Coinage and Identity in Roman Britain

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MA by Research

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Archaeology

August 2014

Abstract

This research project examines the relationship between coinage and identity within Roman Britain. Rather than using coinage distributions to consider identity, this thesis explores the complex relationship between coins and coin-users. Numismatics has been marginalised within archaeology, yet coinage is a complex embodiment of dualities (coins and money, object and idea, issuer and user) all linked with identity. A full understanding cannot be reached through economics, exchange and integration, but must also consider coins as texts (and coin-users as readers), the structures of coin-use, and the conscious phenomenological experience of the coin-user. By applying concepts from philosophy, literary theory, and linguistics, I develop user-focused perspectives, and assess the potential for new approaches by applying them to analysis of PAS data.

List of contents

List of Figures

All images have been produced by the author, unless otherwise stated.

List of Tables

List of Accompanying Material

Accompanying CD Contents:

A-CDi	Pierced Coins (excel, numbers and pdf)
A-CDii	Reverse Types (excel, numbers and pdf)
A-CDiii	Data

Acknowledgements

My sincere thanks must first go to my research supervisor, Steve Roskams, for constant support and belief in my unorthodox project, and for providing an exhaustive supply of reading and guidance. I would also like to acknowledge Chris Mellor, Statistics Tutor within the University of York Maths Skills Centre, for his helpful comments and reassuring support of my statistical analysis (vital for someone with a background in the arts and humanities, attempting to analyse data). Also, I would like to thank my wife, Sara, for proofreading and checking my text. Finally, I should recognize the University of York Centre for Lifelong Learning and Festival of Ideas teams, for allowing an outlet for my developing research, through lectures and outreach (where I have questioned many regarding their understanding and experience of coins).

Author's Declaration

The material presented within this thesis has not previously been published or submitted for examination or publication.

Except where stated, all of the work contained within this thesis represents the original contribution of the author.

Chapter One:

Introduction

Introduction

Although discussions of identity, romanisation, and regionality are currently popular within archaeology, coinage has been largely forgotten or underused for Roman Britain. It could be suggested that coins are not an ideal means to explore identity in Roman Britain. Whilst coins are undeniably a potent vehicle for the exhibition of public identity, they are predominantly a product of the central imperial authority, and therefore lack the level of variation, self-expression, and personal choice of other object types such as dress accessories and household goods. However, to see the coinage of Roman Britain as institutionalised, universal, and external, would be to severely underestimate the importance of locally produced contemporary copies, as well as the coinage of rebels and usurpers. More importantly, I feel that it is a mistake to neglect the underlying complexities of coin-use - the relationship between coins and coin-users, the myriad potential uses of coins, and the experience and engagement of coin-use.

Coinage has become increasingly marginalised and misunderstood within archaeology. Coins are primarily used descriptively, with a focus on quantities, supply and function. Numismatic typologies are dominated by the activity of production and issue, rather than consistency and variation in user experience (particularly when discussing contemporary copies). Coins, however, are an ideal aspect of material culture to study. They are relatively common finds, easy to quantify, with established typologies (denominations, issuers, mints, designs) and with distributions well understood and documented. Coin data is itself plentiful and accessible - including the Portable Antiquities Scheme (PAS) database - understandable with only a little specialist knowledge compared to many other categories of artefacts.

Coins are a complex embodiment of dualities, including object and idea, coins and money, issuer and user, all deeply linked with identity. Roman coinage is difficult to fit into one discipline as coins are material culture, historical documents, literary texts, works of decorative art, economic and political tools, technological products, cultural achievements, miniature monuments and a badge of civilisation. A full understanding must not only incorporate an understanding of archaeology, material culture, economics, integration and exchange, but will also

need to consider coins as texts, the underlying structures and language of coins and coin-use, and the conscious experience of the coin-user.

This thesis focuses on the relationship between coinage and identity, specifically within Roman Britain. My aim is not to examine what coinage and coin distributions, can tell us about identity within Roman Britain, but to explore the complex relationship between coins and identity. I feel that it is vital to discuss the relationship between coins and identity, and between coins and the users of coins, before we can attempt to apply numismatic data to questions of identity. This is not a typical archaeological thesis; I do not start with a traditional research question, and I do not have a hypothesis to test using data. The underlying motivation is the question 'How can a multi-disciplinary consideration of coins and coin-use affect our understanding of coinage in the Roman period, and the relationship between coinage and identity?' My aim is to work towards a gestalt approach with applicable philosophy, linguistics and literary theory, a grounding in the experience of the coin-user, and the data available through archaeology. With a varied background in philosophy, literary theory, and archaeology, I am not writing as a numismatist - and I have found much of traditional numismatics to be unsatisfying. I hope to be intentionally different, attempting to deconstruct coins and coin-use, question assumptions and concepts, and work towards alternative perspectives.

The core of my research is the consideration, application, and re-purposing of ideas and theories from multiple disciplines. The data testing and analysis is very much secondary, as a means to test the practical potential of the ideas and approaches suggested by the theoretical consideration of coins, coin-use and identity. With the limited time and resources of this project (spent largely on researching Roman coins, identity and economy, and exploring relevant multi-disciplinary theories), my hope is that I may establish the potential for more comprehensive investigations of the data, through the development of rigorous research questions and methodologies, informed in part by the work within this thesis.

This project is not intended as an attack or critique on traditional or current numismatics. Instead, I hope to consider some of the underlying aspects of coins and coinage that I feel are significant but under-discussed, and to question

some of the assumptions inherent within the study and analysis of coins. I hope that by applying ideas from other disciplines (some well known within archaeological discussion, some with untapped potential, and some most likely never applied to archaeology previously) I may be able to present some viable alternative perspectives by which to consider coins, coin-use, and identity. These perspectives are intended to complement traditional numismatics rather than replace current practices, and will hopefully suggest new avenues for research, analysis, and discussion.

There is no 'one-size-fits-all' approach to numismatics that is satisfactory to all lines of investigation. A top-down, empire or province wide 'macro' perspective (looking at coin distributions by issue or denomination) can make excellent use of traditional numismatic concepts. My own interests, however, lie strongly in a bottom-up approach, a 'micro' perspective, looking at coins and coin-use in a closer resolution, focused on individual interaction with coins, including interpretation and conscious experience. The questions I wish to explore are related to the coin-user's interaction with and interpretation of coins, rather than the actions and intentions of the coin issuing authority. In this context, the nature of interaction with coins and the use of coins is at least as important as (if not more important than) the coins themselves. I feel that it is obvious that coins and coin-use cannot be understood purely through their production, issue, and distribution. Coin data is paramount, however, to any discussion of coin-use as it can show what coins were present (and in what proportions) for coin-use and coin interaction at a provincial or local regional level. Coin distribution is irrevocably linked to coin production and supply; the quantity, distribution, and nature of the coins present would have shaped coin-use, just as the distribution of coins within the archaeological record are shaped by past coin-use (regional, local, or site specific coin finds and distributions are shaped at least in part by how the coins were being used).

Numismatic data is usually utilised to look at quantities and distributions of coins, by issue or denomination, often comparatively between sites or regions. The data recorded, however, also captures information about the coins that is less frequently utilised (especially for quantification and comparative study) such as coin diameter, thickness and weight. Each of these physical characteristics is a result of production choices, but they are typically only considered in terms of a

coin's intrinsic value and production costs. More importantly, these physical characteristics would play a potentially significant role in coin experience and interaction, but they are rarely discussed at the level of the coin-user.

The core elements of this thesis, therefore, will be:

- a user orientated perspective - a user-focus means looking at coins and coin-use, not simply money and economic systems
- a consideration of what gives a coin meaning, and determines its use
- a consideration of the materiality of coins, and physical interaction with coins
- a focus on the coin-use experience, including the coin-user's interpretation and understanding

To attempt to better understand the relationship between coinage and identity in Roman Britain I will first explore traditional approaches (predominantly top-down focused on production and supply) and consider what they can tell us and what questions they raise. Based on these questions, I will then explore what ideas from other disciplines can bring to a bottom-up consideration of coins and coin-use, and the relationship between coins and identity. Finally, I will consider how these ideas can be applied to numismatic data, and attempt data analysis to assess their potential.

Chapter Two:

Coins, Coin-Use, and Identity

Coins, Coin-Use, and Identity

Identity, Romanisation and Regionality… Coins and Identity… Widespread Coin-Use… Non-Monetary Coin-Use… Coins as Documents and Coins in the Archaeological Record… Summary (The Role of Coins?)

Before digging deeper into multidisciplinary theoretical concepts, it is important to consider a basic overview of identity, coins and coin-use within Roman Britain (this chapter will attempt a basic, non-critical assessment). It is vital to define the meaning of identity in Roman Britain, and how the coins present in Roman Britain relate to concepts of identity. Approaches to coins and identity have been largely focused on production and the role of coins within the Roman economy but the interaction between coins and coin-users is vital to understanding the relationship between coins and identity.

2.1: Identity, Romanisation and Regionality

Identity:

Identity is a fundamental part of what it is to be human. It governs how we define and view the 'self', and our aspirations of how we want to be and how we wish to be seen within a given context. Identity is how an individual, or their community group, is distinct and differentiated from others. Identity can be seen as something that is chosen, based on context, like an outfit that is assembled for a specific occasion, within a network of social conventions (e.g. Allason-Jones 2001; Barthes 1964). In this sense, identities are not determined at birth, and not fixed; a single individual may have a multifaceted and potentially contradictory conception of identity (e.g. Preston 2001, pp87-88). However, identity can also be seen as deterministic or imposed, through ideologies and the state, through integration into structures such as language, or through circumstances beyond choice such as age, ethnicity and gender. Identities are potentially malleable internally, through both thoughts and actions, and externally through exposure to events, ideas, and material culture (e.g. Hill 2001, p13).

Romanisation:

Central to the notion of identity within Roman Britain has been the discussion of the concept of romanisation, and the distinction and shift from 'Native' to 'Roman'. Millett (1990) described romanisation in Britain as an elite phenomenon, whereby the upper-classes adopt elements of Roman culture, such as class systems and coinage, before the invasion, whilst the lower-classes are only a passive part of the process, and retain many aspects of their traditional ways of life. The cultural tags of 'Roman' and 'Native', however, are increasingly viewed as clumsy and unwieldy (e.g. Barrett 1997, p60) - they are too monolithic and uniform, too homogeneous, too static and inflexible. The transfer of ideology and material culture is a complex process, and there was "no one single Roman way of life to be adopted, transformed, or resisted" (Hill 2001, p12 after Woolf 1998).

It is not just the presence of material culture that is significant when considering identity, but also the local or individual meaning, context, and use. In Beijing, for example, McDonalds is a treat for the middle-classes, whereas in urban America it is overwhelmingly the domain of those of low-income (Williamson 2005, p20). I feel that romanisation has both empirical and conceptual issues; there are difficulties in applying the theory to the data available, as well as fundamental issues with the concept, which has no single accepted form. A workable notion of romanisation must be contextual and flexible - rather than assessing 'how romanised', the question instead is 'which romanisation?' As a means to describe integration into ostensibly 'Roman' systems (be it through language, dress, monetary exchange, or market economies) romanisation is a useful phrase, and a useful tool. As with many such tools, however, it is important to clarify and define the meaning and limitations of its application and usage. In the subsequent discussion of coinage and identity, romanisation is used in a loose, pragmatic sense; and does not imply a single notion of what is 'Roman', or that there are absolutes of 'non-roman' and 'romanised'.

Regionality:

It has been suggested that there was an increasing regional variation (or 'regionality') in the late Roman period. Swift's assessment of typologies and distributions of dress accessories in the Western empire (2000a; 2000b) suggests a shift from general 'Roman' fashions to the development of local fashions and object styles. Lacock's (2008) study of belt buckles in late Roman Britain further supports a model of regionality. Lacock suggests that late Roman regionality mirrors the regionality at the start of the Roman period in Britain, with tribal territories with distinct cultural identities (Lacock 2008, p20). Distinct typological and stylistic distributions of material culture may represent local tribal organisation, supply, control and authority.

A fundamental distinction can be made between an individual identity, tied to the self and notions of consciousness and perception, and a community of identity, tied to regionality, and to the notion of social, cultural and political groups. I feel that the two are inseparable - to pick one reading of identity in this way would be to narrow the scope of discussion, and would presuppose so much at a theoretical level as to severely limit potential. Related to this consideration is the question of whether coinage is part of a community identity, or if it is distinct. Coinage and coin-use relates to community identity with a shared material culture of coins, a shared understanding of coins, and a common integration into the underlying systems that facilitate coin-use. However, there is undoubtedly a potential for individual identity through differential interaction and exposure to coins, and a multitude of individual ways of understanding, using, and engaging with coins and money. Coinage allows a consideration of identity on multiple social, political, and economic levels as it relies on integration into underlying systems to function both as money and as propaganda, and for this we need to look beyond the mere presence or absence of coinage as material culture, and explore factors such as meaning and function.

2.2: Coins and Identity

Reece's early four-stage overview of coinage in Roman Britain (Reece,

1972), although now superseded, still provides an effective summary from which to consider coins and coin-use, as it is focused on four broad periods of coin-use (figure 1) rather than many subdivisions of production and issue.

Phase A: cAD43 Up To cAD260

The stable period of the Denarius system

Phase B: cAD260-294

The unstable Radiate period

Phase C: cAD294-356

The period of the reforms of Diocletian and Constantine

Phase D: cAD356-411

The remainder of the fourth century, to the end of the Roman period in Britain

Figure 1. *Reece Four-Stage Coin-Use Periods (after Reece 1972; 2002).*

Reece (2002, p11) also makes the distinction between 'Roman coins' and 'coins of the Roman period'. Roman coins are the official issues of the state mints, with a related discipline devoted to the study of their development, distribution, debasement and reform. Coins of the Roman period allow a looser classification, including forgeries, foreign issues, and the large number of contemporary copies found in Britain. When discussing what coins have been found, their distributions, and what issues were struck and when, numismatics is on relatively sound footing with a widely accepted understanding from typologies, distributions, and production. The difficulties lie instead with how coins were used, what people thought of them, and how they understood them.

The most immediate relationship between coins and identity is through their design (symbols and text, potentially ideologically and politically charged). Coins have been described as "the most deliberate of all symbols of public identity" (Howgego 2005, pV, after Millar 1993). The potential for interpreting coin design has been disputed (e.g. Jones 1956, p15) and has been misused in the past (Casey 1986, pp36-37). However, cogent discussion has focused on coin designs attempting to transmit a message of legitimacy, for Carausius (e.g. Williams 2004) and Magnentius (Salway 1977, p260). Attempting to decipher meanings is inherently problematic, but for the majority of designs on the reverse of Roman coins there is a relatively accessible 'language'. Reverse designs on coins can include themes as diverse as portraiture, religion, buildings, monuments, the past (real or imagined), time, place, language, politics (such as state stability), military (victories, strength and triumphs), and Romanitas (or 'Roman-ness'), each with its own array of associated symbolism and meaning.

Portraits of the emperor dominate Roman coin obverses, with a broad shift in how the emperor is portrayed. The early emperors clothing (the princep's woollen toga) depicted a balance of power with traditional frugality and restraint, whereas by the late Roman period, this tradition of restraint had passed, with the power and status of the emperor mirrored in depictions of their clothing (Hildebrandt 2014). Coins during the early Roman period are those most closely connected to the emperor; his likeness for the portrait, and his deeds, likes and dislikes for the reverse design (Reece 1999, pp10-11). Later Roman coins of the fourth century onwards see the depiction of the emperors become somewhat homogeneous (see figures 2 and 3). Fourth century portraits on coins do not show the emperor as a real individual; but as a stylised depiction of 'emperor', static and generic (Constantine II, his junior as Caesar, despite a forty-four year difference in age, whilst Constantius II and Julian appear identical in figure 3). The emperor's deeds, interests and achievements cease to be recorded on late Roman coins, and reverses are dominated by state messages, largely independent of changes in the imperial personnel (Reece 1999, pp10-11).

Figure 2. *Early Imperial Portraits. (Top row: Vespasian AD69-79, Titus AD79-81. Middle row: Domitian AD81-96, Severus Alexander AD222-235. Bottom row: Faustina Senior AD138-147, Faustina Junior AD147-175).*

Figure 3. *Late Imperial Portraits. (Constantius II AD337-361 and Julian II AD360-363, with almost identical portraits). Images from Reece 2002, p.59.*

Rather than self-expression of the emperor, coins are issued by the 'central authority' and embody a public or 'official' state identity (avoiding the problematic issues of private, implicit, or externally defined identities). Official coins reflect the identity of the issuer (either the state, the province, or the emperor) all of which can be seen as largely external to Roman Britain. Whilst official Roman coins were minted in Britain between AD296 and AD324, the coins issued are the same types as the other Western mints (their only remarkable feature is the fact that for a short period the coins minted in London had no mintmark, normally LON or PLN) possibly as a result of Britain's role in the breakaway empire of Carausius and Allectus (Reece 2002).

Britain, therefore, lacks the provincially issued coins that have been used to consider provincial identity for other parts of the Roman Empire (such as Howgego 2005). Whilst such provincial issues might be issued with a degree of local control, they are still bound by the laws and norms of imperial state - despite different social and political circumstances, a modern parallel can be seen in the coinage issued by Vichy France in 1943 (figure 4, and appendix i), replacing 'Liberte, Egalite, Fraternite' with 'Travail, Famille, Patrie' (Work, Family, and Fatherland - a motto more in line with Nazi ideology).

Figure 4. *Two Franc Coin of Vichy France, 1943 ('Travail, Famille, Patrie').*

Usurpers:

Aside from the official coins minted by the Roman state in Britain from AD296-324, coins were also produced in Britain under the control of the rebel emperors Carausius and Allectus, AD286-296, and Magnus Maximus, AD383-388 (e.g. Fulford 1978 and Reece 2002). In other parts of the empire, non-official locally produced coins are often seen as 'outside of empire', their designs and messages an embodiment of a local, regional, non-Roman identity, such as the coins produced by the Jewish Leadership during the Bar Kochba revolt in AD132-136 (Mildenberg 1984). The coins of usurpers produced in Britain are not 'outside of empire' and non-Roman in this way, but are instead the coins of 'breakaway empire', operating within the systems, structures and conventions albeit outside of central imperial control. However, the context of being part of a regional and temporary breakaway state - a miniature empire with a locally used coinage issued by a usurper with local control - does differentiate and distinguish the province from the rest of the empire at that time.

Carausius, as rebel emperor of Britain and Northern Gaul, issued a highly individual coinage (Williams 2004) following imperial conventions but at times producing coins of a higher quality than those of Diocletian (the Western emperor) and at times attempting to reinforce legitimacy with innovative propaganda (figure 5). Carausian coinage is unusual, but operates within the conventions, systems,

and limitations of the Roman world, publicly expressing personal identity, experimenting within the boundaries of convention, and seeking to influence opinion and reinforce legitimacy (e.g. Williams 2004).

Figure 5. *CARAVSIVS ET FRATRES SVIS (Carausius and his Brother Emperors), from Reece 2002, p52.*

Contemporary Copies:

Contemporary copies of Roman coins in Britain occupy a grey area, they are not quite official, but they are also not quite forgeries. The term 'copies' is used here to refer to coins that were not official state issues, from official state mints, but which were not intended to deceive. Copies were produced and used without having to be mistaken for official coins, in use alongside or in lieu of official issues (forgeries - coins produced to deceive for financial gain - are not to be considered within this discussion). For some periods the quantity of copies found far outnumbers the quantity of finds of official issues. The copying phenomenon can be seen in the first century, with relatively small numbers of copies of the Claudian coinage found, presumably for use by the army following the conquest (Reece 2002). The later Roman period saw more substantial copying, with the production of copies during the later third century, commonly referred to as 'barbarous' radiates, and large scale phases of copying during the fourth century, which have been particularly well researched and documented (e.g. Brickstock 1987) as shown in figure 6.

The central imperial authority neglected to issue low denominational coins regularly, and seemed largely indifferent to the problems this might cause for low-value local buying and selling, as long as there was minimal interruption in the supply of gold and silver coinage, used in state payments, army wages, and taxation (e.g. Brickstock 1987; Reece 2002). It has been argued, therefore, that copies were produced through necessity, due to poor supply of base metal coinage to Britain - when coins were abundant there was no need to copy. Furthermore, it has been suggested that new copies were produced to keep them in line with current official reverse types; the over-striking of earlier copy issues would seem to reinforce the idea of a demonstrated effort to keep coins 'current' (Brickstock 1987, p60). Even if smaller or poorly formed, the copies would carry the current official design and message of the time, although to what extent the message survives on the poorer quality copies is debatable. Whilst some copies may have been made from direct observation of official issues, it is likely that others were produced by copying a copy (Brickstock 1987, p93, and appendix xii).

It is likely that copies were acceptable to be passed in relatively small numbers at a time and for low-value purchases, but would not have been acceptable if grouped in large quantities for high-value purchases (e.g. Reece 2002). This is paralleled in modern Britain by the use of trade tokens in the eighteenth century, and the use of French coins of Napoleon III during the mid-nineteenth century, during times of shortage in official copper coins. It is highly doubtful that a chest full of low quality 'Fallen Barbarian Horseman' copies of the AD350s (figure 6) could be exchanged for silver Siliquae or a gold Solidus.

Figure 6. *FEL TEMP REPARATIO 'Fallen Barbarian Horseman' Issue and Copies, AD350s.*

Copy production differentiates the Western empire from the East, and differentiates Britain and Northern Gaul from the rest of the empire (Brickstock 1987). For Roman coins, the denominations, values, and underlying monetary system remain the same across the Western empire (Reece 2002). However, forts and villas across the empire also appear similar in plan and design, but the local material used in their construction makes them fundamentally different (Allason-Jones 2001) affecting the experience for the users. The experience and materiality of coin-use, and the visible signs and symbols of the coins, would be markedly different for people using small and abstracted 'fallen barbarian horseman' in Britain, compared to those using official coins in Rome. If material culture and

objects can shape identity, we are dealing with two very different objects in official coins and contemporary copies - there is regionality in base metal coinage. It could also be argued that with the coin copying phenomena, there would be a differential experience of coin-use tied to social role or class. The different denominations fulfilled different roles - gold and silver Aureii/Solidi and Denarii/Siliquae were used for taxation, wages (such as army pay) and high-level transactions. The low value base metal denominations of cAD260 onwards, and their contemporary copies, were used in low-level transactions and as small change. Different social roles and classes, therefore, would have had different coin experiences, related to the different uses and function of coins, and a different exposure to denominations and copies.

2.3 Widespread Coin-Use

Until cAD260, there does not seem to have been sufficient quantities of coins to allow widespread coin-use within Britain (Reece 19873, pp227-51), suggesting a relatively late adoption of widespread coin-use. Patterns of coin loss also suggest that before cAD260 there was relatively little coinage and coin-use outside towns and military sites, and a lack of low denomination (low value) coinage (e.g. Reece 1991, 2002). Hodder (1974, p194) proposed that the majority of Roman Britain had a continuation of Iron Age tribal systems until the mid-to-late third century. From cAD260 onwards, however, coinage began to be more widespread; with much greater quantities of coins and a greater number of low value coins (including copies) in both rural and urban areas, and with a wider distribution across the province. The mass copying epidemics of the AD260s, 270s, 340s and 350s perhaps prove that there was, by this stage, a genuine 'need' for coins. As there was little room for profit in base-metal coin copying, it seems that the copying epidemics were motivated by a necessity or need for coins (Brickstock 2000, p34). This demand or need could have been either top-down, with the state (central or local administration) wanting a widespread exposure to coins, or bottom-up, with a local need for coins due to systems of coin-use.

The spread of coinage, and coin-use, within Britain from around AD260 onwards coincides with a number of social and economic factors. The political

and military instability, evident with the breakaway Gallic Empire, coincides with large numbers of debased coins and copies in circulation in contrast to the previously low quantities of low-value coinage in Britain (Fulford 1989b, p191). This coincides with the 'Annona Militaris', where a decrease in the buying power of military wages, linked to inflation, resulted in goods being provided directly to the army in addition to the stipendium, where goods would have been previously purchased locally by the troops from their regular pay (Brickstock 2000, p33; Casey 1994). A decline in Britain's long distance trade may have been linked to changes in supply for the army (Hopkins 1980, pp105-106). It has been suggested that the financial well-being of Roman Britain was reliant on a delicate cycle of military pay and state taxation, and it is most commonly felt that the state was largely ignorant of this cycle, unaware of the complexities of economic cause and effect (e.g. Evans 2000). Evans (2000, p41) proposes a 'tax revolt' within Britain as a key element of an economic and social collapse at the end of the Roman period, with a failure to collect taxes breaking this delicate cycle of payment and taxation.

Coins can be used as a means to examine the process of romanisation with coin distributions utilised to explore political boundaries and spheres of influence (Casey 1986, p19). The unequal impact of the Roman economy led to 'landscapes of opportunity' and 'landscapes of resistance' (Mattingly 2001, p145) - a late adoption of widespread coin-use suggests that pre-existing systems of tribal exchange survived, outside of towns and military centres, for a remarkably long time. Creighton (2000) has illustrated how Iron Age coinage marks the emerging tribal dynasties of Southern Britain in the pre-Roman period, and how the design of coins was used as a means to transmit messages of power, status, and identity (albeit purely as an elite phenomenon).

There is significant pre-Roman to early-Roman continuity in Britain (e.g. Millet 1990; Creighton 2000). From a widespread coinage and coin-use perspective, the Iron Age to Roman shift appears no more substantial than the shift from late-Roman to post-Roman. Two explanations for this phenomenon are the survival of Iron Age networks well into the late Roman period, or a process of romanisation pre-conquest. A pre-conquest notion of romanisation allows for an ideological rather than military process, and the potential for distinct civil and military influence leading to distinct social and economic development (e.g. Evans

2000). Jones (1973; 1974) argued that the presence of the army in 'backwards' provinces such as Britain would have stimulated their development, and it is easy to see that army could be a vital part of a local economy.

The army has been seen as a dominating factor in militarised regions such as the North, shaping aspects from settlement patterns to coin supply. This is in marked contrast, however, to the demilitarised parts of the province, such as the South East, where a greater degree of romanisation can be seen, together with an earlier adoption of widespread coin-use (Brickstock 2000, p33). The spread of coin-use may have been civic rather than military (e.g. Brickstock 2000) although conceivably not possible without the presence of the army within the province. Whilst coin-use was initially focused on towns and military sites, the spread of coin-use was a civil rather than military process, although a significant part of the economy and coin supply.

A system of military subsidies and patronage has been proposed as an explanation for the seemingly illogical distribution of trade goods, often over long distances where local goods were available - if the army was able to underwrite transport costs, and support particular local industries, these distributions make more economic and logistical sense (e.g. Fulford 2004). However, many of the goods that are highly visible in the archaeological record, such as pottery, were relatively inexpensive commodities and could have moved together with more expensive yet archaeologically invisible goods (such as food and livestock, slaves, cloth and clothing), providing an alternative means to explain the underwriting of transport costs and logistical difficulties. Evans (1988; 2000) suggests that these 'illogical' distributions may be shaped by Iron Age tribal networks and divisions that do not fade until the fourth century (Evans' analysis of pottery in the Yorkshire region shows a distinction in character between early military and civil pottery assemblages, with the civil seeming to shape later distributions). There is sufficient scope for both civil and military explanations; either civil, military, or an overlapping influence of both civil and military together, could conceivably produce ostensibly similar results to the distribution of trade goods.

There is no simple dichotomy between romanised and tribal, so romanisation of the economy and exchange are potentially complex and flexible.

Economic models are not mutually exclusive, with a potential for plurality such that it has been suggested that the true market economy might be relatively rare, only found in parts of modern Western Europe (e.g. Hodder 1979). Economic theories have shifted from an focus on manufacture and production, to models based on agriculture and the army (Jones 1973; 1974 and Hopkins 1978; 1980; 1983), to the Post-Processual concept that economic systems are not necessarily dominated by commercial trade, instead with exchange as a key mechanic within societies (e.g. Hodder 1979). In contrast to 'the market', systems such as reciprocity and redistribution show the potential for socially embedded systems of exchange (e.g. Greene 1986).

There is no simple summary possible for monetary coin-use within Roman Britain, which is instead a story of variation, change and boundaries. Until cAD260, and perhaps into the fourth century in parts of the country such as the North, we can see a distinct plurality of overlapping economic systems, evident through coin evidence and the distribution of trade goods. At times we are helped by excellent data, whereas at others we are left guessing at motivations and invisible systems. Whilst it seems likely that there was a monetised economy by the later Roman period in much of Britain, how much of the actual trade and exchange might have been under the control of the local tribal elites, and potentially underpinned by social rather than commercial factors, is hard to guess.

2.4: Non-Monetary Coin-Use

As has been highlighted, there were potential non-monetary roles utilised by the state when producing coinage. Coins were a potent means to transmit state messages, and the production of coinage was a form of monumentality, status and display. Once coins were distributed, however, their subsequent use was no longer under the control of the issuing imperial authority (although theoretically limited by some constraints). The monetary use of coins may have been shaped and controlled by the state, the army, or locally by the tribal elites and systems of social exchange. The non-monetary use of coinage, however, is more closely related to the concept of object biographies (e.g. Leroi Gourhan 1964), considering the myriad uses a coin might be put to over time, regardless of the intended function.

Once a coin was being utilised as something other than money, its usage-life would no longer be tied to the timeframe or region within which the coin was legal tender. Just as samian ware could either be a treasured heirloom, or a quickly worn out functional object, with a lifespan and status dependant on use (Biddulph 2005, pp191-193), coins that were no longer utilised as money had value only in their utility and could either be seen to be of no further use, or else potentially have exceptionally long usage lives. A coin can be put to a wide range of uses until it is lost, discarded, or otherwise falls from use and enters the archaeological record; the gap between minting and loss is essentially 'coin-use', perhaps where the most meaningful notions of identity lie.

The phenomenon of coin hoards bridges non-monetary and monetary coin-use, and is an example highlighting that the state's intentions for coinage were not always followed. Coins were not intended to be lost from the cycle; coinage reforms and new phases of minting were carried out with the intention of recouping the older coins, which would often be more valuable in terms of their metal content, replacing worn coins, sometimes replacing old symbols and messages with new. Hoarding is an activity above and beyond the use of coins within a framework of monetary exchange; the hoarding of coins can potentially show coin-use, interaction with coins, and social and political attitudes and understanding.

Rather than a simple index of which coins were available at a given time and place, there is also a potential for a deliberate selection and retention when creating a coin hoard, such as choosing older and 'better' coins, and avoiding 'poor' coins such as low quality contemporary copies. Third century barbarous radiate hoards have been interpreted by Reece (2002, p76) as collections of old de-monetised coins rather than true hoards. The notion of what constituted a 'better' coin could include the avoidance of the coinage of usurpers, such as 'legitimist' hoards observed from the reign of the rebel Carausius (Williams 2004, pp57-59), that avoid coins depicting Carausius yet include his issues depicting Diocletian or Maximian, the legitimate emperors (identifiable from the AVGGG legend, indicating three emperors, rather than AVGG as used on coins minted by those legitimate emperors). I believe that this phenomena potentially highlights a personal expression of identity and political allegiance, or perhaps the choice was

motivated by a practical desire to future-proof savings against the eventual collapse of the breakaway regime.

There are a number of non-monetary uses of individual coins that are highly visible within the archaeological record as well as within contemporary documents and literature. Placing coins within a burial context is a well-known phenomena (e.g. Philpott 1991), as is the ritual deposition of coins, (related to religion, superstition and social conventions), in Britain perhaps most famously at the temple of Aquae Sulis, Bath (Walker 1988).

There are also a large number of coins within the numismatic data that appear to have been deliberately damaged (appendix ii), but questions of how, when, and why can prove problematic (especially given the lack of archaeological context of many of these coins). These 'damaged' coins include those that have been pierced or mounted, ranging from drilled or pierced copper coins that could be seen as weights or homespun makeshift amulets, to high-status professionally mounted gold and silver coins worn as rings or pendants. Pierced Roman coins are well understood within the framework of Anglo Saxon activity, as they have been found within many Anglo Saxon burial contexts (Moorhead 2006, pp99-102). Data from Roman cemeteries is more limited, but where recorded archaeological data for Roman burials does exist, such as Robert Philpott's survey of burial practice in Roman Britain (1991, p93 and p240) we do find examples of pierced coins within Roman contexts. Pierced coins within Roman contexts (see figure 7) include a pierced Chi-Rho issue of Magnentius from a late Roman burial in Poundbury, Dorset, found within a possible Christian burial (Green 1977, p50). The largely unstratified pierced Roman coins recorded through the PAS are, at least in part, certainly related to non-monetary coin-use in Roman Britain.

Figure 7. *Pierced 'Fel Temp Reparatio' Issue of AD348-350, Emperor in Galley with Christian Chi Rho Standard (Constans or Constantius).*

Figure 8. *Pierced Coin of Napoleon III, 1855. (A coin re-purposed after it had lost value as coinage, see appendix i).*

The PAS has guidelines for how to interpret pierced coins (PAS 2013) - a coin once re-purposed (in this sense, physically) is no longer money, and therefore potentially covered by the Treasure Act (in the early medieval period, pierced coins are not found in coin hoards, so can be seen as re-purposed permanently, whereas in the medieval period pierced coins do appear in coin hoards from cAD1180 onwards, so it can be argued that they were still potentially money). The distinction is not as clear for the Roman period, complicated by the presence of base metal coinage together with an uncertainty about the period in which the re-use took place.

The de-monetisation and non-monetary use of Roman precious metal coinage is relatively simple. There are pierced gold and silver coins that have either been de-monetised by their piercing (which would have prevented their use as money) or they have been re-purposed after they ceased to be legal tender (such as later, post Roman re-use). A pierced gold or silver coin would almost certainly be used as decoration, jewellery, or as an amulet (potentially with political or religious significance), as the value of the material rules out most mundane uses. A mounted coin, however, could potentially be removed from its mount to return the coin to its former purpose as money. Pierced base metal coinage is more complex, with parallels through to the modern period (see figure 8). From personal experience, unless cleaned extensively (a time consuming and expensive process) many base metal coins will be recorded and published as un-pierced as the hole is filled by dirt or corrosion. Whilst a pierced base metal coin could be used as decoration or jewellery, it could equally fulfil much less glamorous uses (as buttons, fasteners, washers or shims).

This is only a brief snapshot of the potential non-monetary use of coins, practical or otherwise. There are also a wide range of simple, although potentially illegal, activities such as clipping or melting down coins. A discussion of non-monetary coin-use within Roman Britain has a incredible scope and a wide range of potential interpretation and speculation, with parallels available through discussion of other historical periods (such as medieval Scotland, Hall 2012).

2.5: Coins as Documents and Coins in the Archaeological Record

Above and beyond the use of coins to provide chronological information through sequences and typologies, we have seen the potential for using coins to explore the ancient economy, and to trace social and political boundaries and spheres of influence, both through coin distributions and through evidence of coin-use. Coinage is an ideal means by which to convey state messages, ideology and propaganda. We can also explore manufacturing processes, with technological choices and intention in design, as well as the non-monetary (and non-intended) uses of coins. This is not to mention some of the more abstract concepts such as coins as a social achievement, as monuments and a mark of

civilisation, as well as the theoretical ideas of coins being culturally deterministic, shaping social interactions and developments through the possibilities created by their presence. Coins can be considered as historical documents, as decorative arts, and as literary texts.

Historical Documents and Coins as Documents:

Surviving historical documents from the Roman period can help inform how we can consider coinage. Detailed records would have undoubtedly been maintained recording transactions, taxes, land ownership, property, army and civil service wages. Appian's suggestion (Roman History, Prefatio 5) that second century Britain was 'not paying its way within the empire' hints at a range of accessible documents that unfortunately have not survived (e.g. Finlay 1973). There are rare survivals of primary documents. From Britain, the Vindolanda tablets capture some intriguing detail, with references to the payment of taxes alongside the more everyday correspondence (Bowman 1994). From further afield, a similar survival of six hundred writing tablets from Vindonissa in Switzerland has provided details of army pay arrangements (Spiedel 1992), whilst Diocletian's Edict of AD301 contains a comprehensive list of prices for trade goods.

There are a significantly larger number of surviving secondary accounts, perhaps most famously Caesar, Strabo, and Tacitus. However, the secondary accounts and histories are difficult and unreliable as sources, with a tendency towards rhetoric, metaphor, and outright fiction; there is often important information missing, disagreement between sources, and verifiable errors and inaccuracies. Roman historical documents, from histories to panegyrics, utilise literary devices including symbolism, metaphor, and recurring tropes. Britain was often romanticised through its edge-of-empire status. Many contemporary accounts exhibit a recurring channel crossing trope, with the weather and ease of crossing used as a metaphor for social and political stability, from Caesar in cBC50 (Caesar, de Bello Gallico) through to Constantius' accounts of Germanus' visit in cAD429 (Constantius of Lyon, Hagiography, cAD480).

Historical documents are subject to interpretation, with inherent difficulties reconciling fact with opinion. Both primary and secondary accounts

reflect perception rather than truth, and are further distorted by bias and the convention of literary devices. Surviving documents from Roman Britain are rare, and whilst the Vindolanda tablets tell intriguing personal stories, there is little they can tell us about identity and coinage beyond brief references to payment of taxes by individuals within the Roman army. A number of documents relate to the perceived value of Britain to the empire, but whilst this is important for an assessment of regionality (Britain's provincial role and status) and the economy, it has limited use within a discussion of coinage and identity.

Whereas Roman banking is largely archaeologically invisible, there are several surviving documents, including the 'Corpus Juris Civilis' of Justinian, which portray Roman banks as private operations with the primary function of money changing, providing small change for everyday transactions and providing precious metal coinage for high level exchange and, more importantly, the payment of taxes (Justinian AD529-534). The role, motivation, and status of bankers and moneychangers, and their relationship with the army and civic authorities, is intriguing yet involved discussion would unfortunately be largely speculative.

My research has identified only one significant contemporary expression of the understanding of (and relationship with) coinage and money in the Roman period. Contained within a treatise on siege weaponry written by a civil servant stationed on the Danube (De Rebus Bellicis cAD337-395) are some extraordinary insights into an individual's understanding of coinage in the fourth or fifth century (Reece 2002), particularly that the purpose of coins is 'emendi et vendendi utilitias', for buying and selling. However, the author also expresses the belief that money started with gilded leather discs, and complains that there are too many plated copies of gold coins in circulation, suggesting that mint workers should be kept on secluded islands (believing forgeries were the out-of-hours product of the official mints) and that the state was wasting money in official hand-outs (not understanding that these hand-outs formed the backbone of army pay). The thoughts captured in De Rebus Bellicis highlight how an understanding is from the perspective of the individual, shaped by their knowledge and experience - if the author did not fully understand coins and army pay, it is perhaps unrealistic to expect a widespread understanding of these issues within Roman Britain.

Roman coins are a form of historical document in their own right, and often convey historical information, from a change of emperor to an event such as the 'Constantinopolis' issues of Constantine I (AD330-335) marking the shift of the imperial seat from Rome. Although often seen as interesting extras to written histories, coins are themselves primary historical sources. As historical documents, coins can be used independent of other sources if needed, such as when exploring events and periods for which no written histories survive. Casey (1986, pp39-40) highlighted the historical value of coins in this way for the reign of Antoninus Pius, where Nike/Victory coin issues are likely to be the only surviving documents of a military event. As with all historical sources, however, this does not entail that the information they convey is necessarily true. When found in 2003, coins (figure 9) have become the only surviving evidence for the reign of the previously unknown third century usurper, Domitianus II (Leins 2004, pp76-79).

Figure 9. *Coin Of Domitianus II (From Lein 2004, p77).*

There has been criticism of the artificial division in studying the historical past through separate disciplines, focusing on either objects or texts (Laurence 2004, pp99-113). Sauer (2004, pp10-11) stated that without historical texts a discussion of the Roman period would lack even the terms 'Roman' and 'Empire'. Coinage highlights how fragile the divide between object and text really is, as coins are both an archaeological aspect of material culture, and a form of historical text (referring, for example, to both 'Roman' and 'Empire'). Archaeology and numismatics are comprised of data analysis and pattern seeking, as well as interpretation and analogy, and these seeming extremes are simply distinct stages of a complete study (Carver 2002, p488). It is entirely natural,

therefore, to match a theoretical and conceptual consideration of coinage with an analysis of numismatic data (the concepts explored will aid interpretation and shape research questions).

Coins are both object and document, and a method of study based on an ideology of separate disciplines is not suited to a balanced assessment of coinage and identity. Coins need to be understood not only as historical texts, but also as literary texts. Just as the divide between archaeology and history (or objects and documents) is artificial, there is also no meaningful divide between literary texts and historical documents. A literary text does not cease to be literature if it contains a useful historical reference, and a historical document is seldom free from expression, artifice, or literary devices.

Considering coins as a form of literary text creates the potential for a concept of 'coin literacy', linked to the messages communicated by coins, requiring knowledge and experience to recognise and interpret the words and images that constitute the coins 'textuality'. It is artificial to separate words and images – and inaccurate to see the words as 'elite' (requiring Latin literacy) and the images as 'accessible', as both require similar social, political and religious knowledge and experience to decipher and interpret. In structural linguistics, both the words and images on a coin can be seen as signs, with a similar sign-to-signified relationship. However, there is a more fundamental reading and interpretation process, and a more fundamental level of understanding - understanding the role and use of coins as money, and within systems of monetary exchange (taxation, wages, buying and selling). This includes notions of trust, required in order to accept a token coin with a lower intrinsic value than its nominal value within exchange, an understanding of the inter-relation of various denominations and the related roles and functions of coins, and criteria by which coins would be accepted or refused, based on their form and appearance (with a refusal to accept obvious counterfeits, clipped precious metal coinage, coins that are no longer legal tender, and perhaps scruffy contemporary copies and coins of rebels and usurpers). This understanding has potential, therefore, for variation (from individual to individual, or region to region) and is dependant on context.

Coins In The Archaeological Record:

Roman coins are a relatively common archaeological find. The most obvious source of data is perhaps through coin finds published following archaeological excavation. Coins are found singularly or within groups, and can be within stratified layers of activity. Coins recorded through excavation are primarily from urban or military sites (e.g. Reece 1972, p73; 1995, p183; Walton 2002, p28). There are issues with site find data, including failings in excavation, recording and publication leading to coins unfound or unpublished. There is also a growing dataset formed from coins recorded through the PAS, predominantly found by amateur metal detecting. Whilst typically unstratified, and affected by issues in reporting and recording, these records are often linked to geographical data (and an associated wealth of information about other finds from the area). In contrast to archaeological site finds, PAS data is primarily rural (Lewis 2009, p279; Walton 2012, p69). With over 130,000 dated Roman coins recorded at the time of my data export (28th October 2013), recorded in a single database and under a single classification scheme, the PAS is a rich and growing dataset, easily accessible as a digital resource.

For the most part, coin finds represent accidental loss in areas where coins were used. The exception to this is where coins are found as hoards, loosely defined as coins that were deliberately hidden or buried. They are a useful tool to study what coins were available, although this is complicated by the roles of the user in the composition of the hoard. Coin hoards are linked to identity (such as the Arras hoard, Reece 1999, p141) and could represent savings (selecting only the 'better' coins for retention); others show political motivations (such as legitimist hoards during the rule of usurpers). Hoards are a problematic source of data, linked to instability, coinage reform, de-monetisation and disposal.

Whilst it seems relatively safe to discuss a correlation between coin-loss and coin-use, any observations resulting from data analysis are based on the relationship between ancient coin-loss and modern coin recovery and publication, which is obviously more problematic. The factors affecting coin-loss relate to the coin, the coin-user, the coin-use, and the context. As we know from coin-use and coin-loss today, the denomination, value, and size of the coin, and its 'worth' to

the user, all affect how likely a coin was to be dropped (and once lost, how likely it was to remain un-recovered). Different types of site, or areas within the site, would also have a significant effect (e.g. Reece 2002) - a coin dropped into a drain or between floorboards is harder to recover than one dropped onto a mosaic floor. The data within the archaeological record is formed perhaps as much by factors of archaeological recovery as it is by how the objects were used in the past.

There are two broad types of problem facing numismatic data. The first is the misuse of coin data, or a failure to exploit their potential. This includes an inappropriate use of data stemming from a fundamental lack of understanding of coinage, and a tendency for coins to be utilised purely as a source of dating evidence for sites and stratigraphy (e.g. Lockyear 2007; 2012). The second form of problem is through a lack of standardisation in classification and a failure to adequately publish coin finds, in part due to the lack of understanding, and their use as dating evidence (Brickstock 2004; Lockyear 2007).

Unlike other categories of archaeological find, coins are relatively easy to quantify. Roman coins are relatively sturdy, and unlike ceramics and animal bone, they are not often found broken or fragmentary. If quantification is to be seen as relatively simple, identification poses a more significant problem. For well-preserved and genuine coins identification can be relatively simple, and a catalogue number - such as a Roman Imperial Coinage (R.I.C.) identification number - can usually be assigned. However, most site finds are not 'well preserved', and a large proportion of Roman coins found in Britain are also not official issues (e.g. Brickstock 1987). A means of utilising the poorly preserved coins, where only basic identification is possible, is by recording the coin within a broader 'issue' period. Perhaps the most popular such issue period summary is the 21-stage system devised by Reece (e.g. 2002) but there is also a range of alternative systems in use (Lockyear 2007, p212). However, this lack of standardisation presents an obstacle for study; the nature of coin summaries means that data cannot be converted or compared from one system to another without recourse to the full (often unpublished) catalogues for reclassification. Some reports have full catalogues, but some only feature summary lists, and there is frequently over abbreviated and missing detail due to misguided attempts at space saving, making further analysis and future study difficult (Brickstock 2004). The current lack of

standardisation with both cataloguing and analysis represents a significant problem for coin study, as it is impossible to compare data summarised into different summary schemes (Lockyear 2007, p212).

There has been a trend for site reports to identify and catalogue only those coin finds that have an important role in dating stratigraphies and phases within a site. Hammerson (2002, p233) noted that only 15% of the excavated coins from the Southwalk excavations had been cleaned for identification, with others only identified through x-ray imaging (a time and money saving method, which may have significantly affected the quality of the published data). Lockyear (2007, p216) has called for site reports to publish full catalogues, identify all coins found as far as is possible, and for the creation of a standardised data scheme as a repository for all coin data from excavations. This would be ideal for wide ranging research, but seems unlikely to become a reality due to the expense, and the likelihood of agreement over standardisation.

There are complications with coinage itself, which need to be understood to make use of the data. 'Coin-loss' implies an assumption that there was an accidental loss rather than a deliberate deposition. Although they are an interesting aspect of coinage within Roman Britain worthy of special attention, copies can cause significant problems within numismatic study and the use of coin data from site reports. A copy is problematic when considering an issue date, it will lack the clarity of the products of the official mints. Although it is suggested that copies were kept up-to-date with official issues (Brickstock 1987, p42), the only certainty is that a copy cannot predate the official issue on which it is based. The range of 'coin issue period' classifications do not all treat copies equally. Rather than allowing a flexibility to accommodate copies, the lack of standardisation between summaries based on coin issue periods causes further difficulty. In some systems (such as Reece) copies are defined within the issue periods of the genuine coins they are based upon, whereas other systems (such as Casey 1994) classify copies within their own categories. Aside from the requirement of specialist knowledge, any conversion between summaries requires accessing full catalogues, a time consuming hurdle for research.

A more fundamental issue, however, is a lack of consistency of the identification of copies. Some examples, such as the lower quality 'barbarous radiates' of the third century, are relatively simple to differentiate from official issues. However, there are also a significant number of 'good quality' copies, with the very best only identifiable as non-official issues as a result of metallurgic analysis (for example, some copies produced in the period AD330-348 are now known to be copies as a result of metallurgic analysis) and it is unknown how many coins identified as official issues might prove to be copies given scientific analysis (Lockyear 2007, p212). Each coin identifier will have a different opinion of which coins are copies and which are official issues, with this opinion changing through experience.

As with samian ware (Biddulph 2005, pp191-193) the use-life or status of a coin is not fixed, but based on context. As has been discussed (chapter 2.4), if a coin is not used as money, the end of its use-life is no longer tied to the period in which it is legal tender. There are a variety of techniques utilised to judge the use-life of coins found, including the statistical analysis of coins by weight, calculating the weight of metal they have lost, through repeated use (Duncan-Jones 1994; Hoyer 2013). However, the condition of a coin as it is found (or recorded), is the product of its object biography. The simplest possible 'biography' for a recorded coin would be as shown in figure 10 below.

Motivation for Coin Production

>Coin Design

>Coin Production

>Coin Supply

>Coin-Use

>Coin Loss or Deposition

>Post Loss/Deposition Conditions

>Coin Recovery

>Post Excavation Processing, Recording and Publication

Figure 10. *The Object Biography of a Recorded Coin.*

There is potential for substantial variation in each of the stages above. For most base metal coins, therefore, assessment of coin-use through wear analysis (and similar techniques) is too complex and impractical for a project such as this.

2.6: Summary (the Role of Coinage?)

'What was the role of coinage?' seems to be a simple question, with potentially complex answers. However the question itself is complex, and hides a myriad of smaller but problematic sub-questions. Are we asking 'what was the role of coins?' or 'what was the role of money?' Even if you firmly believe that coins were produced as money, with the intention that they were to be used as money, it must still be considered that once issued a coin could pass into a non-coin using area, or reach someone who re-purposes the coin as something other than money.

Discussing the role of coinage could be asking 'what were coins produced to do?' (in other words, what was the intention or motivation behind the production and supply of coinage by the central imperial authority). In my opinion, and from my perspective of interest, this is a relatively unimportant question unless we are examining and interpreting the actions of the state. This loss of control by the issuing authority is vital – coin-use is determined ultimately by the user, rather than the producer. This is complex, as there can be more than one motivation - coins could be produced for a variety of purposes, not mutually exclusive and with potential for each act of coin production to have differing motives. Motivation for coin production does not need to be logical or rational, coins could be produced for the wrong reasons, or produced simply through tradition without thought to deeper issues. It seems relatively safe to suggest that - with the state relatively disinterested in base metal coinage compared to gold and silver (Brickstock 1987, 2000 p34) - the main motivating factors of the state when producing coins were army pay and taxation. We also know that coins conveyed state messages (or propaganda), and that the act of producing coinage was a form of monumentality. Producing coins could bring profit from recalling older 'better' coins for their metal content, or could allow worn coinage to be renewed, or the coins of predecessors, rivals and usurpers to be taken out of circulation.

Alternatively, considering the role of coinage could be to ask 'what were coins used for?' - if so, we need to clarify 'when', 'where', and 'by whom'. We have seen that coins were used for many purposes, such as jewellery or charms, thrown into water as part of a social or religious ritual, and collected together and buried. It is important to clarify whether the notion of 'role' or 'function' refers to the intended use as perceived by the producer, or the use to which the object is put by its users. There are many possible uses of coins that are largely archaeologically invisible, or at least difficult to interpret or reliant on assumptions.

I feel, however, that when the question of the role of coins is raised, it usually means 'why did the state produce coins, why were they supplied certain people and places, how were they used, and how did their supply and use affect their distribution in the archaeological record?' This is an incredibly complex series of issues, encompassing methods and levels of army pay, the disposition and distribution of the army, political stability or instability, peace or conflict, expansion or invasion of the empire, civil war and schism, trade and exchange, production and supply of goods, transport and communication networks, fashions and tastes, prosperity and wealth, good or bad harvests, exchange networks, coin production, metal value and scarcity, numbers of coins in circulation, distribution of coinage, uses and needs for coins, and motivations for coin production.

In a user-oriented focus, however, the question we really need to ask is 'what did coins mean?' (with the implied sub questions 'where?' 'when?' and 'to whom?'). My only possible answer to the role of coins (from 'what was the motivation or intention for producing coins?' to 'what were coins used for?') is simply that the production and use of coins was variable, changeable, negotiable and contextual. Considering the purpose of coins belongs to top-down production oriented approaches, and is much less relevant to a consideration of coin-users and coin experience. We can assess a painting in terms of the chemical composition of the paints (and the production and distribution of these materials), the developments in artistic styles and techniques preceding the work, and the locations and people depicted. Alternatively we can consider the meaning of the painting, the emotions it triggers, and what it inspires in the imagination. These two extremes are both entirely valid, and combine to create a rich and balanced understanding - but they are two different perspectives from which to explore,

research and examine a painting.

There are many different viable motivations for producing coins, just as there are many different uses of coins. Each different instance of issuing coins may have had a different blend of motivations (taxation, army pay, and to facilitate buying-and-selling seem to have been primary, with low-level transactions in Britain not seemingly a priority until the third century). There were other significant potential motivations for issuing coins. It seems highly unlikely that propaganda (or the transmission of state messages and ideology) could explain the quantity and frequency of coins issued. However, I feel that the propaganda/ideology aspect of coinage was a genuine factor in coin issuing - the replacement of usurpers coins, and the attempts to keep contemporary copies in line with current issues, attest to this.

After issuing coins, the producer loses effective control of how they are used - the motivations for issuing coins, and their intended role, is not the same as how coins were put to use. The discussion of what coins were used for is even wider and more varied than the motivations for their issue. Taxation, wages, and buying-and-selling would seem to encompass most coin-use, but we can also see ritual deposition, re-purposing (as jewellery and charms, for example), hoarding, clipping, and the use of coins to produce forgeries and contemporary copies.

Summary:

Coins have been under-used and misused in archaeology, but numismatics has set concepts that are based on producer rather than the user - that are relatively inflexible, understanding coins from a specific perspective. My methodology for analysing coins, coin-use, and identity will be based on three main objectives:

- a user focus, rather than producer focus - bottom-up not top-down
- coin-use rather than the 'role of coins'
- flexibility, adaptability rather than assumptions and rigid definitions

To achieve this, I will borrow and adapt concepts from disciplines and theory where the user focus is a well-established concept:

- philosophy (Kantian ontology) to consider the duality of object and idea (coins and money) and introduce the context of structuralism and phenomenology
- structural linguistics and language - not simply via the typical discussion of sign and signified, but by considering the underlying structures of language that define and facilitate the use of words
- phenomenology to consider the conscious experience of the coin-user, with properties of the coins 'as experienced' rather than 'as produced'
- literary theory to consider the complex relationship between reader, text, and author (or user, coin, and producer)

Chapter Three:

A Multidisciplinary Theoretical Consideration

of Coinage, Coin-Use and Identity

A Multidisciplinary Theoretical Consideration of Coinage, Coin-Use and Identity

Kantian Duality: Coins as Object and Idea… Structuralism and Structural Linguistics – Coinage as Language… Reader and Author – The Intentional Fallacy… Style, De-Familiarisation, and Art as Technique… Phenomenology and Conscious Experience… Theoretical Conclusions

Although I hope to explore coins and coin-use through a multidisciplinary combination of archaeology, philosophy, linguistics and literary-theory, I do not mean to suggest that archaeology and numismatics developed within an intellectual vacuum. In many ways, archaeology can be seen not as a distinct discipline, but as a perspective or frame of interest (specifically, the material remains of the human past) to which we apply numerous specialist approaches, shaped and informed by an array of disciplines. Archaeology has its own ideas, developments and theory, but much of the framework of the discipline is borrowed and adapted. When considering the theoretical issues underpinning coins and coin-use, I feel it would be inflexible and limiting to use exclusively 'archaeological' theory. Instead the key issues can be explored most effectively through the perspectives of literary theory, linguistics and philosophy. As such, terms such as structuralism and post-structuralist refer to the wider original concepts from philosophy and literary theory, rather than the theoretical positions within archaeological thought. Some of these theories are well established within archaeology, whilst others might not have previously been applied to archaeological discussion - I believe that there are always new uses for old theories, especially when applying them to new questions.

3.1: Kantian Duality - Coins as Object and Idea

The oldest theory to be considered is also the most fundamental, despite being largely absent from most numismatic discussion. Immanuel Kant (1781) described a duality between 'phenomena' and 'noumena', objects as the 'things per se' which cannot be directly experienced by people, and these objects as they are experienced and interpreted through the senses and consciousness. Any

consideration of coins will be riddled with dualities (coins and money, issuer and user, monetary and non-monetary), but the most fundamental is this central ontological dualism of 'object' and 'idea'.

Ontological Metaphysics might not appear immediately relevant to archaeology, numismatics, or discussions of identity. The two broad means to resolve ontological dualism are through structuralism (exploring systems and structures) and through phenomenology (exploring sensory and conscious experience), both of which are of obvious interest to a study of coins and identity, considering the underlying systems that allow coin-use, and the conscious experience of the coin-user. The crux of the issue, however, lies with the duality we negotiate when attempting to relate material culture to identity. This is particularly evident in coinage, where on one hand we have coins as material objects and on the other we have concepts of trust and understanding that allow coin-use, and the interpretation of the messages and ideologies that a coin conveys.

A coin is a relatively simple *object*, whereas money is a remarkably complex *idea*. It is possible to have a coin that is not money. As has been discussed (chapter 2.4), when a coin is de-monetised it continues to be a coin even after it ceases to be money. Defining a coin's usage-life by the time it ceased to be legal tender is meaningless if the coin was used for a non-monetary role, and there is potential for a coin to be used as money even after it has been de-monetised, due to the flexible and pragmatic nature of money and coin-use (illustrated by the use of contemporary copies within the late Roman period in Britain).

When considering money, or monetary and market economies, it is also important to accept that money does not necessarily mean coinage. As well as the obvious potential for barter, there are systems of credit, bills of exchange, and cheques that can fulfil the same role. The concept of money is inherently flexible; in economic terms, money is simply a medium for exchange, a means for storing wealth, a measure of value and a standard for payment. Money and coinage can function within systems other than a market economy, with diverse roles within social exchange and interaction (e.g. Hodder 1979). Even if coinage is present, a monetised economy and monetary exchange can only occur where the necessary

underlying systems are present, creating potential for overlapping economic spheres and boundaries (e.g. Davies 1992). When crossing such boundaries, coins can change in their meaning and usage as local economies and social groups may function differently, even where the same goods are used and the same coins are present.

3.2: Structuralism and Structural Linguistics - Coinage as Language

The semiotics of Peirce (1931) and Saussure (1915) are by no means new to archaeology, and have been influential in discussions of structure, meaning, and style (including the structural anthropology of Levi-Strauss, 1958). Within linguistic theory, structural linguistics has largely been supplanted by newer theories such as cognitive linguistics and generative grammar. However, semiology is particularly useful in understanding coins, as coin-use is reliant on underlying systems and structures (and there are potentially new ways to apply the theories and concepts).

Peirce's early structural theories, the transmission of meaning through signs, divided into the Icon, the Index, and the Symbol, still provide interesting ideas applicable to coinage (1931, p306).

- The 'icon' resembles that which it represents. The imperial portraits on early Roman coins are a likeness of the emperor (figures 2 and 3, chapter 2.2). Resemblance, however, is subjective and contextual, requiring knowledge and understanding (few coin-users would have seen the emperor in person, although some would have seen his likeness on sculptures and other coins).

- The 'index' utilises a feature that correlates with that which it represents, through implication. The feature must be experienced, and the correlation understood, in order to understand the index. For example, experience of Roman soldiers in person would aid understanding of the soldiers depicted on the Gloria Exercitas 'Soldiers with Standard(s)' issue of the fourth century.

- The ‘symbol’ has an entirely arbitrary connection to that which it represents, dictated through social convention.

This allows for a person to understand ‘denarius’, without having experience of a denarius coin (through association with concepts of ‘silver’, ‘coin’, value in exchange, etc), although it is debatable whether this is a true understanding. The potentially arbitrary correlation of sign and meaning allows for flexibility and variation in both the meaning and use of coinage, without a variation in the coinage itself.

Saussure’s semiology (1915) explores how underlying systems allow expressions to have meaning. These ‘expressions’ could be anything from spoken words or choices of clothing, to the design of coins or the act of using coins. A key aspect of semiology is the division between 'langue' (language) and 'parole' (speech); the underlying systems and conventions of a language, and the utterances or speech acts within a language. Any language, spoken or written, can be seen as a system of signs where the ‘sign’ is the basic unit of meaning. The sign is comprised of the signifier (the ‘word image’, spoken or written) and the signified (the ‘mental concept’), although these two elements are separable only analytically. The division is not between the ‘word’ and the ‘real object’, but between the word as it is spoken or written, and the concept it is connected to.

As with Peirce’s ‘symbol’, within semiotics the sign is arbitrary. At the level of the signifier, Saussure states that there is no necessary connection linking the ‘word image’ and the ‘mental concept’; any word shape or phonetic sound could have been used to refer to a given concept, with the link a matter of convention. The context of the underlying system is what prevents arbitrariness descending into chaos and dysfunction. More complex is the notion of the arbitrary nature of the signified, the mental concept, which has a much deeper consequence. Language, for Saussure, is not a simple naming process. Through the ontological dualism of object and idea, there are no ‘actual things’ that have a meaningful external existence, available to be taken and paired with words.

It seems evident that different languages use different signifiers, but it can also be observed that different languages have different ways of dividing up the

world, by using different signifieds. Both the choice of the words and divisions used to define individual colours is arbitrary. Different languages, therefore, cut up the world in different ways, and those belonging to different language groups can in fact have different ways of understanding the world. Saussure's system of language is also a system of differentiation and difference. Within the colour spectrum, an individual colour has no meaning without relation to others on the spectrum. However, structuralism within literary theory does not entail the dichotomies and dualities found in structural anthropology (e.g. Levi Strauss 1958) and the post-processual structuralist theories of archaeologists such as Hodder (e.g. 1990, with field and house, mediated by the boundary). Language for Saussure is far more complex than binary oppositions. The 'signs' within semiology could not have any real meaning without the underlying system by which they are differentiated and defined.

A key problem for semiology lies with its limited focus. Saussure stated that the langue (the underlying structures of language) rather than the parole (the utterances of language) were the correct focus for study. Saussure also made the distinction between the 'synchronic' and 'diachronic' aspects of language; the structure of language at a given moment, and the history of a language with changes through time. Saussure stated that it was only the synchronic aspect of the langue that was to be the correct focus of study for semiology. Studying only structures, and not objects, and refusing to consider history and change, is obviously prohibitive for the application of semiology to archaeology.

However, Saussure's ideas can be remarkably useful on a number of levels (as illustrated by figure 11). Semiology outlines a system that allows signs to have meaning, and defines how the world is understood in terms of concepts. These tools are particularly well suited to coinage. The interplay between signifier and signified, or coins and the meaning of coins, is the parole (speech act) of coin-use.

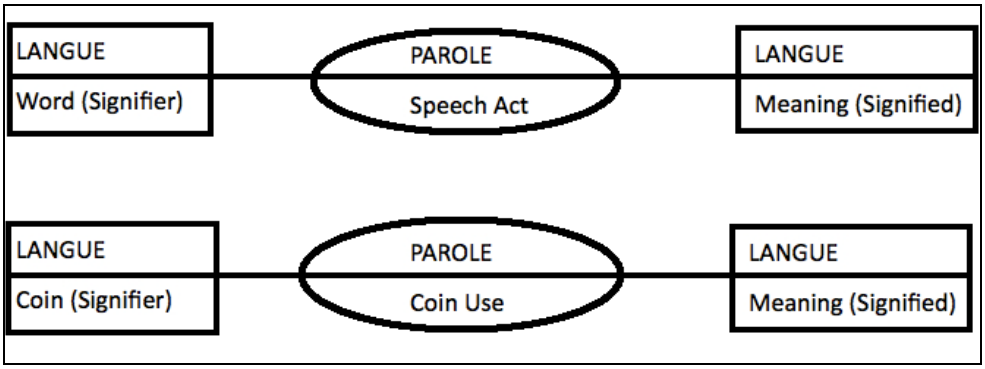


Figure 11. *A Semiotic Model of Coin-Use (a semiotic model of language, top, with the model applied to coinage and coin-use, below).*

Coin-use is only partly shaped by the coins themselves (their form and distribution) – it is also shaped by understanding and meaning, which is determined by identity. Coin-use can be seen as the interplay between the coinage, and the underlying systems of trust, integration and understanding. The concept of meaning through differentiation is also easy to relate to coinage, such as denominations having meaning by their differentiation and relation to other denominations. The availability of coins could therefore shape their meaning.

The semiotics of both Peirce (1931) and Saussure (1915) also show how signs and systems can be partly arbitrary. If a different language can cut up the world and understand it in a different way, then surely the same can be true for different structures of understanding relating to material culture, particularly coinage. These different 'languages', There does not need to have been just one coin system across the Roman world (with a single 'romanised' means of understanding coins and coin-use) - instead there could be variation in the underlying system or structure between regions, or between subsets of society. If we accept Saussure's notion that a language system defines how people understand the world, this allows for a complex cultural exchange and interplay. Understanding and integration into coin-use in Roman Britain is not, therefore, a simple top-down process of romanisation.

The partially arbitrary nature of sign and system allows for variation and interpretation, and the degree of arbitrariness means that context is vital for meaning. For Saussure (1915) this context was the system (the langue), but in my

understanding of coinage, I feel that this context must be coin-use (the parole). Contrary to Saussure's focus on a fixed form of the structure, I feel that it is variation, flexibility, and change that allow for a meaningful consideration of the coin experience. Rather than targeting the underlying structures that enable coinage to function, instead I feel that it is the utterance, the experience and engagement of coin-use, which can provide the most rewarding focus for study. I do not mean to claim that a consideration of 'why coins were produced, and what they were for' is not as important as 'how were coins and what did they mean to those using them'. The two areas of discussion are two fundamentally different questions. Of the two, however, I feel that the latter stands to gain more from a multidisciplinary theoretical consideration.

From semiology and structural linguistics, we can equate coins and coin-use with language, where coins are the words, and coin-use is the speech act, with underlying systems defining and facilitating coins and coin-use. Structures do not have to mean typologies, as with Leroi Gourhan (1964), and they do not need to be static and inflexible, despite Sassure's focus. From language we know that different words (and therefore objects, such as coins) can hold the same meaning within different systems, as different signs can map to the same fundamental idea (the 'signified') within different languages. More importantly, we also know that words, or coins, can have different meanings within different systems, despite having with the same form. The distribution of coins can only be understood, from the perspective of the coin-user, through an attempt to understand the meaning the coins had. If similar coins existed in two areas, we need to consider whether there were similar underlying systems giving the coins a similar meaning and a similar use. Furthermore, we can see that words or coins can move from one system to another, without changing in form, and (dependant on the underlying systems) can either retain the same meaning, or take on a different meaning. There is potential for plurality, creolisation, flexibility, and change, despite Saussure's (1915) focus on the static and single.

Davies (1992) used coinage evidence to highlight the potential for the co-existence of coin-using and non coin-using systems within Roman Britain, whilst attempting to explain the high number of British hoards of cAD259-287. Hoards of the Tetrici (Tetricus I and his son Tetricus II, figure 12) are found in greater

quantities than those of any other emperors. Davies suggested that this was a product of the gradual spread of coin-use, creating overlapping spheres of use, with close parallels to the technological spheres of use within Bronze Age Britain - where a coin passes from a coin-using group to a non coin-using group, the coin loses its monetary role and becomes a commodity which is hoarded rather than used. Exchange across tribal boundaries lacks the underlying tribal bonds of trust and kinship, so may be facilitated by a commonly valued commodity. Beyond highlighting the continuation of Iron Age tribal networks within Roman Britain, Davies argued that the distribution of hoards at the boundaries between romanised and tribal economic spheres maps the spread of adoption of coin-use first in the South, and later in the North.

Figure 12. *Coins of the Tetrici.*

However, there are a number of potential explanations for hoards (as discussed in chapter 2.4 and 2.5). Hoards are a problematic source of data, and it must be assumed that un-recovered hoards are atypical, with the failure to recover biased towards periods of instability (e.g. Crawford 1969, pp76-81) coinage reform (e.g. Mattingley 1963), disposal of de-monetised coinage (Reece 1981; 2002, p76) or differential and non-monetary use (e.g. Davies 1992). 'Hoards' of low quality

contemporary copies are most likely disposals of de-monetised coinage, rather than true hoards (Reece 2002, pp75-77). Davies' model discounts political unrest and de-monetisation as factors in the Tetrici hoards. However, I feel that a consideration of political instability (with the break of Britain from Rome as part of the short-lived Gallic Empire), and the enforcement of major coinage reforms of Diocletian and Aurelian, would provide simpler explanations, and most likely would have played at least a part in the process.

The movement of coins from romanised monetary economies to non-monetary areas of tribal exchange, with coins hoarded where they crossed social and economic boundaries, can also be seen as a form of cultural bricolage (Levi Strauss 1962; Derrida 1966). The act of re-purposing an object can give it new meaning, objects can cross social and cultural boundaries whilst surviving in form but not in meaning, and the act of re-purposing can be merely practical or deliberately subversive. Non-monetary coin-use, therefore, can also be seen as a form of cultural bricolage. Levi Strauss (1962) defined cultural bricolage as the process by which available materials are reused rather than the idealised 'engineer' thinking from an intended goal to the means to achieve it. Derrida (1966), however, claimed that all discourse is a form of cultural bricolage, as any discourse will borrow from the 'text' of heritage.

3.3: Reader and Author - The Intentional Fallacy

Marxist Theory:

Closely related to semiology and structural linguistics is Marxist theory; both Saussure (1915) and Marx argued that observable phenomena were made possible, and given meaning by, underlying systems and structures. Where Saussure focused on linguistic structures, Marx focused on systems of social and economic interaction (Rice and Waugh 1998, p6). With a focus on the transmission and imposition of ideology, Marxism is most obviously useful as a means to consider coins as messages, both coinage itself, and the text and images incorporated on coins. The most obvious Marxist approach to coinage is to consider coins in terms of the transmission of messages - who produced the coins,

and whom they were produced for. The presence of coins (and integration into the underlying systems that facilitate coin-use) shapes possibilities, both economic and social. For a Marxist approach, therefore, some of the most pressing questions regard who the coins are designed and distributed by, and who the coins intended for.

Within the Marxist theory of language, Voloshinov (1973) argued that 'whenever a sign is present, ideology is present too' - no sign system is ideologically neutral, regardless of intention. Saussure's semiology shows how sign systems define how the world is viewed. If signs define reality, and there is control of the sign, then there is a degree of control on how those within the system view the world. Voloshinov also felt that the divide between the signifier and signified is artificial, and that the 'parole' is given context within a sentence, just as individuals are given context within a community. However, I feel that this is simply further evidence of the limitations of Saussure's focus on structures, rather than the speech act itself (and the context of the speech act), particularly when considering coins and coin-use.

Whilst most traditional Marxist literary theory is based on structure, Althusser (1969) proposed a concept of ideology that broke from traditional Marxism with implications that move Marxist interpretations of literature away from a structuralist model. Althusser proposed that ideology is not 'conscious beliefs' or 'false consciousness' imposed on individuals. Instead, ideology is the representation of imagined conceptions of actual social relations. As well as being imposed by the state, ideology can be reproduced and imposed through 'Ideological State Apparatuses', such as the family, the media, and religion, with a specific sub-category of cultural 'ISA' including literature, outside of formal state control but transmitting the values of the state. Althusser also suggested that ideology should be considered in material terms, rather than as ideas; rather than considering ideologies in the minds of individuals we should examine ideology through actions and behaviour.

The dominant ideology thesis (developed within sociology, influenced by the work of Marx and Engels) suggests that each society has a dominant ideology. Transmitting this ideology (such as through the distribution of coins, or the text

and images on coins) can suppress alternative ideologies, inhibiting dissent, or regionality. However, it has been argued (e.g. Abercrombie and Turner 1978) that this model is potentially less valid within the ancient (pre-capitalist) world. More importantly, whilst the dominant ideology thesis focuses on the transmission by the state to the lower-class majority:

- the lower classes are not incorporated within the dominant ideology
- the apparatus of ideological transmission is not typically efficient
- the apparatus of ideological transmission is typically targeted at the dominant classes

(After Abercrombie, Hill, and Turner 1980)

These critiques fit uncannily well with coinage in Roman Britain. Before cAD260, coins were not available in significant numbers outside of the elite centres (such as towns and military sites, e.g. Reece 1991). Before cAD260, low-value coinage was not present in Britain, with no coins suitable for low-level transactions. Before cAD260, the ideological messages (and potential 'romanising effects' of coin designs) were therefore potentially targeted towards - and experienced by - the elites, military, and those already romanised and incorporated within the Roman system. From AD260 onwards, however, the coinage is experienced by the lower classes, and those on the fringes of Roman systems. This is not to suggest that higher value denominations were for the elites, and lower value denominations were for the lower classes - instead the various denominations and values of coins fulfilled distinct roles (taxation, wages, savings, high-level transactions, low-level transactions, small change, etc) - but different social groups would have differential interaction with these forms of coin-use, and therefore a differential interaction with the coins.

The production of copies in the third and fourth centuries is particularly interesting in this light - the apparatus on poorer copies is obviously not particularly efficient (chapter 2.2 and figure 6), but low-value base metal copies seem to be aimed at the (lower-class) majority, potentially to meet the needs of this majority. The identity of the producers of these copies - and their investment in a 'Roman', communal, or regional identity - is also significant. The production of copies of current issues to deal with shortages - with a number of means to deal

with a shortage of low-value coinage, the course of action consistently taken is that which retains the current state ideological message.

Reader Theory:

In stark contrast to a traditional Marxist focus on the issuer, and the transmission of messages by the state, is the Post-Structuralist development of reader theory. The role of the reader has become increasingly prominent in modern literary theory. An extreme form of reader theory was proposed by Stanley Fish (1976), with the concept of 'interpretive communities' sharing traits and practices. In this approach the community determines interpretation rather than the properties of an object. Identity, through shared knowledge and experience, is the central factor in interpretation (at odds with most structuralist, Marxist and functionalist approaches). The most famous example of reader theory, however, is Roland Barthes' influential article 'The Death of the Author' (1967). Barthes argued that when a text is discussed in terms of the author, with a single interpretation, this incorrectly imposes a limit on the text. A literary work has many potential interpretations, as it has many potential readers, and as a result its interpretation and meaning is from its destination, rather than its origin.

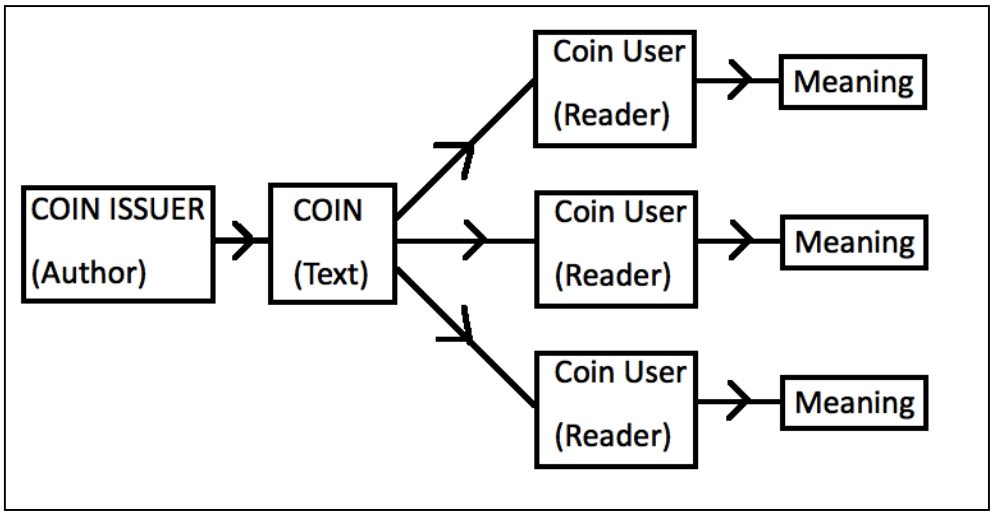


Figure 13. *Relationship Between Issuer, User, and Coin Meaning.*

Interpretation and meaning is through the coin-user's experience and reading of the coin, shaped by context and 'identity' (as illustrated by figure 13).

The development of this idea within post-structuralist thought leads to a questioning of the notion of a single identity for an individual. Whilst this concept has been key for much of feminist and queer theory, it is also particularly relevant to the concept of identity in the Roman world (with potential multiple identities - social, ethnic, political, provincial and regional). The notion that an author's intent is irrelevant, developed both in post-structuralist thought and in the American 'New Criticism' ("the design or intention of the author is neither available nor desirable as a standard for judging the success of a work of literary art." Wimsatt and Beardsley, 'The Intentional Fallacy', 1954, p1) is a divisive concept, both within literary theory and when considering the implications for interpreting coinage and identity. It would seem counter intuitive to study coinage and identity without an attempt to understand the intended role of coins, and the nature of the state producing them. What is obvious, however, is that the control is effectively lost by the issuer once coins are distributed. What coins were for, and what they were supposed to mean, is not as important to a study of identity as how they were used, and what they meant to the groups using them.

Discussion within archaeology has illustrated that notions such as function and status are not fixed, but dependant on context and identity - Biddulph (2005, pp191-193), for example, has illustrated how the status of samian ware (or terra sigillata) is dictated through its context and use. The text and the author dominate traditional numismatics, but a user-focus allows a consideration of identity, and the process by which intended function and meaning are flexible, contextual, and subvert-able. Developing a user-orientated approach moves from a focus on the intended function and meaning of coins, to a consideration of how coins were used and understood by the coin-user.

3.4: Style, De-familiarisation, and Art as Technique

Coin Production:

The physical process of manufacturing coins is an aspect of coinage that is often underplayed, but justifies explicit discussion within coinage. The ‘quality’ of coins produced has often been noted, with portraits for some issues often referred

to as crude, or other issues said to improve the quality of the designs or lettering. However, such discussion is largely an aesthetic consideration (yet we still encounter loaded terms such as 'barbarous' when discussing third century copies).

The design is only one aspect of production, and neglects the significant processes involved in producing a blank ready to be struck. Coin data I have observed (e.g. coins within the PAS database) sometimes notes an 'ill shaped flan', or an 'inadequate flan' (too small to receive the full struck design), but a meaningful consideration requires a more in-depth consideration of the process by which blanks were manufactured. There would have been a number of viable coin manufacturing techniques to produce the blanks, onto which the designs would be struck, such as fusing, casting, or over-striking. Coins are usually struck onto a well-polished blank, as polishing after striking would wear away detail before it has started to circulate - although some copies and forgeries were not actually struck, but cast in a mould (Peter Northover pers comms. 2011).

A copy that appears crude in design, but is smooth and well-polished, will have been produced in a way that required a well-made die (mechanically rather than artistically), and a well-prepared blank. From a manufacturing perspective, the design can be seen as the easiest part of the process. A 'crude' copy, therefore, does not have to be seen as simply the result of limitations in technical capability and skill, but instead potentially as a result of manufacturing choice. The die axis (typically a rotation at '6-o-clock' or '12-o-clock,' along the x-axis or y-axis, for the reverse design to orientate with the obverse design) is far more variable on copies (and some official issues). This is another aspect of choice, occurring at the time of striking.

As with the manufacture of lithic tools (Leroi-Gourhan 1964; Sellet 1993) the production process for a coin is in effect a 'chaîne opératoire' or 'operation sequence', a series of technological and ideological choices. These choices become most marked when the process in question is the production of a copy of an official coin, with decisions to be made regarding the size, metal content, die quality and construction, blank quality and production method; the process is far more complex than simply creating a design based on a prototype.

For Lemonnier (2002), the technological choice is the adoption or rejection of technological innovations by a society, for social and cultural reasons rather than due to the strengths or weaknesses of the technological development. There is remarkably little change or variation in the production of official issues, (notable counter examples include counter-marking, re-striking, or cutting down old issues to create new blanks), but a more varied approach applied to copies and forgeries (such as casting from moulds rather than striking). The 'reverse engineered' chaîne opératoire has been criticised as a means to consider the production process. Ingold suggests we move away from the focus on 'static' finished objects, and instead consider the 'fluid' forward movement of 'making' (Ingold 2010, pp91-102). Ingold's 'textility', combining agency and materiality, allows for 'iterative' creation, exact replications as seen in official coin issues (practically identical, aside from minor die variations and differing mint-marks etc) and 'itinerative creation, with similar but variable products, as seen in copy production (with a range of sizes and degrees of deterioration of the design and text). Copies, therefore, can be seen as a completely different 'type' of creation and process, with different technological choices (on multiple levels) and an itinerative rather than iterative approach.

From my observation of the copies recorded via the PAS database, there appears to have been no single methodology for copying, with variety in size and quality, and designs ranging from near perfect clones to those simplified to abstraction (figure 6). A 'good' copy might be indistinguishable from the genuine issue, whereas a 'poor' copy may be difficult to relate to any official design. Genuine choices seem to have been made when producing copies, beyond aspects such as 'size' and 'accuracy', and we cannot neglect the potential significance of decisions made to retain aspects of a design, or to lose them. These choices are difficult to interpret, possibly related to technological difficulty, literacy, and design choice. Variation in copies produced may have been due to numerous factors, from the context of the manufacturing process to motivations underpinning production, with potential for differentiation between regions and issue periods.

Coins and Style:

To attempt a discussion of the design and form of coins separate from their role and use is somewhat artificial. Wobst (1977, p321) insisted that "Style is a formal variability in material culture related to the role of objects in the exchange of information" - there is no dichotomy between 'style' and 'function.' The style or design of coins is not passive, but an active function, transmitting messages of cultural identity and affiliation. Weissner (1983) proposed that there are two broad forms of style. 'Assertive style' is personal, a formal variation that conveys information about a personal identity, which would seem to have little relation with coins (with possible counter examples including the coinage of Carausius, discussed below). 'Emblemic style', a formal variation that transmits information regarding communal identity seems to relate to the majority of Roman coinage; the identity is 'Roman' but this again raises the question of who the message was for (those already firmly part of the cultural identity, or those on the edges).

Sackett's (1985) additional 'isochrestic' notion of style, however, is also clearly applicable to coinage. Contrary to the suggestion that coins are "the most deliberate" symbol of public identity (Howgego 2005, pV), 'isochrestic style' allows for coin designs that do not intentionally or consciously communicate cultural identity. The symbols and images chosen for coin designs, at times, may be purely a consequence of tradition. Whilst this is not the case for all Roman coins many of the more generic designs featuring gods and personifications (figure 1, chapter 2.2) could potentially be isochrestic in style. Certainly some aspects of coin design – such as the obverse and reverse, the imperial portrait in profile, the configuration of image and text (with text around the perimeter of the coin) – seem to have become standardised relatively quickly, with a potential for a design that (whilst ideologically and politically loaded) was in fact passive and unintended.

With 'isochrestic' style (Sackett 1985) we have seen the potential for transmitted messages to be unconscious or unintended on the part of the coin-issuer. Placing the focus on the reader raises the possibility for a non-conscious interaction with coins, for coin-users to not consciously experience the messages on the coins.

Defamiliarisation:

There is a wealth of applicable theories that can help facilitate the development of a reader (coin-user) orientated focus, many which have previously had little or no influence within archaeology or numismatics. One such overlooked theory is Victor Shklovsky's (1917) concept of 'defamiliarisation' (ostranenie, or 'making strange'). Shklovsky suggested that what differentiates a literary text from any other text is that the literary language and devices defamiliarise, or make strange, making the reader aware rather than mere automated perception. The literary device actually draws attention to the artifice of a literary text, and the result is that the reader fully experiences the messages and ideas.

"If we start to examine the general laws of perception, we see that as perception becomes habitual, it becomes automatic" (Shklovsky 1917 in Rice and Waugh 1998, p17).

Whether holding a pen, or speaking a new language, the sensation is heightened and unusual the first time, but unremarkable and unconscious the ten thousandth time. The concept, therefore, is applicable to both the experience of using coins, and the observation of the ideological messages contained on the coins. With increased coin-use, the use of coinage becomes more automatic and ingrained, but the process is also less noticed and the potential for conscious interaction with the messages on coins is decreased. For Shklovsky (1917) literature is also relational, rather than an absolute, and it will change over time as literary devices are limited in how long they can 'make strange' (although an old device can be brought back once it is again strange).

Through Shklovsky's (1917) defamiliarisation we can consider how coins function as literary texts, rather than interpreting what the messages on coins mean, and how the messages are transmitted and received. On the surface Shklovsky's theories might seem tenuous, but in practice 'de-familiarisation' can be seen as a key part of any individual's everyday interactions. I have observed that most people today have not actively noticed the words and images on coins they use regularly, as the coins are only habitually and automatically perceived. I have also observed that most people when asked struggle to recall the text on current

coins, and fail to correctly recall the direction the Queen's portrait faces (usually guessing 'left' as on a postage stamp, an object that is actually seen less often, shown in figure 14).

Figure 14. *Pound Coin and First Class Stamp*

In order for something to be actively perceived, it must be 'made strange', which can be achieved through devices and artifice. I would not necessarily suggest that the issuers of Roman coins practiced a knowing literary artifice, attempting to 'make strange' through literary devices in order to ensure the message on coins were received. In fact, for much of the Roman coinage in Britain, the message and symbols are remarkably repetitive and standardised. Where there has been discussion of the individual consideration of the political aspects of coinage (such as a deliberate avoidance of usurpers coinage in 'legitimist' hoards, e.g. Williams 2004, pp57-59), the metal content and precious metal purity, and the 'quality' of coins, the concept of de-familiarisation does add a dimension to 'unusual' coinage (such as that of Carausius, e.g. Williams 2004), with new and unusual messages and images 'making strange'.

It seems evident that the design and textuality of coinage could have been most actively perceived at times when the style or message of coinage changed, or for people to whom coins and their messages were relatively new and unusual. I feel, however, that there should be little doubt that passive experience is still adequate for the transmission and reinforcement of ideologies (as with the ideological state apparatus of Althusser, 1969). We must also keep an awareness of our bias as part of a coin using culture, where coins have been used for centuries

and are ubiquitous at every level of society. In Roman Britain coinage was relatively new and certainly not ubiquitous for the most part, so although some of the state messages, signs and symbols were well established, coinage itself could be seen as 'de-familiar'.

3.5: Phenomenology and Conscious Experience

The 'reading process' of the coin-user is also a phenomenological process; we must consider not just the text but also the means by which the coin-user experiences the text. This has been discussed within Literary Theory for literary texts (such as Iser 1974, p274). For coins, however, the physical aspects of the coin itself (especially with copies) form the overwhelming part of the phenomenological experience of coin-use.

Phenomenology was developed by Husserl (1936) in the early twentieth century, as a conceptual framework to resolve the Kantian dualism of the 'phenomenal' and 'noumenal' worlds. Husserl's phenomenology distinguishes between the 'noesis', the acts of thought, and the 'noema', the objects of thought. Like many of the theories discussed here, phenomenology is the study of structures, in this case the structures of consciousness and experience, and a duality of consciousness and the phenomena that are experienced through consciousness. By considering the subjectivity of conscious experience, there is a focus on the individual, and on identity.

Within the field of phenomenological theory, the works of Maurice Merleu-Ponty (e.g. 1964) are perhaps the most vital today. Rather than following a classical Cartesian dualism of body and mind, within Merleu-Ponty's phenomenology the consciousness, the body, and the world are interconnected. Perception is key in our understanding and interaction with the world; the body, rather than the mind, is what makes us subjective, by its 'communing with the senses'. This inherent subjectivity does not prevent or limit our experience of the world but defines and establishes it.

Phenomenology is by no means new to archaeology. Christopher Tilley (1994) argued that descriptions (such as maps) were not sufficient to allow an understanding of the relationship between people and landscape - this requires a consideration of the senses (including sights, sounds and smells). As a result Tilley encouraged archaeologists to visit sites where possible in order to gain a fuller sense of context. A discussion how coins (or any aspect of material culture) relate to identity - without a consideration of the link between the individual and the world, and the nature of experience - would seem to be empty and lacking. Coin data, and traditional numismatic and archaeological uses of coin finds, is usually divorced from considerations of the experience of a coin, such as its smell or feel. The appearance of a coin is usually discussed in terms of the quality and themes of the art, design and aesthetics, and is not emotive or sensory, ignoring even simple concepts such as whether the coin was 'dull' or 'shiny'. To overcome this requires an integrated consideration of materiality, and the interplay between materiality, function and structure, perception and experience.

Through the consciousness of an individual, the subjectivity of experience, and the shared 'lifeworld' (Husserl's 'Lebenswelt', 1936) we have a potent conception of identity and of the individual related to material objects, and the means to discuss and explore through theoretical, psychological, anthropological and archaeological means. Our experience of an object is based on identity - in this context we can understand identity as a combination of understanding, prior experiences, the senses, and the context of the experience. These identities can be individual, or shared communal identities based on shared understandings of coinage, shared experiences of coins, and shared contexts of coins and coin-use.

The context by which we understand coins today has changed greatly from the Roman period - most adults in Britain are now regular coin-users, using and experiencing innumerable coins, with coins made with remarkable consistency and standardisation, and with centuries of coin-use in our national history. As archaeologists or numismatists we are aware, from prior experience as well as identification guides and catalogues, what to expect to see in the coin's image and text, in a way that is divorced from the usual experiences and understandings of coin-use. We must be wary, therefore, of making basic assumptions regarding how coins were experienced in Roman Britain. If we

consider the sensory aspects of the coin-using experience through phenomenology, we need to consider the context and experience of the Roman period - this could include basic practical details such as how small, how worn and how tarnished a coin might be, and the ability to see details on a coin without glasses or magnification, modern lighting (relying on sunlight or the light of an oil lamp, candles, etc.). There is potential to consider changes in coins issued, and variation in coins between regions, through phenomenology and materiality. We also have the potential to examine the contemporary copies within the late Roman period in terms of the differential experience between interaction and use of a copy compared to an official issue, considering relative sizes, weights, materials, and differences in the appearance and design and text.

3.6: Theoretical Conclusions

The key issues raised by the multidisciplinary theoretical exploration of coins, coin-use, and identity in Roman Britain are:

1. The fundamental duality of object and idea, and the duality of coins (objects) and money (ideas). Coins are objects, whereas money (and other forms of coin-use) is the idea.

2. Coin-use is facilitated and determined by underlying systems. These systems link object to idea. The underlying systems of coin-use are comparable to the underlying systems of language, as defined through structural linguistics. Whilst Saussure (1917) focused on static style systems, we can see that language is flexible, changeable, negotiable and contextual, with potential for plurality and creolisation.

3. A concentration on the user's experience with coins, and the relationship between identity and coinage from a user-perspective, must focus primarily on the relationship between reader (coin-user) and text (coins). Production and supply are still relevant, but secondary – identity and interpretation is the key link between coins and coin-users. (The message element of coins is not simply 'propaganda', as this suggests the motives and intention of

the issuing authority, whereas the transmission and interpretation of messages on coins is clearly a complex two-way relationship).

4. Whilst production, and production choices, determine the form and appearance of coins, there is potential for non-conscious experience of coins, just as there is potential for non-deliberate design. Experience and interaction is complex and contextual, and we cannot assume that aspects of coin, particularly coin design and 'messages', would have been noticed and engaged with.

5. We cannot make assumptions regarding engagement, which is a complex process of conscious experience (from object to interpretation, via context, the senses, and identity).

OBJECT > SENSES > IDENTITY > INTERPRETATION

Physical properties of coins, although set by production, are experienced via the senses and interpreted via identity.

A focus on the coin-user, rather than on production and supply, is not to forget the importance of production and supply. Production provides the coins to be produced, and production choices determine the physical form and appearance of the coins that were present to be used and experienced. Supply is also vital, as coins need to be present in order to be experienced - with most official coin production from mints outside of Britain, coins must be sent by the state (as wages and pay, or to renew and replenish the coinage) or the coins may enter a region or social sphere through systems of trade and exchange. Coin-use is the final part of this process, as the use of coins is what leads to the distribution of coins (moving through systems of trade, exchange, money changing, wages and taxation) and the use of coins is also what leads to coins being lost or (or deposited, through hoards or ritual activity) and entering the archaeological record to be recovered, forming the dataset we have available to assess.

Systems approaches and structuralism are often considered to exclude the individual. However, structuralism (and deterministic-systems such as structural linguistics) is in no way incompatible with the individual. Where systems such as

language facilitate and define the meaning and use of words or objects, there is still room for flexibility, identity, and the individual. I see no reason not to understand coinage in terms of structural linguistics, with underlying systems defining and facilitating coin-use, whilst also understanding the coin experience in terms of phenomenology and the conscious experience of the individual.

The relationship between coins and users, considered from a user-focused perspective, is complex.

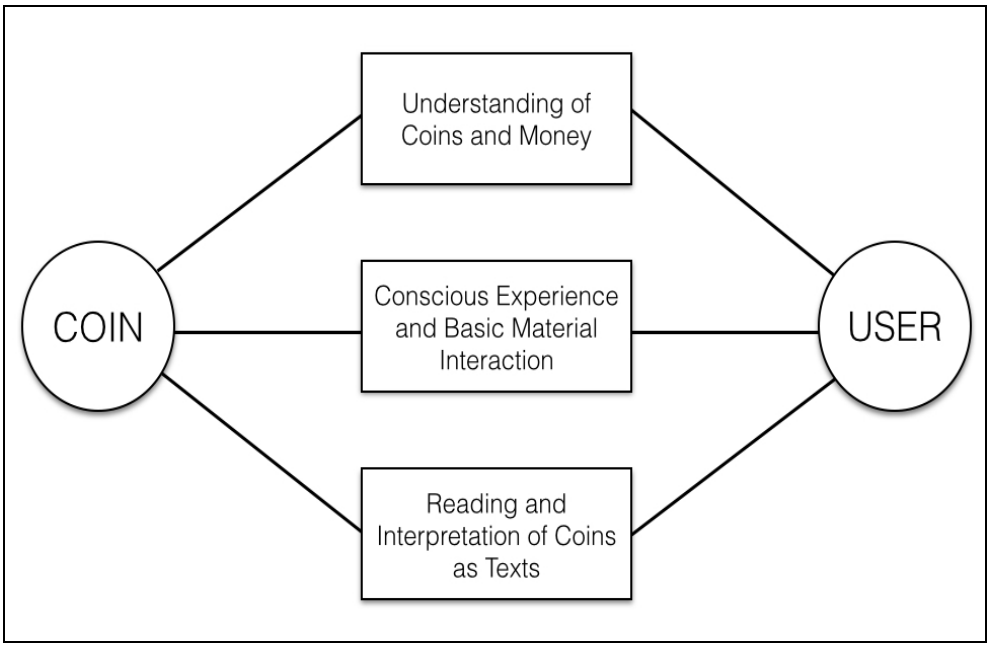


Figure 15. *The Relationship Between Coins and Identity.*

Each of these relationships is a two-way interaction between coin and coin-user, a negotiation between the properties of the coin and the identity of the user. The relationships between coin and user do not exist in isolation, whilst they can be discussed and understood individually, they are fundamentally interconnected and overlapping. The conscious experience of coins is not completely separate from the understanding of coins and money, as integration into underlying systems of coin-use is part of an individual or communal identity and experience. The interpretation of images and text on a coin is not completely separate from materiality and basic conscious experience, as the size, weight, and texture of a coin are a fundamental part of the sensory interaction, whilst physical properties

such as metal content can be part of both the sensory experience and the coin's message and meaning.

If this project were a philosophy or literary theory essay, it would be appropriate to end at this stage, after concluding with a discussion of the concepts raised. This research, with a focus primarily on theoretical discussion, could have been completed without data, just as it could have been carried out within a Philosophy or English Literature department. I have already answered my main research question, through an application of literary theory, linguistics and philosophy to the issue of how coins relate to identity, specifically within Roman Britain (illustrated in figure 15 above). However, as this is a multidisciplinary research project incorporating archaeology as its core, it would be regrettable not to attempt to utilise the numismatic data available for testing and analysis. A theoretical and conceptual discussion of coins, coin-use and identity within Roman Britain is by no means incompatible with data analysis and quantification. The challenge is in deciding how the concepts can be applied to data in a meaningful way. The potential for practical application and development of these ideas, as useful avenues of investigating within numismatics and archaeology, can only be assessed by the development and review of progressive means to question and assess numismatic data.

Breaking from traditional issues of production and supply in the distribution of coinage, a new approach must consider how to meaningfully engage with numismatic data to explore the following key issues:

- The phenomenological conscious experience of coins, focused on the coin-user and materiality. De-familiarisation shows it is wrong to always assume 'reading' of images. We should not ignore other physical properties of coins that may have had a major role to play in their use and experience.

- Working towards a means of defining copies, by determining what properties of coins identifies them as copies, from a coin-user (rather than production) perspective.

- Utilising a user-focused notion of 'copies' to explore coin experience by quantifying potential regional differentiation in the proportions of copies to official coins, and potential regional differentiation in the materiality and conscious experience of those copies used and experienced.

- Potential methods by which to move away from production focused typologies, moving closer to user experience and interpretation - whilst working with properties of design determined by production, and with data categorised and defined by issue and production phases.

Chapter Four:

Methodology

Methodology

From Theory to Data… Numismatic Data Analysis… From Data to Methodologies… Methodology – Coin Diameter… Methodology – Copies… Methodology – Reverse Types

4.1: From Theory To Data

Recent publications (e.g. Lockyear 2007; Kemmers and Myrburg 2011) have stressed the need for an integration of coinage data with other archaeological data, and for numismatics to be reintegrated into a wider discourse. My theoretical consideration, I feel, presents many possibilities to integrate numismatics within a wider multidisciplinary discourse. The ability to incorporate numismatic data within this discourse, however, is vital.

The multidisciplinary consideration of coins, coin-use, and identity can hopefully inform and shape new perspectives by which to question numismatic data, leading to alternative forms of analysis. The theoretical concepts (discussed in chapter 3) produced several key issues applicable to how we can approach coin data:

- A coin is not money. Money is a combination of the coin as an object, together with an idea or understanding of the object, allowing a specific use of that object. This is not a new concept, but seems easily forgotten.

- The meaning of coins, how they are understood, and how they are interacted with and used, is dependant on individual understanding of underlying systems that facilitate and define coin-use. The underlying systems of coin-use can be seen as similar to language. The same coin can be understood differently, and used differently, without any change in its form. Coinage and coin-use is flexible, adaptable and contextual.

- Just as there is a potential for an object to be produced without any deliberate intention to communicate a message, an object or text can be observed without a conscious interaction. People can use coins without interacting with their text, imagery and messages - we cannot assume that the design on a coin would have been read and interpreted.

- Coins are physical objects. Whilst we cannot assume that a coin-user would interact and engage with the images and text on a coin, the experience of coin-use is essentially a sensory and physical interaction with a material object, shaped by a complex combination of the mind and the senses, prior experiences, and identity. Shared experiences create shared (or cultural) identities.

Traditional numismatics is focused heavily on production and supply, rather than use and interpretation. Too much is assumed in regard to coin experience - we have little grounds to presume that people would have noticed aspects of the design, but not variations in size. In fact, our modern coin-use and coin experience suggests the opposite can be the case (when shown a Roman sesterius or dupondius, most people usually observe and remark on their relatively large size and weight above any aspects of the image and text). Whereas archaeology is not averse to the concept of passive design, there is a much larger role for passive experience, such as through defamililiarisation (chapter 3.4). The size, shape, feel, weight and smell of a coin are all part of the interpretation and experience process, although this is easy to forget when our typologies are largely based on production of coin issues rather than the appearance or design of the coins. The text and images of different coin issues can be stylistically and ideological similar, but given distinct typologies based on production and issuing activity. There are also typologies where stylistically or ideologically different variations are combined as a single 'type' (such as whether or not a standard or flag depicts a Chi Rho).

Coin Size:

We can begin to quantify and understand what was experienced by assessing and quantifying the physical properties of the coins that were used, such

as the basic notion of coin size (by diameter). Coin diameter has the benefit of being relatively well recorded, easily understood and quantifiable. Size is a simple aspect of coinage; it seems undeniable that coin-users would have experienced different coin sizes, and the data shows that coins of a wide range of sizes were produced and used. If there are patterns of variation in coin sizes, this is a potential start of a basic new perspective by which to understand coin experience. If different regions experienced different types of coins, as differentiated by simple physical criteria, we will be able to assess part of the conscious experience, and potential shared experience, and therefore we will have access to 'identity' in a small but meaningful way. Traditional approaches would interpret and explore these patterns through a consideration of supply, differential supply (of issues and denominations), and differential production and use of copies. This approach is valid, but not the aim here. I feel that variation in the size of coins between regions, if present, would have the potential to be considered in greater depth, theoretically and analytically, to better understand the link between coin size and coin experience.

Copies:

An assessment of the size of coins also forms a basis from which to explore copies, with size a key part of what differentiates contemporary copies from official coins. In this perspective, we must define a copy through user-experienced criteria, a mixture of relatively small size compared to official issues, and a relative crudity of design. The first aspect of copies that can be assessed is working from a user-focused definition of copies to assess a potential regional variation, in terms of potentially significant differential ratios of copies to official coins in use (and therefore potential differential experience, interpretation, and meaning).

The second aspect of exploring copies via numismatic data is the potential to consider what a 'copy' actually meant to the coin-users, through analysis of the nature, and variation, in how copies can be identified within numismatic data, when using the user-focus approach outlined above. This is possibly the most important and meaningful perspective by which to apply a user-focus to numismatic data testing - establishing a user-focused meaningful concept of the contemporary copy, and assessing how copies relate to experience and interaction.

There is significant potential for further investigation and interpretation, addressing the impact of the use of a copy (of smaller size and/or increased crudity of image and text) compared to the use of a genuine coin, both through materiality and conscious experience, and in terms of message and interpretation (with the coin as a 'text').

Reverse Types:

For the coinage of the fourth century, both phases of issue and phases of production are defined by changes in the design and text of reverse types (discussed in chapter 2.2), rather than changes in imperial personnel. These reverse types depict a series of imperial messages or ideologies. Coin design, image and text are a result of production, and variation in the message or ideological content of coins between regions is effected by coin supply, however, the meaning of the messages (or designs, images and text) is decided by interpretation and identity. This is a complex process, and not well suited to exploration via numismatic quantification. However, we can attempt to create a picture of the coins in use by considering them as texts, and attempt to move away from production-issue dominated typological distinctions, and move towards distinctions closer to the experience of the user. I feel that it would beneficial, therefore, to consider differential supply within the perspective of user experience, and a differentiation in the 'textuality' of coins.

4.2: Numismatic Data Analysis

Coin data analysis falls into several broad categories. There are basic coin histograms, plotting coins by period found at a site or as part of a hoard, still used within site reports today, and there are also a range of more sophisticated comparative techniques comparing cumulative coin-loss to an average coin-loss profile, as developed by Richard Reece (1995). Whilst having no significant concerns with Reece's comparative methods, Lockyear (2007, pp215-218) has highlighted the potential for the use of more advanced techniques. There is scope for numismatics to learn from techniques employed by other fields of archaeology, by employing methods widely used for other artefact types but rarely applied to

coin data. Pottery studies, such as Pitts (2005), have made use of cluster and correspondence analysis, which has an established role within the field of statistical pattern recognition. Another technique that has potential is the integration of GIS data, allowing spatial analysis of a site, and between sites (as employed by Guest, in Holbrook 1998) for the coin data from Cirencester. However, sometimes it is the simplest methods of analysis that can prove the most effective, where their use is appropriate, such as Reece's early four-stage coinage system (e.g. Reece 1972) developed before his 21-stage summary. A multidisciplinary assessment of coinage and identity is perhaps best served, initially, by utilising simple methods (together with statistical and theoretical analysis) rather than through utilising established numismatic techniques.

Given the scope and constraints of this research, and my non-numismatic background, it would be unfeasible to attempt the type of methodological approach of Reece (1974; 1991 etc.) or Walton (2012), but I can attempt to provide an overview, and a basis to assess future potential. The role of data analysis here is an attempt to marry the theoretical ideas raised through my multidisciplinary consideration of coinage to the archaeological data, to assess the strengths and potential of the concepts beyond conceptual and theoretical discussion.

PAS Data:

As discussed (chapter 2.5) the PAS database represents a large, readily available and easily accessible dataset. All Roman coins recorded are directly comparable, and are recorded with a consistent format (including Reece issue periods, regions and issue/reverse types). To use the numismatic data within the PAS database requires an awareness of its limitations and biases - PAS numismatic data, and data collected from metal detecting finds, has its own set of issues. The British Museum have issued advice for utilising the PAS database as a tool for archaeological research, including a discussion of some of the problems and biases inherent in the dataset. These biases can be categorised as the geographical collection bias, the reporting bias, and the recording (or identification) bias.

The Geographical Collection Bias: A current PAS research project (previously piloted for Hampshire, Northamptonshire, and the Isle of Wight) may transform PAS data use in the future; this type of research is new, with no real parallel applied to site finds.

"...there is an urgent need to understand in greater detail the factors that influence the spatial distribution of finds data from the PAS (PAS) and the relationship between modern collection practices, artefact types, and space" (British Museum 2013).

This bias is not well understood, but collection affected by: The space available for metal detecting and field walking (depending on current land use, ownership, and attitudes towards detecting), the popularity of metal detecting and field walking in an area (number of detectors, frequency of detecting, and the area covered), and the methods and goals of detecting (such as equipment and techniques used, or the targeting of certain find types).

The Reporting Bias: This is a well known but unquantified phenomenon, hard to relate to a regional level. Some finders are unwilling to report finds to the PAS (for various reasons, political, practical, or misguided). Also, some finders only report 'better', or more 'interesting' finds (a subjective notion). Smaller copies, and copies with cruder designs, are often dismissively referred to as 'grots' within metal detecting. Although there have been concerted efforts by the PAS to ensure finders report all coin finds, regardless of 'quality', this potential bias within the data set could affect assessment of diameter (smaller coins potentially under recorded), copies (coins with cruder designs potentially under recorded), and reverse types (with common reverse types potentially underrepresented). Furthermore, a tendency to not clean the coins, unless they are seen as particularly good or interesting, makes identification more difficult. However, as has been discussed, this is also a problem with many site finds (not just objects found through metal detecting and recorded by the PAS). Similarly, over aggressive cleaning may lead to a loss of information available from the coin.

Figure 16. *PAS Biases (Adapted from the British Museum Website, 2013)*

The Recording or Identification Bias: This bias is through the potential for recording and identification by different people, at different times, under different circumstances, with different levels of time, training, knowledge, interest, and resources. As with most coin publication, the PAS give more time and focus to rare coins, with less time and focus spent on common coins. There are extensive notes added by finds specialists to rare and interesting coins recorded, not matched with an effort to capture simple data such as diameters for 'lesser' coins, or to find and correct data entry errors in the 'lesser' coin records. Different research questions have different data requirements, and for my research the rare coins are relatively unimportant as they are not a significant part of the coinage in use.

Figure 16. *PAS Biases (Adapted from the British Museum Website, 2013)*

Despite these issues and biases, the PAS database still represents an excellent resource. There is potentially less of a collection bias than is inherent with site finds, whilst site finds also have a similar reporting and recording bias (with a focus on interesting coins or those used to date stratigraphy, and a failure to clean, record and publish in detail less important coins). The PAS is now an established data source for research (e.g. Walton 2012) despite these biases. The PAS database is a unified resource covering England and Wales, whereas site find publications have difficulties in compatibility, with coins recorded using different (often incompatible) systems. The Reece classification system also has the benefit of facilitating the study of copies, by classifying copies within the same issue period as their prototype official issues. Benefits also include ease of access, standardisation of terminology, and a dataset that is expanding and improving constantly.

4.3: From Data to Methodologies

Using Reece Periods, Targeting Copying Epidemics:

An analysis of contemporary copies can combine the elements of user-focus, coins as texts, materiality and conscious experience. Coin copies also provide the greatest potential for differential experience, with the widest variation in the materiality and textuality of coins. The periods of the mass copying epidemics (e.g. Brickstock 1987), centred on the AD260s, 270s, 330s and 340s. Assessing the numismatic data from Reece periods 13, 14 and 17 can capture these periods.

Reece Period 13: AD260-275 (Gallienus sole reign to Aurelian)
Reece Period 14: AD275-296 (Tacitus to Allectus)
Reece Period 17: AD330-348 (Constantinian II)

Figure 17. *Reece Period 13, 14 and 17 Date Ranges.*

This also has the benefit of looking at the data at the start of the spread of widespread coin-use. With a pattern for the adoption of widespread coin-use from AD260 onwards already well established, I feel that it is sensible to focus my analysis on coin data from this date onwards. From AD260 onwards, coins became available in greater quantities and are seen in much greater frequencies outside of towns and military sites. An analysis of identity from AD260 onwards may give a broader picture of regional variation affecting the wider populace, rather than focused on the urban and military elites. Reece periods 13, 14 and 17 have some of the highest number of coins recorded in the PAS dataset (periods 13 and 14 being the highest). Focusing on these periods also avoids complications arising from long coin-use issue periods of the pre-radiate Denarius system (Reece A), focusing on Reece broad stages B, C, and D (the radiate period and the fourth century).

Coins Not Hoards:

With the aim of considering the broadest form of coin experience, only coin finds (representing accidental loss) rather than hoards (resulting from deliberate deposition – either disposal or failure to recover, as discussed in chapter 2.5) will be analysed. The PAS dataset records coin finds (object type 'COIN') distinct from hoards (object type 'COIN HOARD').

Base Metal Coins:

My analysis will focus only on the base metal coinage, as these represent widespread coin-use (whilst interaction with gold and silver coinage for the rural and lower-class majority within Roman Britain would have been limited). Silvered coinage (copper alloy coins with a degree of silver content) are included within my definition of base metal coinage due to the complex and debatable question of relative denominations and silver content in coins of the late Roman period. Focusing on base metal coins provides the largest and simplest dataset for comparison, and removes the need to compare between relative quantities, distribution, size ranges, differential use and users (distribution of denominations is a well established traditional means of numismatic enquiry, it does have a role to play in considerations of identity and coin-use, but outside of the scope of this project).

Regions:

I will assess regional variation in greater resolution than a simple North-South divide, by analysing data for consistency and variation using each region within England, classified by the PAS dataset as: North East, North West, Yorkshire and The Humber, South East and London, South West, East, East Midlands, West Midlands. Data from Scotland is not captured by the PAS, while the data from Wales largely comprised Peter Guest and Nick Wells resource 'Iron Age and Roman Coins of Wales', unfortunately does not include data for diameters (Guest and Wells 2004).

Acquiring and Processing Data:

I have used the Roman numismatic data available on the PAS database, exported on 28th October 2013. The export used researcher access but with all potentially sensitive information removed (including finder, findspot, and recorder). An export of all 'Published' and 'Awaiting Validation' produces a dataset as follows:

Total results available: 191,146

Search statistics

- Total quantity: 211,865
- Mean quantity: 1.108
- Standard deviation: 2.669
- Maximum quantity (one record): 700
- Minimum quantity (one record): 1
- Sum of squares: 1596575

Figure 18. *Roman Coins (PAS) - Published and Awaiting Validation.*

As the data requires substantial processing, checking and correction, I have attempted to apply a pragmatic means to reduce quantity of data. Reducing the dataset to just 'Published' records gives:

Total results available: 90,715

Search statistics

- Total quantity: 96,007
- Mean quantity: 1.058
- Standard deviation: 1.364
- Maximum quantity (one record): 271
- Minimum quantity (one record): 1
- Sum of squares: 270461

Figure 19. *Roman Coins (PAS) – Published.*

One of the issues with PAS data, requiring a substantial investment of time to correct, are single entries with multiple coins listed. From figures 18 and 19 above, we can see that mean number of coins detailed per record is 1.16 (1.158) for 'awaiting validation' records, compared to 1.06 (1.058) for 'published' records (with a maximum number of coins recorded per record 700 for records 'awaiting validation', compared to a relatively low 271 for 'published' records).

This is a crude sample tool, reducing the quantity of data that requires processing and checking before data testing. However, the use of 'published' data only introduces a level of bias, that in hindsight is un-necessary. 'Published' data has a potential tendency to be 'interesting' 'rare' or 'unusual' finds, and therefore atypical rather than representative. The data quality of 'published' finds is not ostensibly 'better' than 'awaiting validation' (records have remained awaiting validation due to a lack of time and resources, rather than due to issues with the data itself). In future (if I had the time and resources to process and cleanse a larger dataset) I would use the combined data from both 'published' and 'awaiting validation' workflow stage data, only omitting 'quarantine' and 'review' workflow stages.

Data was exported to csv files using an advanced numismatic search (filtered by Object Type = Coin, Broad Period = Roman, Workstage = Published) individually for each Reece period. This data was then processed, initially by removing many of the unnecessary and/or sensitive fields (by retaining the find reference within my dataset, these fields could be easily re-accessed by revisiting the PAS database):

Creator, Institution, Old Find ID, Finder, Discovery method, Note, Image DIR, Subsequent action term, SMR Ref, Other Ref, MUSACCNO, File Name, TID, Current location, Reason Term, Grid Source, Region Name, Culture Name, CCI Number, From Date, To Date, Period From Name, Period to Name, Sub Period From, Sub Period To, Date Found 1, Date Found 2, Known As, Classification, Object Type, Work Flow, Grid Ref, Type Term, Category Term, Tribe Name, Geography, Length, Height, Width, Sub classification, broadperiod, moneyerName, fourFigure, easting, northing, latitude, longitude, created, and updated.

Figure 20. *Fields Removed Following PAS Data Export.*

There are a number of issues with the PAS data that needed to be addressed before analysis; multiple coin entries within a single record, missing diameter field entries, missing reverse type entries, and potential hoard coins recorded incorrectly and entering this dataset.

Hoards: The data export for the object type of 'COIN' in theory will exclude data from hoards, where the object type is 'COIN HOARD'. However, due to the potential for errors in data entry and the ease of checking the data, a simple check seemed prudent. A text search for 'hoard', and a cursory assessment of the accompanying notes, allows coins that were part of a hoard to be removed.

Diameter: Not all coins are round, occasionally they are recorded with widest and narrowest measurements for coins with an 'oval' flan. In these cases I have used the largest measurement as the diameter. Some coins are fragments and it is not possible to record a diameter (it would be meaningless to use measurements from a broken coin where it does not represent the actual diameter of the coin). Incorrect diameter data entry has been remedied where possible. Diameters below 3mm with no thickness recorded (and no reference to size in the description or notes fields) have been deemed untrustworthy and discarded. Entries with a small (c. 1mm) diameter with a larger (over 2mm) thickness have been interchanged, assuming these fields have been reversed as a data entry error.

Missing Diameters: Missing diameters are frequently to be found within the description field, and not entered within the diameter field due to poor data entry, and these fields can be populated manually. Other missing diameters unfortunately represent information that was not captured, and in most cases this is now lost forever. Sometimes the failure to capture is due to difficult recording conditions (such as metal detecting rallies), sometimes due to a lack of standardisation between recorders (some recorders in Norfolk, for example, seem to have been guilty of routinely not capturing diameters for coins). Recent work by the PAS, and by Sam Moorhead in particular, has lead to a greater resolution of recording of Roman coins, which has a great potential for the future.

Reverse Types: Missing reverse types, for the fourth century issues, need to be manually entered (using the correct PAS terminology) using the description field where possible, where data is missing as a result of poor data entry. Where data is missing due to the poor condition of the coin, or a failure by the recorder to adequately describe the coin, this data again is unfortunately lost forever. Happily, such cases are the exception, and again the work of the PAS and Sam Moorhead should hopefully reduce future instances.

Multiple entries: Records entered with a quantity greater than one are to be split into individual records (with the id suffixed with a sequential letter to prevent data analysis issues) wherever the data is contained within the description for each coin. There are a small number of records with more than one coin, but entered with a quantity of '1'. Finding and eradicating these would be too time intensive as it involves manually reading each description field, of which there are thousands per Reece period. The effect of the analysis should, however, be minimal as it merely means a small number of coins lost from the total dataset.

In order to analyse the data by region, a new column/field was added and region data manually entered, calculated by county (see appendix iii). Wikipedia was used as a reference in verifying the regions, and the membership of each county to a region (the only differentiation being the inclusion of London within the South East Region, from a practical standpoint and following previous PAS convention). A number of records lack a county entry, but the county and region have been identifiable (such as from the parish field) and I have populated these fields. A small number of records lack county, district and parish, data and have been deleted from my dataset.

Analysis will focus only on the base metal coinage - the denomination field of PAS data is somewhat confused, especially for the radiate period coinage (as might be expected) but a simple filter can be used to remove 'Solidus', 'Aureus', 'Denarius', 'Siliqua', and 'Miliarensis' to create a subset of the data that only contains base metal coinage.

The resulting dataset will be stored as a locked spreadsheet, with copies to be manipulated for each test (see accompanying data CD). Data will be imported into the SPSS statistics software for testing (effectively forming a database using the ID field as the primary key), with tables containing the Reece period, reverse type, region, county, and diameter data. Storing the files as a database for future study would be inappropriate – it would be best to obtain a fresh data export from the PAS database, as there will be more data, and improved data quality, that should be easier to utilise with the understanding and data processing steps developed here.

4.4: Methodology - Coin Diameter

Assessing the mean diameters of coins, and potential regional variation:

From phenomenology (materiality and conscious experience) and defamiliarisation (the possibility for non-engagement with the coin, its design and text) there is a need to develop alternative means to assess regional variation in coin distribution - not by issue or reverse type, but via simple observable material properties. We cannot make the assumption that coin-users experienced and interacted with coin design (image and text). Considering coin experience can start with diameter, the simplest observable material property of coins diameter, quantifiable and frequently recorded.

Question: is there a regional variation in mean coin diameter, and therefore a quantifiable regional differentiation in the basic materiality of coins?
Means to Test: calculation of mean coin diameters, and an inter-region comparison of mean coin diameters with basic statistical testing.
Potential Results: an overview of coin diameters for three Reece periods, as well as a picture of either inter-regional consistency or variation (and therefore consistency or variation in the basic materiality of coin experience).
Interpretation of Results: patterning of variation, if present, can be assessed both in terms of basic regional differentiation, such as a potential north-south divide, and in terms of a potential fading regional divide (through the spread of widespread coin-use) or an increasing regionality (see chapter 2.1).

Conscious experience, the way a coin is experienced and understood, is shaped by identity. Simple material properties of the coin form part of the experience, potentially as much as more complex properties, such as images and texts. There is a potential for differential regional experience resulting from simple properties of the coins - it is much simpler to understand the material experience of the size of a coin, and in differential experience created by larger or smaller coins, than it is to assess similar variation through the form of coin reverse designs and text inscriptions. It is difficult to determine what level of variation in coin diameter would be noticed or experienced, but this is true of any element of variation when considering user experience rather than production and supply (such as reverse type, metal content, producing mint, or die axis).

After data processing, the dataset of useable records with diameters present is:

Reece Period 13 - 1,486 records
Reece Period 14 - 1,156 records
Reece Period 17 - 1,684 records

Figure 21. *Number of Coins, by Reece Period, Useable within the Dataset.*

These quantities are relatively low, partly due to reduction from 191,146 to 90,715 total records through the filter applied (using only published data), but mostly through the purge of incomplete, incorrect, or unusable data. With more time for data correction and processing, these quantities could be increased substantially.

Analysis of diameters will be carried out in two broad ways. The first is to provide an overview of mean coin diameters, and diameter ranges and distributions, of coins by Reece period (periods 13, 14 and 17). This will give an overview of the 'size' aspect of materiality and the phenomenological experience of coins, and how this varies between coin issue periods. The second assessment of diameters is to contrast mean coin diameters between regions, and to test any evident variation through statistical analysis. Variation is defined allowing for a 2mm degree of tolerance (with the assumption that there must be a 1mm margin

of error in recording, and that a difference under 2mm is less likely to have been consciously experienced). Beyond this tolerance, any apparent variation will be tested for statistical significance using a parametric t-test (a two-tailed t-test within SPSS) and the effect size of variation, if present, will be measured using Pearson's correlation co-efficient (allowing a standardised measurement of the magnitude of variation).

Diameter analysis, therefore, tests the hypothesis that region has an affect on mean coin diameter (and therefore coin experience) and measures the effect of regional location on coin diameter. This will either show a regional variation in mean coin diameters, or a consistency (and also assess the effect of region on size). If there is variation between most regions, across each Reece period, limitations of the data will have to be considered (conversely, consistency across most regions in each period may prove a null hypothesis - no variation - or may be a result of similar recovery and recording habits, such as consistently omitting smaller coins). If some counties have a variation, this is more likely to be a result of a difference in coinage size. However, if a region has consistently smaller or larger coins across all three Reece periods assessed, the potential for recovery and reporting biases must be explored (with a potential for smaller coins to be under-recovered and under-reported).

4.5: Methodology - Copies

Considering Copies from the User Perspective:

From a consideration of reader theory, there is the potential to apply a focus on numismatic data from the perspective of the user. We can explore what a copy meant in terms of coin-users, via differentiation in the experience - even though material properties of copies are set in production, we can understand the relationship between copy and user without interpretation dominated by production.

Question: working from a user-focused definition of 'copy', is there a regional variation in copy to official proportions (and therefore regional variation in the coin experience) when applying this definition.

Means to Test: establishing a means to define copies, based on both their size and appearance. Examining variation and consistency in copy-to-official proportions between Reece periods and regions when working from this definition (as opposed to a static definition based on production origins).

Potential Results: an overview of what defines a copy, from user experience (either static, or variable between Reece period or regions), as well as a picture of either inter-regional consistency or variation in copy-to-official proportions (and therefore coin experience).

Interpretation of Results: as with diameters, patterning of variation, if present, can be assessed both in terms of basic regional differentiation, such as a potential north-south divide, and in terms of a potential fading regional divide (through the spread of widespread coin-use) or an increasing regionality (chapter 2.1).

Interpretation of the experience of copies can be considered via the following underlying issues:

1 - an assessment of what defines a copy, and whether this has variation or consistency between Reece periods and between regions
2 - a consideration of coin size, and regional variation in coin size
3 - a consideration of the effect of copies (and size) on the image, text, and message aspect of coinage - although this falls outside of the scope of this project, a crude case study is included (appendix xii)

For each Reece period (13, 14 and 17) I will calculate the overall provincial ratio of official issues to contemporary copies. I define 'copies' here as coins readily identifiable as not being a product of an official state mint. 'Official' coins are therefore the products of state mints, or those coins not readily distinguishable from these. This is a pragmatically loose division, based on the assumption that if the recorder did not identify the coin as a copy, a typical contemporary coin-user may well have not spotted the coin was a copy. The

presence of Carausian issues with obverses of Diocletian or Maximian within proposed 'legitimist' hoards (Williams 2004, pp57-59), and the presence of 'better' copies within radiate hoards of otherwise official issues, perhaps reinforce the notion that contemporary users would be fooled much easier than an expert numismatist (some copies can 'fool' experts today, as discussed in chapter 2.5).

Using the data as utilised in diameter testing, copies will be defined using two criteria:

1 - Coins that fall below minimum size tolerances for official issues (derived from Reece 2000, pp46-49). For the radiate coinage (here Reece periods 13 and 14) minimum sizes are based on coin issuers, whereas for Reece period 17 they are defined by individual reverse issue types (see Appendices iv and v) and applied with a 2mm degree of tolerance (as before, to capture meaningful differential experience that would have been consciously observable, and to allow a 1mm tolerance for wear and a 1mm tolerance for recording).

2 - Coins identified by the PAS as 'copy' or 'barbarous' (including those with 'possible' or 'probable' qualifications). The recorders of coinage into the PAS dataset are not necessarily Roman coin experts (although the data is overseen by experts), but even finders and volunteers generally have a good basic understanding of Roman coins, often having seen many.

When flagged as a copy within an added data field, a second additional field will record whether the method of identifying the coin as a copy was 'size', 'PAS Identification' or 'both'. This will allow an analysis of how 'obvious copies' are defined, within each Reece period. Determining how the coins were identified as copies (by size, through PAS identification, or both) will give a picture of what defined a copy from the perspective of user experience.

The resulting copy-to-official proportions will give an overall picture of changing coin experience by region. The traditionally expected copy proportions (based on traditional copy definitions as products not of state mints) are roughly 50% official to 50% copies (Reece 2000, p42), and this alternative way of defining copies may either produce a greater proportion, or a lesser proportion. Generally,

a lower proportion of copies than this is predicted, as the larger and better formed copies will now potentially pass as official issues under this new user-oriented definition. The ratio of copies to official issues will then be contrasted for consistency or variation between regions. Rather than showing differential supply quantities of official coins, or differential quantities of copy production, any resulting variation will show that the coins of a region have more or less 'easily identifiable copies'. (For the coin-user experience, this is a more meaningful basis from which to consider regional variation in copy to official proportion).

Interpretation will consider the question 'what is a copy?' from a user perspective (as a differential experience from official coins due primarily to size, design crudity, or a combination of both). This will include referring any regions with a noticeably higher or lower proportion of copies to the data for higher or lower regional mean coin diameters. Interpretation will require a consideration of whether differential levels of 'obvious copies' is a result of differential official supply and copy production quantities, or differential size and quality of copies produced, making them easier to identify (or a combination of both).

As well as producing a picture of how copies can be defined, from a user perspective, the two broad potential outcomes of the analysis of copies are for either regional variation or consistency in the proportion of copies compared to official issues, as defined by user experience. The numismatic suggestion for a broad regional divide fading from the late third century onwards must be contrasted with the increasing regionality through the late Roman period proposed from study of material goods and dress accessories, such as Swift (2000a; 2000b).

Interpretation of the effect of copies on coin experience will need to be further explored by considering the impact of smaller coins, such as a loss of elements of the design and imagery on smaller copies. Even if there is no apparent variation in the reverse types and/or themes present between regions, the potential impact of copies must be considered. If a region has a higher ratio of copies, or if the mean or distribution of diameters shows a presence of smaller coins within a region, there may have been a significant effect on the ideology and themes through lost or unreadable aspects of text and design. A consideration of

copies must investigate elements of the official design lost and retained on copies, considering coins as texts, using the framework of the themes contained on common reverse types. Due to time constraints, this aspect has only been carried out as a brief, targeted case study to assist interpretation of results, with future potential for a more thorough study (appendix xii).

4.6: Methodology - Reverse Types

Profiling Textuality and Messages:

Through a focus on user experience, there is a potential to move from production and issue oriented typologies of coin designs, particularly for the reverse types of the fourth century. By moving from issue defined typologies, to stylistically similar 'broad' distinctions of reverse types, or alternatively by mapping each reverse type to a series of message themes, in order to assess the 'message' component of coinage. The details of design and message are set by production, just as the context of a book is set by the author, but it is inappropriate to make distinctions focused primarily on production activity when we hope to assess the experience of the user.

Question: what is the 'textual' make up of the coins in use, related to coin experience. Are there regional differences in the coinage by reverse type, and are there regional differences when coinage is expressed in a user-focused means of considering the design and message content of coinage.

Means to test: convert PAS reverse type typologies to broad typologies based on similarity and difference in design, and contrast between regions. Convert PAS reverse types to message themes, to assess the 'textuality' of coinage within a Reece period, and contrast between regions.

Potential Results: an overview of coin textuality, as well as a picture of either inter-regional consistency or variation in the textuality and message component of coinage.

Interpretation of Results: this is the most experimental, and most complex, and most ad-hoc of the proposed new approaches to numismatic data. If the results and analysis prove useful, there is significant potential for refined techniques, application to other Reece issue periods, and further theoretical consideration (through literary theory, art theory, etc.). Expansion of analysis to multiple Reece issue periods would allow a consideration of changing textuality of coins, as well as notions of prior experience as a background for each change in coinage. As the design and message content of coins is ultimately set in production, the production, issue and supply of coins (both official and copies) will need to be considered.

When we consider the relationship between coin-users and coins, we need to know what coins were present and what the coins looked like (and their physical properties) - it is not vital to understand where the coins came from, why they were there, why they were produced, or the motivation behind their design and physical properties. However, a full understanding would incorporate both the production/supply and experience/interpretation perspectives to be explored and considered. The coin-user understanding is almost completely unexplored, so deserving of focus. If successful, the future is incorporating these developments and approaches into a more holistic understanding.

Analysis will start from the proportional reverse types within Reece period 17, as defined by the PAS data, including a comparison between regions. The proportion of reverse types will be converted from PAS defined reverse types (focused on issue activity) to 'broad' reverse types, combining those with essentially similar design and text. Simply analysing the frequencies or proportions of each reverse type is an unsatisfactory way to assess the coin experience, as several distinct types differ by only minor details (the form of an abbreviation, or the direction a figure faces, might be vital for chronologies or investigating coin supply, but would have little impact on coin experience). Conversely the GLORIA EXERCITVS 'soldiers with standard' issue has a design variation with a Chi Rho banner in place of the military standard. The PAS reverse type classifications, however, do not make a distinction for this variation. Analysis will be based, therefore, on reducing the full range of reverse types to a smaller range of 'broad types', grouping near identical design together. This will only be carried out for Reece period 17, as the earlier coinage of Reece periods 13 and 14 are defined more by issuer than reverse design. The most common reverse types of Reece period 17 (after PAS) are as follows:

GLORIA EXERCITVS: Two soldiers and two standards.

AD330-5

VRBS ROMA: Wolf and Twins.

AD330-40

CONSTANTINOPOLIS: Victory left on prow.

AD330-40

CONSTANTINOPOLIS: Victory standing left, with wreath and palm.

AD337-40

DIV CONSTANTINVS PT AVGG: Emperor in quadriga facing right.

AD337-40

PAX PVBLICA [Helena]: Pax standing left holding branch and sceptre.

AD337-40

PIETAS ROMANA [Theodora]: Pietas standing, carrying infant.

AD337-40

VICTORIAE DD AVGGQ NN: Two Victories holding wreaths.

AD347-8

Figure 22. *Common Reverse Types Recorded within Reece Period 17.*

(A detailed account of the full range of reverse types present for Reece period 17 can be found in Appendices vi and vii, and on the accompanying data CD).

This will give an overview of coinage defined by a typology of design, rather than of issue, and allow a comparison of proportional broad reverse types between regions. No variation is expected as it is thought that coins were kept 'up-to-date' concerning broad design, even in copy production (Brickstock 1987, p42, p60). Variation would suggest either limited data in some regions preventing an accurate representation of coins in use, or would suggest an unexpected regional variation in supply or copy production.

The second means to investigate coin reverses is through mapping the reverse types to message themes, in a similar way to highlighting message themes in art or literature, albeit with the aim of quantifying the experience and investigating regional variation, related to the concepts of coin-use as a phenomenological experience and coins as texts. The broad reverse types will be converted to 'message themes', by their image and text content. A single broad coin type can have one, or several, message themes: Time, Place, Past, Military, Emperor, Stability, Religion (the criteria and methods are outlined fully in chapter 5.3i). The proportions created will be a thematic overview of the broad message content of coins in use, not supply or issue, as a single coin may portray multiple messages. Analysis of coin reverse themes and message is potentially problematic as it is dependant on the condition of the coin, as well as the quality of the identification and recording. This may need to be considered as part of interpretation.

Chapter Five:

Data Analysis

Chapter Five:

Data Analysis

5.1 Data Analysis: Diameters

Data Analysis

Diameters… Copies… Reverse Types…

5.1 i: Data Analysis: Diameters

The first aspect of analysis focuses on the diameters of coins recorded, as a quantifiable aspect of the materiality of coinage and of coin-use. The national (province-wide) mean diameters across the three Reece periods provide the starting point for investigation.

	Mean Diameter mm (2dp)
Reece Period 13	18.01
Reece Period 14	18.02
Reece Period 17	15.09

Table 1. *Mean Coin Diameter by Reece Period.*

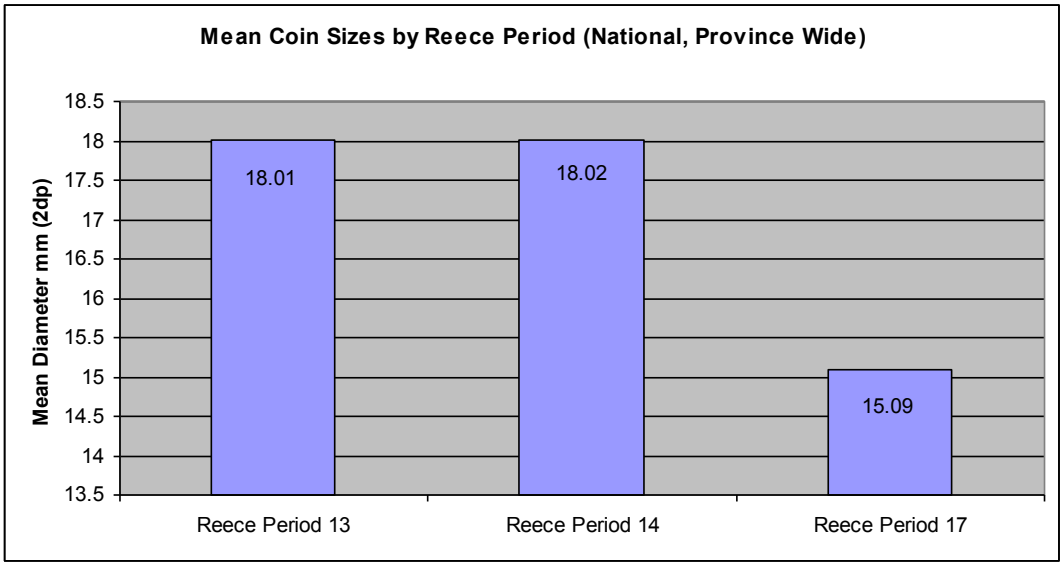


Figure 23. *Mean Coin Diameter by Reece Period.*

The mean coin sizes are remarkably close from Reece period 13 to Reece period 14, but a decrease in mean coin size is obvious by Reece period 17 (with the coins almost 3mm smaller in diameter on average, over the estimated 2mm criteria for conscious experience).

5.1 ii: Diameters - Reece Period 13

Histogram of Diameters Recorded (National, Province Wide) Reece Period 13

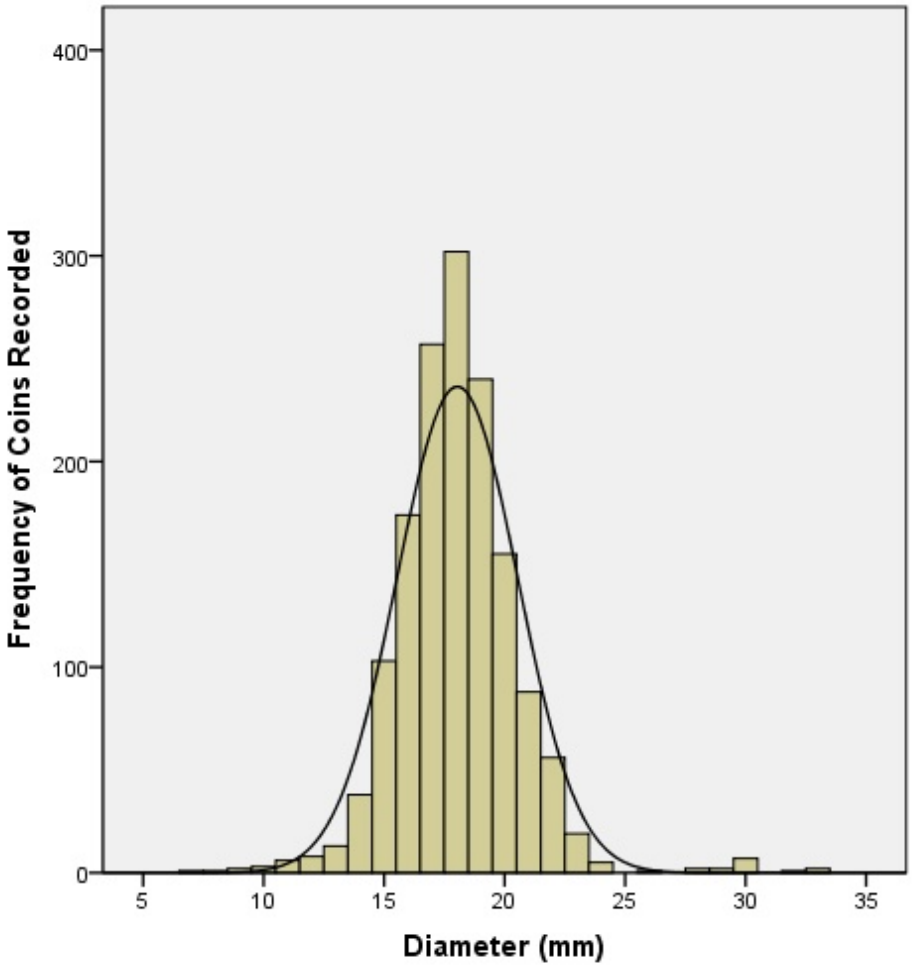


Figure 24. *Histogram of Coin Diameters, Reece Period 13.*

The histogram of diameters recorded for Reece period 13 closely follows the standard distribution curve, albeit with a small cluster of larger coins around 30mm in diameter, and a slight bias towards coins around the mean (18.01mm) diameter. With fluctuating sizes and confusing denominations before the coinage reforms of Aurelian in AD274 ("day-to-day coinage was in a mess" Reece 2002, pp20-21), and with the coins struck by the breakaway Gallic Empire (until its end in AD275) generally finer than those of the central Roman Empire, this patterning is not surprising (see appendix iv).

Histogram of Diameters Recorded, by Region, for Reece Period 13

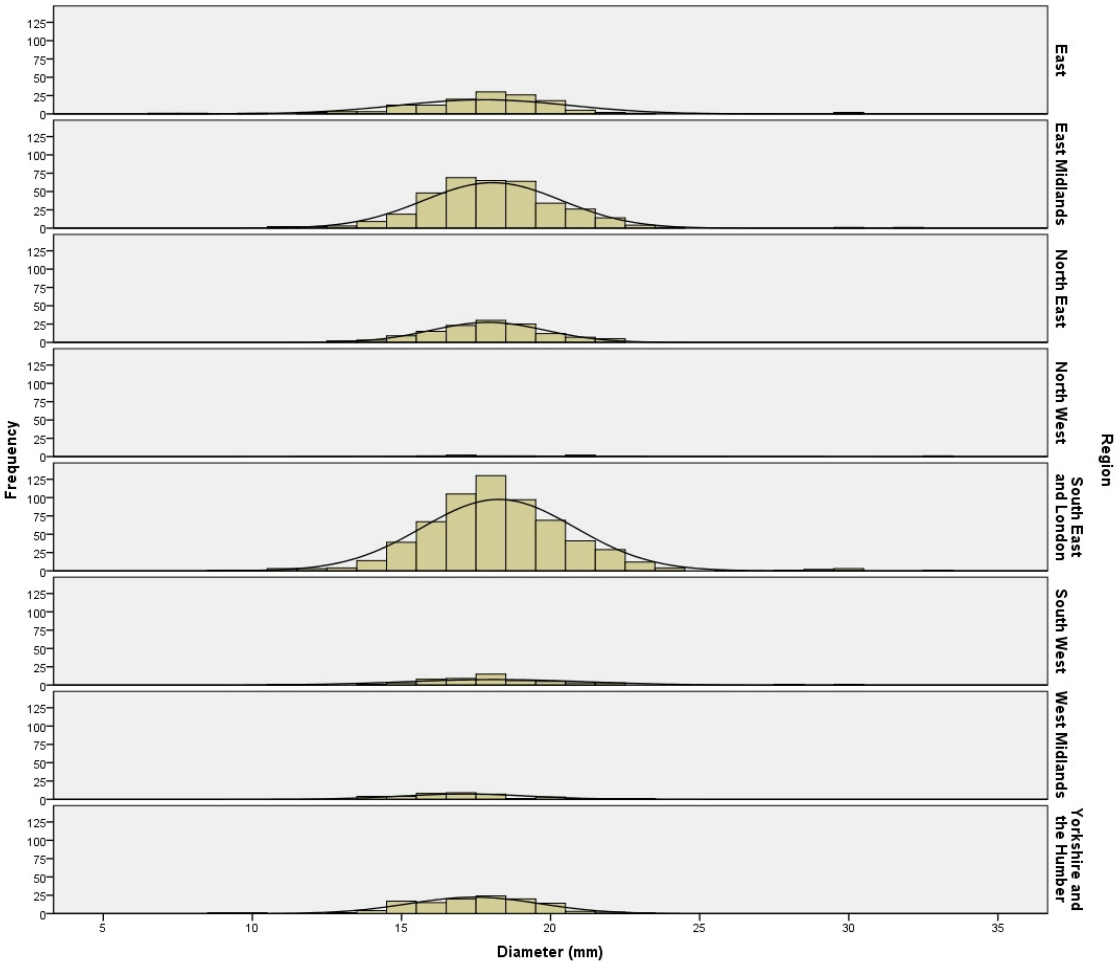


Figure 25. *Histogram of Coin Diameters, by Region, Reece Period 13.*

Each region follows the standard distribution closely, albeit with the small cluster of larger coins (noted earlier within the national distribution) visible within the East, East Midlands, and the South East and London.

Mean Coin Diameters by Region, Reece Period 13

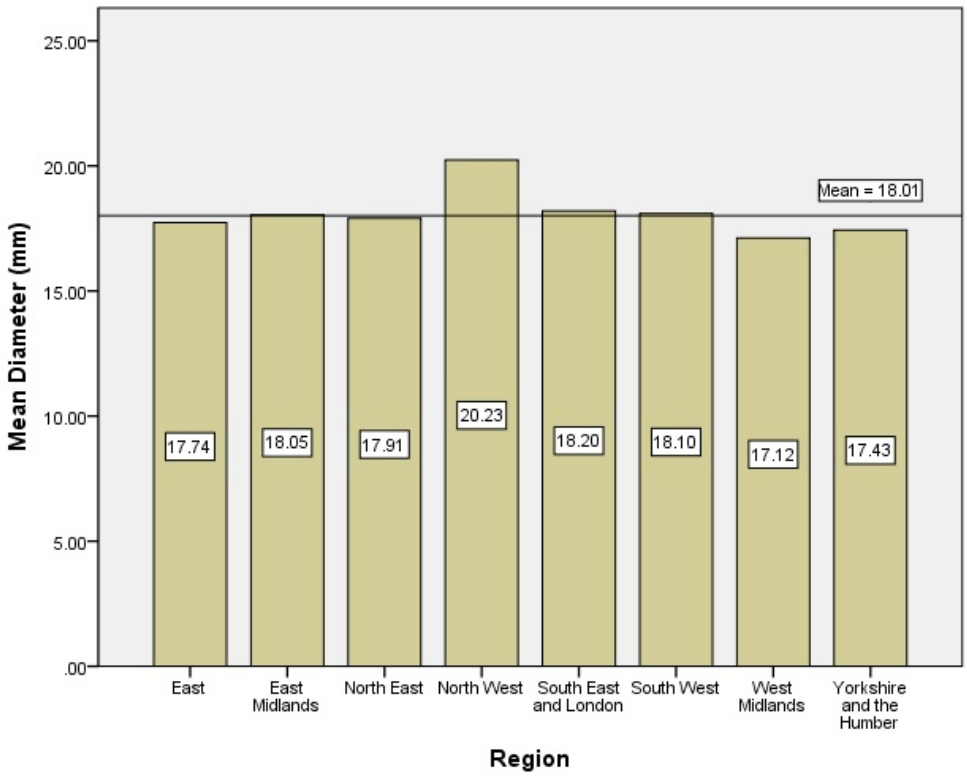


Figure 26. *Mean Coin Diameters, by Region, Reece Period 13.*

The mean diameters can also be contrasted to the national (province wide) mean diameter, to assess variation and contrast regional differences.

Region	**Difference From National Mean Diameter (2dp)**
East	- 0.27 (N=139)
East Midlands	+ 0.04 (N=362)
North East	- 0.10 (N=131)
North West	+ 2.22 (N=8, from only 8 coins recorded)
South East and London	+ 0.19 (N=627)
South West	+ 0.09 (N=57)
West Midlands	- 0.89 (N=39)
Yorkshire and The Humber	- 0.58 (N=123)

Table 2. *Difference from National Mean Diameter, by Region, Reece Period 13.*

No region has coins with a noticeably larger or smaller mean size (other than the West Midlands, which might simply be due to the limited number of records in the dataset for this region. The mean for the North West was skewed by the presence of a 32.60mm coin, within a dataset of only 8 coins (otherwise a typical spread, from 15.58mm to 21.31mm).

5.1 iii: Diameters - Reece Period 14

Histogram of Diameters Recorded (National, Province Wide) Reece Period 14

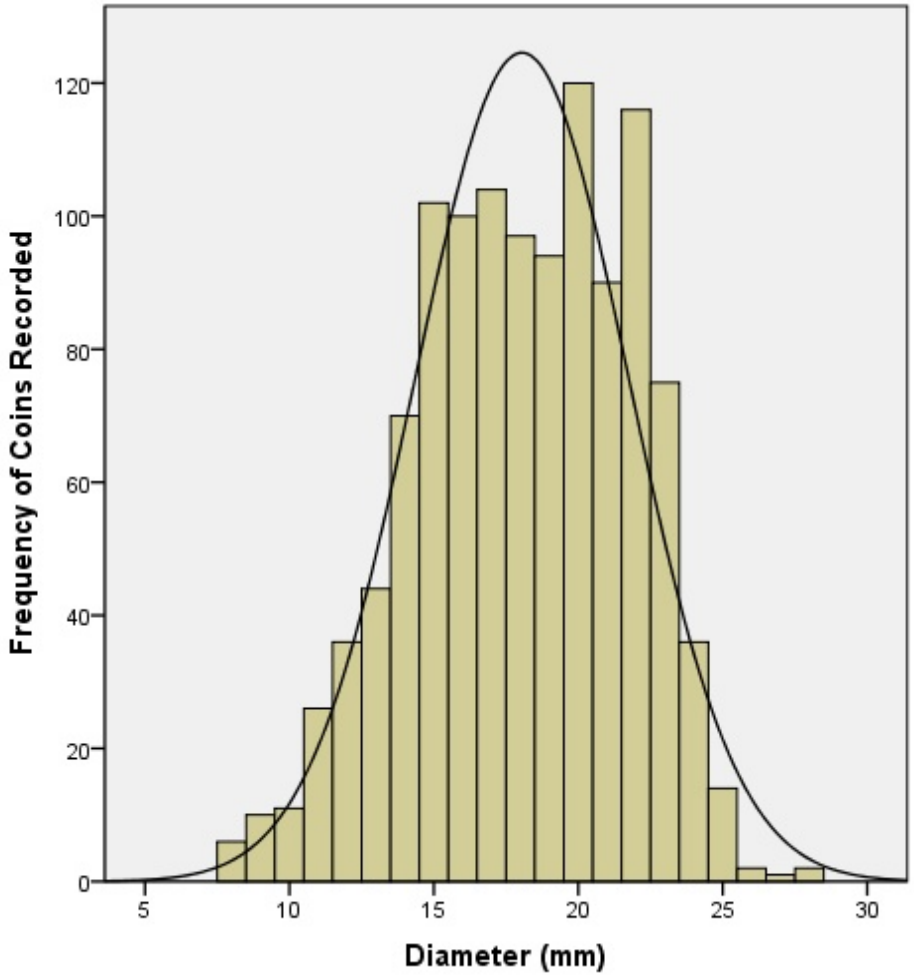


Figure 27. *Histogram of Coin Diameters, Reece Period 14.*

The histogram of diameters recorded for Reece period 14 closely follows the standard distribution curve, albeit with a tendency for coins to actually be either larger or smaller than the overall mean (18.02mm).

Histogram of Coin Diameters Recorded, by Region, for Reece Period 14

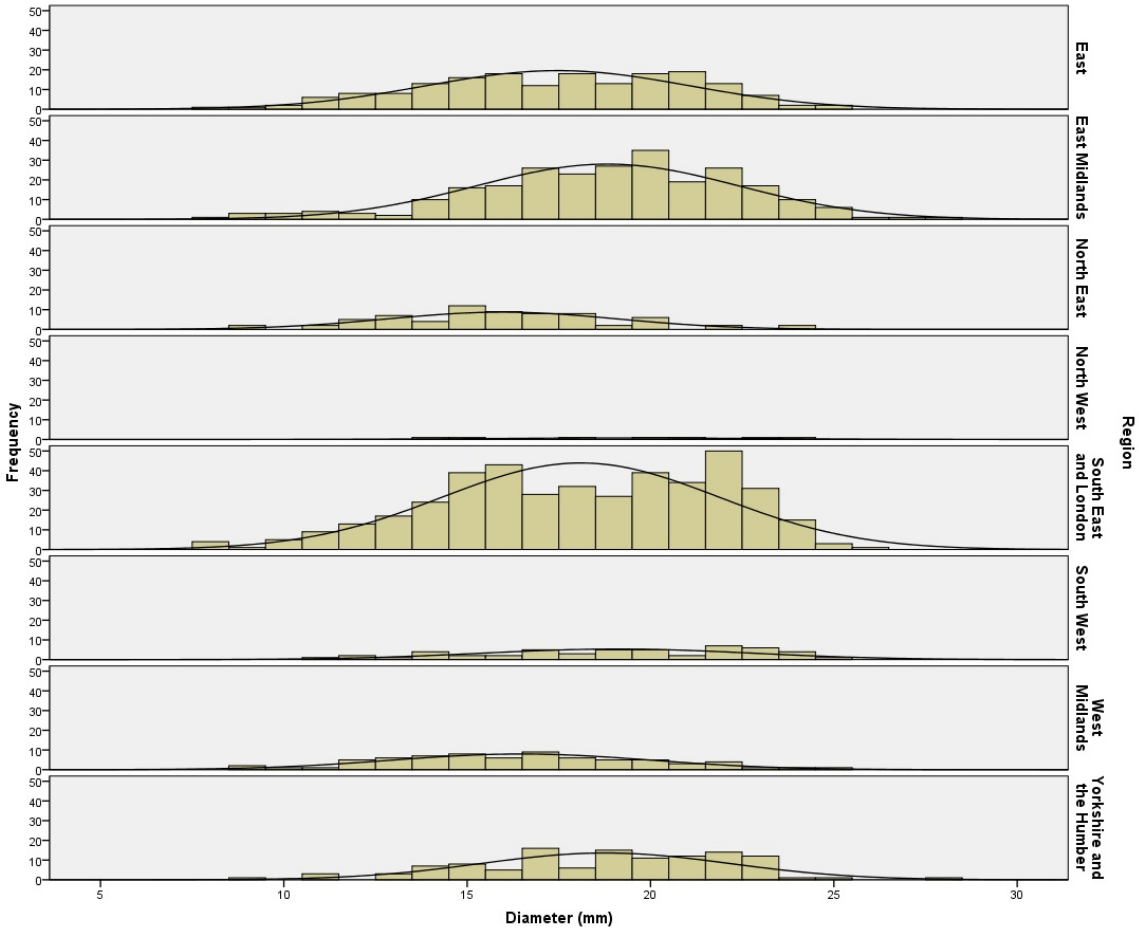


Figure 28. *Histogram of Coin Diameters, by Region, Reece Period 14.*

Each region follows the standard distribution closely, albeit with a slight tendency towards coins larger than the mean visible in some regions (East, East Midlands, South West, Yorkshire and the Humber) and a slight tendency towards coins smaller than the mean visible in the North East. South East and London has relatively few coins clustered around the mean diameter, with a tendency for coins smaller than the mean (around 15mm) and larger than the mean (around 22/23mm), creating the average between the two. As the quantity of coins recorded within a region increases, the pattern seen in the province-wide diameters distribution (clusters of coins larger and smaller than the mean, and a relatively low frequency of coins of the mean size) seems to emerge. Regional differences may therefore be due to data limitations, and data quantity.

Mean Coin Diameters by Region, Reece Period 14

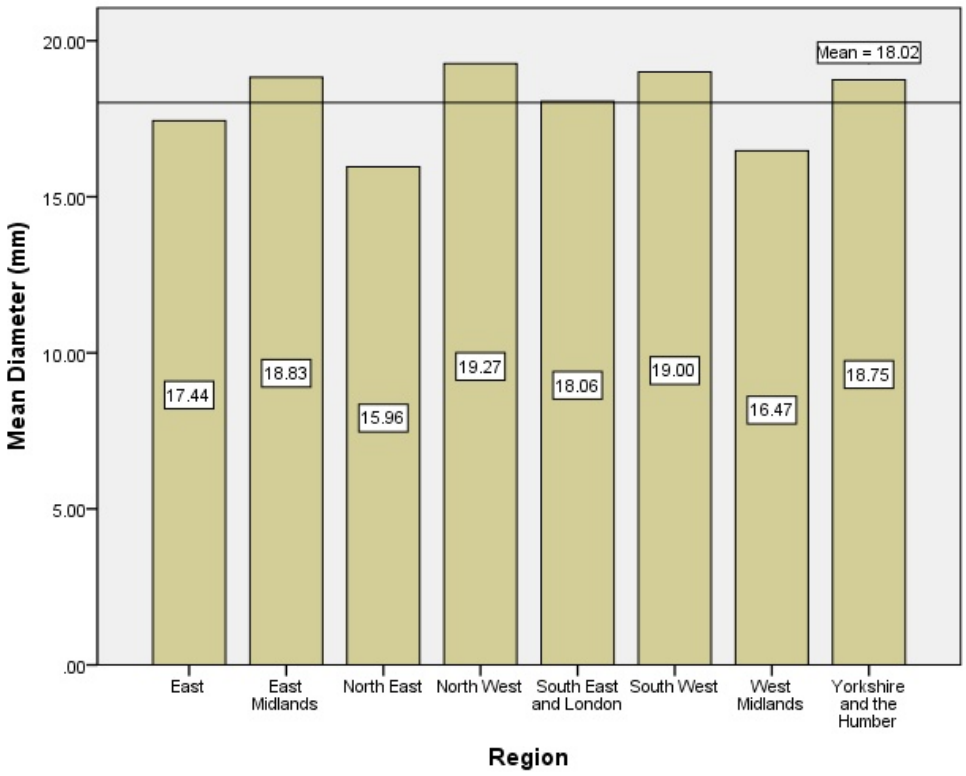


Figure 29. *Mean Coin Diameters, by Region, Reece Period 14.*

The mean diameters can also be contrasted to the national (province wide) mean diameter, to assess variation and contrast regional differences.

Region	**Difference From National Mean Diameter (2dp)**
East	- 0.58 (N=177)
East Midlands	+ 0.81 (N=251)
North East	**- 2.06** (N=69)
North West	+ 1.25 (N=7, from only 7 coins recorded)
South East and London	+ 0.04 (N=415)
South West	+ 0.98 (N=50)
West Midlands	**- 1.55** (N=71)
Yorkshire and the Humber	+ 0.73 (N=116)

Table 3. *Difference from National Mean Diameter, by Region, Reece Period 14.*

The West Midlands and the North East appear to have noticeably smaller coins, although only the North East is above the 2mm assumed criteria for conscious experience (outlined in chapter 4.4). Yorkshire and the Humber, the East Midlands, and the South West, all have larger coins.

5.1 iv: Diameters - Reece Period 17

Histogram of Diameters Recorded (National, Province Wide) Reece Period 17

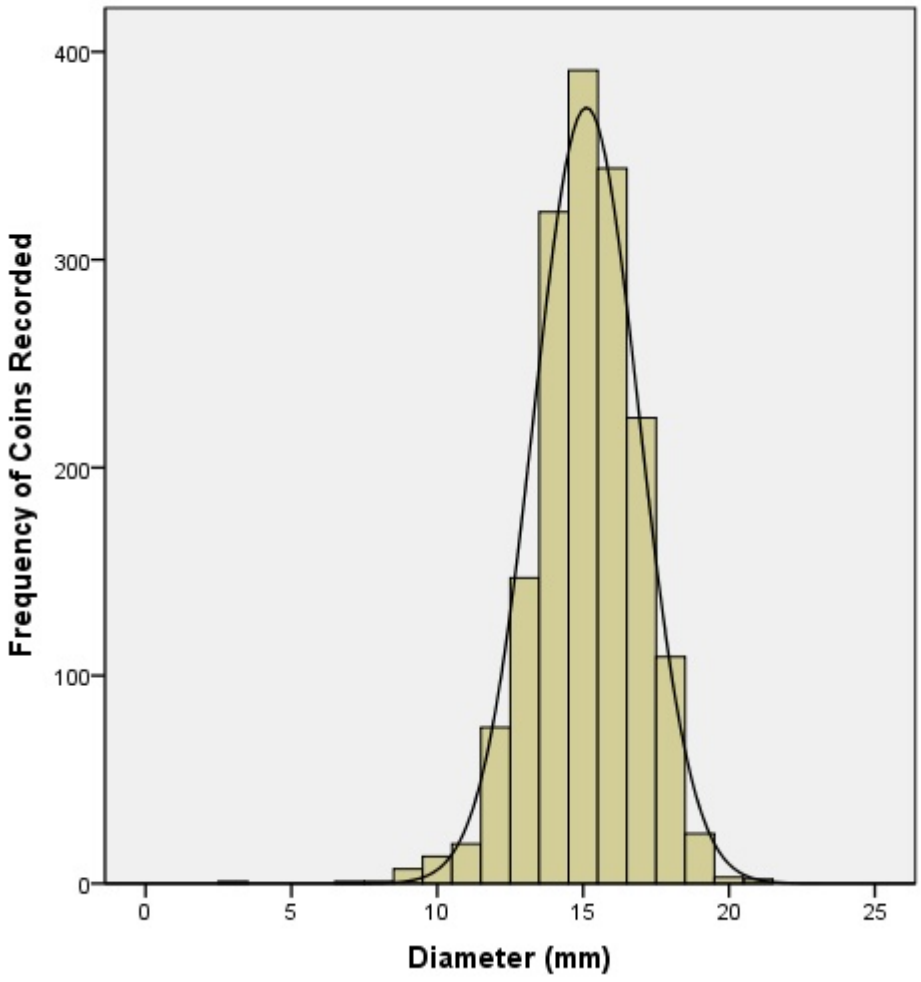


Figure 30. *Histogram of Coin Diameters, Reece Period 17.*

The distribution of diameters within Reece period 17 closely follows the standard distribution curve, with a pronounced cluster of coins within the central part of the diameter range, with few outlying coins other than a small group of coins with relatively small diameters.

Histogram of Coin Diameters Recorded, by Region, for Reece Period 17

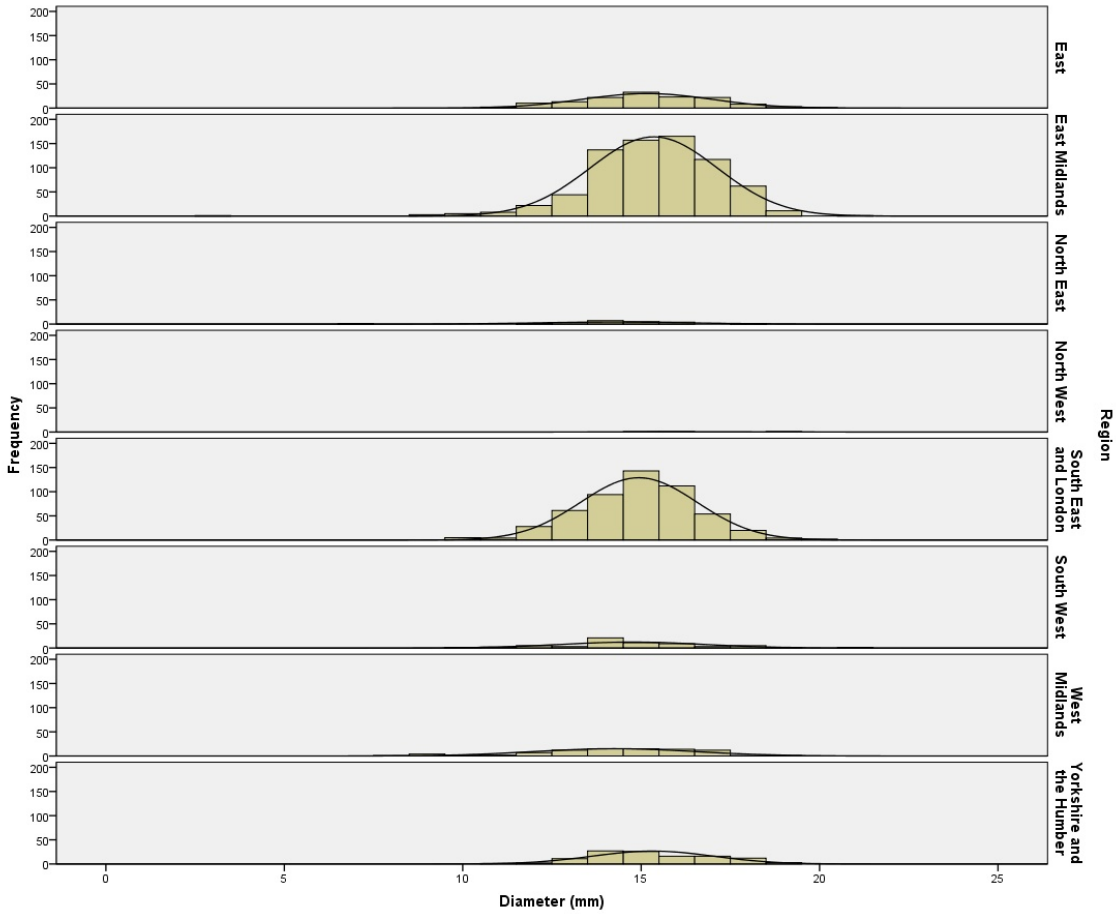


Figure 31. *Histogram of Coin Diameters, by Region, Reece Period 17.*

Each region closely follows the standard distribution curve (where sufficient data is available to be clearly visible) with relatively little skew towards smaller or larger coins. The cluster of smaller coins previously highlighted can be just seen here within the West Midlands (around 9mm) and East Midlands (around 4mm).

Mean Coin Diameters by Region, Reece Period 17

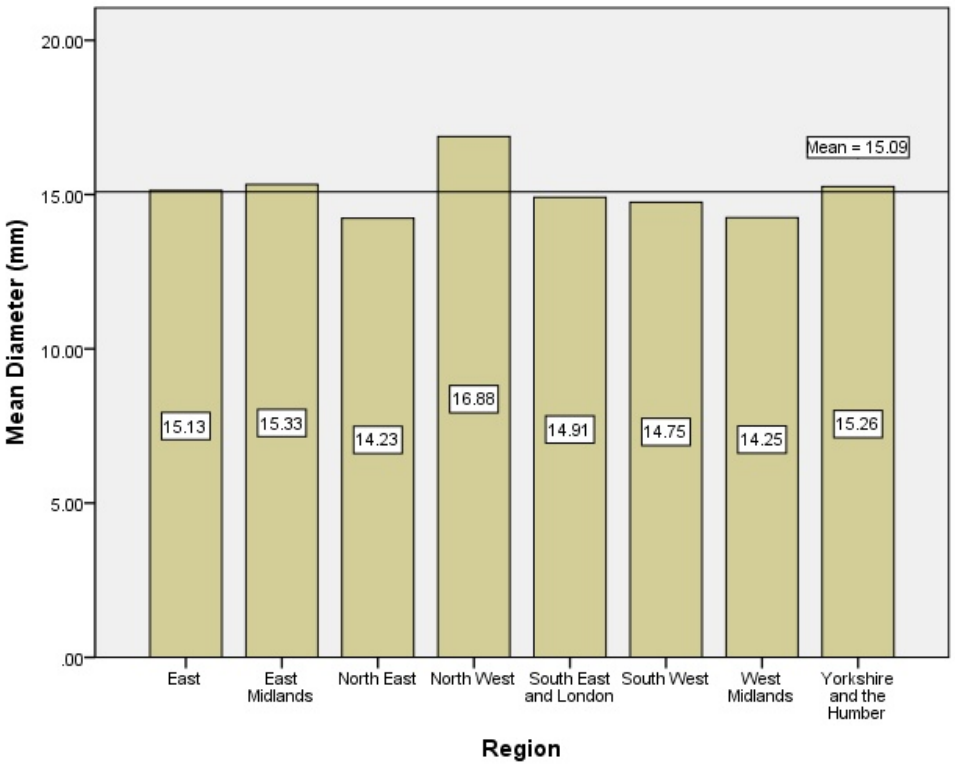


Figure 32. *Mean Coin Diameters, by Region, Reece Period 17.*

The mean diameters can be compared to the national (province wide) mean (15.09mm):

Region	Difference From Natural Mean Diameter (2dp)
East	+ 0.04mm (N=137)
East Midlands	+ 0.24mm (N=733)
North East	- 0.86mm (N=22, from only 22 coins recorded)
North West	+1.79mm (N=3, from only 3 coins recorded)
South East and London	- 0.18mm (N=527)
South West	- 0.34mm (N=62)
West Midlands	- 0.84mm (N=86)
Yorkshire and the Humber	+ 0.17mm (N=114)

Table 4. *Difference from National Mean Diameter, by Region, Reece Period 17.*

No region has a noticeable larger or smaller mean coin size.

5.1 v: Statistical Analysis of Mean Diameters

Statistical testing of these patterns can determine which variations are statistically significant, and which are important on a practical level. A parametric T-Test (two-tailed t-test within SPSS) has been used to highlight statistical significance, and the effect size has been measured using Pearson's correlation coefficient to give a standardised measure of the magnitude of regional variation if present.

Effect Size	R Value
Small	0.10
Medium	0.30
Large	0.50

Table 5. *Pearson's Correlation Coefficient Effect Sizes.*

The hypothesis tested is that there is a direct correlation between the region and the mean coin diameter, with the null hypothesis being that there is no meaningful difference between the mean diameters between regions. (For full statistical output and analysis see Appendices iix, ix and x).

Reece period 13: There is no region with a meaningful variation (South East and London, and Yorkshire and the Humber are statistically significant, but with almost no effect). The coin diameters of this period are remarkably consistent, suggesting a consistent coinage experience through coin sizes.

Reece period 14: The East Midlands and the West Midlands have a statistically significant variation, but one with only a small effect, with little real impact on the relative coin experience. The North East, however, has both a significant variation and a large effect, from a total of 69 recorded coins. The difference (2.20mm, 2dp) is also above the assumed 2mm criteria for conscious experience.

The North East: On average, the diameter of coins in the North East is smaller (M = 15.9587, SE = 0.37954) than the coins of other all regions combined (M = 18.1549, SE = 0.11177). This difference, -2.19617 is significant, with a 95% confidence interval (-2.98352, -1.40883) and t (degrees of freedom 80.268) = -5.551, p= 0.000. It also represents a large sized effect, r = 0.52 (to 2 decimal places).

Figure 33. *Statistical Analysis of Diameters, Reece Period 14.*

Reece period 17: The East Midlands again has a statistically significant variation, but one with only a small effect, with little real impact on the relative coin experience. The West Midlands has both a significant variation and a medium effect, from a total of 86 recorded coins.

On average, the diameter of coins in the West Midlands is smaller (M = 14.2541, SE = 0.24516) than the coins of other all regions combined (M = 15.1345, SE = 0.04388). This difference, -0.88047 is significant, with a 95% confidence interval (-1.37523, -0.38571) and t (degrees of freedom 90.527) = -3.535, p = 0.001. It also represents a medium sized effect, r = 0.35 (to 2 decimal places).

Figure 34. *Statistical Analysis of Diameters, Reece Period 17.*

Most regions throughout all three Reece periods show no significant difference, and little or no effect. This proves the null hypothesis, that there is no significant variation between the mean coin diameters of regions, with a few notable exceptions (the North East in Reece period 14, and the West Midlands in Reece period 17).

5.1 vi: Coin Diameters Data Analysis Summary

The question posed for this analysis was whether there is a regional variation in coin diameter, and therefore a quantifiable differentiation in the basic materiality of coins. Reece period 14 has the instance of the most marked regional variation in coin diameters, with a meaningful 2.20mm (2dp) variation in mean diameter compared to the mean of the other regions. This variation in coins coincides with the theory that there is a spread of widespread coin-use in this period, although the presence of variation in the West Midlands in Reece period 17 is less expected. Equally it is interesting to note that Reece periods 13 and 17 (before and after the spread of widespread coin-use) have a consistency in coin size between regions.

Whilst the West Midlands showed consistently smaller coins across all three periods (albeit only statistically significant in Reece period 17), the patterns of all of the other regions vary over time (sometimes having smaller coins, sometimes larger, sometimes without variation from the national trend). Other than the West Midlands, there is no single pattern for a standard regional variation through time, other than relatively low coin quantities recorded for the North East and North West.

I feel that the presence of some regional patterning in mean coin diameters suggests a potential for more rigorous and integrated numismatic investigation in the future. Caution must be taken with interpretation, as for each region and Reece period, the statistically relevant variation may reflect a variation in metal detecting practice, finds recording habits, regional PAS coin identification, and regional PAS data entry, rather than a genuine difference in the coinage in use. The consistent low mean coin diameters for the West Midlands may be a result of a greater tendency to report and record smaller coins, and for this data to be captured by the PAS. However, the marked consistency between regions, with only a few instances of variation, makes a strong case for a potential regional variation in coin experience as a result of varying mean coin diameters. The short-term nature of these variations suggests they may be linked to passing political, social or economic conditions or events.

Chapter Five:

Data Analysis

5.2 Data Analysis: Copies

5.2 i: Data Analysis: Copies

This is a new and experimental means to consider contemporary copies, defining a copy as a coin with a noticeable differential experience, compared to official coins (through smaller size or cruder design). Non-copies are the products of official mints and other coins not easily distinguishable from them (similar in size and quality of design).

5.2 ii: Proportion of Copies and Official Coins

- Reece Period 13: 1238 of the 1486 (useable) coin records are copies.
- Reece Period 14: 536 of the 1156 (useable) coin records are copies.
- Reece Period 17: 1480 of the 1684 (useable) coin records are copies.

Figure 35. *Total Number of Coins and Number of Copies within the Dataset, by Reece Period.*

Frequencies and Percentages of Copies by Reece Period

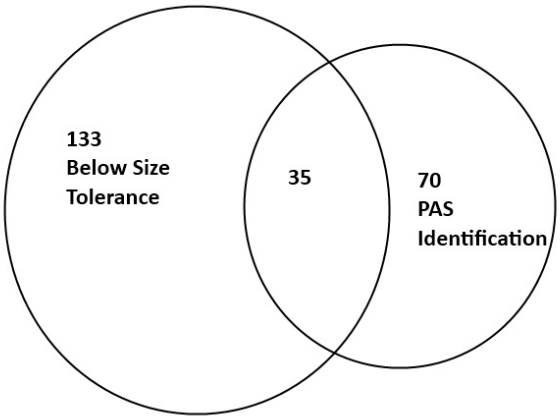
	Frequency			Percentage	
Period	**Copies**	**Official**	**Total**	**Copies**	**Official**
Reece Period 13	238	1248	1486	16	84
Reece Period 14	536	620	1156	46	54
Reece Period 17	480	1204	1684	29	71

(shown to the nearest %)

Table 6. *Frequency and Proportion of Official Coins and Copies, by Reece Period.*

The number of obvious copies rises dramatically from Reece period 13 to Reece period 14. The proportion of obvious copies falls again by Reece period 17, but remains higher than in Reece period 13. This is perhaps to be expected, with a high level of copies during the spread of widespread coin-use, and remaining higher than before this spread at the next major copying 'epidemic'. The relative proportions of coins identified as copies compared to coins identified as copies using diameters warrants consideration and can highlight the nature of 'obvious copies' within the Reece periods under investigation.

Reece Period 13

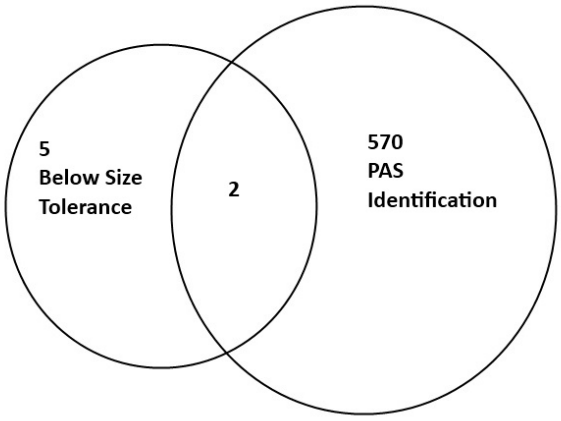


238 copies of 1486 coins (168 classified as copies by diameter, 105 by PAS identification, 35 by both).

Figure 36. *Venn Diagram Showing Copies Defined by Size Filter and by PAS Identification (or both), Reece Period 13.*

Size is obviously a major part of defining a 'noticeable copy' in the coinage of Reece period 13, but only part of the full picture. 35 of the 70 coins identified as copies by PAS identification were within size tolerances, so had stood out as copies due to mistakes or crudity of design. Also, 98 of the 168 copies below the official size tolerance had passed as official (or had not been flagged as copies) during PAS identification.

Reece Period 14

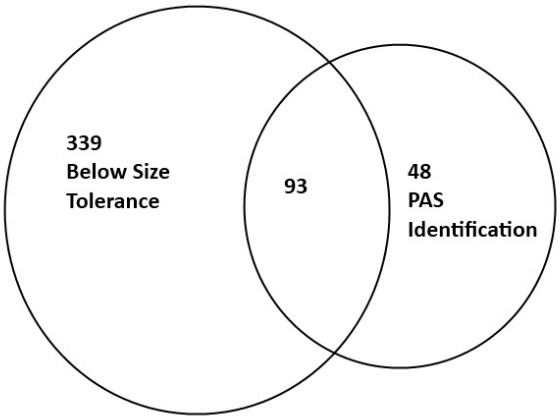


578 copies of 1156 coins (7 classified as copies by diameter, 572 by PAS identification, 2 by both).

Figure 37. *Venn Diagram Showing Copies Defined by Size Filter and by PAS Identification (or both), Reece Period 14.*

For Reece period 14, the majority of the 'copy experience' is through errors, simplification or crudity of design. 570 of the 572 coins identified as copies by the PAS had fallen within size tolerances for official coins. Only 7 of the 1156 coins fell below the size tolerance, meaning that smaller size is not a key aspect of the copy experience in Reece period 14.

Reece Period 17



480 copies of 1684 coins (432 classified as copies by diameter, 141 by PAS identification, 93 by both).

Figure 38. *Venn Diagram Showing Copies Defined by Size Filter and by PAS Identification (or both), Reece Period 17.*

Size is a significant aspect of copies within Reece period 17. 93 of the 141 coins identified as copies by the PAS had fallen below size tolerances. Also, 246 of the coins flagged as copies by falling below size tolerances had passed as official (or not been flagged as copies) during PAS investigation.

What defines a copy?

For Reece period 13 'copies' are a combination of crudity of design and size. For Reece period 14, 'copies' are overwhelmingly about a crudity of design. For Reece period 17, size is the dominant aspect of copies. With changing coinage, the differential experience of encountering more or less copies changes fundamentally between Reece periods, and is not consistently about either simply size or crudity of design.

5.2 iii: Regional Variation of the Proportion of Copies to Official Coins

Reece Period 13

	Frequency			Percentage (2dp)	
Region	**Copies**	**Official**	**Total**	**Copies**	**Official**
East	32	107	139	23.02	76.98
East Midlands	51	311	362	14.09	85.91
North East	18	113	131	13.74	86.26
North West	2	6	8	25.00	75.00
South East and London	95	532	627	15.15	84.85
South West	6	51	57	10.53	89.45
West Midlands	7	32	39	17.95	82.05
Yorkshire and the Humber	27	96	123	21.95	78.05
(**TOTAL**)	(**238**)	(**1248**)	(**1486**)	(**16.02**)	(**83.98**)

Table 7. *Frequency and Percentage of Copies and Official Coins, by Region, Reece Period 13.*

Region	**Difference From National Copy Percentage (2dp)**
East	+7.01% copies
East Midlands	-1.93% copies
North East	-2.28% copies
North West	+8.98% copies (from only 8 coins recorded)
South East	-0.86% copies
South West	-5.49% copies
West Midlands	+1.93% copies
Yorkshire and the Humber	+5.94% copies

Table 8. *Regional Difference from National Copy Proportion, Reece Period 13.*

There is relatively little variation in copy to official coin proportions within Reece period 13.

Reece Period 14

	Frequency			Percentage (2dp)	
Region	**Copies**	**Official**	**Total**	**Copies**	**Official**
East	102	75	177	57.63	42.37
East Midlands	97	154	251	38.65	61.35
North East	12	57	69	17.39	82.60
North West	5	2	7	71.43	28.57
South East and London	210	205	415	50.60	49.40
South West	15	35	50	30.00	70.00
West Midlands	43	28	71	60.56	39.44
Yorkshire and the Humber	52	64	116	44.83	55.17
TOTAL	**(536)**	**(620)**	**(1156)**	**(46.37)**	**(53.63)**

Table 9. *Frequency and Percentage of Copies and Official Coins, by Region, Reece Period 14.*

Region	**Difference From National Copy Percentage (2dp)**
East	**+11.26%** copies
East Midlands	-7.72% copies
North East	**-28.98%** copies
North West	+25.06% copies (from only 7 coins recorded)
South East	+4.24% copies
South West	**-16.37%** copies
West Midlands	**+37.56%** copies
Yorkshire and the Humber	-1.54% copies

Table 10. *Regional Difference from National Copy Proportion, Reece Period 14.*

The West Midlands and (to a lesser extent) the East, have a noticeably higher proportion of copies within Reece period 14. The North East and South West have noticeable lower proportions of copies. This patterning would benefit from

further investigation – it could be that an availability of earlier coins (such as those of Reece Phase A), in combination with the spread of coin-use, could lead to a higher copy production. This could be explored by assessing the coins present in earlier Reece periods, and investigating the recycling of old coins to produce copies.

Reece Period 17

	Frequency			Percentage (2dp)	
Region	**Copies**	**Official**	**Total**	**Copies**	**Official**
East	33	104	137	24.09	75.91
East Midlands	163	570	733	22.24	77.76
North East	9	13	22	40.91	59.09
North West	1	2	3	33.33	66.67
South East and London	174	353	527	33.02	66.98
South West	26	36	62	41.94	58.06
West Midlands	41	45	86	47.67	52.33
Yorkshire and the Humber	33	81	114	28.95	71.05
TOTAL	**(480)**	**(1204)**	**(1684)**	**(28.50)**	**(71.50)**

Table 11. *Frequency and Percentage of Copies and Official Coins, by Region, Reece Period 17.*

Region	**Difference From National Copy Percentage (2dp)**
East	-4.42% copies
East Midlands	-6.27% copies
North East	+12.41% copies (from only 22 coins recorded)
North West	+4.83% copies (from only 3 coins recorded)
South East	+4.51% copies
South West	**+13.43%** copies
West Midlands	**+24.67%** copies
Yorkshire and the Humber	+0.44% copies

Table 12. *Regional Difference from National Copy Proportion, Reece Period 17.*

The West Midlands and (to a lesser extent) the South West have relatively high proportions of copies within Reece period 17, with potential for further investigation (as discussed for Reece period 14, above).

Areas with a lower relative proportion of copies (such as the North East in Reece period 14) suggest that these areas had less obvious copies (either a greater proportion of official coins or a greater proportion of better quality copies compared to more obvious, smaller or cruder copies). However, this may also be due to a failure to record lower quality copies, an issue that is known to the PAS, with finders bringing their 'better' coins for identification. Areas with a higher proportion of obvious copies (such as the West Midlands in Reece periods 14 and 17) run counter to expected PAS finder reporting biases. The vast majority of the copies identified within the West Midlands (41 of 43) were from the PAS identifications, rather than the diameter filters, so it is possible that there may be an identification bias, with a higher tendency to posit a coin of this period as a copy, or a higher degree of specialisation for spotting incongruities in better copies that others may easily miss.

5.2 iv: Copies and Diameter

To further understand and interpret the results of data analysis for copies, it is necessary to consider the diameter range within each Reece period, and the diameter ranges of copies compared to official coins.

Reece Period 13

Mean diameter of coins	=	18.01mm (2dp)
Mean diameter of copies	=	15.71mm (2dp)
Mean diameter of official coins	=	18.45mm (2dp)

Figure 39. *Mean Diameter of Copies, Official Coins, and Total Coins, Reece Period 13.*

The average copy in Reece period 13 is 2.74mm (2dp) smaller in diameter than the average official coin.

Diameter range of coins	=	7.00mm to 32.77mm (2dp)
Diameter range of copies	=	7.00mm to 25.70mm (2dp)
Diameter range of official coins	=	9.04mm to 32.77mm (2dp)

Figure 40. *Size Range of all Coins, Copies, and Official Coins, Reece Period 13.*

The smallest copies of Reece period 13 are 2.04mm (2dp) smaller in diameter than the smallest official coins.

The largest copies of Reece period 13 are 7.07mm smaller than the largest official coins.

Reece Period 14

Mean diameter of coins	=	18.02mm (2dp)
Mean diameter of copies	=	15.28mm (2dp)
Mean diameter of official coins	=	20.77mm (2dp)

Figure 41. *Mean Diameter of Copies, Official Coins, and Total Coins, Reece Period 14.*

The average copy in Reece period 14 is 5.49mm (2dp) smaller in diameter than the average official coin.

Diameter range of coins	=	8.00mm to 27.75mm (2dp)
Diameter range of copies	=	8.00mm to 23.83mm (2dp)
Diameter range of official coins	=	8.00mm to 27.75mm (2dp)

Figure 42. *Size Range of all Coins, Copies, and Official Coins, Reece Period 14.*

The smallest copies of Reece period 14 are the same size as the smallest official coins. The largest copies of Reece period 14 are 3.92mm smaller than the largest official coins.

Reece Period 17

Mean diameter of coins	=	15.09mm (2dp)
Mean diameter of copies	=	13.65mm (2dp)
Mean diameter of official coins	=	15.66mm (2dp)

Figure 43. *Mean Diameter of Copies, Official Coins, and Total Coins, Reece Period 17.*

The average copy in Reece period 17 is 2.01mm (2dp) smaller in diameter than the average official coin.

Diameter range of coins	=	3.00mm to 21.00mm (2dp)
Diameter range of copies	=	3.00mm to 19.43mm (2dp)
Diameter range of official coins	=	12.00mm to 21.00mm (2dp)

Figure 44. *Size Range of all Coins, Copies, and Official Coins, Reece Period 17.*

The smallest copies of Reece period 17 are 9.00mm (2dp) smaller in diameter than the smallest official coins. The largest copies of Reece period 17 are 1.57mm smaller than the largest official coins.

Reece period 13 has relatively little difference in the relative ranges, other than the largest official coins having no match in the copies (the official range going over 7mm larger than copies).

Reece period 14 has the largest mean difference in coin diameters between copies and official coins, but relatively close ranges, with the lines between copies and official coins relatively blurred; the smallest copies are no smaller than the smallest official coins, with the largest official coins less than 4mm larger than copies. (Most of the coins flagged as copies for Reece period 14 were through PAS identification, based on their appearance and crudity of design rather than their size).

Reece period 17 has the smallest difference in the largest copies compared to the largest official coins/ a difference of just over 2mm). However, the period also has the smallest copies of all of the periods examined, with the smallest (3mm) coins 9mm smaller than the smallest official coins. This gives Reece period 17 the

greatest potential for size difference through copies. Although the mean difference in diameter is relatively low (the average copy being just over 2mm smaller than the average official coin), the differential experience between a 3mm coin and a 12mm coin is substantial. This difference is even more substantial when considering the effect the reduced size would ultimately have on the design, and the ability of the coin to convey messages.

Chapter Five:

Data Analysis

5.3 Data Analysis: Reverse Types

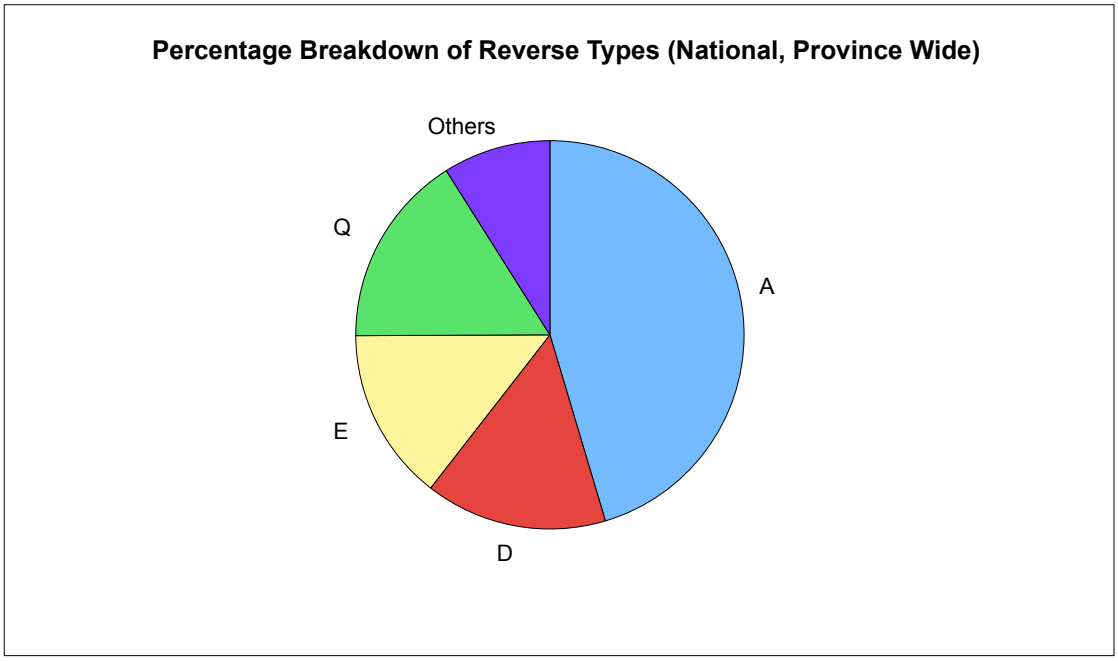
5.3 i: Reverse Types

The final element of data analysis is also the most experimental and ad-hoc, posing the question of how to understand the textuality of coins in use, and regional variation in this textuality. On a national, province wide level, the coinage of Reece period 17 is dominated by coins of four reverse types: A - Soldiers with Standard, 45.39%, followed by Q - Two Victories, 16.11%, D - Urbs Roma, 15.15%, and E - Constantinopolis, 14.14%. Other reverse types comprise only 8.96% of the total coinage (largely made up of types N, Theodora/Pietas, 4.00% and M, Helena/Pax, 2.56%). (See Appendices vi, vii, and xi).

Frequency and Proportion of Broad Reverse Types within Coinage, (National, Province Wide), Reece Period 17

Reverse Broad Type	**A**	**D**	**E**	**Q**	**Others**
Frequency	851	284	270	302	168
Percentage (2dp)	45.39	15.15	14.40	16.11	8.96

Table 13. *Frequency and Percentage of Coins by Broad Reverse Type, Reece Period 17.*



A – Soldiers with standard(s)
D – Urbs Roma, Wolf and Twins
E – Constantinopolis, Victory on Prow
Q – Two Victories

The 'other' types are: Bridge over River (B), Star in Wreath (C), Securitas (G), Emperor with spear and shield (H), Emperor with globe and spear (J), Deified emperor in quadriga (K), Soldier with spear and shield (L), Helena [PAX] (M), Theodora [PIETAS] (N), Victory (O), Inscription in Wreath (R), Emperor raising hand (S). Most are types M (48) and N (75). There are no instances of types F, I, P and T in the dataset.

Figure 45. *Proportions of Broad Reverse Types, Reece Period 17.*

Converting these figures by mapping instances of reverse types to the relevant themes allows the coins to be considered in terms of the experience of the coins through their messages and textuality.

Place: Marking a place, including personifications of a place (such as Roma and the Wolf and Twins, Constantinopolis, and Euphrates).

The Past: References to a real or imagined past (such as the Wolf and Twins, and deified emperors when depicted on the reverse design).

Military: Victory and the Army, including Victories, soldiers, defeated barbarians and captives.

Emperor: The emperor referenced within a reverse design, in person or in text, as imperial titles or as AVG/AVGG/AVGGG. This category includes deified emperors, junior emperors, and the imperial family.

Religion: Depictions of religion in a broad sense, including gods, personifications, the emperor (as a religious leader, and focus for worship), and 'Pietas'.

Reverse Broad Type	Reverse Description	Message				
		PLACE	PAST	MILITARY	EMPEROR	RELIGION
A	Soldiers with Standard(s)			X		
D	Urbs Roma - Wolf and Twins		X			X
E	Constantinopolis - Victory on Prow	X				X
Q	Two Victories			X	X	X

(A more detailed version of this table, and descriptions of each coin reverse type, can be found in Appendices D-iv and D-vii).

Table 14. *Percentage Proportions of Reverse Message Themes, Reece Period 17.*

Reverse Message	Place	The Past	Military	Emperor	Religion
Frequency	275	296	1151	452	1007
Percentage (2dp)	8.65	9.31	36.18	14.21	31.66

Table 15. *Frequency and Proportion of Reverse Messages, Reece Period 17.*

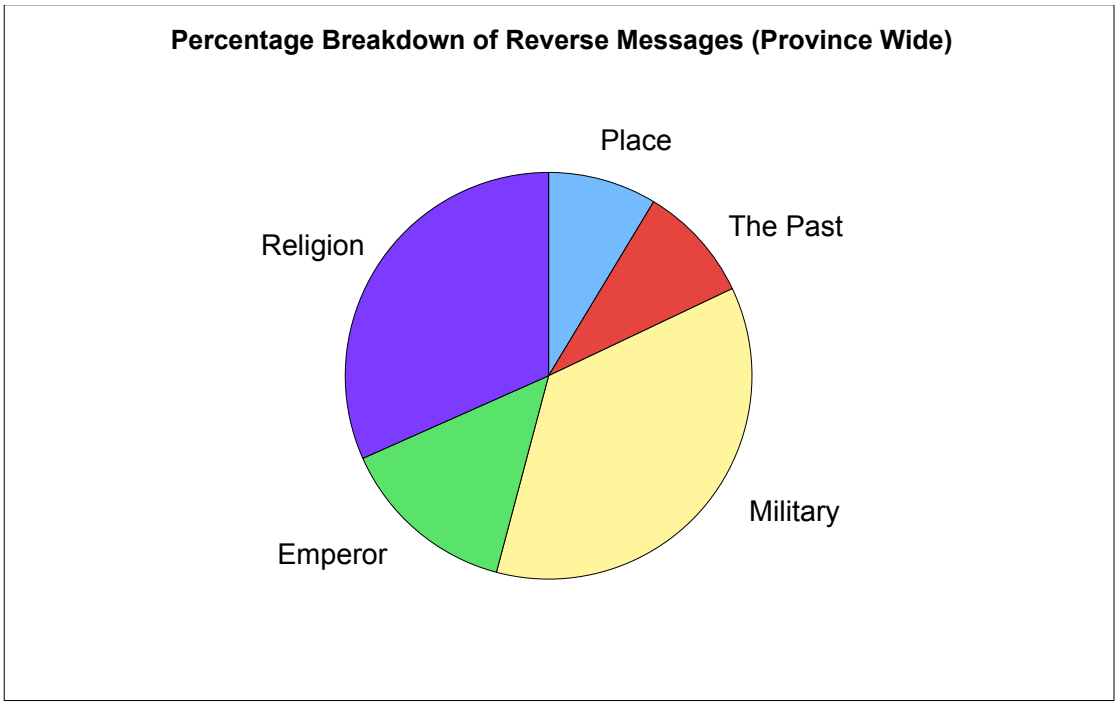


Figure 46. *Proportions of Reverse Messages, Reece Period 17.*

The message themes 'Military' (36.18%), and 'Religion' (31.66%) dominate the coinage of Reece period 17. 'Emperor' (14.21%), 'Past' (9.31%) and 'Place' (8.65%) are also significant elements of the coinage message themes. Other message types (outlined in chapter 4.6) are omitted as they are negligible or absent.

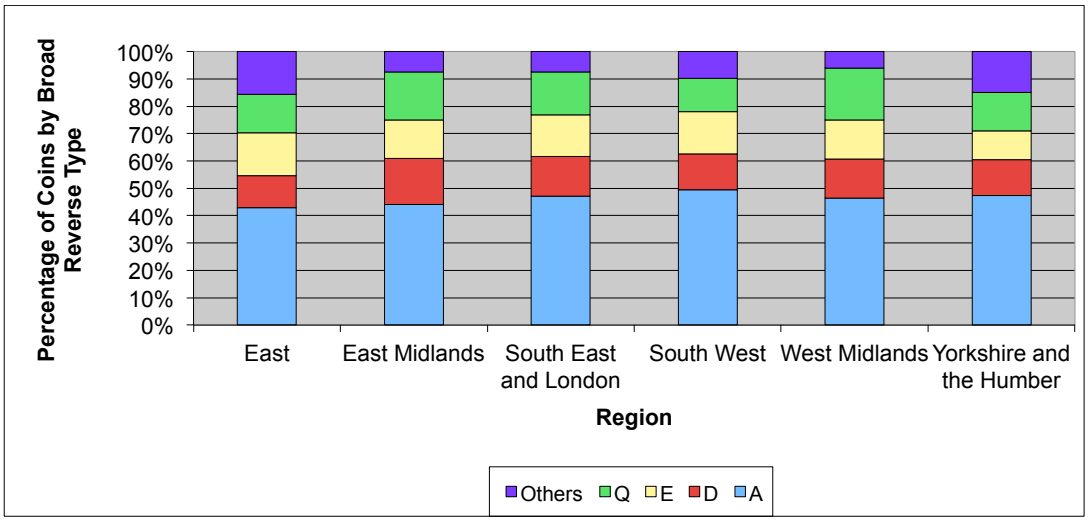
5.3 ii: Reverse Types by Region

Breaking the broad reverse type data into regions can be used to test for a regional variation in coinage.

	Number of Coins By Broad Type				
Region	**A**	**D**	**E**	**Q**	**Others**
East	85	23	31	28	31
East Midlands	322	123	103	127	55
South East and London	297	92	95	99	47
South West	45	12	14	11	9
West Midlands	39	12	12	16	5
Yorkshire and the Humber	54	15	12	16	17
Total	842	277	267	297	164

Table 16. *Frequency of (Broad) Reverse Types, by Region, Reece Period 17.*

The North East and North West are omitted from this analysis, as the low numbers of coins recorded (22 and 3 respectively) are not suitable to be spread across a range of up to 19 reverse types and still produce comparative patterning. This relative lack of coinage suggests an obvious differential experience, if the coins were genuinely scarce or rarely lost.



A – Soldiers with standard(s)
D – Urbs Roma, Wolf and Twins
E – Constantinopolis, Victory on Prow
Q – Two Victories

Figure 47. *Proportions of (Broad) Reverse Types, by Region, Reece Period 17.*

The broad reverse type proportions are similar between all regions, suggesting a consistency in the textuality of coins. The regions with the highest number of coins recorded (the South East and London, and the East Midlands) most likely display the truest reflection of patterns in coin reverses, with the regions varying most from these being those with lowest number of coins recorded (such as Yorkshire and the Humber).

5.3 iii: Message Themes by Region

	Frequency of Message					
Region	**Place**	**The Past**	**Military**	**Emperor**	**Religion**	**Total**
East	37	24	115	53	113	342
East Midlands	104	128	454	180	408	1274
South East and London	95	97	397	146	333	1068
South West	15	17	59	19	48	158
West Midlands	12	13	55	21	45	146
Yorkshire and the Humber	12	17	71	33	60	193
Total	275	296	1151	452	1007	3181

Table 17. *Frequencies of Message Theme, by Region, Reece Period 17.*

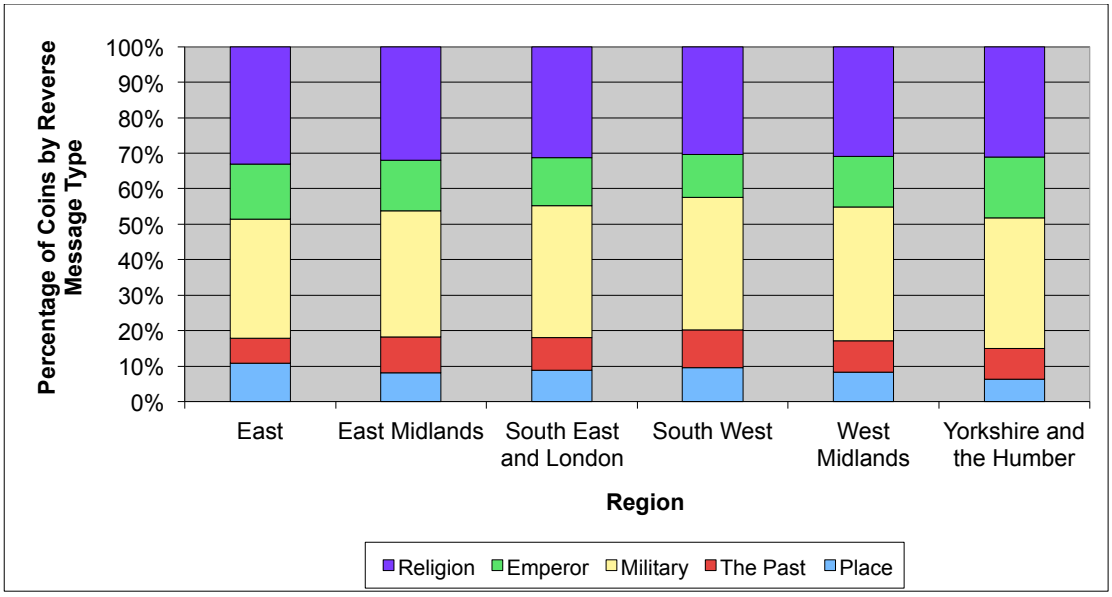


Figure 48. *Proportions of Message Theme, by Region, Reece Period 17.*

As with reverse types, a proportional overview of the coinage shows that the message themes are relatively consistent between regions, suggesting regional variation in coinage might not be present as a result of different proportional themes and messages depicted in the coinage used.

5.3 iv: A 'Binary' Consideration of Message Themes

Focusing on an individual message theme, compared to all other themes, may help to understand the textuality of coins. The relationship is not a true binary opposition as the message themes overlap and interconnect - this prevents simple statistical testing, but categorising coins with each reverse only mapped to a single theme would be to lose the essential nature of coin designs that relate to a number of themes, with images and texts representing a multitude of meanings.

The 'Military' theme is the first of the two dominant message themes, with a national percentage of 34.91% (2dp).

Region	**Difference from National 'Military' theme percentage (2dp)**
The East	**-3.32**
East Midlands	-0.41
South East and London	**+1.15**
The South West	**+2.20**
West Midlands	**+1.76**
Yorkshire and the Humber	-0.61

Table 18. *Difference, by Region, from National Percentage of Coins with 'Military' theme.*

There is a noticeably lower tendency for coins to depict military themes in The East, and a greater tendency to depict military themes in the South East and London, the South West and the West Midlands. (The greatest difference is between the East and South West, at 5.52%).

The theme of 'Religion' is the second of the two dominant message themes, with a national percentage of 30.54% (2dp).

Region	Difference from National percentage (2dp):
The East	+0.50
East Midlands	+0.46
South East and London	-0.29
The South West	-0.35
West Midlands	-0.54
Yorkshire and the Humber	**-1.55**

Table 19. *Difference, by Region, from National Percentage of Coins with 'Religion' theme.*

There is relatively little variation, but a noticeably lower tendency for coins in the Yorkshire and Humber region to depict a religious theme. (The greatest variation is between the Yorkshire and Humber and the East, at 2.05%).

The theme of 'Emperor' is the first of three less dominant themes, with a national percentage of 13.71% (2dp).

Region	Difference from National percentage (2dp):
The East	+0.85
East Midlands	-0.03
South East and London	-0.45
The South West	**-1.76**
West Midlands	+0.29
Yorkshire and the Humber	**+2.23**

Table 20. *Difference, by Region, from National Percentage of Coins with 'Emperor' theme.*

There is a greater tendency for coins in the Yorkshire and Humber to depict the Emperor theme, whereas there is a lower tendency for coins in the South West to depict a reverse theme of the Emperor. The greatest variation is between these two regions, at 3.99%.

The theme of 'The Past' is the second of three less dominant themes, with a national percentage of 8.98% (2dp).

Region	**Difference from National percentage (2dp)**
The East	**-2.39**
East Midlands	+0.75
South East and London	-0.17
The South West	**+1.71**
West Midlands	-0.31
Yorkshire and the Humber	-0.77

Table 21. *Difference, by Region, from National Percentage of Coins with 'Past' Theme.*

The coins in the East have a lower tendency to depict the past, whereas the coins of the South West have a greater tendency to depict the past; the largest variation is between these two regions at 4.10%.

The theme of 'Place' is the third of three less dominant themes, with a national percentage of 8.34% (2dp).

Region	Difference from National percentage (2dp)
The East	**+1.82**
East Midlands	-0.44
South East and London	0.29
The South West	**+1.09**
West Midlands	-0.34
Yorkshire and the Humber	**-2.54**

Table 22. *Difference, by Region, from National Percentage of Coins with 'Place' Theme.*

The coins of the East and the South West have a greater tendency to depict a message theme related to 'place', whereas the coins of Yorkshire and The Humber have a lower tendency to show this theme. The greatest variation is between the East and Yorkshire and The Humber, at 4.36%.

'Stability' is a relatively insignificant message theme, with a national percentage of 3.70% (2dp).

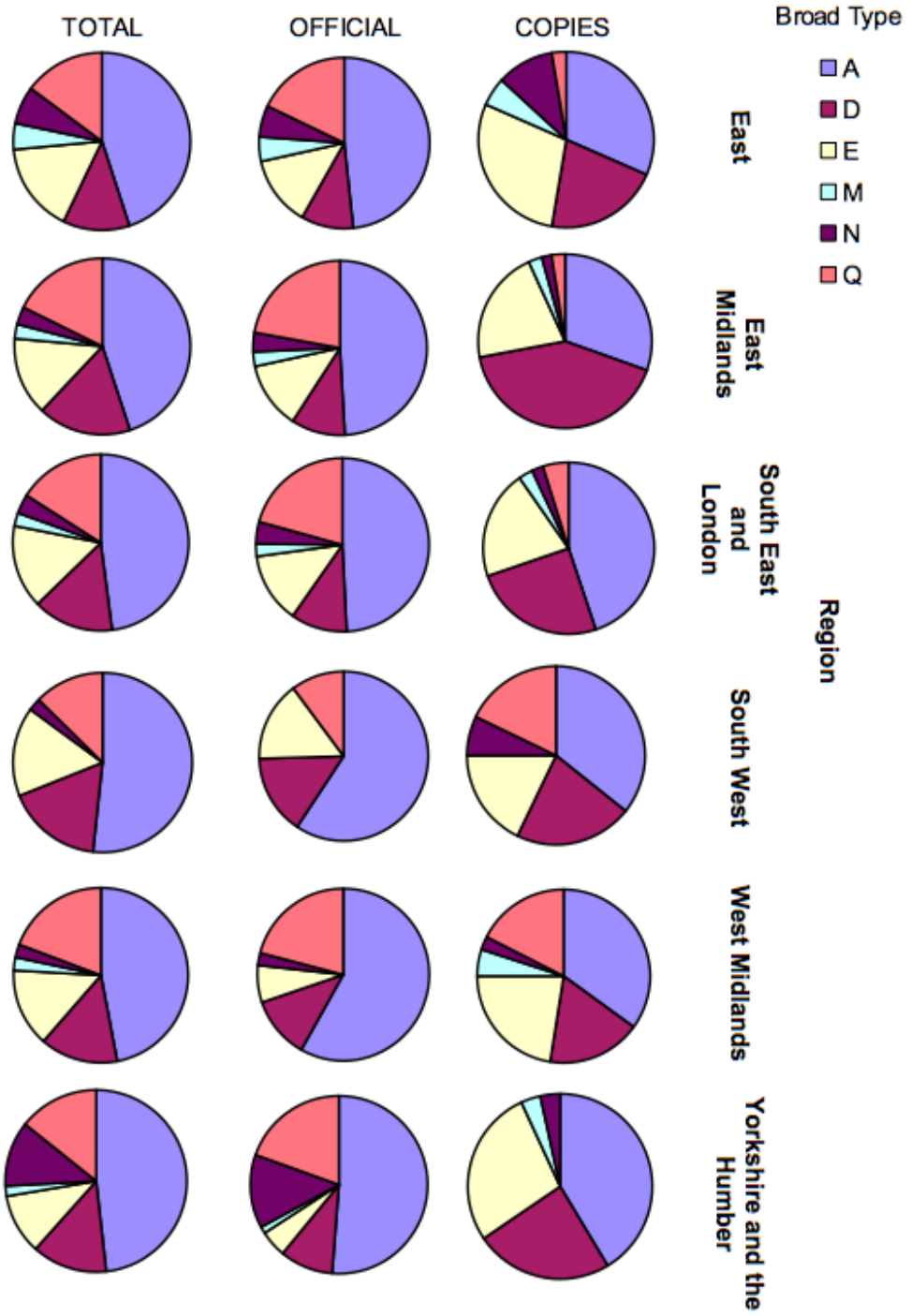
Region	Difference from National percentage (2dp)
The East	**+2.34**
East Midlands	-0.43
South East and London	-0.34
The South West	**-2.44**
West Midlands	**-1.03**
Yorkshire and the Humber	**+3.06**

Table 23. *Difference, by Region, from National Percentage of Coins with 'Stability' Theme.*

The East and Yorkshire and the Humber have a greater tendency towards coins depicting 'stability', whereas the South West and the West Midlands have a lower tendency towards this theme. The greatest variation is between the South West and Yorkshire and the Humber at 5.50%.

There is a marked consistency in the proportions of message themes between regions. The variation in the proportions of coins with a 'military' theme, for example, would only affect an estimated one in twenty coins experienced. However, although I do not feel that it can be asserted, for example, that coinage experience in the East was more military in theme, I do feel that the data shows that there may have been a subtle but potentially important regional or contextual difference in the relative proportions of messages and themes experienced when interacting with coinage.

Comparing Official and Copy Reverse Proportions:



(The North West region is omitted, as it only contains data for three coins, two official and one copy. The North East is omitted, having only has 22 coin records, although the patterning displayed seems close to other that of the other regions.)

Figure 49. *Total, Official, and Copy (Broad) Reverse Type Proportions by Region.*

The results of this comparison are striking. The official coinage appears to display the same pattern of slight variation of reverse proportions between regions. The copies in each region generally have a greater proportion of coins of reverse type D (Vrbs Roma, Wolf and Twins) and type E (Constantinopolis, Victory on Prow), with a corresponding lower proportion of coins of type A (Soldiers with Standard). Referring to the comparisons undertaken earlier between differing reverse types and the effect of message themes, it can be deduced that copies generally have a stronger tendency towards message themes depicting religion, past and place, and a lower tendency to depict a military theme.

This certainly in part reflects the large number of copies produced of the 'new Rome' (Constantinopolis) and 'old Rome' (VRBS ROMA) issues of AD330 to AD340. There is potential for a recording bias with copies, with smaller and cruder coins more complicated to record, with the helmeted busts of Rome and Constantinople featured on the obverse of types D and E potentially making them easier to identify. Yet there does seems to be an interesting distinction between the official coinage and non-official coinage, in each region, that I feel would justify further investigation.

Chapter Six:

Summary

Summary

A Multidisciplinary Theoretical Approach:

My attempt at a multidisciplinary assessment was, I feel, a relative success. The motivation for my research was to explore what a multidisciplinary theoretical approach could tell us about the relationship between coins and identity within Roman Britain, hoping to move beyond the traditional numismatic focus on the economy, production and supply. Via a consideration of structural linguistics, Marxism, reader theory, defamiliarisation, and phenomenology I devised what I feel is the start of a satisfying understanding of how coins and coin-users are linked via identity (my findings are outlined fully in chapter 3.6).

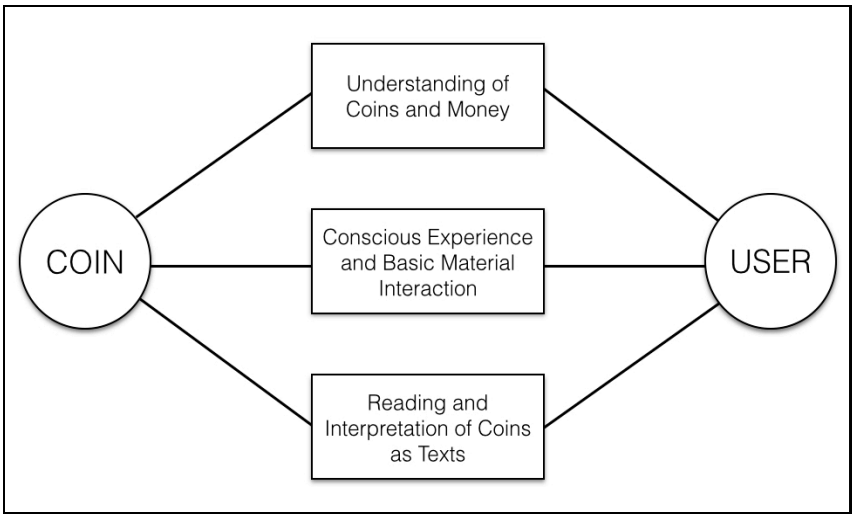


Figure 50. *The Relationship between Coins and Identity.*

This approach is merely a starting point, with significant potential for refinement and development by widening the framework and modes of discourse. The most striking element of my understanding of coins, coin-use and identity within Roman Britain are the unexpected potentials for flexibility and variability in coin-use, coin experience, and coin meaning.

Applying Theoretical Concepts to Coin Data:

It was difficult to adapt theoretical concepts of coins, coin-use and identity to a focused methodology by which to analyse coin data, largely due to the lack of

an established framework, making the approaches experimental and uncertain. I hoped simply to establish and test basic trials for novel approaches to the data, asking new questions - my findings are outlined fully in chapter 5.

Diameter:
Reece Period 13 - regional consistency
Reece Period 14 - some regional variation
Reece Period 17 - some regional variation

Copy to official proportions:
Reece Period 13 - regional consistency
Reece Period 14 - noticeable regional variation
Reece Period 17 - regional consistency

Reverses/Messages Reece Period 17:
Official Issues - regional consistency
Copies - some regional variation

Figure 51. *Summary of Data Analysis Patterning.*

I believe that there is real potential for regional variation in coin diameters (chapter 5.1), and therefore materiality and experience, worthy of further analysis using a more refined analysis and a more rigorous level of questioning and interpretation via a greater understanding of coin distribution and supply.

I feel that there is also substantial potential for regional variation in copy-to-official proportions, where copies are defined from a coin-user perspective (chapter 5.2). The development of a user-focused definition of contemporary copies, and the analysis showing that what defined a copy was variable rather than static and consistent, is perhaps the element of data analysis that I am most excited by (although again, there is significant scope for refinement, through more extensive data analysis and a more thorough integration with existing numismatic information).

Finally, I feel that there was an interesting patterning within the assessment of coin reverse types, when data regarding issue-based reverse types were converted to a series of broad message themes (chapter 5.3). This approach was the most experimental, and would benefit from significant investigation and refinement - my data analysis for reverse themes required a number of unforeseen additional stages to attempt a better understanding and interpretation. However, the variation in the message component of copies compared to official issues within some regions raises many questions, and requires an assessment of other Reece periods, and interpretation through a more developed understanding of regional coin supply (and how this supply relates to reverse types).

Working with PAS Data:

The PAS dataset represents an excellent data source. There are issues with the data, although for my research the main limitations stemmed from the time available to work with the data, together with issues common to most numismatic data. Users of PAS data need to be aware of the nature of the dataset (problems with the data, as well biases) and be prepared to invest time, requiring some specialist knowledge, to bring the data to the standards required for analysis. The extent of work required to prepare and correct data came as a surprise within my research, and the time taken to prepare data restricted the extent of data analysis and discussion.

Welsh coinage data within the PAS dataset (not used here) is largely comprised of data collated by Guest and Wells, from which information such as diameter is unfortunately absent. I would urge anyone recording coin finds to ensure diameter is captured, as it greatly enriches the data (particularly for otherwise 'uninteresting' worn copies, that can become a key part of the dataset if diameters are recorded, but are largely useless if not). It has been demonstrated in my research that the diameter can help to determine the copy or official status of a coin, as well as being a significant aspect of materiality and phenomenology.

My basic recommendations when using PAS data are:

• Filling blank fields (diameter, reverse type, etc.) where the appropriate information is contained within the description or notes fields.
• Correcting simple detectable data entry errors and mis-entered information (such as reversed thickness and diameter field entries).
• Correcting data which is internally inconsistent (such as denominations entered that are incorrect for the periods, or rulers and reverse types entered with an incompatible Reece issue period).
• Splitting records with multiple coin finds entered into distinct records for each coin (not hoards, which are reported as a distinct find type). This is not always possible (for example, record 435378 has 44 coins with one diameter and no details, and record 435288 has 55 coins with no diameter or details).

Figure 52. *Recommendations When Using PAS Data.*

This is in no way intended as a criticism of the PAS or the dataset. It must be remembered that the data is rescued information that would otherwise be lost. It would be naïve to expect the dataset to be adjusted to suit my particular form of multidisciplinary numismatic research.

Future Potential:

Utilising a user focus within a multidisciplinary framework creates new ways to look at coinage, with new research questions and new ways to question data. The potential direction for development in several areas not explored by this project are included (in an embryonic state) within the appendix (appendix i, ii and xii). Researchers should not be afraid to work without data analysis, especially within a multidisciplinary framework. With an awareness of what coins were used (from Reece, Lockyear, et al), there is a basis for meaningful discussion using literary theory, linguistics, and philosophy. However, I feel that the greatest potential is through the use of data to explore and quantify these multidisciplinary concepts; data analysis is a key part of archaeology and numismatics, and deserves a role within a multidisciplinary framework (such as with VASLE project for the

Anglo Saxon landscape and economy, Richards et al 2008).

This project was only part of a Masters thesis, rather than a full scale PhD or professional project, with a steep learning curve, and with limited time and resources. As well as scope for development of the theoretical framework (chapter 3), I feel that my ideas would benefit from a more nuanced assessment of Roman coins, coin-use, coin supply, denominations and the Roman economy (more than could be achieved within the scope of this project). My research has been fruitful and rewarding - particularly in developing a user focus, and user-defined notion of copies - but due to the nature of developing new perspectives and approaches, I feel that I have raised more questions than I have answered. There is substantial potential for development of the core ideas, each of which I feel could be the start of a more substantial and rewarding study. The ideal end result, following further development and research, would be for a holistic approach, finding a medium between conceptual development via multidisciplinary theory, linked with a fuller integration with numismatics and archaeological data.

The main approaches that I feel I could use to develop numismatic understanding are:

1. A focus on the coin user perspective. Assessing coinage data through materiality, and sensory experience, such as:

- the experience of handling coins (e.g. weight and odour)
- the surface appearance of coins when used (shine and tarnish, how coin-use affects appearance, how familiarising and wear affect experience)
- the affect of the coin's metallurgy on experience - feel, smell, tarnishing, etc. (for example, how a 4% silver content radiate compared to a 0% silver copy)

2. A deeper integration and expansion of the concepts developed, within a wider (and more sophisticated) numismatic approach:

- Widening data analysis to cover more Reece periods, and a broader four-stage coin-use model (A - the stable denarius period, B - the radiate period, C - reforms of Diocletian and Constantine, D - remainder of the fourth century to the end of the Roman Period).
- Integration with non-PAS data, such as site finds (as in Walton 2012) hoards, and museum collections.
- Developing numismatic analysis using more sophisticated methods, such as cluster analysis and correspondence analysis.

The clear benefit of a multidisciplinary approach is that it creates many opportunities to apply and adapt new ideas to further understanding. The problem, however, is that any project cannot hope to explore each avenue, and many perspectives must be left unexplored. An understanding of coins and coin-use can be developed further by utilising perspectives not explored within this project (including philosophical concepts of 'identity', art and aesthetics, literary theory approaches to text, and approaches to performance and context such as theatre studies). There are also wider possibilities including sociology, psychology, and business models (such as 'diffusion'). Ethnographic and historical parallels, when assessed with an awareness of the limitations of assuming correlation and similarities, can also be rewarding (appendix ii). However, I feel the most obvious potential for developing a better understanding coins and coinage (from a coin-user perspective) is through the further application of reader theory, and the process of interpretation (within literary theory, philosophy, linguistics and beyond). Developing a reader focus within numismatics need not be purely conceptual - although data and quantification is largely missing from traditional consideration of 'texts', a strength of numismatics is the quantifiable data, available for assessment by issue period or use period, on a national or regional level.

Appendix

List of Accompanying Material

Appendix

Ai - Coinage and Identity: Modern Parallels

Appendix i

Coinage and Identity: Modern Parallels

Modern parallels for coin-use and for the relationship between identity and coinage could be particularly useful as part of a multidisciplinary approach, despite the obvious pitfalls of comparing and contrasting cases from different periods and between different social, political and economic spheres. Archaeology, particularly prehistory, has an established tradition of utilising anthropological and ethnographic parallels to explore cultural phenomena. The study of coinage, however, produces a range of interesting parallels most notably from modern western culture. Looking at modern parallels is not simply applying cross-period numismatics, but is also a means to utilise a multidisciplinary approach encompassing history, sociology, and politics. This is a small (by no means exhaustive) compendium of potentially relevant coinage and identity examples from the modern world (medieval to today).

Coping with a shortage of coinage

French five and ten centime coins of Napoleon III are relatively common finds in Britain, particularly as metal detecting finds (a detail that I have noted through personal communication with metal detectorists, although the coins themselves are post 1750 so are not recorded on the PAS finds database). The coins were commonly used in Britain around 1860, as the general recoinage of 1860 lead to a shortage of genuine British coins. The French coins are roughly the same size, weight and metal content. They are also similar in appearance, albeit with the French emperor, imperial eagle and French legends 'NAPOLEON III EMPEREUR' and 'EMPIRE FRANCAIS * CINQ CENTIMES *'. The use of these coins was later prohibited, effectively demagnetising them (although they were only accepted and used, never actually legal tender) and there are many found damaged, defaced, or repurposed including being drilled as pendants or hollowed out to form lockets or secret compartments.

French five cent coin of Napoleon III, 1854, found in Britain.

In Italy during the 1970s there was a lack of low denomination coinage, and as a result it was common for sweets to be given by shops in place of small change (Reece, 2002). This illustrates, even with a modern monetary economy and a long established tradition of coin-use, there can still be examples of remarkable flexibility. At low denominations, the boundaries between monetary and non-monetary exchange (and coin and non coin-use) can be malleable, particularly under circumstances that prevent normal activity and when the underlying systems that facilitate coin-use are affected.

These are potentially useful parallels for times of coin shortage, within societies with monetised economies, and for whom coin-use and monetary exchange was commonplace. The case of the coins of Napoleon III is particularly interesting, due to the many cases of subsequent non-monetary use of the coins once they were de-monitised (including drilling to create pendants, fashioning into practical shims or washers, and hollowing to create lockets or hidden compartments).

Pierced French five cent coin of Napoleon III, 1855, found (and pierced) in Britain.

Political coinage

Williamson (2005) illustrates the intriguing example of the Bosnian KM, the currency of modern Bosnia Herzegovina. As an international protectorate, Bosnia Herzegovina was divided into a Croat-Muslim Federation and a Serbian Republika Srpska in 1995, with both halves understandably exhibiting distinct identities. As even simple everyday objects could potentially cause violent ethnic tensions, the International community designed the coinage externally. The result was a coin with a distinct and deliberate iconographic void; the obverse features the country's neutral shield motif, whereas the reverse has the phrase 'Bosne I Herzegovina' twice, once in the Latin script of Catholic Croatia and once using the Cyrillic alphabet of orthodox Serbia. Although a modern political example, the power of coins is illustrated, as is the power of the authority minting a coin to transmit messages, using coinage as an economical and political action. However, it also proves that coins are not necessarily an accurate or representative embodiment of the identity of the people or community using them.

Another modern example of the political and social impact of coinage is that of Vichy France, 1943-1944. The French national motto has featured heavily on coins (as well as other products of the state, from stamps to churches) both before and after the Second World War. "Liberte, Egalite, Fraternite", the revolutionary message of liberty, equality and brotherhood was not compatible with Nazi ideology. As a result, coins issued by the Vichy government contained the new national motto, "Travail, Famille, Patrie" (Work, Family, Fatherland). Today the Vichy French motto is consigned to the history books, and is perhaps most visible through the surviving coinage which is common enough to be in the hands of many collectors of coinage, and of second world war ephemera.

Two Franc coin of Vichy France, 1943.

The obverse features an axe (the Roman 'fasces', the ancient Roman symbol of the magistrates' authority, from where the modern term 'fascist' may derive) is inscribed PACIS PETAIN - Phillipe Petain was the Chief of State of Vichy France 1940-44. Again, this is a modern demonstration of how coinage can be politically and socially charged, through its display of state messages and symbols; in the case of Vichy France the coinage is notably distinct from that which came before and after, markedly mirroring the state message and ideology of the issuing authority.

Non-coins

Perhaps the most obvious example of a coin-like object is the medieval jetton, used across Europe as a counter or reckoning token. Typically made from copper alloy, rather than the silver used for contemporary coinage, jettons were struck onto thin discs in a fashion similar to minting coins of the period, featuring a range of designs sometimes with a religious or political/propaganda message

Nuremburg 'Rose and Orb/French Shield' Jetton cAD1500-1525. PAS Record ID BH-D55E58 (Central Bedfordshire, recorded 20th January 2014).

Jetton use on counting board (woodcut, probably from Strasbourg, France). Image from Wikipedia (http://en.wikipedia.org/wiki/Jeton#mediaviewer/File:Rechentisch.png), accessed 3rd March 2013.

Copies of Georgian spade guineas were popular in Victorian Britain, made from brass rather than gold, and used as gaming and gambling tokens. These tokens

resemble coins, and are often mistaken by finders and collectors to be a Georgian coin. They are most likely the result of Victorian gentlemen looking back to 'better times' with greater social freedom under George III, as opposed to a society under Victoria that was increasingly oppressively moral.

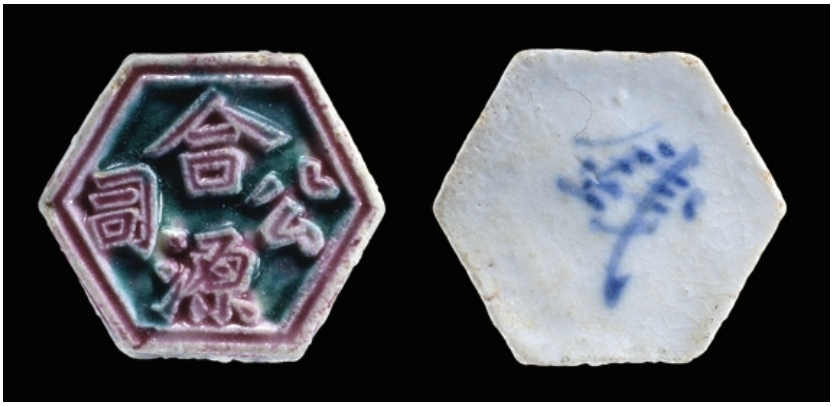
Two (probably Victorian) gaming tokens styled after coins of George III.

There were also large numbers of 'To Hannover' tokens minted, again possibly for use in gaming and gambling and, between the 1830s and 1860s. These feature the queen on the obverse, with the mounted Duke of Cumberland riding to claim the crown of Hannover on the reverse.

Not all gaming tokens were this 'coin-like', many were simply metal discs with images such as depictions of people at the card table, or messages such as 'do not cheat' (although a metal disc with words and images is 'coin-like', it is not to the extent of the spade guinea coin clones, or the coin spoofing to Hannover tokens).

'Keep Your Temper' coin-like Victorian Whist Marker. Image from the British Museum (http://www.britishmuseum.org/explore/highlights/highlight_objects/cm/b/brass_whist_marker.aspx), *accessed 3rd March 2013.*

Although not coins, these are coin-like, and show the potential for social and political expression through coin-like objects. In a fashion, the creation of objects that are non-monetary coins is a form of non-monetary coin-use, and highlights the utility of coin-like objects aside from their use for monetary exchange and payment. Gambling was popular in the Roman period, with evidence in both archaeological finds such as dice and in contemporary documents; small reused discs of pottery are typically interpreted as gaming tokens (but could equally have been used as reckoning tokens), which is a function that repurposed and de-monitised base metal coinage could have been put to. This was taken full circle in late nineteenth century Thailand, where gambling tokens were used as small change in the surrounding communities, at a time when the official currency was either in silver, which was in short supply, and cowrie shells, which were decreasing in value.



Ceramic Gambling Token (Thailand, late 1800s), repurposed and used as currency. Image from the British Museum (http://www.britishmuseum.org/explore/highlights/highlight_objects/cm/c/ceramic_gambling_token.aspx), *accessed 3rd March 2013.*

Current Coinage

As has been discussed, when dealing with phenomenological approaches to coinage and identity, we can also draw parallels and insights from modern attitudes to coinage. Statements such as 'you might look for a lost ten pound note, but you would not spend time searching for a lost penny' or 'would you bother to pick up a ten pence piece if it was dropped into an open drain' are often made when discussing ancient coin loss and (non) recovery, even though such direct parallels may be dangerous.

One interesting aspect, related to the concepts of phenomenology (through ontological philosophy) and de-familiarisation (through Russian Formalist literary theory) is the question of how much the 'information' displayed on modern coins, through images, symbols and text, is actually noticed by the people using them. Most people when asked also struggle to correctly recall the direction the Queen's portrait faces - usually guessing 'left' as on a postage stamp, an object that is actually seen less often.

Current (2001) Standard Pound Coin, compared to current 1st Class Stamp. It is interesting to note that the portraiture has been kept relatively 'current' on coinage, but not stamps. As portable objects of standardised value, stamps have been used at times as a form of currency in exchange.

In my experience working with groups ranging from school children to community archaeology groups, few people are aware that most pound coins have the Latin legend '*Decus Et Tutamen*' around their edge, and even less are aware that this is a traditional device dating back to Georgian coins (or that the phrase itself is lifted from Virgil's *"viro decus et tutamen in armis"*, Aeneid, Book V, L. 262). There are a rich array of signs, symbols and references on modern coins that would only by understood by numismatists and historians, which tells us something of the nature of coinage design and the role of messages on coins today. More importantly, this tells us that most people, who see and handle coins almost every day of their lives, do not actually look at them enough to be aware of the details of their design, and have never actually wondered what they mean; this surely is more of an important universal, whilst it is easy for us to imagine the Roman provincial public being shocked, outraged, or uplifted by new imagery appearing on coinage (the use of Christian symbolism such as the Chi Rho, the appearance of Constantinopolis as the 'New Rome', and messages of stability and wellbeing such as 'GLORIA EXERCITVS' and 'FEL TEMP REPARATIO') it is perhaps more difficult to envision mass apathy and a lack of attention paid to the array of statements and messages, although this is actually our modern frame of reference outside of numismatics and archaeology.

Appendix

Aii Pierced Roman Coins Recorded in the PAS Database

Appendix ii
Pierced Roman Coins Recorded on the PAS Database

These coins were identified by querying the Portable Antiquities Scheme database, and exporting all records of object type COIN, broad period ROMAN, and with 'pierced' within the description. The data has not been manually checked and corrected, so a greater number of records would be assignable to Reece broad four-stage coin-use periods (A to D), if not to specific Reece Issue periods.

REGION	NUMBER OF PIERCED ROMAN COINS RECORDED
EAST	199
EAST MIDLANDS	113
NORTH EAST	7
NORTH WEST	1
SOUTH EAST AND LONDON	210
SOUTH WEST	80
WEST MIDLANDS	12
YORKSHIRE AND THE HUMBER	44
TOTAL	666

Pierced Roman Coins Recorded by Region

REECE PERIOD	NUMBER OF PIERCED ROMAN COINS RECORDED
1	2
2	6
3	1
4	17
5	3
6	7
7	7
8	2
9	2
10	9
11	6
12	7
13	50
14	32
15	34
16	52
17	58
18	37
19	55
20	2
21	1
TOTAL	390

Pierced Roman Coins recorded, by Reece Period. Others records have no Reece ID entered (with ReeceID '0' or '23'), there are no pierced coins recorded for Reece Period 22.

There is potential for further study both by region, and by coin-use/coin issue period. Furthermore, the PAS dataset would allow a higher resolution of study for some of the coins, recorded by parish, or four figure grid reference, or better. The accompanying data cd include as spreadsheet of all of the records, with the publicly available (non sensitive) findspot data included (although future research could potentially make use of the higher resolution, sensitive findspot information).

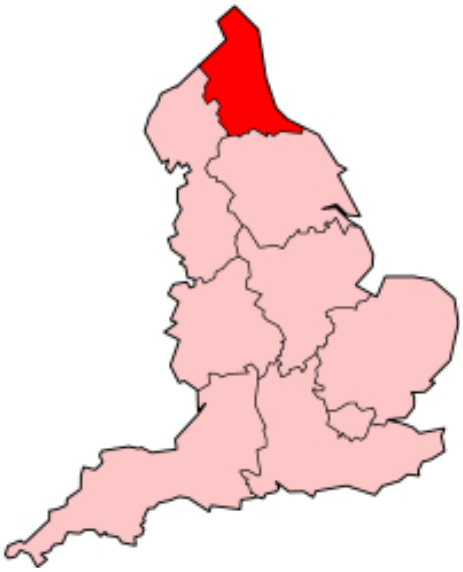
Appendix

Aiii Definition of Regions

Appendix iii

Definition of Regions

North East: North Tyneside, Redcar and Cleveland, South Tyneside, Sunderland, Northumberland, County Durham, Darlington, Gateshead, Middlesbrough, Stockton-on-Tees, Hartlepool



North West: Wirral, Liverpool, Salford, Manchester, Cheshire East, Cumbria, Lancashire, Stockport, Cheshire West and Chester, Warrington, Sefton, Halton, Trafford, St. Helens, Knowsley, Wigan, Rochdale, Blackburn with Darwen, Bolton, Bury, Oldham, Blackpool, Tameside.

Yorkshire and The Humber: East Riding of Yorkshire, North Yorkshire, Barnsley, Calderdale, Wakefield, Sheffield, Bradford, York, Leeds, Rotherham, Doncaster, North Lincolnshire, North East Lincolnshire, Kirklees.

South East and London: Greater London Authority, Medway, Hampshire, Kent, Isle of Wight, West Berkshire, Buckinghamshire, Oxfordshire, Milton Keynes, East Sussex, Surrey, West Sussex, Bracknell Forest, Wokingham, Windsor and Maidenhead, Reading, The City of Brighton and Hove, Slough.

South West: Cornwall, Dorset, Gloucestershire, Swindon, Wiltshire, Devon, Somerset, South Gloucestershire, Bath and North East Somerset, City of Bristol, North Somerset, Torbay.

East: Norfolk, Suffolk, Essex, Bedford, Central Bedfordshire, Hertfordshire, Cambridgeshire, Thurrock, City of Peterborough, Luton, Southend-on-Sea.

East Midlands: Lincolnshire, City of Derby, Nottinghamshire, Rutland, Derbyshire, Northamptonshire, Leicestershire.

West Midlands: Shropshire, Staffordshire, Worcestershire, County of Herefordshire, Warwickshire, Telford and Wrekin, Walsall, Dudley, Coventry, Solihull, City of Stoke-on-Trent, Birmingham, City of Wolverhampton.

Wales: Conwy, the Vale of Glamorgan, Carmarthenshire, Cardiff, Ceredigion, Gwynedd, Caerphilly, Merthyr Tydfil, Blaenau Gwent, Pembrokeshire, Powys, Swansea, Neath Port Talbot, Wrexham, Isle of Anglesey, Monmouthshire, Flintshire, Newport, Bridgend, Denbighshire, Rhondda Cynon Taf, Torfaen.

(Wales was incorporated into the Portable Antiquities Scheme from 2003 onwards. Data from Wales has not been used in this analysis).

All map images adapted from Wikipedia
(http://en.wikipedia.org/wiki/Regions_of_England), accessed 1st April 2013.

Appendix

Aiv Expected (Official) Coin Diameter, by Issuer and Reverse Type, Reece Periods 13, 14, and 17

Appendix iv

Expected (Official) Coin Diameter, by Issuer and Reverse Type, Reece Periods 13, 14 and 17

Reece Period 13 - AD 260-275:

Issuers - *Victorinus, Tetricus, Tetricus II*
Minimum size expected = 18mm. Coins below 16mm marked as copies.

Issuers - *Gallienus, Salolina, Postumus*
Minimum size expected = 20 mm. Coins below 18mm marked as copies.

Issuers - *Claudius II*
Minimum size expected = 15mm. Coins below 13mm marked as copies.

The missing issuers in my system for Reece Period 13 are *Aurelian* (31), *Quintillus* (20) and *Divus Claudius* issued by *Quintillus* (22), *Laelianus* (3), *Marcus Aurelius Marius* (5), *Ulpia Severina* (4).

Reece Period 14 - AD 275-296:

Issuers - *Carausius* and *Allectus*
Minimum size expected = 18mm. Coins below 16mm marked as copies.

The missing issuers for Reece Period 14 are *Tacitus* (21), *Diocletian* (3), *Florian* (2), *Carus* (2), *Carinus* (4), *Numerian* (1), *Magnia Urbica* (1), and *Probus* (43).

Reece Period 17 - AD330-348:

Reverse Types:
Wolf and Twins [URBS ROMA]
Victory left on prow [CONSTANTINOPOLIS]
Victory left, hgd wreath and palm [CONSTANTINOPOLIS]
Minimum size expected = 18mm. Coins below 16mm will be marked as copies.

Reverse Types:
GLORIA EXERCITAS
VIRTVS AVGVSTI and VIRVS AVGG NNSECURITAS REI PVB and SECVURITAS REI P and SECURITAS PUBLICA
PAX PUBLICA [Helena] an PIETAS ROMANA [Theodora]
Emperor in quadriga r. [DIV CONSTANTINVS PT AVGG]
AETERNA PIETAS
CONSTANTINVS CAES and CONSTANTIVS CAES
VICTORIA AVG
Minimum size expected = 16mm. Coins below 14mm marked as copies.

Reverse Types:
IVST VEN MEM and IVST VENER MEMOR
VN MR
VOT XX MVLT XXX and VOT XV MVLT XX
VICTORIA AVGG and VICT AVG and VICTORIA AVGG NN
VICTORIAE DD AVGGQ.NN and VICTORIAE DD AVGGQ.NN
VIRTVS AVGG
Minimum size expected = 15mm. Coins below 13mm marked as copies.

Reverse Types:
Bridge over river
Star is wreath
Minimum size expected = 14mm. Coins below 12mm marked as copies.
(Reverse type names and formats are after the PAS recording system, including typographic errors such as *'Star **is** wreath'* for 'Star **in** Wreath').

Appendix

Av Expected (Official) Coin Diameter for all Fourth Century Issues

Appendix v

Expected (Official) Coin Diameter for All Fourth Century Issues

Expected sizes of fourth century issues (adapted from Reece, 2000, pp46-49):

Issues marked not common are those outside of the 'common fourth century reverse types' listed on the Portable Antiquities Database Roman coinage guide. The numbers in brackets are Reece's figures, allowing cross-referencing with his standard text 'Identifying Roman Coins' (Reece, 2000).

AD 294-307. 25mm

(65) GENIO POPVLI ROMANI: Genius standing, holding patera and cornucopiae; sometimes altar.

(66) Not Common. M. SACRA AVG GET CAESS NN. Moneta holding scales and cornucopiae.

AD 307-318. 20mm

(68) GENIO POP ROM: Genius standing, holding patera and cornucopiae; sometimes altar.

(69) PRINCIPI IVVENTVTIS: Prince standing, holding two standards.

(70) SOLI INVICTO COMITI: Sol standing, holding globe/whip/whip and globe.

(71) MARTI CONSERVATORI: Mars standing, holding reversed spear and shield.

(72) Not Common. IOVI CONSERVATORI AVGG NN. Jupiter with victory, eagle at his feet.

AD 318-324. 19mm

(74) VICTORIAE LAETAE PRINC PERP (or variant): Two Victories with shield inscr VOT PR.

(75) VIRTVS EXERCIT: 2 captives seated under trophy, sometimes insc VOT XX.

(76) BEATA TRANQVILLITAS (and variants): Globe on altar inscribed VOTIS XX.

(77) SARMATIA DEVICTA: Victory advancing right, holding wreath and palm, pushing captive.

(78) CAESARVM NOSTRORVM: wreath enclosing VOT/X.

(79) D N CONSTANTINI MAX AVG: wreath enclosing VOT/XX.

AD 324-330. 19mm

(83) PROVIDENTIAE AVGG (and CAESS): Camp-gate with 2 turrets; star above.

(84) VIRTVS AVGG (and CAESS): Camp-gate with with wide open doors and 4 turrets; star above.

(85) SECVRITAS REI PVBLICE (Helena): Securitas standing left holding branch.

(86) SALVS REI PVBLICAE (Fausta): Salus standing , holding 2 children.

(87) SPES REI PVBLICAE (Fausta): Salus standing , holding 2 children.

(88) Not Common. CONSTANTINVS AVG legend.

(89) Not Common. CRISPVS CAESAR legend.

AD 330-335. 18mm

(93) VRBS ROMA: Wolf and Twins.

(95) CONSTANTINOPOLIS: Victory left on prow.

**(97)* GLORIA EXERCITVS: *Two soldiers and two standards. (Added, missing in Reece).*

AD 335-341. 16mm

(98 and 100) GLORIA EXERCITVS: Two soldiers with standard.

(101) Nor Common. VIRTVS AVGG NN. Emperor/soldier standing right with spear and shield.

(102) Nor Common. SECVRITAS REIP. Securitas leaning on column.

(103) PAX PVBLICA [Helena]: Pax standing left holding branch and sceptre. AD 337-40

(104) PIETAS ROMANA [Theodora]: Pietas standing , carrying infant. AD 337-40

(105) Not Common. Quadriga proceeding right.

(106) Not Common. AETERNITA PIETAS. Emperor standing with spear and globe.

AD 343-348. 15mm

(110) Not Common. IVSTVENER MEMOR. Aequitas standing with scales and sceptre.

(111) Not Common. Veiled figure of the dead emperor.

(112) Not Common. VOT XX MVLT XXX. Legend in wreath.

(113) Not Common. VICTORIA AVGVSTORVM Victory walking left with wreath.

(114) VICTORIAE DD AVGGQ NN: Two Victories holding wreaths. AD 347-8

AD 330-333 (debated). 14mm

(115) Not Common. Bridge over river.

(116) Not Common. Star in wreath.

AD 348-350. 19mm

(120) FEL TEMP REPARATIO: Phoenix on globe.

(121) FEL TEMP REPARATIO: Phoenix on rocky mound.

AD 348-350. 21mm

(122) FEL TEMP REPARATIO: Soldier advancing right, leading small figure from hut.

(123) FEL TEMP REPARATIO: Emperor left on galley, holding Victory/Phoenix on globe and standard with chi-rho on banner; Victory steering.

(124) Not Common. FEL TEMP REPARATIO. Emperor standing left with two captives.

AD 350-353. 20mm

(127) GLORIA ROMANORVM: Soldier/Emperor galloping right, spearing barbarian.

(128) FELICITAS REI PVBLICAE: Emperor standing left holding Victory on globe and standard.

(129) VICT DD NN AVG ET CAES: Two Victories holding shield inscr VOT V MVLT X; sometimes on short column, sometimes with Chi Rho.

(130) SALVS DD NN AVG ET CAE(S): Large Chi-Rho between alpha and omega.

AD 353-354. 20mm

(132) FEL TEMP REPARATIO: Soldier spearing crouching horseman. (Less common than 134)

AD 354-357. 18mm

(134) FEL TEMP REPARATIO: Soldier advancing left spearing fallen horseman.

AD 357-361. 17mm

(135) Not Common. SPES REIPVBLICE. Emperor standing left with globe and spear.

AD 361-364. 19mm

(137) VOT/X/MVLT/XX: Inscription in wreath.

(138) VOT/V/MVLT/X: Inscription in wreath.

AD 364-378. 18mm

(140) GLORIA ROMANORVM: Emperor right, holding standard and dragging captive.

(141) SECVRITAS REI PVBLICAE: Victory advancing left, holding wreath and palm.

(142) GLORIA NOVI SAECVLI: Emperor (Gratian) standing, holding standard and shield.

AD 378-387. 15mm

(144) VOT/XV/MVLT/XX: Inscription in wreath.

AD 378-87. 18mm

(145) Not Common. CONCORDIA AVGGG. Rome/Constantinople seated facing.

AD 378-387. 23mm

(146) Not Common. REPARATIO REIPVB. Emperor right raising kneeling woman left. (More common in South East, Reece, 2000)

AD 387-388. 14mm

(148) SPES ROMANORVM: Camp-gate; star above. AD 387-8

AD 388-402. 12mm

(150) VICTORIA AVGGG: *Victory advancing left holding wreath and palm. AD 388-95*

(151) SALVS REI PVBLICAE: Victory holding trophy, dragging captive. Sometime Chi Rho.

Appendix

Avi An Overview of Reverse Types, Reece Period 17

Appendix vi

An Overview of Reverse Types, Reece Period 17

Reece Period 17 - AD330-348:

Issuers: Constantinian II (in place of Constantinian II, some obverses depict the deceased and deified Constantine, some show the imperial women Helena and Theodora, and there are also issues bearing obverse personifications of the cities of Roma or Constantinopolis).

Other Issuers associated with this period: Dalmatius [AD335-337], Hannibalianus [AD335-337], Theodora [AD337-341].

Reece Period 17 Reverse Types:

GLORIA EXERCITVS - Two soldiers and two standards. AD330-5
Later replaced with a similar design with one standard.

(NO LEGEND) - Bridge over river. cAD330
[POP ROMANVS] Reverse. Possibly a commemorative issue relating the establishment of the new capital at Constantinople. Highlights the difficulty in interpreting reverse types, and considering how they would have been interpreted.

(NO LEGEND) - Star in wreath. cAD330
[POP ROMANVS] Reverse. Again, possibly a commemorative issue relating the establishment of the new capital at Constantinople. This is even more problematic, as without the bridge this issue is even more tenuously tied to a concept of 'place' by its assumed status as a commemorative issue for Constantinople. Even if this assumption is correct, the notion of whether contemporary users would have understood is even more difficult.

(NO LEGEND) - Wolf and Twins [VRBS ROMA] AD330-40
The symbol of 'Old Rome' whilst a new capital was established at Constantinopolis, [VRBS ROMA] Obverse.

(NO LEGEND) - Victory left on prow [CONSTANTINOPOLIS] AD330-40

The symbol of 'New Rome' at Constantinople. The Prow of the ship is often seen as significant (eg. Reece) with Constantinople a major port. However, this symbol was often used on earlier coinage, and is arguably only identified as Constantinople due to the [CONSTANTINOPOLIS] Obverse.

(NO LEGEND) - Victory left, holding wreath and palm [CONSTANTINOPOLIS] AD337-40

Without the prow of the Ship, this is even less obviously 'Constantinople'.

GLORIA EXERCITVS - Two soldiers and one standard. AD335-41

Follows the earlier design with two standards.

SECVRITAS PVBLICA - Euphrates standard right, leaning on sceptre, urn at side, reed in background. AD336-7

Euphrates, the personification of the River Euphrates, the boundary between the Roman and Persian Empires.

SECVRITAS REI PVB - Securitas standing facing, legs crossed, holding sceptre and leaning on column. AD337-40

One of a pair of issues that differ only in the abbreviation of the inscription.

SECVRITAS REI P - Securitas standing facing, legs crossed, holding sceptre and leaning on column. AD337-40

One of a pair of issues that differ only in the abbreviation of the inscription.

VIRTVS AVGVSTI - Emperor standing right, holding spear and shield. AD337-40

The Spear and Shield give the design military connotations.

CONSTANTINVS CAES - Roma standard left on shield, holding transverse spear and Victory on globe. AD337

The Globe and Spear give the design obvious military connotations.

CONSTANTIVS CAES - Roma standard left on shield, holding transverse spear and Victory on globe. AD337

The Globe and Spear give the design obvious military connotations.

AETERNA PIETAS - Emperor standing right, holding globe and spear. AD337-40

The Globe and Spear give the design obvious military connotations. One of a pair of issues that differ only in the direction the emperor is facing.

AETERNA PIETAS - Emperor standing left holding globe and spear. AD337-40

The Globe and Spear give the design obvious military connotations. One of a pair of issues that differ only in the direction the emperor is facing.

(NO LEGEND) - Emperor in quadriga, advancing/ascending right [DIV CONSTANTINVS PT AVGG]. AD337-40

For the deified Emperor Constantine, Obverse is a veiled Constantine[DIV CONSTANTINVS PT AVGG].

VIRTVS AVGG NN - Soldier standing facing, holding spear and shield. AD337-41

PAX PVBLICA - [Helena] Pax standing left holding branch and sceptre. AD337-40

This design is used on issues with an obverse of Helena, first wife of Constantius I (or his concubine).

PIETAS ROMANA - [Theodora] Pietas standing , carrying infant. AD337-40

This design is used on issues with an obverse of Theodora, second wife of Constantius I and daughter of Maximian.

VICTORIA AVG - Victory standing left foot on prow, holding wreath and palm. AD337-40

This form is much older than the Constantinopolis issue. The reverse for the Constantinopolis is only 'Constantinople' due to the obverse (the helmeted head with the inscription 'Constantinopolis'). Victory Issues presumably celebrate a military victory, historically documented or otherwise. Could the prow, therefore, suggest a naval victory?

VICTORIA AVG - Victory advancing left holding wreath and palm. AD337-40

Victory Issues presumably celebrate a military victory, historically documented or otherwise.

VICTORIA AVGG - Victory holding wreath and palm. cAD345-7

Victory Issues presumably celebrate a military victory, historically documented or otherwise.

VICTORIA AVGG - Victory holding wreath in each hand. cAD345-7

Victory Issues presumably celebrate a military victory, historically documented or otherwise. Is it significant that this issue has two wreaths, not a wreath and palm? Wreath = Victory, Achievement and Status. Palm = Victory. Two wreaths and no palm is slightly ambiguous and could represent power or status, or a non military triumph such as a sporting victory. However, here it is held by the personification of Victory, on a state issued coin, so I do not feel that much can be read into the use of two wreaths in place of a wreath and a palm.

VICT AVG - Victory advancing left holding wreath and palm. cAD342-7

One of a pair of reverses differing only in that one is for The Emperor, the other for The Two Emperors. Victory Issues presumably celebrate a military victory, historically documented or otherwise.

VICT AVGG - Victory advancing left holding wreath and palm. cAD345-7

One of a pair of reverses differing only in that one is for The Emperor, the other for The Two Emperors. Victory Issues presumably celebrate a military victory, historically documented or otherwise.

IVST VEN MEM - Aequitas standing left holding balance and scroll. cAD342-7

For the dead emperor, Obverse has veiled Constantine [D V CONSTANTINVS P T AVGG]. Two reverses differing only in the extent of abbreviation of the legend.

IVST VENER MEMOR - Aequitas standing left holding balance and scroll. cAD345-7

For the dead emperor, Obverse has veiled Constantine [D V CONSTANTINVS P T AVGG]. Two reverses differing only in the extent of abbreviation of the legend.

VICTORIAE DD AVGGQ.NN - Two Victories standing, facing forwards, holding wreath and palm. AD347

Victory Issues presumably celebrate a military victory, historically documented or otherwise. I feel that the direction the victory faces, and the distinction between wreath and palm, and two wreathes, has little effect on the message.

VICTORIAE DD AVGGQ NN - Two Victories holding wreaths. AD347-8

Victory Issues presumably celebrate a military victory, historically documented or otherwise. I feel that the direction the victory faces, and the distinction between wreath and palm, and two wreathes, has little effect on the message.

VOT / XX / MVLT / XXX. Inscription in wreath. AD347-8

Other than the wreath, the message is purely through text and requires literacy and an understanding of imperial titles.

VN MR - Emperor standing right, raising hand. AD347-8

VOT / XV / MVLT / XX - Inscription in wreath. AD347-8

Again, other than the wreath, the message is purely through text and requires literacy and an understanding of imperial titles.

VICTORIA AVGG NN - Victory advancing left holding wreath and palm. cAD348.

Victory Issues presumably celebrate a military victory, historically documented or otherwise. I feel that the direction the Victory faces, and the distinction between wreath and palm, and two wreathes, has little effect on the message.

VIRTVS AVGG - Emperor galloping right, spearing barbarian. AD348.
Echoed in the Fel Temp Reparatio 'Fallen Barbarian Horseman' issues of the 350s.

(There is a further document, appendix vii, detailing the Portable Antiquities Scheme Reverse Type names together with the PAS descriptions and PAS reference numbers).

Reece Period 17 Obverses:

The coins of Reece Period 17 bearing no reverse legend are commemorative issues, with the obverse featuring personifications (POP ROMANVS, CONSTANTINOPOLIS, VRBS ROMA) and in one example the deified Constantine (DIV CONSTANTINVS PT AVGG, presumably where, inline with other issues for the deified Constantine, the emperor in his quadriga was not seen to need further explanation given his appearance on the obverse). Whilst focusing on Reverse types, an awareness of the obverse is sometimes vital to interpretation, particularly for commemorative issues, such as the examples featuring Roma and Constantinoplis, the deified Constantine, and the 'Votis' anniversary issues. I have focused on reverse types as the message is largely contained in the reverse design, and the variation between issues after AD294/6 is largely through changes in reverse type.

Most obverses simply depict the emperor under whom the coin was issued, during the Fourth Century these emperors are depicted in a less personal, and more formal way that makes them more or less interchangeable. In this period it is the reverse type that is used to date and identity the coin, and to consider its message or meaning, with the issuer on the obverse largely a secondary concern. However, there are exceptions to this. The coins with the imperial family on the obverse (Constantinus, Constantius, Helena and Theodora, the junior emperors and imperial women) have reverse designs that are obviously linked to the reverse design. A consideration of the coins meaning and message must incorporate both reverse and obverse. Similarly, both obverse and reverse must be considered for the coins with no reverse legend. All of the coins within Reece Period 17 have inscriptions on the obverse, not including mint marks, so the coins with 'no legend' still have a text element.

Appendix

Avii Reece Period 17 Reverse Types: PAS Typology Numbers, Names and Descriptions

Appendix vii
Reece Period 17 Reverse Types:
PAS Typology Numbers, Names and Descriptions

No: 460
Name: GLORIA EXERCITVS
Description: Two soldiers and two standards

No: 461
Name: Bridge over river

No: 462
Name: Star is wreath

No: 463
Name: Wolf and Twins [VRBS ROMA]

No: 464
Name: Victory left on prow [CONSTANTINOPOLIS]

No: 465
Name: Victory left, hdg wreath and palm [CONSTANTINOPOLIS]

No: 466
Name: GLORIA EXERCITVS
Description: Two soldiers and one standard

No: 467
Name: SECVRITAS PVBLICA
Description: Euphrates standard right, leaning on sceptre, urn at side, reed in background

No: 468
Name: SECVRITAS REI PVB
Description: Securitas standing facing, legs crossed, holding sceptre and leaning on column

No: 469
Name: SECVRITAS REI P
Description: Securitas standing facing, legs crossed, holding sceptre and leaning on column

No: 470
Name: VIRTVS AVGVSTI
Description: Emperor standing right, holding spear and shield

No: 471
Name: CONSTANTINVS CAES
Description: Roma standard left on shield, holding transverse spear and Victory on globe

No: 472
Name: CONSTANTIVS CAES
Description: Roma standard left on shield, holding transverse spear and Victory on globe

No: 473
Name: AETERNA PIETAS
Description: Emperor standing right, holding globe and spear

No: 474
Name: AETERNA PIETAS
Description: Emperor standing left holding globe and spear

No: 475
Name: Emperor in quadriga r. [DIV CONSTANTINVS PT AVGG]

No: 476
Name: - VIRTVS AVGG NN
Description: Soldier standing facing, holding spear and shield

No: 477
Name: - PAX PVBLICA [Helena]
Description: Pax standing left holding branch and sceptre

No: 478
Name: - PIETAS ROMANA [Theodora]
Description: Pietas standing , carrying infant

No: 479
Name: - VICTORIA AVG
Description: Victory standing left foot on prow, holding wreath and palm

No: 480
Name: - VICTORIA AVG
Description: Victory advancing left holding wreath and palm

No: 481
Name: - VICTORIA AVGG
Description: Victory holding wreath and palm

No: 482
Name: - VICTORIA AVGG
Description: Victory holding wreath in each hand

No: 483
Name: - VICT AVG
Description: Victory advancing left holding wreath and palm

No: 484
Name: - VICT AVGG
Description: Victory advancing left holding wreath and palm

No: 485
Name: - IVST VEN MEM
Description: Aequitas standing left holding balance and scroll

No: 486
Name: - IVST VENER MEMOR
Description: Aequitas standing left holding balance and scroll

No: 487
Name: VICTORIAE DD AVGGQ.NN
Description: Two Victories standing facing forwards, holding wreath and palm

No: 488
Name: VICTORIAE DD AVGGQ NN
Description: Two Victories holding wreaths

No: 489
Name: VOT / XX / MVLT / XXX
Description: Inscription in wreath

No: 490
Name: VN MR
Description: Emperor standing right, raising hand

No: 491
Name: VOT / XV / MVLT / XX
Description: Inscription in wreath

No: 492
Name: VICTORIA AVGG NN
Description: Victory advancing left holding wreath and palm

No: 493
Name: VIRTVS AVGG
Description: Emperor galloping right, spearing barbarian

Appendix

Aiix Statistical Analysis of Mean Coin Diameter by Region, Reece Period 13

Appendix iix

Statistical Analysis of Mean Coin Diameter by Region, Reece Period 13

Two-Tailed Independent T-Tests (SPSS) have been be used to determine whether or not each region's mean coin size is statistically relevant.

Adopting a standard 95% confidence interval percentage means that a p-value (sig.) figure of less than 0.05 represents a statistically relevant variation in means between regions, whereas a figure of above 0.05 shows that there is no significant difference (either due to a lack of variation, or a lack of sufficient data to establish such a variation).

Equal variances cannot be assumed, with each region subject to distinct detecting practices and recording habits, with different PAS staff identifying and entering data.

The East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	139	17.7367	2.87380	.24375
	2	1347	18.0387	2.45872	.06699

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	1.389	.239	-1.356	1484	.175	-.30205	.22274	-.73897	.13486
	Equal variances not assumed			-1.195	159.542	.234	-.30205	.25279	-.80130	.19719

On average, the diameter of coins in the East is smaller (M = 17.7367, SE = 0.24375) than the coins of other all regions combined (M = 18.0387, SE = 0.6699). This difference, -0.30205 is not significant, with a 95% confidence interval (–7.3897, +0.13486) and t (degrees of freedom 1484) = -1.356, p = 0.175. It also represents almost no effect, r = 0.04 (to 2 decimal places).

The East Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	362	18.0454	2.31638	.12175
	2	1124	17.9992	2.55842	.07631

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.737	.391	.305	1484	.760	.04617	.15118	-.25039	.34273
	Equal variances not assumed			.321	667.275	.748	.04617	.14369	-.23596	.32830

On average, the diameter of coins in the East Midlands is larger (M = 18.0454, SE = 0.12175) than the coins of other all regions combined (M = 17.9992, SE = 0.7631. This difference, +0.04617 is not significant, with a 95% confidence interval (-0.25039, +0.34273) and t (degrees of freedom 1484) = +0.305, p = 0.760. It also represents no effect, r = 0.00 (to 2 decimal places).

The North East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	131	17.9086	1.91522	.16733
	2	1355	18.0203	2.55079	.06930

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	4.157	.042	-.488	1484	.626	-.11171	.22889	-.56069	.33726
	Equal variances not assumed			-.617	177.909	.538	-.11171	.18111	-.46912	.24569

On average, the diameter of coins in the North East is smaller (M = 17.9086, SE = 0.16733) than the coins of other all regions combined (M = 18.0203, SE = 0.06930). This difference, -0.11171 is not significant, with a 95% confidence interval (-0.46912, +0.24569) and t (degrees of freedom 177.909) = -0.617, p = 0.538. It also represents almost no effect, r = 0.05 (to 2 decimal places).

The North West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	8	20.2325	5.36042	1.89519
	2	1478	17.9985	2.47497	.06438

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	7.711	.006	2.524	1484	.012	2.23404	.88500	.49804	3.97003
	Equal variances not assumed			1.178	7.016	.277	2.23404	1.89629	-2.24787	6.71595

On average, the diameter of coins in the North West is larger (M = 20.2325, SE = 1.89519) than the coins of other all regions combined (M = 17.9985, SE = 0.06438). This difference, +2.23404 is not significant, with a 95% confidence interval (-2.24787, +6.71595) and t (degrees of freedom 7.016) = +1.178, p = 0.277. However it represents a medium sized effect, r = 0.41 (to 2 decimal places).

The South East and London:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	627	18.2050	2.56708	.10252
	2	859	17.8685	2.44327	.08336

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	1.497	.221	2.566	1484	.010	.33644	.13112	.07924	.59364
	Equal variances not assumed			2.546	1309.736	.011	.33644	.13213	.07722	.59566

On average, the diameter of coins in the South East and London is larger (M = 18.2050, SE = 0.10252) than the coins of other all regions combined (M = 17.8685, SE = 0.08336). This difference, +0.33644 is significant, with a 95% confidence interval (+0.07924, +0.59364) and t (degrees of freedom 1484) = +2.566, p = 0.010. However it represents almost no effect, r = 0.07 (to 2 decimal places).

The South West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	57	18.0970	3.02552	.40074
	2	1429	18.0070	2.47892	.06558

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.724	.395	.266	1484	.790	.08998	.33790	-.57284	.75280
	Equal variances not assumed			.222	59.038	.825	.08998	.40607	-.72256	.90251

On average, the diameter of coins in the South West is larger (M = 18.0970, SE = 0.40074) than the coins of other all regions combined (M = 18.0070, SE = 0.06558). This difference, +0.08998 is not significant, with a 95% confidence interval (-0.57284, +0.75280) and t (degrees of freedom 1484) = +0.266, p = 0.790. It also represents almost no effect, r = 0.01(to 2 decimal places).

The West Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	39	17.1164	2.13528	.34192
	2	1447	18.0346	2.50627	.06589

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.450	.502	-2.266	1484	.024	-.91818	.40527	-1.71314	-.12322
	Equal variances not assumed			-2.637	40.873	.012	-.91818	.34821	-1.62147	-.21489

On average, the diameter of coins in the West Midlands is smaller (M = 17.1164, SE = 0.34192) than the coins of other all regions combined (M = 18.0346, SE = 0.06589). This difference, -0.91818 is not significant, with a 95% confidence interval (-1.71314, -1.2322) and t (degrees of freedom 1484) = -2.266, p = 0.024. It also represents almost no effect, r = 0.06 (to 2 decimal places).

Yorkshire and the Humber:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	123	17.4331	2.16964	.19563
	2	1363	18.0626	2.52290	.06834

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.356	.551	-2.679	1484	.007	-.62951	.23497	-1.09041	-.16860
	Equal variances not assumed			-3.038	153.385	.003	-.62951	.20722	-1.03889	-.22013

On average, the diameter of coins in the Yorkshire and the Humber is smaller (M = 17.4331, SE = 0.19563) than the coins of other all regions combined (M = 18.0626, SE = 0.06834). This difference, -0.62951 is significant, with a 95% confidence interval (-1.09041, -0.23497) and t (degrees of freedom 1484) = -2.679, p = 0.007. However it represents almost no effect, r = 0.07 (to 2 decimal places).

Appendix

Aix Statistical Analysis of Mean Coin Diameter by Region, Reece Period 14

Appendix ix

Statistical Analysis of Mean Coin Diameter by Region, Reece Period 14

Two-Tailed Independent T-Tests (SPSS) have been be used to determine whether or not each region's mean coin size is statistically relevant.

Adopting a standard 95% confidence interval percentage means that a p-value (sig.) figure of less than 0.05 represents a statistically relevant variation in means between regions, whereas a figure of above 0.05 shows that there is no significant difference (either due to a lack of variation, or a lack of sufficient data to establish such a variation).

Equal variances cannot be assumed, with each region subject to distinct detecting practices and recording habits, with different PAS staff identifying and entering data.

The East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	177	17.4357	3.60909	.27128
	2	979	18.1301	3.69765	.11818

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.038	.846	-2.308	1154	.021	-.69440	.30092	-1.28481	-.10398
	Equal variances not assumed			-2.347	247.537	.020	-.69440	.29590	-1.27720	-.11159

On average, the diameter of coins in the East is smaller (M = 17.4357, SE = 0.27128) than the coins of other all regions combined (M = 18.1301, SE = 0.11818). This difference, -0.69440 is significant, with a 95% confidence interval (-1.28481, +0.10398) and t (degrees of freedom 1154) = -2.308, p = 0.021. However it represents almost no effect, r = 0.07 (to 2 decimal places).

The East Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	251	18.8270	3.58022	.22598
	2	905	17.8010	3.69244	.12274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	3.945	.047	3.921	1154	.000	1.02601	.26170	.51255	1.53946
	Equal variances not assumed			3.990	409.407	.000	1.02601	.25716	.52048	1.53153

On average, the diameter of coins in the East Midlands is larger (M = 18.8270, SE = 0.22598) than the coins of other all regions combined (M = 17.8010, SE = 0.12274). This difference, +1.02601 is significant, with a 95% confidence interval (+0.52048, +1.53153) and t (degrees of freedom 409.407) = +3.990, p = 0.000. However it represents a small sized effect, r = 0.19 (to 2 decimal places).

The North East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	69	15.9587	3.15272	.37954
	2	1087	18.1549	3.68509	.11177

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	6.166	.013	-4.839	1154	.000	-2.19617	.45387	-3.08667	-1.30567
	Equal variances not assumed			-5.551	80.268	.000	-2.19617	.39566	-2.98352	-1.40883

On average, the diameter of coins in the North East is smaller (M = 15.9587, SE = 0.37954) than the coins of other all regions combined (M = 18.1549, SE = 0.11177). This difference, -2.19617 is significant, with a 95% confidence interval (-2.98352, -1.40883) and t (degrees of freedom 80.268) = -5.551, p= 0.000. It also represents a large sized effect, r = 0.52 (to 2 decimal places).

The North West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	7	19.2657	3.78287	1.42979
	2	1149	18.0162	3.69101	.10889

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.001	.971	.893	1154	.372	1.24950	1.39950	-1.49635	3.99535
	Equal variances not assumed			.871	6.070	.417	1.24950	1.43393	-2.24945	4.74845

On average, the diameter of coins in the North West is larger (M = 19.2657, SE = 1.42979) than the coins of other all regions combined (M = 18.0162, SE = 0.10889). This difference, +1.24950 is not significant, with a 95% confidence interval (-1.49635, +3.99535) and t (degrees of freedom 1154) = +0.893, p = 0.372. It also represents almost no effect, r = 0.03 (to 2 decimal places).

The South East and London:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	415	18.0562	3.74004	.18359
	2	741	18.0056	3.66594	.13467

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	1.458	.227	.224	1154	.823	.05060	.22641	-.39361	.49482
	Equal variances not assumed			.222	842.869	.824	.05060	.22769	-.39630	.49751

On average, the diameter of coins in the South East and London is larger (M = 18.0562, SE = 0.18359) than the coins of other all regions combined (M = 18.0056, SE = 0.13467). This difference, +0.05060 is not significant, with a 95% confidence interval (-0.39361, +0.49482) and t (degrees of freedom 1154) = +0.224, p = 0.823. It also represents almost no effect, r = 0.01 (to 2 decimal places).

The South West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	50	19.0016	3.68817	.52159
	2	1106	17.9796	3.68685	.11086

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.011	.917	1.917	1154	.055	1.02202	.53306	-.02386	2.06791
	Equal variances not assumed			1.917	53.522	.061	1.02202	.53324	-.04727	2.09132

On average, the diameter of coins in the South West is larger (M = 19.0016, SE = 0.52159) than the coins of other all regions combined (M = 17.9796, 0.11086). This difference, +1.02202 is not significant, with a 95% confidence interval (-0.02386, +2.06791) and t (degrees of freedom 1154) = +1.917, p = 0.055. It also represents almost no effect, r = 0.06 (to 2 decimal places).

The West Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	71	16.4711	3.54845	.42112
	2	1085	18.1254	3.67911	.11169

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.492	.483	-3.678	1154	.000	-1.65426	.44973	-2.53664	-.77187
	Equal variances not assumed			-3.797	80.169	.000	-1.65426	.43568	-2.52127	-.78725

On average, the diameter of coins in the West Midlands is smaller (M = 16.4711, SE = 0.42112) than the coins of other all regions combined (M = 18.1254, SE = 0.11169). This difference, -1.65426 is significant, with a 95% confidence interval (-2.53664, -0.77187) and t (degrees of freedom 1154) = -3.678, p = 0.000. However it represents a small sized effect, r = 0.11 (to 2 decimal places).

Yorkshire and the Humber:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	116	18.7493	3.40111	.31579
	2	1040	17.9429	3.71487	.11519

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	2.313	.129	2.236	1154	.026	.80645	.36070	.09875	1.51416
	Equal variances not assumed			2.399	147.353	.018	.80645	.33614	.14218	1.47073

On average, the diameter of coins in The Yorkshire and the Humber is larger (M = 18.7493, SE = 0.31579) than the coins of other all regions combined (M = 17.9429, SE = 0.11519). This difference, +0.80645 is significant, with a 95% confidence interval (+0.09875, +1.51416) and t (degrees of freedom 1154) = +2.236, p = 0.026. However it represents almost no effect, r = 0.07 (to 2 decimal places).

Appendix

Ax Statistical Analysis of Mean Coin Diameter by Region, Reece Period 17

Appendix x

Statistical Analysis of Mean Coin Diameter by Region,

Reece Period 17

Two-Tailed Independent T-Tests (SPSS) have been be used to determine whether or not each region's mean coin size is statistically relevant.

Adopting a standard 95% confidence interval percentage means that a p-value (sig.) figure of less than 0.05 represents a statistically relevant variation in means between regions, whereas a figure of above 0.05 shows that there is no significant difference (either due to a lack of variation, or a lack of sufficient data to establish such a variation).

Equal variances cannot be assumed, with each region subject to distinct detecting practices and recording habits, with different PAS staff identifying and entering data.

The East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	137	15.1326	1.79027	.15295
	2	1547	15.0858	1.79466	.04563

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.269	.604	.293	1682	.770	.04686	.15994	-.26684	.36057
	Equal variances not assumed			.294	161.171	.769	.04686	.15961	-.26834	.36207

On average, the diameter of coins in the East is larger (M = 15.1326, SE = 0.15295) than the coins of other all regions combined (M = 15.0858, SE = 0.04563). This difference, +0.4686 is not significant, with a 95% confidence interval (-2.6684, +0.36057) and t (degrees of freedom 1682) = +0.293, p =0.770. It also represents almost no effect, r = 0.01 (to 2 decimal places).

The East Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	733	15.3297	1.77892	.06571
	2	951	14.9045	1.78422	.05786

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.039	.844	4.855	1682	.000	.42518	.08758	.25339	.59696
	Equal variances not assumed			4.856	1576.787	.000	.42518	.08755	.25345	.59690

On average, the diameter of coins in the East Midlands is larger (M = 15.3297, SE = 0.06571) than the coins of other all regions combined (M = 14.9045, SE = 0.05786). This difference, +0.42518 is significant, with a 95% confidence interval (+0.25339, +0.59696) and t (degrees of freedom 1682) = +4.855, p = 0.000. However it represents a small sized effect, r = 0.12 (to 2 decimal places).

The North East:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	22	14.2345	2.11248	.45038
	2	1662	15.1009	1.78723	.04384

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.001	.976	-2.253	1682	.024	-.86635	.38450	-1.62050	-.11220
	Equal variances not assumed			-1.915	21.400	.069	-.86635	.45251	-1.80633	.07363

On average, the diameter of coins in the North East is smaller (M = 14.2345, SE = 0.45038) than the coins of other all regions combined (M = 15.1009, SE = 0.04384). This difference, -0.86635 is significant, with a 95% confidence interval (-1.62050, -0.11220) and t (degrees of freedom 1682) = -2.253, p = 0.024. However it represents almost no effect, r = 0.05 (to 2 decimal places).

The North West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	3	16.8767	2.24714	1.29739
	2	1681	15.0864	1.79215	.04371

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.241	.623	1.728	1682	.084	1.79028	1.03597	-.24166	3.82221
	Equal variances not assumed			1.379	2.005	.302	1.79028	1.29812	-3.78298	7.36353

On average, the diameter of coins in the North West is larger (M = 16.8767, SE = 1.29739) than the coins of other all regions combined (M = 15.0864, SE = 0.04371). This difference, +1.79028 is not significant, with a 95% confidence interval (-0.24166, +3.82221) and t (degrees of freedom 1682) = +1.728, p = 0.084. It also represents almost no effect, r = 0.04 (to 2 decimal places).

The South East and London:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	527	14.9090	1.62409	.07075
	2	1157	15.1718	1.86088	.05471

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	8.689	.003	-2.794	1682	.005	-.26287	.09408	-.44739	-.07834
	Equal variances not assumed			-2.939	1155.212	.003	-.26287	.08943	-.43833	-.08740

On average, the diameter of coins in the South East and London is smaller (M = 14.9090, SE = 0.07075) than the coins of other all regions combined (M = 15.1718, SE = 0.05471). This difference, -0.26287 is significant, with a 95% confidence interval (-0.43833, -0.08740) and t (degrees of freedom 1155.212) = -2.939, p = 0.003. However it represents almost no effect, r = 0.09 (to 2 decimal places).

The South West:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	62	14.7519	2.01322	.25568
	2	1622	15.1025	1.78432	.04430

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	1.025	.311	-1.511	1682	.131	-.35055	.23204	-.80567	.10457
	Equal variances not assumed			-1.351	64.716	.181	-.35055	.25949	-.86883	.16773

On average, the diameter of coins in the South West is smaller (M = 14.7519, SE = 0.25568) than the coins of other all regions combined (M = 15.1025, SE = 0.04430). This difference, -0.35055 is not significant, with a 95% confidence interval (-0.80567, +0.10457) and t (degrees of freedom 1682) = -1.511, p = 0.131. It also represents almost no effect, r = 0.04 (to 2 decimal places).

The West Midlands:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	86	14.2541	2.27356	.24516
	2	1598	15.1345	1.75395	.04388

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	11.946	.001	-4.459	1682	.000	-.88047	.19746	-1.26778	-.49317
	Equal variances not assumed			-3.535	90.527	.001	-.88047	.24906	-1.37523	-.38571

On average, the diameter of coins in the West Midlands is smaller (M = 14.2541, SE = 0.24516) than the coins of other all regions combined (M = 15.1345, SE = 0.04388). This difference, -0.88047 is significant, with a 95% confidence interval (-1.37523, -0.38571) and t (degrees of freedom 90.527) = -3.535, p = 0.001. It also represents a medium sized effect, r = 0.35 (to 2 decimal places).

Yorkshire and the Humber:

Group Statistics

	RegionStat	N	Mean	Std. Deviation	Std. Error Mean
Diameter	1	114	15.2608	1.70773	.15994
	2	1570	15.0771	1.79979	.04542

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diameter	Equal variances assumed	.049	.824	1.055	1682	.291	.18364	.17399	-.15762	.52491
	Equal variances not assumed			1.104	131.901	.271	.18364	.16627	-.14525	.51254

On average, the diameter of coins in the Yorkshire and the Humber is larger (M = 15.2608, SE = 0.15994) than the coins of other all regions combined (M = 15.0771, SE = 0.04542). This difference, +0.18364 is not significant, with a 95% confidence interval (-0.15762, +0.52491) and t (degrees of freedom 1682) = +1.055, p = 0.291. It also represents almost no effect, r = 0.03 (to 2 decimal places).

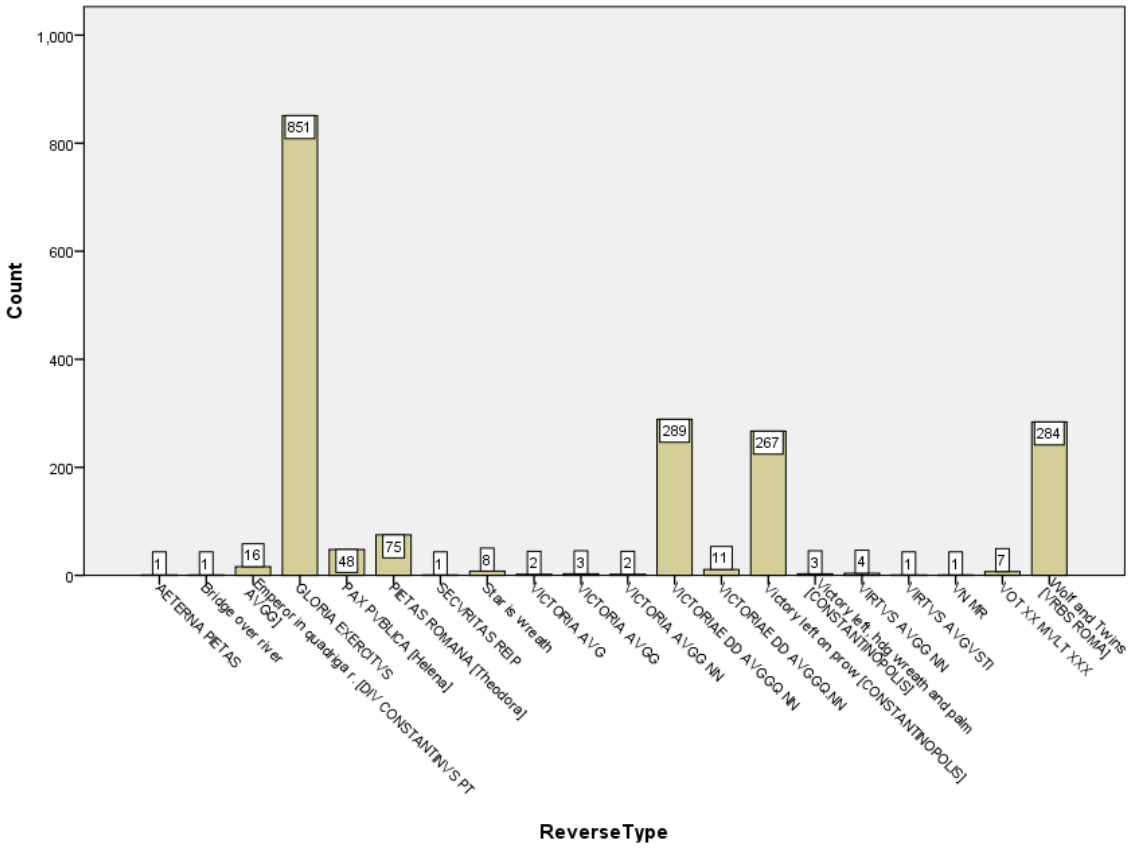
Appendix

Axi Simplifying (and Discounting) Reverse Types, Reece Period 17

Appendix xi

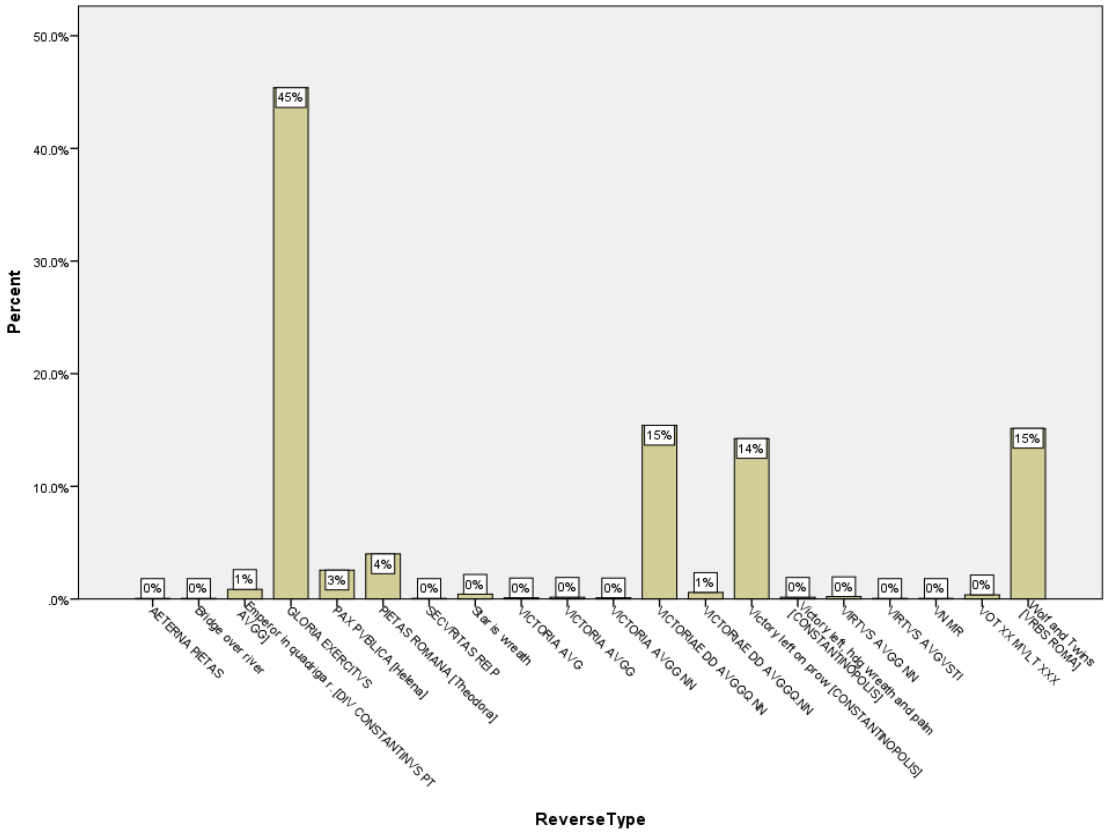
Simplifying (and Discounting) Reverse Types, Reece Period 17

Reverse Type Numbers (All Regions), Reece Period 17:



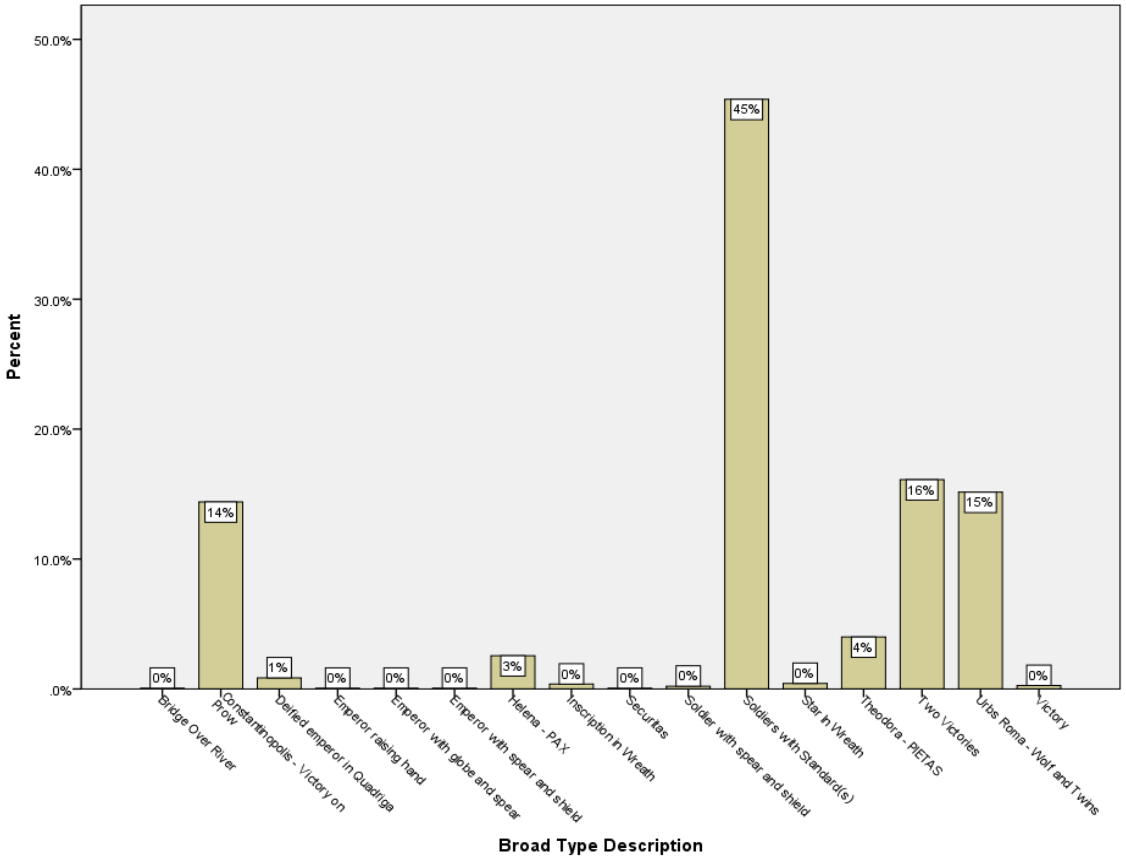
This graph shows the numbers of each reverse type recorded for Reece Period 17, for all regions. A small number of reverse types can be seen to dominate the coinage in use. However, it can also be seen that similar (often near identical) reverse types are divided into one or more separate types, creating artificial divisions. For example, the two VICTORIAE DD AVGG Q NN types are distinguished visually only by what the Victories are holding (either both holding wreaths, or one holding a palm and one holding a wreath). Whilst this 'minor' variation is potential significant (the addition of a palm seemingly only reinforces the 'victory' message) the substantial variation of the addition of a Chi Rho symbol on some of the GLORIA EXCERCITAS Soldiers with standards is not marked by a distinct reverse type.

Reverse Type Proportions (All Regions Combined), Reece Period 17



An alternate way to consider this information is to convert the quantities to proportions, expressing the frequency of each reverse type as percentages of the total coins recorded. Some reverse types can be seen to represent 1% or less of the coins recorded across all regions. Again, some reverse types are recorded separately when the only difference might be the direction a figure is facing, or the form in which the legend is abbreviate

Reece Period 17 Broad Reverse Type Proportions (Grouping similar types together):



It is dangerous to discount details, as it is not possible to be fully aware of the full range of expression and significance of minor elements of the design (such as the direction a figure faces, and the form an abbreviation takes). However, I feel that we can reduce the range of reverse types to a shorter list of reverse groups. This is the first level by which to separate varying coin experience based on designs and messages, from variation based on the logistics of coin supply and production.

Appendix

Axii Case Study: A Consideration of the Impact of Copying on Coin Experience and Textuality

Appendix xii

Case Study: A Consideration of the Impact of Copying on Coin Experience and Identity

An Overview of the Difference between Copies and Official Issues:

The differences between copied coins and official coins are observable on several levels.

'Material':

- Metal content (feel, colour, smell)
- Size (diameter, thickness)
- Weight
- Appearance (shiny, dull, etc)

'Textual':

- Inscription (size and legibility, partly missing or off flan, or absent completely)
- Design (quality, clarity, some or all aspects of design missing or hard to identify)

Textual is used here to refer to the coin as a form of literary text, and not to the text element of the coin (the inscription is only part of coin as a 'text').

The experience of both textuality, and (to a lesser extent) materiality, is shaped by the coin user. Identifying both the symbols of the design and the text inscription, and mapping these to meaning and significance relies on the coin user's understanding and interpretation. Different levels of understanding can be at least as important as differences in the size or clarity of the design. However, whilst we cannot directly access how the coins were seen and experienced, we can directly access the coins themselves. The two elements making up differential experience in the textuality or message are variations in the coin's textuality, and variation in the reader's understanding and interpretation. We have the potential to study the coin's textuality directly.

In copying, some aspects of the design are more prone to being lost in the reproduction process. The Latin inscription element, and the small and subtle symbolism within the images depicted, would appear to the most easily omitted aspects. However, this would also be the elements most frequently not 'read' or understood by the coin user even where they are present on the coin (bearing in mind also the potential for a loss of these elements through coin wear).

I feel it is necessary and apt to discuss the text aspect of coin design alongside the image aspect of coin design. Literacy is not binary. An individual is not either completely able, or completely unable, to read Latin - there are many levels of comprehension. The text and image alike can be understood or interpreted in many ways, depending on the reader's 'literacy' in sign, symbols, and subtleties. Coin users lacking in Latin literacy would likely also lack literacy of some of the more complex or subtle signs and symbols within the images design, (meaning lies with the reader, the coin user and their experience, understanding, and interpretation).

Some designs seem to be more resistant to a loss of message, although I would not necessarily go as far to suggest that this was part of the design consideration. The 'Soldiers with Standard' GLORIA EXERCITVS issue within Reece 17, for example, has a design that is both resistant to poor or small coins, and relatively resistant to misunderstanding or failure to recognise the message by the user. Conversely there are others, such as the VOTIS 'Inscription in Wreath' issues that certainly seem to be less resistant to a failure to understand the message, and a loss of message through copying and small coins.

The production of copies can be seen as a form of chaîne opératoire, with technological choices made. Although the 'author' is not part of the focus of this study, it is still important to be aware of the fact that copies could potentially be at least as good as official. Also, as can be seen with the reduction in size of official coins (such as the GLORIA EXERCITVS 'soldiers with two standards' coin reissued as a smaller 'soldiers with one standard'), it is possible for coin size to be decreased without significantly impacting on the design. Some of the affects of copying, therefore, are through choices and decisions made rather than inevitable limitations in production.

It is not known if all copies were made from direct observation of an official issue. It seems likely that some of the most broken down and abstracted copies were themselves designed from a copy (with a potential parallel with Iron Age British coinage, initially styled after Greek prototypes). This is particularly clear when examining the 'Fallen Barbarian Horseman' copies of the fourth century. The most 'barbarous' examples are strikingly similar to Iron Age British coins, and the potential that they were copied from copies (or copied from copies of copies) seems credible.

Fallen Barbarian Horseman Reverses, Official and Copies

This case study attempts a brief assessment of the potential impact of copying on the textuality or message elements focusing on the four most common reverse types encountered within Reece Period 17. Observations are from PAS records with images, and through an assessment of a number of coins 'hands-on', both official and copies. Although surviving base metal Roman coins are generally more worn and corroded than they would have been when used, I feel they are actually more representative of contemporary coin experience than through assessing magnified high-resolution photographed images (or indeed poorly taken or badly lit photographed images).

GLORIA EXERCITVS 'Soldiers with Standard:

The most common reverse recorded within Reece Period 17 is the GLORIA EXERCITVS 'Soldiers with Standard' issue.

GLORIA EXERCITVS AD335-41 *Two soldiers and one standard, replacing earlier two soldiers with two standard issue.*

Hand-drawn simplified impression of the GLORIA EXERCITVS reverse. Styled after James (in Reece 2000) and Plant (2005).

I have used Roman coins in teaching, but I have observed that people unfamiliar with Roman coins often cannot 'see' what they depict. However, if they have seen a large clear image, or a simplified line drawing (such as my hand drawn teaching example above), they can then discern what the actual coins depict more easily. Recognising the design and message is not easy when looking at poorer copies. Just as with numismatic identification, interpretation is often only realistically possible by knowing what the prototype looks like, and how the text inscription should read.

In semiotic or linguistic terms, this could be that the copy design does not act as a signifier for a signified meaning or message, but instead serves as a signifier for the prototype design, which itself serves as a signifier for the theme or

idea. The copy could be seen partly as an 'iconic' sign, referring to the official coin which is itself emblematic. Obviously this could only be the case if the coin user was familiar with the prototype design, which cannot be assumed for all coin users in Roman Britain.

Rather than just requiring an understanding of symbols, politics, and religion, deciphering poor copies also requires an awareness of corresponding official coins or better quality copies. A crude copy, therefore, can be seen as a 'prompt' for the experience of better iterations of the design, in a very similar way to an abbreviation of a textual phrase, such as 'AVG' for Augustus, or even the enigmatic 'RSR' on some of Carausian issues (the RSR may refer to lines six and seven of the Fourth Eclogue of Virgil, 'Redeunt Saturnia Regna, Iam Nova Progenies Caelo Demittitur Alto', or 'The Golden Ages are back, now a new generation is let down from Heaven above', de la Bèdoyére 1998, pp79-88).

GLORIA EXERCITVS reverses, official and copies

Variation is not just between copies. There are subtle variations between different official issues resulting from the use of a range of subtly different hand engraved dies, with most marked variation in the standard. It seems unlikely that most variation in the shape and style of the military standard, between official issues or copies, would have had any intended or perceived significance. However, one variation on a number of dies is a standard with a Chi Rho banner, adding an additional detail to the design, and a clear religious and political message to those who recognised the Chi Rho symbol and its significance.

With armour, spears and standard, the figures depicted on most copies are clearly recognisable as soldiers, even when noticeably smaller and cruder than official issues. The loss of the GLORIA EXERCITVS text legend is apparent on some copies. However, the inscription seems relatively superfluous; the solders with a standard clearly represent military might and glory without text to qualify this. Coin users would not need significant written Latin literacy, education, or political awareness to recognise the image of Roman soldiers (and subsequently interpret this as a message conveying the idea of military strength). It has been suggested that the most militarised areas were in fact the least romanised. Military theme coin designs surely could be understood by coin users who had seen Roman soldiers in person.

Whilst there are copies where the design seems to be breaking down and becoming abstracted, the biggest objective to identification and interpretation of the message is the small size of the coins. With both the cruder and smaller examples, knowing what the coin design 'should' look like helps significantly. Differential coin experience is evident through:

- differences in the quality of copies distributed
- varying exposure to better quality copies, official issues, and higher value denominations
- variance in 'coin literacy' of the text and symbols depicted

These elements are all aspects of identity through integration, experience, and material culture, determined by status, role, and location as well as coin supply and production.

VRBS ROMA – 'Wolf and Twins':

(NO LEGEND) - Wolf and Twins [VRBS ROMA] AD330-40

The symbol of 'Old Rome' whilst a new capital was established at Constantinopolis, [VRBS ROMA] Obverse.

Hand-drawn simplified impression of the VRBS ROMA reverse. Styled after James (in Reece 2000) and Plant (2005).

There is no text inscription on reverse – the 'VRBS ROMA' appears only on the obverse. This element is present on many of the copies, albeit often with smaller text and less neat lettering, making it harder to read (although objectivity here is difficult, knowing how the text should read). Some instances are badly struck, with text partly off the edge of the flan, and some have no recognisable text.

The 'wolf and twins' image, whilst not as clear cut as the 'soldiers with standard' design, is immediately recognisable to anyone familiar with the myths and legends of Rome. However, the coin itself only shows a large wolf and two small children – to interpret the design as Rome's mythical founders (Romulus and Remus, suckled by the she-wolf) is reliant on a knowledge of this myth. The wider message and significance, however, is reliant on further understanding of the coin as a celebration of Rome, the old capital, whilst a companion issue

celebrated the move to the new capital, Constantinople.

VRBS ROMA reverses, official and copy

The image is generally well retained on copies, and seems relatively robust and resistant to loss of legibility through copying, with a reduction in size again the biggest obstacle. However, the ability to recognise the wolf and twins on the smallest copies is only possible through a familiarity with the prototype design. As with the 'soldiers and standards' issue, the design is relatively clear, albeit complicated somewhat by the presence of two stars above the she wolf, traditionally seen to represent the dioscuri (Caster and Pollux). This subtle element is both the easiest lost in copies, and potentially the most obscure aspect of the design to expect coin users to understand and interpret.

Constantinopolis 'Victory on Prow':

(NO LEGEND) - Victory left on prow [CONSTANTINOPOLIS] AD330-40

The symbol of 'New Rome' at Constantinople. The Prow of the ship is often seen as significant (e.g. Reece) with Constantinople a major port. However, this symbol was often used on earlier coinage, and is arguably only identified as Constantinople due to the [CONSTANTINOPOLIS] Obverse.

Hand-drawn simplified impression of the CONSTANTINOPOLIS reverse. Styled after James (in Reece 2000) and Plant (2005).

This issue is surely more ambiguous than the 'soldiers and standard' or 'wolf and twins' reverses. Again (as with the corresponding wolf and twins issue) the 'victory on prow' reverse has no reverse legend, instead qualified with a CONSTANTINOPOLIS obverse legend. Compared to the VRBS ROMA issue, the CONSTANTINOPOLIS image is more ambiguous. The 'victory on prow' is not an iconic image, only relatable to a 'new Rome'/'Constantinople' message by the obverse legend (and, possibly, the prow of the ship very subtly referring to Constantinople's status as a key port).

To numismatists, the 'VRBS ROMA' (old Rome) and CONSTANTINOPOLIS (new Rome) are an obvious pair, commemorating the foundation of the new capital – but to assume this was fully understood by all users of the coin would be unwise. The relatively long obverse legend (CONSTANTINOPOLIS compared to VRBS ROMA) consequently suffers from being less legible on smaller coins; breaking down, falling off the flan, or being completely absent on copies. The message aspect safest in copying (and through small size coins) is 'Victory' (religion) rather than 'Constantinople' (place). A level of political knowledge of wider world events would have been vital to understand the message on even the largest, best struck and well formed examples. Even on the best official coins, when observing or reading the coin, 'Victory' probably stood a greater chance of being recognised and understood than 'Constantinople'

Victories 'Two Victories':

VICTORIAE DD AVGGQ.NN - Two Victories standing, facing forwards, holding wreath and palm. AD347

Victory Issues presumably celebrate a military victory, historically documented or otherwise. I feel that the direction the victory faces, and the distinction between wreath and palm, and two wreathes, has little effect on the message.

VICTORIAE DD AVGGQ NN - Two Victories holding wreaths. AD347-8

Victory Issues presumably celebrate a military victory, historically documented or otherwise. I feel that the direction the victory faces, and the distinction between wreath and palm, and two wreathes, has little effect on the message.

The 'two victories' issue is the most ambiguous of the four most common reverse types recorded for Reece Period 17. Identification is problematic, and the issue is often confused with similar issues in the recording process (such as the earlier 'two victories' issue of AD318-324, and the later 'two victories' issue of AD350-353. Modern interpretation is also difficult – I have classed coin designs depicting a victory personification as having the message themes, 'religion' and 'military', but it is difficult to argue against alternative definitions.

The victory personification is a recognisable symbol, but subtle and ambiguous. It is difficult to determine which elements of the design affect interpretation and message (if the wreath is not legible, does this weaken the 'victory' message and interpretation? If the wings of the victory are not legible, is the figure distinguishable from other robed figures, such as other personifications, the gods, and the dead?).

The written Latin legend (VICTORIAE DD AVGG QNN) provides an 'emperor' aspect to design. The inscription qualifies the victory as being that of the two emperors – if the words are illegible, missing, or not understood, then this element is lost. It would require extensive and wide-ranging knowledge to see (as numismatists now do) that the 'two victories' issue is the Western empire's counterpart to the VOT XX MVLT XXX in wreath issue of Constantius II in the East (of AD343).

Glossary

As - base metal coin of the early Roman period (Reece stage A).

Aureus - gold coin of the early Roman period (Reece stage A).

Base Metal - Copper alloy coins with little or no precious metal content.

Contemporary Copy - a coin produced outside of state mints, circulated in place of official coinage, distinct from forgeries.

Demonitise/Demonitsation - the process where a coin ceases to be functional as money, either through coinage reform, or changes to the coin itself rendering it unusable as money.

Denarius - silver coin of the early Roman period (Reece stage A).

Die - engraved tool used to impress the coin design onto the prepared blank metal disc.

Die Axis - the orientation of the reverse design relative to the obverse, rotating the coin on its axis.

Dupondius - base metal coin of the early Roman period (Reece stage A).

Flan - the prepared and polished metal disc onto which the coin design is struck.

Issue - specific coin type (obverse and reverse) produced during a specific timeframe.

Mint - production centre striking coins.

Mintmark - image or abbreviation identifying the production centre where the coin was struck.

Monetary - exchange and payments using money, with or without use of physical currency.

Non-Monetary - exchange and payment without money, or coins when used for purposes other than an as money (such as pierced and worn as pendants).

Nummus - base meta coin of the fourth century (Reece stage C and D).

Obverse - 'heads' side of the coin.

Precious Metal - coins primarily of gold or silver.

Prototype - the official coin design on which a copy is based.

Province - used here to refer to the modern territory of mainland England as controlled by the Roman Empire (in reality a single province, not covering this entire area, for the early Roman period, split first into two provinces, and subsequently four, and finally five provincial divisions).

Radiate - base metal (or silvered base metal) coin of the third century (Reece stage B), named after the radiate crown depicted on imperial portraits.

Reece Period - 21 stage coin chronological typology based on issue activity and changes in coinage, devised by Richard Reece (expanded to 23 stages by Sam Moorhead for the PAS.

Reverse – the 'tails' side of a coin.

Sestertius - base metal coin of the early Roman period (Reece stage A).

Siliqua - late Roman fourth century silver coin (Reece stage C and D).

Solidus - late Roman fourth century silver coin (Reece stage C and D).

Token Coinage - coins with a higher 'face value' in monetary exchange than their inherent value of their constituent materials.

Multidisciplinary terms are not included, they are fully explained in the text when used, and a glossary would be extensive to capture the wide range of subjects covered (economics, anthropology, archaeology, literary theory, linguistics, philosophy, etc.).

List of Abbreviations

Abbreviations:

PAS – Portable Antiquities Scheme

RIC – Roman Imperial Coinage

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