's doctrinal mode stipulates, they do nevertheless display a manner of written code of conduct: how it was acceptable to address and worship the divinity. In this sense, it could be claimed that inscribed altars, with their formulaic features, could be classified as a doctrinal element.

Secondly, tied in with the apparent lack of sacred texts is a lack of centralised religious leadership, which Whitehouse ascribes to the doctrinal mode. As far as we are aware, there does not appear to have been a centralised religious hierarchy for Mithraism, which fed down its teachings to smaller groups spread throughout the Empire (Clauss 2000: 16; Beck 2004: 87–88). Instead, it appears that the cult of Mithras was composed of independent religious cells, rather than a centralised and coordinated hierarchy characteristic of a doctrinal mode, which would lead us to conclude that this aspect of Mithraism conformed to the imagistic mode.

However, it cannot be denied that in Mithraic religion there existed a hierarchy based on the seven Mithraic grades (Vermaseren and Van Essen 1965: 155–160; Clauss 2000: 131–140; Gordon 2001: 248). Each cell was headed by a '*Pater*', the senior individual of the local Mithraeum who held the highest grade in the Mithraic hierarchy. As an elder of his specific Mithraic cell, the '*Pater*' was likely a source of veneration and authority (Vermaseren and Van Essen 1965: 158–159; Gordon 2001: 254–255; Whitehouse 2013: 70). Thus, as a leader, he would have transmitted ritual knowledge and ritual meaning to his fellow Mithraists through both oral and visual forms and frequent and infrequent repetition of various rituals. Therefore, while there was no overarching centralised hierarchy, the presence of a hierarchy within each independent cell incorporates elements of both imagistic and doctrinal modes.

Thirdly, Mithraism required secret initiation rites to be performed on the individual who wished to join the cult. Although the specifics of these rites remain puzzling to us due to their secrecy, it could be argued that they can be classified under the imagistic mode of religiosity (Beck 2004: 89; Gragg 2004: 76–78). Namely, in the absence of official sacred texts, the rites of initiation needed to be visually and emotionally powerful enough in order to cement the worshipper's allegiance to the cult. A pottery vessel from Moguntiacum discovered in 1976 may shed light on this Mithraic initiation ritual (Beck 2004: 89–90). Among other scenes the vessel depicts the senior individual of the Mithraic cult dressed as Mithras and shooting an arrow at a naked individual presumed to be the initiate. If this vessel indeed depicts the Mithraic initiation ritual, it appears that it would have evoked high levels of emotion (stress, excitement, and fear, for example) for the initiate and would have thus proved effective as an imagistic mode, not only cementing the initiate's membership into the Mithraic mysteries (Beck 2004: 89–90), but also denoting the individual's place within the Mithraic hierarchy, securing their respect and loyalty towards the cult and its senior members (Gordon 2001: 253–254; Martin 2006: 136–137). Senior members of the cult, and especially the '*Pater*', served as a type of 'didactic support' in the process of initiation and the subsequent transmission of Mithraic teachings (Gordon 2001: 254–255; Whitehouse 2009: 5–6; Chalupa 2011: 116). In addition to the Moguntiacum vessel, imagistic aspects of the initiation ritual are also supported by several frescoes found at the S. Maria Capua Vetere Mithraeum. One fresco depicts an initiate blindfolded, kneeling, with his hands tied behind his back, and being threatened by a stick or a sword held by a senior official who is dressed as Mithras (*CIMRM* 187, 188, 191, 193, 194; Vermaseren 1971: 24–51; Clauss 2000: 102–104). Initiation rituals such as these could have been interpreted cognitively as a symbolic destruction of the body in order to enhance the initiate's spiritual aspect (Whitehouse 2013: 71), perhaps through symbolic re-birth into the Mithraic faith (*CIMRM* 498; Clauss 2000: 104–105). Therefore, the prospect of facing death (even if symbolically) alongside the

humiliation of the initiate who is depicted as naked, submissive and powerless, in addition to accompanying sensory pageantry, would have very likely stirred high levels of emotional arousal characteristic of the imagistic mode (Clauss 2000: 105; Gordon 2001: 259, 264; Martin 2006: 135; Chalupa 2011: 115). Recent research on cognition and emotion likewise seems to support this claim, stating that emotionally-arousing and unpleasant events not only become encoded in human memory faster and more profoundly, but they can also later be recalled more readily and vividly (Murray *et al*. 2013: 157, 159, 164–165). Furthermore, the rite of initiation also conforms to the imagistic mode in that the rite is a one-time occurrence for the individual being initiated (unless the initiate wished to pass through all of the seven grades, and even then, it is likely that the initiation ritual for every grade would have been different (Gordon 2001: 253; Martin 2006: 134)). Likewise, due to the often small size of Mithraic cells, it is also likely that initiation rituals were not performed very frequently. The ritual practice of initiation therefore appears to be characteristic of the imagistic mode, provoking an emotional arousal in the individual, and in its scarcity of repetition (Beck 2004: 94, 97).

Other types of Mithraic ritual may conform to the doctrinal mode. For example, it is possible that the cult meal, a form of ritual congregation of members in the Mithraeum, occurred at frequent intervals, creating a frequent repetition of ritual characteristic of the doctrinal mode (Beck 2004: 97; Chalupa 2011: 114). Whitehouse (2009: 5) notes that when rituals are often repeated they stand a greater chance of wider geographical diffusion. It is perhaps partially due to this reason, as well as the socially and spiritually bonding practice of sharing food (Clauss 2000: 109, 113), that we have more evidence in the archaeological record of ritual meals taking place throughout the Mithraea of the Empire (as evidenced by finds of pottery, utensils, lamps, and animal bones, as well as by relief depictions such as *CIMRM* 1083), than of specific, 'standardised' initiation rites. Moreover, while other types of ritual devotion may have been characteristic of the imagistic mode (such as the setting up of large and expensive stone votives whose erection would have likely been an infrequent and memorable occurrence, leaving an emotional imprint on the worshipper), the placement of more regular and smaller offerings to the deity (pottery, lamps, etc.) would have conformed to the doctrinal mode. Thus, it is possible to argue that in terms of ritual, Mithraic religious values were transmitted to Mithras' followers by an integration of imagistic and doctrinal modes, with the cultic practices becoming embedded through both intense, emotional experience and the frequent repetition of rituals.

All of these Mithraic rituals, both imagistic and doctrinal, formed a complex and interconnected system of symbols representing the human cognitive construction of the cult (Beck 2004: 94). Mithras' worshippers comprised individuals from different backgrounds and levels of society, and as these individuals changed and evolved, so too did the cult itself, and with it the meaning and the manner of transmission of its religious teachings (Clauss 2000: 16–17). Therefore, it seems natural, given the differing backgrounds of its worshippers, that the cult of Mithras would have evolved to feature an integration of imagistic and doctrinal elements (Selem 2008: 393).

The Case of the Poetovian Mithraea

The fact that the cult did not remain static, that it evolved with changing populations, and that it incorporated both doctrinal and imagistic elements, can further be seen by the evidence preserved from the Poetovian Mithraea.

The territory of Poetovio came under Roman control around 15 B.C., but did not become a *colonia* until the reign of Trajan. Poetovio quickly became an important administrative and

customs centre, housing the central administration office of the entire Illyrian customs service (Selem 1980: 10-11). In terms of religious life, Poetovio displays a vibrant mix of Roman, Celtic/autochthonous and Eastern cults, reflecting the nature of its settler populations. The most predominant cult in terms of the sheer degree of epigraphic and archaeological evidence, however, is the cult of Mithras. The worship of Mithras is first recorded in Poetovio in the A.D. 140s, and thrives until the early fourth century, encompassing five Poetovian Mithraea (Belak 1993: 234–237). Thus, the popularity of Mithras at Poetovio largely coincides with the same trend throughout the rest of the Roman Empire (Beck 2004: 87).

The Poetovian Mithraea conform to the doctrinal mode in several ways. Firstly, explicit references are made to the Mithraic hierarchy in inscribed dedications, such as the mention of the highest grade, the '*Pater*' (*AIJ* 312 (Third Mithraeum) and *AIJ* 300 (Second Mithraeum)). It is to be noted that no other Mithraic grades are explicitly mentioned in any of the five Mithraea, although Belak attempts to assign, on the basis of iconography, the first six grades to various worshippers within the first Mithraeum (Belak 1993: 234). Due to the still debatable interpretations of various myth-scenes, their exact meaning, and their chronological order (Clauss 2000: 62), alongside the lack of explicit naming of other grades in our evidence, the present author is reluctant to accept Belak's conclusions. For the purposes of this paper it is sufficient to note that Mithraism did indeed subscribe to a hierarchical structure, consisting of seven priestly grades, and that this hierarchy is evident in our Poetovian evidence by the explicit mention of the highest grade, the '*Pater*'. According to Whitehouse (2013: 76-77), the observation of a religious hierarchy instilled in the worshipper notions of social order and discipline, regulating the worshipper's behaviour. Moreover, a hierarchy created a stronger sense of identity both within the religious and the professional sphere of the worshippers, as everyone knew their place. Several studies have already suggested that Mithraism, with its hierarchical structure, would have appealed to worshippers in highly-structured and hierarchical professions, such as soldiers and administrative officials, and this statement is likewise supported by evidence from the Poetovian Mithraea (Will 1970: 633–634). Mithraism appears to have been brought to Poetovio by the Illyrian customs officials via Aquileia. In the case of our first and earliest Mithraeum (in use *circa* A.D. 150–180), seven out of the ten recorded dedications explicitly belong to the members of the customs service, attesting four *vicarii* (*ILS* 4242; *ILS* 4243; *ILS* 4245; and *AIJ* 294), one *contrascriptor* (*AIJ* 297 and *AIJ* 298) and one *scrutator* (*ILS* 4247). Moreover, it is implied on at least one other inscription that the dedicator may have been attached to the customs service (*CIL* III 14354/32 = *AIJ* 296). Thus, although most of the dedicators from the first Mithraeum were slaves, they nevertheless clearly display a connection between the professional and religious spheres of their lives through the explicit mention of their particular occupations, displaying their hierarchical standing and conforming to the doctrinal mode. In addition to listing their occupations and their affiliation to the customs service, a large number of Mithraic worshippers belonging to the customs service at Poetovio also display a connection between their personal and professional lives by listing their patrons and supervisors on their dedications. Some even include a veritable chain of command, identifying themselves through their superiors (*OPTIMVS / VITALIS / SABINI VERANI / P(ublici) P(ortorii) VIL(ici) VIC(arius)* (*ILS* 4243); *PRVDENS PRIMI / ANTONI RVFI P(ublici) P(ortorii) / VIL(ici) VIC(arius)* (*ILS* 4245)), therefore displaying not only their position within the hierarchical structure of the customs service, but also their devotion and loyalty to their organisation and their patrons, as well as their sense of religious brotherhood (Will 1970: 637–638). In this sense, the first Mithraeum could almost be perceived as a *collegium* of customs agents (Chalupa 2011: 114).

Secondly, the Poetovian Mithraea also conform to the doctrinal mode by their inclusivity. Although they feature small, tightly-knit groups of worshippers (e.g. the customs officials from the first Mithraeum, and Gallienus' troops from the third Mithraeum), and require the worshipper to be male and initiated, the epigraphic evidence from the Poetovian Mithraea nevertheless displays a variety of worshippers in terms of cultural and professional backgrounds. Although the first Mithraeum displays dedications erected primarily by customs officials, the names of the dedicators point to their various cultural origins. We encounter frequently-given slave names such as Optimus (*ILS* 4243) and Felix (*AIJ* 294), which likely mask individuals of various backgrounds, as well as Greek (Theodorus (*ILS* 4247)) and Dalmatian (Caius Caecina Calpurnius (*AIJ* 292)) names. The doctrinal inclusivity and wide spread of Mithraism is even more apparent in subsequent Mithraea (Will 1970: 636). The second Mithraeum (in use *circa* A.D. 193–337) appears to have been established as a direct result of overcrowding in the first Mithraeum. In this respect the initial dedicators likewise identify themselves as customs agents (*AIJ* 299; *AIJ* 302; *CIL* III 15184/8; and *CIL* III 15184/24), although with the rise in popularity of Mithras during the third century, we also find soldiers (*AIJ* 301 and *AIJ* 363), and even an *IIIIvir Augustalis* (*CIL* III 15184/9) attested among the remaining (presumably civilian) dedicators. Moreover, among the dedicators in the second Mithraeum we find slaves, freedmen and citizens, of Italian (Titus Flavius Restutus (*CIL* III 15184/9)), autochthonous/Pannonian (Aurelius Valentinus/Aurelius Valens (*AIJ* 303) and Secundus/Acutio (*AIJ* 304)) and Greek/Oriental (Epictetus (*CIL* III 15184/24)) backgrounds, among others whose names prove harder to place. The same type of inclusivity is again found in the third Mithraeum (in use during the third century A.D.). Although initially built as a civilian Mithraeum (*AIJ* 311 and *AIJ* 312), the third Mithraeum is quickly taken over by Gallienus' *XIII Gemina* and *V Macedonica*, who are transferred to Poetovio from Dacia. Thus, in addition to soldiers (*AIJ* 313; *AIJ* 314; *AIJ* 315; *AIJ* 316; *AIJ* 317), we find customs and administrative personnel (*AIJ* 311; *AIJ* 318; and *AIJ* 290), a priest (*AIJ* 312), and several other (presumably civilian) dedicators. Among these dedicators are to be found slaves, freedmen, citizens and an equestrian commander, of Italian/Oriental (*AIJ* 312), Illyrian (*CIMRM* 1604–1605) and Syrian (Selem 1980: 128, no.88) origins. We begin to see a decline of the cult in the later third century at Poetovio, as the number of dedications diminishes to six in the fourth Mithraeum and finally one in the fifth Mithraeum. The fourth Mithraeum (in use in the third and fourth centuries), although containing only six dedications, displays surprising variety and inclusion. We have one equestrian administrative official attested, possibly of autochthonous/Pannonian origin (*CIL* III 4039), one unaffiliated citizen of Graeco-Oriental origin (*CIL* III 4040), another unaffiliated dedicator of possibly Oriental or autochthonous/Pannonian origin (*CIL* III S10874) and another pair of citizens (*CIL* III 4041). Lastly, the fifth Mithraeum yields only one dedication, dated to A.D. 235 (*AE* 1991: 1301) too badly damaged to ascertain the professional affiliation of the dedicator Lucius Vanderius. Thus, as our Poetovian evidence shows, Mithraism appeals to a wide audience, is inclusive and spreads quickly and widely throughout Poetovio, all characteristics of the doctrinal mode. Moreover, it would also appear that the Poetovian Mithraea were inclusive in the sense that they allowed members of other Mithraic cells who had temporarily come to Poetovio to join the Poetovian Mithraea and participate in its rituals. For example, we have attested customs agents from Atrans (*AIJ* 299), Confluentes (*CIL* III 15184/8) and Enensis (*AIJ* 302) as well as a soldier of the *legio II Italica* (*AIJ* 301). All of these aspects can be classified as characteristic of the doctrinal mode.

Finally, although no evidence of official Mithraic religious code in textual form exists, the written code of conduct on how the deity should be addressed in the form of invocatory formulae

can be found on votive altars. In the case of the Poetovian Mithraea we see both uniformity and variety in the use of invocatory formulae, indicating an integration of imagistic and doctrinal modes. The first Mithraeum, although almost exclusively frequented by customs officials, displays the most varied collection of invocatory formulae, such as '*Invicto Mithrae*' (*ILS* 4242), '*Deo Invicto Mithrae*' (*ILS* 4243), '*Invicto Mithrae et Transitu Dei*' (*ILS* 4247), '*Transitu*' (*AIJ* 292), '*Naturae Dei*' (*ILS* 4245), '*Petrae Genetrici*' (*AIJ* 294), '*Cauti*' (*AIJ* 295), '*Cautopati*' (*AIJ* 296) and '*Primitivos*' (*AIJ* 298). Specific formulae invoking aspects of Mithraic mythology, such as '*Transitu*', '*Naturae Dei*', '*Petrae Genetrici*', '*Cauti*', '*Cautopati*', and '*Primitivos*' are accompanied by relief or statue depictions of Mithras carrying a bull on his back (*AIJ* 292), Mithras' birth out of a rock (*AIJ* 293 and possibly *AIJ* 294 (damaged)), and Cautes and Cautopates (*AIJ* 295; *AIJ* 296; and *AIJ* 298). Thus, it appears that both the variety of formulae and the depictions of different aspects of the Mithraic myth in the first Mithraeum indicate an imagistic mode of religious transmission, as the combination of specific invocatory formulae with accompanying imagery of myth scenes seeks to arouse an emotional response from the viewer. It is also possible that the choice of depicting a specific mythological scene on the part of the dedicator was due to an emotional identification to that particular myth. This would imply that our customs agents, dedicators from the first Mithraeum, were not only well-versed enough in Mithraic mythology to understand the complexities of its narrative, but also that they served as 'didactic support', transmitting their knowledge to new members who were unconnected to the customs service, such as the Dalmatian Calpurnius (*AIJ* 292) whose dedication of Mithras taurophorus has clear connections to Aquileia in terms of theme and execution. Mithraic iconography, along with verbal and visual support provided by fellow initiates, would have served as an imagistic mode of religious transmission (Chalupa 2011: 112, 116). Whitehouse (2004b: 4; 2013: 77) stresses that one of the key characteristics of the imagistic mode is the individual experience and interpretation of religious symbols. In that sense, although each Mithraic initiate may identify with and interpret differently certain aspects of the deity's myth, a group solidarity is still formed between worshippers due to their common emotional connection to the deity, and to each other as *fratres* (Selem 2008: 393). It is precisely this type of tight-knit brotherhood that we see exhibited in the Poetovian Mithraea, and especially in the first and the third Mithraea. As concerns the other Poetovian Mithraea, tauroctony scenes predominate among possible depictions of Mithraic myth, although we still find some instances of variation, such as the depiction of Mithras and Sol shaking hands (*CIMRM* 1584), as well as the scene of Mithras' rockbirth (*CIMRM* 1593) from the third Mithraeum. The predominant *formulae* in the other Poetovian Mithraea are '*Deo Invicto Mithrae*' and '*Deo Soli Invicto Mithrae*'. This preference for the '*Deo Invicto Mithrae*' formula, as well as for the tauroctony scene, may reflect a later standardisation of the cult at Poetovio, which would be characteristic of the doctrinal mode.

The Poetovian Mithraea further conform to the imagistic mode of religiosity in that they featured small, tightly-knit groups of worshippers. This is particularly exemplified in the first three Mithraea, which not only have a relatively small number of surviving dedications considering the time period during which they were in use, but are also composed of worshippers who have, for the most part, the same professional background. This sense of camaraderie and brotherhood between the Mithraic worshippers is further exemplified by the joint dedications set up by specific sub-groups within the *XIII Gemina* and *V Macedonica*, such as the joint dedications of the *librarii* (*AIJ* 314), the *tesserarii* and the *custodes armorum* (*AIJ* 315). Considering the large numbers of dedicators belonging either to the two mentioned legions stationed at Poetovio or to the Illyrian customs service, it is likely that adhering to the cult of Mithras formed an integral part of this

professional experience and served to cement loyalty and trust within one's professional group (Will 1970: 637; Sosis and Alcorta 2003; Sosis and Bressler 2003; Whitehouse 2013: 75). It is also likely that certain members joined the Mithraic cult for professional advancement, either to gain a more intimate access to their superiors who may have already been Mithras' worshippers, or to form an exclusive, members-only sub-group within their professional affiliation (Clauss 2000: 105). The Poetovian evidence would seem to weigh towards the latter, as, for example, a large number of customs officials who dedicate to Mithras occupied the post of *vicarius* (*AIJ* 318; *ILS* 4242; *ILS* 4243; *ILS* 4245; *AIJ* 294). In any case, it is due to this tight-knit emotional connectedness to fellow group members that localised group identities of worshippers are formed (Whitehouse 2009: 6; Whitehouse 2013: 76–77). For example, as part of Mithraists who occupy the post of *vicarius*, then as part of their specific Poetovian Mithraic cell and larger Mithraic tradition and history, then as part of the Illyrian customs service, and on a grander scale, as inhabitants of the Roman Empire; sharing in each of these cultural frameworks in order to create localised but multifaceted identities.

The Mithraic evidence of Poetovio, in light of Whitehouse's 'modes of religiosity', gives us an insight into the role of Mithraic religion and ritual in group creation (McCorkle and Xygalatas 2013: 2), revealing to us that although Mithraism was exclusive with regards to non-initiates into the religion, at the same time it appealed to a wide variety of worshippers and included men of various cultural and socio-economic backgrounds. This fine balance of inclusiveness and exclusiveness created social subgroups within the Poetovian society which helped to reconcile professional, personal, and religious aspects of the worshippers' lives.

Conclusion

While recent literature which has examined ancient cults in light of Whitehouse's theory of modes of religiosity claims that, by and large, Roman state religion can be classified under the doctrinal mode and the mystery cults under the imagistic mode (Whitehouse 2009), it is likely that Mithraism employed a mix of elements of the doctrinal and the imagistic modes, as this paper has attempted to demonstrate. Mithraism, therefore, would have transferred its core ideas and values to its worshippers through both highly-visually arousing experience of initiation as well as through frequent repetition of selected rituals. This integration of modes was likely the result of local Mithraic subculture(s), as well as the larger cultural and social fabric of the Empire, in which the Mithraic cult evolved and spread. This is exemplified by the Mithraic worshippers of Poetovio, customs agents and soldiers for the most part, who find in Mithraism the doctrinal hierarchical structure as well as the imagistic, tightly-knit, brotherly camaraderie reflected in their own professions.

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Residual or Ritual? Pottery from the Backfills of Graves and Other Features in Roman Cemeteries

Edward Biddulph

Introduction

Miscellaneous sherds of pottery found typically in the backfills of graves, but not assigned to vessels deposited as grave goods, are a common find in most Roman-period cemeteries in Britain and beyond. Occasionally such material is noted in the grave catalogue in the published report, but it otherwise elicits no further analysis, having been dismissed as residual fragments deriving from disturbed graves or soil layers underlying the cemetery levels. There are cases, however, where the pottery cannot so easily be disregarded.

Second century inhumation grave 254 in the Roman cemetery at Pepper Hill near the Roman town of Springhead in north Kent was reasonably typical of the 360 inhumation graves found there. The grave contained the remains of a coffin and the skeleton, which was accompanied by seven ceramic grave goods, among them a flagon, dishes and a jar (Fig. 1). The grave was a little richer than average – the mean number of ceramic grave goods across the cemetery, excluding cinerary urns and graves without pottery, was 1.7 (Biddulph 2006a: 48) – but what especially set the grave apart from the other burials was the mass of fragmented pottery deposited at the foot end. This assemblage – some 150 sherds weighing over 1kg in total – comprised the remains of at least one flagon, six jars, three beakers, three dishes, one platter and one cup in samian wares and locally-made fabrics. The spread of sherds formed a roughly circular pattern within the grave and was densest within the upper portion of the fill. The date of the latest pottery from the group was consistent with that of the principal ceramic grave goods, which dated the grave. The incompleteness and mixing of the vessels indicated that the pottery was fragmented before deposition, as if the broken fragments from different vessels had been gathered in hand and scattered deliberately to form a deposit covering the southern portion of the coffin and surrounding the top of the main vessels.

Given that the profile of the assemblage is functionally biased towards eating and drinking, it is reasonable to speculate that the fragmented pottery derives from vessels brought together to be used for dining, and possibly represents the remains of a funerary feast (Biddulph 2006a: 36–7). After all, we know from ancient texts that feasting played a prominent role in funerary rites. There was the *silicernium,* for example, held at the grave-side on the day of burial, the *cena novendialis*, consumed on the ninth day, and commemorative feasts eaten throughout the year (Toynbee 1996: 50–1). Other sites appeared to provide some support for this idea. The backfills of an inhumation grave dating to the mid 2nd century from Westhawk Farm, Ashford,

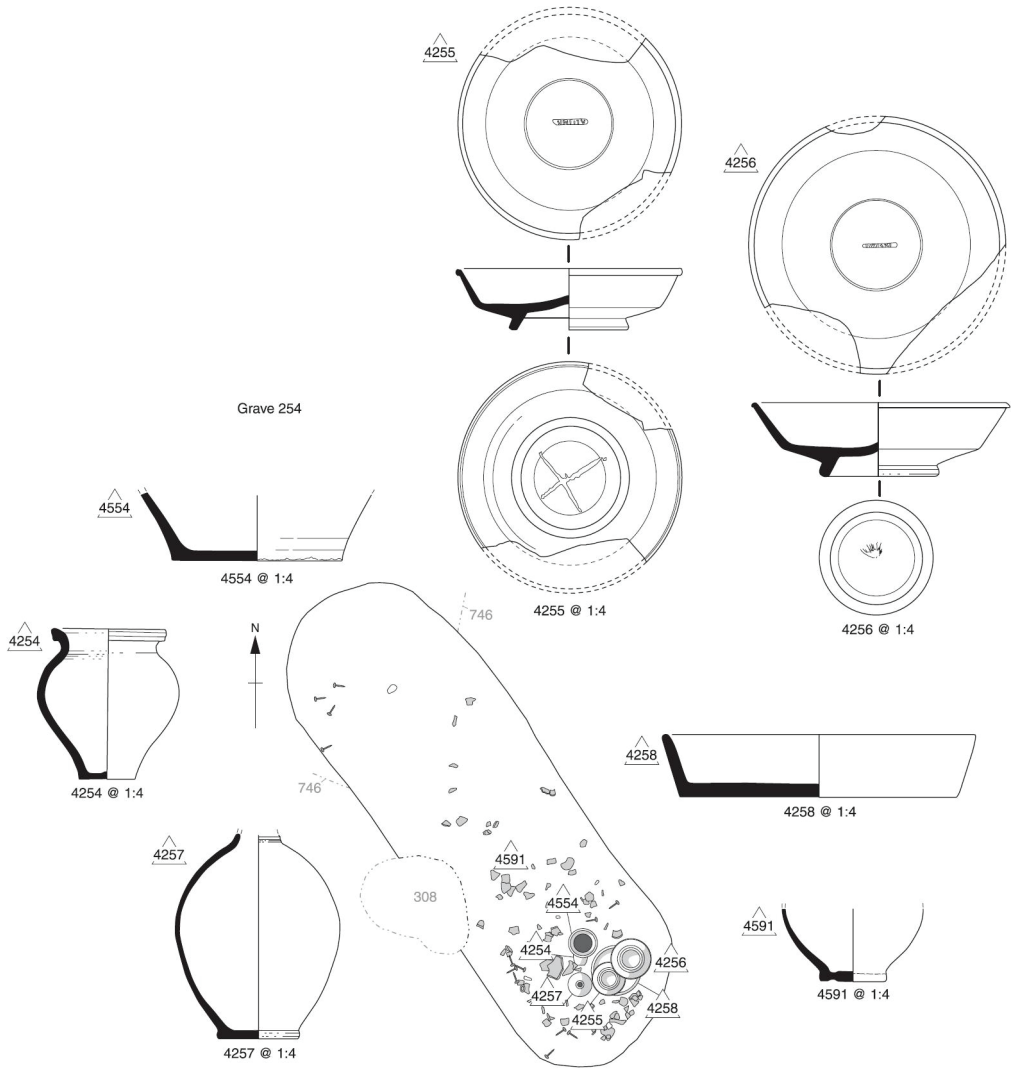


Figure 1: Plan of grave 254, Pepper Hill. © High Speed 1

contained over 2000 sherds of freshly-broken, but rarely complete, vessels, a quarter of which were flagons (Lyne 2008: 231–3), while at Alton in Hampshire, fragments of dining-related vessels were recovered from the fills of early Roman graves (Millet 1986).

Funerary or grave-side feasting is an interesting explanation, but can others be offered? Pepper Hill cemetery was a densely-packed site, with almost all graves showing evidence of cutting earlier graves or being cut by later ones. Might the fragments of pottery simply have been incorporated as residual occurrences into the backfill when the grave was dug, damaging and bringing up pottery from the grave below, or as intrusive material from later graves? More data were required to test these ideas and assess other possible origins for the pottery. A dataset

of miscellaneous sherds from grave backfills and other deposits not classified as grave goods from Pepper Hill and comparable cemeteries was gathered with the following questions in mind. What was the compositional profile of the assemblages? In what condition was the pottery? What type of deposits was the pottery recovered from? With what material was the pottery associated? What factors might otherwise have brought odd fragments of pottery into the grave?

To answer these questions, data from four cemeteries were collected. The cemeteries were chronologically and geographically diverse, and their published reports, crucially, presented form and fabric data quantified to useful extents. Joining Pepper Hill, a Roman cemetery dating mainly from the mid first to early third century A.D. (Biddulph 2006b), were Brougham in Cumbria (Cool 2004), a third-century cemetery, the late third- and fourth-century cemetery at Lankhills, Winchester (Booth *et al.* 2010), and the first- and second-century cemetery at Valladas near Orange in southern Gaul (Bel 2002). The reports for each of these cemeteries were trawled for miscellaneous pottery, both from graves and cemetery-related features, such as pyre-sites, pits and surfaces. The resulting pottery data were entered onto a database. Fabrics were standardised to broad ware codes – A for amphorae, B for black-burnished wares, F for finewares, R for reduced coarse wares and so on – based on those used by Oxford Archaeology (Booth 2008), while forms were described simply with terms such as 'jar', 'dish', and 'flagon'. Each entry was quantified as far as possible by sherd count, weight and estimated vessel equivalent, or EVE (the surviving portion of the rim expressed as a percentage). Not all reports allowed the pottery to be recorded to the same detail, with Valladas being the most problematic. Data were presented in the report for that site inconsistently, switching between sherd count and vessel count. There were no weight or EVE data, and not all pottery evidently present in a grave or other feature was necessarily described. The subsequent analysis had to be carried out with extreme care, for example by 'cleaning' the data to render them reasonably comparable with data from other sites. But if the data from Valladas are on the whole more qualitative than quantitative, they nevertheless provide a useful sense of the amount and range of pottery present.

Pepper Hill

Pepper Hill cemetery, near Southfleet in north Kent, was excavated by Oxford Archaeology ahead of construction of High Speed 1. The cemetery served the Roman town and religious complex at Springhead, or *Vagniacis* (Andrews *et al.* 2011). The excavation revealed almost the entire extent of the cemetery, and uncovered a total of 558 graves or other funerary-related features, including 360 inhumation graves, 150 cremation graves, and ten *busta* (graves containing a body which had been cremated on a pyre erected over the grave), as well as other cemetery-related features, such as pyre-sites, and cenotaphs. Many of these features contained ceramic grave and pyre goods – 455 vessels in total – but they also contained some 5200 sherds of pottery not identified as deliberately deposited vessels. Almost 80% of this assemblage was recovered from grave backfills. Almost in inverse proportion to the numbers of each grave type, 32% of the pottery by sherd count was collected from inhumation graves, while 57% was found in cremation graves. Other significant groups were collected from a cobbled surface (10438), interpreted either as a viewing platform or crematorium (*ustrinum*) whose overlying deposits contained some 260 sherds of pottery, and homogeneous spreads of soil which sealed areas of graves, and also had graves cut into them. These layers were interpreted by the excavators as mixed horizons of grave fills and Roman-period topsoils.

The pottery (hereafter described as *residual pottery* or the *residual assemblage*, for want of

better terms) is worth characterising in detail. Each feature with residual pottery contained an average of 20 sherds, though there was a wide range of values. As noted, grave 254 contained 150-odd sherds, while others contained just a single fragment. With a total weight of 18,827g, the mean sherd weight of the assemblage was just 4g, although values per grave ranged from half a gramme to 25g. The mean sherd weight is not necessarily a reliable measure of pottery condition, as vessels deposited as complete grave goods can often fracture as a result of post-depositional processes and be recovered as tiny fragments, as was indeed the case at Pepper Hill. The mean sherd weight of pottery securely identified as grave goods was barely better at 9g (Biddulph 2006a: 17). A more robust index of condition is the completeness statistic (Orton *et al.* 1993: 178–9), which is calculated by dividing EVE by the number of vessels (as identified by rim sherds). The resulting value is essentially an average percentage of surviving rim per vessel and ignores breakage patterns (it does not matter that the surviving rim of a jar, which totals, say, 20% or 0.2 EVE, is made of one, two, or more sherds). Using 'completeness', the value for the residual assemblage was 0.13 EVE, compared with 0.66 EVE for secure grave or pyre goods, indicating that the residual pottery was more broken.

As for the composition of the residual assemblage, jars were the best represented single category vessel. Some 35% of vessels by EVE were identified as jars, but together eating- and drinking-related forms dominated, with drinking-related vessels (beakers, flagons, cups) being better represented than food vessels (dishes), accounting for 38% and 23% respectively (Fig. 2). By comparison, jars identified as ceramic graves goods (including urns) accounted for 9% by EVE (though 21% by vessel count, reflecting the tendency for cooking and storage jars to lose their rims after deposition, for example by later ploughing). The grave good assemblage was otherwise similarly biased towards dining-related vessels. The values for jars point to clear differences between the two assemblages, although the similarities are also striking, notably the high proportions of dining forms in both, and the virtual absence of mortaria, which were rarely deposited as grave goods in any Roman-period cemetery in Britain (though see 'Brougham' below), as if the specialised role of the form precluded the transfer of the vessel type from domestic to funerary settings. The residual assemblage also resembled to a degree the assemblage from the settlement of Springhead, which Pepper Hill served. Forty-seven per cent of vessels by vessel count (EVE data are not available) were identified as jars. Dining vessels (beakers, bowls, cups, dishes and flagons) also took a 47% share, while mortaria accounted for just 1% of the assemblage (Seager Smith *et al.* 2011: table 14).

Looking at pottery from specific context types, the 970 sherds of pottery from homogeneous spreads of soil had an identical proportion of jars to the residual assemblage as a whole (36% by EVE). Eating-related vessels accounted for 26% of the sub-group, while drinking-related vessels were best represented with 38%. The profile of the 260 or so sherds from soils above cobbled surface 10438 were similarly dining-orientated, though again drinking-related vessels were more abundant than eating-serving vessels (Biddulph 2006a: table 25).

Ware groups offer another interesting point of comparison. In general, ware was largely a neutral factor when choosing vessels for the burial rite, with greater importance being placed on vessel type (Biddulph 2012: 82). The vagaries and chronology of the production and supply of individual fabrics are reflected in the proportions of fabrics seen in funerary assemblages, and locally-made coarse wares tend to dominate all assemblages (Fig. 3). Thus, in the grave good assemblage, 58% of vessels by EVE were recorded in coarse reduced wares. This compares to 52% among residual pottery, and 47% by sherd count at Springhead (Seager Smith *et al.* 2011: table 1). Samian, though, is exceptional to this pattern. It is generally over-represented as a

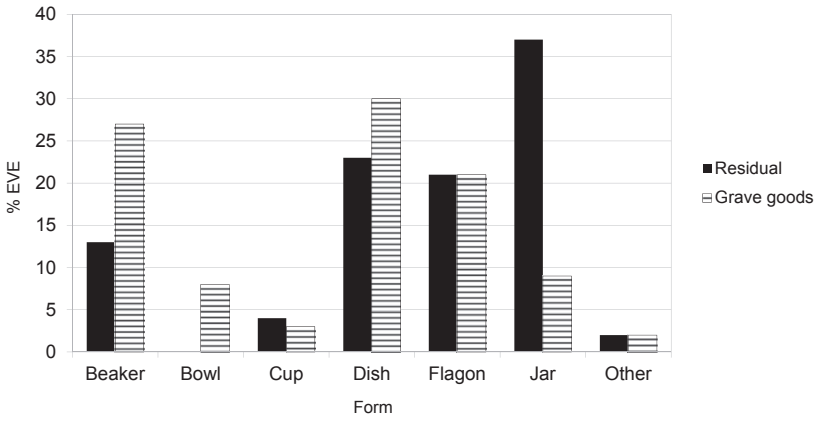


Figure 2: Comparison of residual and grave-good assemblages from Pepper Hill: vessel class (quantification by EVE)

category in funerary assemblages, compared with settlement assemblages, and may even have been regarded as a funerary ware, especially in low-status rural sites, and acquired specifically for that purpose (Biddulph 2012: 303). Samian therefore serves as a useful marker with which to identify differences between assemblages. With this in mind, it is instructive to note that samian accounted for 13% of Pepper Hill's grave good assemblage by EVE, and that the value for the residual assemblage was identical. In contrast, samian took a 3% share by sherd count in Springhead's assemblage (Seager Smith *et al.* 2011: table 1).

So much for condition and composition. Where was the residual pottery found? As most pottery was recovered from the grave backfills, it is tempting to view the residual assemblage simply as the remains of vessels brought up from graves disturbed by the digging of subsequent ones. A proportion of the soil and its contents dug out from an existing grave becoming incorporated

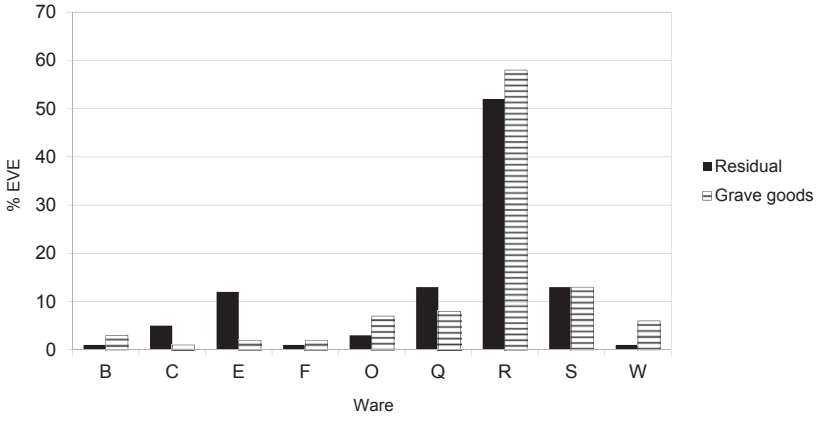


Figure 3: Comparison of residual and grave-good assemblages from Pepper Hill: wares (B black-burnished, C calcareous/shelly, E late Iron Age/early Roman, F fine, O oxidised, Q white-slipped, R reduced, S samian, W white; quantification by EVE)

into the backfill of the new grave. And in a very busy cemetery such as Pepper Hill, where almost every grave cut or was cut by another grave, or both, it would be surprising if most grave goods escaped disturbance. Indeed, that just 12% of vessels placed as grave goods were entirely complete on excavation (even if recovered as fragments) demonstrates the high level of disturbance to which the pottery had been subjected after deposition (Biddulph 2006a: table 6). Analysis of the stratigraphic data, and the date of the residual pottery and its associations with other material suggest, however, that other factors are at work. This is best illustrated by examining cremation-related material, typically pyre debris and cremated bone, found in association with residual pottery. Residual pottery with cremation-related material was recovered from some 30 inhumation graves. This material was obviously not part of the inhumation burial itself, and must be regarded as residual, but it seems unlikely to have come from the underlying grave either. Thirteen of the graves had not cut into any earlier graves, while 15 earlier graves that had been cut by the inhumation graves were themselves inhumation graves. Wherever the cremation-related material – and by association the residual pottery – was coming from, it was not from the grave below.

Nor could the pottery have derived from activities or deposition (such as the dumping of waste) on the site pre-dating the cemetery. The residual pottery is contemporary with the cemetery, and activity pre-dating the cemetery was limited to a cluster of inter-cutting pits or quarries and a boundary ditch dating to the late Iron Age (Biddulph 2006a: 9–10).

One other observation is worth highlighting here. Some of the residual pottery was burnt. Burnt pottery was recovered not only from the fills of pyre-sites and *busta*, but also from inhumation graves, including grave 254 and one inhumation grave which cut into an earlier inhumation grave, which itself contained burnt residual pottery.

Brougham

It is useful to compare the residual pottery from Pepper Hill with that from Brougham, Winchester and Valladas. Looking first at Brougham (Cool 2004), over 350 graves – mainly cremations, with a few inhumations – were uncovered along with pyre-sites and other cemetery-related features during excavations east of the fort and extramural settlement of *Brocavum* in 1966 and 1967. The vast majority of burials date to the third century. Finds and burial traditions hint at an origin in Pannonia for some of the population buried in the cemetery (Cool 2004: 464–6). As at Pepper Hill, the cemetery contained pottery that could not be securely identified as grave goods, although this was in part owing to the ambiguity of some of the excavation records, and it is likely that pottery assigned here to the residual assemblage includes material deposited as grave goods in the graves in which it was found. (The pottery described in the report's grave catalogue was recorded by J. Evans and a pottery database is available on a CD-Rom included with the published monograph.) Nevertheless, the character of the residual assemblage is similar to that of Pepper Hill's assemblage. The assemblage totalled 1540 sherds weighing 14290g. This gives us a mean sherd weight of 9g, which compares with a mean sherd weight of 12g for the grave-good assemblage. As for the completeness statistic, the value for Brougham's residual pottery is 0.15 EVE, while that for grave goods is 0.45 EVE. The residual assemblage was evidently more fragmented than the grave goods.

Turning to assemblage composition, jars accounted for over half the residual assemblage at 54% by EVE (Fig. 4). Eating-related vessels (bowls and dishes) took a 24% share, while drinking-related vessels (cups, beakers and 'constricted necked jars'; there were no flagons) represented

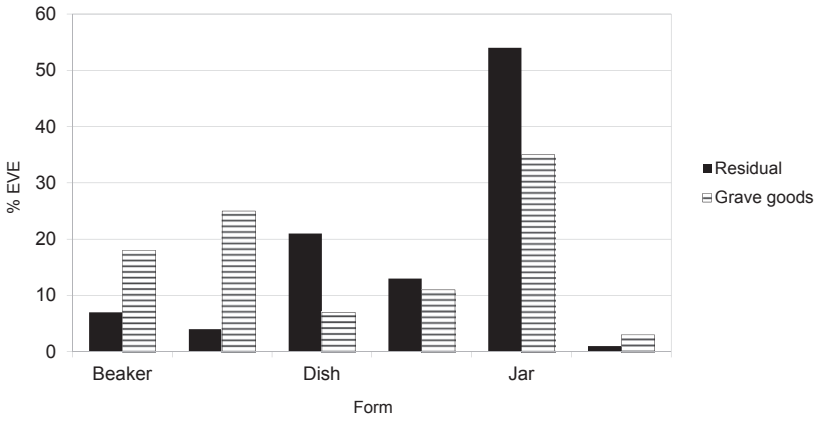


Figure 4: Comparison of residual and grave-good assemblages from Brougham: vessel class (quantification by EVE)

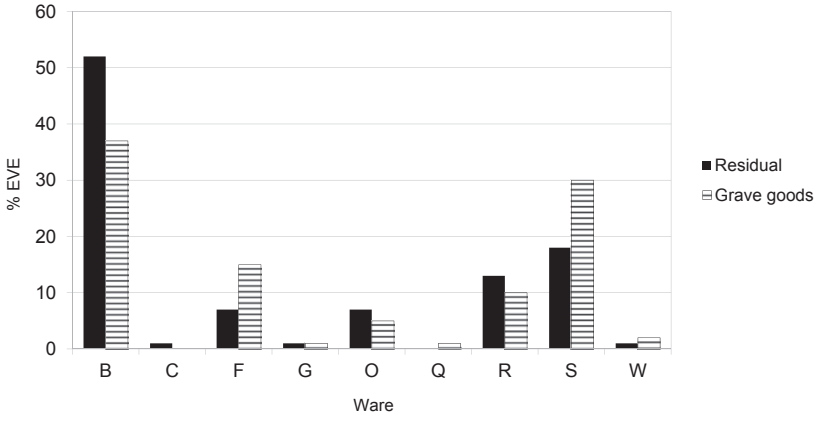


Figure 5: Comparison of residual and grave-good assemblages from Brougham: wares (B black-burnished, C calcareous/shelly, F fine, G coarse-tempered, O oxidised, Q white-slipped, R reduced, S samian, W white; quantification by EVE)

20%. Mortaria were present (less than 1%), but so too were they present in the grave-good assemblage, where they accounted for almost 3% (shown as 'misc' in Figure 4). Some 32% of grave goods were eating-related vessels, while 30% were drinking-related forms. Thirty-seven per cent of the assemblage were jars. Overall, then, dining forms were better represented among grave-goods, with the residual assemblage containing a stronger cooking or storage function. Admittedly, the grave-good assemblage includes a higher proportion of mortaria, but most examples were samian form Drag. 45, and perhaps chosen for the lion-headed spout, rather than the functional qualities of the form itself, the lion being ritually symbolic and therefore appropriate for mortuary use (cf. Bird 2013: 327).

A comparison of wares reveals broad similarity between the residual and grave-good

assemblages (Fig. 5), although the higher proportion of black-burnished ware – available mainly as everted-rim 'cooking jars' and bowls and dishes that are likely also to have found a place in the kitchen – and the lower proportions of samian, white-slipped and white ware (used for flagons) and finewares in the residual assemblage are notable. As with vessel form, the profile of wares in the residual assemblage appears to show a utilitarian emphasis.

The majority of residual pottery (some 60% by EVE) was recovered from cremation graves, but a significant amount (38%) was collected with redeposited pyre debris. In either case, it is not known how much of the pottery had been burnt. As at Pepper Hill, little pottery is likely to have derived from pre-cemetery activity. As Hilary Cool (2004, 40) notes, there are a few fragments of first-century samian and an absence of Hadrianic samian, suggesting that the land was unoccupied or unused before the cemetery was established.

Lankhills

Lankhills in Winchester is a mainly 4th-century cemetery largely comprising inhumation graves, with a much smaller number of cremation graves also present. Giles Clarke carried out the first major excavations at the site between 1967 and 1972 (Clarke 1979). A second area of the cemetery was investigated between 2000 and 2005 by Oxford Archaeology (Booth *et al.* 2010). It is from these later excavations that the pottery data are taken.

A total of 729 sherds was recovered from the backfills of 79 graves. The mean sherd weight was 12g, which was very low compared with the very high value of 180g obtained for the grave goods. Evidently, the grave goods were recovered intact or almost intact. This is confirmed by the completeness values; that for the residual pottery was 0.16 EVE, while the grave goods had a value of 0.97 EVE (that is, on average, 97% of the rim survived on each vessel).

Turning to the composition of the residual assemblage, jars dominated, accounting for 52% of vessels by EVE (Fig. 6). Drinking-related vessels (cups, beakers, flagons and tankards) took a 30% share, while eating-related vessels (bowls and dishes) represented 17%. By contrast, the grave-good assemblage was heavily biased towards drinking-related vessels, which accounted for 77% of the pottery by EVE. Bowls and dishes represented just under 10%, while 13% of vessels were jars. The composition of the residual assemblage diverged significantly from the profile of the grave-good assemblage, but nor did it match that of Winchester's domestic pottery very closely either, at least that collected from excavations at the Cultural Centre site in the north-west part of the Roman city (Ford and Teague 2011). Over 8000 sherds of pottery were recovered from late Roman contexts from the site. Some 43% of vessels within the non-funerary assemblage were jars, while drinking-related vessels accounted for 11%. Eating-related vessels were well-represented at 40% by EVE (Biddulph and Booth 2011: tables 7.9 and 7.10). Overall, then, the compositional profile of the residual pottery from Lankhills lies between the profiles of the grave-good and non-funerary assemblages.

The distribution of the wares also shows differences between the residual and grave-good assemblages, notably with coarse reduced wares being better represented in the residual assemblage, and fine wares taking a larger share among grave goods (Fig. 7). The absence of samian grave goods is chronological; importation of the ware into Britain ceased by the mid third century, suggesting that the samian present in the residual assemblage points to a non-funerary origin for at least some of the pottery. That said, a sequence of boundary ditches that appear to pre-date the cemetery, possibly defining plots used for cultivation, contained almost no pottery (Booth *et al.* 2010: 456), suggesting that the site had not been used for the dumping

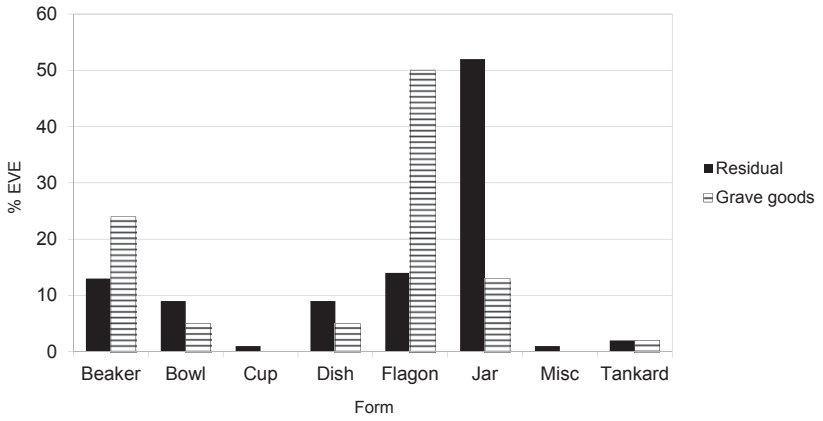


Figure 6: Comparison of residual and grave-good assemblages from Lankills: vessel class (quantification by EVE)

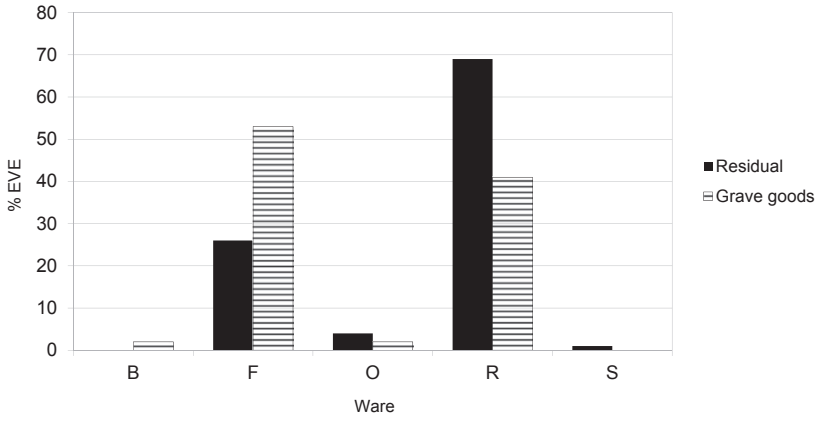


Figure 7: Comparison of residual and grave-good assemblages from Lankhills: wares (B black-burnished, F fine, O oxidised, R reduced, S samian; quantification by EVE)

of, say, midden waste, or that pottery had not been incorporated into manuring spreads. In any case, the date of the residual pottery is contemporary with the cemetery.

Valladas

Some 140 graves and funerary-related features from the first- and second-century cemetery at Valladas, north of the Roman city of Orange, contained at least 3,500 sherds from grave backfills and other features that were identified as residual in the report (Bel 2002). The number is a serious underestimate. There were no weight or EVE data, and not all vessels in each grave group were necessarily described. Nevertheless, what data are provided give a useful sense of the amount and range of pottery present.

Forms were heavily biased towards dining vessels, in particular cups and dishes or plates. Samian was well-represented, accounting for roughly a quarter of the assemblage. As many as half of all the samian vessels were identified as Drag. 35 or Drag. 36, forms that Joanna Bird (2013: 335–6) has persuasively argued to have special funerary connotations because of their wreath-like barbotine decoration around the rim. While the report does not give precise figures, the general compositional profile of the residual assemblage – low proportions of cooking or storage vessels and high proportions of dining vessels – broadly matches that of the ceramic grave goods, although dishes and plates are relatively poorly represented among grave goods, which appear to favour drinking-related vessels – flagons, cups and beakers – far more strongly. So while the residual assemblage is consistent with a funerary origin, it is functionally different from the grave good assemblage, potentially having been used in funerary practices that were separate from those which shaped the selection of grave goods.

Of particular interest was provenance of the residual pottery in the grave. Pottery from 50 of the 100 or so cremation graves that contained residual material was noted to have been recovered from primary deposits of pyre debris and cremated bone. In some graves, pottery was only recovered from such deposits, there being no material found in the backfill.

In addition to the pottery recovered as residual occurrences from the graves, pottery was also collected from layers above and around individual or groups of graves and other features. For example, a dense deposit of pottery numbering 1045 sherds and representing some 380 vessels was spread across two pyre sites, 228 and 247. Some 60% of this assemblage comprised small, isolated fragments, with the remainder including larger fragments that could be refitted to form near-complete vessels (Bel 2002: 64–70). A proportion of the pottery was burnt. Looking at vessel class within this group, flagons were the best represented at 35% by sherd count (Bel 2002: fig. 61), followed by platters or dishes at 23%. Bowls took a 21% share, while jars accounted for 13%. In contrast to the profile of the residual assemblage recovered from graves, cups from this deposit were relatively poorly represented at 8%. Still, the emphasis on dining-related vessels is clear, although the proportion of jars within the deposit over features 228 and 247 was, as far as one can tell, notably higher than the proportion of jars in the residual and grave-good assemblages.

Residual or ritual?

The above sections have been somewhat data-heavy, but necessarily so in order to characterise the residual pottery assemblages and show commonalities, as well as some differences, between them. Looking across the assemblages, a number of observations can be drawn. The residual pottery from three of the assemblages (reliable values for Valladas cannot be obtained from the published data) is fragmented, more so than the grave goods from those sites. This suggests deposition after breakage (whether deliberate or accidental) in unsealed layers where the pottery was subject to further disturbance and breakage (contrasting with grave-goods, which were sealed within grave backfills). Dining or serving vessels, whether for liquid or food, are over-represented in residual assemblages, as with grave-good assemblages and in contrast to non-funerary domestic groups, but contain a higher proportion of jars or other storage or cooking vessels than is expected among grave goods. Similarly, samian, over-represented in grave-good assemblages, is also well-represented in residual assemblages and in a range of forms characteristic of funerary deposition (this is particularly notable at Valladas). To put it perhaps a little simplistically, the profile of the residual assemblage lies between those of the grave-good and domestic assemblages, appearing to share characteristics of both.

This might imply a shared origin, too, with some pottery deriving from domestic or agricultural activity (for example the dumping of middened domestic waste or manuring spreads), and other pottery deriving from cemetery-related activity, such as the disturbance of earlier graves. While this cannot entirely be ruled out, the virtual absence from all sites of dumping activity (and indeed any activity) pre-dating, or even contemporary with, the cemeteries is notable. In addition, the provenance of the residual pottery at Pepper Hill and Valladas, its associations with other categories of material, and the stratigraphic sequence of the graves in which the pottery was found, strongly argues against in most cases a straightforward 'disturbance' explanation.

Staying with this last point, it is of particular interest that a proportion of the residual pottery from Pepper Hill, Brougham and Valladas was associated with pyre debris. A reasonable conclusion to draw from this is that the pottery had been incorporated into the mass of ash and cremated bone in or around the pyre as pyre goods and transferred to the grave. Obviously this explanation will not suffice for Lankhills and pottery associated with inhumation grave 254 at Pepper Hill, but that pottery is otherwise of a funerary character, and suggests that rites that originally emerged in the context of cremation survived in some form, largely through the transmission of practices from one generation to the next and the general pressure of tradition within societies, for use with inhumation.

It is not difficult to imagine cemetery-related activities beyond the acts of cremation and interment that are likely to have required the use of pottery. In addition to the two feasting events, the *silicernium* and the *cena novendialis*, that have already been mentioned, there were also two annual festivals of the dead, the *Parentalia* and the *Lemuria*, for which graves were visited and rites enacted (Toynbee 1996: 63–4). There are also likely to have been various rites that commemorated the birthdays of the deceased or other family events. Occasionally, we can turn to the ancient writers for information about the presence of 'other' pottery in cemeteries. Ovid, describing the rites associated with *Parentalia*, mentions that gifts for the dead were permitted to be placed on potsherds deposited along tomb-lined roads (Toynbee 1996: 64). E Theodore Peña (2011: 317) suggests that ceramic vessels were regularly abandoned in cemeteries after use there, drawing attention to a passage from the *Agrimensores*, *Ex libris Dolabellae* (222.26–28), which states:

> '[Y]ou can recognize in the following way boundaries associated with tombs or receptacles for ashes... because you should find near the tomb either box-trees, or also ashes, or cooking-pots, or broken earthenware vessels, or indeed intact ones.'

Peña (2011: 317) also cites Propertius (*Elegiae* 4.7.33), who refers to the practice of leaving a broken flask or bottle as an offering on a tomb. To what extent these festivals and practices were enacted away from the Mediterranean world is far from certain, but clearly classical ideas of funerals and burials were being imitated in Britain and Gaul, and it is not unreasonable to expect that some of the more archaeologically invisible rites were conducted alongside Roman-derived mortuary and deposition practices. The descriptions offered by Propertius bring to mind the scatters of pottery over grave 254 at Pepper Hill and pyre sites 228 and 247 at Valladas, which are likely to have been deposited deliberately as part of a funerary rite. But whether the residual pottery was originally used on the pyre or during graveside feasts, Pepper Hill, Valladas and other large cemeteries would have been littered with pottery retained in the remnants of pyres or left by the grave on the ground surface. Indeed, it could be plausibly argued that the majority of pottery brought to the cemetery was never intended to be placed in the grave as a formal grave good.

Assuming urban cemeteries especially were managed, all this unsealed pottery had to be

periodically cleared. Much of it is likely to have been dumped in middens or incorporated into soil that was spread across areas of the cemetery. Such deposits are potentially identified as the 'homogeneous deposits of grave fills and Roman-period topsoil' recorded at Pepper Hill or the spreads of soil covering graves at Valladas. Broken pottery would have covered the ground, and visitors to the cemeteries may well have found their path distinctly crunchy underfoot. This pottery largely found its way into grave fills as constantly reworked topsoils were dug into to make new graves.

But how may we account for the domestic-like quantities of jars in the residual assemblages? We cannot entirely rule out the suggestion that domestic waste was occasionally brought into cemeteries, but we may also wish to consider the possibility that simple meals for graveside commemoration and feasting were prepared in the cemetery, which would have required cooking equipment. Interestingly, one of the vessels collected from the soil overlying pyre sites 228 and 247 at Valladas was a tripod bowl. This is a type that Vivien Swan firmly identifies as a cooking vessel, and the experimental use of the type has shown that its design permits a high cooking temperature to be rapidly reached, making the use of fuel more economical (Swan 2009: 18). To these qualities, we may also add the portability of the vessel, and with its integral stand, the vessel does not need to be suspended or placed on another piece of equipment, such as a gridiron. This makes it ideal for use away from formal cooking spaces, rather like a disposable barbecue today.

This examination of a class of material that is usually summarily recorded and reported, if at all, has shown that the evidence of rites conventionally regarded as archaeologically invisible may in fact be contained within the detritus of cemeteries scattered within and between the formally-defined deposits and features. We can no longer ignore the fragments of residual or redeposited pottery.

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Identifying Ritual Deposition of Plant Remains: A Case Study of Stone Pine Cones in Roman Britain

Lisa Lodwick

Introduction

The identification and theorisation of ritualised deposition in the Roman world has received significant research focus over the last decade (Fulford 2001; Smith 2001). Yet, as within other theory-heavy areas of Roman archaeology (Pitts 2007), plant remains have been poorly integrated into key synthetic works. Analysis has instead focussed on artefactual and zooarchaeological remains (Smith 2001; Morris 2010), with plant remains only briefly alluded to, or discussed largely within specialist archaeobotanical literature (Robinson 2002; Vandorpe and Jacomet 2011). Whilst there is growing evidence for the use of plants in non-funerary classical Roman religion, as well as structured deposition in shafts and pits, the absence of systematic methodologies and contextual analysis limits the study of ritual plant use in the Roman world.

The separation of 'ritual' from 'mundane' deposits has been thoroughly critiqued (Brück 1999; Bradley 2005), and the concept of ritual as social practice (Bell 1992) is now commonly used to explore ritualised activities (Chadwick 2012). This necessitates that artefacts, stratigraphy and ecofacts must all be considered in order to understand instances of deposition which may have derived from ritualised activities (Garrow 2012). A closer consideration of the deposition of plant remains will contribute to the construction of a spectrum between waste from everyday food preparation and plant remains purposefully charred and/or deposited as an aspect of ritualised activities. The case study of *Pinus pinea* L. (stone pine) cones is utilised here to explore the methodological criteria available to assess the depositional histories of plant remains in various temple and settlement contexts.

The integration of plant remains into studies of Roman ritual deposition

The literary description of plant offerings in the Roman world is brief in comparison to that of animal offerings (North 2000: 44–45). Cakes, grains, vegetables, breads and wild flowers are mentioned, but broad terms such as 'fruits of the earth' are common (Robinson 2002; Scheid 2003). The presence of plant remains within archaeological ritual deposits has though been widely recognised for over a decade (Palmer and Van der Veen 2002). First, plant foods have been recovered from cremations, representing both offerings and funerary feasts. Pulses, fruits and nuts are commonly present, and regional studies have recognised variation in the types of foods, as well as the types of wood fuel used (Kreuz 2000; Bouby and Marinval 2004; Rottoli

and Castiglioni 2011). As the recognition of plant foods from cremation and burials are aided by the distinctive contexts, these will not be discussed here.

Second, plant remains have been recovered from classical temples. Items were hand collected from early excavations, such as intact charred pine cones and figs from the Temple of Isis in Pompeii (Mau 1902), and a pine cone from the Temple of Mithras in London (Grimes 1968: 114; Shepherd 1998: 155, 161). More recent excavations have included systematic sampling, producing detailed evidence for the range of plant foods offered at the Temple of Isis, Mainz (Zach 2002), and the Oedenburg temple (Vandorpe and Jacomet 2011). At these sites, the presence of sediments rich in charred plant remains including processed foodstuffs, within a spatially recognised temple complex and alongside distinctive artefact categories, such as oil lamps, allowed the identification of food remains as votive offerings to the gods.

More rarely, plant remains have been identified as domestic offerings within gardens at Pompeii (Ciaraldi and Richardson 2000; Robinson 2002). Charred plant foods, which do not require heat during food preparation (date, fig and walnut), were recovered from purposefully buried deposits containing high concentrations of charcoal and miniature ceramic vessels. Furthermore, correlations were drawn between the plant materials offered, and those depicted in lararium wall paintings (Robinson 2002). Foundation deposits have been recognised with the same criteria. A pit within a storehouse in the Roman port of Lattara, France, contained charred foods (dates, figs, grapes) alongside oil lamps, pottery vessels, a pin and an egg (Rovira and Chabal 2008).

Fewer detailed prehistoric studies of plant remains are available from so-called instances of structured deposition (Richards and Thomas 1984; Garrow 2012). Charred cereals grains from Iron Age storage pits are often interpreted as ritual deposits, yet without any quantitative discussion of the plant remains present (Alcock 1980; Williams 2003; Thurston 2009). When comparison has been undertaken between special deposits containing animal associated bone groups and archaeobotanical remains, no correlation has been observed (Campbell 2000: 53). Occasionally pragmatic arguments based on technicalities of preservation allow the recognition of discrete acts of deposition, such as charred spelt and emmer grains in the base of postholes with *in situ* posts at Sutton Common (Van de Noort *et al.* 2007: 131–135). Overall, archaeobotanical remains are rarely incorporated as a category of deposited material (but see Van de Noort *et al*. 2007; Brudenell and Cooper 2008).

The extension of structured deposition studies to the Roman period has similarly seen only tentative attempts to incorporate plant remains. 'Carbonized vegetable material' from a crevasse at Cosa, Italy (Brown *et al.* 1960: 10) was the starting point for a discussion of urban foundation deposits. Yet the subsequent detailed contextual analysis of shafts from Greyhound Yard, Dorchester did not incorporate the plant remains which were present (Woodward and Woodward 2004). Where plant remains are interpreted as ritually significant, limited explanation is given. Fulford suggested that the presence of seeds of various plants in pots from wells from the northern Insulae of Roman Silchester may be significant, due to the presence of taxa with both poisonous and medicinal properties, and the repetition of the taxa recorded (Fulford 2001: 206). Many of the taxa highlighted do have medicinal properties, especially deadly nightshade (Lee 2007). However, the use of a large aperture sieve, and a lack of recording of sample size or preservation quality in the early twentieth century study at Silchester (Robinson 2012) means it is unclear whether the taxa listed were a product of purposeful deposition or not. Cereals, seeds, twigs and nuts from the base of Late Iron Age and Roman wells in the Netherlands were suggested as purposeful deposits, without reference to any specific examples (Van Haastern and Groot 2013: 40). Alternatively, plant remains have been used as evidence for the wider

Table 1: Criteria used in previous archaeobotanical studies of Roman ritual offerings

Criteria	Evidence	References
Range of plants foods	Depicted in artistic and literary evidence	Robinson 2002
	Parts not usually burnt during food preparation	Robinson 2002
	Similar to funerary contexts	Palmer and Van der Veen 2002
	Processed food (bread/ pastry)	Vandorpe and Jacomet 2011
Spatial distribution	Discrete, purposeful burial	Robinson 2002 Rovira *et al.* 2008
Co-occurring artefacts	Miniature ceramic vessels, Oil lamps, Coins	Robinson 2002; Rovira *et al.* 2008 Vandorpe and Jacomet 2011

settlement character, instead of as an aspect of the structured deposition of materials in the well (Cool and Richardson 2013: 207). Hence plant remains are often treated as palaeoenvironmental indicators, which were not actively engaged with as physical materials. When plant remains are ascribed ritual labels, this is without any detailed consideration of patterns and co-occurrences within and between the archaeobotanical and archaeological data.

Recent studies of ritualised deposition have been focussed on animal bones and artefacts, with minimal incorporation of plant remains into their analysis (Smith 2001; Morris 2010; Allen and Sykes 2011). Archaeobotanical criteria are available for identifying purposefully deposited plant remains (Table 1), yet the lack of integration of these studies into broader synthetic studies results in the assignment of plant remains as ritual deposits based on few criteria. Furthermore, the limited incorporation of plant remains into studies of ritualised deposition may have resulted from a lack of theoretical engagement within archaeobotany. In contrast, 'social zooarchaeology' has emerged as a research field, investigating a wide range of human-animal relationships (Russell 2012; Overton and Hamilakis 2013; Sykes 2014). The concept of materiality has also recently been extended to plants, through examples of the entanglement of humans and plants through food consumption, plant husbandry and domestication (Van der Veen 2014). The material attributes of plants are also evident in ritualised activities. Livarda has argued that dates (*Phoenix dactylifera*) should be considered as 'perishable material culture', rather than merely foods used in ritual contexts (Livarda 2013: 112). Plant items (fruits, leaves, roots) often have strong smells, textures and colours, which would make an important contribution to the sensory experience and mnemonic effect of rituals (Hamilakis 2011). This applies to both individual plant items, such as dates, or composite materials containing various plant items, such as middens or stable manure (Waddington 2012: 45). The sensory attributes of plant items is particularly evident for the case study subject, stone pine cones, due to their use as incense in mithraic rituals (Bird

2004). The recognition of plant remains as objects which interact with people in ways beyond food consumption highlights the need for plant remains to be considered in detail within studies of ritualised deposition.

Stone Pines in the Roman World

The widespread recognition of stone pine cones in ritual activity (Kislev 1988) makes them a suitable case study for assessing the relevance of depositional criteria. *Pinus pinea* L. – the stone or umbrella pine, is an evergreen tree (Fig. 1). Stone pine is considered to have survived the glacial period in the western Mediterranean, before spreading east across the Mediterranean from around 1000 B.C. (Vendramin *et al.* 2008). The tree grows well in coastal areas, and on the low slopes of hills and mountains (Lim 2012). They are currently distributed from Atlantic Portugal to Lebanon and Turkey (Mutke *et al.* 2012). Pine cones are gathered from wild forests from October to the end of March. They are then left to ripen in the sun, before being beaten to extract the nuts (Harrison 1951; Mutke *et al.* 2012), which have been used as food source since the Palaeolithic (Humphrey *et al*. 2014).



Figure 1: Stone pine growing at Kew Gardens, UK

Stone pine was grown ornamentally in the Roman world, as depicted in wall paintings (Caneva and Bohuny 2003), but was also utilised for timber (Allevato *et al.* 2010), and the kernels were used within various sauces, fish and meat dishes (Grocock and Grainger 2006: 247, 279, 301). Evidence for their ritual use comes from third- and fourth-century A.D. Egyptian papyri which state that pine cones were intended for sacrifice (Richmond and Gillam 1951: 6), whilst artistic and artefactual evidence associates pine cones with the cults of Mithras (Bird 2004), Bacchus, Cybele and Silvanus (Crummy 2010: 63). Archaeobotanical finds of stone pine cones beyond their native distribution, such as from the Eastern Desert of Egypt (Van der Veen 2011), indicate their long-distance trade. Furthermore, 61 closed pine cones were recovered from a first-century B.C. shipwreck off of Toulon (Girard and Tchernia 1978).

Archaeobotanical evidence

The parts of stone pine cones are one of the most commonly recognised plant remains from ritual deposits in north-western Europe and Britain during the Roman period, alongside date (*Phoenix dactylifera* L.) (Bakels and Jacomet 2003; Van der Veen *et al.* 2008). The cone consists of a number of bracts, each holding two nuts containing single kernels (Fig. 2). Each cone can



Figure 2: Parts of stone pine cones found in archaeobotanical samples. A = bracts, B = pine nuts, C = fragmented nutshells, D = kernels

yield up to 100 kernels. Nutshells, bracts, intact cones, and occasionally shrivelled kernels have been recovered from domestic contexts (Murphy *et al.* 2013), cremations and bustum burials (Giorgi 2000; Rottoli and Castiglioni 2011), and ritual deposits (Kislev 1988) throughout the Roman world.

Stone pine cones are large enough to have been hand collected from sites excavated prior to the advent of systematic sampling in the 1970s, significantly increasing the number of records within Britain. However, hand collection overlooks small items in the surrounding sediment, including nutshell fragments and restricts spatial comparisons. Systematic sampling requires multiple soil samples to be taken and processed by flotation, in order to collect plant remains greater than 0.25–0.5mm. We can be relatively certain that pine cone remains collected through systematic sampling include all pine nutshell present, as well as any smaller plant items. All examples within this paper were preserved by waterlogging or charring. Pine cone remains preserve well by charring due to their woody nature (Van der Veen 2007). Similarly, pine cone remains preserve well in waterlogged anoxic conditions, but only when such sediments are present at a site.

Methodological criteria

Archaeobotanical data was collected from reviewing published literature from Roman Britain. The type of plant remains present and the mode of preservation was recorded, along with co-occurring artefactual and zooarchaeological remains, and the spatial distribution of the pine cone material. Criteria for the exploration of ritualised deposition were adapted from previous archaeobotanical and archaeological studies. First, taphonomic aspects of the plant remains themselves provide indications of their past use (Table 2). If a whole cone is present, whether it is open or closed can indicate if it was opened to extract the kernels. The presence of bracts and cone fragments, such as the cone apex, also suggest that the entire cone was transported. Nuts can be extracted and transported over long-distances without impairing the quality of the kernel (Van der Veen 2011: 157). Hence the presence of bracts implies that the entire cone was imported for reasons beyond food consumption, as transport would be costly and take up much

Table 2: Taphonomic criteria for assessing ritualised deposition of stone pine cones

	Implications	**Key reference**
Burning	Chthonic offering	Ekroth 2008
Fragmented nutshells	Kernels extracted for consumption	Monckton 2000
High density	Purposeful deposition	Van der Veen and Jones 2006
Open cone	Cone opened to extract kernels	Kislev 1988
Presence of bracts	Whole cones imported	Booth *et al.* 2007, 281

more space in cargoes. Some bracts, however, may remain as contaminants in a consignment of pine nuts (Stevens 2011: 104). Furthermore, the fragmentation of shells implies that they were opened to extract the kernel for consumption.

Charring of pine cone remains indicates that they were exposed to fire, which is a common aspect of ritualised offerings (Ekroth 2008). Finally, a high density of plant remains indicates large-scale use (Van der Veen and Jones 2006), which in a potential ritualised deposit can be interpreted as purposeful burning and/or deposition. For instance, sampled sediments from the temples at Mainz and Oedenburg were described as charcoal rich, and the densities of plant remains recovered ranged from 10 to 15 items per litre (Zach 2002; Vandorpe and Jacomet 2011). Criteria have also been utilised from synthetic studies; spatial co-occurrences or avoidances with artefacts commonly recovered from Roman religious deposits (Smith 2001: 26), such as miniature ceramic vessels and oil lamps (Robinson 2002), as well as those from structured deposition; intact pots, quernstones, and associated bone groups (Fulford 2001; Shaffrey 2003; Morris 2008).

Stone pines in Roman Britain

Stone pine nuts were imported to Britain amongst a wide range of new plant foods from the earliest Roman period, typified by a deposit of charred pine nuts, lentils, figs and anise from a *c*. A.D. 60/61 pottery shop at Colchester (Murphy 1984). The possibility that stone pine trees were later cultivated in southern Britain has been suggested, due to increasing numbers of finds of stone pine remains in southern Britain (Campbell 1999; Robinson 2007; Bateman *et al*. 2008: 114; Pelling 2008a), and the ability of stone pines to grow in Britain today (Fig. 1). It is not possible to ascertain whether pine cones originated from local trees or importation. Either way, pine cones still represent rare items in Roman Britain. The only other native pine, *Pinus sylvestris* L. (Scot's Pine), has smaller pine cones and is considered to be absent from southern Britain by the Roman period (Rackham 2006). Stone pine has been identified from 32 records in Britain. Of these records, around half are from temples or cremations, and half are from domestic sites (Van der Veen *et al*. 2008). A selection of these records is presented here, which provide contrasting evidence for the depositional histories of pine cone remains (Table 3).

Sacred Space

The remains of stone pine cones have been recovered from a range of sacred places present in Roman Britain, including classical style temples, Romano-Celtic temples and shrines (Smith 2001: 16). Excavation of the third- to fourth-century A.D. Carrawburgh Mithraeum, on the eastern section of Hadrian's Wall, produced several records of pine cones due to anaerobic preservation (Richmond and Gillam 1951). During phase 1 (early third century A.D.), an intact pine cone was present adjacent to the altar. In subsequent phase 3, pine cones were present on either side of the apse. Neither of these pine cones were charred, but it was not recorded whether they were open or closed. Hence whole pine cones were utilised as 'votive' objects, and their location within the temple indicates their significance. Pine cone remains were also present in the form of a very charred pine cone within a bunker in the gravelled nave, alongside *Corylus avellana* L. (hazel) charcoal. Through experimental burning, these remains were interpreted as pine cone fuel. Lumps of the pine cone fuel were also present in a votive deposit buried beneath the the phase 3 altar, alongside a castor ware beaker, a chicken head and a tin cup. A further example of a charred cone is from the Temple of Mithras in London, where a waterlogged, but partially

charred single pine cone was discovered from the floor of the nave, alongside chicken bones (Grimes 1968: 114; Shepherd 1998: 155, 161). At these two sites, the charred remains are likely to represent a burnt offering, or more specifically incense used in mithraic rituals (Bird 2004).

The archaeobotanical evidence from Romano-Celtic temples in Britain similarly shows the varied evidence for pine cone deposition. The Triangular Temple in Verulamium provides comparable evidence with Carrawburgh of charred pine remains. Within the early second-century A.D. temple, a brick-lined pit on the western side contained charred pine nutshell, a coin and *Quercus* sp. (oak) charcoal. A comparable assemblage was retrieved from a rectangular pit within the floor of the second phase of the temple, where oak charcoal, a beaker, plates, dishes, bronze rings, a coin, and charred pine nuts and bracts were recovered. Wheeler took these assemblages as votive offerings (Wheeler and Wheeler 1936: 116), whilst Lewis interpreted them as foundation offerings (Lewis 1966: 95–96). These plant remains from the Triangular Temple were all hand collected, so it is not possible to evaluate the assemblages against plant remains in other parts of the temple. Similarly, the plant remains are reported very briefly, with no quantification or detail of nutshell fragmentation. At Lower Brook Street, Winchester, an intact pine cone was recovered from a waterlogged pit around 10m to the south of a Romano-Celtic Temple, adjacent to a pit containing a wooden statue of the goddess Epona. No samples were taken from the pit, and no finds were reported (Biddle 1975). Yet, the presence of an intact cone strongly indicates that it was imported to Britain for uses beyond food supply. Intact pine cones were also recovered from a nearby well in the Cathedral Car Park, Winchester, but again the reporting of these finds lacked sufficient contextual detail (Biddle and Quirk 1964; Murphy 1977).

In contrast, shrine sites in south-east Britain which have been systematically sampled have produced relatively scarce evidence of pine cones, or any other plant offerings. From the Sanctuary complex at Springhead (HS1 excavations) a single charred bract was recovered from the spring infill in front of the shrine, and two charred bracts and a single nutshell were recovered from a nearby chalk quarry. These were the only records of pine cone from the excavation despite extensive sampling. The remains were interpreted as either altar fuel or offerings (Stevens 2011: 103). Without the architectural evidence for sacred space, these remains would have been interpreted as food remains, although the slightly higher number of bracts than nutshells suggests that whole cones were used. Comparative evidence comes from the shrine at Westhawk Farm, Ashford (Booth 2001). A single charred nutshell was recovered from a pit fill within the centre of the probable polygonal shrine, accompanied by just a few weed seeds (Pelling 2008b). Other fills of the pit produced few artefactual remains; one coin, two nail fragments and a few pottery sherds. Again, without the spatial associations with the shrine, these pine remains would not have been ascribed a ritual origin.

Military settlements

Pine cone remains have also been attributed ritual origins from sites without obvious religious architecture. The waterlogged sediments from the A.D. 44/5 ditch of the fortress annex at Alchester contained cone fragments and nuts. Only preliminary results are currently available, but there is no mention of charring or nutshell fragmentation (Sauer 2006; Booth *et al*. 2007: 281). Yet the presence of a whole cone implies that it was imported for reasons beyond food supply, which was interpreted as religious supply for the soldiers (Booth *et al*. 2007: 281). In contrast, systematic sampling and detailed publication of the early second-century A.D. probable military annex at Orton's Pasture, Staffordshire, shows a more blurred distinction between the use of pine cones in ritual activities and in food preparation. Charred bracts, a cone apex, unopened

and fragmented nutshells were identified from three pits within the southern enclosure, whilst samples from the northern enclosure contained only crop-processing waste (Monckton 2000). The archaeobotanist suggested that these remains represented food consumption waste, on the basis of fragmented nutshells indicating that kernels had been extracted. Yet, in the synthetic discussion, the archaeobotanical remains were integrated with the spatial and artefactual evidence, to show that the pine cone remains co-occurred with date stones and grapes, several intact pots, as well as specialised vessels, including a ceramic lamp with Bacchic decoration. The pine cone remains were restricted to two pits, within which layers of sand separated the deposits containing the pine remains (Ferris *et al*. 2000: 77). The spatial co-occurrence of stone pine with other rare plant foods and artefact categories provides strong evidence for ritualised deposition.

Settlements

An equally varied picture of the character of stone pine deposits is provided from settlement sites. First, charred bracts and nutshells were recovered from a burnt deposit of Flavian date within room W16 in the west wing of Fishbourne Palace. A 0.23m thick deposit of burnt material contained burnt pottery, jewellery, architectural fittings, and charred nuts and bracts (Reynolds 1996). Whilst the reporting of this deposit is brief, and the sampling appears very limited, the co-occurrence of stone pine and distinctive artefacts does provide tentative evidence that whole pine cones were also utilised in ritual offerings within the domestic context in Roman Britain.

Whole pine cones have also been recovered from waterlogged deposits in wells and waterholes. At 1 Poultry, London, four whole cones, bracts and nutshells were recovered from early second-century A.D. dumps around a water tank. These dumps contained other food waste, such as flax, grape and coriander (Davis 2011), but a Venus figurine was recovered from the same area. The nearly complete spatial restriction of stone pine to this area of the site, despite extensive sampling of waterlogged deposits, combined with distinctive artefacts, led to the suggestion that the material may have derived from ritual activity in the nearby Walbrook Valley (Merrifield 1995; Hill and Rowsome 2011: 347). At Claydon Pike in the Upper Thames Valley, a whole cone was found in a mid-Roman waterhole at the edge of an enclosure away from the main settlement focus (Robinson 2007), but only small amounts of animal bones and pottery were recovered from the context (Miles *et al.* 2007: 121).

At the final category of site, pine cone remains represent food-processing waste. A late fourth-century A.D. hearth within an aisled building at Fullerton, Hampshire, produced a single charred nut fragment alongside cereal-processing by-products (Campbell 2008). The absence of bracts combined with clear contextual evidence for food preparation strongly indicates an origin of food-processing waste. Similarly, at Monkton-Mount Pleasant on the Isle of Thanet, fragmented nutshells and crop-processing by-products were recovered from various pits within the settlement. Bracts were absent, and the fragmented nutshells occurred at low densities (Pelling 2008a). Comparably, samples from an occupation layer exposed within a cable trench excavation through Springhead Roman town produced a low density of fragmented nutshell alongside crop-processing remains (Campbell 1999). Fragmented nutshell has also been recovered from various waterlogged refuse deposits from London and York (Willcox 1977; Hall and Kenward 1990). Stone pine cone remains from waterlogged samples from a third-century A.D. well within a residential building at Great Holts Farm, Essex were also interpreted as food waste (Murphy *et al.* 2000). Fragmented nutshells, cone fragments and bracts, were present throughout four well fills alongside other food waste, such as *Corylus avellana* L. (hazel) nutshell, and debris

Table 3: Summary of taphonomic criteria at selected sites where stone pine has been identified. C = charred. W = waterlogged

Site	Preservation	Parts represented	Charring	Fragmented nutshell	Average density (Items/L)
Carrawburgh Mithraeum – altar and apse	W	Whole cone	-	-	?
Carrawburgh Mithraeum – bunker and offering pit	C	Bracts and nutshells	+	?	?
London Mithraeum	W/C	Whole cone	+	?	?
Triangular Temple – western and rectangular pit	C	Bracts and nutshells	+	?	?
Alchester	W	Cone fragments and nutshell	-	-	?
Orton's Pasture	C	Whole cone, apex, bracts, nutshells	+	+	0.53
Lower Brook Street, Winchester	W	Whole cone	?	?	?
Springhead shrine	C	Bract and nutshell	+	-	0.007
Westhawk Farm, Ashford	C	Nutshell	+	?	0.025
Fishbourne Palace	C	Bracts and nutshells	+	?	?
1 Poultry, London	W	Whole cones, bracts, nutshells	-	?	-
Claydon Pike	W	Whole cone	-	-	1.4
Fullerton	C	Nutshells	+	+	1.8
Monkton Mount Pleasant, Isle of Thanet	C	Nutshells	+	+	0.25
Springhead Roman town	C	Nutshell	+	+	0.125
Great Holts Farm	W	Cone fragments, bracts, nutshell	-	+	4.2

from flooring material, implying that they represent the regular disposal of refuse into the well. However, the co-occurrence of bones of *Accipiter nisus* L. (sparrowhawk) and *Turdus* sp. (thrushes), unique within Roman Britain (Allen pers. comm.), with the remains of a stone pine cones within the basal context of the well (6463) (Germany 2000: 40, 196, 213) suggests the well fills may not be so mundane after all.

Discussion

There is clearly much variation in the taphonomic conditions and contextual associations of stone pine cone remains. Several categories of deposit can be characterised. First, the presence of high-density, primary deposits of plant items which are not usually charred during food preparation, alongside distinctive artefact categories, strongly indicates their purposeful charring or deposition. From Britain, examples are the charred remains from the Triangular Temple at Verulamium, Carrawburgh Mithraeum, London Mithraeum and Fishbourne Palace. As these deposits were only hand-collected, other plant foods may have been missed, and exact densities are not known. Beyond Britain, the dense charred deposits of plant foods from domestic offerings in Pompeii and the Oedenburg and Mainz temples are similar examples.

The second category is where stone pine cone remains have a clear spatial connection with sacred space, but do not occur in high-densities or alongside distinctive artefacts. For instance, at the Westhawk Farm and Springhead shrines, charred stone pine nutshells were deposited in pits, indicating that they were charred in the vicinity. The third category is where only a plant item is present, usually a food, which is nationally rare (Van der Veen *et al*. 2008). Examples are the whole pine cones found at Alchester, Claydon Pike and Lower Brook Street. Such instances should encourage detailed examination of the stratigraphy, artefacts and other ecofacts in the deposit. Finally, when fragments of food-processing waste (pine nutshells) are found alongside crop-processing waste (cereal chaff), with no spatial or artefactual patterning, this strongly implies that the plant remains derived from food-processing, as at Fullerton, Springhead Roman town and Monkton-Mount Pleasant.

Whilst the investigation of taphonomic criteria has proved valuable, the usefulness of individual criterion is hindered by disparities in the quality of recording. The density of stone pine remains does not always separate settlement sites from temples and shrines. However, where visible agglomerations of charred material were identified, many were not systematically sampled. In such cases, density values cannot be ascertained. The presence and absence of charring can only be assessed at waterlogged sites, as otherwise uncharred remains do not survive. The only example where partially charred waterlogged remains were noted is the pine cone from the London Mithraeum. Any charring of intact cones at other sites with clear ritual architecture, such as Carrawburgh and Lower Brook Street was not noted, but the reporting of these examples is brief. Furthermore, exposure to fire often reduces plant remains to ash (Chadwick 2012: 300), and charring may also derive from attempts to open the nutshell, or disposal in hearths after kernel removal (Kislev 1988). Nutshell fragmentation was noted at settlement sites where the co-occurrence of nutshells with crop-processing waste strongly suggests food waste. Yet fragmentation may be caused by various pre- and post-depositional processes. Furthermore, classical literature demonstrates that there is no clear division between the meals consumed by people and foods offered to the gods (Robinson 2002: 97).

Overall, pine cones were at least imported partially as objects intended for use in ritualised activities, as has been argued for dates (Livarda 2013). Terracotta pine cones, which may have acted as substitutes for actual stone pine cones, have been discovered at Witcombe villa, Gloucestershire, to the east of a room interpreted as a temple (Green 1976: 172), and from a villa at Rapsley, Surrey (Bird 2002; Hanworth 1968). Stone pine cone replicas also feature on funerary monuments, such as the limestone pine cone found within a walled cemetery in Roman Southwark, which would have originally been attached to a monument (Blagg 2000).

This discussion has highlighted the importance of assessing as many taphonomic criteria as

possible, and above all, comparing plant remains with the artefactual and architectural evidence in examinations of ritualised deposition. Stating the plant remains present is not sufficient analysis. The abundance, type of plant remains and as much taphonomic information as possible must be included in order to understand their depositional history. Furthermore, the recognition of high-density assemblages of plant remains with no obvious source from food-processing, and the presence of nationally rare plant foods, should encourage the detailed examination of other artefacts, ecofacts and stratigraphy. Plant remains are clearly key aspects of ritualised deposits at numerous sites, and should be considered within all depositional studies.

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Caesar in Gaul: New Perspectives on the Archaeology of Mass Violence

Nico Roymans and Manuel Fernández-Götz

Introduction

This paper aims to introduce a new research project on the Roman conquest of Northern Gaul. In these districts, especially in the 'Germanic' frontier zone, the conquest had dramatic negative effects; the emphasis was on destruction, mass enslavement, deportation and probably even genocide. This more negative aspect of the Roman conquest has been the subject of little serious research. Until recently, this was not possible because of the lack of independent archaeological data for such research. However, the situation has changed substantially in the last two decades. Thanks to new archaeological, palaeobotanical and numismatic evidence, it is now possible to develop a more accurate picture of the conquest and its social and cultural impact on indigenous societies, as well as of Caesar's narrative itself. Adopting a theoretical-methodological focus, this paper aims to show how archaeology can contribute to the study of mass violence and disruption by using a combination of archaeological and historical information. Whereas the relatively new domain of battlefield archaeology will be addressed through the analysis of the fortification of Thuin and its environment, the alleged genocide of the Eburones by Caesar will be revised on the basis of settlement patterns and environmental data.

Re-addressing the Roman conquest of Northern Gaul

In the years 58–51 B.C. Gaul was conquered and added to the Roman state. For the first time in history tribal groups in North-western Europe were confronted with the violent expansion of an empire (Badian 1968) (Fig. 1). Although it is generally accepted that Caesar's war narrative is imbued with personal propaganda and the rhetoric of an imperial ideology (Riggsby 2006; Schadee 2008; Kraus 2009), there is no doubt that the conquest had dramatic consequences for Gallic societies. Illustrative is Appian's claim (*Gallic History* 2) that Caesar killed one million Gauls and enslaved another million out of a total population of four million.

Until recently the Roman conquest by Caesar was only documented historically in the northern periphery of Gaul. In the Netherlands, Belgium and the German Lower Rhine area the Caesarian conquest was almost totally intangible in the archaeological record; direct archaeological evidence in the form of Roman army camps or battlefields was absent, this in contrast to the more central and southern areas of Gaul (e.g. Alesia, see Reddé 2003; Poux 2008). One reason for this was the scarcity in the North of heavily defended oppida (Roymans 1990; Fernández-Götz 2014), which could have been used by Caesar as military targets or as winter camps for his army.

The shortage of archaeological evidence for the conquest does not mean, however, that there

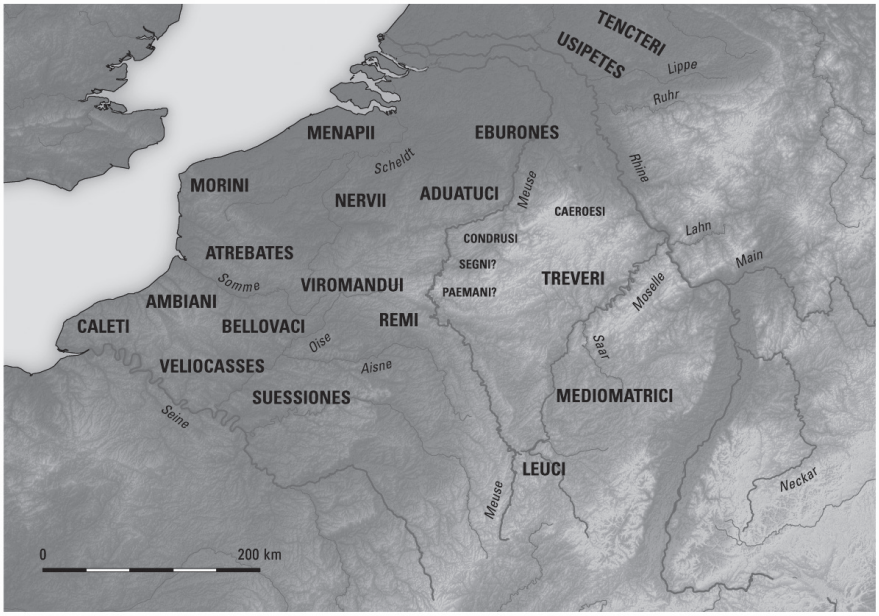


Figure 1: Ethnic map of Northern Gaul at the time of Caesar (after Fernández-Götz 2014)

were almost no consequences for the societies in this northern periphery. On the contrary, there is probably no region in Gaul where the impact of the Roman conquest was as dramatic as in the Germanic frontier zone (Roymans 2004). In the north-eastern districts of Gaul, the conquest had profound negative effects on the lives of tens of thousands of people: the emphasis was on destruction, mass enslavement, deportation and even genocide. Here, Roman imperialism revealed itself in its most aggressive form.

These more negative aspects of the Roman conquest have been the subject of little serious research by archaeologists. Until recently, this was not possible because of the lack of independent archaeological data for such investigations in Northern Gaul. Moreover, there are a number of additional factors of a more general nature that have also contributed to this research gap: 1) mass violence is a complex phenomenon that cannot simply be 'excavated'; 2) archaeological data usually have a limited chronological resolution that make the analysis on the time-scale of the *histoire évenementielle* problematic; and 3) over recent decades, much of the emphasis has been on regional archaeological projects focusing on long-term economic, social and cultural transformations. All in all, there has been an underestimation of the direct consequences of the Roman conquest, sometimes leading to the bizarre conclusion that Caesar's conquest had limited societal impact because there was no archaeological evidence for it, as reflected in the title of Hamilton's paper 'Was there ever a Roman conquest?' (1995).

However, this situation is now changing, again due to several factors: 1) the increased attention to agency and the role of the individual (Dobres and Robb 2000; Gardner 2008), which stimulates historical-archaeological research; 2) the rapid development of battlefield archaeology and forensic archaeology (Hunter and Cox 2005; Saunders 2012), resulting in a growing interest in the topic of mass violence; 3) the impact of the post-colonial research agenda (Lydon and Rizvi 2010), which has led to a greater awareness of the destructive aspects of Roman imperialist

expansion; 4) the increased quantity and quality of archaeological data obtained over the past two decades (Roymans 2004; Uelsberg 2007; Fernández-Götz 2014); and 5) the introduction by classicists and ancient historians of new methods for the critical analysis of ancient war narratives (e.g. discourse analysis, narratology, see de Jong 2014).

The substantial increase in archaeological, palaeobotanical and numismatic evidence and the development of new approaches and questions can be used to obtain a more balanced picture of the conquest and its social and cultural impact on native societies, as well as of Caesar's war narrative itself. In 2014 the authors initiated a new research project entitled 'Imperialism, mass violence and integration. Re-assessing the Caesarian conquest of Northern Gaul', in order to explore the direct impact of the conquest on indigenous societies. The main aims of the project can be summarised in three points: 1) the study of the direct effects of Caesar's Gallic Wars on the societies of Northern Gaul; 2) to provide new theoretical and methodological insights into the archaeology of mass violence and genocide; and 3) to explore the potentials of an integrated archaeological, historical and narratological approach to Caesar's war account.

Towards an archaeology of mass violence and genocide

Whilst there are other aspects, a major theme of this research proposal is the use of mass violence in Roman imperialist expansion. Within this field we have a special interest in a particular form of mass violence that can be indicated as genocide. This concept can be used when the violence is linked to an explicit intention of the dominant power to destroy an ethnic group or people (cf. Bloxham and Moses 2010; Jones 2013). Caesar is very clear about the aim of his campaigns against, for example, the Eburones; the campaigns were meant to annihilate this people and its name (*stirps ac nomen civitatis tollatur*; *B Gall.* 6.34.8), which testifies to his awareness of genocidal practices. The strategy repeatedly described by Caesar to travel with his army through the homeland of enemy tribes with the aim to burn down as many settlements as possible, to destroy the crops in the fields and to murder the inhabitants, must have had a dramatic impact on the physical appearance of the homeland of these populations; in fact their lands were transformed into 'landscapes of war and terror' (cf. Hill and Wileman 2002) (Fig. 2).

Historians have made an important contribution to the genocide debate by informing us about the great time depth of genocidal practices, the varying historical contexts in which they occurred, and the different ways in which mass destruction was realised (for the Ancient World, see Van Wees 2010). Archaeology can contribute by testing potential cases of genocide that are historically documented. What the above means for us is that we should try to obtain the best possible picture of the concrete behaviour of the Roman army in Gaul on the one hand, and the moral and juridical justification for extreme acts of violent aggression on the other.

With this programme we also aim to develop a methodology to show how archaeology can contribute to the study of mass violence and disruption in pre-modern empires by using a combination of historical and archaeological data. Thus far there has been no systematic approach to the 'archaeology of genocide' in pre-modern societies. The programme is therefore of a pioneering nature, occupying the front line of a new field of study that has great potential. From an archaeological perspective, mass violence and destruction can result in:

1) Evidence for massacre deposits or other conflict-associated mortuary practices. This evidence is important (Komar 2008), but also problematic as it is often difficult to make inferences about the scale of the use of violence. It may have been linked to local conflicts between groups that have nothing to do with genocide.

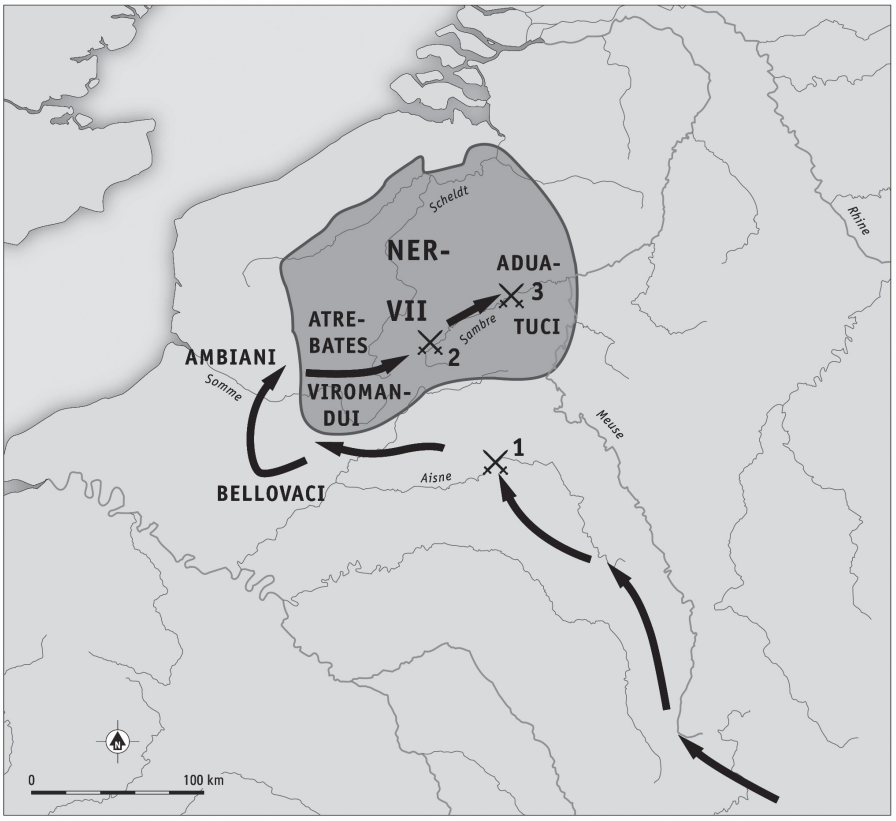


Figure 2: Caesar's military campaigns of 57 B.C. and the approximate locations of major battlefields. 1) along the river Aisne; 2) along the river Sabis/Sambre; 3) siege of the oppidum of the Aduatuci (after Roymans et al. 2012)

2) The evidence produced by landscape archaeology and settlement archaeology has much greater potential. Starting from the assumption that the direct consequence of genocide is a sudden decline in a region's population density, the settlement evidence can be used to explore the question as to whether large-scale discontinuity can be observed in the habitation history. However, the large-scale depopulation of a region is not in itself an argument for mass destruction, as a group may have migrated to another region without losing its identity. But if we have a historically documented case of the annihilation of an ethnic group, the study of discontinuity in the settlement evidence represents an important archaeological test case. A precondition is of course the presence of a substantial body of high-quality settlement data in combination with a well-developed chronological framework.
3) An indirect effect of the partial or complete depopulation of a region following mass destruction is that after a certain time the region is repopulated again by immigrant groups. These latter might have a distinct material culture that is reflected in the archaeological record (e.g. house types, pottery, grave rituals, ornaments).

In his war narrative Caesar describes two different ways of annihilating a tribal group. In the case of the Aduatuci the community was defeated and enslaved en masse after the conquest of a single fortification where the entire community had assembled (*B Gall.* 2.33). In the case

of the Eburones the population was completely dispersed over the region when attacked by an armed force of six legions that ravaged the countryside and slaughtered the population (*B Gall.* 6.34). It is clear that the archaeological record of these two types of destruction will be quite different. In what follows we are going to present new evidence that helps to shed some light on both scenarios.

Thuin as a 'crime scene'

One of the more spectacular discoveries of Roman provincial archaeology of the last few years is the plausible identification of a Late Iron Age fortification at Thuin (Belgium) as the *oppidum* of the Aduatuci, conquered by Caesar in 57 B.C. (see also Roymans *et al.* 2012: 20–24). For the first time in Northern Gaul, archaeology can directly trace one of the major 'crime scenes' described by the Roman proconsul.

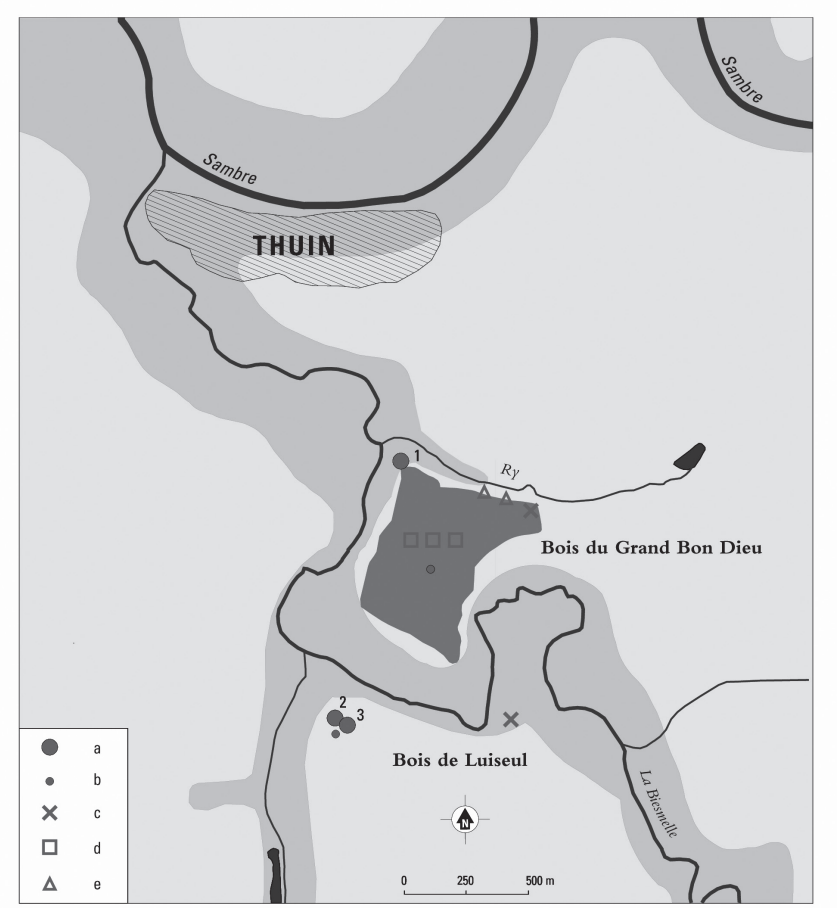


Figure 3: Topography of the Late Iron Age fortification at Thuin and the location of gold finds and Roman lead sling bullets. a) gold hoard; b) isolated gold coin(s); c) concentration of sling bullets; d) iron tools; e) bronze ornaments and appliqués (after Roymans et al. 2012)

The *éperon barrée*-type fortification of Thuin occupies a plateau of more than 13 ha and can be reached on the eastern side via a narrow, 60 m wide finger of land (Fig. 3). An important clue is provided by a radiocarbon date for charcoal from the rampart, which gives a date between 90 B.C. and 60 A.D. A date in the last centuries B.C. is confirmed by the find of Late Iron Age metal objects, including iron tools, bronze ornaments and appliqués, and a gold coin of the Eburones. There are no finds at all from the first two centuries A.D., from which we may conclude that the settlement definitely did not survive into Roman times. We do not know whether the fortification was permanently inhabited in the late La Tène period, or whether it was only used on an incidental basis in times of crisis. In any case, three gold hoards, several stray gold coins and the terminal of a gold torque have been found in or immediately outside the fortification. As new research has shown, the gold depositions at Thuin belong to the older phase of the Fraire/Amby horizon, which certainly pre-dates the Eburonean revolt of 54–53 B.C. and gives an important chronological clue for the dating of the site (Roymans *et al.* 2012) (Fig. 4).

Several elements suggest that this was the *oppidum* of the Aduatuci conquered by Caesar. According to written information, this site was seized by the Romans in 57 B.C., after which its entire population of 53,000 individuals were sold as slaves and deported to Italy: 'Then Caesar sold as one lot the booty of the town. The purchasers furnished a return to him of 53,000 persons' (Caesar, *B Gall.* 2.33).

The main arguments for the identification of Thuin as the scene of the crime can be summarised as follows: 1) the fact that this was an important Late Iron Age fortification which was situated in the territory of the Aduatuci and that did not survive into Roman times; 2) the match with the topography described by Caesar; 3) the dating of the gold hoards in the early 50s B.C., which seems to reflect a single event; 4) and finally, and very importantly, the concentrations of Roman lead sling bullets which indicate a siege by the Roman army. The sling bullets appeared in two separate concentrations: on the wall near the main entrance of the fortification and on the other side of the Biesmelle river near the Bois de Luiseul. Their concentration at the main rampart suggests that they were used by the attacking side. Moreover, the distribution of these projectiles



Figure 4: One of the hoards of Nervian gold coins from the mid-1st century B.C. found at Thuin and probably related to the Caesarian campaign against the Nervii and Aduatuci in 57 B.C. (after Roymans et al. 2012)



Figure 5: Roman lead sling bullets from the Late Iron Age fortification at Thuin (after Roymans et al. 2012)

suggests that the Roman attacks focused on the principal rampart and on another target across the Biesmelle river near the Bois de Luiseul which cannot be identified more closely (Fig. 5).

The coin depositions in the Bois de Luiseul can best be interpreted as portable wealth hidden at a cult place at a time of crisis. Following the capture of the *oppidum*, not only will the entire population have been sold as slaves, but the Roman army will have systematically plundered the fortification. Caesar will have been chiefly interested in the portable wealth hidden there in the form of coins and jewellery. Only the three recently identified gold hoards of Thuin remained out of Roman hands, but these will have represented only a fraction of the gold that was seized there. Thus our hypothesis is that the mass deportation of the Aduatuci after the

fall of their *oppidum* meant that part of the portable wealth buried beforehand in the soil was never recovered, giving rise to an archaeological hoard horizon (cf. Roymans *et al*. 2012). In his biography of Caesar, Suetonius wrote that Caesar was guilty of the large-scale plunder of *oppida* and sanctuaries in Gaul and of enriching himself enormously with the wealth stored there, most notably in the form of gold: 'In Gaul he pillaged shrines and temples of the gods filled with offerings, and oftener sacked oppida for the sake of plunder than for any fault. In consequence he had more gold than he knew what to do with, and offered it for sale throughout Italy and the provinces at the rate of 3000 sesterces a pound' (Suetonius, *Iul.* 54, 2). Since the usual price of gold was 4000 *sestertii*, Caesar greatly inflated the Italian gold market. The *oppidum* of the Aduatuci which he conquered in 57 B.C. will have been an apposite example of this policy of the Roman proconsul.

Settlement patterns and the fate of the Eburones

Although it is clear that both the Eburones and the Aduatuci did not survive the conquest period as tribal groups, there are differing opinions among historians about the interpretation of Caesar's narrative; some scholars take his account on the destruction of the above tribes very literally, while others (e.g. Heinrichs 2008) see it as a rhetorical act of political propaganda. Information about the genocide of the Eburones goes back to Caesar himself, who says in his account that the territory of this *civitas* was razed to the ground and left to be pillaged as punishment for Ambiorix' rebellion of 54 B.C.: 'He [Caesar] sent messengers around to the neighbouring tribes and invited them all, in the hope of booty, to join him in pillaging the Eburones, [...] and at the same time, by surrounding it with a large host, destroy the race and name of the tribe [*stirps ac nomen civitatis tollatur*]' (Caesar, *B Gall.* 6.34.8).

After that the Eburones disappeared from the political map forever. Does this mean that all the members of this ethnic group were massacred? There are reasons to assume that their absence from the political map after the conquest was not necessarily due to complete genocide, but could be the result of a policy of *damnatio memoriae* by the Roman authorities. However, a substantial population decrease caused by the partial genocide of the members of this tribe seems likely. In fact, pollen diagrams seem to suggest a reduction of human activity and an increase in arboreal pollen in the Cologne hinterland around the mid-first century B.C. (Meurers-Balke and Kalis 2006; Kalis and Meurers-Balke 2007), a conclusion that seems to correlate fairly closely with the events described in the texts and which suggests that population declined significantly in this region, although it never became completely uninhabited (Joachim 1999–2000, 2007).

A substantial population decrease in the first century B.C. also seems to occur in the Meuse-Demer-Scheldt region (South Netherlands/North Belgium), which has produced high-quality settlement evidence (Roymans *et al.* 2015). It is often impossible to specify the date of abandonment of Late Iron Age settlements because of the low chronological resolution of the material culture. However, it is significant that most native-Roman settlements in this region appear to be new foundations from the late first century B.C./earliest first century A.D. There is increasing evidence that the first century B.C. was a period of habitation discontinuity in this area. Thus archaeology is able to show that there was a serious break in first century B.C. habitation in the Meuse-Demer-Scheldt region, which may well be related to the conquest period.

At the same time archaeology allows the image offered by the written sources to be refined, providing evidence of continuity that suggests the area inhabited by the Eburones was never completely depopulated. The most important arguments in support of some degree of continuity

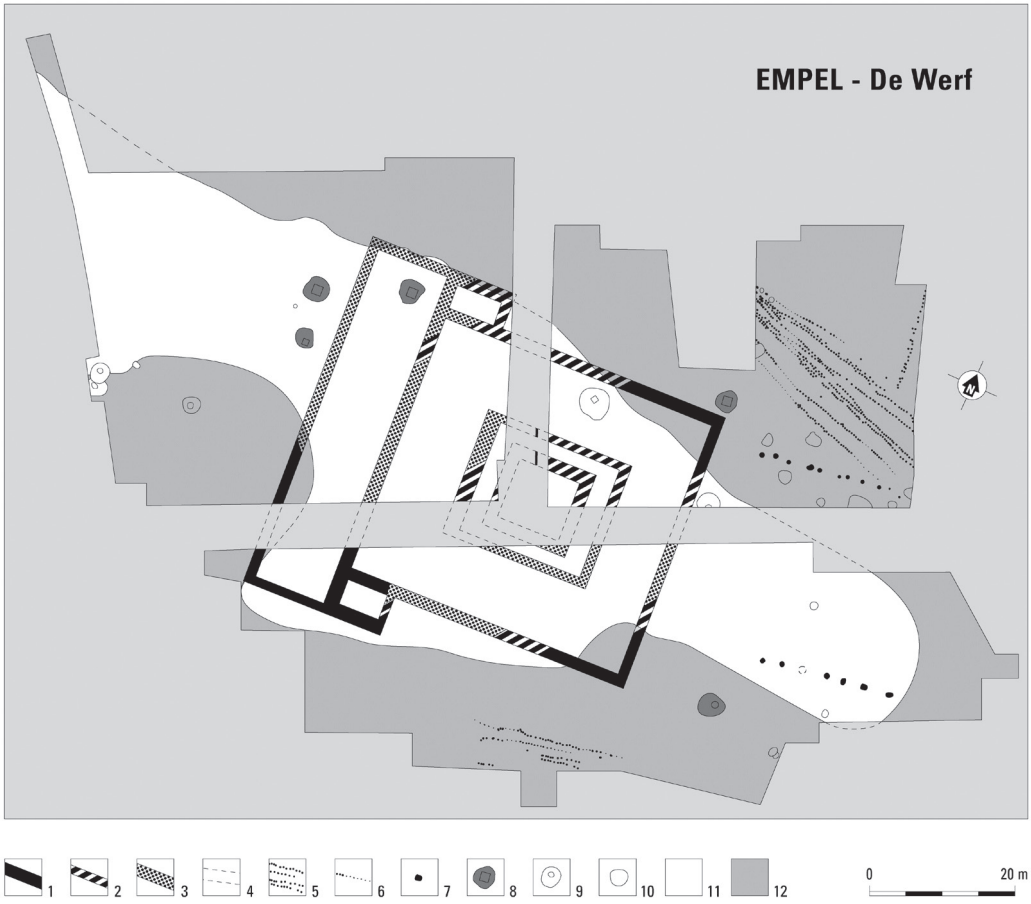


Figure 6: Simplified plan of the sanctuary of Empel. 1) foundations of Roman walls; 2) robber trenches of Roman walls; 3) reconstructed Roman walls; 4) ditto, not excavated; 5) picket fences; 6) ditto, reconstructed; 7) posthole; 8) Roman well; 9) medieval well; 10) pit; 11) pleistocene sand; 12) clay soil (after Roymans and Derks 1994)

include certain house types, and the recurrent use of cult places, since the pre-Roman sites of Kessel, Empel and Elst continued developing until they became monumental Gallo-Roman sanctuaries (Roymans and Derks 1994; Roymans 2004) (Fig. 6).

Winners and losers, conquest and integration

However much we may justly emphasise the continuity between the pre-Roman and Gallo-Roman periods, the agency of the local elites, their selective adoption of cultural innovations and their re-making of them to suit local conditions (cf. Roymans 1996), we should not forget that bringing Gaul under the rule of Rome was ultimately an imperialist act that brought with

it the death and loss of liberty of hundreds of thousands of people (Haffner and Krausse 2001). Aspects such as the partial genocide of the Eburones, the thousands who fell in battle, the massive sales of slaves through the southern markets, and the looting of numerous sanctuaries were acknowledged by the conquerors themselves in their writings, and modern scholars should not try to deny or soften their impact by using anachronistic euphemisms. Episodes of active resistance existed, and so did collaborators, integration and hybridization. A holistic history should include victors and vanquished, winners and losers, and of course also all those who cannot be easily assigned to one of these two poles, and who simply tried to survive and adapt as best they could to the changing world they lived in.

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Re-defining the Roman '*suburbium*' from Republic to Empire: A Theoretical Approach

Matthew J. Mandich

Introduction

Despite numerous publications, conferences, and excavations focused on the suburbs (or '*suburbium*') of ancient Rome over the last several decades, current definitions of this space, its extent, and its functions remain frustratingly varied and even conflicting. This is partly due to the lack of specific demarcations for such spaces in the surviving ancient literature and epigraphy. In fact, the term *suburbium* only appears twice in known ancient sources (Champlin 1982: 110). However, these assorted and often unsatisfactory modern definitions are also largely the result of a tendency to ignore the numerous and diverse aspects of the suburban realm in order to achieve a simplified, manageable definition. The frequent treatment and study of the Roman '*suburbium*' as an autonomous entity, disconnected from the *Urbs*, further compound the situation, as arbitrarily separating this space diminishes its role in a greater interconnected system largely dependent on the city that it surrounds (see Ravetz *et al.* 2013). Given the current frustrations, one must wonder, whether we are asking the right questions of this space.

This article introduces a set of concepts and approaches that I argue will have validity for redefining and reassessing the Roman '*suburbium*'. In it, I will take a holistic approach to the Roman suburbs, embracing their complexity to combat their innate ambiguity. While the topic is indeed substantial, discussion of individual sites and detailed historical sequencing will necessarily be omitted since the focus instead will be on providing new models by which to reexamine and redefine this space (given the myriad issues of the archaeology). This is no easy task however, as even today's metropolitan planners, (economic) geographers, and land-use analysts struggle to accurately demarcate and assess extra-urban areas around contemporary metropoleis (see www.plurel.net). Yet, by approaching the problem from a theoretical standpoint, and analyzing Rome Ekistically – as a dynamically expanding polis (see Doxiadis 1968: 193–199 and below), innovative ways of mapping and measuring may be assessed, offering a clearer understanding of this space, in turn allowing for its evolution, functions, and mobility to be better tracked from Republic to Empire.

*The '*suburbium*' in Ancient and Modern Thought*

As noted, the term suburbium only appears twice in known ancient sources, and only once in a classical context:

> "*Hisce ego me viis committam, qui Terminalibus nuper in suburbium,*
> *ut eodem die reverterer, ire non sum ausus*?" (Cicero, *Philippics* 12.10.24)

> (Should I then trust myself to those roads, I who lately, on the day of the feast of Terminus, did not dare even to go into the suburbs and return by the same road on the same day?)

Despite the limited usage of the term, some information may still be gleaned from this brief passage. Cicero, in light of recent events, says that he is afraid to attend the Terminalia festival that took place on the 6th milestone of the Via Laurentina (Ovid, *Fasti* 2.682). This festival, originating in the Archaic period (or earlier), celebrated the god Terminus who watched over all boundaries, but primarily those of farms, personal properties and towns/cities (Ovid, *Fasti* 2.682; Roy 2005: 460). The location of the festival is significant since the 6th milestone marked the symbolic limit of Rome's earliest territory, the *ager Romanus antiquus*, and signified the extent of Rome's suburban realm as early as the 9th century BC (see Fulminante 2014: 112–115, 131–132). However, by Cicero's time Rome's suburban realm was considered to extend far beyond this, stretching to at least *Tusculum* (21 km from Rome) – considering Cicero himself states in a letter to Atticus that he would prefer to meet in *Tusculum*, or at some other suburban location: '*malo enim esse in Tusculano aut uspiam in suburbano'* (Cicero, *Att*. 16.13; see also Cicero, *De Ore*. 1.98 for reference to a '*suburbanum gymnasium*' located at Crassus' Tusculan villa).

Indeed, as Rome continued to develop as a polity her suburban realm inevitably expanded. Propertius, writing in the later first century B.C., alludes to the changing political and physical landscape of the early-mid Republican period when he states: '*Bovillae* was hardly a suburb of the small city [Rome], and *Gabi*, now nothing, was greatly crowded' (*quippe suburbanae parva minus urbe Bovillae et, qui nunc nulli, maxima turba Gabi*) (Propertius, *Elegies* 4.1.3). Several decades later we hear from Ovid that towns such as *Bovillae* (18 km from Rome), *Aricia* (27 km), *Tibur* (32 km), *Lanuvium* (38 km), *Praeneste* (41 km) and *Lavinium* (47 km) were all considered suburban (*suburbani*) to Rome (see Ovid *Fasti* 6.56; 3.66). Contemporaneously, Rome's urban centre was growing rapidly, forcing jurists to scramble to demarcate the City's fluctuating boundaries (see *Digesta* 50.16). This situation is probably best described by Dionysus of Halicarnassus, who in the late first century B.C. stated:

> 'If anyone wishes to estimate the size of Rome by looking at these suburbs he will necessarily be misled for want of a definite clue by which to determine up to what point it is still the city and where it ceases to be the city; so closely is the city connected with the country, giving the beholder the impression of a city stretching out indefinitely.' (Dionysius of Halicarnassus, *Roman Antiquities*, 4.13.3–5)

Today, scholars continue to struggle with ways in which to interpret and define Rome's '*suburbium*' in antiquity. Some have taken a geographical approach, using the undulating plain of the *Agro Romano* (extending to the pre-Apennine mountain ranges and the Tyrrhenian coast) as a rough boundary (e.g. Morley 1996: 82; De Franceschini 2005). Others have elected to focus on architecture and material culture as indicators (Witcher 2005: 1045; 2008: 121), or examine the data in administrative texts – such as the range of the corn dole or that of the urban prefects writ (see Rickman 1980; Dyson 2010: 299). Many others have instead chosen to look at distances and travel speeds to gauge the extent of this zone. While useful, as will be shown, this exercise has produced a myriad of results since different modes of transportation and methods for calculating speed have been employed without a consensus being reached (see, for example Champlin 1982: 98; Agusta-Boularot 1998: 49–50; Laurence 1999: 125).

Textual evidence has also proved ambiguous, as the frequently appearing adjectival forms of the term (e.g. *suburbanus, suburbana* etc.) may refer to different components of this greater

realm depending on the author and the audience. For example, Roman agronomists tend to use the term *sub urbe* or variations of *suburbanus* when discussing land and villas close to the city of Rome (see Cato, *De Agri*. 7.1; 8.2; Varro *De Re Rus*. 1.16.3; 1.50.2). These writers emphasize the economic and productive aspects of such properties, stressing that they should be travelled to daily (*cotidianus excursus*) to ensure the smooth running of the estate (Columella, *De Re Rus*. 1.1.19; 1.2.1; Cato, *De Agri*. 1.1–2.7). On the other hand, when variations of the term appear in the works of writers such as Cicero or Pliny, it is often in reference to larger estates, more removed from the City and primarily reserved for social practices and personal enjoyment (Cicero, *Rosc. Am.*133; *Verrem* 2.1.54 and 2.4.121; *Q. Fr*. 3.1; Pliny, *Ep*. 2.17).

While these textual discrepancies have been acknowledged, little has been done to deal with such issues in definitions of the Roman '*suburbium*'. Instead, elite aspects of suburban space have been the dominant focus, as variations of the adjectival form of *suburbanus* appear most frequently in these writings (Champlin 1982: 97; Goodman 2007: 20 n.75, 77, 87). This has led to the *suburbium* being defined as 'the rustic retreat of the urban elite' (Champlin 1982: 110), or a 'geistiger Lebensraum' (intellectual space) (see Mayer 2005: 263), and geographically indefinable. In a similar vein, it has been argued that perception rather than position dictated whether or not a villa was considered suburban in ancient thought (Goodman 2007: 20–22). However, as position surely influenced perceptions, further studies on villa location and amenities as qualifiers of suburban status have been undertaken, producing useful, yet inconclusive results (for example, Mayer 2005; Viitanen 2010).

In sum, various methods and approaches have been employed to delineate and define Rome's suburbs, yet none have produced a wholly satisfactory result. This is likely because many definitions attempt to crowd too many aspects of this complex zone under one roof (e.g. social, economic, physical), rather than focusing on each individually to achieve a more complete understanding of this ever-changing region. In a recent article, Rob Witcher (2013: 215) states that 'the (Roman) suburbs are characterized by a distinctive mobility and diversity' and cannot be defined 'unambiguously'. Yet the mobility and diversity of these suburbs were certainly motivated by real factors, and for every action there was a reaction. Therefore, by focusing on the causes of this mobility and diversity in the landscape, we should be able to move in new directions, and closer to less ambiguous definitions of this suburban realm.

Below I set out some of the previously applied approaches to interpreting this space, but highlight in particular new ways of modeling its form and functions. In doing so, I intend to show how we should draw on models and debates in modern and ancient urbanism to help understand the complex dynamics of ancient Rome's '*suburbium*', and hopefully change the ways in which we perceive and engage with it.

Other Approaches: Modeling Suburban Space and the Use of Ekistics

While the search for a coherent spatial extent has dominated studies on the Roman '*suburbium*', predictive modeling has also been employed to examine Rome's hinterland, albeit much more sparingly. Andrea Carandini (1985) was one of the first to apply aspects of economic geography to the Rome's extra-urban space when arguing (convincingly) for the existence of a complex and nuanced agricultural system surrounding the City based on marginal productivity and economic rents. In particular, he uses the work of Johann von Thünen (1826; translated as Von Thünen 1966) and its subsequent reworking by Michael Chisholm (1979) to model land use tendencies around Rome given the distinct lack of archaeological evidence for many agricultural activities

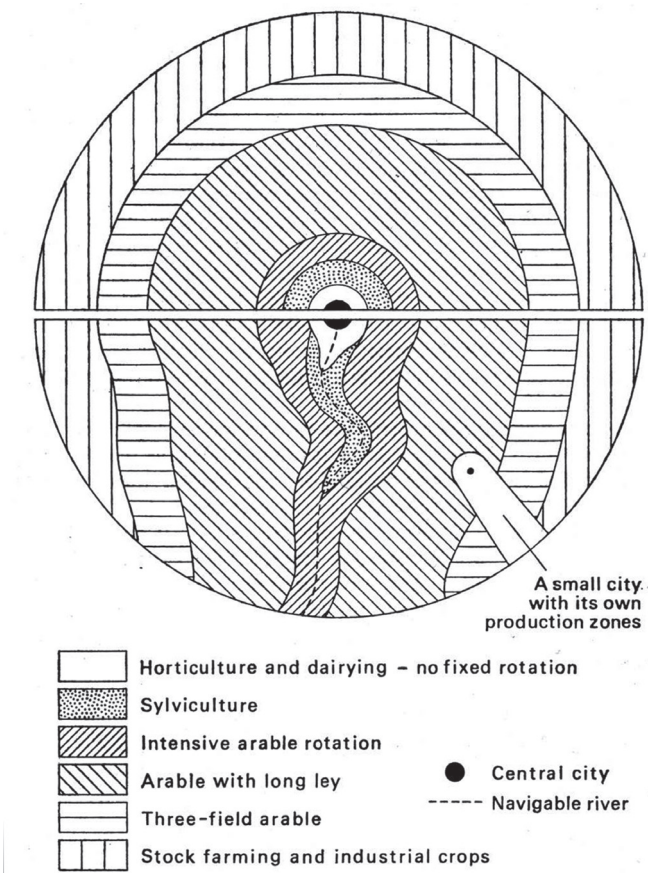


Figure 1: The 'Isolated State' model, based off model by Johann Von Thünen. Upper half of diagram represents conditions in hypothetical isolation; lower half introduces real-world factors such as waterways and additional settlements. (Chisholm 1979: Fig. 2)

(followed by Morley 1996: 59–68). The model employed, known as the 'Isolated State' theory, takes a hypothetical, isolated, pre-industrial city and examines how the locations of various agricultural undertakings should be dictated by production costs, transport costs, resource location, and profit maximization (also known as 'Von Thünen rent') (Fig. 1). Yet Carandini's discussion focuses solely on Rome's urban fringe, and while this model has been examined to some extent in relation to the wider suburban realm (Morley 1996; Goodman 2007; Wilson 2009), there is still potential for further extrapolation – especially when combined with other theories on Roman settlement and economy, and more particularly, with advances in spatial analysis.

Yet the principles of the Von Thünen and Chisholm models have already impacted on archaeological theory in a variety of ways. For example, Site Catchment Analysis (SCA) follows an almost identical framework, as it assumes 'the farther one moves away from an inhabited locus, the greater the amount of energy that must be expended for the procurement of resources' (Roper 1979: 120). This translates to more intensive land use and cultivation closer to a settlement, with a gradual decrease until a point is reached where exploitation of resources is no longer profitable due to costs (i.e. Von Thünen rent). This 'point', or boundary, is then where the site or settlement is considered to end (see examples of Thiessen polygons for most recent applications). While the Chisholm model, SCA, and Central Place Theory (see Christaller

1933) tend to work reasonably well for assessing and demarcating smaller agrarian settlements and their hinterlands (see Stone 1996: 12–27), they have proved much too simplistic for dealing with large metropolitan areas such as first century A.D. Rome. For cities of this scale, a more all-encompassing, realistic model is needed, one that can account for expanding infrastructure, and, in particular, a dynamic transportation network**.**

Because of Rome's unique size, population, and political and socio-economic situation it is extremely difficult to model in a conventional way. Therefore, we must look for alternatives that can account for large, complex, man-made systems and their evolution. In my opinion, one of the few disciplines with scope for such an endeavour is Ekistics, the science of human settlement. Developed by Constantinos A. Doxiadis (1968), this science was proposed as a solution to problems facing contemporary human settlements, which had begun to grow unsustainable, and unsatisfactory for their inhabitants (Doxiadis 1968: 5). 'Ekistics starts with the premise that human settlements are susceptible of systematic investigation', and 'take(s) into consideration the principles man takes into account when building his settlements, as well as the evolution of human settlements through history in terms of size and quality' (Doxiadis 1970: 393). The science itself revolves around an interconnected system featuring five elements that can be influenced diversely by five forces. These are:

– *Elements:* Man, nature, society, shells (i.e. structures), and networks

– *Forces:* Economic, social, political, technical, and cultural

Interestingly, one can recognize that these concepts are often studied individually in Roman archaeology. Yet, as will be shown, the combined study of these constituent elements can generate more holistic approaches to the Roman world.

In order to classify settlements, Doxiadis invented the Ekistic Logarithmic Scale (ELS) consisting of 15 Ekistic units ranging from the smallest unit (Man) to the largest (Ecumenopolis). Given that Rome's population is estimated to have reached 1 million by the early Imperial period (see below) it is best represented by the tenth Ekistic unit on the ELS – the Metropolis, which has a population range from 50,000 to 10 million (Doxiadis 1968: 91). Aside from population, a metropolis can also be characterized as a major urban area that has grown beyond its initial borders and incorporated other small settlements (rural and urban) that existed around it (Doxiadis 1968: 91). Metropoleis tend to grow dynamically, and dynamic settlements (or Dynapoleis) are defined by their continuous growth – typically at a rate of at least 0.6–1.2 percent per annum in population and economy (Doxiadis 1968: 193, 208). A dynamically expanding metropolis is therefore known as a Dynametropolis; however, Doxiadis did not believe Dynametropoleis existed prior to the 18th century (1968: 101). He argued that ancient settlements, while able to grow at high speeds, did so only for short periods until they reached 'a few score thousands of people' (1968: 101). Yet Doxiadis was also aware that the populations of ancient Rome and Byzantine Constantinople grew far beyond this number, and that these settlements could in fact be qualified as metropoleis due to their size (Doxiadis 1968: 213). However, he goes on to state that while these cities each experienced a period of dynamic growth, they should instead be noted for the long static phases that preceded their eventual declines (Doxiadis 1968: 213). While this sequence of 'dynamic growth – static phase – decline' is crucial for understanding the evolution of Rome as both a city and a polity (see Bettencourt *et al*. 2007 for a recent application of this concept in a modern context), a more thorough examination of Rome's growth and expansion phase is certainly warranted.

Rome: An Ancient Dynametropolis?

Regardless of Doxiadis' thoughts on the subject, if we can qualify ancient Rome as a dynamically expanding Metropolis on the ELS, then we should be able to examine its evolution and expansion as such. So, was Rome an ancient Dynametropolis? Studies dealing with the demography of peninsular Italy are notoriously debatable (see Scheidel 2001; 2007) and the situation regarding the population of Rome and the '*suburbium*' is no less ambiguous (see Witcher 2005; 2008). However, it is important to note that due to Rome's unique size and situation, inferences on demographic trends on the Italian peninsula do not necessarily (need to) coincide with those of Rome. That said, plausible estimations of population numbers for Rome and growth rates for the city are elusive, as they are often tied to larger debates on Italian population (i.e. 'low count' vs. 'high count' hypotheses). Yet based on census data, and the work of Brunt (1971) and Hopkins (1978), it is generally agreed that Rome's free population rose from 150,000 to 650,000 between 225–28 BC, equaling a 0.74 percent rise in population per annum (Lo Cascio 2001: 115–118). Taking slaves, migrants, women and children, and some extra-urban inhabitants into account, Rome's total population in this same time frame swelled from 250,000 to roughly 1 million (Hopkins 1978: 68–69; Morley 1996: 33–39; Jongman 2003: 103–104), exhibiting an almost identical growth rate of 0.70 percent per annum. These numbers are right on par with Doxiadis' dynamic growth parameters, indicating that, from the mid-late Republic and into the early Empire, Rome exhibited demographic growth characteristic of a Dynametropolis.

While population numbers for the mid to later Imperial period are far less secure, a figure of 1.2 million inhabitants for the city of Rome in the Constantinian period (proposed by Guido Calza) has gained the most acceptance (Coarelli 1997; Lo Cascio 1997). However, it is important to note that this figure is based upon the *insulae* recorded in the Regionaries, numbering 44,000 – each with 27 inhabitants, combined with 1,800 *domus* each featuring 30 prescribed inhabitants – all within the Aurelian Wall (Hermansen 1978: 146–148). Yet *insulae* and *domus* were not the only housing options, as many less permanent structures are attested to in the ancient sources – housing peasants, slaves, and ex-slaves (see Bradley 1994: 90–92). Taking these into account, plus the urban space beyond the Aurelian Wall (i.e. the pre-existing *continentia aedificia* or *tecta*) and the peripheral farms and villas, a greater number than Calza's should be assumed. Regardless, as we can see, population growth in the Imperial period was not at the level exhibited during the Republic. Yet Rome was still an expanding and evolving metropolis (see Witcher 2008), able to sustain and even increase a population of over 1 million inhabitants, despite a likely high urban mortality rate (Jongman 2003; Scheidel 2003). However, it seems that by the end of the first century A.D., Rome had ceased to expand at a dynamic rate.

Substantial economic growth appears to have accompanied this rise in population and urban expansion, although this is much harder to quantify (see Hopkins 1983; Bowman and Wilson 2009). That this growth took many forms, and was driven by various factors is evident in more recent studies on the Roman economy (notably Scheidel *et al*. 2007; Bowman and Wilson 2009), yet in order to judge whether Rome's economy was growing dynamically, at a rate of 0.6–1.2 percent per annum, we must examine the City's aggregate and per capita growth. Aggregate economic growth tends to go hand-in-hand with population (Bowman and Wilson 2009: 28), and the dramatic rise of Rome's populace from the third century B.C. to the first century A.D. surely stimulated economic production, consumption, and diversification not only in the City, but also throughout Italy and the Empire (Morley 1996: 52–54; Scheidel 2007: 11). Contrarily however, most models would predict that large population increases lead to decline in per capita

growth and overall living standards – that is, without technological innovations (see Bettencourt *et al*. 2007; Bettencourt and West 2010; Jongman 2009: 119–120).

According to work by Geoffrey West and Luis Bettencourt (Bettencourt *et al*. 2007; Bettencourt and West 2010), without major innovation cycles, population growth in cities cannot be sustained, leading to stagnation or collapse. Yet sustained and significant technological advances, such as hydraulic engineering, mastery of wind, water, and animal power, charcoal production, development of concrete, the mass production, standardization and distribution of goods, civil engineering, and the specialization and progression of agricultural technologies did occur in Rome. Each of these developments would have intensified production and created new economic avenues, helping propel the Roman economy and the city of Rome for many centuries.

Yet the question remains, do such technological advances represent dynamic (Ekistic) economic growth? Research by Bettencourt and West (2010) indicates that in modern contexts 'The bigger the city, the more the average citizen owns, produces and consumes, whether goods, resources or ideas…as city size increases, per capita socio-economic quantities such as wages, GDP, number of patents produced and number of educational and research institutions all increase by approximately 15% more than the expected linear growth'. For obvious reasons it would be tricky to apply the '15% rule' to ancient Rome; we also do not have enough information to determine if Rome experienced linear or exponential growth (or both at different times). However, recent archaeological work around Mexico City (see Ortman *et al*. 2014) has shown that urban scaling relations occurring in Pre-Hispanic Mexico are in fact analogues with those occurring in contemporary cities today, further solidifying a (long standing) correlation between population/urban growth and significant economic expansion in all sectors. Therefore, if large modern cities can expect a 15 percent increase in overall economy in respect to their linear growth, and settlements in Pre-Hispanic Mexico scaled in the same way – an economic growth rate (aggregate and per capita) of 0.6–1.2 percent per annum in Rome from the mid Republic to the early Empire is entirely plausible, if not expected.

Returning to the heart of the argument, technological advances in transportation were also crucial for the dynamic, physical expansion of a settlement. According to Doxiadis (1968: 244) if all physical conditions around a settlement are equal, and the settlement features the same system (and speed) of transportation and the same types of activities and buildings, then static growth will occur in the form of concentric circles. Yet static growth is uncommon, and even Von Thünen and later Chisholm (1979) stress their concentric circles were purely hypothetical and that the 'Isolated State' model would be affected in various ways by geographic and human factors (Fig. 1). Given the situation around Rome, with the undulating *agro Romano*, the '*marrane*' (ditches/streams), the Tiber and Aniene rivers, and the Alban hills, it is clear equal physical conditions did not exist. As for transportation technology, Doxiadis (1968: 146) would argue that before the 18th century, settlements expanded statically, and in circular fashion, as movement within and outside a settlement was the same, and equal in all directions. While he admits different travel speeds existed (for example, man vs. cart vs. horse), he argues that these diverse speeds could not be maintained for long periods. He further posits that only modern settlements possessed the technology for dynamic physical expansion and only the varying speeds of man, horse, automobile, and train could lead to star-shaped, irregular expansion (Doxiadis 1968: 146–148).

Again, Doxiadis lacked an in-depth knowledge of ancient Rome's topography, technology, and economic history, and his own words – that advances in transportation technology will lead to dynamic physical expansion – can be used to argue against him in this respect. As mentioned, roads and travel speeds have been previously used in attempts to demarcate the extent of Rome's

suburban realm, yet they have only been explored on a relatively basic level. If we scrutinize both the modes of transportation and the transportation system of ancient Rome we can see that technological advances did take place that would significantly impact speed of travel, leading to dynamic physical expansion. To begin, the term 'cart' here is very vague, and examining the ancient iconography and literary sources it is evident that many different types of two and four wheeled vehicles existed, able to travel at diverse speeds (see Sartorio 1994; Laurence 1999). The *carruca* and *rheda*, both imported from Gaul in the Republican period, were the quickest and most common transport vehicles, featuring four wheels and often drawn by pairs or four-in-hand teams of mules or horses (Sartorio 1994: 54–61). The introduction and diffusion of these vehicles during the Republican period would have led to increased mobility at sustainable speeds, especially in a suburban context, where congestion would not have equaled that of the City (see Malmberg and Bjur 2011).

Roman roads and the road network were even more crucial for dynamic physical expansion as they facilitated the travel of animal-drawn vehicles and served as high-speed corridors to and from Rome. The development of the road system from the fourth to the second century B.C. would have impacted hugely on the expansion of the City, as where and when roads were constructed would have dictated directions of urban spread (following Doxiadis' own theories on settlement growth and those put forth by Arnaud 1998: 80–81 on the extent of the '*suburbium*'; see also, Quilici 1990: 38–40). While the construction of the road network itself can be seen as a technological advancement, the paving of roads was equally extremely significant. Not all roads were paved, or even paved in their entirety, and many experienced multiple phases of reconstruction and refurbishment. For example, in 296 BC the Via Appia was only paved up to the first mile marker, but in 293 BC this paving was extended to *Bovillae* – a distance of 18 km from Rome (Livy, 10.23.12). Under Trajan the road was repaved in its entirety in '*selce*'; however, preexisting traces of pavements in limestone have been identified from Rome to Terracina (Quilici 1990: 49). Again, when, where, and how roads were paved would have had a notable impact on transportation speed and urban expansion. Furthermore, work by Laurence (1999: 82) indicates that travel on a paved road was 33 percent faster than on an unpaved surface – a substantial increase by any standards. Advances in riverine transport and infrastructure (especially during the first century B.C – first century A.D.) will have also allowed for varied travel speeds, and the Tiber, the Aniene, and even the *Decennovium* (running from *Forum Appii* to Terracina) would have all served as reliable, high-speed corridors allowing for quicker long distance travel of both people and goods, thus bringing geographically further places 'nearer' in both thought and practice (see Purcell 2012: 377–378). These technological advances in road and river travel, coupled with the variable landscape around Rome, indicate that dynamic physical expansion was in fact occurring.

Mapping and Measuring an Evolving 'Suburbium'

The next step therefore is to examine how this situation can be mapped to provide a visually accurate representation of the city and its suburban space, able to account for expansion over time. Existing maps of Rome's '*suburbium*' are relatively basic, primarily employing concentric circles with radii ranging from roughly 25–100 km (see Witcher 2008: 121–122). As shown, such maps cannot account for the complex boundaries exhibited in dynamically expanding settlements; however, by using isochronic distances, a new perspective of this space may be achieved. An isochron is a line on a map or diagram connecting points representing the same

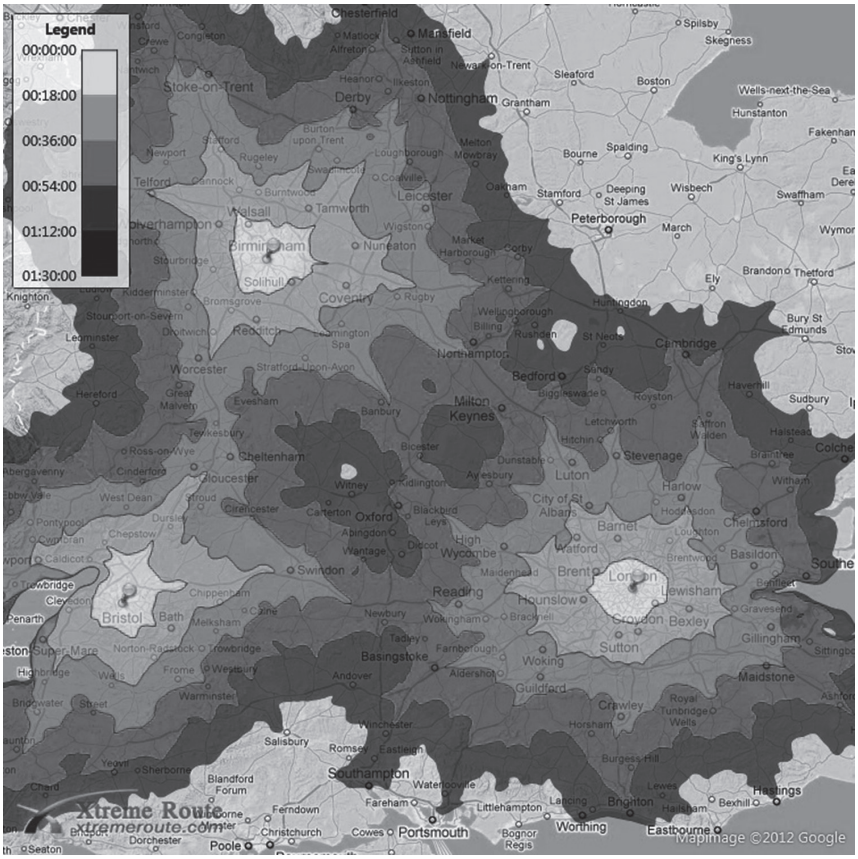


Figure 2: Example from SW England illustrating isochronic mapping and distances (http://xtremeroute.com/#!routing_isochrones)

or equal times (i.e. a unit of time rather than a unit of length used to measure distance; Fig. 2). By applying isochronic distances rather than measured distances, areas of greater accessibility (i.e. temporally closer to Rome) are highlighted. For a hypothetical example, we can take one isochronic unit and set it to a value of one hour. If we limit the extent of our zone to four isochronic units then the distance reached after four hours of travel will be the extent of the zone. If we are traveling on a paved road at 10 km per hour a distance of 40 km will be reached after four hours. However, if traveling on an unpaved road at a speed thirty-three percent slower, then a distance of only 26.8 km will be reached in four isochronic units (four hours). For this reason, cities tend to expand along their roads, as vicinity to them allows one to be temporally closer to the city while at a greater measured distance. These different speeds (indicative of dynamic expansion), when mapped isochronically will produce a star-shaped pattern, which when applied to Rome, can provide a more realistic extent to the suburban realm (Fig. 3).

Isochronic distances combined with travel costs, both monetary and physical, have also been employed to create relatively detailed accessibility and cost maps for the Italian peninsula (see Carreras and De Soto 2013; Fig. 4). While these focus on the peninsula as a whole, they are useful for examining Rome's suburban boundaries as well. As Scheidel (2007: 11) states: 'one

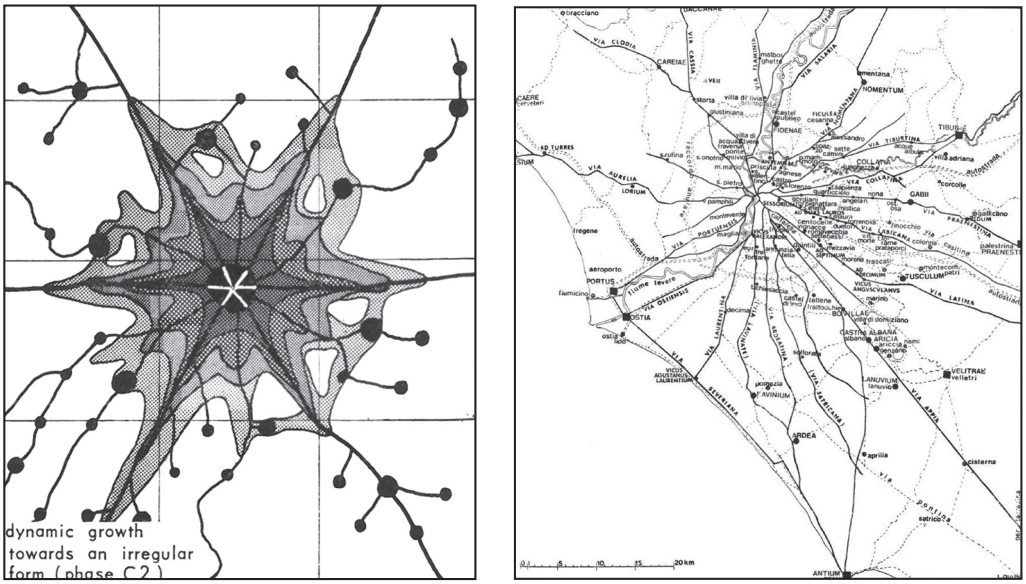


Figure 3: Rome's road network in the first century A.D. juxtaposed with an example of Ekistic dynamic growth towards an irregular form. (NB: Various zones, with complex, isochronic boundaries leading to star-shaped expansion). (Left, Quilici 1990: 39; right, Doxiadis 1968: 246)

could argue that areas such as Sicily or Sardinia or parts of North Africa had a stronger claim to being part of Rome's hinterland than the more insulated Po Valley'. The maps of Carreras and De Soto illustrate this concept well, and given the large cost discrepancies between maritime and terrestrial transportation (maritime being much cheaper), the macro margins of Rome's economic '*suburbium*' probably included most of the coastal regions of the western Mediterranean. This would have been due to profit margins and economic rent theory – i.e. at what point is it cheaper (and more profitable) to import a product by sea than to get the same or similar product by land? Examining the map (Fig. 4), we see that costs increased substantially beginning at the pre-Apennine ranges, and it therefore seems probable that anything beyond these ranges was no longer part of Rome's economic suburb, given that similar products could be imported from further afield at lower cost.

The wider implications of this are indeed substantial and thus cannot be treated here. However, this further highlights the importance of cost analysis and economic rent theory for mapping the suburbs. Returning to Rome itself, these same factors would have played a vital role in determining the location and formation of functional suburban zones around the City. In the 'Isolated State' model, we see that the diverse agricultural zones presented are largely dependent on their distance from the urban center and its markets, as economic rents and agricultural margins tend to govern where and how these zones develop. As discussed by Carandini (1985: 66), similar zones seem to have existed around Rome, and each of these would have served specific functions for the City and vice versa. As Rome experienced dynamic growth, these zones would have been forced to move, and adapt, accordingly, yet the impacts of this are seldom discussed and very little has been done to map or track such changes in a meaningful way.

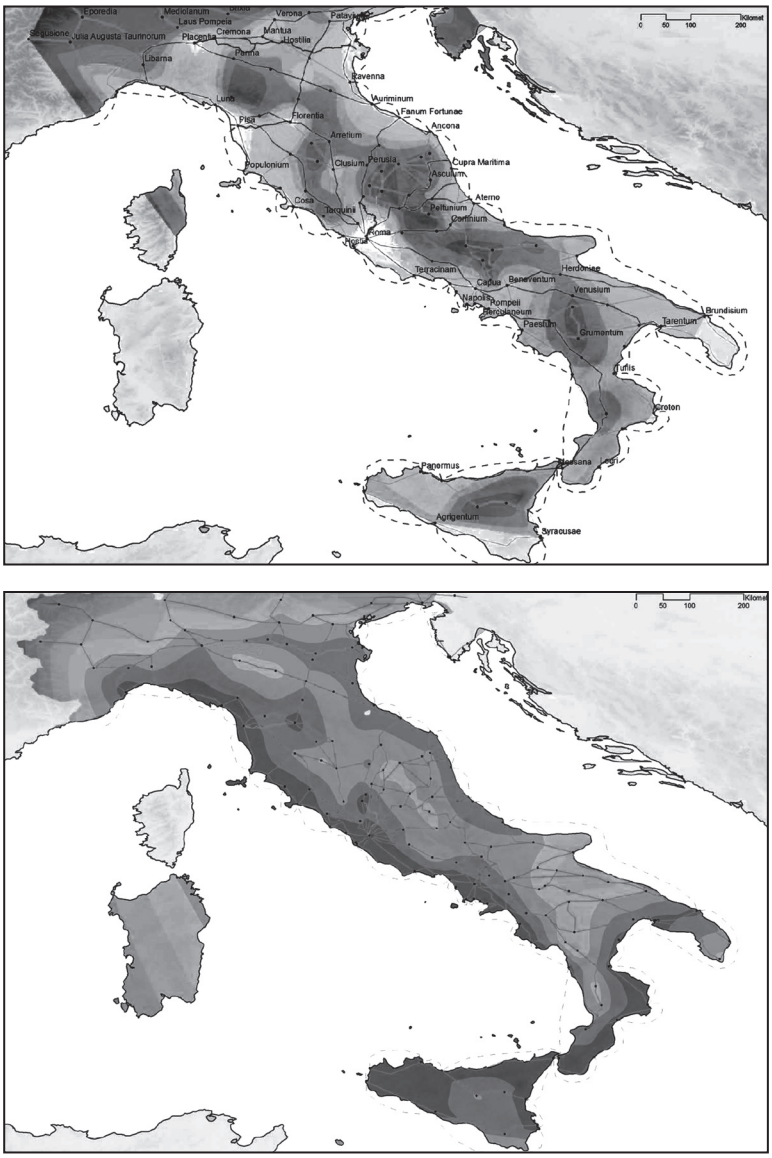


Figure 4: Accessibility (top) and Cost (bottom) maps for Roman Italy in the Imperial period. (Carreras and De Soto 2013)

Turning to studies on contemporary European cities, the PLUREL project has broken down extra urban areas into smaller zones, labeled based on their distance from the city center and characterized by land use patterns (Ravetz *et al*. 2013: 18–19) (Fig. 5). However, they acknowledge such zones are also influenced by social, economic, and geographic factors that shape each in various ways, creating complex, often fluid boundaries (Fig. 5, 'b'). These 'semi-realistic' boundaries coincide well with examples of dynamic growth presented by Doxiadis (Fig.

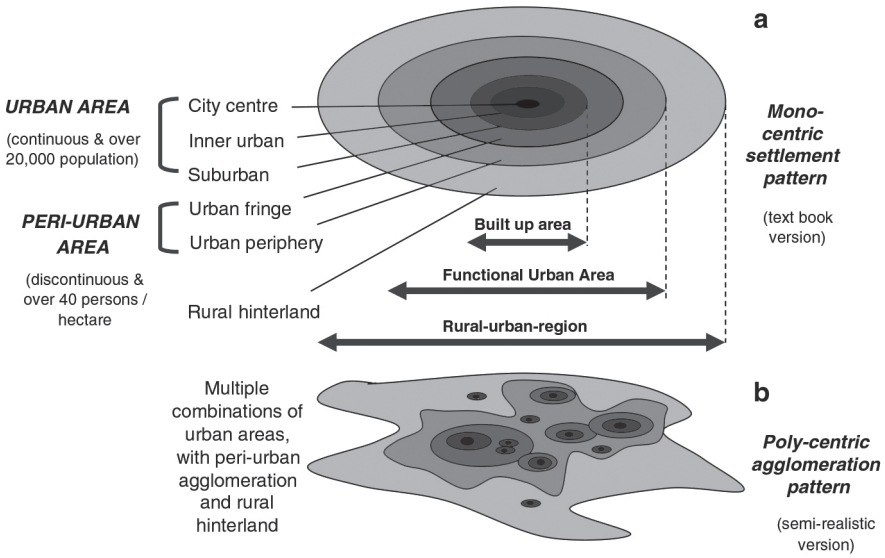


Figure 5: PLUREL concept of urban and extra-urban space. (NB: 'Poly-centric agglomeration pattern', 'b'). (Ravetz et al. 2013, 17)

3), and it seems likely that ancient Rome would have featured a similar system of functional zones and secondary settlements, each serving different purposes and conditioned largely by their distance from the city centre. As stated in Ravetz *et al*. (2013: 21) 'peri-urban change is a direct result of urban expansion'. Therefore, as a city grows economically and in population, demand for housing and commercial space increases, forcing urban areas to spread into previously peri-urban (extra-urban/suburban) areas, thus forcing these to encroach on previously rural areas (Ravetz *et al*. 2013: 21–23). This 'ripple effect' is a fundamental aspect of spatial change, and as Rome (and in particular, the *continentia aedificia*) continued to expand and outgrow pre-established urban boundaries such as the Servian Walls, the *pomerium*, and the *passus mille* from the mid Republic to early Empire (see Palmer 1980; Coarelli 1997), it is very unlikely that the boundaries and character of her suburban realm remained unchanged.

Separating Suburban Space: Complex Boundaries, Superimposed Suburbs, and Functional Zones

Returning to studies on the Roman '*suburbium*', we see that the majority of proposed delimitations for this space imply fixed, static boundaries, for example: 8 RM (Bruun 2003); 9 RM (La Regina 2001); 35 km (Spera 2003; Goodman 2007); 25 mi (Champlin 1982), 50 km (Witcher 2008); and 60 km (Agusta-Boularot 1998). These types of limits cannot account for the evolution of extra-urban space over time, or for the presence of functional zones and their conditioning factors. When reevaluated, they prove too simplistic and varied to be useful. However, they do highlight the glaring need for more uniform, informed definitions and interpretations of this space. Based

on the research presented, it seems that rather than searching for an elusive, fluctuating boundary, we should instead start from the *Urbs* and work outwards. This approach will allow for extra-urban zones to be better identified and tracked chronologically and geographically, emphasizing their mobility and the impacts of such movements on the archaeological record. While this phase of the project is still in preliminary stages, a brief example from Rome illustrating the effects of urban expansion will be presented along with some (preliminary) proposed zones.

The famed yet enigmatic *horti Romani* that encircled the City by the first century B.C. are a prime example of how direct urban expansion can impact surrounding areas. While these large estates have received much attention, it is important to note that smaller productive villas primarily engaged in horticulture and olericulture do appear to have shared this same 'fringe' zone (as postulated by Carandini 1985; see also Jolivet 1997; Pavolini *et al*. 2003). The primary functions performed by these properties, and the zone they occupied, would have been to provide residential space, agricultural production, and (public) recreational areas (Carandini 1985: 66–67; Cima and Talamo 2008: 69–70). While the *horti* of the late Republic are well documented in the ancient sources, reports from the later Imperial period indicate these same properties were either entirely redeveloped, or persisted only as small green patches in a dense urban fabric (*Hist. Aug.* Gordians, 32; Purcell 2007: 299–302). Examining modern studies on urban growth, it seems likely that the *horti* district constituted what is known as a 'fringe belt', as such phenomena tend to form around defunct urban boundaries (the Servian Walls in this case) and are composed primarily of villa estates, public parks, market gardens, and cemeteries (*cf*. Conzen 2009: 33).

Looking closer at 'fringe belt' theory, we see that as fringes are internalised, a further removed belt is predicted to form, replacing its predecessor and serving the same or similar functions (Baarke 1990: 283). However, given the incomplete nature of the archaeological record (De Franceschini 2005: xiii) and the challenges around the empirical investigation of fringe belts (Conzen 2009: 37) it is difficult to confirm if additional belts existed around ancient Rome. That being said, recent archaeological work in the Roman suburbs has uncovered numerous types of field systems cut into the natural tuff banks around the City that may provide clues as where and when certain fringe belts formed. These systems are often indicative of certain types of agricultural practices (e.g. viticulture, horticulture, arboriculture etc.) and many feature multiple phases with clear changes in aspect and function. For example, field systems used for horticulture were discovered during recent excavations connected to the installation of Rome's Metro C line, near Porta Maggiore (in the modern neighbourhood of Pigneto), dating to the mid Republican period (Buccellato 2010: 245). The traces of such agricultural activities in this zone and during this period correspond well with what fringe belt theory and economic rent theory would predict – i.e. intensive horticulture on the urban fringe. Similar field systems designed for intensive horticulture (overlaying previous systems designed for viticulture) have also been discovered further away from the City – for example, at Tor di Mezzavia di Frascati (on the via Anagnina) that date to the second century A.D. (Foddai 2002: 114). These field systems could then be representative of a new fringe belt, indicating the migration or 'translation' of activities to a further removed area due to the reduction of the previous fringe belt (see Conzen 2009: 32–39). The construction of numerous large villas in the second century A.D. with similar characteristics as the *horti Romani*, located primarily between the 3rd and 7th miles of the consular *viae* (see Coarelli 1986; Jolivet 1997; De Franceschini 2005) could then also be associated with the creation of this new urban fringe. At the very least, this example alludes to how functional zones and activities could move and adapt due to the pressures of urban expansion. Therefore,

to properly understand and demarcate Rome's suburban realm diachronically we must be aware of this fluidity and mobility and factor this into any spatial estimations.

Outlined below in Table 1 are my provisional 'suburban zones', based on isochronic and physical distance from the edge of the *Urbs* (or rather, the *continentia aedificia*), social and agricultural functions performed (for Rome), and frequency of contact with the City. The isochronic distances are based on carriage speed (C Units) set at 10 km per hour (without traffic on a paved road). This is of course subject to change, and as these zones are mapped using GIS and spatial analysis it is likely that the maximum extent of each zone will only be reached along paved roads, creating star-shaped irregular boundaries for each (similar to Fig. 3). The frequency of contact with each zone and the City can also determine function(s), as social and agricultural (economic) activities taking place in the 'daily zone' would not be the same as those in the 'monthly zone' (Fig. 1; see also Viitanen 2010: 162–164). A distance of 7 km has been set for the daily zone given that 5–7 km are frequently cited to demarcate the 'urban daily system' or 'immediate suburban zone', as this equates to roughly a 1–2 hour commute on foot (Doxiadis 1968: 142; 1970: 396; Pavolini *et al*. 2003: 59). Yet as the City expanded dynamically, these suburban zones should be expected to scale accordingly, as the daily zone in the Archaic period, would necessarily be smaller than that of the early Imperial period (see above). It is also worth noting that the weekly and daily zones may feature some overlap when dealing with agricultural or economic functions, since important markets (as those in Rome) could exhibit a 'pull' of up to 15–20 km, or a three to four hour commute on foot (Doxiadis 1968: 142; Malmberg and Bjur 2011: 365).

In addition, social and agricultural functions performed for the City have been included in Table 1 as these aspects are often taken as two separate approaches to studying suburban space (see Thomas 1974 for wider discussion), but should not be seen independently of each other, especially when considering suburban roles, interactions and city-hinterland movement. In archaeological theory, these coexisting, yet diversely conditioned suburbs could be seen as examples of man-land vs. man-man relationships (see Roper 1979: 119). In general, the land use suburb is defined by geographical criteria and physical evidence, and the locations of its properties are determined by economic rents, the agricultural margin, and the 'proximity-access-principle' (see Stone 1996: 18; Munton 1974: 208). On the other hand, the social suburb is governed by factors such as residential behaviours (satellite communities, desire for urban periphery), employment opportunities, population, and social hierarchies (see Thomas 1974: 18–22; Clout 1974: 101). These distinct, superimposed aspects of the same area can create confusion in definitions of suburban space, as they are usually not given the specific attention they require. Yet despite the differing elements that conditioned them, it should be stressed that these individual suburbs were linked by the same commonalities that dictated other aspects of the suburban realm, that is, namely infrastructure (in particular, roads and aqueducts) and functional relationship(s) with the City. Therefore, the overlapping activities and functions defined by each should also be expected to adjust accordingly, the closer or further away they were from Rome.

Again, the table proposed below is preliminary and not designed to provide fixed boundaries, and/or distances. Rather, it should be seen as a way in which to view and assess the various aspects of suburban space, in the process highlighting key functional zones present around the City. This table is also subject to change, as the dynamic physical, demographic, and economic expansion of the City will have impacted these zones in various ways, forcing them to scale allometrically. As the project progresses, questions concerning the impacts of building cycles, fringe belt formation and succession, and the growth and diversification of the market system

Table 1: Proposed (preliminary) suburban zones.

Zone Number	**1**	**2**	**3**	**4**	**5**
Isochronic Limits	.1–.5 C Units	1 C Units	1–2 C Units	2–4 C Units	4–8 C Units
Approx. Width of Zone	1 km	6 km	13 km	20 km	40 km
Avg. Distance from *continentia aedificia*	–	1–7 km	7–20 km	20–40 km	40–80 km
Frequency System	Daily	Daily	Weekly	Bi-Weekly/ Monthly	Seasonal/Annual
Social Functions Performed	Residential, recreation, employment	Residential, recreation, employment	Residential, recreation	Residential, recreation, vacation	Recreation, vacation
Agric. Functions Performed	Horticulture, olericulture	Horticulture, arboriculture, (viticulture), *pastio villatica*	Viticulture, oleoculture, (cereals), *pastio villatica*	Viticulture, oleoculture, cereals, *pastio villatica*	Viticulture, oleoculture, cereals, ranching/livestock
Zone Name	**Urban Fringe**	**Daily Zone**	**Peri-Urban Zone**	**Functional Urban Area (FUA)**	**Rural Hinterland**

on these zones will also be addressed. A series of isochronic maps, and additional tables, will then be created, highlighting these functional suburban zones and their inevitable alterations during the period in which Rome experienced dynamic urban growth.

Conclusions

In sum, this paper has argued that the suburban space of ancient Rome merits reassessment with modern eyes and modern concepts of extra-urban space, dynamic growth, and functionality. Early Imperial Rome, with its vast population, its diverse, expansive economy, and rapidly growing urban core was wholly atypical of the ancient world, and in order to gain a better understanding of its suburban realm we must begin to ask different questions. Rather than just looking for a beginning or an end, we need to recognize this space as an integral part of a greater system, and investigate its role and composition in a far more detailed fashion. Through the application of Ekistics, and modern theories on urban growth, fringe-belts, and urban scaling we move closer, I argue, to a more realistic view of this still 'hazy' and poorly preserved zone. By accounting for the changing demands of the growing ancient City (economic, social, and physical), and the responses of the hinterland to such demands, we can begin to model the urban-rural system of ancient Rome more precisely. The use of isochrones, combined with knowledge of the Roman road network and physical landscape around the City, will allow for more accurate mapping and visual representations of this space, accounting for its evolution and expansion over time. Therefore, incorporating a wide range of material, modern as well as ancient, and taking an interdisciplinary approach seems to be the only way forward if we wish to properly enhance

our understanding of arguably the most dynamic and complex of all ancient cities. This paper is not an answer, however, and it does not mean that we have understood Rome's suburbs, but it does, arguably, push us closer, if not to a new definition, then at least to a new perspective and appreciation of the diversity, mobility, and adaptability of this vital space from which new definitions may be formed.

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Riparia Concept: Roman Intervention in the Lacustrine Environment of Fuente De Piedra (Málaga, Spain)

Lázaro Lagóstena, María-del-Mar Castro, Ángel Bastos

Introduction

The environmental concept of *riparia* (Naiman *et al*. 2005) is applied by historians to human relationships with floodplains and coastal wetlands in the past and the environmental characteristics of these transitional spaces generate specific socio-natural systems (Hermon and Watelet 2014). Wetlands can be studied from a variety of perspectives, ranging from the occupation and settlement of a territory, its production and tax function, its relationship with possible lines of communication, its perception as part of a marginal landscape, or its importance a cultural, geographical and political boundary (Lagóstena 2014; Castro *et al.* 2014).

Our research group has undertaken a project that aims to study the territorial articulation of these spaces in the area of the *Hispania Ulterior Baetica* province. Fuente de Piedra Lagoon is the most important wetland in Andalusia (Spain), and presents historical elements that characterise this entity as an essential structure of a territory that has been susceptible to exploitation in Roman times. The analysis of its settlement and paths of communication, the function of this space as a *confinium* (municipal boundary) of several civic communities and economic exploitation aimed at the production of salt have allowed us to explore the role of this riparian area in Roman times, the constitution of its social representation and its historical conceptualisation.

Riparia Project

Currently our research group are developing the *Riparia Project: historic and cultural conceptualization, territorial function and profit of wetland in Roman Baetica* (MINECO – HAR2012–36008). This project will investigate a particular historical subject which has been little studied by Spanish historiography: the analysis of lake and marsh areas in Roman antiquity in the province of *Baetica*. Considering its conceptualization in social representations, the anthropic relationship, material proceedings undertaken for intervention by the imperial and municipal authorities, its value as an economic space that provides resources to both the domestic production level as well as of municipal, but also its role within the framework of ancient landscape and even their role in the political–territorial boundaries as significant geographic border that can help with the difficult task of hypothesizing about the territorial limits of the civic community integrate the political and urban net of the province *Baetica*.

The main objectives for the project are summarized as: the analysis of the classical historiography of the Roman perception of 'riparia' and its applications in the southern area of

Spain in order to understand rural settlement in relation to these means, the various forms of public and private use of riverside areas, the analysis of lakeside landscape in Roman antiquity and its political–territorial role in provincial Roman *Baetica*.

The essential purpose of this research project is the historical analysis of wetlands in the provincial territory of the Western Roman Empire that was *Hispania Ulterior Baetica*. In addition to using classical literature to gain technical and juridical knowledge of the area, epigraphy and territorial toponymy, archaeological data and the methodological potential of GIS will be examined.

Brief Historiographical Approach to the Study of Wetlands in Ancient Times

The methodology applied to the study of lacustrian and palustrian environments in Antiquity began with a traditional analysis based on the perception of these spaces by ancient literary and epigraphy sources (Traina 1988). The *insalubritas* as a negative quality of these environments contrasts with the existence of civic communities with important roles in defence and communication within these spaces (Borca 1996), and the rearrangement of wetlands through drainage, water works and land improvement (Leveau 1993; Compatangelo–Soussignan 2008). The role of wetlands as fluvial and maritime communication routes is another important line of research (Frezouls–Fasciato 1962; Samsaris 1979).

Moreover, it should be taken into account that the dynamic of a rural settlement linked to wetlands and marshy spaces and its evolution are conditioned by geomorphology and the paleoenvironment (Jansen and Storme 2006; Jorda and Provansal 2006), as are the uses and economic profits of these lands: fishing, farming, fowling, hunting, harvesting and salt extraction in the case of saline conditions (Leveau 1998; Wiseman and Zachos 2003). All these aspects will be used to make an integrated territorial analysis of wetlands in Roman times (Beleza 2002) and of the ecosystem which generate its own specific patterns of interactions between society and the natural environment (Hermon 2010: 239).

Finally, the global perception and social representation of spatial configuration in riparian environments will be considered (Bedon 2010; Chassignet 2010; Compatangelo–Soussignan 2010), in particular the religious and votive practices related to lakes and lagoons (Fernández Nieto 2007: 45), as well as juridical, agronomical and agrimensorial perceptions (Hermon 2010: 231; Zannier 2010; Peyras 2010).

Wetlands and Civic Communities in Baetica

The Andalusian territory is comprised of a large number of lakes, lagoons, deltas, wetlands, and flood plains, all of which respond well to the concept of *riparia*. The project will study the size, location and position of these natural features within the civic landscape and their relationship with other spaces and cultures within the context of Roman *Baetica* (Lagóstena in press). The palustrine and lacustrine zones in *Baetica* have been the subject of few studies (Parodi 2001; Ruíz and López 2001) the principal subject in the historiographical study of littoral areas will cover some of the principal rivers mouths and estuaries such as the Guadalquivir, Cadiz Bay and the Tinto and Odiel Rivers in Huelva.

We have chosen the *Lacus Ligustinus* (Guadalquivir Marshes) and La Janda Lagoon as sites suitable for analysis. The *Lacus* was the large paleoestuary of the *Baetis* (Guadalquivir) and is characterised by a complex geomorphological evolution, intensive settlement and

historical exploitation. Its study has been undertaken from a geomorphological view, analyzing its configuration and subsequent evolution in clear connection with the development of the settlement of this territory from later prehistory to Romanization (Gavala y Laborde 1936; 1959; Pemán 1941; Rodríguez Vidal 1989a; 1989b; Arteaga, Schulz and Roos 1995; Borja 1995; Belén 2000; Escacena and Belén 1997; García 2006; Escacena and Padilla 1992; Ferrer *et al.* 2008). We have focused on the study of its perception and social representation in Graeco-Roman sources, and the intensive settlement that represents a complex social relation with riverside spaces (Lagóstena 2014). Another important wetland, La Janda Lagoon located near the Straits of Gibraltar was situated between the *territoria* of several communities including *Asido Caesarina* (Medina-Sidonia), *Baelo Claudia*, *Besaro* (Vejer de la Frontera) and *Baesippo* (Barbate). Preliminary analysis shows a singular connection between lacustrine, fluvial, estuarine and maritime environments (Castro *et al.* 2014).

Fuente de Piedra: analysis of a wetland in Roman Baetica.

Fuente de Piedra is the largest and most important continental lagoon in Andalusia and one of the most important in Spain (Fig. 1). Its central position within Roman *Baetica* made this zone a potential communication hub. Intense Roman rural settlement, the saline composition of the water and its possible exploitation in Roman times and its location at an inter-community boundary also make this place worthy of study.

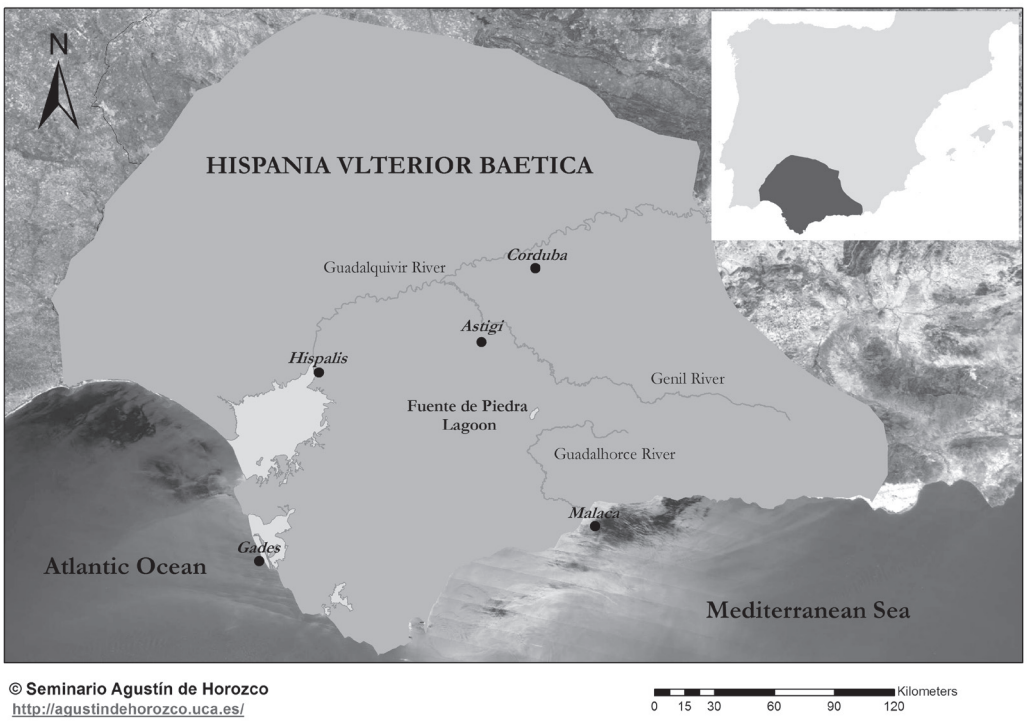


Figure 1: Location map showing the Lagoon of Fuente de Piedra, main rivers and cities

The Lagoon of Fuente de Piedra is located in the north-western sector of the Depression of Antequera (Malaga, Spain). The regional and local historiography has focused primarily on the study of *villae* settlement patterns in this territory and the study of the two main *civitates*, *Singilia Barba* and *Anticaria* (Loza 1983; Atencia 1987; Romero 1990; 1998; 2011; 2012; Corrales 1998). An integral study of the lagoon itself has not been undertaken, but some references have been made to the riverside settlement and its economic profit (Gozalbes and Muñoz 1986; Recio 2007).

Settlement and Urbs. Intercommunitary Boundary Role?

The question of civic centres as municipal entities with this geographic framework is full of controversy and uncertainty. We have demarcated a frame around the lagoon which outlines settlements with a privileged status. Among these, before Vespasian, we can only find *Urso*, which was promoted to a colony by Caesar and occupied throughout the Augustan period (*TIR*, J–30, 2001: 350).

The toponymy recorded in archaeologicy, epigraphy and the itineraries indicate an important urban settlement in the area, especially after the Flavian municipalization, which encouraged the development of rural settlements and the rise of exploitation of its natural resources (Fig. 2). Using these and historiographic sources we have created a map showing a hypothetical distribution of civic communities (Romero 2011: 55). The chronology of the farms located in the *ager* (land linked to a civic community) of these cities is important, since it seems to be related

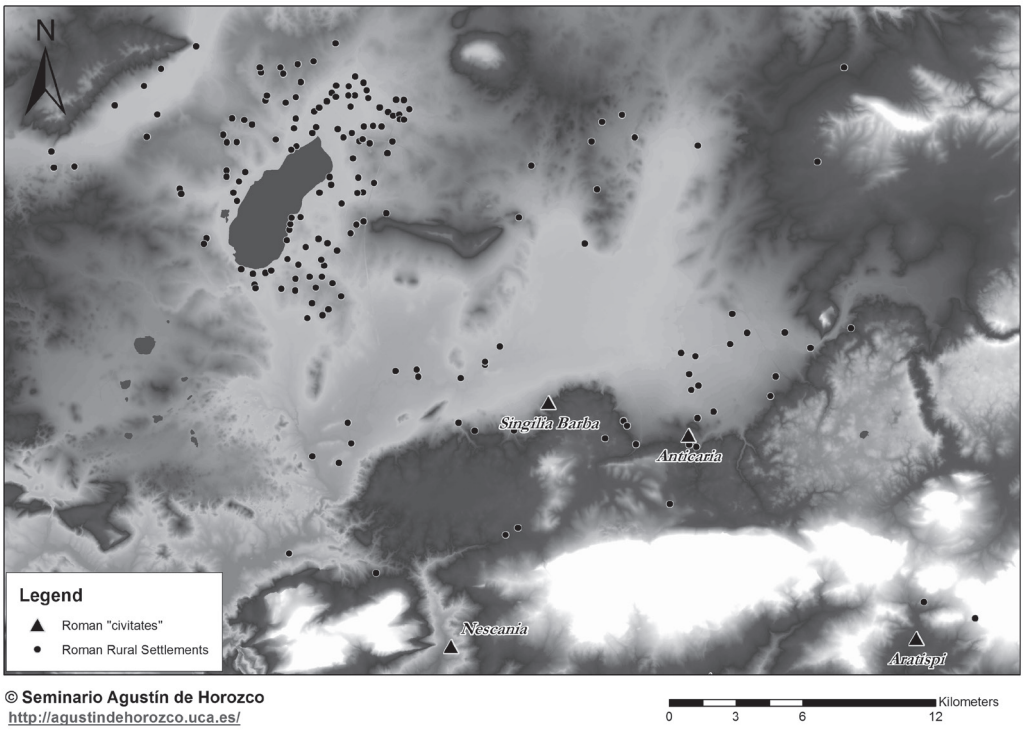


Figure 2: Settlement in the region of Fuente de Piedra and the Depression of Antequera

to the promotion of the indigenous *oppida* into *civitates* with municipal status along the first century A.D. However, most of them are dated between the first and the fourth centuries A.D.

After the extension of *ius Latii* in *Hispania*, sixteen Flavian municipalities were established in our study area. Although we have chosen these cities for territorial analysis (as Thiessen polygons), we will focus especially on those which might have been – by proximity – more closely related to the wetland study area. Among the Roman municipalities closest (20 kms or less) to Fuente de Piedra Lagoon are: *Singilia Barba* (13 kms), *Olaurum* (17 kms), *Nescania* (19 kms), *Ventippo* (19 kms), *Anticaria* (20 kms), *Ilipula Minor* (20 kms) and *Ostippo* (20 kms) (Fig. 3). These cities are briefly described below.

Singilia Barba, *municipium Flavium Liberum* it was probably one of the six *oppida libertate* mentioned by Pliny (*Natural History*: III.3.7). After the Vespasianic reforms, it became a *municipium* with *ius Latii*. The epigraphy is extensive and there are many indigenous *cognomina* (*CIL* II 2/5: 213–230).

Olaurum was probably also promoted to *municipium* by Vespasian, though we have no clear evidence. It was an *oppidum* with its own bonded *ager* and an *origo* (origin of a citizen group): *olaurensis*. Before this, it was probably under the jurisdiction of *Ostippo* or *Ventippo* judging by the epigraphy which makes numerous mentions of *Ventiponensis* and *Ostipponensis* (*CIL* II 2/5: 265–270).

Nescania was another *oppidum* promoted to *municipium* under Vespasian's *ius Latii*. Historiography suggests it was a place where water was an important resource and was probably

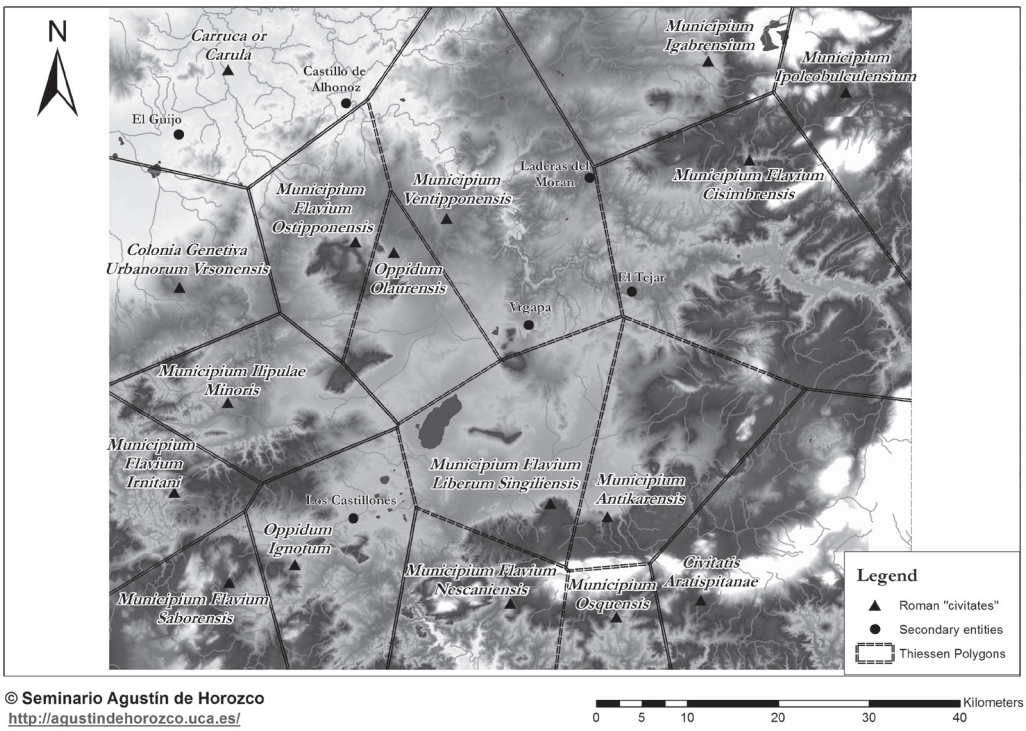


Figure 3: Preliminary analysys of main settlement of the framework with Thiessen Polygon

where the mighty *Fons Divinus* was located (cultural place name contained in *CIL* II 2/5: 231–236; Loza 1992: 105; Beltrán and Atencia 1996: 175).

Ventippo was a *stipendiarium oppidum* promoted to *municipium* by Vespasian's edict (*CIL* II 2/5: 260–264). Its location is not certain although historiography maintains that must have been a city of great importance, with structures including large tanks and underground galleries that could well be drains or sewers (Camacho *et al.* 2004).

Anticaria is mentioned by the Antonine Itinerary in the *iter* from *Gades* to *Corduba*. Some authors said it may have gained municipal status with Galba, however, it seems more likely it was promoted by Vespasian (*CIL* II 2/5: 204–211). Before that, it was considered a *mansio* (*TIR*, J–30, 2001, 85), and served as a node of communications between *Hispalis*, *Corduba* and *Malaca* (Sillières 1990).

Ilipula Minor, was mentioned as a *mansio* between *Carula* and *Ostippo* in the Antonine Itinerary. It was probably a stipendiary *oppidum* before its promotion to *municipium* by Vespasian (*CIL* II 2/5: 249–250).

Ostippo was another of the *oppida* mentioned as free (*libera*) by Pliny. *Ostippo* was also promoted to *municipium Flavium Ostipponensis* by Vespasian's edict (*CIL II*, 2/5: 271–282; Pérez 1981).

We have created Thiessen polygons in order to make a hypothetical proposal about these municipal's territories. As it will be discussed later, Fuente de Piedra lagoon, because of its spatial relationship with the surrounding cities, could act as a territorial *confinium*, or be fully integrated into the *territorium Singiliensis* with the assumed implications.

Lagoon as a Pathway Node

The Antonine Itinerary indicates that the Roman road which linked *Gades*, *Hispalis* and *Corduba* was located in this zone (Sillières 1990) and many of the cities in the study area were also *mansiones* of this Roman *iter* (*It. Ant*. 409–413). According to Ravenna Cosmography, there was probably another branch line which linked *Anticaria* and *Malaca* (*An. Rav*. IV, 45). There is also one epigraphic testimony (*CIL* II 2/5: 205) which confirms the existence of Roman roads in this framework (Fig. 4).

Archaeological surveys show that surrounding the lagoon there may have been branch lines which connected to some of the nearby *villae* in order to ease the transport of products, mainly salt and oil production. These branches also could have been connected to the Roman road between *Anticaria* and *Malaca*, the so-called 'Roman Road of Salt' (Gozalbes and Muñoz 1986).

Economic Profit: Salt Exploitation and Oil Production

Fuente de Piedra lagoon is suitable for the exploitation of salt and several authors have suggested possible extraction from prehistoric and Roman times (Gozalbes and Muñoz 1986), although so far there is no material evidence to support this. However salt exploitation is known to have taken place since the Andalusian period. The historian Ibn al Jatib commended the agricultural and saline wealth of the territory associated with Antequera, the main center of population in the zone during medieval period. Salt exploitation of this wetland in the Muslim period is also affirmed by local historians and scholars of the nineteenth century (Fernández 1842: 38).

At the beginning of the fifteenth century the town of Antequera was taken by the Castilian monarchs in the final stages of conquest by the Nasrid Kingdom of Granada. A valuable source

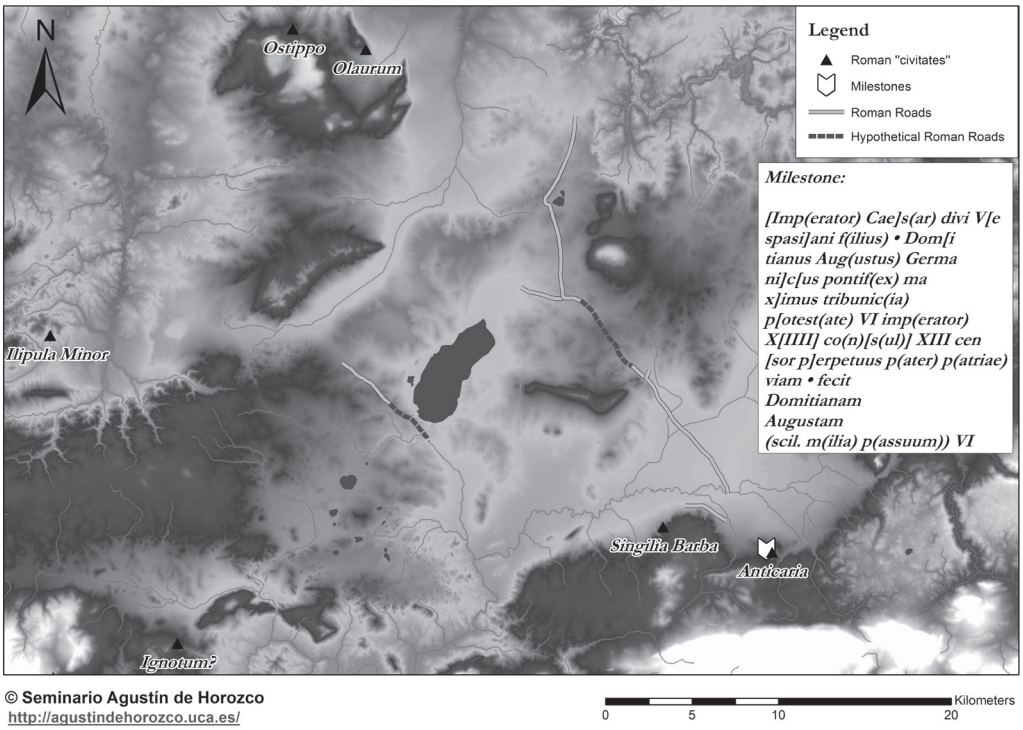


Figure 4: Roman roads around Fuente de Piedra

of historical information for the territory at that time, the *Libro de Repartimiento de Antequera*, refers to the lagoon as 'Laguna Salada', its banks being used for agricultural cultivation. It also contains toponyms that refer to the existence of salt mines (Alijo 1983). Another testimony from a local scholar tells of a donation from the monarch to the Council of Antequera of Laguna Salada for its use and exploitation (Méndez 1675: 118–119; Fernández 1842: 291–292; Vázquez 1966: 62).

In the early nineteenth century the monarchy attempted to drain the wetland, claiming its salts were harmful. The municipal authorities managed to stop the project by proving their salubrity (Muñoz and García 1998: 166). In the 1880s, major engineering works carried out in order to increase the production of salt greatly transformed the landscape. However, its lack of profitability in middle of the twentieth century caused the end of the exploitation (Muñoz and García 1998: 167–168).

Regarding farming in the territory, the Antequera Region in the Roman period was characterized by intense rural occupation in *villae*, of which 147 are recorded in the current Municipality of Antequera, and in 30 of them remains of building can be identified. All are linked to the main road axes and in many of them evidence of oil production has been found (Fig. 5). These *villae* were occupied from the first to the fourth century (Romero 2012). In particular, evidence for oil production has been found at a number of riparian sites around the Laguna de Fuente de Piedra (La Doctora, La Torquilla, La Vicaría, Los Corrales, Las Rosillas, Navahermosa and Cerrillo

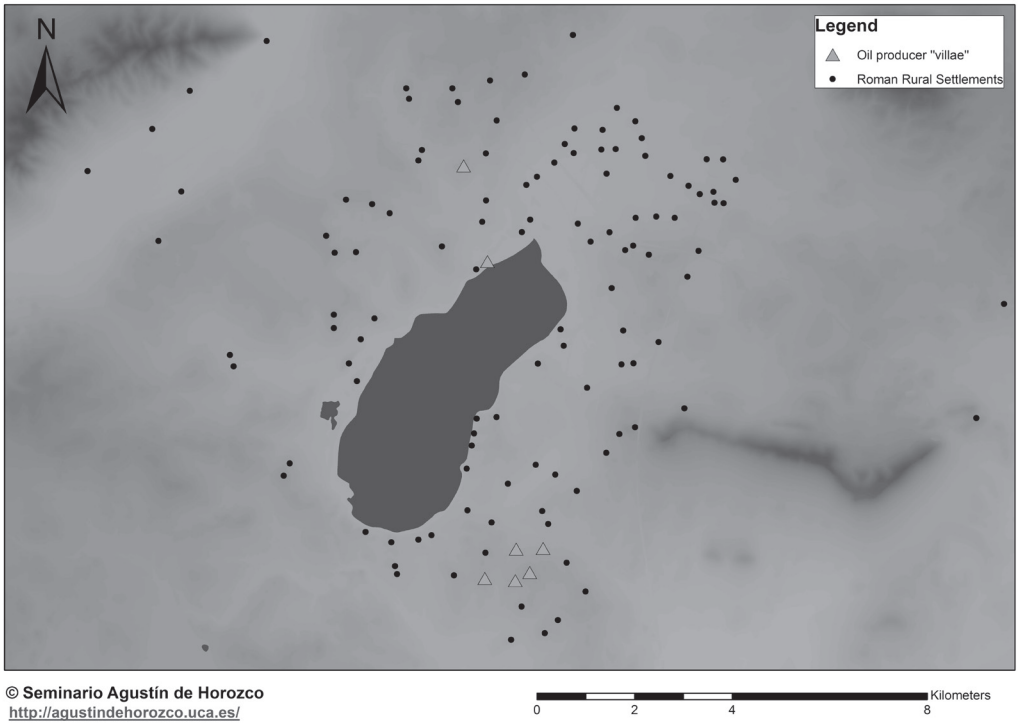


Figure 5: Oil production sites near the Lagoon

Sánchez) (Loza 1983; Gozalbes and Muñoz 1986; Corrales 1998; Romero 1998; Recio 2007). The archaeological remains associated with oil production are widespread, and include structures for processing and oil production (*tabulatum*) as well as decanting and storage (*labrum*), olive presses (*mola olearia*) and reservoirs interpreted as *arcae lapidum* (part of an olive press) and counterweight. A large number of excavated *villae* also have structures and parts intended for the development and production of oil. The Villa de la Quinta is a unique case in which all facilities were intended only for the development of oil (Romero 1998: 118).

The abundance of *villae* oriented towards oil production and their location close to Roman roads suggest extensive olive cultivation and intensive production for trade and export of oil took place in the region. However, there are no *figlinae* or *amphorae* production in neighbouring territories, leaving the method and routes of exportation an unsolved matter. The two alternatives that have been considered are the possibility of transport by river along the Guadalhorce toward the coast of Malaga or by land to the river Genil, connecting with the production and commercial centre in the *Baetis*' basin (Corrales 1998: 94).

Another economic activity that was probably developed in this riparian environment is livestock production, possibly linked to animal's need for salt and the proximity of the aforementioned road network. The wetland surrounded by glens traditionally used as herd passageways might indicate continued use of the area for this activity. The difficult archaeological tracking of this type of activity can be supplemented with evidence related to certain worships, for example the

worship to Hercules recorded in epigraphy (*CIL* II 1436; 2058) which is a deity that herds and protects the cattle (Coarelli 1988: 130; Gros 1995: 313–15) .

Epigraphic Evidence for Territorial Jurisdiction

The distribution of epigraphy within our geographic framework is important and in the area surrounding the lagoon many epigraphic examples mention the *ordo Singiliensis* or the *Singiliensis* people. These help define the hypothetical territory bonded to the *civitates* and to the jurisdiction of the land. We propose that the lagoon and the land nearby was under the jurisdiction of *Singilia Barba* and that the main Roman families nearby the lagoon – *Acilia* or *Cornelia gens*, amongst others – may have participated in the patronage system.

Singilia Barba is located on the hill called Castillón, in the current Municipality of Antequera (Málaga). Its full name is *municipium Flavium liberum Singiliensis* and historiography shows it to be one of the six *oppida libertate* mentioned by Pliny (Ordóñez 1988). It has been suggested that the particle *Liberum* could refer to that ancient dignity, reflected in its Flavian name (Thouvenot 1940: 193; Ordóñez 1988: 321). However, it is worth commenting on the discussion around the origin of the city name. General opinion points to a pre-Roman origin of the name *Singilia*. The word, in a purely adjectival sense (Ordóñez 1988: 320), would refer to the river *Singilis* (Genil). However, while the river Genil flows more than 23 km to the north, epigraphic and onomastic studies show that there are several *cognomina* of pre-Roman origin (*Blandus*, *Blandina*, *Maurus*, *Ruga* (Ordóñez 1988: 325)) located in other areas of the Iberian Peninsula, as well as in *Baetica* (Albertos 1966: 55, 152, 194). The *cognomen Macer*, which is found in the area of *Singilia Barba*, is also attested further North in Aguilar de la Frontera, Montoro, Córdoba (*CIL* II 2/5, 904; *CIL* II 2/7, 155, 166, 341) and Cabra (Sillières 1978: 473). These matches could point to the displacement of an indigenous population group from the middle reaches of the river Genil that then settled in the Roman city of *Barba*. Pliny is the only author who mentions a city called *Singili* (*Natural History*: III.3.10), *Bastetaniae vergentis ad mare*, whose identification with *Singilia Barba* is not entirely clear. However, other sources mention *Barba* including Ptolemy (Ptolemy: *Geography*: II.4.9) amongst *Turduli*, and the Antonine Itinerary (412, 1) between *Ostippo* and *Anticaria*. The epigraphic findings from the area confirm both the term *Singili-* and *Barb-*: *r(es) p(ublica) Barbens(ium)* (*CIL* II 2/5, 779), *(li)beri S(ingiliensis) Barb(ensis) […] m(unicipium) m(unicipii) lib(eri) Sing(iliensis)* (*CIL* II 2/5, 785), *Sing(iliensi) Barb(ensi)* (*CIL* II 2/5, 802, 803), among many others.

Considering the topography, the *Singiliensis* community was well connected with the area of Fuente de Piedra and the flat fertile valley of Guadalhorce lay between the urbs settlement and the lagoon. All other nearby the cities were separated from the lagoon by several montains ranges (to the East, the elevations of *Singilia Barba* and Sierra del Humilladero; to the South, Sierra de Huma; to the West, Sierra de los Caballos; and to the North, Sierra Becerro and the northern foothills of Sierra de los Caballos).

Secondly, we performed an analysis of the visibility between the nearby municipalities. The results show that the only city that had sight of the lagoon and most of the archaeological sites around it was *Singilia Barba*. Thus the city could visually control the Roman road from *Anticaria* to *Hispalis* and the branch surrounding the wetland (Gozalbes 1986: 180).

A third matter that makes us think about *Singilia Barba*'s jurisdiction over the lagoon in Roman times is the result of analysis by Thiessen polygons (Hodder and Orton 1976). Taking the list of selected Flavian municipalities and applying this analytical proximity tool, the resulting

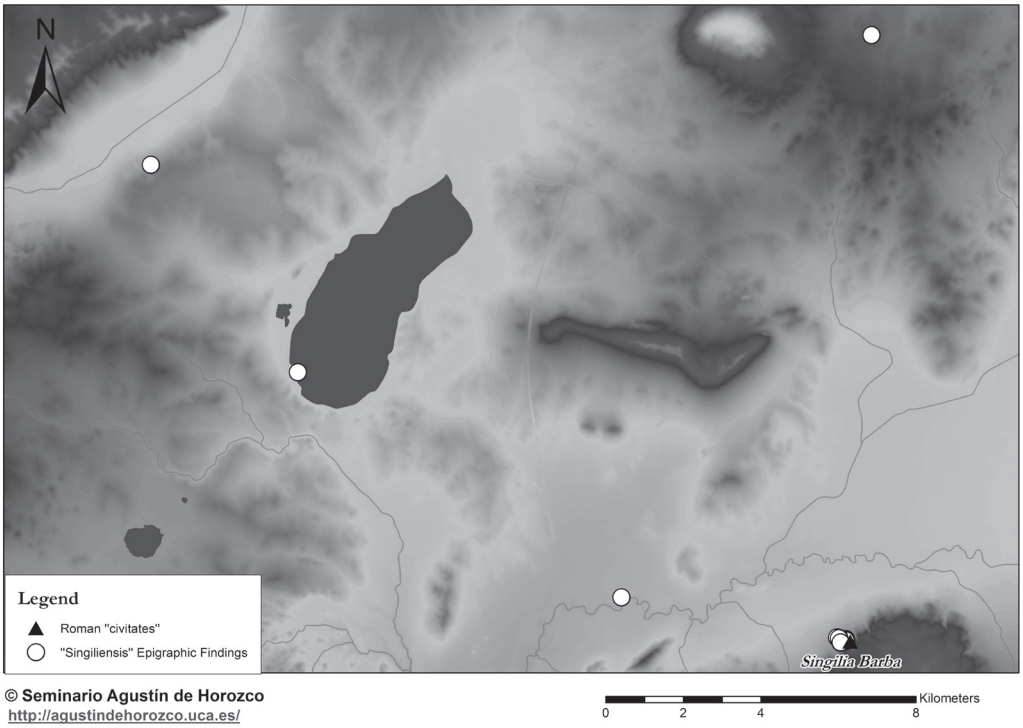


Figure 6: Inscriptions mentioning Singilia Barba

polygon belongs to *Singilia Barba* virtually closed to the north by the current northern bank of the lagoon of Fuente de Piedra. This line coincides largely with the branch of the aforementioned Roman road *Hispalis–Corduba*.

Fourth, we have analyzed the inscriptions that refer to the city of *Singilia Barba* finding multiple matches. The interesting epigraph found in the Cortijo de la Peñuela (*CIL* II 2/5, 215) not only has as dedicator one *Sing(iliensis)*, but also refers to *ordo Sing(iliensis)*. It appears that this epigraph was brought from the ruins of the city of *Singilia Barba* itself in later times. Apart from this we have located a total of 36 epigraphs that can be related to the Flavian *municipium*. From all these, we mapped those that appeared outside the *urbs* of *Singilia Barba*, as an attempt to define the possible *territorium* of the city (Fig. 6).

Preliminary Conclusions

This project has opened a new research line in the context of *Hispania Ulterior Baetica* aligned with current historiographical trends, and focusing on the study of wetlands and ancient societies. We have introduced the issue of methods, research topics and objectives typically applied to the historical study of riparian areas. Fuente de Piedra lagoon will be considered as an experimental laboratory where we will discuss the aforementioned objectives.

We have used the lagoon of Fuente de Piedra to illustrate, for example: territorial function of these unique features of the landscape; its relationship to urban and rural occupation of the

space and the issues of jurisdiction and territorial boundaries between civic communities; the potential of its natural resources and the traces of its exploitation; with social representations useful to our study that remain in this area – as epigraphic testimonies of civic onomastic.

From these preliminary results the immediate challenges of our research are: to design strategies and methodologies that allow us to solve the problems in the current state of the investigation; deepen our understanding of the social, economic, ideological and territorial role of these lacustrian landscapes using historic and archaeologic analysis of Baetican cases; challenge assumptions about the roles of social representation of wetlands and their elements in classical societies; finally, to move towards new challenges in the theoretical analysis of the ancient landscape perspectives and incorporate new research lines to those already raised by the historiography.

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Abbreviations

TIR J–30 = Álvarez, J.M., Aranegui, C., Cepas, A., Corzo, R., González, A., Rodríguez, P. and Sánchez-Palencia, F.J. (eds) 2001. TABVLA IMPERII ROMANI J-30: Valencia. Madrid: CSIC.

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Silchester: The Town Life Project 1997–2014: Reflections on a Long Term Research Excavation

Michael Fulford

August 2014 saw the completion of the excavation of a large sample (3025m^2 = 25 per cent) of one of the larger *insulae* (IX) of the Roman town of *Calleva Atrebatum* (Silchester, Hampshire, UK). The fieldwork had taken 18 summers of six-week seasons, the equivalent of over two years of continuous excavation, with teams, including staff, of 130–150 participants. The aim of the project at the outset was to characterise the changing life of the town from origins to abandonment. The initial estimate was that the project would certainly last five years, but not more than ten. However, well within five years it became abundantly clear that, despite antiquarian interventions, notably by the Society of Antiquaries in *Insula IX* in 1893, the preservation of the archaeology was such that a duration of 15 seasons was highly likely. Indeed, such was the rich complexity of the late Iron Age and earliest Roman archaeology that it only became possible to predict the end of the fieldwork a couple of seasons ahead, and that was on the assumption of reasonable weather, with no repeat of the extremely wet summer of 2012. Both the landowner, Hampshire County Council, and English Heritage, the organisation through which Scheduled Monument Consent (SMC) was negotiated (i.e. the permission to excavate), supported the project to completion in the field. The licence from the County Council and SMC were granted for five years at a time; altogether four consents and renewals of licence were sought and granted over the duration of the project. The land within the town walls had been set aside as pasture and an area including space for a campsite and the infrastructure of the seasonal excavation was fenced off for the duration; the limits of the area being adjusted as the spoil heaps grew in volume and the corresponding space they occupied.

Insula IX was chosen for a number of reasons: with no evidence of public buildings it could be regarded as representative of the private sphere, embracing domestic, commercial and artisanal aspects of town life (Clarke and Fulford 2002). Choosing an *insula* which contained buildings oriented obliquely to the Roman street grid offered an opportunity to test Aileen Fox's theory about an 'Old' and a 'New' town plan (1948). With aerial photography indicating the presence of buildings which had not been located by the Society of Antiquaries' project to recover a complete plan of the Roman town, *Insula IX* offered the promise of comparing them with structures which had been investigated by the Antiquaries in 1893 (Fox 1895; Bewley and Fulford 1996). Apparently open areas between buildings offered the possibility of identifying the presence of timber buildings, which the Victorian techniques of excavation were not able to identify on a systematic basis, in and around those with masonry foundations. The choice of *Insula IX* also provided the opportunity of investigating the context of one of the latest Roman/post-Roman objects from the town: the Silchester ogham stone, a truncated Roman baluster column which carried an inscription in ogham, a form of writing Celtic using the Latin alphabet

which developed in southern Ireland around A.D. 400. Although other examples of ogham inscribed on stone have been recorded from south Wales and from Cornwall and Devon, the Silchester example is the only one known east of the Severn. Finally, the record of the Society of Antiquaries' intervention of 1893 indicated that the Roman buildings, notably House 1, in the northern half of the *insula* were not so well preserved as to preclude the possibility of total excavation of the chosen area.

Prior research in the 1980s excavating beneath the remains of the forum basilica had established that there was a reasonably good prospect of recovering well preserved evidence of the earliest phases of occupation from the first century B.C. (Fulford and Timby 2000). Equally, though the sequence of later Roman occupation through to the abandonment of the basilica had suffered considerably from two major interventions in the late nineteenth century, some stratigraphy survived intact which gave optimism that there might be comparable survival of the latest stratigraphy in *Insula IX*. Assuming no truncation of deposits between the earliest and the latest, the chosen area of *Insula IX* could thus be expected to provide a sample of continuous occupation from beginning to end.

The start of the project was triggered by the need to provide appropriate training and field experience for University of Reading students studying archaeology. Whereas in the 1980s it was possible for several colleagues in the Department of Archaeology to find funding to support field projects of three to five years duration, by the 1990s funding was much harder to access and organisations offering the larger grants, like the British Academy and the Society of Antiquaries, would not fund projects beyond three years. At the same time, the growth of student numbers made it very difficult to reconcile the scale of project(s) necessary to deliver the training with the level of funding that might be accessed competitively from learned societies and the British Academy, the organisation in receipt of public funds for research in the humanities and social sciences, with its then ring-fenced funding for archaeology. With the establishment of the Arts and Humanities Research Board (later to become the Arts and Humanities Research Council) at the end of the 1990s, ring-fenced funding for archaeology was lost with the establishment of open competition for research grants between all disciplines in the humanities. However, larger grants than before were available and for a period of up to five years.

With the fieldwork already underway, financed by a mixture of grants and departmental funding, and a growing realisation that it was going to take not just more than five years, but more than ten, to complete the excavation, it became clear that the larger grants available from the British Academy and the AHRB/AHRC were best targeted for post-excavation and publication rather than the excavation itself. As it turned out, grants from these organisations funded the post-excavation and publication of the research on the Victorian excavations of *Insula IX*, as well as the late Roman and the mid-Roman occupation (Fulford *et al*. 2000; Fulford and Clarke 2002; Fulford *et al*. 2006; Clarke *et al*. 2007; Fulford and Clarke 2011). Importantly, the first grant awarded by the AHRB in 1999 began a parallel process of electronic publication drawing on the resources of the project's database, the Integrated Archaeological Database (IADB) developed by Mike Rains at the York Archaeological Trust. Developing online access to the primary field and finds data has remained at the heart of the project's publication strategy to the present. With one exception the electronic resources have complemented the conventional, printed outputs, paralleling the publication of the Victorian, late and mid-Roman phases (available at www.reading.ac.uk/silchester/excavations/sil-excavations/aspx); the exception is the publication in *Internet Archaeology* of the complete House 1 sequence from the late first century to the late third century A.D. (Clarke *et al*. 2007). This was a solicited contribution to a project (LEAP)

funded by AHRC, CBA and the JISC to demonstrate how electronic archives might be linked with mainstream publication.

While the decision to begin the publication programme when the excavation was still ongoing was taken as early as 1998, applying for funding from AHRB and the British Academy, it left the funding of the continuing excavation itself exposed. New sources of funding had to be identified and approaches and applications made. In several cases grants extended the scope of the Town Life Project as well as providing funding for the core activity. The Heritage Lottery Fund (HLF), for example, helped us address the information needs of the growing numbers of visitors to the excavation as well as widening access to the project to schools and colleges (Stewart *et al*. 2004). One source, the JISC, supported the development of the IADB and of methodologies to improve data capture in the field with the aim of eliminating the painstaking double-handling of the field data where records, made in the trench, were subsequently entered manually, either by digitisation of plans, or the typing of the written records, into the database. This led to the development of the IADB as a 'Virtual Research Environment' (VRE) for the Silchester project and then as a model for archaeological practice more widely, Virtual Environments for Research in Archaeology (VERA) (Fulford *et al*. 2010).

However, the need for funding focused solely on the core, the excavation itself, became more acute and further trusts, not normally associated with archaeology, were approached. While the Field School, superbly organised and directed by Amanda Clarke, ensured a consistent flow of funds for the project, these were not enough. From 2005 until the end of the last field season in 2014, the Calleva Foundation, GML International Ltd and the Headley Trust were outstanding in the level of support they gave to the project and, together, made it possible for the project to continue to completion in the field. Individuals, through their generous personal donations, and Trusts offering smaller grants also ensured the continuing viability of the excavation from year to year. Some of the smaller grants, particularly those from the Society for the Promotion of Roman Studies supported the participation of sixth formers in the Field School, such that Silchester was one of only a small handful of excavations in the UK which could ensure places for young people from year to year to gain an experience of archaeology.

While the complexity and the long duration presented enormous challenges as far as funding the excavation was concerned, the recognition that the project was going to take many seasons to complete in the field also offered opportunities to develop a reflexive approach with certain aspects of the archaeology, particularly with regard to deepening our characterisation of urban life and how it changed over time.

The development of quantitative approaches to the reporting of material culture and of systematic methodologies to recover environmental evidence, such as faunal, botanical and insect remains, or evidence of metalworking practices, for example the making and working of ferrous and non-ferrous metals, had become established – though by no means universally – in the practice and reporting of field archaeology during the 1980s, but the archaeology of Roman Britain was still skewed towards the built environment and the recovery of building plans. Understandably, where difficult choices had to be made over the prioritisation of the deployment of scarce resources in the field, it is not surprising that the structures took precedence over the environment in which they were located, particularly in a rescue or development-led context. With the implementation of PPG16 in 1990 development-led projects rapidly dominated over research and amateur-led excavations. Given the additional costs associated with complex, stratified archaeology, this was particularly true of urban archaeology of any period, with research excavations becoming very much the exception.

From the start of the Town Life Project systems were put in place to recover macrobotanical remains through flotation, with the systematic examination of the residues to recover bird, fishbone and other microfauna as well as the microscopic evidence of metalworking, typically hammerscale. This practice built on the experience of the 1980s excavations at Silchester, particularly that of the forum basilica, with its well preserved sequence of deposits from the late Iron Age, through the late and post-Roman, to the interventions of the nineteenth century (Fulford and Timby 2000). During the course of the *Insula IX* excavation sampling strategies, which initially followed the guidelines of the York Archaeological Trust, were developed in response to different conditions of preservation: for example, much larger bulk samples were taken to recover both mineralised and waterlogged remains, the first examples of which were excavated in 1998. The development of our environmental strategy owes a great deal to the active participation in and out of the field of Professor Mark Robinson, University of Oxford. At the same time, with as many as 130 participants, not including staff members, engaged in the excavation at any one time – a response to the size of the area under excavation – it was possible both to take and to process, if required, a very large number of samples, from flotation through to the sorting of the residues.

Thus, the long-term nature of the *Insula IX* project allowed the sampling strategy to be reactive to archaeobotanical post-excavation results. The analysis of waterlogged plant macrofossils from late Roman well 1300 highlighted the low density of waterlogged plant remains (Robinson *et al*. 2006), potentially due to rapid sediment accumulation in the well shaft (Robinson 2011: 281). Subsequently, a higher than usual target sample size of 20L was maintained for waterlogged contexts throughout the excavation, and this has produced very interesting results from contexts with lower than usual waterlogged densities (Lodwick 2014b). For instance, the first record of olive from a pre-Roman context was recovered from a 9.5L sample, which produced a density of 63.2 items/L (Lodwick 2014a), which is low for typical waterlogged archaeobotanical assemblages.

Whilst the flexibility in sampling allowed by the long-term nature of the project facilitated the integration of new techniques, some problems were also encountered. The initial bulk sampling strategy for charred plant remains, established in 1997, consisted of bulk samples of 10–20L from a range of contexts (Robinson *et al*. 2006). The analysis of mid-and late Roman charred plant remains samples showed that very few charred crop remains and seeds were present, and those that were present were at very low densities, averaging 0.20 (mid Roman) and 0.26 (late Roman) items/L (Robinson *et al*. 2006; Robinson 2011). Concurrently, the recommended bulk sample size in the sampling strategy gradually decreased, reaching 6L in the 2010 field school hand book, just 10–15% of the English Heritage recommended sample size of 40–60L (Campbell *et al*. 2011: 12). This was, in part at least, a response to the very low presence of charred plant remains in the mid-and late Roman periods.

The securing by Lisa Lodwick of an AHRC DPhil studentship under Professor Robinson's supervision at the University of Oxford in 2010 has ensured a much greater focus of research on the late Iron Age and early Roman archaeobotanical remains from Insula IX than would otherwise have been possible. Initial assessments highlighted that charred plant remains were present in higher densities than in the mid-and late Roman deposits, ranging from 0.4 to 751.6 items/L (Lodwick 2014a), and that the low bulk sampling size was having a detrimental effect on the number of crop and seed items present in a sample, and subsequently the level of data analysis which could be successfully applied to the samples' components. At least 100 identified items, or ideally 300–500 items should be identified per sample for statistical analysis to be

undertaken (Van der Veen *et al.* 2007: 203). Given that the average density of charred plant remains from samples studied from Period 1 (*c*. A.D. 40–60) was 9.3 items/L (Lodwick 2014a), the necessity of taking 40L samples (which would result in 372 items) is evident. The long term nature of the Insula IX excavation allowed corrective action to be taken in the field. For instance, bulk samples taken from the late Iron Age ditch in 2011 ranged from 15–27L, an advancement on 6L, but not ideal.

In a context where *in situ* evidence was absent, scientific characterisation of the use of internal and external space has become a major theme over the duration of the project. With many structures of Roman date with hard surfaces of mortar or tessellation it is difficult to extract evidence of the way those spaces were used, but early Roman domestic buildings tend to be built of timber with frequent use of soft materials such as clay or brickearth to surface floors. This is certainly the case at *Insula IX* where building in timber was universal up to the second quarter of the second century, but continued alongside masonry structures through to the late Roman period. The application of two techniques, micromorphology and micro-sampling of soils for XRF analysis, is helping to transform our knowledge of the use of space in *Insula IX*. The benefits of the application of micromorphological approaches in a Roman context were begun to be appreciated in the study of the 'dark earth' soils which formed in late and post-Roman urban contexts and which were seen to be crucial to our understanding of the end of Roman towns in Britain and the transition into the early medieval period (Macphail 1981; Macphail *et al*. 2003). While initially these soils, along with late Roman hearths, were the focus of sampling in the early years of the project, by the early 2000s when late Roman contexts were being excavated the strategy was extended to embrace internal floor surfaces. From the early 2000s, under Dr Wendy Matthews' leadership, micromorphology had become a major strand of geoarchaeological research in the department at the University of Reading, and it inspired Rowena Banerjea's engagement in the Town Life Project from her BA degree dissertation onwards. As with Lodwick's DPhil research on the Iron Age and early Roman archaeobotanical remains, the winning of an AHRC PhD studentship in 2007 allowed Banerjea to focus on the characterisation of the early and mid-Roman timber buildings to a level that would otherwise not have been possible with the recurrent resources of the project. Crucially, as with Lodwick's research, it was possible to develop a sampling strategy for micromorphology which was responsive to Banerjea's research questions.

Thus, the characterisation of the use of space in the early and mid-Roman timber buildings of *Insula IX* became a major focus of Rowena Banerjea's PhD thesis (2011a) and some of this work has now been published in *City in Transition* (Fulford and Clarke 2011) which covers the mid-second-to late third-century occupation of *Insula IX* (Banerjea 2011b). This strand of research is revealing a variety of information about the timber buildings, the way they were constructed and used, patterns of circulation, including the location of entrances, and their condition. For example, decaying and leaking roofs can be identified from the patterns of trampling on the clay floors. A key question about town life in Roman Britain is the extent to which agriculture remained a key occupation for the inhabitants. The presence of neonate domestic animals, cattle, pig and sheep, is strongly indicative of local animal husbandry, but the identification of herbivore dung in a decaying timber building in *Insula IX* confirms the stalling of domestic animals within the town (Banerjea 2011b). The recognition of the potential that Banerjea's research holds for the buildings of late Iron Age and early Roman, pre-Flavian phases of *Insula IX* has ensured that her sampling strategy in the field has been maintained to the end of the project.

This approach to the study of the late Iron Age and early Roman timber buildings in *Insula IX*

is intimately linked with the study of the geochemistry of the soils which make up the internal and external surfaces of the area under investigation. As early as 2002, the sixth year of the project, our colleague Professor John Allen suggested that systematic sampling to examine variability in the geochemistry of the soils might prove informative in the detection of patterns of use and character of occupation of our buildings. While a variety of methodologies could have been applied it was decided that XRF (X-Ray Fluorescence) was the most economic in the context of a large scale and ongoing programme of sampling. Moreover, the analytical equipment was available at the University of Reading. The first samples were taken from mid-and late Roman soils from House 1 in the summer of 2002 and the initial results, focusing on elements associated with metalworking, copper, lead and zinc, showed considerable promise. Samples giving the highest concentrations of these elements were further analysed using ICPMS (Inductively Coupled Plasma Mass Spectrometry) to identify further elements, notably gold, silver and tin, not readily identifiable by XRF. While the XRF results strongly suggested bronze working associated with one hearth in House 1, the ICPMS technique also identified the presence of gold and silver as well as tin (Cook *et al*. 2005; Cook 2011). The importance of this research was that it demonstrated and localised types of metalworking for which there was little or no other macroscopic evidence from the trench as a whole, not just from within the confines of House 1. A second analytical programme concentrated on the elements of copper, lead and zinc from soils associated with several hearths ranging in date between the late first and the end of the second century (Periods 2 and 3), with one, associated with a Period 2 property, showing high concentrations of copper (Cook *et al*. 2010). From 2008 the sampling strategy was extended to include, first, the internal surfaces of buildings and, then, external surfaces as well. A recent study, analysing copper, zinc, lead, strontium, phosphorus and calcium, of the internal surfaces of the timber-framed buildings of Period 2 (late first to mid-second century) has shown distinctions between 'clean' and 'dirty' spaces, the latter associated with buildings (with hearths) adjacent to the N–S street and reinforcing the interpretation that they served commercial as well as domestic functions (Cook *et al*. 2014). A pilot project is currently under way to examine variability in the geochemistry within and between negative, 'cut' features, such as pits, post-holes, wells, etc., of late Iron Age and early Roman date. That the Town Life Project has been able to develop the environmental science strand of its overarching research aims as strongly as it has is a tribute to the continuing support, in particular, of the Headley Trust.

Of course, none of this approach to developing the environmental or Science@Silchester programme, as it became known, would have been possible if the University had insufficient storage facilities for all the samples. Fortunately, as the archive had outgrown the available on-campus storage capacity, it was possible to make use of a barn no longer required for agricultural purposes on one of the University farms for the storage of all the bulk categories of finds, such as pottery and animal bone, and samples associated with the XRF and micromorphology. Eventually, once the publication programme is completed, the archive will pass to the Hampshire Museums Trust based in Winchester. The benefits of retaining, at least for the medium term, soil samples which otherwise would be disposed of are beginning to be realised. As this paper goes to press doctoral research by Graham Sylvester at the University of Western Australia on the unused (but retained) fractions of the samples collected for XRF using a new analytical method, mobile metal ion (MMI) technique (e.g. Mann *et al*. 1998), is indicating more extensive gold and, to a lesser extent, silver working associated with House 1 in the second and third centuries.

With the fieldwork completed, the focus of the Town Life Project is now entirely towards research leading to publication. This process can now reverse the latest to earliest direction and

follow the usual route of publishing from the earliest to the latest. With a major grant from the Calleva Foundation, research on the Iron Age phases of occupation is already well advanced. It is expected that the publication programme will be completed by 2020, 24 years after the start of the Town Life Project. Put another way, at the time of writing at the end of 2014, the project is only about 75 per cent complete!

This has been a very high risk project, with only a handful of years when the funding, whether for the excavation or for a phase of post-excavation research and publication, has been secure beyond a single year. It is ironic that the most critical funding, for the final phase of post-excavation research and publication, has been secured at the end of the fieldwork. More often than not it is that concluding stage of a field project which is the most difficult to fund. On the eve of New Year 2015, as the post-excavation analysis establishes the first phases of the Iron Age sequence of occupation, the Town Life Project can look forward to its most exciting phase of work as it completes the research on characterising the changing life of its sample of the Calleva community over a period of continuous occupation of more than 500 years, from pre-Roman to post-Roman.

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