

## Introduction: Artefacts at Work

Lost cities. Gold coins. Forgotten languages . . . iron tools. Amongst the canon of archaeological finds, the material culture of daily labour rarely ranks highly in the collective imagination. These now rusty, often incomplete, and mundane objects hold little fascination for some people, who prefer to content themselves with the art, architecture and adornments of ancient times. Even amongst those who should know better, we hear that ‘when the best samples of Greek tools have been presented to a national museum, they have been thrown away by the head of the Department, who remarked that they were ugly, and he did not care for them’ (Flinders Petrie, 1917, p. 1). Philistines.

To take this view is to construct an incomplete image of the past. Until quite recently, most people in the world would have spent much of their time engaged in manual labour. The tools with which they worked held a centrality to their lived experience that their apparent mundanity belies. It goes without saying that these objects are vital evidence of the economy of ancient societies, but as connected objects they are no less evidence of identity, status, culture and sometimes even religion. They are the material testament of the activities which occupied the majority of people for the majority of time, and they are ignored at your own peril.

But if it’s lost cities you want, you will be glad to hear that this is also a book about Roman London and its people. Londinium occupies a special place in Roman archaeology. It was the largest city in Roman Britain, with a unique history of civilian foundation. After almost two centuries of archaeological intervention, it is one of the best-excavated and best-understood provincial cities in the Empire. This makes London a uniquely important place for discussing the people of the Roman world. Roman London was home to an extremely diverse population, which included native British people, immigrants from across the Empire, soldiers, administrators, slaves and traders. This book explores the lives of a more neglected group of Londoners: the craftspeople and agricultural workers who made and grew things in the town.

These people have left behind a unique resource, which forms the backbone of this book: their tools. London contains one of the largest and most important collections of Roman tools in Europe. Built up through more than 170 years of archaeological intervention in the city, the collection contains over 800 metal (mostly iron) tools. These objects represent a wide range of practices and industries, principally woodwork, metalwork, leatherwork, masonry and stonework, and agriculture. Thanks to the excellent preservation conditions in London, especially in the waterlogged Walbrook valley, many of these are in exceptional condition, some being good enough to use

today. Amongst the collection are objects which have not previously been identified in Roman Britain.

Despite having long been appreciated as a significant collection, these tools have never been systematically examined, and the majority have never been published before now. This book is the result of a recent collaborative PhD project between the Museum of London and University of Reading to finally understand these objects, and to make them available to the archaeological world. By integrating current archaeological thinking, this book will expand on previous studies of tools by using them as evidence for the lives of London’s Roman inhabitants.

This book can be divided into two primary sections. The first is discursive, examining the people and economy of Roman London through their tools. The remainder of chapter 1 sets out the archaeological and academic context of this book, providing an introduction to Roman London, outlining previous scholarship on Roman tools and examining relevant theoretical perspectives. Chapter 2 introduces the collection, sets out the methodology used to identify and record the objects discussed here and provides an overview of the distribution, dating and functional breakdown of the collection. Chapter 3 discusses tool-makers, taking evidence from makers’ marks, and the practices involved in tool production. Chapters 4–12 discuss the use of tools in different industries in Roman London. These sections are ordered by the number of tools assignable to them, from highest to lowest. Thus, the initial sections are the longest, as there is a greater amount of evidence to discuss. Each section begins with a discussion of the evidence for specialisation within this field, and for the social position of the various workers operating within these categories. For each section there is a discussion of the supply of raw materials to London, as well as a discussion of the evidence for sites specialising in this kind of work in the city. Here, the distribution of different tool types is compared to the distribution of waste and structural evidence for these crafts. Finally, each section contains discussions of craft practice, which synthesise the data from tools, waste and finished objects to discern what activities were taking place in London, how they were carried out technically and which groups of people were involved. These discussions are not all-encompassing, and will focus on practices in which the tools from London were likely to have been used, and can therefore make a contribution to the discussion. Chapter 13 relates the issues raised in these chapters to the themes discussed in chapter 1, and draws conclusions about the nature of society and economy in Roman London, as well as reflecting of the usefulness of tools as a category of archaeological data.

The second part of this book presents and analyses the assemblage of tools from Roman London. Chapter 14 provides a typological analysis of the tools, discussing their form, function, chronology and distribution. Chapter 15 provides a full catalogue and plates of all the tools discussed in this book.

### **1.1 Roman London: A Brief Introduction**

As the introductory sentence to any work on the city will tell you, London is one of the most extensively excavated and studied cities of the Roman world (Gerrard, 2011a; Millett, 2016; Perring, 2015; Wallace, 2017). The history of these excavations is well documented (Watson, 1998a), and Hingley (2018) has recently provided a concise, up-to-date summary of our understanding of the Roman city, supplementing a large number of earlier works (Home, 1948; Marsden, 1980; Merrifield, 1965, 1983; Millett, 1994, 1996, 2016; Morris & Macready, 1982; Perring, 1991, 2015; Tite, 1848; Wheeler, 1930).

In addition are a number of works synthesising the evidence for specific areas of the city (Barber & Bowsher, 2000; Cowan et al., 2009; Maloney, 1990; Perring & Roskams, 1991; Williams, 1993; Wilmott, 1991), or examining particular time periods (Gerrard, 2011a; Perring, 2011; Wallace, 2014). Nevertheless, truly understanding the Roman city requires reference to a large, scattered body of scholarship, including collections of short papers exploring aspects of Roman London (Bird et al., 1996; Clark, 2008; Watson, 1998c) and numerous excavations reports.

Whilst it is neither necessary nor possible to review all aspects of London's Roman archaeology here, it is relevant to provide a brief sketch of those aspects of the city most relevant to this project: its origins and development, geography and zoning, and its people. Evidence for specific industries in London is discussed throughout the remainder of the book.

#### **1.1.1 The Development of London**

The city of London is situated on the north bank of the Thames (Fig. 1.1), on a pair of gravel hills (Cornhill and Ludgate Hill) divided by three tributaries to the Thames (the Fleet to the west, the Walbrook in the centre and the Lorteburn stream to the east). The suburb of Southwark sat on a pair of large eyots on the south bank of the Thames, linked to Cornhill by a bridge. Occupation began on Cornhill, before spreading gradually westwards over the Walbrook to Ludgate Hill, north into the upper Walbrook valley, and across Southwark on to the mainland of the south bank.

Whilst many Roman towns in Britain developed from earlier Iron Age population centres, excavations in London have found no evidence of a substantial pre-Roman settlement. Occupation in the area appears to have been limited to a number of timber buildings, perhaps constituting a farmstead, on the Bermondsey eyot on the

south bank of the Thames (Creighton, 2006, pp. 93–94; Perring, 2015, p. 21; Rayner, 2009). Whilst Hingley (2018, pp. 13–24) has recently suggested that the London area was ritually or socially significant in the Iron Age, the evidence for this is lacking for the immediately pre-Roman Iron Age, and in any case relates to the wider Thames Valley area rather than specifically to the site of Roman London.

Rather than developing from an Iron Age tribal centre, London is thought to have been a new foundation in a 'neutral' location at a tribal boundary (Creighton, 2006, p. 95; Millett, 1990, p. 89; Perring, 1991, p. 21, 2011, p. 250; Wallace, 2013, p. 286). A timber drain under the main east/west road across the Walbrook at 1 Poultry (ONE94), dendrochronologically dated to the winter of AD 47/48 (Hill & Rowsome, 2011, pp. 257–58), provides the earliest absolute date for the city. Whilst it is not clear whether the construction of this road pre- or post-dated the establishment of the city itself (*ibid.*), it is nevertheless clear that settlement had begun at London shortly after the conquest in AD 43.

It has often been argued that London began as an invasion-period military site. Most recently, Perring (2011, 2015, pp. 21–23) has argued that a number of recently excavated pre-Boudiccan ditches were of Claudian military origin. This was dismissed in a critical review by Wallace (2013), who argued that the ditches were neither closely dateable nor obviously military in function. Wallace's (2010, 2013, 2014) work supports the more widely established consensus (Creighton, 2006, pp. 93–107; Millett, 1990, pp. 88–91) that London was not based on either a military installation or an existing Iron Age settlement. Instead, London appears to have been unique amongst the towns of Roman Britain in being a new foundation set up largely through civilian agency (Millett, 1990, pp. 88–91). The foundation of London (particularly the building of bridges, roads etc.) must have required some degree of state intervention (Creighton, 2006, p. 94), and London is usually characterised as a 'civilian trading port, perhaps facilitated and aided in its construction by the imperial authority' (Wallace, 2010, p. 46).

Whatever the circumstances of its foundation, London appears to have grown as a commercial centre. Although it was gradually furnished with public buildings (including bathhouses, temples, a forum from c. AD 80 (Marsden, 1987), and amphitheatre from c. AD 75 (Bateman et al., 2008)) and civic infrastructure (including wells and water pumps (Blair et al., 2006; Wilmott, 1982), roads, a bridge across the Thames from c. AD 52 (Perring, 2015, p. 23), and timber docks and warehouses from c. AD 63 (Perring, 2015, p. 27)), most investment seems to have been in the dense strip buildings which made up the private dwellings of London's inhabitants (Perring, 2015, p. 32).

Wallace (2013, p. 287) characterises pre-Boudiccan development as 'piecemeal and slow', despite the evident plan of the streets of the Cornhill settlement (Fig. 1.2).

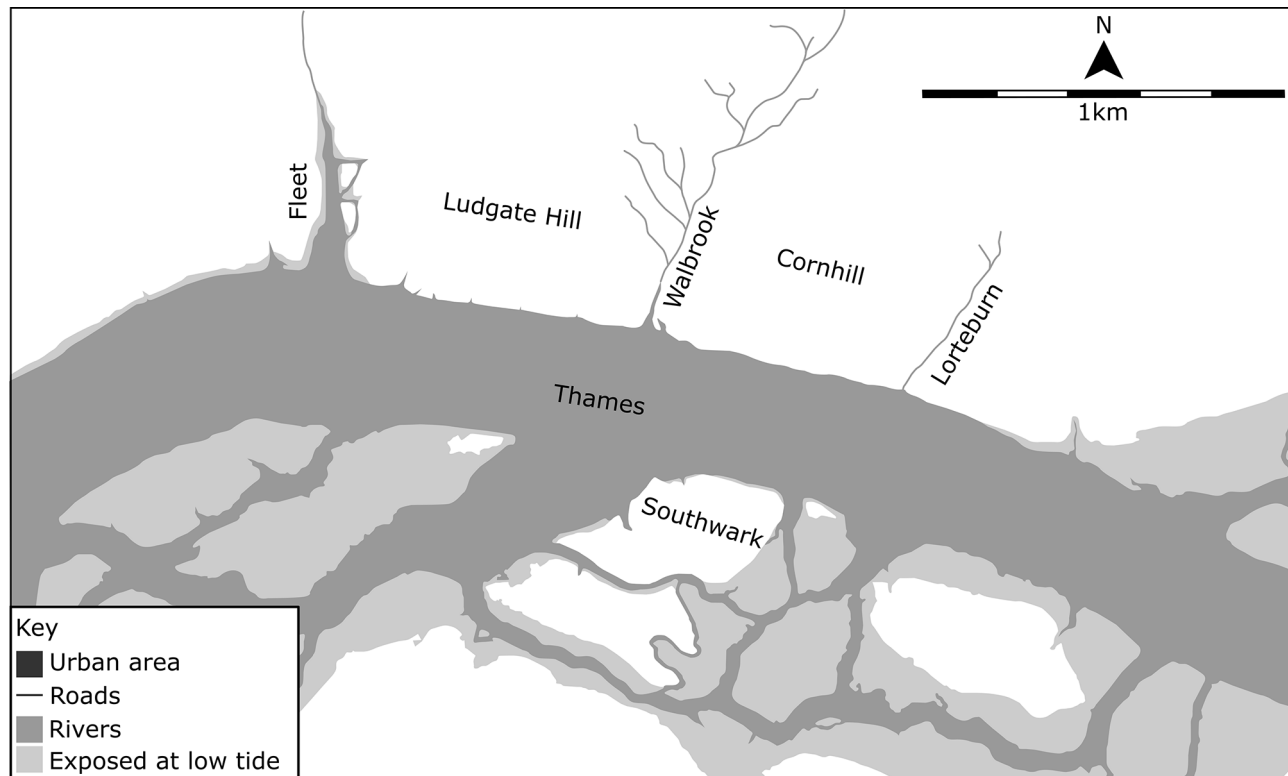


Figure 1.1 The natural topography of London (after Rowsome 2008, fig. 1.3.1).

The city expanded on to Ludgate Hill, but development was interrupted by the Boudiccan destruction of AD 60/61. The city contracted slightly after the fire, with redevelopment not taking place for up to ten years after the initial destruction in some parts of the city (Hill & Rowsome, 2011, pp. 306–07). However, a writing tablet from Bloomberg (BZY10, Tomlin, 2016, <WT45>) suggests that a degree of trade had been restored between London and Verulamium by the end of AD 62.

Post-Boudiccan development eventually continued beyond the limits of the pre-Boudiccan city (Fig. 1.3), reaching its commercial peak in the early second century (Perring, 2015, p. 32). Whilst there is broad agreement about the trajectory of development in London in this period, there is debate about whether this was driven by state building programmes (Perring, 2015) or by the agency of London's population (Creighton, 2006, pp. 93–107; Millett, 2016; Wallace, 2013, 2014, 2017). A second major fire affected the city in the AD 120s (Hill & Rowsome, 2011, p. 357; Wilmott, 1991, pp. 34–36).

London appears to have undergone change from the mid-second century, although the nature of this change is debated. Traditionally, this has been seen as a period of population decline, marked by a reduction in the number of houses, wells and rubbish pits, and the growth of 'dark earth' deposits (Marsden & West, 1992; Perring, 2011, 2015, p. 32; Watson, 1998b; Yule, 1990). Part of the reduction in the number of properties may be attributed to the amalgamation of narrow strip plots and the construction of larger masonry buildings 'concerned with status and

display' (Hill & Rowsome, 2011, p. 370), containing larger households (Hill & Rowsome, 2011, pp. 367–69; Perring, 2011, p. 273, 2015, p. 33). Several temples were built in the second century (Killock et al., 2015; Perring, 2011, 2015, p. 33), and the city wall was built in the third century (Fig. 1.4), although the date of construction is debated (Perring, 2015, pp. 33–34; Sheldon, 2010). However, other public buildings went into decline in this period, with the forum being demolished at the end of the third century (Brigham, 1990, p. 82). The port continued to be developed into the early third century, but was also demolished in the late third century with the construction of the riverside wall (Perring, 2015, pp. 33, 35). Perring (2011, p. 279, 2015, p. 33) associates this 'decline' with a plague of AD 165, recorded elsewhere in the Empire. However, some areas of the city appear not to have suffered any population decline in this period (Hill & Rowsome, 2011, p. 373), leading to the suggestion of 'qualitative change' in the character of the city rather than 'decline' (Perring & Roskams, 1991, pp. 120–21). These changes have been seen as indicating a shift in London's function, away from trade and towards administration (Hill & Rowsome, 2011, p. 445).

Heavy truncation of the upper layers of archaeology, keyhole excavation and a lack of dendrochronological dates have obscured our knowledge of the latest phases of Roman London (Gerrard, 2011a, pp. 182–83; Perring, 2015, p. 38). Gerrard (2011a, Illus. 2–3) has recently mapped late fourth-century pottery and coins in the city, suggesting that, *contra* previous models, much of the walled area and Southwark continued to be occupied in some capacity. Nevertheless, the city appears to have

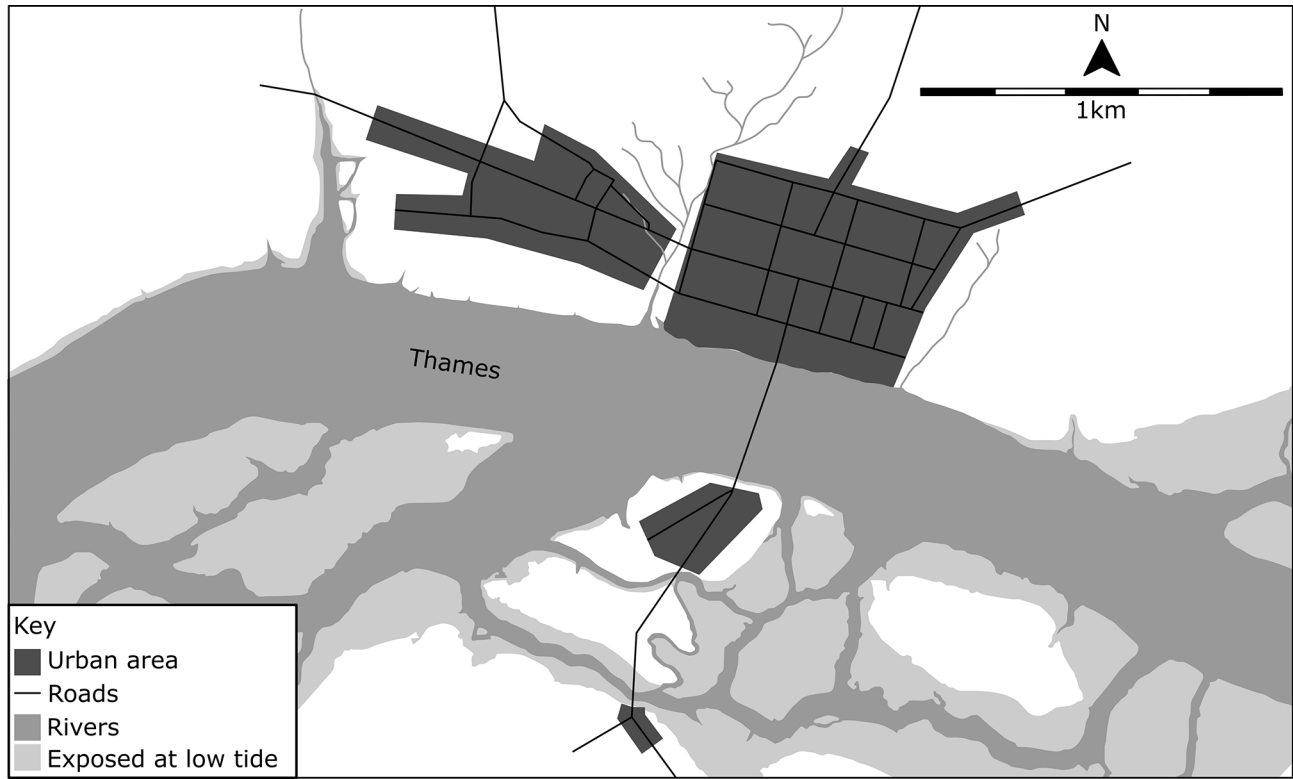


Figure 1.2 Pre-Boudiccan London (after Rowsome 2008, fig. 1.3.3).

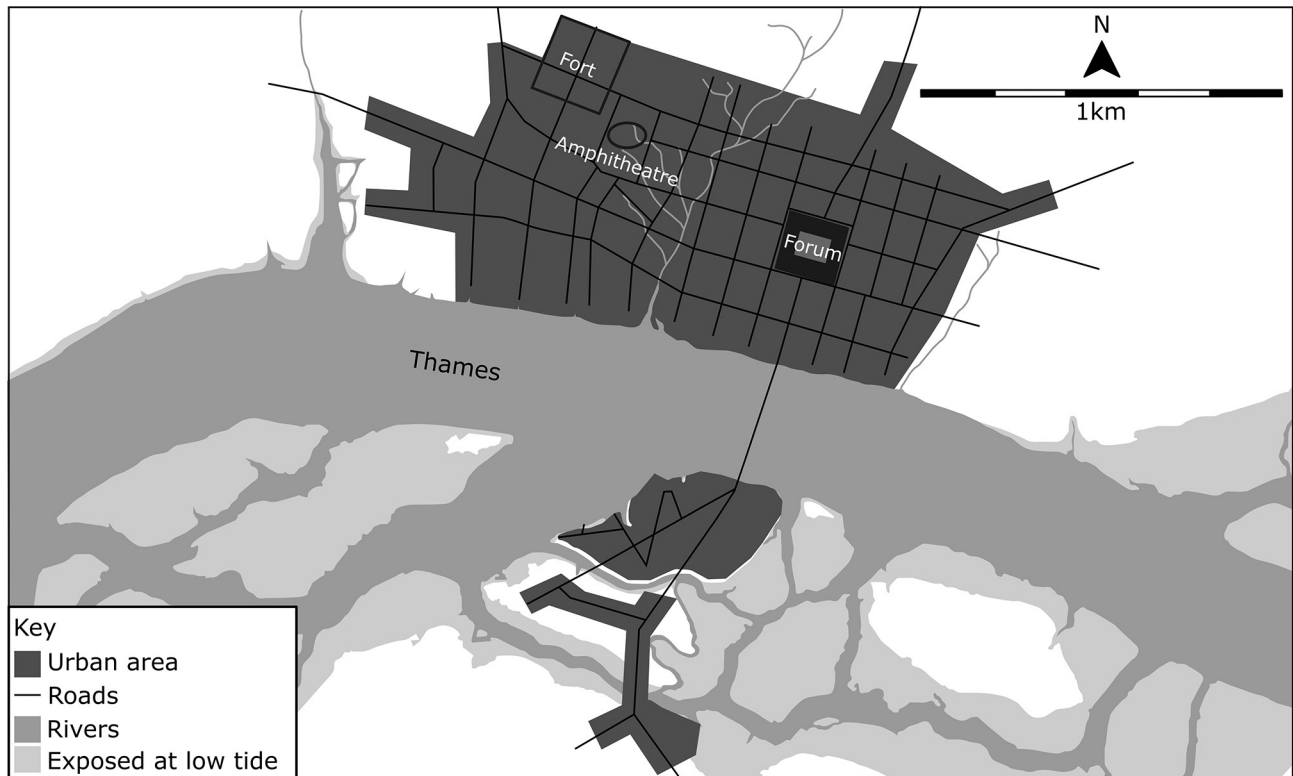


Figure 1.3 London in the early second century (after Rowsome 2008, fig. 1.3.5).



Figure 1.4 London in the early third century (after Rowsome 2008, fig. 1.3.7).

been completely abandoned by the late fifth century, with Anglo-Saxon occupation occurring c. 1 km west of the Roman city (Cowie & Blackmore, 2012; Gerrard, 2011a, p. 190).

### 1.1.2 Geography and Zoning

There is debate in the literature on Roman London as to whether the city should be seen as a single entity or ‘as an agglomeration of several specifically defined functional zones’ (Monteil, 2004, p. 10). It has been argued that London’s three main ‘zones’ (Cornhill, Ludgate Hill and Southwark) formed distinct legal entities, inhabited by different populations (Millett, 1994, pp. 433–34; Wallace, 2014, pp. 6, 44). Grimes (1968, pp. 38–39) first suggested, after the discovery of the Cripplegate fort on Ludgate Hill, that London was divided into two zones: a military zone to the east and a civilian zone to the west. This theory was later expanded, with the eastern settlement on Cornhill characterised as a free civilian settlement, with a military settlement on the western hill and a settlement of non-citizens on the south bank of the Thames (Millett, 1994, pp. 433–34; Rowsome, 1998, p. 38, 2008, p. 30).

Investigation of the differences between these ‘zones’ was a key component of Wallace’s (2010, 2014) recent thesis on the development of the pre-Boudiccan city. In this work, Wallace (2010) argued for differences in the road layout (*ibid.*, p. 94), building types (*ibid.*, p. 145), waste disposal practices (*ibid.*, p. 148), economic activities (*ibid.*, pp. 157, 166) and foodways (*ibid.*, pp. 168, 175) of these different ‘zones’. Differences between these ‘zones’

have also been identified in the consumption of pottery and small finds (Crummy, 2008; Monteil, 2004). Others have suggested more localised activity ‘zones’ in the city, such as a ‘zone dedicated to civic water supply’ taking up an *insula* on Ludgate Hill (Blair et al., 2006, p. 9). However, it would be inappropriate to assume that London was divided into static ‘zones’ which existed since the city’s inception. Whilst Wallace (2014, p. 178) found evidence for different communities inhabiting the different ‘zones’ of pre-Boudiccan London, none of these were internally homogeneous. It is perhaps more helpful to see Roman London as a place in which a number different activities and lifestyles were practised, some of which agglomerated at different points in time, rather than artificially dividing the city into a number of topographically defined units (Creighton, 2006, pp. 106–07).

Recently synthesised evidence from the city suggests that there was little zoning of craft activities in the first century, with metalworking (Hammer, 2003, p. 168), glassworking (Wardle, 2015) and pottery production (Rayner, 2017) all represented by small-scale workshops scattered across the city. From the second century these industries do coalesce into defined zones, however. Copper-alloy and ironworking focusses on an area in north-western Southwark (Hammer, 2003), whilst pottery (Rayner, 2017; Seeley & Drummond-Murray, 2005) and glassmaking (Wardle, 2015) are found in the upper Walbrook valley, between the stream itself and the area of the Cripplegate fort. It is not clear to what extent this pattern may have been followed by other crafts, such as leatherworking or woodworking, the waste from which is less likely to be preserved outside the waterlogged

areas of the city. This 'zoning' may have been disrupted in the Late Roman period, when there is evidence for glassworking and metalworking outside of these defined areas. Unfortunately, little is known about the economy of the Late Roman city, and so it is difficult to contextualise these emerging trends. The London tools have a clear contribution to make to this debate, as their distribution may indicate the 'zoning' or otherwise of crafts in the city.

### 1.1.3 The People of London

Tacitus (*Annals*, 14.33) described London as 'much frequented by a number of merchants and trading vessels', and archaeological discoveries have supported this impression of London as a commercial hub. The extensive waterfronts (Bateman & Milne, 1983; Brigham & Hillam, 1990; Miller, Schofield, & Rhodes, 1986; Milne, 1985) and large forum (Brigham, 1990; Marsden, 1987) provided the facilities for trade, whilst imported exotic goods ranging from marble (Pritchard, 1986, pp. 171–75) to food (Livarda & Orengo, 2015) show that London was receiving more long-distance trade than other towns in Britain at the time. Recent discoveries complementing this picture include an inscription from Southwark (RIB 3014), erected by a Gallic trader who referred to himself as a 'Londoner' (*Londiniensi*) (Killock et al., 2015; Tomlin et al., 2009, pp. 30–31), and the large numbers of writing tablets from Bloomberg, which mainly deal with financial and legal transactions (Tomlin, 2016). Traders have been seen as a key driving force in the foundation and development of the city of London (Creighton, 2006, p. 99; Millett, 2016, p. 1695).

There is also evidence of native Britons living in the city. Roundhouses from Southwark (Topping's Wharf, Watson et al., 2001, p. 13), the Walbrook valley (CID90) and Ludgate Hill (GPO75, GSM97) (Casson et al., 2014, fig. 20; Perring & Roskams, 1991, p. 101) indicate the presence of native communities around the periphery of the early town, some of whom were engaged in manufacturing beads and metalwork. 'Non-citizens' are thought to have made up a large part of the population of Southwark (Millett, 1994, p. 433), where the ironworking industry may have been dominated by native families throughout the Roman period (Hammer, 2003). Creighton (2006, p. 101) considers the possibility that native elites were involved in public benefaction.

Another significant element of London's population would have been the military. Although the existence of a conquest-period fort is disputed, two later military installations are known to have existed in London; a small fort at Plantation Place, Cornhill (FER97), which was occupied from the Boudiccan revolt until c. AD 85 (Dunwoodie et al., 2015), and a larger fort at Cripplegate, Ludgate Hill, from c. AD 120 to the latter half of the second century (Grimes, 1968, pp. 15–46; Howe & Lakin, 2004; Shepherd, 2012). Rather than forming a garrison, these installations have been interpreted as evidence of troops passing through the city to other theatres, or working in

the city in administrative capacities (Millett, 2016, pp. 1696–97). Military presence in the city has also been reconstructed based on classical documents and epigraphy (Hassall, 1973, 2012), and several of the Bloomberg writing tablets relate to military activity (Tomlin, 2016, p. 56). Soldiers can also be witnessed in the artefact record (Rayner, 2009, pp. 42–44; Wardle & Rayner, 2011), although a catalogue of the military equipment from the city, in progress since 1986 (Bishop, 1989), remains unpublished. Beyond simply looking for the presence of military objects, some have looked for military-style consumption patterns in other finds from London (Creighton et al., forthcoming; Crummy, 2008, p. 219) and in architecture (Ebbaston, 1988; Millett, 1994, p. 434), arguing that Ludgate Hill was somewhat military in character even before the construction of the Cripplegate fort.

Whilst previous interpretations of the people of London have therefore described a diverse population, including immigrant traders, soldiers, native Britons, administrators and competitive elites, we are interested in a rather different group of people: those who made things. These people have received some attention in the past, often only through brief discussions of their tools (Hall & Merrifield, 1986, p. 37; Marsden, 1980, pp. 73–74; Merrifield, 1983, pp. 100–06; Morris & Macready, 1982, pp. 274–75), although a short paper by Hall (2005) is notable. This book nevertheless represents the first large-scale, systematic project dedicated to understanding craft and agricultural workers in the Roman city.

## 1.2 Putting Artefacts to Work: Previous Research and New Approaches

We have, therefore, a museum full of corroded iron objects, a Roman city with a diverse population, and an ambition to link the two to discuss everyday life and society almost 2,000 years ago. How, then, are we to make the leap between tools and people?

To know where we are going, we must first know what has gone before. Most people attempting to study Roman tools will refer immediately and exclusively to the seminal works of Manning (1976b, 1985a) and Rees (1979). However, there is in fact a larger body of work devoted to these objects that deserves to be better used in Anglophone scholarship. Spanning over two centuries, this scholarship can be divided into a number of different traditions, here presented in broadly chronological order based on when they were the most prominent. This section will primarily examine works on Roman tools, but reference is also made to important literature on Iron Age and medieval objects where relevant.

### 1.2.1 Classical Sources, Secondary Historical Works and Dictionaries

The oldest surviving works dealing with Roman tools are of course the works of Roman writers. Tools receive mention in a range of classical sources, including lexica

and glossaries, lists of equipment, and literature (Ulrich, 2007, p. 15; White, 1967, pp. 5–7). The words used to describe tools are not common, and so the earliest works dedicated to unravelling the secrets of Roman tools are the dictionaries and encyclopaedias which aimed to provide definitions of these terms. Particularly noteworthy contributions to this genre come from K.D. White (1967, 1975). White took a notably methodical approach, systematically combing documentary sources for references to agricultural tools, before combining the descriptions of each tool with etymological analysis of its name. This information was then compared to excavated tools, depictions of tools in mosaics, manuscript illustrations and sculpture, and tools still in use in Greece and Italy. Other works are less thorough.

There are issues in applying the conclusions of these works to the archaeological record. Even in a work as systematic as White's, authors are essentially looking for tools which could fit the descriptions in classical sources, rather than using the intrinsic evidence of the archaeological record. Moreover, the key sources drawn upon (classical writers in ancient Italy, fourth-century mosaics from North Africa and modern tools in Italy and Greece) are much more limited in application than the authors claim. None of these sources derive from Britain, let alone London. The descriptions contained are vague, and difficult to relate to the archaeological material (Gaitsch, 1980, p. 257; Rees, 1979, p. 308). Often these works come to ambiguous or misleading conclusions, as exemplified by the example of the coultter given by Manning (1964b, p. 63). Classical sources will therefore feature in only a minor capacity in this book. Latin terminology will be avoided here, except where there is no sensible English equivalent.

### 1.2.2 Ironwork Hoard Reports

Iron finds were rarely valued in early excavations. However, some finds of hoarded iron objects were so exceptional that they received special attention and even publication. The museums that these collections were displayed in were also greatly influential to the early scholarship on tools. The most well known are the early finds from Great Chesterford (Neville, 1856), Silchester (Evans, 1894) and Newstead (Curle, 1911), but ironwork hoards have continued to be found since, and large numbers of hoards are now known from both Britain and Continental Europe (Hanemann, 2014; Hingley, 2006; Humphreys, 2017a; Manning, 1972a; Piggott, 1952).

Early hoard publications focussed on identifying the objects, providing descriptions, illustrations, comparanda and dates for these tools. Function was not discussed in detail, although the identifications given were essentially functional. Typological discussion has continued to be a major aspect of hoard publications. Hanemann's (2014) recent work on German ironwork hoards has provided exceptional detailed typologies and extensive comparanda for a range of iron object types, supplanting Manning's (1985a) and Rees' (1979) earlier work.

Some early publications also attempted to use these objects to discuss the character of the sites on which they were found. At Newstead the material was used to provide 'a sense of the life that once moved within the fort' (Curle, 1911, p. 277). Similarly, Thomson (1924, pp. 556–619) used the evidence from the Silchester hoards to add colour to his account of the town, discussing the tools and finished artefacts together to describe the different industries and professions taking place. The location of the tool hoards was also used to attempt to locate workshops within the city (Thomson, 1924, p. 592). In many ways these works prefigured the way tools would be published in large urban syntheses many years later (see below). However, these interpretations are complicated by more recent interpretations of these hoards, which see them as ritual deposits which do not necessarily directly reflect ancient craft practice (Hingley, 2006; Humphreys, 2017a; Manning, 1972a; Piggott, 1952).

### 1.2.3 Museum Catalogues

The twentieth century saw the widespread publication of museum collections catalogues. Key early catalogues for the study of tools include Champion's (1916) catalogue of the tools from Saint-Germain and Flinders Petrie's (1917) catalogue of the tools and weapons in the Egyptian collection in University College, which also included numerous tools from across the Mediterranean and Northern Europe. More recent publications include Hayes' (1991) publication of the European tools from the Royal Ontario Museum, and the publication of the collections of the Musée archéologique de Saintes (Feugère et al., 1992).

By far the most influential museum catalogues for the study of tools are Manning's catalogues of the ironwork from Newcastle's Museum of Antiquities (Manning, 1976b, now part of the Great North Museum) and the British Museum (Manning, 1985a). Newcastle's collection was comprised mostly of material from forts along Hadrian's Wall, chiefly Housesteads (Manning, 1976b, p. 8), whilst the British Museum held the objects from Hod Hill, alongside numerous finds from London and East Anglia (Manning, 1985a, p. xvi). In both cases some of the artefacts had been published previously (Manning, 1976b, p. 8, 1985a, p. xvii), but in a fragmentary manner with significant omissions. Building on his unpublished PhD thesis (Manning, 1970b), Manning's work is primarily typological, intended to be used as reference material by other finds specialists. As well as describing the functions of the tools, Manning provided classification schemes and extensive comparanda. Both publications have been very successful, and are frequently cited in ironwork reports to the present day.

This is, however, the limit of their scope. Despite the shortcomings in their data collection, through assembling these bodies of artefacts from multiple sites the opportunity existed to discuss the wider possibilities of tools as data for illuminating regional, chronological and inter-site differences. Manning's (1976b, pp. 1–8) introduction

sets his Newcastle data within archaeological debates about continuation of form from the Iron Age, changes in tool form within the Roman period, and the position of the smith and the army in Roman society, but this is not followed up in any analysis or conclusion based on the tools.

#### 1.2.4 Studies of Ploughs and Cultivation Tools

From the late nineteenth century, and increasingly in the early twentieth century, cultivation tools became an object of intense study. The amount of research undertaken into the history of ploughs and spades is 'extraordinarily voluminous' (Fussell, 1966, p. 178) and has sparked international conferences (Michelsen, 1956) and dedicated journals (Steensburg, 1993). Discussions of Roman ploughs by Manning (1964b), Rees (1979, pp. 42–49) and White (1967, pp. 123–45) have drawn heavily on this scholarship.

The scholars involved in this field included many linguists, ethnographers and museum curators as well as historians and archaeologists. As a result, a wide variety of data sources has been utilised, including representations of ploughs in rock carvings, sculpture and manuscript illuminations, references in classical, biblical and medieval documents and laws, the shapes of fields, preserved plough-scars, ethnographic parallels to tools in folk museums and traditional societies, and the etymology of the names for ploughs and related equipment (Aberg, 1957, 1958; Aitken, 1956b; Cheape, 1993; Curwen, 1927; Duignan, 1944; Fenton, 1962; Forni, 1997; Fowler, 2002, pp. 182–204; Fussell, 1933, 1966; Gow, 1914; Harrison, 1916; Hill, 2000; Karlake, 1933; Kelly, 2000; Klápště, 2016; Manning, 1964b; Michelsen, 1956; Myrdal, 1993, 1997; Payne, 1947, 1957; Puhvel, 1964; Stevenson, 1960; Tylor, 1881). Experiments with replica implements were also common (Aberg & Bowen, 1960; Hansen, 1969; Rees, 1983; Reynolds, 1982). The physical remains of ploughs have not often been pivotal to this tradition, as so few plough elements survive. These broad datasets were not always relevant to the period or place under discussion. Bronze Age rock carvings found in the Alps, for instance, have been cited as evidence for the number of oxen used to pull ploughs in Britain (Curwen, 1927; Payne, 1947).

The plough has been rightly described as having 'its own considerable hagiography' (Myrdal, 1993, p. 72), with much of the scholarship continually revisiting debates which have been present in the literature since the nineteenth century (Tylor, 1881) and continue to the present day (Fowler, 2002, pp. 182–204; Klápště, 2016). These include: whether the plough began as a human- or animal-powered device, the nature of plough teams and oxen formations, the relationship of the plough type to field shape, the presence or absence of wheels, mouldboards and coulter, the adaptation of the plough to different soil conditions and agricultural schemes, the number of plough types in use at any one time, the ability of the plough to create true furrows and turn over the sod,

the usefulness of ards and their ability to till heavy soils, and the effectiveness of different share types.

Most of these debates are related to function, reflecting Steensburg's (1993, p. 19) view that 'the working processes of agriculture ought to be stressed, and the farming tools should be studied not from a typological viewpoint but as expressions of the work they had been carrying out'. This tradition of scholarship nevertheless placed an emphasis on standardised terminology and recording practices, even to the point of proposing international standards for plough recording (Aitken, 1956a; Michelsen, 1956).

Social interpretations of these tools have also been proposed. Debates about plough form have been linked to the movement of ethnic groups, and much time has been spent attempting to define the 'Celtic', 'Belgic', 'Roman', 'Anglo-Saxon', or 'Slavic' plough (Curwen, 1927; Karlake, 1933; Šach, 1956). This thread of scholarship is firmly rooted in the culture-historical tradition of many early writers, and the mechanisms of this technological exchange are often underdeveloped. The plough has also been seen as an instrument of social change, with the arrival of the heavy plough and strip field system interpreted as evidence for a medieval-style manorial system of farming (Karlake, 1933; White, 1962). Others have vigorously rejected this technologically deterministic view (Sawyer & Hilton, 1963), but debates about the effect of plough form on field shape and agricultural regime continue, particularly in medieval studies (Myrdal, 1997; Williamson, 2003). Aside from a few sporadic references (Aberg, 1957, pp. 171, 174; Manning, 1971; Tylor, 1881, p. 78), little attention has been paid to the ritual aspects of ploughing, although these may have been key to the deposition of plough parts (Hingley, 2006; Humphreys, 2017a).

#### 1.2.5 Craft Tool and Trade Histories

From the mid-twentieth century, this interest in tools spread to craft tools (Walker, 1982, p. 349), with studies emerging both of specific tools (e.g. the saw (Jones & Simons, 1961)) and of functional groups of tools, such as those used in carpentry (Goodman, 1964; Noël, 1988; Salaman, 1975; Walker, 1982). A related tradition is that of industrial and trade histories. These works examined multiple aspects of different commercial processes, and frequently incorporated brief discussions of the tools used (Davey, 1961; Farrar, 1998; Sim & Ridge, 2002; Ulrich, 2007). An unusual paper by Childe (1944) attempted to give a brief account of the whole of human history through tools, for the benefit of the Young Communist League.

These works drew their information from a wide range of sources, including tool marks, depictions of tools in sculpture, mosaics and illuminations, documentary and literary sources, Latin terminology and analogy with modern tools. The better studies utilised these broad datasets to highlight incongruities between the different sources. However, instances like this are the exception,



and the majority do not treat the data in a critical manner, especially when discussing ancient tools. Most of the authors were not archaeologists, and it was beyond the scope of their work to survey and catalogue the excavated data. Many stress the limitations of the archaeological record (Blagg, 1976, p. 153; Goodman, 1964, p. 10; Ulrich, 2007, pp. 13–16), echoing the sentiments of contemporary archaeologists, who lamented that ‘no adequate treatment of Roman tools and similar metal objects in Britain exists’ (Piggott, 1952, p. 9). Whilst archaeological examples of tools were used, most studies used only well-preserved objects from large collections found in prominent museums.

Roman tools were rarely the sole focus of these studies. Many tool histories examined tools in a broad historical perspective, with ancient tools taking up a comparatively small part of the discussion. Their treatment of ancient tools was often much less rigorous than that of modern tools. This *longue durée* approach nevertheless allowed Goodman (1964) to identify periods of technological stagnation, such as in Ancient Egypt (Goodman, 1964, p. 17) or Northern Europe in the early Iron Age (Goodman, 1964, p. 14), and periods of rapid innovation, chiefly the Roman period and the fifteenth and eighteenth centuries (Goodman, 1964, p. 8). Perhaps the most important interpretation to come out of this tradition was the assertion that tools have changed and developed over time (Goodman, 1964, p. 8; Walker, 1982, p. 355). Whilst the forms of ancient and modern tools display ‘superficial resemblances . . . in almost every detail of their design and construction there have been considerable changes and improvements in the course of time’ (Goodman, 1964, p. 8). Subsequent writers on woodworking tools who lacked this perspective (Noël, 1988, p. 113; Ulrich, 2007, p. 4) have continued to promulgate the idea that tools are unchanged relics of the past.

However, the discussion of broad period divisions meant that changes within the ‘Roman’ period, as well as geographical variations, were not noticed. This is an issue that can even be found in studies that examine only Roman material. Ulrich (2007, p. 14) used data from across the Roman Empire because ‘there does not seem to be a wide variation among a given tool type between different provinces . . . there is also little change over time in terms of physical form’. This draws on Gaitzsch’s (1980, p. 259) observation that ‘no fundamental formal distinctions can be determined between tools from Italy and those from the northern provinces’, but it was only these regions, not the entire Roman Empire, that were the limit of Gaitzsch’s study. Gaitzsch also found evidence for differing traditions between the North and South, and East and West parts of the Empire, as well as differences in the types of tools found on different settlements. The uncritical approach to the data seen in much of this scholarship precludes the possibility of discovering meaningful regional or chronological differences, and the result is a homogenised view of ancient tools and crafts. The lack of diversity in Roman tools is a self-fulfilling prophecy if every study

‘treats the tool as a definite fact and does not engage in chronological or miniscule typological classifications’ (Gluščević, 2014, p. 56).

Practical interpretations were of prime importance to many of these studies, with common themes including function and operating technique, efficiency and the manufacture and technology of tools. Form is discussed only in so far as it affects functional interpretation. As a result, no archaeologically useful typologies were developed by these authors.

Many authors in this tradition make reference to having a practical background in the craft under consideration (Blagg, 1976; Goodman, 1964; Sherlock, 1978; Sim & Ridge, 2002), or wrote for an audience of modern tool users (Goodman, 1964; Jones & Simons, 1961) or collectors (Groves, 1966; Mercer, 1929; Salaman, 1975, 1986). Thus, one of the few social interpretations to be advanced in this category is a consideration of the craftsman and their position in society (Goodman, 1964; Sim & Ridge, 2002; Ulrich, 2007). Other social interpretations were certainly possible, however. Goodman (1964, p. 78) considers how geographical and cultural differences are reflected in the differing forms of seventeenth- and eighteenth-century Dutch and British planes, but this sort of analysis is not applied to the homogenised Roman tools. The double-headed axes produced in Minoan Crete, which Goodman (1964, pp. 20–21) dismisses as ‘a bit of a dead end’ and a ‘gimmick’, could instead have been discussed in terms of their ‘religious and political significance’.

### 1.2.6 Artefact Production Studies

From the 1970s, a number of works appeared which considered how artefacts had been made. These studies are distinguished by their use of experimental archaeology and scientific analysis, focussing on the tool marks and other marks of production seen on finished objects. As such, they form an interesting bridge between studies of tools and other artefact studies. In Roman archaeology, these techniques have been used on a range of wooden (Pugsley, 2003; Weeks, 1978), metal (Craddock & Lang, 1983; Lang & Hughes, 2016; Manning, 1976c; Maryon, 1948; Saunders, 1977) and stone objects (Wooton et al., 2013).

As well as reconstructing the production process in a general way, these methods can be used to examine tools specifically. For example, Hobbs (2016, p. 264) has compared the beaded rims of various vessels in the Mildenhall treasure to identify groups of marks made by the same tools. These approaches can also be applied directly to tools themselves. Tylecote and Gilmour (1986) performed metallographic analysis on a number of tools to see how they had been constructed, providing a new means of comparison beyond traditional form analysis, allowing the results to be compared to Continental examples. However, a recurring theme in these works is the discovery of tool marks that cannot be accounted

for by the tools we find archaeologically (Hewitt, 1982; Sands, 1997; Walker, 1982, pp. 350–51), highlighting how incomplete the record of surviving tools is.

Although no new scientific analysis was carried out for this project, comparative data on tool use is available in London, where numerous excavation reports have provided sections on wooden, leather and bone objects, sometimes including discussions of tool marks. It will be important to compare this data with that gained from studying the tools themselves.

### 1.2.7 Regional Artefact Studies

At the same time as Manning's ironwork catalogues were being compiled, a number of postgraduate theses were published which addressed many of the identified shortcomings of tool scholarship up to that point, most notably by providing regional surveys of specific tool types. The works produced in this tradition, mainly from the late 1970s to the early 1990s, remain some of the most important to the study of ancient tools.

An interesting precursor to these works is Steensburg's (1943) study of harvesting tools. Steensburg collected together all of the known reaping tools in Danish museums dating from the Neolithic period onwards. Steensburg created typologies of the flint (Steensburg, 1943, pp. 30–33) and bronze (Steensburg, 1943, pp. 68–72) sickles based on measurements of curvature, and carried out metallographic analysis (Steensburg, 1943, pp. 88–89) and controlled experiments with archaeological artefacts and replicas (Steensburg, 1943, pp. 10–26). Steensburg (1943, pp. 122–248) also constructed a history of the evolution of harvesting tools up to the present day, using data from a broad range of sources, and carried out one of the earliest examples of distribution analysis in relation to tools (Steensburg, 1943, pp. 141–44). This study was in many ways ahead of its time, and the methods of data collection and analysis performed here prefigured other comparable regional surveys by over 30 years. Nevertheless, Steensburg's analysis reflects his interests; he sees tools as the result of adaptations to the landscape, and changes in tool use as a result of changes in culture and natural conditions (Steensburg, 1943, p. 243). As with the study of the plough, cultural factors not related to working processes receive little mention, and there is no discussion of context.

Work of this type on Roman agricultural tools has been carried out sporadically since the late 1970s. Rees' (1979) PhD thesis, *Agricultural Implements in Prehistoric and Roman Britain*, was the first, collecting together all of the primary agricultural tools from museums in Britain dating from the Neolithic to the Roman period. Although Rees' data was no different to that used by Manning (examination was visual, and many of the finds lacked contextual data), Rees' work is distinguished by her use of these data to answer specific research questions. By looking at site type and considering a broad geographical area, Rees was able

to provide the first analysis of the distribution of Roman tools in Britain. This allowed Rees to examine not only the development of tools and types, but also the differences in economy in different parts of the country, and the extent of agricultural specialisation in different areas and on different site types.

Comparable studies are available for Continental material. Pohanka (1986) studied the agricultural tools from the provinces of Raetia, Noricum and Pannonia. As well as providing typologies, Pohanka discusses change over time and regional variation in these tools. Penack (1993) collected the harvesting tools from Free Germany. More recently, Marbach has produced two surveys of the 119 pieces of plough equipment (Marbach, 2004) and 16 complete scythes (Marbach, 2012) from Roman Gaul and Upper Germania. These surveys follow Steensburg's (1943) example, incorporating metallography and calculations of geometry to produce a very technical account of these tools. These objects are also compared with those previously published by Rees (1979) and Pohanka (1986).

Unfortunately, there has never been a comprehensive survey of the Roman craft tools of Britain. Regional surveys have been conducted on the Continent, however, by Gaitzsch (1980) and Pietsch (1983, 1988). Busulađić (2014) has collected the tools from Roman Bosnia and Herzegovina. Less systematically curated but nevertheless useful is Hoffman's (1985) compilation of images of various Roman tools from French publications, which is not accompanied by any discussion.

Gaitzsch's (1980) *Eiserne römische Werkzeuge (Roman Iron Tools)* looked at the craft tools from Italy and the Northern provinces, most importantly those from Pompeii. Gaitzsch considered the regional and chronological variations in these tools, and found a high degree of standardisation in form across the Northern provinces, with some tools perhaps conforming to standardised measurements (Gaitzsch, 1980, pp. 257–59). However, whilst form was constant, Gaitzsch, like Rees (1979), also found variations in the numbers of different tools represented in different cities, and on different site types (e.g. military and civilian), which may relate to differing production (Gaitzsch, 1980, p. 260), although interpretations were limited by the 'spotty' nature of the data.

These differences were expanded on by Pietsch (1983), who catalogued and re-evaluated the famous collections of iron tools from the *Limes* forts of Saalburg, Feldburg and Zugmantel. Inspired by Salaman's (1975) work on post-medieval tools, Pietsch (1983, p. 6) attempted to discern local traditions in craft and agricultural tools by looking for variations in the formal aspects of tools, and chronological and regional groupings. Like Gaitzsch (1980), Pietsch found that most tools were distributed evenly among the sites, but differences were discernible. For example, Saalburg produced more agricultural tools,

whilst Zugmantel contained more woodworking tools (Pietsch, 1983, p. 79). Tools were also more likely to come from the *vici* outside the defences than from the forts themselves (*ibid.*), which may reveal aspects of fort organisation.

However, whilst Gaitzsch found uniformity in tool form, Pietsch was able to demonstrate variation. Civilian and military forms of tools could be discerned through the presence of lugged shaft-hole tools and high-quality elongated forgings on early military sites, which Pietsch (1983, p. 82) contrasted with lower-quality tools more often found on civilian sites. By comparing his data to that from other sites, Pietsch (1983, p. 83) found that cultural differences inferred from other sources (such as those between Raetia and Germania) were reflected in different tool forms. Other tools found in Pietsch's survey were unparalleled elsewhere, which he saw as evidence for local traditions similar to those identified by Salaman (Pietsch, 1983, p. 83).

Changes in form over time could also be demonstrated, both by the introduction of new forms and in changes to the forms of existing tools (Pietsch, 1983, Abb. 26). Pietsch (1983, pp. 80–82) interpreted these changes not simply in terms of technical improvement, but as responses to political and economic changes, changing production and distribution networks, ethnicity and possibly fashion. For example, new forms of tools were introduced in the first century (e.g. *dolabrae*), which Pietsch (1983, p. 79) associates with the arrival of the Roman army. Over time, some of these tools (e.g. entrenching tools and *dolabrae*) get smaller, which could be related to changing military tactics and the diminished importance of conquest (Pietsch, 1983, p. 80). Other tools (e.g. scythes) become longer and slimmer over time. As this would not necessarily lead to greater efficiency, it could be related to fashion and a more general trend towards exaggerated forms in Roman metalwork (*ibid.*).

Pietsch (1983, p. 80) proposed that these changes occurred at times of political and economic change (the beginning of the second century, and the end of the third and fourth centuries), when general instability disrupted the mechanisms by which a formal repertoire of tools is disseminated. However, like most studies of tools, Pietsch's chronology is limited by the nature of the evidence. Divisions are made only between 'early', 'middle' and 'late' periods, and it is by no means certain that the changes seen between these periods occurred at the start or end of them. Further, in order to construct a chronology, Pietsch used data from multiple site types; early material is mostly from legionary forts, whilst later material is more often from civilian sites. As such, it is possible that some of the differences seen could be reflections of differing traditions occurring simultaneously, but in different contexts.

A number of comparable regional surveys exist for the tools of other periods. Fell's (1990) unpublished MPhil thesis provides a comprehensive survey of the

Iron Age metalworking tools from England and Wales, whilst Darbyshire (1995) has examined both metal- and woodworking tools, although only in the south of Britain. Fell's study is notable for its use of X-rays and metallography, and for focussing on the context of the archaeological finds, allowing her to discuss the social dimensions of tool use and deposition, especially in 'ritual' contexts. Less detailed surveys have been carried out on early medieval tools. Ottaway (1995) has brought together a number of pieces of Anglo-Saxon ironwork from Britain, whilst Riley (2014) devotes a small book to Anglo-Saxon tools, unfortunately only illustrated with reproductions. Contemporary material from Slovenia is brought together by Ciglenečki (1983), whilst an MPhil thesis by Asquith (1993) on early medieval tools from England has not been published. Later medieval tools can be found in Goodall's *Ironwork in Medieval Britain* (originally submitted as a PhD thesis in 1980, published in 2011).

### 1.2.8 Excavation Reports

Since 1990, in Britain at least, there has been little archaeological work dealing solely with ancient tools. Manning (2011) and Rees' (2011) recent papers are essentially restatements of their earlier work, although Scott (2017) has brought together some more recent tool finds from south-east Britain. This may be linked to a general decline in the number of PhD theses written on Roman small finds since the mid-1990s (Crummy, 2007, p. 65; Swift, 2007, p. 25), a trend perhaps attributable to the retirement of key supervisors. Changes to the funding of archaeological work since the growth of commercial rescue archaeology have also had an effect. Rather than dedicated volumes devoted to specific artefact types, discussions of ancient tools now take place within excavation reports.

Numerous excavation reports have included Roman-period tools, and many more have doubtlessly gone unpublished. A regional survey collecting these tools together is badly needed. Published excavations which have produced significant numbers of Roman tools include those at Alcester (Mould, 1994), Dorchester (Manning, 2014a), Gadebridge Park (Manning, 1974), Gorhambury (Wardle, 1990), Hill Farm (Manning, 1985b), Ickham (Riddler & Mould, 2010), Nantwich (Cool, 2012), Shakenoak Farm (Brodribb et al., 2005), Shepton Mallet (Moscrop, 2001), Usk (Manning et al., 1995), Verulamium (Manning, 1972b, 1984a), Vindolanda (Blake, 1999, 2013b), Wanborough (Isaac, 2001) and Wilderspool (Thompson, 1965). Key Continental sites include Augst (Mutz, 1968, 1980), Haltern (Harnecker, 1997), Keszthely-Fenékpuszta (Rupnik, 2013a, 2013b, 2014), Magdalensberg (Mossler, 1974), Neuss (Simpson, 2000) and Xanten (Gaitzsch, 1993), whilst Feugère and Guštin's (2000) *Iron, Blacksmiths and Tools* contains tool assemblages from a number of smaller sites.

Discussion in these reports is often limited to identification, with finds classified based on Manning and

Rees' typologies. More detailed analysis of context and distribution is sometimes attempted (Cooper, 1999; Scott, 2000), even on some small sites, but is often hampered by a lack of data (see Major, 2003, p. 77). Nevertheless, Wardle (1990, p. 138) was able to use tools to infer activity zones and agricultural schemes at the Gorhambury villa (Neal et al., 1990, p. 97), whilst Murphy and Poblome (2012) and Brysbaert and Veters (2010) have demonstrated the usefulness of excavated workshop assemblages (including tools) for discussing social identity.

The most impressive works looking at the tools from single excavations relate to assemblages formed in exceptional circumstances, such as shipwrecks (Jansma & Morel, 2007) or the Vesuvian eruption (Allison, 1997, 2006; Harvey, 2010; Simpson, 1997). Harvey (2010), for example, has studied the iron tools from the villa at Boscoreale. The distribution of tools within the villa indicated that these tools were being stored for later in the year, whilst the tools being used at the time of the eruption (late summer) may have been kept in unexcavated outbuildings (Harvey, 2010, p. 709). As well as highlighting aspects of tool ownership and villa organisation, this observation highlights the difficulty in linking archaeological data with actual tool assemblages, even on sites with tools preserved in situ such as this. It also reinforces Fell's (1990, p. 274) and Rees' (1979, 1981, 2011) comments on 'the weakness of dependence upon tool type as a sole source of evidence' (Rees, 2011, p. 90).

The scattering of small datasets across numerous publications means that whilst basic information on tools is being disseminated, there is little inter-site study of the material from smaller sites, although Roux (2013) has conducted a detailed study of the finds from a number of smaller French excavations. A model for inter-site study in an urban environment is nevertheless provided by several large studies carried out in medieval urban centres. Notable examples are the multi-volume syntheses of excavations in Winchester (Biddle, 1990) and York (Bayley, 1992; MacGregor & Mainman, 1999; Morris, 2000; Mould et al., 2003; Ottaway, 1989, 1992). These reports use integrated datasets which often include tools, finished and unfinished objects, waste products, metallography, and associated structures such as workshops to study craft and industry in the context of the city. These reports provide a good example of best practice in relation to the study of tools, by placing them firmly in a local context and interpreting them alongside other sources of evidence for craft and industry, although the low numbers of tools made attempts to analyse this data statistically and by area largely unsuccessful (Barclay et al., 1990; Goodall, 1990, p. 37; Ottaway, 1992).

No work of this kind has been carried out on the Roman tools from any urban centre in Britain, but similar work has been carried out on the Continent. Duvauchelle (1990) and Tisserand (2001, 2010) have brought together the tools from Avenches and Vertault respectively, and used them to discuss craft and agriculture within the settlements.

Detailed work has been carried out on the *Oppida* of Bibracte (Mölders, 2010) and Manching (Jacobi, 1974). The tools from these sites are mapped and discussed in relation to chronology, context and function, with both works including discussions of craft specialisation. This approach could be widened to include rural areas and regions as well as urban centres. In Switzerland, evidence for industrial activity, including tools, has been synthesised from the entire country, with a focus on the lives of artisans (Amrein et al., 2012).

### 1.2.9 Conclusions

This review of the previous scholarship has revealed a number of themes and issues in the study of ancient tools, providing the requirements for a successful study of the Roman tools from London. A tightly defined scope is necessary. When studies have drawn data from too wide an area this has led to unsustainable generalisations being made about large geographical areas or time periods. However, whilst 'Roman London' could be seen as a sufficiently tightly defined scope, we have already seen that the city was not static over the centuries. Therefore, it will be important to examine evidence for variation in tool use across time and place in the city.

Whilst tools have tended to be sidelined in previous studies of industry, they will form the central dataset used in this book. However, previous scholarship has shown that waste, finished objects, structural evidence and documentary sources can also be important sources of data. Syntheses of craft activity in medieval cities provide a model for how these can be effectively combined. As no comparable works exist for the urban sites of Roman Britain, it will be important to bring as much of this evidence together as possible in this book, in order to make proper sense of London's Roman tools.

Many archaeological studies have focussed on the identification and classification of tools. Though unfashionable, and somewhat dry, this is essential work. A broad approach to the material culture which lacks typological detail can only lead to a homogenised impression of ancient industry and society. Fans of typology will be pleased to see this thread carried on here (see chapter 14).

Beyond typological classification, we have seen that tools have previously been approached in primarily functional terms. This tendency has also been identified in Roman military studies, 'partly because of the armed service background of some of the specialists' (Gardner, 2007, p. 29), and it is certainly true that ancient tools have often been written about by modern tool users. This is not surprising; tools have been frequently overlooked by other authors, and a degree of technological knowledge is often considered necessary to identify and understand them. Many writers (Champion, 1916; Manning, 1976b; Puleston & Price, 1873, p. 76; Swift, 2017, p. 16) recommend seeking the opinions of modern tool users

when identifying archaeological objects. Whilst not diminishing the value that modern tool users have brought to the study of ancient tools, informed archaeological perspectives are clearly lacking.

There is therefore both an opportunity and a need to find new ways to use these objects to alter our understanding of the past. Few studies have attempted to use iron tools to study the people and society of the ancient world. Doing so using the established methods of archaeological small finds research is not a simple matter, however. Tools are often poorly provenanced, and rarely show much chronological variation. Several excellent regional surveys exist of various tool types, and these provide an entry point to studying geographical variation, or changes in tool use across the social hierarchy. However, there remains no regional survey of Roman craft tools in Britain. Our poor knowledge of depositional processes, and the low numbers of objects involved, limit the degree to which useful inferences can be drawn from the visible patterns. It is therefore relevant at this stage to consider critically how it will be possible to draw meaningful information about society from these objects. You guessed it: that means a theory section.

### 1.3 Material Culture and Society: Bridging the Gap

*'But of all his measures, the one most admired was his distribution of the people into groups according to their trades or arts . . . He distributed them, accordingly, by arts and trades, into musicians, goldsmiths, carpenters, dyers, leatherworkers, curriers, braziers, and potters. The remaining trades he grouped together, and made one body out of all who belonged to them.'* Plutarch (*Life of Numa*, 17.1–2)

This book is attempting to answer the broad research question 'what can tools tell us about the people and society of Roman London?' However, this remains a broad aim, and one that requires a certain amount of reflection before appropriate research objectives can be formulated. The relationship between archaeological material and ancient lifeways is not straightforward in any circumstance, let alone with an object group as difficult as iron tools. It is therefore necessary to create a suitable framework in which to interpret the tools from London. The discussion below is structured around the few pieces of work which have sought to expand the use of tools as archaeological evidence, and is broken into three sections, examining the relationships between artefacts and technology, identity and agency.

#### 1.3.1 Artefacts and Technology

Discussions of technological capability have been central to archaeological narratives since the inception of the discipline, and the evolution of thought in relation to Roman technology from the Renaissance onwards has been traced recently by Greene (2009). Early approaches to technological development were often framed in terms

of 'evolution' or linear 'progress', seeking to identify the key developments which led to modern technologies being the way that they are. As we have seen, similar discussions have been a recurring theme in previous literature on tools. Where important observations have been made to challenge the idea of technological 'stagnation' (Greene, 2009, p. 70) in the Roman period (Goodman, 1964), these are nevertheless presented as part of a story of increasing complexity from ancient times to the modern day. Technological debates around tools have rarely been framed in social terms, but this does not accurately reflect developments in the theoretical literature on the history of technology (Greene, 2009, pp. 76–83). There is considerable scope for expanding the types of technological discussions we apply to this data.

Particularly relevant to this project are the Social Construction of Technology (SCOT) movement and related developments in post-processual archaeology (Greene, 2009, pp. 80–83; Killick, 2004). SCOT began in the 1980s amongst a diverse group of scholars interested in the history of technology, and is explored most fully in the works of Bijker (1995, 2010; Bijker et al., 1989). SCOT's socially focussed perspective comes from the conceptualisation of technologies as solutions to specific problems. Any given problem may have a number of possible solutions, and 'the choice of a particular technology from a pool of satisfactory alternatives may be strongly influenced by the beliefs, social structure and prior choices of the society or group under study' (Killick, 2004, p. 571). Seeing technology in this way breaks down the perceived boundaries between different spheres of human activity (technological, social, political etc.) and instead places them in a single 'seamless web', thus allowing technologies to be used as a tool for studying society. This focus on technologies as choices has been taken up in a wide range of spheres of archaeological thought related to the post-processual movement (Killick, 2004, p. 571; Lemonnier, 1989; Sillar & Tite, 2000), and can be seen in Murphy and Poblome's (2012) recent discussion of the Roman potters' tools from Sagalassos.

Initially, SCOT was concerned with interpreting the development of individual technological artefacts (see Bijker, 1995 for an influential discussion of the bicycle). At the core of this was the radical tenet that these artefacts do not 'work' outside of their wider social context. Since different groups will encounter different problems, requiring different solutions, no artefact or technology can be interpreted as universally 'working'. Instead, their functionality is 'socially constructed' by actors and groups. Bijker (1995, 2010, p. 68) terms these 'relevant social groups': networks of actors defined by shared interactions around a particular object. Where there is agreement between actors, they can create shared 'technological frames' relating to the artefact (Bijker, 1995, pp. 123–25, 2010, p. 69).

An issue with this formulation of SCOT is that it is focussed on interpreting periods of innovation and change. In SCOT

terms, new artefacts have 'interpretative flexibility', as their properties are not yet agreed upon (Bijker, 1995, pp. 73–75, 2010, p. 68). SCOT sees different 'relevant social groups' as defining multiple different objects, with different properties, based on their different 'technological frames'. This period of 'interpretative flexibility' is succeeded by one of irreversible 'stabilisation' and 'closure' (Bijker, 1995, pp. 84–86, 2010, p. 69), as different 'relevant social groups' come to develop a single conception of the artefact in question. As archaeologists, we may question whether 'closure' is as irreversible as Bijker (1995, p. 87, 2010, p. 69) claims. Bijker's study of the bicycle ends in 1890, for example (Edgerton, 1999, p. 115), and its interpretation may not remain 'stabilised' in an archaeological time frame. However, a more fundamental issue is that the artefacts dealt with in this research do not show evidence of rapid or frequent change. Does this mean that we cannot explore society except in moments of change?

Edgerton (1999) provides a very different perspective, distinguishing between discussions of technological 'innovation' and those of 'use'. Discussing 'technologies in use' gives a radically different picture of the technological landscape, allowing for an appreciation of the significance of 'traditional' or established technologies that have been seen as 'out-of-date, obsolete, and merely persisting' (Edgerton, 1999, p. 112). This perspective also reorients our focus from inventors and innovators towards the majority of the users of technology: a perspective which 'also involves a massive shift in social class, social status, gender and race of people involved with technology' (Edgerton, 1999, p. 116). Clearly these perspectives are highly relevant to a study of craftspeople through their tools.

SCOT perspectives are not unhelpful in this paradigm, however. SCOT later moved on from focussing on individual artefacts to a wider focus on 'technological systems' and 'technological culture'. This period highlighted how technologies are not only shaped by society, but act to shape it through 'co-production'. This approach also highlighted how technological frames can act to 'close-in' actors to a certain way of using technology, whilst 'closing-out' others who do not have the knowledge required to utilise it. By adopting perspectives from practice theory (see chapter 1.3.3), there is no reason that we could not see this co-production being driven by routine practices and 'technologies in use' rather than innovation.

Theoretical approaches to technology therefore provide several avenues for using tools as evidence to study past societies. A key recognition must be that whilst we will seek to explore periods of innovation, the bulk of our discussion will be of 'technologies in use'. By characterising the differential use of tools in terms of 'relevant social groups' and 'technological frames', we can explore social interactions and agent networks. By examining Roman technology in the city at the level of 'systems' and 'culture', we can see how technological practices acted to shape Roman society, and the interactions

between groups. Moreover, by accepting the concept of the seamless web, we are required to look beyond the purely technical in order to explain technological change and stability in the Roman city.

### 1.3.2 Artefacts and Identity

Outside of the restricted world of tools, discussions of Roman artefacts as indicators of the makeup of past societies have focussed on the concept of 'identity'. Largely this has been within the paradigm of 'Romanisation': the process by which provincial societies and their artefacts became more like those of the classical world. Introduced by Haverfield (1905, 1913), the concept was originally closely allied to the culture-historical world-view, and heavily influenced by classical texts. Since then, however, 'Romanisation' has become a cornerstone of most major archaeological works in Britain (Frere, 1967; Mattingly, 2006; Millett, 1990), and continues to dominate discussions of identity to this day (Pitts, 2007, p. 695).

In the literature on tools, the terminology of Romanisation is most in evidence in regional surveys, particularly that of agricultural tools by Rees (1979). In Rees' discussion of the social distribution of different tools, site types and geographical areas are described as more or less 'Romanised', with the implication that some tools are more indicative of a 'Romanised' society than others. There is no discussion of this, however, and Rees' use of the term can be seen largely as a result of the time in which she wrote. More explicit use of the concept of 'Romanisation' in relation to tools can be found in the work of Tisserand (2011). From the emergence of new forms between the Late Iron Age and Roman period, Tisserand (2011, p. 892) argues for a fundamental change in attitudes towards professional skill; Iron Age craftworkers would adapt their method of working to suit different tasks, whereas Roman craftworkers would employ a wider range of tools.

Whilst this observation is sound, we may question to what extent it is appropriate to characterise this change as a product of 'Romanisation', rather than as one which 'happens in the Roman period'. In recent years, 'Romanisation' has been subject to an infamously prolonged post-colonial critique (e.g. Clarke, 1996; Forcey, 1997; Heeren, 2014; Hingley, 1996; Mattingly, 2006, 2011; Webster, 2001; Woolf, 2014). Although initially attempting to rehabilitate the term with a focus on the mechanisms of cultural change (Heeren, 2009b; Millett, 1990), subsequent discussions have focussed on replacing 'Romanisation' with new terms which more accurately reflect the ways in which cultures become mixed (see Webster, 2001 for 'creolisation') or interact on global and local scales (see Heeren, 2014; Pitts & Versluys, 2014; Woolf, 2014 for discussions of 'globalisation').

Moreover, discussions of identity have moved on from being purely framed in cultural terms (although this remains key to much of the literature (Pitts, 2007, p. 695)). Recent studies have examined how status, gender,

age, professional and regional identities were defined and articulated through artefacts (Allason-Jones, 2001; Eckardt, 2014; Pitts, 2007; Swift, 2004, 2017), with emphasis on the situational, conflicting and changeable nature of these labels (Gardner, 2007, pp. 19–20, 2011, pp. 12–13; Hill, 2001). The changes in tool use identified by Tisserand (2011) could therefore be tied to discussions of changing professional identity, rather than being linked solely to cultural identity. A growing number of works have looked at aspects of the lives of Roman craftspeople (Chadron-Picault, 2010; Mac Mahon & Price, 2005; Polfer, 1999, 2001, 2005; Wilson & Flohr, 2016), although these are rarely explicitly framed in terms of identity.

Rather than ascribing increased specialisation to the introduction of ‘Roman’ culture, could we not investigate the significance of specialisation on its own terms? There is a large body of work devoted specifically to this subject (Archeological Papers of the American Anthropological Association, 1998, 2007; Brumfiel & Earle, 1987; J.E. Clark, 1995; Costin, 1991; Wailes, 1996a). Tracing itself back to the work of Childe (Wailes, 1996a), this scholarship has a structuralist flavour, typified by Costin’s (1991) work, which provides cross-culturally applicable ‘typologies’ of craft specialisation. Much of the focus has been on describing the different spheres of experience of specialisation (full-time vs part-time, dependent vs independent, etc. (Costin, 1991; Wailes, 1996b, p. 5)), although the usefulness of these dichotomies has been questioned (Costin, 1998, p. 5). This scholarship has nevertheless highlighted the importance of seeing specialists as part of wider networks, and recent works have incorporated a range of approaches highlighting how specialisations are born out of and changed through practice (Brysaert & Veters, 2010; Costin, 1998).

Many of these studies have linked the degree and type of specialisation seen to wider themes on the economic and social development of societies (Archeological Papers of the American Anthropological Association, 2007; Brumfiel & Earle, 1987; Wailes, 1996a), but specialisation has also been linked directly to personal identity (Brysaert & Veters, 2010; Costin, 1998). However, whilst the multiple possible ways in which craft practice and social identity interact have been explored (Costin, 1998, pp. 7–9), there is a tendency in the literature to assume that the ‘highly specialized technological practices involved in craft production probably would have increased the value of a finished object and will have reflected back upon the artisan’s social role’ (Brysaert & Veters, 2010, p. 27). Is this necessarily the case? Does a modern worker in a furniture factory, whose activities and tools are specialised for extremely restricted tasks, have higher social status than an artisan carpenter, who practices a wider range of woodworking tasks? An important consideration in this research will be how the nature of craft practices shaped people’s differential experiences of lives as craft specialists.

Whilst studies of Roman tools have rarely dealt with themes of identity outside of ‘Romanisation’, it is clear that

a more holistic approach to the subject is highly relevant. Cultural change and imperialism are appropriate topics to discuss with the evidence from Roman London; the city was a new foundation in a colonial context, and tools and working practices may provide evidence of migration or cultural change at the lower levels of society. However, any such discussion of the London data must take account not only of the post-colonial critique of ‘Romanisation’, but also of reasons for changes in tool form and use not restricted to cultural change. A key aim of this book will be to examine aspects of the self-identification of people in the Roman period which relate specifically to working practices.

### 1.3.3 Artefacts, Agency and Practice

With these aims in mind, it is necessary to consider how archaeologists have conceptualised the relationship between their data and the past societies which they attempt to study. Small finds were rarely used as a major data source in early works by the culture-historical and structuralist generations (Gardner, 2007, p. 32). When they were used, these scholars saw portable artefacts, and material culture in general, as passive reflections of innate, biologically or socially determined identities (Pauketat, 2001, p. 74; Pitts, 2007, p. 699; Robb, 2010, pp. 494–95). Change and stability in object form were seen as direct results of evolution and natural selection, albeit culturally as well as environmentally determined (Pauketat, 2001, pp. 75–76). The meanings of these artefacts were to a degree universal and could be ‘read’, and from them the nature of society could be inferred (Barrett, 2014, p. 264; Fewster, 2014; Pauketat, 2001, p. 74). A detailed discussion of these theories in relation to the study of iron objects is given by Ottaway (1989).

In contrast, perhaps aided by the rise of computer databases (Biddle, 1990, p. 8) and GIS software (Gardner, 2007, p. 32), small finds studies have occupied a particularly prominent place in recent archaeological studies of identity in the Roman period (Allason-Jones, 2001; Eckardt, 2002, 2014; Gardner, 2007; Pitts, 2007; Swift, 2004, 2017). In these studies, the ways in which objects were used has taken pride of place. Although sometimes criticised for seeing artefacts as passively reflecting identity (Pitts, 2007, p. 700; Van Oyen & Pitts, 2017), many of these studies have emphasised the active ways in which material culture was used to construct and negotiate identities. Rather than being universal, the meaning of artefacts has been seen as situational and altered through ‘practice’ (for an illustration of this in relation to mortaria, see Cramp et al., 2011).

This emphasis on the importance of artefact use and individual action can be related to a theoretical paradigm which has recently become prominent in Roman archaeology: that of agency or practice theory. Whilst paradigms of identity focussed on the ways in which individuals negotiated their way through established societies, agency has highlighted the ability of individuals to make conscious decisions to

change the circumstances of that society. It has been seen as the key concept in 'putting people back in the past' (Robb, 2010, p. 493), emphasising the actions of individuals over the processes of history.

However, 'agency' is a notoriously slippery term, which has gone through several permutations since the 1990s (Robb, 2010). Early models found agency in the goal-orientated actions of ambitious individuals (Gardner, 2007, p. 41; Gero, 2000; Pauketat, 2001, p. 77; Robb, 2010, pp. 496–97). This limited discussions of agency to the political sphere (Robb, 2010, pp. 496–97) and created a universal, self-aggrandising male agent (Gero, 2000) of non-specific motivation (Robb, 2010, p. 496) who could, like any other aspect of structuralist society, be identified in any culture through specific material indicators.

Later studies, which saw agency and practice as social mechanisms, grew out of a dissatisfaction with these structuralist models (Fewster, 2014; Robb, 2010, p. 495). Developed in parallel by Giddens (1979, 1984, 1993) and Bourdieu (1977, 1990), and building on a Marxist foundation (Fewster, 2014; Gardner, 2007, p. 41; Robb, 2010, p. 499), this new model questioned the way in which previous paradigms had seen people either as totally constrained by an ill-defined 'society', or as independent agents working from outside it. Instead, they saw individuals (agents) and society (structure, or *habitus*) as working in a mutually enabling duality. In these models, structure existed in the form of learned mental rules, which were created, perpetuated and challenged by human action. Agency, meanwhile, was possessed by all people, but was facilitated through and shaped in reference to structure. Humans learnt the principles of the structure they inhabited through practice and, as knowledgeable agents, they drew on these rules in future actions. These actions, with their attendant expected and unexpected consequences, became part of the structure and influenced future actions. This perspective was significant in changing agency from a property that certain people could express in specific circumstances to the mechanism by which every society was continually reconstituted, and has been highly influential in archaeology.

Practice theory's reach has been huge, and it now acts as a link across multiple areas of debate. Practice theory has been invoked in discussions of cultural change (Gardner, 2007; Pauketat, 2001), identity (Costin, 1998; Gardner, 2002, 2007, 2011; Pitts, 2007), gender (Gero, 2000), and the scale of historical process (Gardner, 2007, pp. 21–22; Pauketat, 2001). These models are also closely related to the actor-focussed models of technological change proposed by the SCOT movement (Bijker, 1995, p. 192). Thus, a framework of practice theory would be the obvious choice for a study of tools. It is therefore worth critically considering how it can advance the specific agenda of using tools to study Roman society in London.

One potential criticism of practice theory would be that it does not necessarily advance discussion beyond that of the

'representational' archaeologies of identity. When done well, and where suitable data existed, these studies already focussed on how objects were used, whilst practice theory executed badly could fall into the same traps that earlier studies had been accused of: seeing certain practices as inevitably linked to specific people and identities (Gardner, 2011, p. 18; Pitts, 2007, p. 702). Key studies have also been criticised for failing to move from the theory into meaningful interpretations (Cool, 2009, p. 5; Pitts, 2007, p. 702). In this regard it is significant that some have seen the two traditions as working in tandem rather than opposition (Robb, 2010; Van Oyen & Pitts, 2017, p. 7). Moreover, a properly executed practice theory builds new models of changeable structure from practice rather than simply relating practice to rigid established narratives. This requires a reorientation of perspective; objects and practices cannot just be seen as reflecting, indicating or being shaped by society, but are instead participants in the active creation and negotiation of that society. With this in mind, perhaps the broad research question should be rephrased as 'How did the manufacture, use and disposal of tools interpret, enact and change society in Roman London?'

Practice theory is also significant in ascribing value to all aspects of human action, not just the overtly expressive aspects such as identity creation. This point is particularly relevant for the study of tools, as these are objects that have been seen as primarily practical and mundane rather than symbolically important. Practice theory allows us not only to understand 'the routine activities of those people, how they changed, and what those changes meant' (Gardner, 2007, p. 47), but to approach what those small actions *did*. One outcome of this is that it allows the problematisation of periods of stability as well as change (Gardner, 2011, pp. 13–14; Pitts, 2007, p. 709; Robb, 2010, pp. 508–14). Tools are notorious for changing form slowly, and this has been characterised in terms of 'stagnation'. However, this ignores the continual human actions and decisions involved in reproducing tool forms (Ottaway, 1989, p. 96) or learning to use tools. By considering practice, we can ask why a manufacturer would make a tool to a particular form, whether new or not, what actions led to that decision, how the manufacture was executed, and what the consequences for further action were.

Finally, practice theory allows for the discussion of more nuanced forms of agency than previous models. Chisels are poor indicators of political ambition and imperial strategy, but as objects of everyday use they could certainly be used to discuss how individuals were able to identify goals, foresee outcomes, access information, preserve social and economic balance and build relationships (Gero, 2000, p. 35). Robb (2010, pp. 507–08) suggests that, rather than 'activities', archaeologists should study practice as 'projects': complex and sometimes long-running composite activities designed to achieve a specific goal. Practical projects can be seen as instrumental parts of 'projects of the self', which Robb (2010, p. 507) characterises as 'long-term undertakings which involve



the engagement of the self: being a potter rather than making a pot'. This strategy helps move the identity debate beyond outward expressions of political or cultural allegiance, towards personal identities which incorporate individual achievement, knowledge and skill as expressed through routine practice: factors which Robb (2010, p. 508) considers to be 'both archaeologically inferable and socially central'.

Nevertheless, we should be careful not to push the evidence, or the theory, too far. Practice theory was originally created with reference to a wide variety of mechanisms of social engagement, particularly speech (Fewster, 2014, p. 6; Gardner, 2007, p. 47). Transferring this theory to archaeology, where only a small number of the residues of the practices that involve material engagement survive to us, could be seen as reductive. By effectively ignoring interactions that do not leave a material trace, do we have too narrow an understanding of practice to make meaningful statements about the past? Moreover, is it really appropriate to ascribe total explanatory value to practice over, for example, abstract thought (Gardner, 2007, p. 19, 2011, p. 17)? These questions are somewhat academic, as archaeologists can only work with the surviving materials, but care should be taken not to dismiss these aspects of life as irrelevant simply because we cannot see them. The obvious way forward is to gather as much data as possible from multiple sources in order to produce a clearer picture of the practices involved in setting up, carrying out and completing a project. Studying only one class of the objects used in these projects will never give a full picture of practice or the 'fields of action' (Robb, 2010) for tool use in Roman London. Therefore, this book will examine London's tools alongside other sources of evidence, such as waste, tool marks and structural, epigraphic and iconographic evidence. Nevertheless, we must acknowledge that we cannot reconstruct craft practices in their social setting in their entirety (Killick, 2004, p. 573).

A more fundamental issue is that the individual agent is all but invisible archaeologically. Poor dating methods often fail to pick up rapid change in artefacts at the level required to identify individual agency, whilst most change in material culture, especially in tools, appears to take place over decades and centuries. From this evidence it is difficult to understand the everyday negotiations of social rules that built up to these changes.

One possible solution has been to seek agency in collective institutions (Gardner, 2007, p. 47; Gero, 2000, p. 37; Robb, 2010, p. 503). Institutions have been seen both as ossified elements of structure (Gardner, 2007, p. 43) and as active agents (Gardner, 2002, p. 339; Gero, 2000, p. 37). To take the obvious Roman example of the army, it could be argued that soldiers had different agencies within the institution than outside it, and that the responsibility for these actions was collective rather than individual (Robb, 2010, p. 503). The army had effects and carried out projects that extended beyond individual lifespans (Gardner, 2007, p. 43); no individual soldier, or even emperor, was responsible for

conquering Britain, for example. To some extent this is related to power structures; in this case the rules and conventions (the structure) of the army allowed certain individuals (emperors, generals) to exert much greater influence over the actions of others (soldiers) than was possible in most civilian social structures. Nevertheless, I do not see 'collective' or 'institutional' agency as a solution to this issue. No individual is ever acting without reference to broader social and situational norms, whether in an 'institution' or not. The rules of the structure of the army had to be perpetuated through the actions of individuals, giving them the power to drive change (Gardner, 2002, p. 344; James, 2001). Gardner (2007, p. 47) draws a sensible distinction between collective *action* and individual *agency*, and whilst these may not always be archaeologically separable, the same division will be followed here. SCOT theory also provides a useful perspective on this issue, as the concepts of 'relevant social group' and 'technological frame' allow for the understanding of individual actors behaving in a similar, seemingly coordinated manner, without diminishing the individual agency of the actors themselves.

A more radical proposition has been to think of objects themselves as agents or 'actants' (Gosden, 2005; Ottaway, 1989, pp. 119–20; Reckwitz, 2002, p. 208; Robb, 2010, pp. 504–05; Van Oyen & Pitts, 2017): corporeal 'things' that directly engage with, participate in and shape human practices. A key part of this argument has been to highlight the ways in which the physical properties of objects constrain, enable and provoke human action and thought (Jones, 2004, p. 330; Reckwitz, 2002, pp. 209–12), and in a way do things independently within society (Van Oyen & Pitts, 2017, pp. 10–12). For example, objects can travel, 'making social reproduction between temporal and spatial limits possible' (Reckwitz, 2002, p. 210). This view has become increasingly popular in recent archaeological studies, although it has not been universally accepted (Reckwitz, 2002, p. 210; Ribeiro, 2016; Van Oyen & Pitts, 2017, p. 11). I do not find these approaches satisfactory. Whilst objects and materials certainly have properties which constrain action, it must be appreciated that within the boundaries of what is physically possible there is always room for choice (Killick, 2004, p. 572), and this is where human agency becomes relevant. Objects are fundamentally incapable of thought or negotiation, the key processes that define agency. To give them explanatory power equal to that of thinking humans surely risks sliding towards technological determinism (Gosden, 2005, p. 204). It is perhaps more constructive to think of objects in structural terms. Some have expressed this very literally, simply replacing the 'structure' in Giddens' work with 'material' (Barrett, 2001, p. 152; Jones, 2004, p. 330), but Barrett (2001, p. 156) argues more eloquently that 'the historical significance of the material is . . . not represented by its form . . . but lies in the diverse contexts of the social practices in which it was situated'. This view, in which the physical world provides the 'material facilities' for human agents to 'inhabit' (Barrett, 2001, pp. 153, 158; Gosden, 2005, p. 197) is the most satisfactory, accounting as it does

for the real influences objects have without diminishing the unique human component.

#### **1.3.4 Conclusions**

This review has shown that there are several related theoretical frameworks available in which the Roman tools from London can be discussed. Key to further interpretations will be the principles of practice and agency, which have come to form the backbone of modern interpretations of identity and technology. We must see tools as important constituent parts of technologies which were created within a specific social context, shaped by social organisation, status, culture etc. At the same time, the physical actions involved in practising these technologies reflected and changed the very society which created them. Therefore, rather than asking what tools can tell us, this book will instead be asking how the practices in which tools were involved served to create and change the society of Roman London, with a particular focus on the lived experience of professional identities.