SILCHESTER ROMAN TOWN THE INSULA IX TOWN
LIFE PROJECT: VOLUME 1

LIFE AND LABOUR IN LATE ROMAN SILCHESTER

EXCAVATIONS IN INSULA IX SINCE 1997

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EXCAVATIONS IN INSULA IX SINCE 1997

BY

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Cover illustration by Margaret Mathews: Reconstruction view of Insula IX in the fourth century: the south elevation of Building 1 looking northwards across the insula, North Gate in the background

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DEPOSITION OF THE ARCHIVE

The finds, site records, and other associated archive will be deposited with the Hampshire County Museums Service, Winchester at the conclusion of the project. The site records are now available via the web: www.silchester.reading.ac.uk/later.

PREFACE

The Silchester Roman Town: Insula IX 'Town Life' Project began in 1997 and the summer of 2006 will see its tenth season of excavation. The large area of excavation, some 3000m^2, was deliberately chosen, but the quality of the preservation of the archaeology has exceeded all expectations. Although it is always difficult to estimate the duration of an excavation project, the sampling of Insula IX, from its origins in the late pre-Roman Iron Age to its abandonment in the early medieval period, was originally conceived to take between five and ten years in the field. The reality, however, is that the total excavation of the area (to the natural gravel subsoil) will take no less than fifteen seasons. Right from the outset it was envisaged that 'final' or full publication would take place alongside the excavation and the production of routine interim reports on its progress. A parallel approach was conceived: the writing, on the one hand, of articles for refereed journals focusing on particular themes arising from the project, and, on the other, of monographs reporting the archaeology period by period. Papers on the Victorian excavations of Insula IX (Fulford and Clarke 2002) and on the context and dating of the ogham stone (Fulford *et al.* 2000) have been essential pre-cursors for this final report on the late Roman archaeology, from *c.* A.D. 250 to the abandonment of the insula. As this, the first monograph of the Insula IX project goes to press, so research towards publication of the second, on the mid-Roman period ('The City in Transition'), has commenced.

From the outset, too, it was realised that the recording and post-excavation research of extensive and complex urban stratigraphy would require an electronic database appropriate to such a project. We were fortunate in securing the interest and expertise of Mike Rains of the York Archaeological Trust from the outset. His Integrated Archaeological Database (IADB) has been a key plank of the project and, with this resource, it has been possible to develop parallel, web-based publication which allows access to the primary records, principally of the excavation, and their analysis, but also of the finds. Thus the printed publication of the Victorian excavations was complemented by www.silchester.reading.ac.uk/victorians, which was published in 2001. Similarly this publication of the late Roman archaeology has been complemented by the Late Roman website, www.silchester.reading.ac.uk/later, which was published earlier in 2005.

While the prospect of web-based access to the archives offers the potential of concise, printed publication without reproducing much, if any of the basic data, such as the detailed descriptions of the archaeology, or the detailed description and tabulation of the finds evidence, the combined publication of printed and electronic reports on the late Roman archaeology represents a compromised approach for both media. This printed volume stands alone in the way it reports the archaeology at a level of detail which is appropriate to it and to the linked recording of the material and biological finds, but it also contains cross-referencing to the database which enables the reader to explore the nature of the archaeological record and the inter-relationships of individual contexts, finds records, etc. to the fullest extent possible. It is thus possible to examine and re-assess the primary record without leaving the office. In the case of the material and biological finds, as well as synthesis and discussion in this monograph, there is detailed description and tabulation of data to give integrity to each report. The website also stands alone, allowing for the possibility of re-examining the basic finds' data as well as the excavation record of context descriptions and plans. The latter, however, are prefaced by a very similar level of reporting or interpretation of the archaeology as in the printed volume, but are much more richly illustrated with photographic images. These are also a distinctive feature of the finds' archives, giving access to a level of information which cannot be achieved except at prohibitive cost in printed formats. Analysis, synthesis, and discussion are unique features of this printed volume, just as the raw data of context descriptions and plans, and of the finds' catalogues, such as records of, for example, individual animal bones and pottery sherds, are exclusive to the database and the website.

It seems strange to be publishing an excavation before fieldwork has been completed. In this case we are reporting the late Roman occupation before gaining a full understanding of context, as represented by the preceding period and constituent phases of the later second and third century (let alone the complete urban sequence). In the knowledge that a greater time-depth will provide richer insights into certain categories of material finds and environmental data, we have not reported here in detail clearly residual categories of material, such as coins earlier than *c.* A.D. 250, or samian/sigillata, or wood charcoals, or the micromorphology of the stratigraphic sequence. Questions relating to change through time can only be addressed satisfactorily with a time-depth greater than that of the later Roman period.

It is clear that the strategy towards publication will continue to evolve as the larger project develops and we are already planning new publication which will exploit electronic media and the database (IADB) more effectively and efficiently.

Michael Fulford
University of Reading
November 2005

PART ONE

THE EXCAVATION

CHAPTER 1

INTRODUCTION

By Michael Fulford

We report here the evidence for the late Roman occupation of Insula IX of the *civitas* capital of *Calleva Atrebatum* (Silchester, Hampshire), that is from the late third century to the fifth-to-seventh century A.D. The insula is located immediately to the north-west of the forum-basilica, with its southern and eastern sides fronting, respectively, the main east–west and the main north–south street of the town (FIG. 1). The south-east corner of the insula is, therefore, at the intersection of the two principal streets. The excavation area measures 55 by 55m, amounting to some 3025m² and accounting for about one-third of the area of the insula. It is bounded by the main north–south street to the east and the subsidiary east–west street to

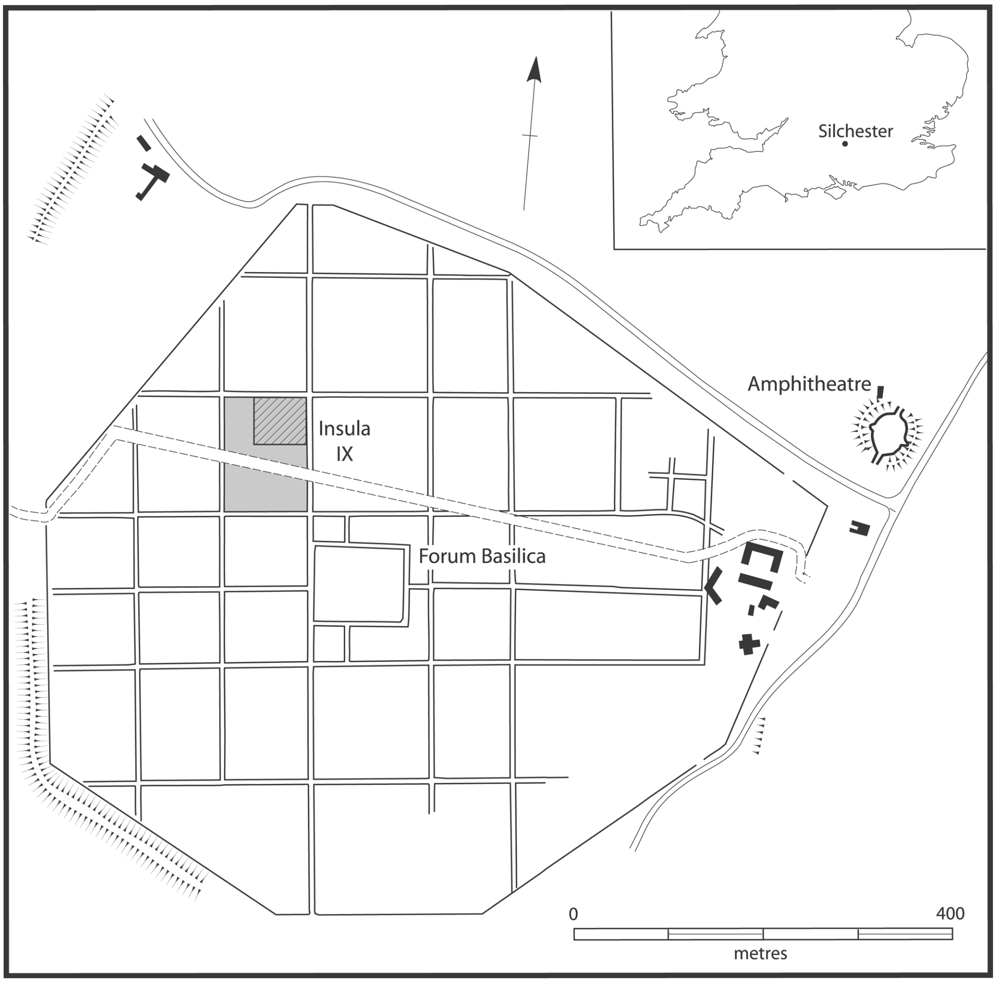

FIG. 1. Silchester: simplified Roman town-plan showing location of Insula IX and excavation area, also with present-day buildings (black), lanes to north-west and south-east, and droveway (broken lines) across the walled area

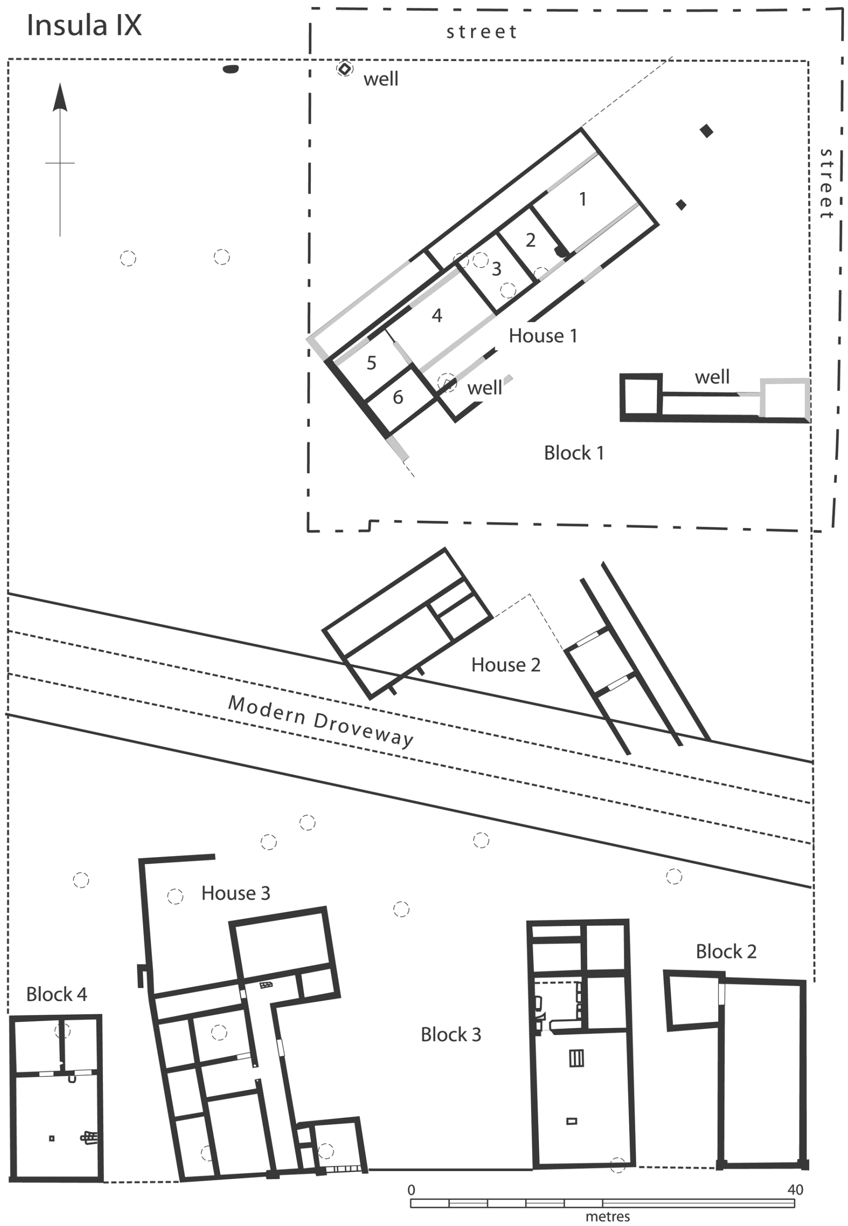

FIG. 2. Plan of Insula IX after the excavation of 1893–94, also showing the current area of excavation (after Fox 1895, pl. 45)

the north with more arbitrary boundaries to west and south (Clarke and Fulford 2002). The insula saw excavation in 1893–94 as part of the 'total' excavation of the Roman town by the Society of Antiquaries of London between 1890 and 1909. As far as our area is concerned, this excavation revealed the remains of a large house (House 1) which lay at 51 degrees to the orientation of the street grid, part of a second building fronting the north–south street (Block 1), and an isolated well and hearths (FIG. 2), all identified through trial-trenching (Fox 1895). There is also evidence for a very limited intervention close to the intersection of the streets in the north-east corner of the insula by the Reverend J. Joyce (Joyce 1881b, pl. XIV). This excavation probably took place at the same time as the exploration of Block IV in the adjacent insula to the north early in 1866, but there is no report of what was found (Joyce 1881a, 330).

CONTEXT OF THE RESEARCH (1): SILCHESTER

The excavation reported here was commenced in 1997 and is still (2006) continuing in order to achieve its objective of the total excavation to the natural gravel subsoil of a substantial part of one of the residential insulae of the Roman town. However, with a project whose fieldwork will continue over at least twelve seasons, it seemed imperative to integrate the process of final publication with the continuing excavation in order not to be swamped by the accumulated archive from the entire field project. In this case the excavation of contexts post-dating the later third century was very largely completed by 2001, thus precipitating this report.

The objective of the total excavation of a large area of residential *Calleva* is to meet the larger aim of understanding its developmental history from origins to abandonment. Such an aim can be seen first in the immediate context of *Calleva* itself. Following the work of Joyce between 1864 and his death in 1878, the town was subjected to a twenty-year campaign of excavation under the auspices of the Society of Antiquaries from 1890. This produced what was perceived at the time to be the complete plan of the town within its defensive, stone walls including all its constituent buildings and street grid. This was the first time such a 'complete' plan of a Roman town had been recovered from Britain and indeed from the larger Roman Empire. With hindsight there were two major deficiencies: one chronological, the other the inability to recognise convincingly and systematically structures other than of stone. Recognition of the

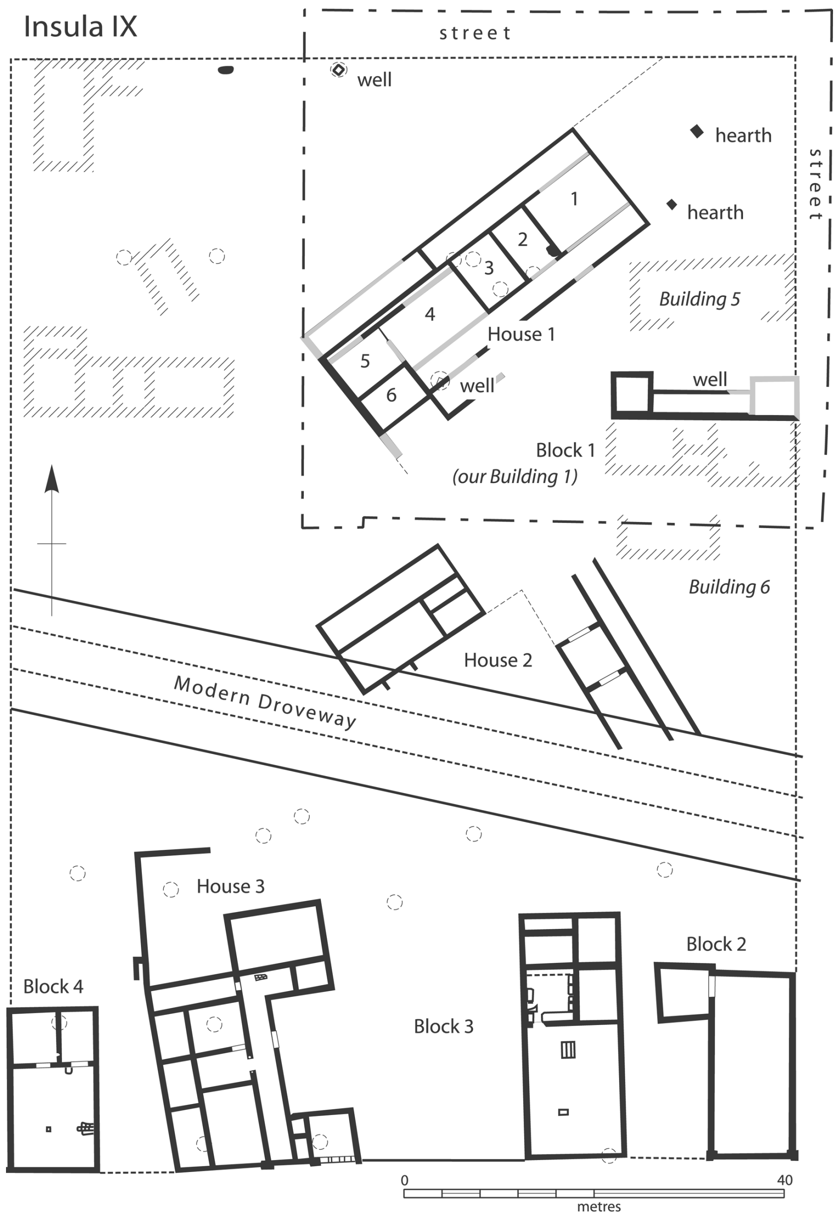

FIG. 3. Insula IX showing the plan of 1893–94, buildings plotted from aerial photography (shaded outlines), and the current area of excavation (after Bewley and Fulford 1996, folding plan)

chronological deficiency, namely that none of the excavated buildings was dated, came relatively early and was one of the reasons for the Wheelers' work at Verulamium in the 1930s. This project resulted in the definition of three 'clear' phases in the development of that town, an outcome reflected in the title of their report, *Verulamium, a Belgic and Two Roman Cities* (Wheeler and Wheeler 1936). That the building record at Silchester may only have been partial was realised more gradually as a result of rescue excavations in Roman towns as part of post-World War II redevelopment and economic expansion. Most importantly, perhaps, Sheppard Frere's work at Verulamium from 1955 paved the way in showing the possibilities for recovering the plan of complex, urban timber-buildings (Frere 1972; 1983). There, and elsewhere, it has been shown that, apart from certain types of building, notably bath-houses, there is a widespread urban tradition across South-East Britain for initial construction in timber in the first century followed by re-building in masonry from the second or third century onwards.

Despite doubts about the likelihood of stratigraphy surviving the campaigns of Joyce and the Society of Antiquaries after the re-excavation of the 'church' in 1961 (Frere 1976), renewed work on the sites of the South and South-East Gates in 1975–76 (Fulford 1984) and on the site of the forum-basilica in 1980–86 (Fulford and Timby 2000) gave fresh optimism that further work within the town walls would be likely to yield exceptionally fruitful results. These would not just be limited to the recovery of evidence of early timber buildings, or of the dates of individual masonry buildings and other features, but would embrace in systematic fashion, and in context, the recovery of the full range of material and biological data which were lacking from earlier work at Silchester. Indeed, a systematic and quantitative approach to the recovery

FIG. 4. The ogham stone, photographed outside the site hut soon after discovery, probably in 1893 (*Courtesy and copyright of the Museum of Reading*)

and analysis of all categories of finds, whether material or organic, has remained the exception in Romano-British archaeology until the last three decades of the twentieth century. So, for *Calleva*, the expectation of renewed excavation was that it would bring a finely segregated stratigraphic sequence where the structural history would be embroidered with the evidence derived from the artefacts and environmental data to provide a 'thick' and rich history of urban occupation and activity from origins through to abandonment. While, for *Calleva*, there is evidently much to be learned about the occupation of the town throughout its entire life, for towns generally across Roman Britain, the history which is the least well documented or understood is that of the first and second centuries A.D. However, even for the late Roman period, as we shall see below, our knowledge is still quite limited.

In choosing the particular area of Insula IX, we were guided by a number of factors (Clarke and Fulford 2002, 129). It was important that the area contained examples of buildings both oriented to the Roman street grid and at variance with it in order to test Aileen Fox's theory of an 'Old Town Plan' (Fox 1948; Fulford 2003). At the same time it was necessary for the area to be large enough to examine the context of individual buildings in terms of delineating property boundaries, backyards, and gardens. This would allow us to move forward from the buildings-oriented research that has dominated Roman urban archaeology since the nineteenth century. The large area would also allow the possibility of detecting buildings, whether of timber or of masonry, not identified by the early excavators. Indeed aerial photography and geophysical survey had detected traces of structures not recorded in 1893–94 within the selected area (Clarke and Fulford 2002, fig. 2) (FIG. 3). A large area, with indications from the published account that such buildings as there were were not well preserved (Fox 1895), would also allow a greater chance of investigating their earlier site histories, with the prospect of recovering coherent plans, not only of individual early buildings, but also of the property context in which they developed. In respect of both the late Iron Age and early Roman periods of *Calleva*'s history, almost nothing is known. Finally, and pertinent to the late history of the town, the selected area contained the findspot of the Silchester 'ogham stone', the ogham inscription arguably being one of the latest events from the town (Fox and Hope 1894, 233–7) (FIG. 4). Re-excavation might bring further information about its context and the date of the deposit where it was found.

CONTEXT OF THE RESEARCH (2): THE LATE ROMAN TOWN IN (SOUTHERN) BRITAIN

The concept of the 'late Roman town', as opposed to the 'town' in Roman Britain is a relatively recent arrival. Collingwood was able to draw on the results of the Wheelers' excavations to begin to define a fourth-century history at Verulamium, if nowhere else (Collingwood and Myres 1936). Otherwise, until the publication of *Verulamium, a Belgic and Two Roman Cities* later in the same year (Wheeler and Wheeler 1936), it was not possible to differentiate chronological periods within urban histories.[1] Rather, the approach was more thematic, as with Haverfield in his chapter on towns, 'Romanization of Town-Life, Local Government and Land Tenure' in his *The Romanization of Roman Britain* (1915). Although, as a result of limited resources, the opportunity to investigate bomb-damaged areas in cities in the immediate post-War period from 1945 was not exploited as fully as it might have been, considerable new information was gained from rescue work, notably in Canterbury, Exeter, and London.

A significant step forward was made in the context of the rescue excavations (1955–61) carried out by Frere in advance of road-widening across the site of Verulamium. As with the Wheelers' in the 1930s, the emphasis was on disentangling the histories of masonry buildings and their underlying predecessors. Frere's excavations began to reveal both the complexity of structural histories in the late Roman town and the extent to which investment continued to be made into new build and interior decoration, such as wall paintings and mosaic pavements,

[1]In this case it was a differentiation between a pre-Boudiccan-destruction Roman city (almost completely undefined) and a second-century and later city.

through the third and fourth and into the fifth century (Frere 1972; 1983). The results challenged the Wheelers' notion of a Constantian renaissance and the sequence established for the development of buildings in Insula XXVII into the late fifth century has rightly attracted considerable attention. Neither the questioning of earlier results, nor the pre-occupation with the end of the occupation history should distract us from the substantial gains in knowledge for the fourth century as a whole, succinctly summarised by Frere (1983, 20–5).

The pace of rescue archaeology quickened with the widespread redevelopment of city centres from the 1960s and the results of this facilitated the writing of Roman urban histories as captured by John Wacher in his *Towns of Roman Britain*, first published in 1974. The new work was necessarily confined to living urban communities, rather than the abandoned, greenfield sites like Silchester, Verulamium, and Wroxeter which had dominated research before the outbreak of World War II in 1939. This phase of urban archaeology coincided with the development of environmental and quantitative archaeology. Whereas the emphasis had previously been on recovering dated sequences based on coin and ceramic evidence, now there was an opportunity to begin to investigate economic dimensions of town life. Two strands, in particular, have been pursued through the study of the two commonest categories of evidence, pottery and faunal remains. The former has been seen as a means of gaining insight into the developing trade of the town, commonly through consideration of the changes in the proportions of pottery from different production areas over time. Considerations of status and the relative importance of different activities have followed from the quantitative analysis of the various categories of pottery such as tablewares or pottery for food preparation and cooking. Study of the animal bone, on the other hand, has typically evaluated the changing meat diet by determining the relative proportions of the different species over time. Analyses of animals' age at death and the incidence of different parts of the skeleton have enabled some preliminary conclusions to be drawn about the degree of specialisation in husbandry for meat and dairy and about butchery practice. The possibility of developing a yet richer picture of urban life has emerged where there has been systematic recovery of botanical evidence, mostly as charred, but also as water-logged and mineralised remains, to further reconstruct diet and environmental context.

Recent, development-led research has focused on towns which have continued to evolve to the present day. Not surprisingly, as far as the late Roman town is concerned, this has generated very considerable interest and debate about the extent and nature of continuity from Roman to Saxon/Early Medieval, hence Wacher's concluding chapter in his '*Towns*' synthesis, 'Town-life or Life in Towns' (1974; 1995). A Saxon or Frisian presence is clearly revealed through distinctive structures such as grubenhäuser and pottery in the fifth or sixth century in eastern towns like Canterbury or Colchester. On the other hand, the absence of a distinctive, sub-Roman material culture of the fifth century has led to arguments favouring the notion of some continuing 'life in towns', or, indeed, of a clear break (Brooks 1986).

If the 'continuity debate' has been one major theme in Romano-British urban archaeology since the 1960s, a second debate has developed about urban life in fourth-century Britain to the extent that its very existence as distinct from 'village life' has been challenged (Reece 1980). On the basis of the Wheelers' work at Verulamium, Collingwood had already concluded that urban life did not long outlive the 'Constantian renaissance'. As we have seen, Frere's work at Verulamium had effectively contradicted the earlier conclusions and showed that there was a complex pattern of development through the fourth and well into the fifth century. However, this and similar discoveries in other towns were not sufficient to resist the view that 'Classical' urbanism was confined to the first two centuries of Roman rule (cf. Millett 1990, 134–42). This early period was seen as a time of investment in street grids and public buildings like baths, fora and temples, attributes consistent with ideals of Classical urbanism, whereas the later period lacked evidence for the renewal of, or addition to, these amenities. Indeed, evidence was accumulating for the abandonment or significant alteration of major public buildings, particularly the fora basilicae, by the beginning of the fourth century. New 'public' build was largely confined to the construction of town defences in stone, particularly in the late third century. While a focus of early Romano-British urban archaeology had been on the investigation of the public buildings, very little was — and is — known about the wider context and how urban life was sustained. By what criteria, for example, apart from possession of a suite of public buildings, could early urban life be characterised and distinguished from its late Roman counterpart? Part of the concern about the status of the late Roman town was fuelled by the discovery of soils which had developed above and around Roman buildings from as early as the late second century. Much of this evidence derived from London, which, at the same time, and as a result of post-Roman development, was producing precious little else of late Roman date (Perring 1991). Overall, the combined impression from residential quarters and public buildings, reinforced by some numerical data, seemed to confirm a decline in the number and density of buildings and, by implication, of urban populations after the early fourth century. Such a picture added further fuel to the view that such settlements could no longer be regarded as urban in the late Roman period, certainly not in terms of the perceived, early Roman 'golden age' (Faulkner 2000, 121–30). A balanced evaluation of the evidence is set out by Esmonde Cleary (1989, 64–85), who concluded (p. 81) that, 'they [the towns] clearly remained centres of population, of economic activity, of social resort, and of administrative and other public functions'.

The two pre-occupations — the nature and extent of continuity after the beginning of the fifth century and decline — have dominated writing about late Roman Britain and its towns for the last generation. What is missing in all of this is a clearer understanding of urban life, whether early or late. For the latter period, we are considering a timespan of more than two hundred years and yet most of Roman Britain's late urban histories are summarised in a few hundred words. The emphasis has been on the structural history of individual buildings, mostly masonry-built town-houses, and not on the life that was associated with them or went on around them. In part this has been a reflection of the focus of the excavation on the structures rather than on structure *and* context, itself a reflection of limitations of resource.

A great disappointment has been the failure to capitalise on the great abundance of evidence that has been derived from modern, rescue-excavations. This is very much a reflection of both the scale of urban projects and the difficulties of adequately resourcing and project-managing their publication. All too often specialist reports are divorced from their excavation context so that there is no possibility of a period-by-period synthesis of material and environmental data with the structural reporting. In part this stems from the character of the archaeological deposits which have been excavated which, as we have noted above, have emphasised the structure and its tendency to preserve secondary, rather than primary rubbish deposits. So, for example, in the case of the *Colchester Archaeological Reports*, we find the site evidence of major excavations of the 1970s and 1980s for the most part reported separately from that of the finds which are considered by category of material: coins, small finds, glass, pottery, animal bone. The latter, published over a period of more than a decade in the 1980s and 1990s, provide major catalogues of material which significantly inform their wider, provincial study and which lead to overviews of their representation through time. Excellent as this series of reports is, there is another major study to be conducted which considers all categories of find according to their locational and period context. Not surprisingly, as synthesised in *City of Victory* (Crummy 1997), the focus is on the documentation of the changing physical fabric of the city with a snapshot review of occupation and lifestyle largely undifferentiated by time. Even when publication of site and finds takes place together, as in, for example, *The Archaeology of Canterbury* (Vol. 5), *Excavations in the Marlowe Car Park and Surrounding Areas* (Blockley *et al.* 1995), the finds are similarly treated as at Colchester. Individual categories of find are reported and their discussion divorced from their site context. The material is sparingly commented on in the overall conclusions. This, too, is an example of an excavation where the focus was on the buildings rather than the context.

On the other hand, the *Excavations at Greyhound Yard, Dorchester 1981–4* (Woodward *et al.* 1993) focused on an area of an insula which included a substantial internal area as well as the remains of buildings fronting two streets. In this example the excavation of structures was accompanied by that of associated features such as pits, wells, and property boundaries. Here there was the potential of developing a complex picture of changing urban life through the detailed analysis of the contents of successive and spatially distinct groups of pits associated with particular buildings. Once again resourcing issues prevented the exploitation and comparative analysis of this rich array of evidence to the full. Nevertheless, the concluding discussion, which included consideration of themes embracing the buildings, town and countryside, urban economy and urban markets, and rural economy, represents one of the richest accounts of Romano-British urban life to emerge from the large-scale urban excavations of the late twentieth century.

A similar, integrative approach is now evident among the stream of reports of excavation undertaken in the 1980s and 1990s in London, both north and south of the river. Excellent examples are represented by the reports on substantial, area excavations in Southwark: *Settlement in Roman Southwark* (Drummond-Murray *et al.* 2002), *Urban Development in North-West Roman Southwark* (Cowan 2003), and *Industry in North-West Roman Southwark* (Hammer 2003).

These latter reports and *Greyhound Yard, Dorchester* break free from the pre-occupations with late Roman decline and continuity and endeavour to paint from the evidence a broad canvas of urban life and its wider relations. It reminds us that our perception of medieval and late medieval urban life, for example, is largely based on the archaeological record which delivers copious evidence from rubbish- and cess-pits dug into backyards. There is a lesser pre-occupation with buildings, partly because little physical evidence of them survives. Analysis of the medieval urban record is not dominated by issues of terminal decline, continuity, or comparisons with an ill-defined earlier golden age, but it is concerned with establishing the essence of what these settlements were and how they functioned. In the case of *Winchester in the Early Middle Ages*, for example, considerations of topography — buildings, both public and private — are associated with discussion of land ownership, social groups, administration, trade, and population (Biddle 1976). Our Romano-British towns, not least in the late Roman period, need considerably more focus than they have received in the past; some eight generations of occupants deserve to be considered on their own terms, rather than obscured by the spectre of ill-defined decline.

The Silchester Town Life Project is, in field terms, currently focused on the excavation of the early period of Insula IX. The aim of this report, however, is to present the evidence for the late Roman period from Insula IX and then set it in the context of the interpretative models outlined above. We wish to build on the urban archaeology of the last few decades by a fuller contextual analysis of structures and finds, both material and environmental, than has been possible before. It is hoped that the excavation of an urban area which combines both buildings and open areas will help in this ambition.

The definition of the beginning of our 'late' period is set by a number of parameters and not by any single, clearly defined site-wide 'event' (such as a fire horizon) in the stratigraphic sequence of the excavation. Coins, always useful in determining a site chronology, are a major influence in establishing the beginning of our period. After a period in the third century when there appears to have been a dearth of new coinage circulating in Britain, substantial quantities of debased bronze from both central (official) and local (unofficial) mints circulated during the period of the Gallic Empire from A.D. 268. The prolific losses of such late third-century issues provide convenient markers, such that the beginning of our 'late' period is effectively defined from the point when they appear in the stratigraphic sequence. This does not mean to say that their appearance necessarily coincides with a clear break in the sequence of occupation.

To give a broader contextual rationale, however, this period of the A.D. 270s and 280s saw the construction in stone of many town defences, including those at Silchester (Fulford 1984). Equally, and in the local context, it is from the late third century that the nearby forum-basilica ceased to house an obvious 'civic' function and was given over to a variety of types of metalworking (Fulford and Timby 2000). Locally, in Insula IX, as we shall see, the later third century witnessed the establishment of a completely new layout where urban buildings and their property boundaries respected the orientation of the street grid for the first time.

Although not at all helpful in determining when occupation finally ceased within the walled area at Silchester, distinct and completely different criteria apply to defining the end of the 'late'

Roman period and what is reported here. On the one hand, cultivation has destroyed an uncertain amount of the late Roman occupation horizons, such that the latest surviving Roman contexts represent the ‘end’ of the period. On the other, the cutting of exploratory trenches and the uncovering of the plans of buildings by the Victorian excavators represent a second definition of the ‘end’ of the late period. The Victorian excavations of Insula IX are reported elsewhere (Clarke *et al.* 2001; Fulford and Clarke 2002).

STRUCTURE OF THE LATE ROMAN REPORT: THE DEVELOPMENT OF A METHODOLOGY

It was clear from the outset of this project that it would not be possible to interpret our findings and report them without all the stratigraphic data being held electronically. With the support of the UK’s Arts and Humanities Research Board between 1999 and 2004 the site archive is stored and managed by the IADB (Integrated Archaeological Database). It contains key data such as context descriptions, plans, and photographs as well as finds’ and environmental records. It serves not only as an essential tool for post-excavation research and interpretation, such as for the construction of a matrix of stratigraphic relationships, but it also offers the possibility of web-based access to the core data which underpin the interpretation reported here to outside users (Clarke *et al.* 2003). A pilot project reporting the Victorian excavation of Insula IX in 1893 comprises a conventionally printed account (Fulford and Clarke 2002) accompanied by web-based publication of the database (www.silchester.reading.ac.uk/victorians) (Clarke *et al.* 2001). Using the latter it is possible to interrogate the results and interpretation at the level of the individual context as well as review the Victorian finds at a level of detail beyond the normal scope of a conventionally-printed report, particularly through the inclusion of images. In the context of such large datasets it is simply not practical or financially viable to publish at the level of the individual context. This parallel approach to publication is that adopted here to report the late Roman occupation. It is thus possible for the reader to check section by section each passage of this ‘conventional’ printed report of the occupation against the complete site archive on the web (The Late Roman website: www.silchester.reading.ac.uk/later) (Clarke *et al.* 2005). The stratigraphic relationships of each context have been presented in visual form as a matrix. Beyond the individual context, which can, of course, be searched for, groups of related contexts have been presented together as Objects. Thus, for example, the contexts and cuts which make up a group of rubbish pits, or the structural components of a building will be designated as Object 0000, Object 0000, etc. and referred to as such in the text. Through the Late Roman website the reader then has the opportunity of searching for the Object in question. (S)he will then find information pertaining to each context and its relationships within that Object, as well as the relationships between related Objects. The context data also include cross-references to the various, associated categories of finds. In this way it is possible to gain the fullest possible picture, up to the limits of the research undertaken, of both the context and its associated material. At the same time it is possible to search the database separately for the corresponding basic catalogue information on individual categories of finds, such as coins and other types of ‘small find’ (SF), as well as tabulated information on pottery and bone.

With this resource it has been possible to approach the reporting of the late Roman occupation as a whole with a greater degree of freedom than has hitherto been possible. In this sense the ‘full’ description, which has traditionally been presented in a compromise form between the rich, but unmanageable, reporting of individual contexts and a crisp summary of essentials, can be found via the Late Roman website.

SILCHESTER INSULA IX: THE LATE ROMAN ARCHAEOLOGICAL RESOURCE

The land within the Roman town walls has been subjected to generations of ploughing. In terms of the walled area as a whole cultivation has probably had a more damaging effect on the highest-lying land in the northern half than to the south where there has been a relative build-up of soil as the land falls away towards the southern defences. In the case of Insula IX this has meant the destruction of all contexts above the level of the foundations of masonry-built structures. Of late Roman Building 1, for example, in the south-east corner of our excavation area, only limited lengths survived of just the first course of flints above the gravel foundations. These were confined to the two projecting rooms and linking corridor or verandah attached to the north elevation of the original house. The lack of surviving *in situ* masonry from the rest of Building 1 and from the entirety of Building 5 probably explains why these escaped detection by the Victorian excavators whose trenches cut through their foundations (FIG. 3; Fulford and Clarke 2002, figs 5 and 8). The same is probably true of the buildings in the north-west corner of the insula whose plans have only been recorded from aerial photography (Bewley and Fulford 1996; Clarke and Fulford 2002, fig. 2). With levels generally reduced to the top of the gravel foundations, traces of floor surfaces have been destroyed except where they may have been reduced by wear or other means to below that level. The solidity of the raised gravel structure of the streets has probably afforded some protection to contexts and features immediately in their 'shadow', but this is hard to evaluate. Overall, much of the occupation associated with the life of Insula IX has gone into the ploughsoil and this has continually to be borne in mind when evaluating the surviving evidence, whether from buildings along the street frontages, or from pits or wells from the interior of the insula.

THE EXCAVATION AREA: RATIONALE

The rationale for choosing the particular area of Insula IX was influenced by a number of factors (above, p. 7, FIGS 2–3). It was important to choose an area which had a representative building or buildings and it was important also to include a building or buildings detected by aerial photography, but not subjected to excavation in the nineteenth century. The latter might allow a better understanding of the extent of the loss of stratigraphy as a result of the early excavations. A third criterion was to include an area apparently devoid of all evidence of buildings, whether as tested by the original excavation, or by modern aerial photography or geophysical survey. This would offer the possibilities both of investigating the presence and possible extent of timber-framed buildings, and of exploring the early and pre-Roman occupation of the town. Given the long-observed, unusual plan of *Calleva* (cf. Fox 1948), it was helpful to include both structures which aligned with the street grid and those at variance with its orientation. Fascinating and important though it would be to examine the section of the insula south of the early modern drove-way where buildings fronted the main east–west street of the town, the area did not meet the criteria. It did not have either previously unrecorded buildings observed from aerial photography, or sufficient open space, either to explore the possible presence of timber buildings, or to facilitate deeper excavation to the early levels. North of the drove-way the large remaining area, representing about two thirds of the insula, contained several buildings or parts of buildings which had not been revealed in 1893–94 as well as extensive blank areas along the street frontages. The area finally chosen embraces the entirety of the large building described by the Victorians as House 1, which is situated at a marked, oblique angle to the street grid. From a pit cut through the foundations of this house came one of the latest objects or events to be identified from the town as a whole, the deposition of a Roman dwarf column carved with ogham script, not thought to date before *c.* A.D. 450 or 500 (Boon 1974, 77–8) (FIG. 4). In addition there is one complete building not excavated in 1893 and a substantial additional, unexcavated part of a second house (Block I = Building 1), both of which align with the Roman street grid. 'Blank' spaces exist along both the east–west street and part of the north–south street in the northern part of the chosen area. Tempting as it was to extend across the full width of the insula to include the further buildings revealed by aerial photography on the western side, this would have created a very large excavation area, difficult to manage. Indeed to excavate those buildings and include the entirety of House 1 would have in any case necessitated digging across the entire width of the insula. In establishing 'rational' limits to an excavation area in a deeply stratified site, it has to be remembered that these tend to be defined in terms of the latest surviving archaeology, not of what might lie beneath. There is no means of anticipating what structures might be bisected by the trench edges at lower levels. In relation to the available evidence the chosen area is thus limited on two sides by Roman streets, but the west and south sides, while incorporating House 1 and Building 1, are in the end more arbitrarily defined. There was no way of anticipating where the boundaries between individual properties might have been, but we were aware, for example, that the south side of the trench would run alongside the north wall of another building (our Building 6) identified through aerial photography (FIG. 3).

THE LATE ROMAN OCCUPATION: INTRODUCTION AND METHODOLOGY

Test pits were dug by hand at regular intervals through the turf and ploughsoil to establish the level of the uppermost surviving undisturbed stratigraphy. The turf and ploughsoil was then removed mechanically to expose the latest stratigraphy over 3025 square metres. Cleaning of that surface quickly revealed the overall plan of House 1 as revealed in 1893. In addition to the plan of Building 1 (Block 1) recorded in 1893, further associated foundations were exposed as predicted by aerial photography and geophysical survey. The plan of our Building 5, predicted entirely on the evidence of aerial photography and geophysical survey, was also revealed. The remaining areas without obvious traces of masonry buildings, mostly to the north and east of House 1, were largely characterised as expanses of dark grey to black loam in which the lines of narrow trenches could be detected. For the larger part these proved to be the location of trenches dug to varying depths in 1893 in search of masonry buildings (Fulford and Clarke 2002) (FIG. 5). Although our excavation trench was divided into numerous, irregularly sized,

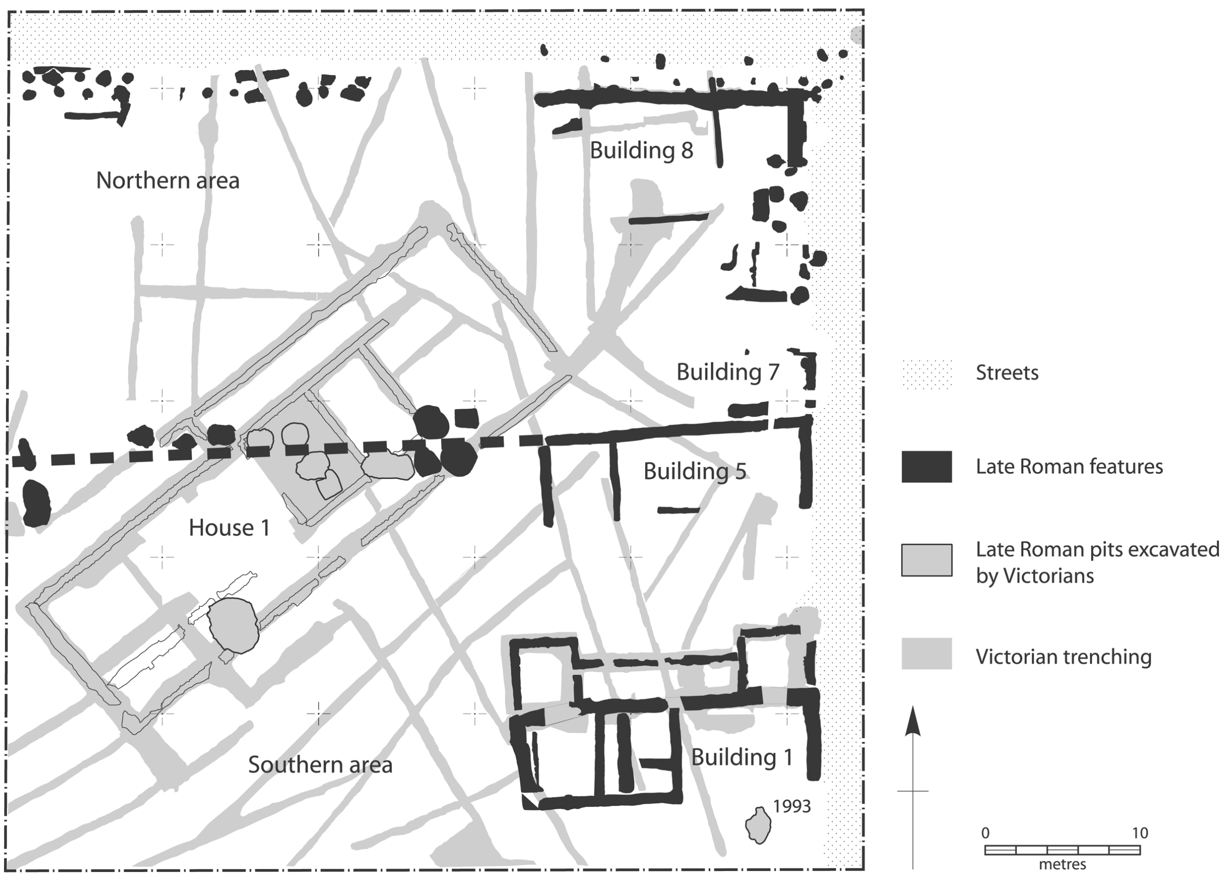

FIG. 5. Location of the Society of Antiquaries' trenching of 1893 and, perhaps, of Joyce in 1866 (grey), in relation to the principal late Roman buildings, post-holes, and the east–west lines of pits across the site of 'House 1' (black), and the late second-century phase of 'House 1'

small areas by these trial trenches, the total destruction of stratigraphy was generally not great and it has proved possible to link together the undamaged Roman stratigraphy, like pieces of a jigsaw, across these cuts (see below). Other features, like the wells, including the pit in which the ogham stone was found, and the hearth to the north-east of House 1, were also relocated and, eventually, re-excavated. Only one potential structure, a three-walled rectangular building with its fourth side defined by the east–west street, which was plotted from the aerial photography (Bewley and Fulford 1996, folding plan), failed to materialise. In addition to those cuts which were confidently interpreted as resulting from the excavation of 1893, there were others of uncertain date and interpretation, particularly in the north-east of the excavation trench. Some may relate to a small-scale intervention into the north-east corner of Insula IX by Revd Joyce, probably in 1866 (Joyce 1881b, pl. XIV). The latter will be discussed further below.

Clearly visible from the initial cleaning of the latest surviving, undisturbed stratigraphy associated with House 1 and cutting into it were several pits disposed singly, or in groups, including two interrupted rows running east–west (and thus obliquely across the footprint of the house). Five of these, including the pit with the ogham stone, had been excavated in 1893. Not only does the original digging of these pits provide a *terminus ante quem* for the final abandonment of House 1, but the two rows of east–west pits can be seen to extend the line projected by the north wall of Building 5 and effectively divide the excavation trench into two almost equal halves. Two further pits outside our trench and excavated in 1893 extend the line further across the whole of the insula (Fox 1895, pl. XLV) (FIG. 2). The earliest pits in each of these rows contained pottery assemblages indicating deposition in the second half of the third century, but the majority contained pottery (and coins) indicative of a fourth-century date (below, pp. 81; 86).

The northern half enjoyed a frontage provided mostly by the east–west street but also, partly, by the returning north–south street. The latter, in this case the main north–south street of the town, provided the street frontage for the remainder of our excavation area. While the northern area, if it were not a single property unit, might reasonably prove for the most part to be divided by one or more north–south property boundaries, the southern area of our excavation, if divided at all, should logically be partitioned on an east–west basis. Indeed, a very obvious, east–west division of the excavation trench (and of the entire insula) is defined by the two parallel, but discontinuous, rows of pits which straddle an otherwise unrecognised property boundary. These pit alignments have determined the structure of this account of the late Roman occupation. With the north–south street they allow us to define a northern and eastern boundary for the southern two Buildings 1 and 5. Similarly, but now with the east–west street providing the northern boundary, limits are set for our properties in the northern area of the excavation on two or, at the eastern end, three sides.

We begin our account of the late Roman occupation with the southern area which contained the remains of the masonry, or part-masonry, Buildings 1 and 5. The account then continues into the northern area working anti-clockwise up the north–south street and then westwards to include the remainder of the evidence from the northern half of the excavation area. We have retained and extended the dual suite of numbers for Houses and Blocks from the 1893–94 excavations, only substituting the term ‘Buildings’ instead of ‘Blocks’. So, while House 1 remains thus, Block 1 becomes our Building 1. As a total of four ‘blocks’ were excavated across the insula as a whole in 1893–94, the adjacent building to the north of Building 1 is numbered 5. All further structures, whether of stone or timber, are therefore numbered sequentially from 5.

CHRONOLOGY

Different parts of the excavation yielded more or less complex stratigraphic sequences where the combination of the stratigraphy and datable evidence, particularly coins, allowed for a limited phasing across the excavation area of the sequence. This ranges from the make-ups which preceded the construction of Buildings 1 and 5 at the end of the third century (Phase 1) to the cutting of the latest pits in the fifth or sixth century (Phase 6). While this is helpful in order to appreciate site-wide developments, particularly along the north–south street-frontage, the outcome has not provided a sufficient number of contemporary finds within each phase to make possible an examination of diachronic change in material culture, faunal and environmental evidence, etc. across the whole excavated area through the fourth and fifth centuries.

At this point it is also important to recall the dissected nature of the stratigraphy. In establishing the groups of stratigraphic units (Objects) which constitute the phases, we have made a series of interpretations which necessarily make links across the Victorian trenches. Fortunately we can refer the reader back to the archive via the web-site to assess the coherence of each of our phases and Objects.

PITS AND POST-EXCAVATION STRATEGY

A key element of the excavation was the discovery of a large number of late Roman pits and several wells which, for the most part, had not been disturbed by earlier interventions. These became an early focus of analysis, not only because of the integrity of the deposits within them, but because they offered the best prospect of analysing spatial variation in finds behaviour in relation to structures and property divisions across the excavated area. With the assumption that the filling of the pits resulted from a series of actions taken by the inhabitants of the insula and particularly by those within the excavated area, the study of their contents seemed to offer the best prospect of gaining insight into their life, work, and beliefs. The pits were divided at an early stage of post-excavation research into sub-groups (Objects 115–122) in order for the specialists to consider their results in the light of these spatial, functional, and chronological groupings. A full analysis of the pits and their contents by Hella Eckardt follows the reporting of the individual categories of finds and environmental data.

BUILDINGS AND OTHER CONTEXTS: POST-EXCAVATION STRATEGY

Relatively less effort has been devoted to the study of the finds associated with the remaining late Roman contexts. The latter can be grouped into several broad categories. First, there are make-ups and associated rubbish or occupational deposits, which are particularly associated with buildings and structures along the north–south street, Buildings 1 and 5, and 7 and 8. Second, there are the dark, loamy soils which characterise much of the occupation of the northern half of the excavated area west of Building 8. Finally, there are the smaller cuts and fills of post-holes and slots, of which a significant number are associated with Building 8 and the fence fronting the east–west street. While the coins, small finds, and iron-working debris from all late Roman contexts have been expertly catalogued, thus receiving the same level of treatment as equivalent finds from the pits, the large assemblages of pottery and bone (animal, bird, fish, and human) from contexts other than the pits have been more summarily researched. The pottery has been studied with a view to providing dating evidence. The material from each context within each Object has been catalogued by ware and quantified by weight and sherd count and the dating has been summarised. The bone has been assessed according to its condition and the identifiable bone has been identified by species and quantified by fragment count. The tabulated bone and pottery can be found on the Late Roman website. The summary data of both the pottery and bone have been reviewed according to the phases and groups of phases and compared with the material from the pits. Two factors argued against taking the study of these finds further. First, the proportion of residual third- (and second-century) pottery left comparatively little late material for detailed typological study and, second, at the level of wares and ware groups, comparative analysis revealed little difference from the material from the pits. Similar arguments prevailed with the bone: there was comparatively little associated with contexts dominated by fourth-century pottery that could be identified to species and, recognising the condition of the bone and at the level of species proportionality, there were close similarities with the material from the pits.

CHAPTER 2

THE EXCAVATION

By Michael Fulford, Amanda Clarke and Hella Eckardt

THE STREETS

The main north–south street, leading from the South to the North Gate, forms the eastern side of the excavation area, while the east–west street, which borders the north side of the insula, also provides the northern limit of the excavation area. Neither street has been exposed to its full width, but perhaps up to two thirds of the surface area of each has been revealed, sufficient to relate their development to that of the insula. Both streets are made of layers of gravel with no trace of a cobbled flint surface, as was evident, for example, at the North and South Gates (Boon 1974, 91–2; Fulford 1984; Fulford *et al.* 1997). Limited excavation to section the streets has revealed that there was a significant heightening of both streets, by *c.* 0.35m, in the late third century (FIG. 6).

Further research, through micromorphology, on the nature of the build up of the gravels is required in order to establish whether the repair of the streets took place in one operation, or resulted from a longer process, with the laying down over time of successive layers of gravel. In the case of the east–west street the heightening seems to have been caused in part by the dumping of make-up material, including soil and large flints, on the earlier surface, rather than by the careful laying down of successive layers of gravel which characterises the early Roman street development. The street surfaces thus laid down spread across to seal the course of earlier, flanking drainage gullies, thus creating significantly wider streets. There was no overall scheme to provide new drainage gullies and thus protect buildings from run-off from the streets. However, limited evidence for the provision of drainage gullies in the fourth century is described below for the east–west street (FIG. 6, and below, p. 72). All the late Roman archaeology described below is later than this rebuilding of the streets.

The streets were respected during the lives of the buildings which flanked the north–south street, and their chronology of use takes us into the fifth century. Thereafter, there is evidence from the area at the intersection of the two streets for the cutting of pits and post-holes into the surface of the streets (below, p. 67). These contained examples of the latest pottery from the town and coins of the House of Theodosius. In particular a gully (1598), whose fill also produced a Theodosian coin of A.D. 388+, was cut from about the middle of the north–south street westwards along the southern edge of the east–west street. Although the area excavated was not large enough to determine a coherent plan for these features, it suggests that buildings were constructed on the surface of the streets, particularly at the eastern end of the east–west street. Although this activity impinged on the course of the north–south street, it does not appear to have blocked it.

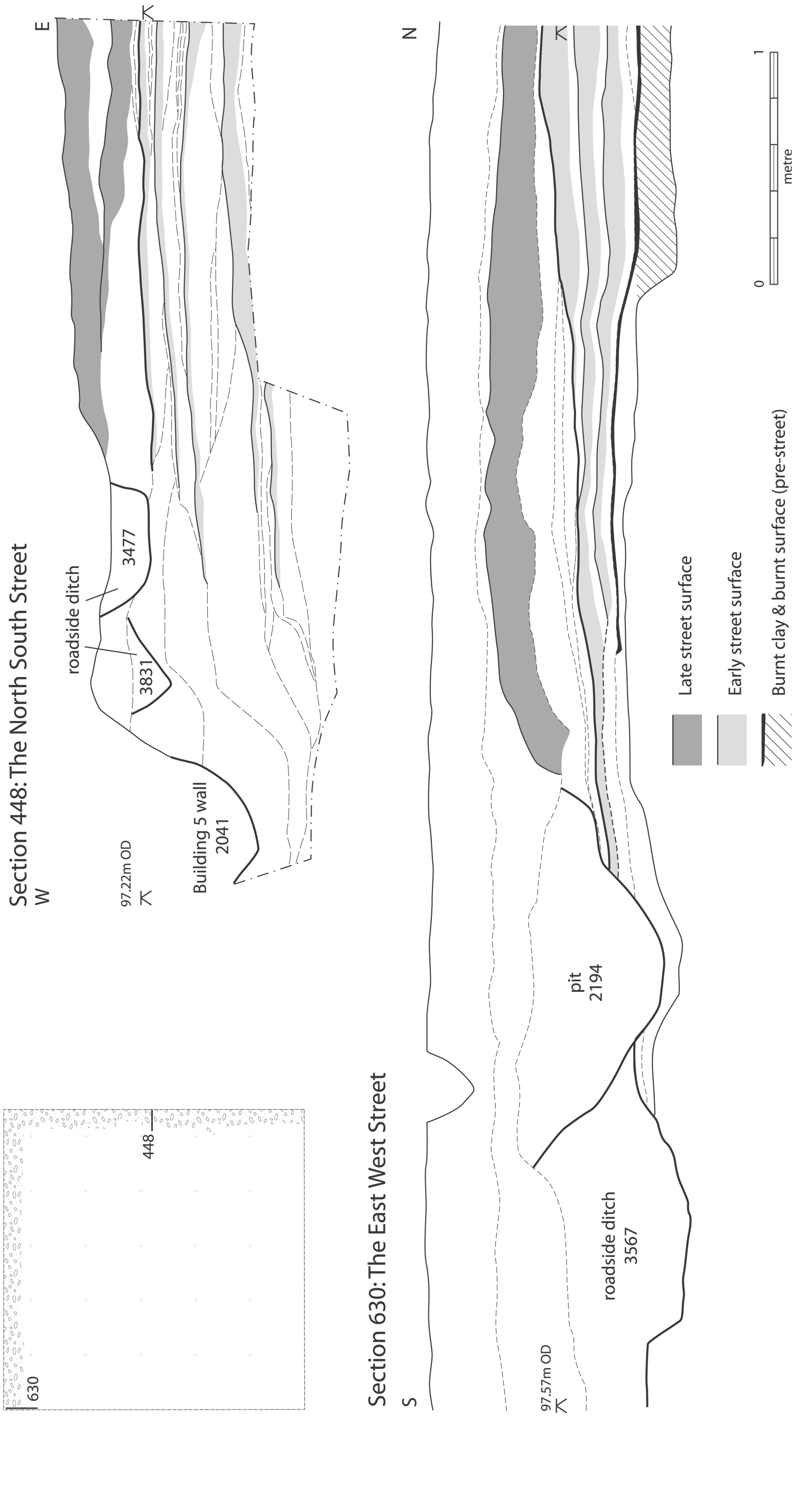

FIG. 6. Sections across the main, north–south and subsidiary, east–west streets, showing late Roman build-up

THE SOUTHERN AREA

BUILDING 1

Building 1 occupies the south-east corner of the excavation area. Its construction, and the alterations to the building which followed later, represent the latest structurally significant episode in a sequence of occupation which follows the demolition of early Roman timber buildings in this area. The latter are still under excavation at the time of writing (2006). Although we have no reason to suppose that the occupation which followed after the destruction of the early buildings was not essentially continuous, we have taken the construction of the masonry-founded building as the starting point in the context of our reporting of the late Roman occupation. At a later date in the project it will be possible to review the whole of the occupation of this plot — the site of Building 1 — from the end of the early Roman buildings onwards. To the south of Building 1 aerial photography indicates the presence of a small rectangular structure which we describe as Building 6. In the event the edge of our excavation seems to have coincided with the north wall of this building of which some traces survived in the upper fill of a large pit, 3406 (below).

Phase 1

Pre-building make-ups (FIG. 7)

The foundations of Building 1 cut through a series of make-ups and occupation layers which both underlay the building and extended north and westwards (Objects 31019 and 41081). These comprised layers of yellow clay interleaved with spreads of dark olive-green-to-grey, gravelly soils containing quantities of domestic rubbish, including the partial skeleton of a dog, building materials, slag, and charcoals. All of this is indicative of intense activity and occupation. For the purpose of this section of the report it is the chronological evidence which is important. Other evidence will be considered in the context of the next excavation-wide report on the *The City in Transition: the Middle Roman Occupation*. Layers to the north of, and

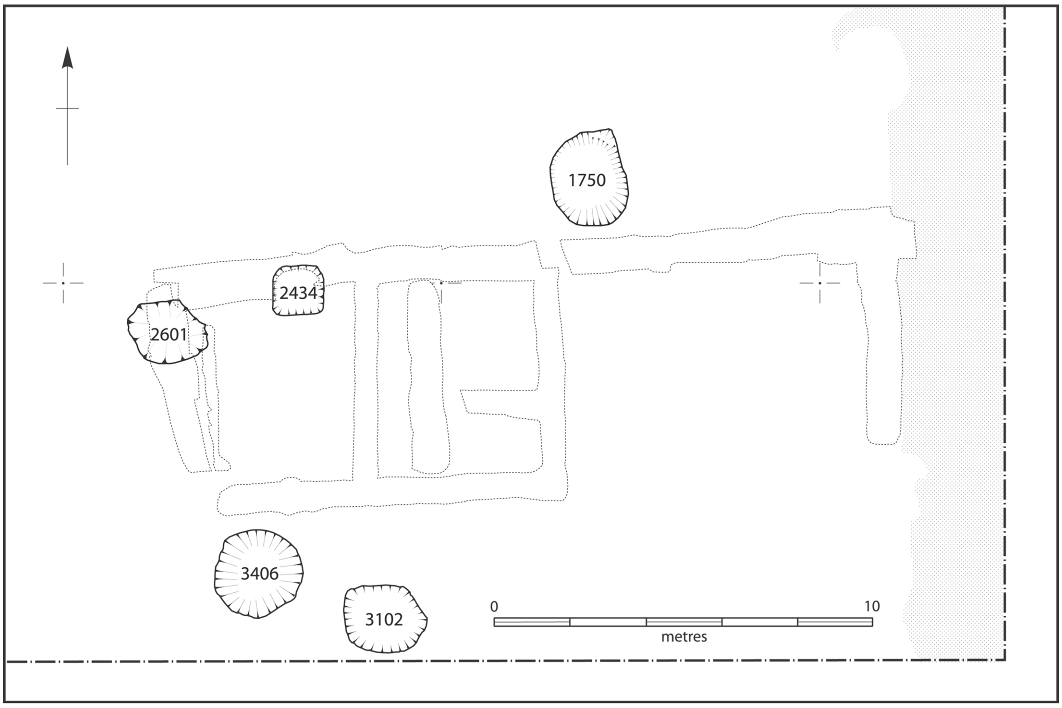

FIG. 7. Principal features pre-dating the construction of Building 1 (Phase 1)

cut by the main east–west wall of, Building 1 contained, successively, an unworn radiate of Postumus, *c.* A.D. 268 (SF 01913) and a radiate of Carausius or Allectus, A.D. 286–296 (SF 02494). Pottery from these contexts was mostly of third-century date. Also included were New Forest, Oxford, and Alice Holt (Overwey) wares with date ranges continuing into the fourth century or, in the case of the last, not commencing until the early fourth century.

The foundation trenches of the north and west walls cut through two probable cess-pits (2601, 2434) (Object 41080) (FIG. 7). Pit 2434 had been packed with building material and contained an unworn radiate of Carausius (A.D. 287–293) (SF 01612) in one of its fills. Their consolidated nature suggests that the final fills of this pit were deposited shortly before the construction of Building 1. The edge of a third feature, in this case a well (1750), lay adjacent to the north wall of the building. Unlike the other two pits, this well had been excavated in 1893 and reported without comment as to its fill. The well timbers were recovered in the course of re-excavation in 2000 and offered for dendrochronological dating, but no match was made with an existing, dated sequence. A programme of radiocarbon dates of the tree-ring sequence from the well timbers suggests a felling date for them in the period *c.* A.D. 200–240 (Galimberti *et al.* 2004), but this does not help resolve when the well was abandoned and back-filled. Two further large pits, 3102 and 3406, each originally dug to the top of the present water table at a depth of *c.* 2.8m, cut through make-up layers between 1m and 3m south of the south wall of Building 1. They had been filled prior to its construction. The upper fill of 3406 contained remains of a wall-like structure on an east–west alignment. We interpret this as part of the foundations of the north wall of Building 6.

Evidence that is clearly stratigraphically earlier than Building 1 gives a *terminus post quem* of A.D. 287. This is consistent with the majority of the evidence from layers adjacent to the building though some of these contained rubbish which accumulated in the early fourth century. One context (2467) containing New Forest, Oxford, and Alice Holt (Overwey) pottery underlies the south-east corner of Building 5 (below, p. 26). Building 1 is likely to date to *c.* A.D. 300, or the very early 300s.

Phase 2

Construction of Building 1 (Object 41087) (FIGS 8–10)

The first phase of Building 1 (Object 31021) measures 17.5m east–west by 5m north–south internally, giving a total internal floor area of about 87.5m^2. The building is divided into two, approximately equal halves, each of 43.5m^2, either side of the north–south wall 2208. The western half is further sub-divided by both north–south and east–west walls, while the eastern half appears to have been a single space. There is no evidence here for a southern, masonry wall, but a single, large post-hole lies approximately mid-way between the south-east corner of the western half and a post-hole which terminates the southern end of the street-fronting wall of the property. The vertical-sided, flat-bottomed construction trenches of the principal load-bearing outer walls and the north–south wall 2208 are of varying depths ranging between *c.* 0.4 and 1.2m. All of these trenches were filled with gravel. Further walls subdivide the western half into four rooms. The most substantial was north–south wall 2206 with a depth of *c.* 1.20m which divided the western space into areas of *c.* 29.5m^2 (west) and *c.* 13.5m^2 (east). To the west of that was a further north–south wall 2209 with slighter foundations, only 0.1–0.15m deep. This subdivided the western space into a room of *c.* 24m^2 and a narrow corridor of 5.5m^2. East of the deeper, north–south dividing wall 2206 the space was divided east–west with a wall whose foundations were *c.* 0.42m deep. This created two small rooms of 7.5m^2 (north) and 5.8m^2 (south). The latter may have supported a staircase to an upper storey. All of the above internal-wall-construction trenches were also gravel-filled. Apart from the shallower of the two north–south walls, whose fill was indistinguishable from that of the linking, east–west walls, there was a narrow gap between the cuts for the remaining internal walls and the outer walls. Even if the time interval between their construction may not have been great,

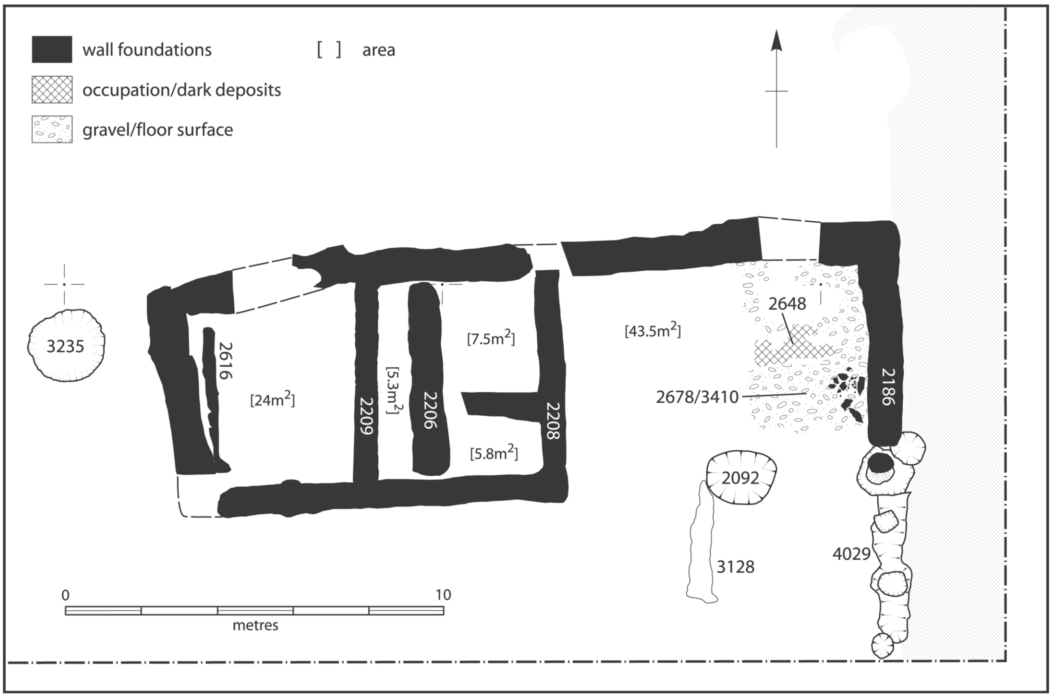

FIG. 8. Plan of Building 1, early fourth century (Phase 2)

the internal walls were technically secondary to the outer walls. One other internal feature, immediately adjacent to and parallel with the western wall of the house, deserves comment. It consisted of a linear slot 2616 cut into the underlying make-up, *c.* 4m long, 0.2m wide, and 0.1m deep. Its proximity to the west wall suggests the possibility that it relates to the third-century predecessor of Building 1.

The eastern half of the building is defined by vertical-sided and flat-bottomed gravel-filled foundation trenches on three sides. At some 43.5m² it provides the largest space of Building 1. While the northern and western walls have been described above, the eastern trench which fronted the street measured about 1m in width and had a depth of 1.0–1.15m. There was no trace of a wall-trench to form a southern wall, but a substantial post-hole (2092) with a diameter of 1.3m and a depth of 0.6m was cut mid-way along its length. We reconstruct the southern side of the eastern half of the building as either open at ground-floor level or of timber construction, perhaps with large, barn-like doors to give access to the interior.

The earliest surfaces which we attribute to the eastern room comprise layers of gravel and clay, interleaved with a charcoal-rich soil. At the eastern end was a more substantial deposit of black, charcoal-rich silt associated with oxidised soils and an area of reddish, burnt clay. These may represent the remains of two hearths. Pottery associated with the interior of the building in this phase was of third-century or earlier date.

To the south of Building 1 and between it and Building 6 was an open area. We ascribe it to Building 1 on the basis of a possible fence-line (also Object 31021) running north–south between Buildings 1 and 6. The evidence consists of a 4m-long, shallow trench (4029), into which was cut a row of post-holes. The trench was cut by the construction trench of 2186, the east wall of Building 1. These post-pits continue the line of the east wall of the building and were traced to the edge of the excavation trench, which corresponds with the line of the northern wall of Building 6. Except for the northernmost post-pit which had a depth of 0.5m, the remainder were cut to a depth of *c.* 0.3m. We assume that these posts provided the possibility of support both for a fence between the property and the street and for gated access to the yard behind. The latest pottery from the post-pits was of fourth-century date.

In the area to the south of Building 1 only one cut feature, a shallow (0.15m deep), linear, north–south cut (3128) filled with some third-century pottery, bone, charcoal and slag and

FIG. 9. View of the site of Building 1 from the south in 1997, cleaned after removal of the ploughsoil. The Victorian trenching (of 1893) is beginning to appear and the remains of the north wall of Building 6 are clearly visible in the foreground

lying immediately south of the workshop, deserves comment. Its interpretation, however, remains unclear.

Building 1 – interpretation

Our interpretation of Building 1 is that it combined residential and working accommodation. The eastern space, with the possibility that it opened out onto the yard to the south, represents the workshop. At ground-floor level the western half was divided into at least three rooms of which the largest was at the western end, the most distant from the workshop. Discounting the slight internal feature 2616, but assuming all the other internal walls are contemporary (and this cannot be proven), we might reconstruct a north–south passage which could give separate access to all three rooms. No trace of any threshold survives, but we would propose that the entrance to the western half of Building 1 was from the southern end of the passage which opened onto the yard. If there was direct access from the workshop this would have involved making one of the two eastern rooms a lobby and there would have been little sense in having a separate passage. We do not envisage access to the building direct from the street (and we note the massive construction of the end wall), but via the gate which gave access to the yard to the south. In the first phase of Building 1 there is some evidence (see below, p. 22) for the northern boundary of the property coinciding with the east–west line of the north wall. Although it remains a possibility, we do not propose that there was access into the house from the north side in this phase.

We reconstruct Building 1 with an upper storey. The depth of the foundations was sufficient to take the load of masonry (flint) walls such that they could have also supported an upper storey in masonry. We do not know what the roof was made of, but stone slates, which are reasonably common across late Roman Silchester (e.g. the forum-basilica and a building beside the North Gate (Fulford *et al.* 1997; Fulford and Timby 2000)), are as likely as ceramic tiles.

FIG. 10. Building 1 from the south, its foundation trenches in the course of excavation in 1999. Timber shuttering marks the location of the pre-building well 1750. Victorian trenches of 1893 cut obliquely across the excavation area

Thatch might also have been used. In the western half the layout of the upper storey would probably have mirrored the ground plan represented by the internal walls with the substantial foundations. If the passage is considered too narrow to contain a staircase, the latter might have made use of the small room to the right of the proposed front door. Whether the workshop had a complete or partial upper floor is perhaps less clear. If a hearth or hearths were in regular use, then space to allow the smoke to escape direct through the roof would have been desirable. Although there is no trace of foundations to form the southern wall, the span of 8.5m could have been taken by an oak beam partly supported by the central post. Indeed there is evidence from Insula VI of oak planks 7.6m in length (Boon 1974, 208). The section of the southern elevation above could have been built of timber or masonry, but it is assumed that the construction of the ground-floor elevation was of timber, presumably to accommodate large doors (FIG. 119).

The backyard

The large area of the excavation has allowed the possibility of recognising property boundaries extending beyond the limits of the buildings themselves.

If Building 6 belonged to a different property we can reconstruct a southern boundary for Building 1 which is represented by a corresponding projection westward of the line of the north wall of Building 6. The only feature of note in the immediate rear yard area adjacent to Building 1 was a large pit (3235), some 1.8m in diameter and depth (part of Object 116, below, p. 34). The presence of quantities of mineralised seeds suggests that this pit functioned, in part at least, as a cess-pit. The lowest fills contained third-century material, while the uppermost produced late third- and early fourth-century coins (the latest of A.D. 330–335), as well as fourth-(including some late fourth-)century pottery. The northern and western boundaries of Building 1's larger property are not clear and it is possible that, given the presence of only one well (1170) in the southern area throughout the late and sub-Roman occupation, Buildings 1 and 5 shared the backyard from the outset. Indeed, there is insufficient evidence to propose an east–west boundary coincident with either the north wall of Building 1 or the south wall of Building 5.

Extension to Building 1 (Phase 3) (Object 41089) (FIGS 11–13)

Although formally part of Phase 3 which is described below, it is appropriate to describe the addition to Building 1 here. The building was extended to the north by the addition of two 'tower' rooms at each end of the north elevation of the house linked by a corridor or verandah (Object 31017). The projecting rooms extended the north–south dimension of Building 1 by about 4m, with the linking corridor or verandah set back from their north-facing north walls by about 1.5m. The foundations for the extension consisted of gravel-filled foundation trenches whose outlines had been defined by the excavators in 1893. Compared with their counterparts in the main house, these trenches were relatively slight with widths normally of *c.* 0.6–0.7m and depths ranging between 0.2 and 0.3m. In places one course of flints survived above the foundations. Their stratigraphical position is the same as for the main house, but, on the basis of the difference in their character, we argue for them being later than the 'core' of Building 1; hence the designation as Phase 3. The interpretation is given further weight by the discovery in 2004–5 of the remains of pile-driven foundations beneath the western room. These consisted of a double line of post-holes, each about 0.25–0.3m deep, beneath the walls of the extension. We also note that the addition enhanced the northern elevation so that the house now clearly faced north towards Building 5 (below, p. 24). We shall argue below (p. 26) that the construction of the extension coincided with the merging of the original property with that occupied by Building 5 so that the southern half of the excavated area as a whole certainly became one property from this period. We should also note the existence in Insula XXVI to the north of a similar building, also with projecting rooms, and of comparable size and ground plan (below, p. 252).

Within the extension, and probably later than its construction, a small island of preserved stratigraphy was recorded in the western room where a clay layer was overlain by a brown, silty, occupation layer containing bone, pottery, building material, and an unworn radiate of Gallienus, A.D. 265–268 (SF 01634). Otherwise, the only surviving significant occupation sequence was in the eastern room where the stratigraphy had slumped into an underlying pit or

FIG. 11. Plan of Building 1 extended, early fourth century (Phase 3)

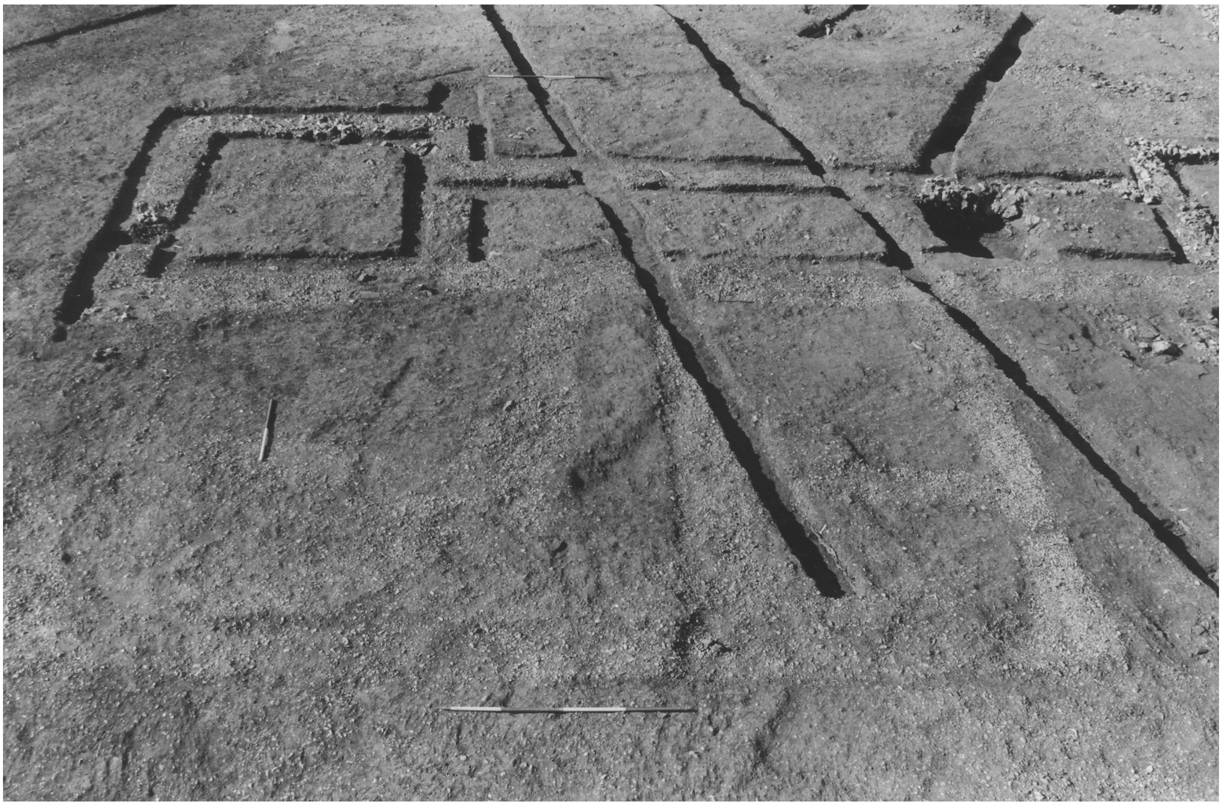

FIG. 12. Building 1 from the south in 1998: the remains of the walls of the secondary wing rooms and linking corridor (Phase 3). The wall-defining trenches and the location of the earlier well (1750) excavated in 1893 are clearly visible. The remains of the gravel-filled foundations of the original (Phase 2) house are just visible

well. Here a succession of three clay floors, up to 0.36m thick, and associated make-ups and occupation were excavated. The pottery through this sequence was consistently of fourth-century date; a residual coin of Victorinus, A.D. 269–71 (SF 01778), was found in one of the make-up layers. Towards the top of the sequence was a thin burnt layer containing *opus signinum*, charcoal, oyster and mussel shells, nails, pottery, and animal bone.

The backyard extended (Object 41089)

There are two pits (part of Object 116, below, p. 34) adjacent to the western of the two projecting rooms which deserve consideration here as part of the immediate backyard of the extended house. The larger, 3251, measured 1.75 by 1.54m in plan with a depth of 1.16m, while its neighbour, 2900, was slightly smaller, measuring 1.8 by 1.25m in plan with a depth of 1.1m. Both produced assemblages of mineralised seeds suggesting that, like pit 3235 to the south, they served as cess-pits. While the latter produced three late third-century coins, the latest of which was of A.D. 287–293, the former contained only one, a radiate of A.D. 269–271. Although the pottery from these two pits includes some fourth-century material the majority is of third-, or late third-century date.

Dating the extension to Building 1

We have argued that the extension is later than the rest of Building 1 on structural grounds. There is no archaeological evidence to support such a later date except for the fourth-century pottery from the sequence of floors and occupation in the eastern room. If the two pits 2900 and 3251 were not cut before the extension was built, the dating of their contents suggests use in the late third to early fourth century, with only the upper fills of 2900 having fourth-century pottery. This is a similar date profile to the cess-pit 3235 outside the main block of Building 1

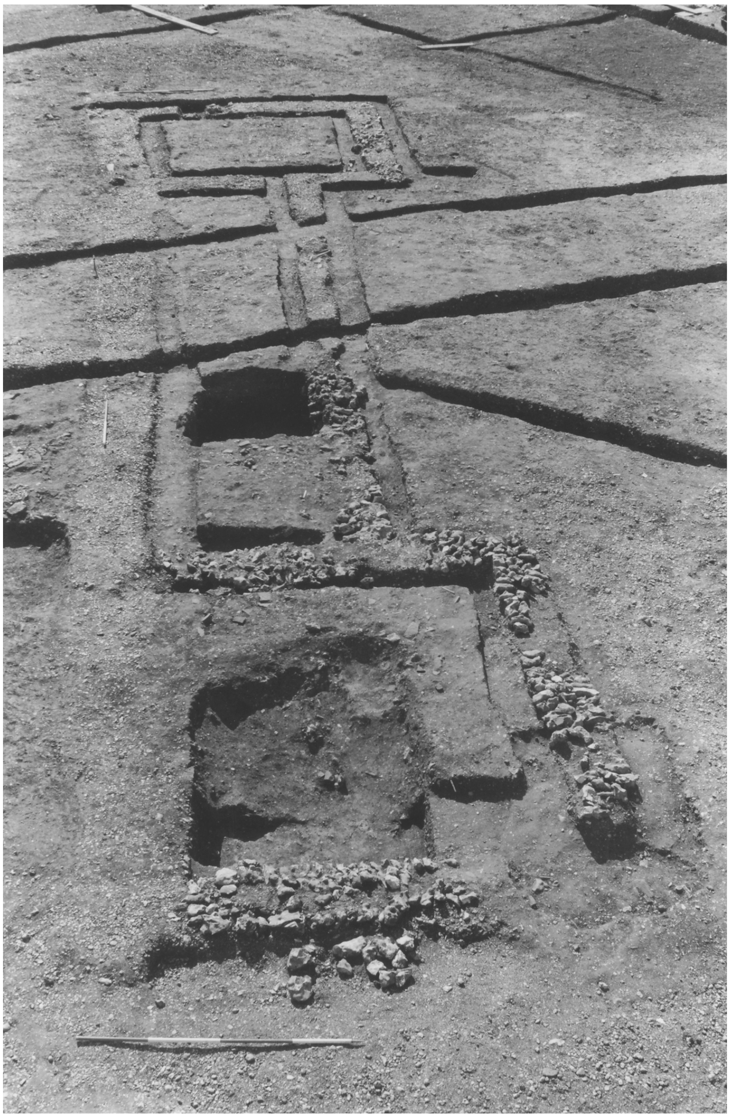

FIG. 13. The north-facing, Phase 3 elevation of Building 1 from the east. Trenches of 1893, including wall-defining trenches and the site of the earlier well (1750), are clearly visible

(below, p. 36) and would suggest no significant difference in date between the building of the core house and its extension. This is circumstantial evidence, for it could be argued that these two pits, 2900 and 3251, set at a small distance from Building 1 (Phase 1), were dug to serve that house and were subsequently replaced by 3235. In this interpretation the immediate yard area of Building 1 would — from the outset — have been larger than one whose north–south dimension corresponded approximately with the equivalent dimension of the building (above, p. 22).

Building 1 extension — interpretation

The slighter foundations of the two projecting rooms and the linking corridor argue for a lighter superstructure compared with that of the main building. However, the surviving fragments of the lowest course of mortared flint, and the deeper, coursed foundations over the underlying well 1750 suggest that the lower half at least was built of coursed flint masonry. The upper half may have been half-timbered. We argue that the corridor was an open verandah or portico, its roof perhaps supported by dwarf columns of the type of which one example was found in the well 1170 with the inscription in ogham (Fulford *et al.* 2000; below, p. 40). The construction of the new extension implies that the principal access to the house was now from the north.

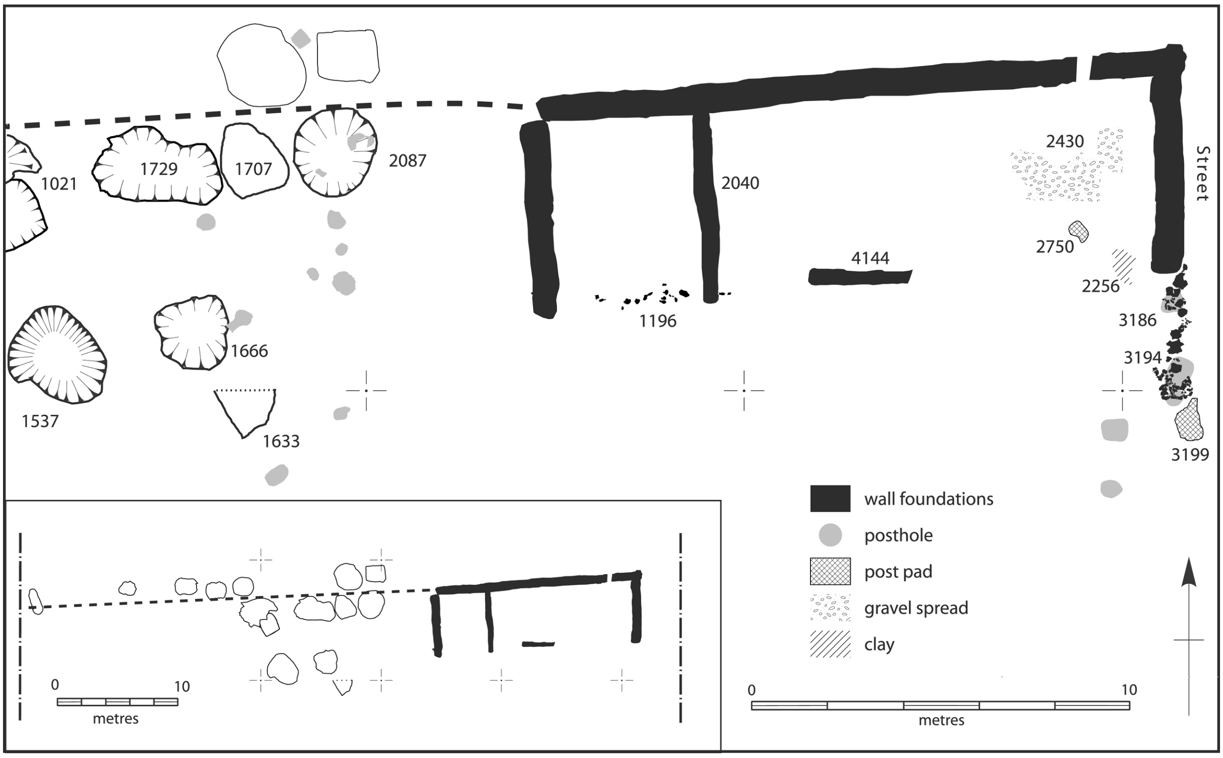

FIG. 14. Plan of Building 5 (Phase 2) and associated pits

Assuming this to be the case, the verandah may also have allowed the possibility of access from it to both the workshop and the residential core of the house. The construction of the extension also allowed for the possibility of some internal changes to the western half of the original house. Although removal of the deeply-founded internal walls may not have been sensible for structural reasons, it is possible that the construction of the extension led to the creation of the north–south passage discussed above (p. 21). The dimensions of the shallow internal wall 2209 are not dissimilar to those of the walls of the extension.

Building 5 (Phase 2) (Object 41088) (FIGS 14–16)

About 7m to the north of Building 1 (11m north in its original, site-phase 2, construction) is the site of our second masonry building, 5 (Object 31020). It measures *c.* 18 by 6m, giving a floor area of about 108m². Like its counterpart to the south, its shorter, end wall fronts on to the street. Just like the first phase of Building 1, the only evidence for this structure consisted of flat-bottomed, vertical-sided, gravel-filled foundation trenches which could only be defined on three sides. There was no convincing evidence for a southern wall although a linear spread of flint and gravel (1196) hints at possible structural evidence, but this only corresponds with the extent of a smaller room at the western end. The latter occupies about one quarter of the area of the building and is divided from the larger space to the east by a gravel-filled partition wall (2040), 0.5m in width, with foundations to a depth of 0.2–0.5m. The outer wall foundations of the building measured *c.* 0.5–0.7m in width, but with variable depth. While the end-wall foundation trench against the street had a depth of 0.8m, the north and west walls had depths of only 0.3–0.4m. The only other possible evidence for a southern wall consists of a short, slight linear feature (4144), not quite parallel with the north wall of the building. This measured *c.* 0.9 by 0.4m with a depth of 0.13m. If a wall construction trench, its original fill had subsequently been robbed out.

There were no clearly defined internal surfaces but an area of flint-gravel metalling (2430) and a clay layer (2256) were noted towards the eastern end of the building. A circular feature (2750) composed of flint nodules and tile fragments may represent the remains of a post-pad.

There is little evidence for date. We have noted above (p. 19) that context 2467, which

FIG. 15. Building 5 from the east, cleaned after removal of the ploughsoil in 1997, showing the foundations of the east, north, internal and west walls. The north-facing elevation of Building 1 is to the left. Traces of Victorian trenching of 1893 cut obliquely across the building

is earlier than the foundation trenches, contained fourth-century pottery. We can argue, therefore, as we have done for Building 1, a date in the early A.D. 300s for Building 5. A circumstantial argument in favour of contemporaneity with Building 1 is that the north walls of both buildings share an identical orientation which tends five degrees south of a right-angled orientation with the north–south street.

Close to the street and running south towards Building 1 were several flint- and tile-packed post-holes (Object 31015). First, continuing south the line of the east wall of Building 5 was a pair of post-holes (3186, 3194) and a possible post-pad (3199). The former had a depth of *c.* 0.3–0.5m with a diameter of *c.* 0.45–0.8m; the latter measured *c.* 0.5 by 1m. Offset 1–2m to the west of 3199 was a further pair of post-pits, *c.* 0.6m in diameter and 0.3m in depth. These features do not extend into the area occupied by the extension of Building 1 and may, therefore, post-date it.

Building 5 — interpretation

With the exception of the east wall, the foundations of Building 5 are about half the depth of those of Building 1 where we have proposed an upper storey. Assuming a masonry structure on the flint foundations we suggest a single-storey build. This interpretation is given further support by the lack of evidence for a (substantial) southern wall. This parallels the similar lack of evidence for a south wall at the east end of Building 1 where we have suggested the possibility of a wooden build incorporating large doors. Even allowing for 1196 representing the residual remains of a southern wall of masonry for the western room, the span of some 12m across the larger space is greater than that in Building 1 and there is no evidence of intervening post-holes or post-pads. If we have lost some of the evidence for the southern wall of the building, we have to assume that the arrangements were sufficiently robust to support a roof of timber with tile or stone slates, or thatch. In terms of function we propose that the larger space was a workroom with the smaller end-room designated for living accommodation.

FIG. 16. Building 5 from the east after the excavation of the foundation trenches in 1999. Victorian trenches of 1893 criss-cross the area

The backyard (Object 41088)

Immediately to the west of Building 5 were two groups of pits (within Object 117, below, p. 37). First, and aligned east–west, were three pits, of which the central one (1707) had been recut at least twice. Two (1021 and 1707) had been disturbed by the excavation of 1893. Less than 1m to the north of this group, and extending west across the whole of the excavation area, was a second east–west row of pits (Object 118). As suggested above (p. 14), these two rows of pits were dug either side of a now otherwise undetected east–west boundary which divided the southern half of the excavation with Buildings 1 and 5 from the northern half. The second group of pits just to the west of Building 5 comprises three pits (1537, 1666, 1633) — two larger, one smaller — none of which was disturbed by the excavations of 1893.

The dimensions of these two groups of pits range in plan from 1 to 3m and in depth from *c.*1 to 1.5m and recall the pits close to the west end of Building 1 (above, pp. 22, 24). Only 1633 had a depth less than 1m (0.55m). However, unlike the pits adjacent to Building 1, none of these contained indications of cess deposits, as evidenced, for example, by mineralised plant remains. The chronological range of their fills also compares with the group described above, with the majority of coins dating to the late third century and the minority to the early fourth. No coins are later than the A.D. 320/330s and no pottery can be assigned to the later fourth century.

Buildings 1 and 5 as one property (Object 41090) (FIG. 17)

The chronological evidence suggests that Buildings 1 and 5 are contemporary. It is even possible to argue that the extension to Building 1 is of a similar age as the original building and Building 5. It *might* be a little later, but the character of its foundations could have been determined on structural grounds. The construction of the projecting rooms and the linking corridor or verandah represents a significant investment which increased the floor area of Building 1 by about 25 per cent. It is difficult to understand the rationale for investment into

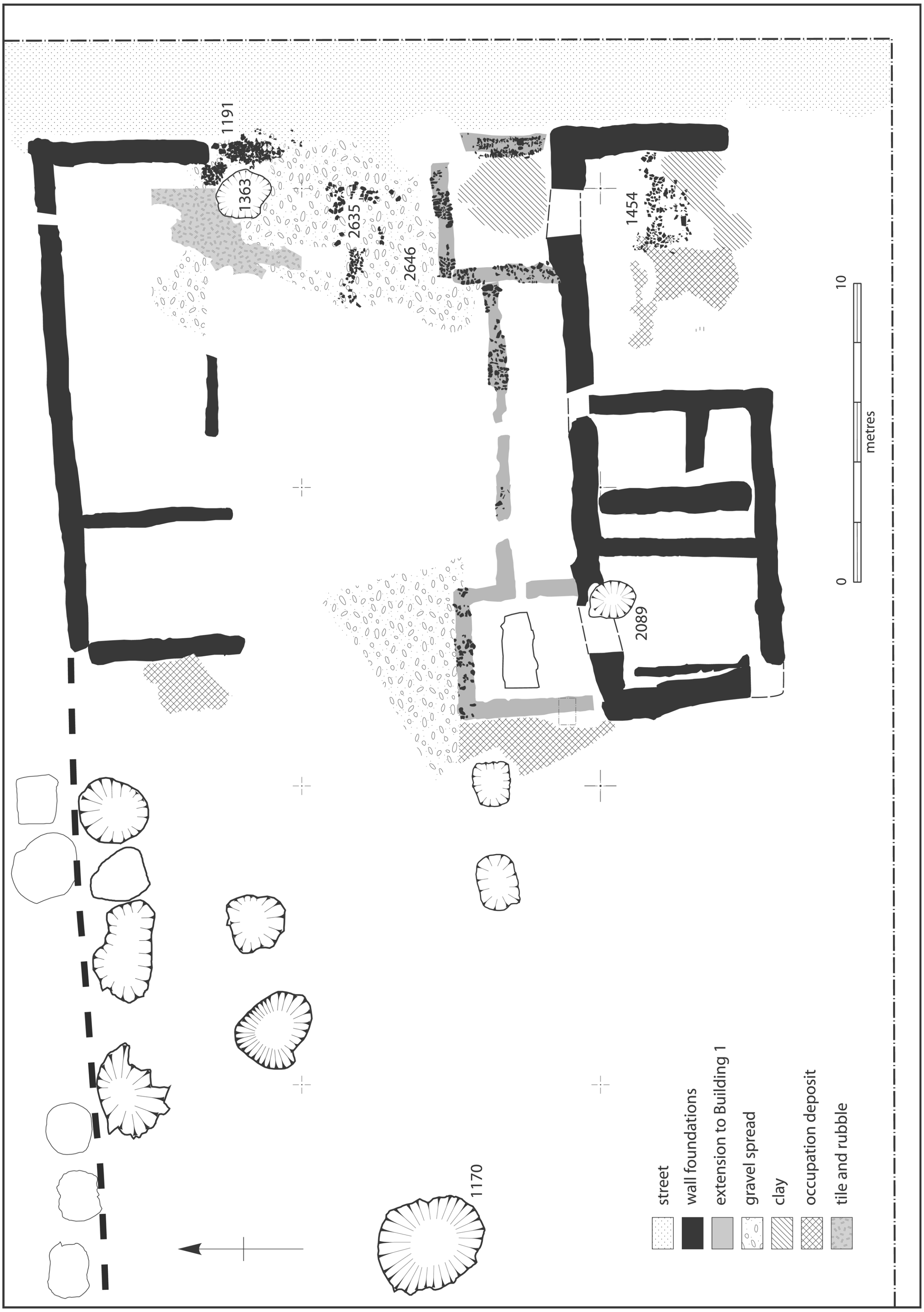

FIG. 17. Plan of Buildings 1 and 5 and the shared backyard (Phase 3): fourth-century occupation with associated surfaces, pits, and the well 1170

this façade of the house unless there was some kind of relationship with Building 5, if only that both buildings shared a common access. One further argument which might support common ownership of the land occupied by the two buildings is that there is evidence of only one well (1170) in the hinterland of the two buildings (Object 121). Although this well was emptied by the excavators in 1893, some wood was recovered from the very bottom when it was re-excavated in 1998. Three samples of this have now been subjected to radiocarbon dating (p. 40). There is broad agreement between two of the dates, which place the wood in the later third century, while the third suggests a somewhat later (but fourth-century) date. If we accept the earlier dating, it implies the well was in existence at about the time both buildings were constructed. It lies a little further to the west than the pits already discussed but on an east–west line which is approximately midway between the two buildings. Given there is no other source of water within the excavation area for either of the buildings it seems reasonable to suppose that it was used from the outset by the occupants of both.

Phase 3. Fourth-century occupation (Object 41091) (FIG. 17)

Building 1

We have already discussed the Phase 3 addition to Building 1 above (p. 23). In this section we are concerned with the evidence for its occupation (Object 31017). A series of deposits, some charcoal-rich and including a spread of dark brown clay and fragmented tile over part of the uneven floor of the large, eastern room (workshop), indicates continuing occupation. These layers contained fourth-century pottery, among which there was material of mid-fourth-century or later date, animal bone, and some slag. A coin of Valentinian (SF 02085), A.D. 364–367, was found in one of these contexts (3134).

In the western part of the building a pit (2089), just over 1m in diameter and 0.66m in depth, cut the line of the foundations of the north wall. It overlies the position of an underlying cess-pit (2434) and was packed with large flint nodules and pieces of sandstone and tile. It probably represents a major repair and reinforcement of the north wall, if not of the entire building, to address subsidence into the underlying pit. The uppermost fill (1852) of this pit contained late fourth-century pottery including Overwey and shelly wares. There may be some relationship with a layer of red clay which overlay the foundations of this north wall (1198) further to the east (below, p. 41). At the east end of the building were the remains of a surface made up of tile fragments laid flat onto the surface of the ground (1454) (FIG. 33).

Between Buildings 1 and 5 continuing occupation (Object 31023) is represented by the build up of dark sandy and gravelly spreads, rich in occupation material, as well as slag. Coins of the A.D. 340s and of 364–367 occurred close to the western of the two projecting rooms. A similar context, immediately to the west of Building 5, contained a coin dated to the A.D. 340s. Closer to the street and forming a distinct hard surface, as for a yard between the two buildings, was a gravel spread (2646) overlaid by flint and more gravel (2635). Immediately to the west were layers of a dark silty soil and of brown clay rich in occupation material, charcoal, and fragments of building material. Alongside some fourth-century pottery, the latter included much residual material of second- and third-century date.

Building 5

Evidence of occupation associated with the building was negligible. In the south-eastern corner of the building, which was disturbed by Victorian trial-trenching, were limited spreads of brown sandy clay and brown silty sand. Adjacent to these was a concentration of flints (1191) running south from the eastern wall of the building and cut by a shallow pit 1363 (in Object 122). This measured about 1.7m in diameter with a depth of only 0.2m. There were significant quantities of flints in the base of this feature which might suggest it served as a post-hole. Further alignments or linear arrangements of flints lay further to the south in the yard area between the two buildings (Object 31028).

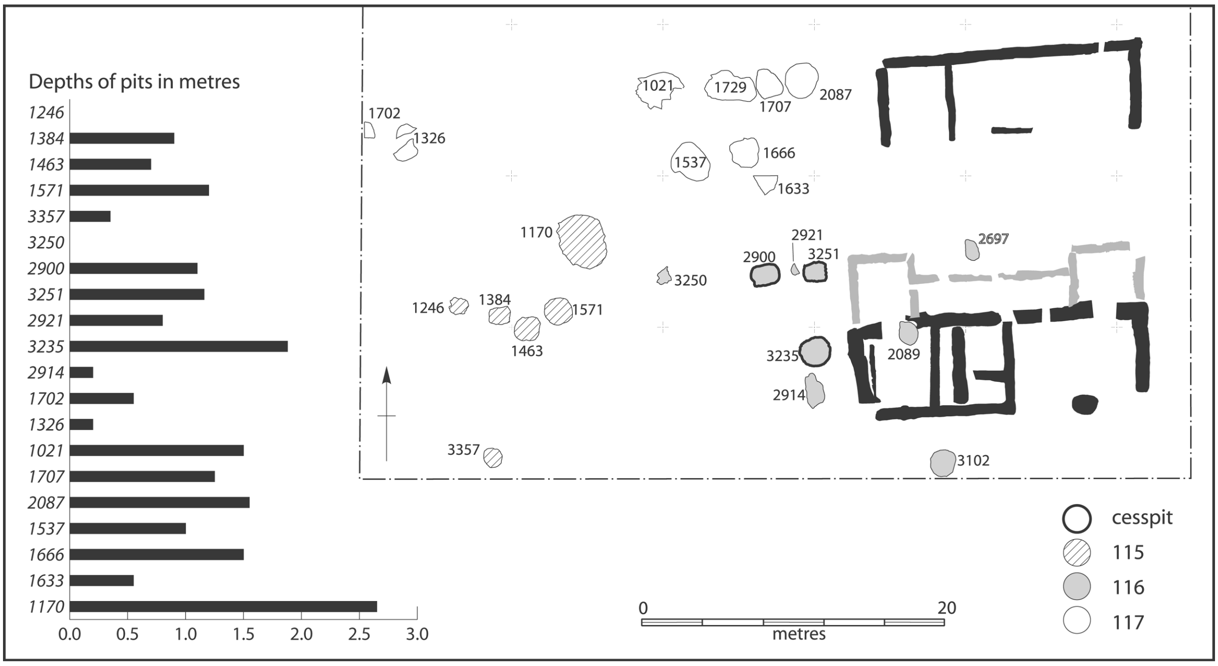

FIG. 18. (a) Plan of the backyard of Buildings 1 and 5 with associated pits (Objects 115–117 and 121); (b) the depths of the southern pits and wells by object group (Objects 115–117 and 121)

The backyard of Buildings 1 and 5: the southern pits and well 1170 (Objects 115–117 and 121) (FIG. 18)

In the context of the history of the development of Buildings 1 and 5 we have introduced above some evidence of adjacent pits, particularly those in close proximity to the west end of both buildings. We have also argued that the single well (1170) is further evidence of joint ownership of Buildings 1 and 5 (above, p. 40).

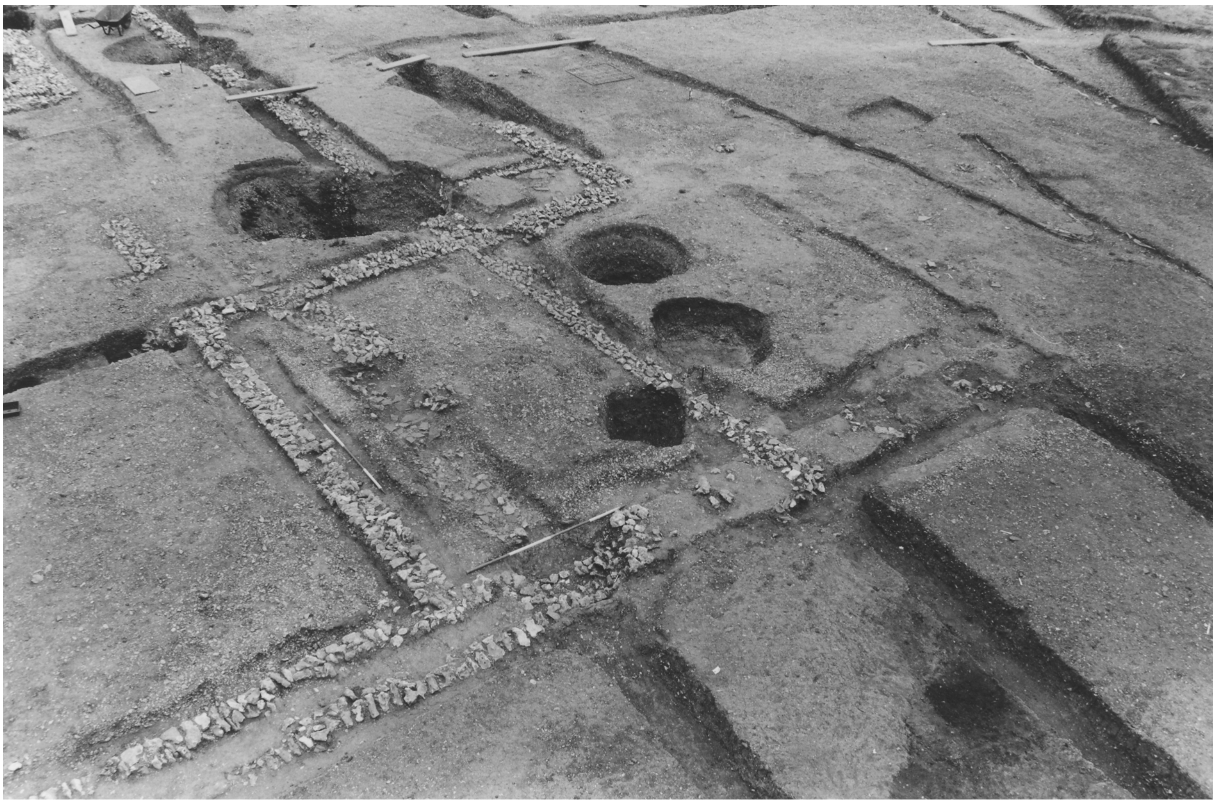

FIG. 19. Backyard of Buildings 1 and 5: view of pits of Object 115 and well 1170 from the west

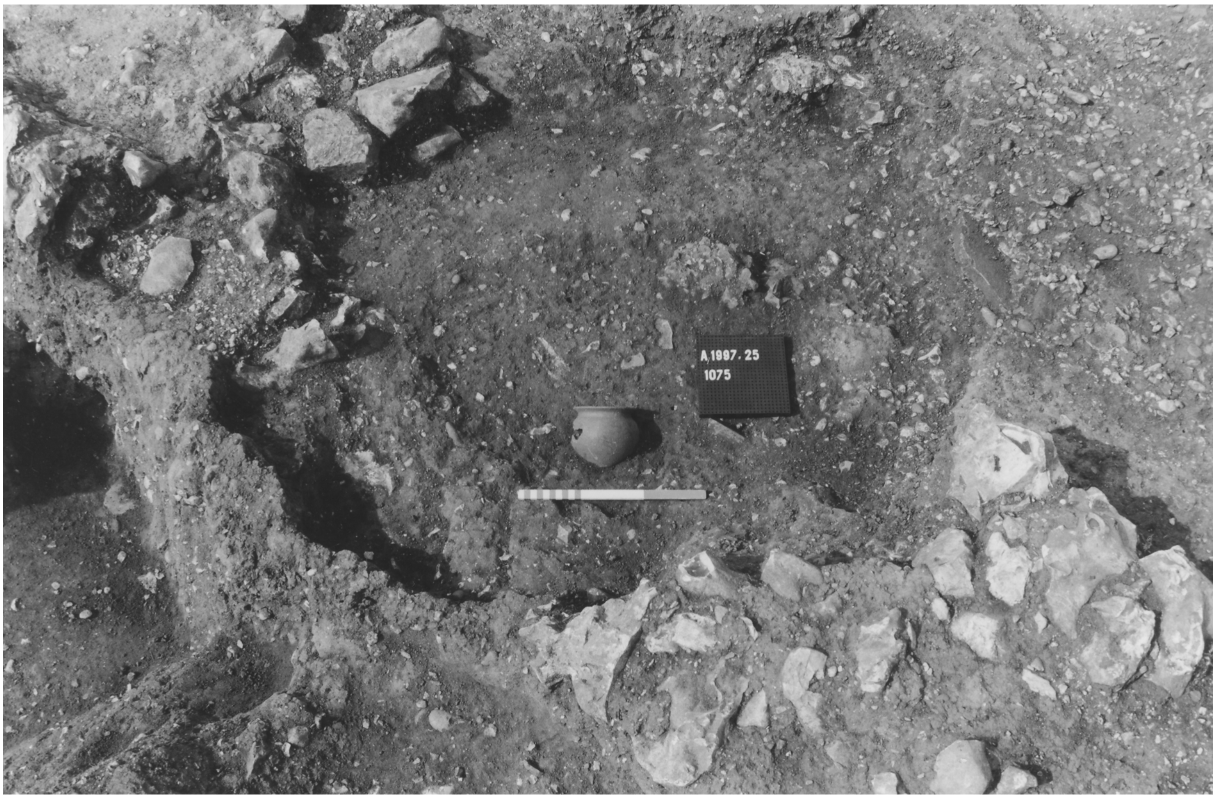

FIG. 20. Pit 1246 (Object 115) with near complete Alice Holt bowl

It is now appropriate to review systematically the evidence of pits in the southern half of the excavated area which are contemporary with the life of Buildings 1 and 5. We shall return to the latest pits (Object 122) below. Early on in the post-excavation analysis of the late Roman occupation, and on the grounds of their spatial distribution, we grouped these pits into three Objects (115–117).

Object 115, immediately to the south and west of the well 1170, is a group of four pits (1246, 1384, 1463, 1571), cut through the foundations of the earlier 'diagonal' House 1, and roughly in an east–west alignment (FIG. 19). The fills of this group date to around the mid-fourth century. Two of this group contained specially placed items. An outlier of the group (3357) is located a few metres to the south, close to the southern edge of the excavation.

Pit 1246 measured *c.* 1.15 by 0.5m in plan with a depth of *c.* 0.5m and contained no material later than the late third century. It contained animal bone, iron objects, and pottery, including a near complete Alice Holt bowl (FIG. 60, No. 1) (FIG. 20). Pit 1384 was a sub-rectangular feature measuring *c.* 1.3 by 1m with a depth of 0.9m. It contained a range of finds including animal bone and pottery, which indicated a date for its filling of about the mid-fourth century. Pit 1463 measured *c.* 1.5m in diameter with a depth of 0.7m. Its primary fill consisted of clean chalk above which two fills of soil containing predominantly pottery and animal bone were deposited. The top fill also contained two complete vessels, an Alice Holt or New Forest, greyware flagon and a New Forest, indented, colour-coated beaker (FIG. 60, Nos 2–3). The pottery indicated the pit was filled by about the mid-fourth century, while an articulated cattle tarsal joint gave a radio-carbon date of 1735+/-BP (OxA 8736) in the range of A.D. 230–420. Pit 1571 measured *c.* 1.9m in diameter with a depth of 1.2m. Its fill contained unusual quantities of stone, including a layer of flints measuring *c.* 0.2 by 0.3m approximately halfway down, above which was a capping of blocks of ironstone measuring up to 0.75 by 0.6 by 0.3m in size (FIGS 21–22). The lowest fill contained animal bone and pottery indicative of a fourth-century date and a coin of the A.D. 340s (SF 00812).

The outlier, 3357, measured *c.* 1.3 by 1.2m with a depth of 0.35m and was different in character to the group above. It was cut through a spread of gravel and dark earth and

FIG. 21. Pit 1571 (Object 115): lower fill of flint nodules

FIG. 22. Pit 1571 (Object 115): upper fill of blocks of ironstone and flint nodules

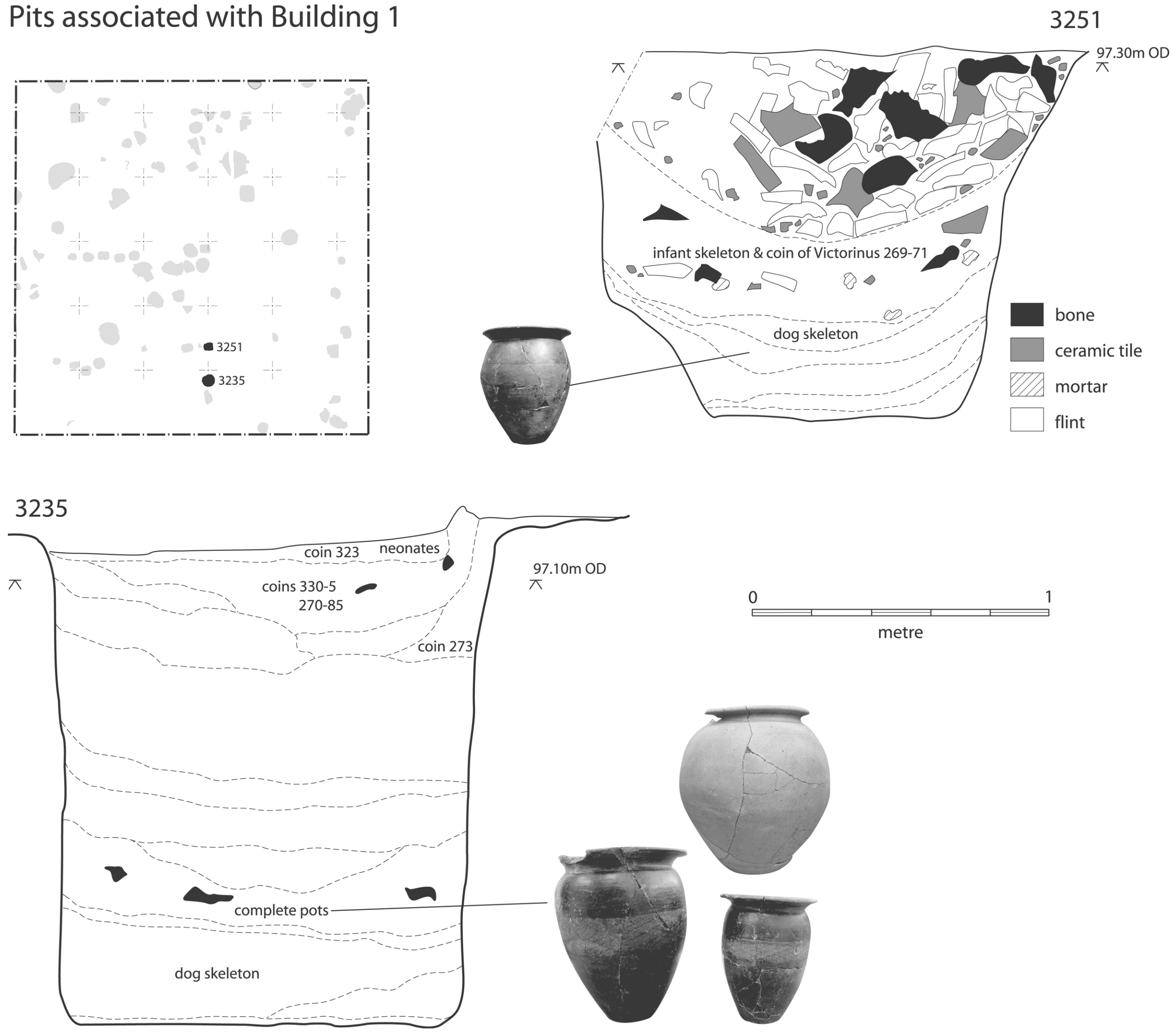

FIG. 23. Sections of pits associated with Building 1 (Object 116)

contained fills with a range of finds including animal bone, iron slag, and pottery. There were few sherds of third- to fourth-century date, the majority comprising residual, first-century sherds.

Object 116 comprises seven pits close to the west end of Building 1 (FIG. 23). The most westerly is pit 3250, a shallow scoop with irregular edges and a single fill. This contained very fragmented material which included a fourth-century, New Forest sherd. Roughly on the same, east–west alignment is sub-rectangular pit 2900 which was cut from a late, dark earth layer, 2916. It measured 1.8 by 1.25m with a depth of 1.1m, with some six layers. Its lower fills contained some large flints and a range of domestic rubbish which included some mineralised seeds, consistent with an interpretation as a cess-pit, and the partial skeleton of a domestic cat. The pit produced three late third-century coins of which the latest is of Carausius, A.D. 287–293, though the latest pottery from the uppermost fills dates to the fourth, rather than the third century. A mid-fill, rich in charcoal, contained a partial cattle skull and the articulating femora of domestic chicken, suggestive of a deliberately placed deposit, and some hammerscale.

Adjacent to the east is a rectangular pit 3251 with almost vertical sides (FIGS 23–25). It measured 1.75 by 1.54m, with a depth of 1.16m, and contained some sixteen layers. The presence of mineralised seeds also suggests an interpretation as a cess-pit. It produced large quantities of animal bone, particularly from the uppermost fills, and some pottery datable to the later third/fourth century. This included a BB1 jar, probably complete when deposited (FIG. 60,

FIG. 24. Pit 3251 (Object 116): lower fill with part of an articulated dog skeleton

FIG. 25. Pit 3251 (Object 116): upper fill with tile, cattle skulls, etc.

FIG. 26. Pit 3235 (Object 116): remains of neonate

No. 17). The animal, fish, and bird bone included the remains of several skulls, particularly of cattle, partial skeletons of dog, domestic fowl, wild and domestic cat, and jackdaw. The remains of neonates were also present. A coin of Victorinus, A.D. 269–271, (SF 02021) was associated with a near-complete infant skeleton.

Pit 2921/2904 is located immediately to the west of pit 3251, which it cuts. In its turn, it was bisected by a Victorian trench 1084. Its plan dimensions measured no more than 1.28m and it had a depth of 0.8m. Animal bone and pottery dominated the finds, the latest of which included mid-fourth-century sherds.

To the south of 3251 was another large cut-feature, pit 3235, with a diameter of 1.86m, a depth of 1.88m, and containing some 16 fills (FIGS 23, 26). It produced significant quantities of mineralised seeds, consistent with an interpretation as a cess-pit. The large assemblage of pottery ranged in date from some third-century material in the lower layers to late fourth-century pottery in the upper contexts. It included complete and almost complete BB1 jars (FIG. 60, Nos 15–16). Animal, bird, and fish bone were abundant in the uppermost layers, with dog skulls and the partial skeletons of cattle, lamb, and pig represented. Remains of two neonates

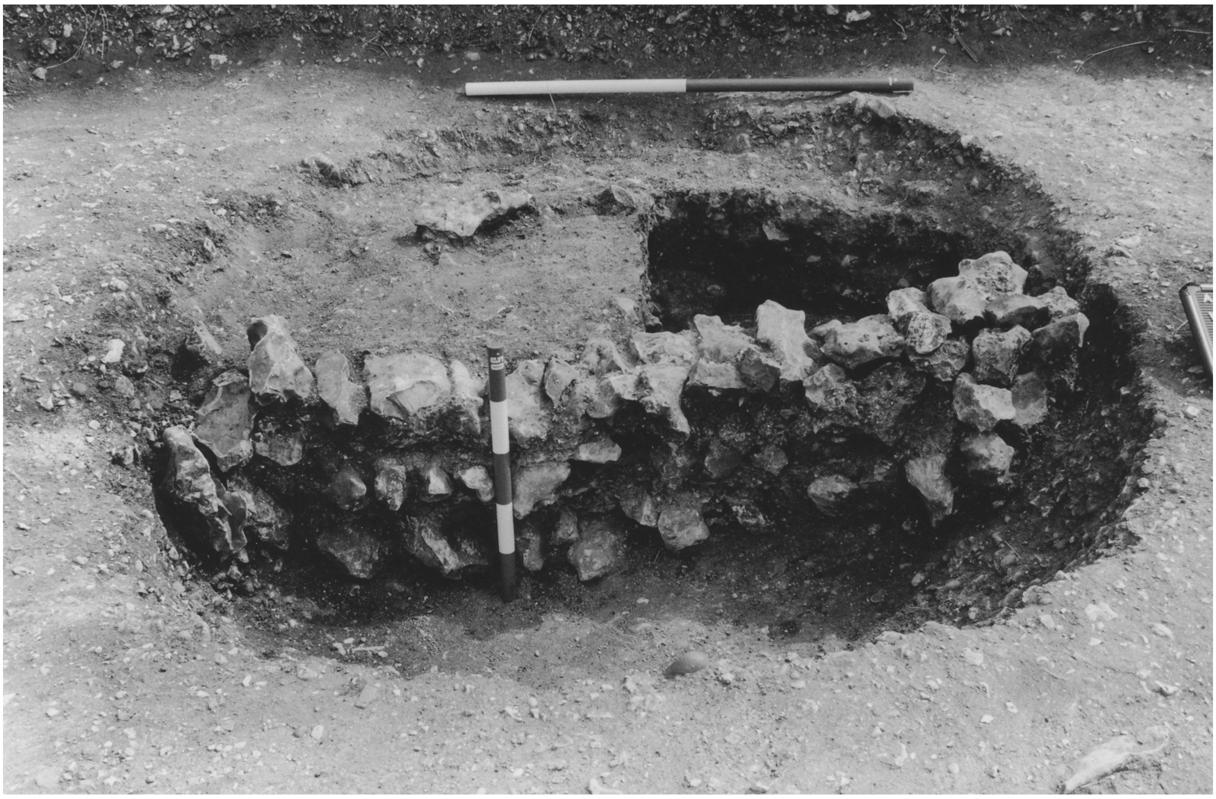

FIG. 27. Pit 3102 (Object 116): remains of flint-wall foundations of Building 6 (view to south)

were also present in these contexts. The latest coins from the upper fills were of A.D. 323 and 330–335.

Adjacent and to the south of 3235 was a shallow pit 2914, an irregularly-shaped, steep-sided, sub-rectangular feature measuring 1.2 by 2.2m, with a depth of 0.2m; it was cut by Victorian trench 1073. The lowest fill contained a concentration of large tiles and flint. Generally, the pit contained abundant animal bone with a high incidence of butchery marks, including a partial cattle skull and a partial pig skeleton. The small quantity of pottery suggested the assemblage was closed about the mid-fourth century.

Finally, we should note the upper fill of the deep pit or well 3102 south of Building 1 and close to the southern edge of the excavation (FIG. 27). This pit or well is different in character from the rest of the pits in this Object and its primary fills and their contents pre-date the construction of Building 1 and will be reported in the forthcoming report on the *Middle Roman Occupation*. The upper fill contained the remains of a flint wall (3106) on an east–west orientation associated with fourth-century pottery. This structure is interpreted as part of the foundations of the north wall of Building 6.

Object 117 comprises eight pits located to the west of Building 5 and to the north of Objects 115 and 116 (FIGS 28–29). On an east–west alignment and defining the southern side of the boundary dividing the southern from the northern half of the excavated area, there are two outlying pits to the west (1702 and 1326) and three close to Building 5 (1021, 1707, and 2087). There is considerable evidence for the re-cutting of two of this latter group. A further three pits lie to the south of this group and close to the west end of Building 5 (1537, 1666, and 1633).

Pit 1702 has evidence of two re-cuts. The primary feature measured 2.10 by 1.3m in plan, with a depth of 0.2m, while the first re-cut measured 1.6 by 0.5m in plan, with a depth of 0.3m. The second re-cut measured 1.5 by 0.5m in plan, with a depth of 0.55m. The excavators identified cess-type fills in the primary pit and the first re-cut, but there is no supporting evidence in the form of mineralised seeds to confirm this. The small quantities of finds included pottery no later than the mid-third century in date. Like pit 1702, 1326 was truncated by

FIG. 28. General view of pits in Objects 117 and 118 cutting the foundation of 'House 1' (view from the east)

Victorian trenching and was also shallow with a depth of 0.2m. Its plan dimensions measured 1.2 by 0.3m and it contained small quantities of finds, which included two sherds indicating a fourth-century fill.

Among the second group of pits within this object is 1021, which cut the remains of House 1 and, as the excavation plan indicates, was excavated in 1893. It measured *c.* 2m in diameter with a depth of 1.5m. Little, if any, reliance can be placed on the stratigraphic integrity of the material excavated from it, but, on the assumption that the majority of the original contents were backfilled into it, we note the pottery is of mid-fourth-century date. Adjacent to it and also cutting House 1 is pit 1707, which was partly truncated by the excavation of 1893. It is a complex structure with evidence of at least two re-cuts. Its maximum plan dimensions give a diameter of 3.10m and a depth of 1.25m. Pottery from undisturbed secondary contexts indicates a fourth-century fill. The animal bone comprised predominantly sheep and pig remains, including a partial skeleton of the latter and bones with a high incidence of butchery evidence. As well as neonate remains, an articulated dog skeleton was found propped against the side of the primary pit (FIG. 30). Two radiocarbon dates were obtained from the dog: 1825+/-40BP (OxA 8735) and 1790+/-40BP (OxA 8734). These suggest a date around the

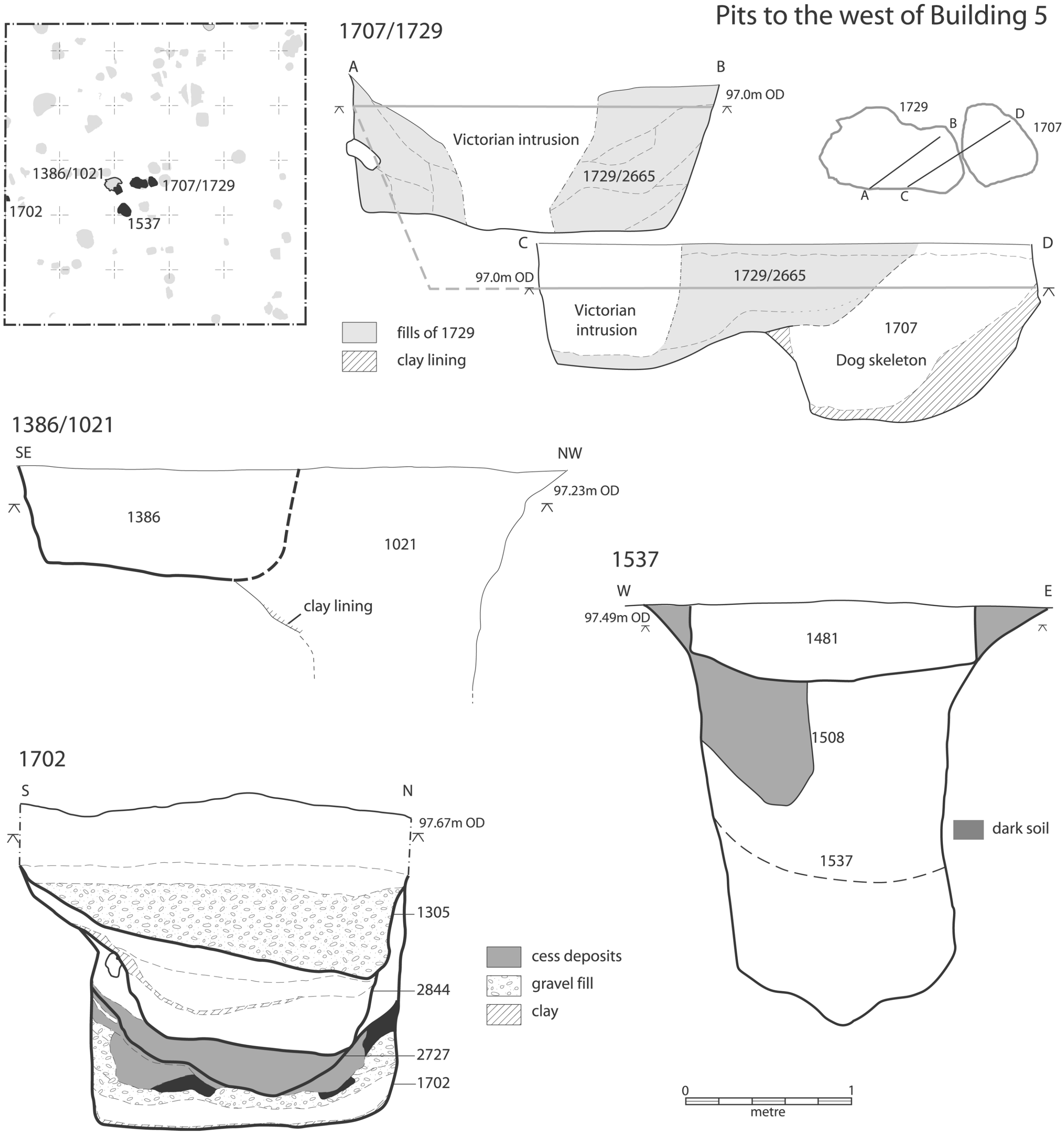

FIG. 29. Sections of pits associated with Building 5 (Object 117)

mid-third century. The third pit of this sub-group, 2087, was also partly truncated by the excavation of 1893. It measured 1.3 by 1.2m with a depth of 1.55m, and may have been re-cut once. Among small quantities of finds such as animal bone, the latest pottery from undisturbed contexts included a complete Alice Holt jar (FIG. 63, No. 18) and other sherds of late third/fourth-century date.

Pit 1537 is the westernmost of the remaining sub-group (FIG. 31). Funnel-shaped in profile, with a diameter of *c.* 2.5m and a depth of *c.* 2.5m, it was cut through the remains of House 1 and was largely filled with gravel and flint. A secondary cut with a diameter of 0.65m and a depth of about 1m is interpreted as a post-pit. Overall, the feature contained few finds, but at the base of the pit were two sherds, perhaps deliberately placed, dating to the second half of the second century. A mid-fourth-century coin was found in a secondary fill. Adjacent to it to the east, and containing large quantities of material, is 1666, which measured 1.85 by 1.7m in plan with a depth of 1.5m. Animal and bird bone included domestic and wild species. The

FIG. 30. Pit 1707 (Object 117): articulated skeleton of a dog leaning against the side of the pit

pottery assemblage was of fourth-century date. Finally in this sub-group, we note pit 1633. Measuring 1.5 by 1.6m in plan with a depth of 0.55m, it contained a range of finds, animal bone, pottery, etc., including a coin of A.D. 315 from the primary fills.

Well 1170 (Object 121) can be identified as the well cut through the foundations of House 1 and excavated in 1893 (Fox 1895). At the base of it was found a badly dented and, as we now know, a deliberately pierced, fourth-century, pewter flagon. Placed above it and pointing down was a damaged, stone 'baluster' column, carved with an inscription in ogham (Fox and St John Hope 1894, 233–7; Fulford, Handley and Clarke 2000) (FIG. 4). When completely excavated, the feature measured *c.* 3m in diameter and 2.65m in depth. The Victorian excavators described the feature as 'a well of the usual construction' and it was marked on the plan as if a rectangular wooden lining was identified at the base (Fox 1895, 441). Although the water table was encountered at a depth of 2.2m in 1998, no trace of such a lining was recovered. Nevertheless, the basal fill appeared undisturbed by the Victorian excavators and contained two fragments of oak, which may have come from the original well-lining. These were subjected to radiocarbon AMS dating with the following results: 1630+/-54BP (OxA 8570) and 1780+/40BP (OxA 8626). The latter calibrates to A.D. 130–380 at two standard deviations, the former to A.D. 320–540. A second date of 1740+/-40BP (OxA 10095) was obtained for the first sample. Consideration of the three dates gives a preferred mid-third-century date for the wood. We suggest that the timbers belong to the earliest phase of the well and their dates thus give a *terminus post quem* for subsequent fills. It is possible that the wood may have come from the original well-lining

The main fill of the well as excavated in 1998 consisted of gravel, flint, and ceramic building material. It contained a coin of the A.D. 350s (SF 00230). When compared with the average, 6m depth of wells excavated by the Society of Antiquaries 1890–1909 (Boon 1974, 85), our feature is relatively shallow. Nevertheless, its depth reached into the water table and was sufficient to preserve, at least partially, wood. It is comparable to the depth of the other features within our excavation which we interpret as wells. If constructed around the mid-third century, possibly earlier than the construction of our Buildings 1 and 5, the well survived in use until the

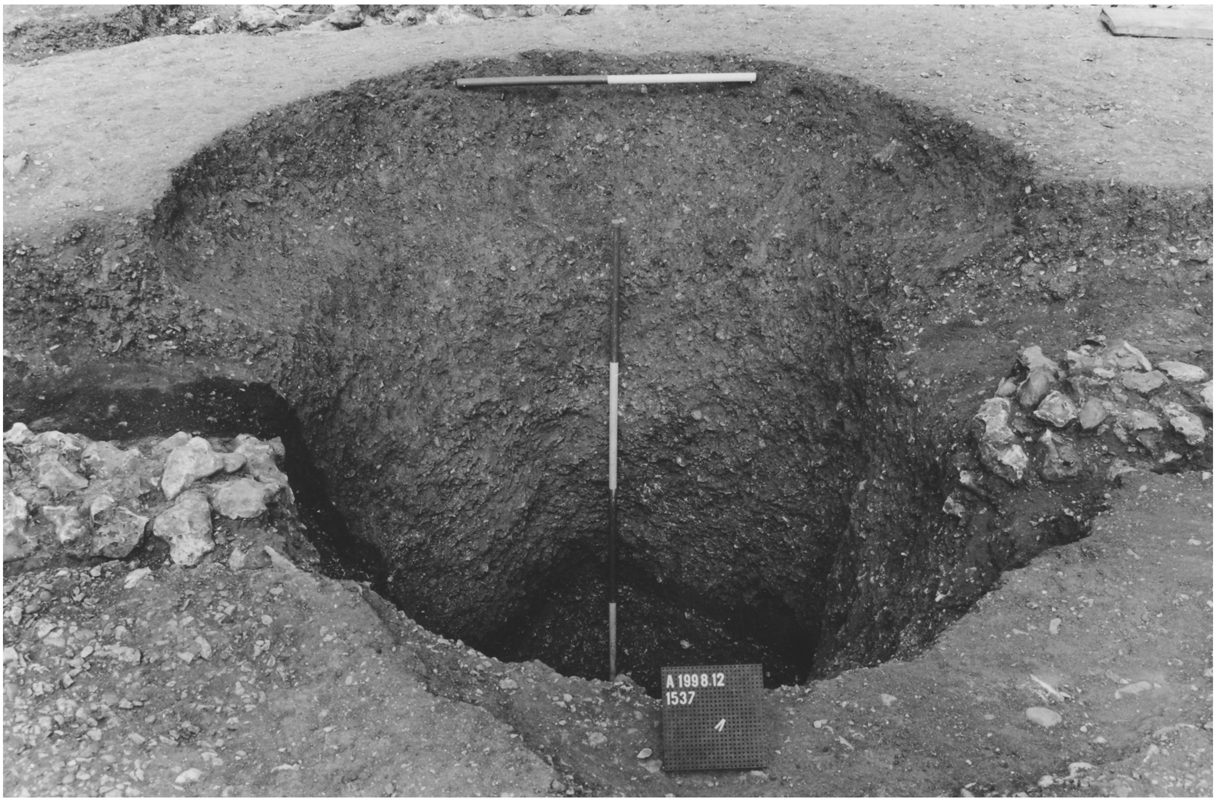

FIG. 31. Pit 1537 (Object 117): view after excavation

deposition of the column in the fifth century or later. We shall discuss the date of deposition further below (pp. 46, 78, 277).

While each of our three groups (Objects) of pits has, as we have discussed above, exceptional members, there is a particular spatial coherence to each. This suggests a special relationship with Building 1 (Object 116), Building 5 (Object 117), and, in association with well 1170, to both Buildings 1 and 5 (Object 115). In the concluding discussion we shall pursue the extent to which these groups help to characterise both the life of the occupants of the individual buildings and the collective activity of the occupants of the southern half of the excavation area as a whole.

In considering the use of the proposed backyard area of Buildings 1 and 5 as a whole, it is difficult to prove whether more than one or two of the pits were open at one time. However, it is our assumption that this was not the case. The fact that, overall, there are so few for the hundred years and more in which they were cut and filled, suggests that their creation represents exceptional activity in the life of Insula IX. Indeed, there is only one group (Object 115), the pits adjacent to the well 1170, which occupies a space which is either not beside the proposed east–west boundary or close to the west end of the buildings. This implies that the backyard area was generally kept clear and available for other purposes, such as horticulture or the keeping of animals. Indeed, with the exception of the well 1170, all the pits in the southern area appear to have been filled by about the mid- to late fourth century, when the backyard space would certainly have been clear of such obstructions.

Phase 4. The latest occupation — end of fourth and fifth century (Object 41091)

Building 1: Rebuilding (FIGS 32–34)

Understanding the later history of Building 1 (Object 31024) is significantly dependent on the interpretation of a layer of red clay (1322) which overlay the north wall (1198) of Building 1.

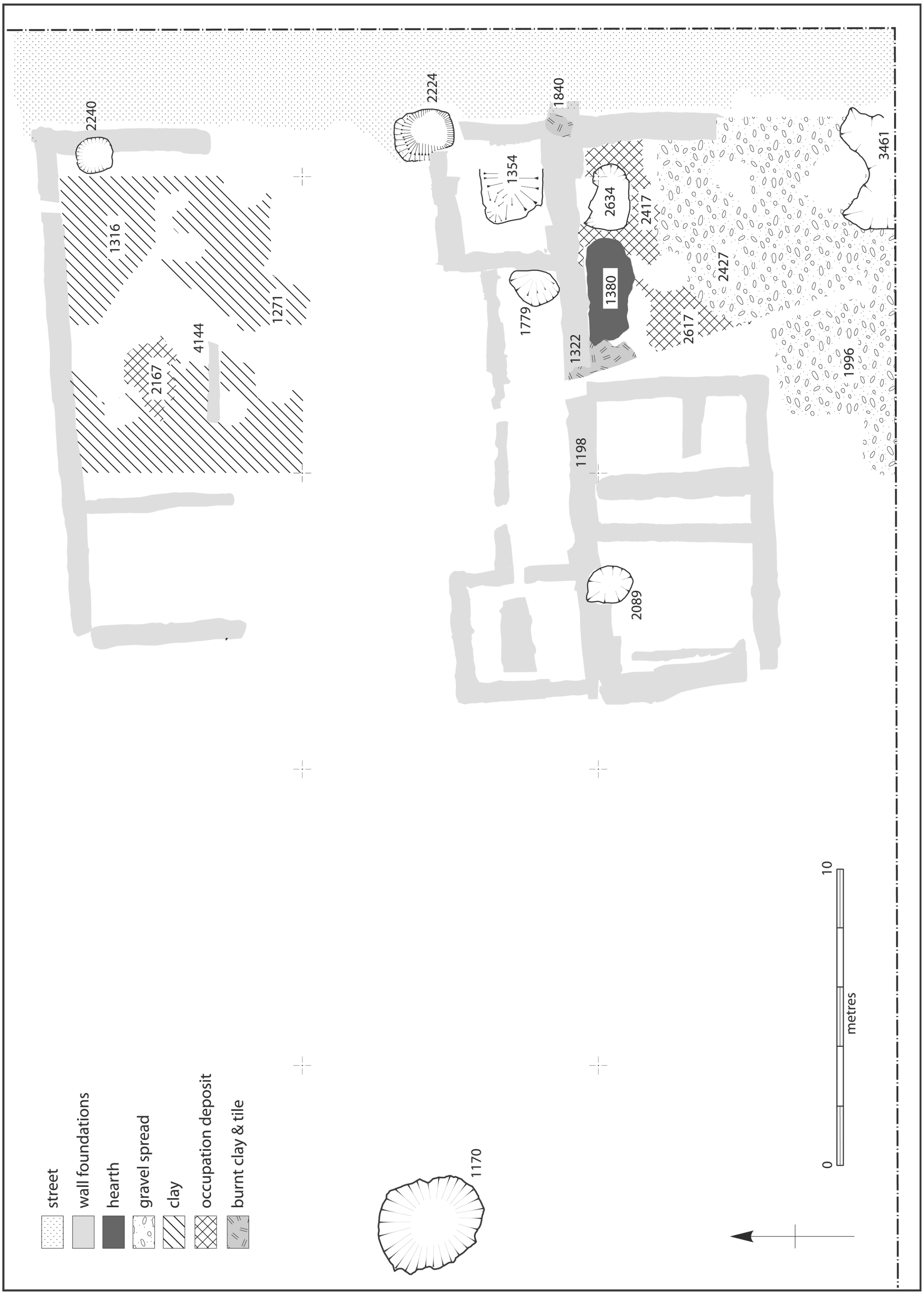

FIG. 32. Plan of Buildings 1 and 5: the latest occupation, fifth to sixth(?) century

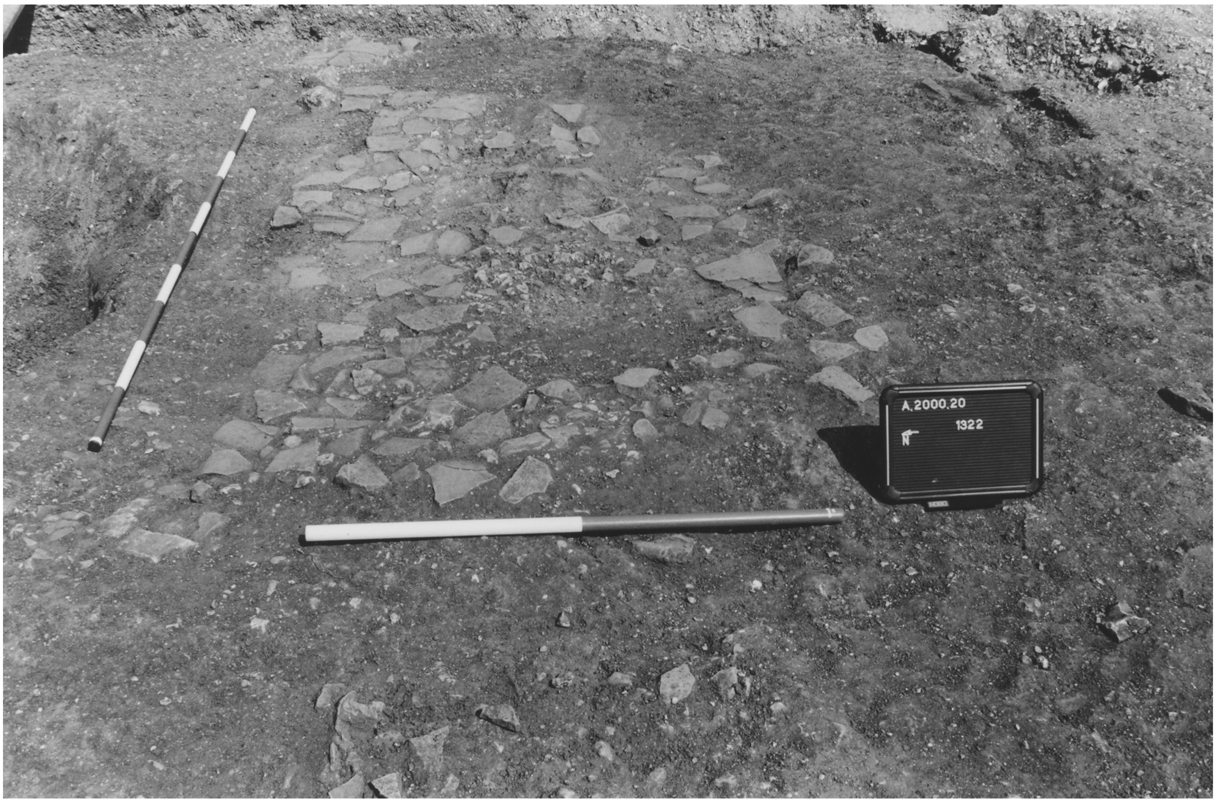

FIG. 33. Building 1 (Phase 4): tiled-surface, view from west

The redness was initially assumed to be the result of burning, though it was weakly magnetic and no archaeomagnetic date was obtained from it (Linford 2000). Similar to this layer is a second area of mottled orange-grey silty clay with patches of red clay (1840) which partly overlay the junction of the east wall of the eastern projecting room with the north wall 1198. One interpretation of these layers is that they represent hearth activity on the line of the demolished walls of Building 1. However, given the weak magnetism, an alternative explanation is that they may represent a deliberate choice of naturally reddened (iron-rich) clay which relates to a rebuilding of Building 1 otherwise evidenced by the pit 2089 described above (p. 30); the redness thereby not relating to *in-situ* burning. Stratigraphically the clay layers overlying the walls are later than a coin of Valentinian (A.D. 364–367) reported above (p. 30) and the pottery from the upper fill of the pit 2089 is late fourth century. Together the evidence is strongly suggestive of a late fourth-century rebuilding of the house. Possibly associated with the red clay in the eastern room is the uneven floor surface 1454, made up of horizontally laid, broken tile fragments, described above (FIG. 33). This in its turn overlay a further layer of red and yellow clay, its mixed character also not supportive of an interpretation as a burnt layer.

That Building 1 was rebuilt and continued to exist as an integral structure is supported by the evidence for both general contexts and discrete features which respect the footprint of the building (Object 31024). Side-by-side against the north wall (1198) of Building 1 were the remains of a large hearth structure (1380) and a pit (2634). The evidence for the hearth includes two circular cuts (1451, 1452) which underlie the seemingly random arrangement of flints, tiles, sandstone, chalk, and burnt clay laid over an area of 3.9 by 1.5m. The arrangement and positioning of this hearth against the foundations of the north wall seem to imply the continued existence of the latter. The pit (2634), with its north side parallel with the north wall (1198), measured 2.2 by 1.4m with a depth of 0.7m. The fills contained an array of domestic rubbish, including some metal finds, animal bone, and late fourth-century pottery. The latter included a sherd of Biv amphora. In addition to a late Roman, copper-alloy nail-cleaner with bands of transverse grooves down one face (SF 1292) (FIG. 76, No. 27) and a fragment of a

FIG. 34. View north along the main, north–south street. The very late pit 2224 is visible in the middle ground to the north of the construction trench of the east wall of Building 1. Fifth-century pits 2634 and 1354 are also visible in the eastern rooms of Building 1

probable late Roman, copper-alloy finger-ring (SF 1285) (p. 130), there were seven copper-alloy coins, of which five date to the second and late third century and the latest dates to A.D. 388–392 (SF 01270). There was also a probable late Roman blue glass, biconical bead (SF 1268). The pottery consisted of a diverse assemblage of coarse, fine and wares with specialist functions, of which the latter two categories accounted for almost 40 per cent of the assemblage. The diversity comprises not only the range of wares represented, but also the range of forms. Given that this pit was probably not filled until the fifth century, this seems an unusual group of material and, with pit 1354 (below, p. 45), it stands apart from the other late pits which constitute Object 122. The contents may have been deliberately assembled prior to deposition. The alternative explanation, that these finds were a residual element in the soil with which the pit was filled, has to account for the unusual concentration and range of material when compared with other contexts of this phase. The uppermost fill was disturbed and contained some post-medieval sherds.

Further evidence for the digging of pits within the building in this late period comes from the northern range of the building. In the verandah, immediately to the west of the eastern, projecting room a roughly circular pit (1779), with a diameter of 1.7m and a depth of 0.9m, was cut through the latest surfaces. The fills consisted of a dark brown clayey soil with charcoal flecks and occasional clay lenses. Finds included ceramic building material, some painted plaster, fourth-century pottery, animal bone, and oysters.

In the eastern of the two projecting rooms of Building 1, where there was a long sequence of floors and make-ups to compensate for subsidence into an underlying pit (above, p. 23), the latest event is a further pit (1354) which was cut into these contexts with late fourth-century pottery (1752, 1361). Context 1752 was a substantial (0.4m thick) deposit of brown silty soil containing occupation debris, including building material, late fourth-century pottery, animal bone, oysters, and charcoal. It was sealed by 1361, a layer of yellow clay containing large amounts of tile and flint as well as late fourth-century pottery. Perhaps representing the latest floor in this room, this clay layer was cut by the pit 1354 which was substantial (discussed further below as part of Object 122). It measured 2.2 by 1.8m with a depth of 0.53m and its two sandy clay fills contained some metal finds, late fourth-century pottery, animal bone, and ceramic building material. The pottery assemblage was unusual in that, unlike other late pits, it lacked representation of beakers/cups (below, p. 107). The copper-alloy finds included a fragment of a possible bow brooch and a nail, and there was a base sherd of a lead-alloy, possibly pewter, vessel. Two fragments of rotary quern were found in the uppermost fill. Among the six coins the latest (SFs 00764, 00766) were issues of Valens (A.D. 364–378) and the House of Theodosius (A.D. 395–402). The pit also produced a quantity of iron-working slag including a hearth bottom, probably derived from iron smelting (below, p. 162).

In addition to the above cut features which respected the walls of Building 1, it is important to note the contexts associated with them (Object 31024). These comprise layers of either clayey silts or clay associated with small stones and tile fragments (2417, 2617) or of compacted flint-gravel surfaces (2427) within the confines of the eastern room or workshop. Although there is no interruption to correspond with the projected line of the south wall of Building 1, these contexts are distinct from a further contemporary gravel spread (1996) to the south in the area between Buildings 1 and 6 associated with late fourth-century pottery. This overlay a dark spread 2437 which contained a coin of the House of Theodosius (A.D. 388–392), which in turn sealed the post-holes of the early phase of Building 1 (above, p. 20). Towards the southern limit of the excavation was a large, but shallow pit (3461). This measured 3.8 by 1.65m with a depth of 0.11m and contained a coin of the House of Theodosius (A.D. 388–392), fourth-century pottery, animal bone, tile, charcoal, and slag. Two further shallow pits cutting into 1996 (1992, 1993; also discussed further below as part of Object 122) represent the latest probable Roman or sub-Roman activity in this part of the site. Their diameters ranged between 1.5 and 2.25m and their depth between 0.14 and 0.25m. They contained small quantities of animal bone and pottery which included examples of the latest wares and forms present on the site (below, p. 107). Metal finds included a copper-alloy pendant with a pine-cone terminal of possible Bacchic significance and of uncertain date from 1992 and fragments of iron from 1993.

To the west and south-west of the building were build-ups of dark brown to black soils associated with occupational material containing a few coins. While the pottery is of late third- and fourth-century date, the latest coin is of Gratian (A.D. 367–375). These layers sealed the pits described above (p. 34).

Building 5

There is little evidence on which to construct an occupational history of Building 5 beyond that which can be inferred from the early pits immediately to the west (above, p. 37). Only a handful of the stratigraphically latest contexts, either on the footprint of the building or beyond it and immediately beneath the ploughsoil, produced late fourth-century pottery (1271, 1316, 1279, and part of Object 31030). In addition, the latter produced one coin of the House of Theodosius, while another was associated with context 2167 which otherwise contained late third-century pottery. Context 1316, a hard and compact layer of grey sandy clay with patches of dark, apparently burnt material extends over and beyond the wall foundations and must therefore post-date the life of Building 5. The associated context 2167, however, is situated within the confines of the building and may be an indication of continuing occupation beyond the end of the fourth century. The lack of stratigraphy within the confines of the building may be indicative of both the nature and intensity of its use. The former did not leave much occupational debris, while the latter did not require frequent levellings or improvements to the floor of the building. This may account for the low incidence of fourth-century coins, including the latest, Theodosian issues, against a background which is otherwise dominated by late third-century or earlier pottery.

Phase 5. The end of Buildings 1 and 5 — later fifth to sixth century(?) (Object 41092)

We can trace evidence for the continuity of use of Buildings 1 and 5 with certainty into the fifth century. Late contexts associated with both buildings contain the latest identifiable fourth-century pottery to be found at Silchester and the latest coins to be found commonly in Britain (issues of the House of Theodosius). We can also identify contexts which are stratigraphically later than those containing the latest coins and pottery types.

Two pits should be considered here as providing possible evidence for the abandonment of the two buildings. Cutting through the foundation of the north-east corner of the eastern projecting room of Building 1 was a pit (2224) with a depth of 1.4m and plan dimensions of 2.1 by 1.74m (Object 122) (FIGS 34 and 56). It was filled with greenish-brown, clayey silts with lenses of orange clay and gravel. The few finds shed no light on its function. The latest datable find was a residual sherd of Oxfordshire red-slipped ware of later third- or fourth-century date. While on structural grounds the eastern projecting room must have been demolished before the digging of the pit, the latest date for this is given by the Theodosian coin from the earlier pit (1354) dug within the room (above, p. 45).

The second pit which is relevant here is 2240 which cut through the edge of the foundation trench of the east wall of Building 5 (Object 122) (FIGS 34 and 55). Measuring about 1m in diameter with a depth of 0.25m, this shallow pit was filled with brown sandy silts. The small assemblage of pottery from this feature contained no sherds which need be later than third-century in date (but note illustrated pottery sherd No. 51 (FIG. 68)). The sealing layer 1390 contained a coin of the A.D. 340s. As with 2224 above, the fill and finds within this pit are not helpful in interpreting its function. One possibility is that it may have served to hold a post as part of some repair or alteration of the eastern elevation of Building 5.

More helpful to our understanding of the nature — if not of the date — of the end of the occupation of Buildings 1 and 5 is the fill of the well in their backyard (1170). At the base of the well in 1893 was found a battered and deliberately pierced fourth-century flagon of pewter. Immediately above and pointed downwards were the remains of a dwarf, baluster column (which might have supported the roof of the verandah or portico fronting Building 1 (above, p. 25)). If we assume that the Victorian excavators backfilled this well mostly with the material which they had excavated out of it, the remainder of the fill of the well consisted of flint and tile. The column was carved with an inscription in ogham (Fulford, Handley and Clarke 2000). If the column did originally support the portico fronting Building 1, it gives the ogham a *terminus post quem* of about A.D. 300/325. However ogham is not confidently dated as early as the early fourth century in Ireland where its distribution is concentrated in the south and we are left with the possibility of a fifth-century date for the carving — and then of allowing a period before deposition in the well. Given the other evidence from Buildings 1 and 5 for continuation of occupation after A.D. 400, we can be reasonably sure that the well was not backfilled till later. Indeed, if the north front was demolished first, so releasing the dwarf column — presumably already inscribed, some years may have passed before the remainder of Building 1 was taken down. In that period the column lost its capital. Estimating dates becomes very conjectural, but our sequence might reasonably take us down beyond the end of the fifth to the sixth century.

Setting dates aside, we should return to the context. The deliberate filling of the well, thereby denying the nearby inhabitants of a source of water, implies a purposive abandonment of the adjacent buildings. The flints filling the well derived from the partial (at least) dismantling of one or both buildings. It is interesting to note that, if flints were removed from Building 1 only down to the level of the contemporary ground surface, at least one, if not two courses would have survived, particularly along the length of the east wall of the main part of the building. Here the removal of the flints below the level of the ground surface and down to the top of the foundation trench allowed the gravels of the high-cambered street to erode downwards and fill the resulting void. Whoever removed the remains of Building 1 was intent on removing all the surviving flints, not simply clearing away a structure to facilitate cultivation. The pattern of robbing of the core of Building 1 differs from that of the extension, where one course of flint survived discontinuously. Here the robbing was only taken down to the level of the contemporaneous ground surface. The differential robbing of Building 1 is reminiscent of the robbing of the forum-basilica (Fulford and Timby 2000) where the latest activity is associated with the deeply robbed walls. It is possible, therefore, that the original core of Building 1 (and Building 5, perhaps) survived the robbing of the extension of Building 1. Such a scenario allows for a period of time for the ogham-inscribed baluster column to have lost its capital before final deposition in the well. We shall return to the date of abandonment of Insula IX below (p. 273).

THE NORTHERN AREA

The 'invisible' boundary defined by the two parallel, but discontinuous east–west rows of pits (above, p. 14) which run across the excavation area (and beyond) separates the southern area with Buildings 1 and 5 from the remainder of the excavation area south of the east–west street. The archaeology of this area is unquestionably difficult. Issues begin with the definition of the extent of the archaeological intervention in the nineteenth century. Joyce's plan indicates some very limited excavation in the north-east corner of the insula in 1866, but there is no description of his findings, probably because no easily interpreted plan of any structures was obtained (Joyce 1881b, pl. XIV). However, it is possible that some of the features recorded by us in this area are attributable to his work. Issues also arise with the attribution of features to the systematic exploration of this part of the insula in 1893. We can be comfortable in associating the narrow trenches cut diagonally across the area with the 1893 excavation. However, those which share the same orientation as the street grid (and which are in the minority) are less certainly to be assigned to the excavation of 1893 (Fulford and Clarke 2002, figs 5, 8). These problems will be discussed further below.

In the notable absence of evidence for masonry buildings comparable with, for example, Buildings 1 and 5, there are clearly defined cut features, such as pits, wells, and post-holes, right across the northern area, which are unquestionably of late Roman date. At the same time there are numerous other late Roman, pit-like features which are no more than the filling of hollows — albeit sometimes deep — created by the settlement and subsidence of the fills of earlier pits and wells. Neither the location nor the density of the first group of clear-cut features is very helpful in determining either the plans of individual buildings or the limits of individual properties within the excavation area. However, as we shall see, the concentration and disposition of a range of features is consistent with the existence of at least two, timber-framed buildings continuing the built-up frontage from Building 5 northwards along the north–south street to its intersection with the east–west street. Determining the rear limit of these properties is not easy. Indeed the argument for a sub-division of the remaining northern area rests on a number of separate, but distinct features which suggested the possibility of up to four further properties fronting on to the east–west street. As we shall see below, these features include discrete groupings of pits and post-holes and possible wall-trenches. Except where such features cut through the remains of the foundations of the earlier House 1 or the gravel structure of the two streets recognition was difficult. This was because the soils in the northern area were predominantly of a dark loam some 0.2–0.3m in depth and the features cut into them were for the most part correspondingly filled with soils of a very similar colour and texture. Shallow features, which did not cut down into underlying contexts of different colour and texture, were thus very difficult to identify. This is brought out by the differential approach to the excavation of the northern area west of Building 8 which determined the distribution of the shallow, negative features which constitute the pit group Object 120. Failure to recognise shallow features in the westernmost area of dark soils led to the total excavation of the dark loam to the level of the underlying gravel in 1998 and no shallow, negative features were observed and recorded within the loam. However, a more gradual approach over several seasons to the intermediate area between it and Building 8 to the east led to the identification of the shallow features grouped as Object 120 (below, p. 50). In order to unravel the history of the occupation of the northern area, it is appropriate to begin by setting out the evidence for pits and wells.

PITS AND WELLS (PHASES 3–5) (FIG. 35)

Three Object groups were defined early in the post-excavation analysis of the northern zone. The first, Object 118, comprised the pits which extend along the proposed east–west boundary that divides the northern from the southern area. While the second, Object 119, is represented by a small group of mostly deeper pits which extend across the northern zone, the third, Object 120, includes shallow pits and the late fills in the tops of earlier pits where subsidence has taken place. These mostly occupy the central area of the northern zone to the north of Object 119. The third group are not deliberately cut features but they do represent discrete entities with their associated assemblages of finds. Apart from issues of pit depth there is no clear differentiation between Objects 119 and 120.

Object 118 can be divided into three sub-groups (FIG. 36). There is a central group of five pits (2335, 1634, 1576, 1019, and 1020) flanked by two outliers to east and west (1480 and 1482 to the west, and 1680 and 1459 to the east). The character of 2335 is a little different from the other pits in its sub-group.

Pit 1480 is an oval-shaped and steep-sided pit which measures 2.1 by 0.8m with a depth of 0.5m. It contained a small assemblage of third-century pottery. Pit 1482 is cut through the

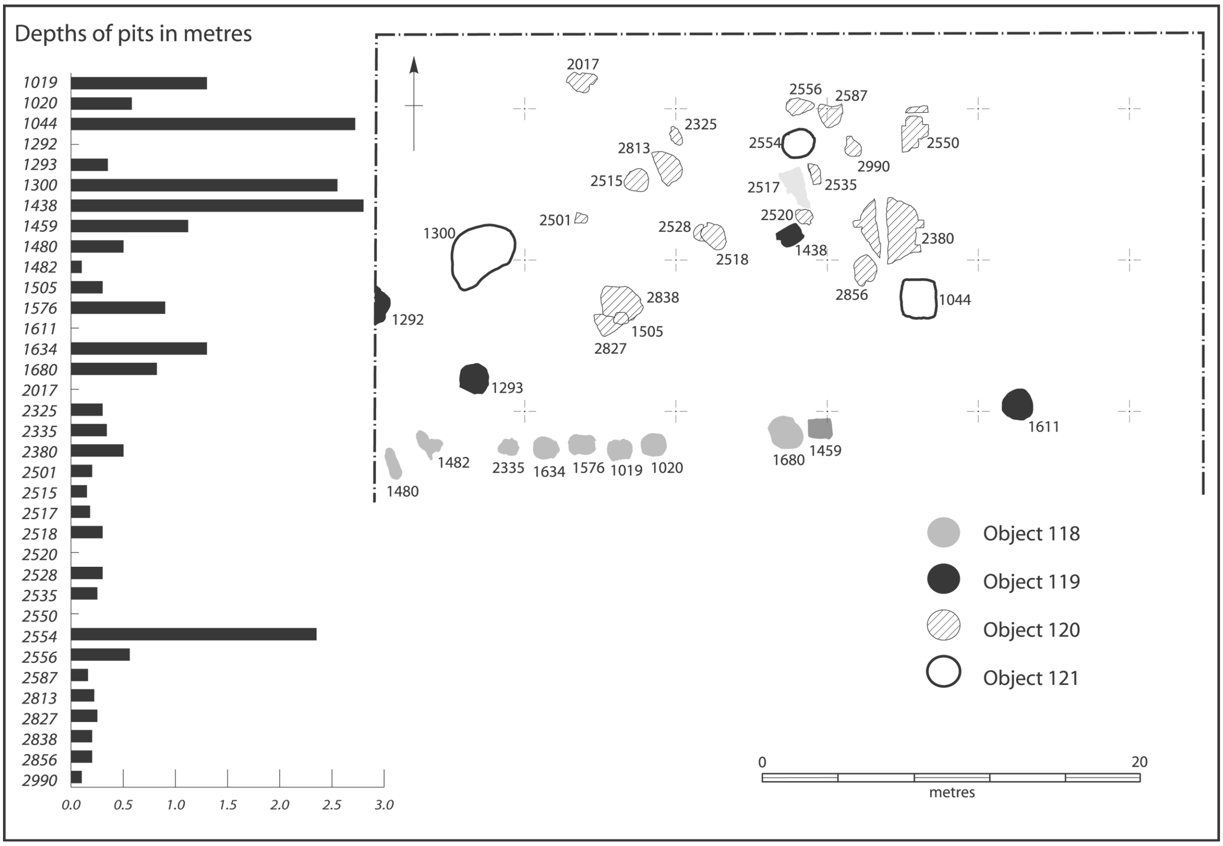

FIG. 35. (a) Pits and wells in the northern area (Objects 118–121); (b) with depths indicated

FIG. 36. The central group of pits in Object 118 cutting the foundations of 'House 1' (view from west)

remains of House 1 and is irregular in shape. It measures 1.8 by 0.9m with a depth of 0.1m. The small assemblage of finds included a coin of A.D. 364–375 (SF 00787).

In the central group, pit 2335 is a roughly circular pit with a diameter of 1.41m and a depth of 0.34m. Truncated by Victorian trench 1069 it contained a small assemblage of material including fourth-century pottery, but also a residual presence of first-century sherds. More substantial is the oval-shaped and steep-sided pit 1634, which measures 1.4 by 1.8m with a depth of 1.3m. Its single fill produced a coin of A.D. 348–350 (SF 00824) and an assemblage of fourth-century pottery, including a partially complete greyware vessel (FIG. 63, No. 30) and Overwey ware. Adjacent to it is pit 1576, which cut through two walls of House 1. Its upper fill was extensively disturbed by Victorian trenching (1137 and 1017). Sub-rectangular in plan, this pit measures 1.9 by 1.4m with a depth of 0.9m. Its fill contained an assemblage of fourth-century pottery, including an almost complete Alice Holt narrow-necked jar (FIG. 63, No. 29). The fill of pits 1576 and 1634 contained joining sherds of Central Gaulish samian. Next is pit 1019, also cut through the remains of House 1, which was excavated in 1893. It is circular in plan with almost vertical sides with a diameter of 2.05m and a depth of 1.3m. Although there can be little confidence that the original excavated material was used to backfill this pit, the pottery assemblage from the Victorian fills is of fourth-century date and includes a sherd of late fourth-century shelly ware. The easternmost pit in this group, 1020, is also cut through the remains of House 1 and was excavated in 1893. It is circular in plan with almost vertical sides with a diameter of 1.65m and a depth of 0.58m. The (re-deposited) pottery assemblage also contains fourth-century pottery as well as a significant proportion of residual, first-century sherds.

Seven metres to the east are pits 1680 and 1459. The former is roughly circular and measures 2.45 by 2m in plan with a depth of 0.82m and its lowest fill contained large flints. It produced a range of finds including fourth-century pottery. The latter is roughly rectangular, measuring 1.6 by 1.7m in plan with a depth of 1.12m. It produced the largest assemblage of material of all the pits in this Object. The fourth-century pottery assemblage is dominated by sherds of storage jar in the Hampshire grog-tempered fabric, while the small finds include an example of a late Roman, green glass bead (FIG. 75, No. 10).

Object 119 comprises four pits which are distributed across the northern zone. There is no coherence to this group. It is distinguished from Object 120 either by the greater depth of the pits, or by their location in the western area of the northern zone where negative features were not recognised in the dark earth unless they cut into the underlying stratigraphy. In this area excavation was taken down to the underlying gravels in 1998.

The most westerly pit is 1292 which extends beyond the western edge of the excavation trench and was only partially excavated. In a small assemblage of pottery, single sherds of Nene Valley ware and of Overwey ware indicate a fourth-century date for the fill. To the south-east is pit 1293. Oval-shaped and with sloping sides, it measures 1.9 by 2m with a depth of 0.35m. A small assemblage of pottery is of fourth-century date. A remarkable find from this pit was an amber fly from a pendant, probably of early Roman date and produced in workshops in Aquileia (FIG. 75, No. 12). Pit 1438 cut through the north-east corner of House 1. Measuring 1.37m in diameter, its sides slope steeply at first, then more gradually towards the base at a depth of 2.8m. Of the three contexts, the primary contained flint and gravel, perhaps indicative of a rapid, initial infilling. Although the small assemblage of pottery indicates a third-century date for the fill, the upper context contained a coin of *c.* A.D. 337. The fourth pit of the group, 1611, is to the rear of Building 7 (FIG. 38). With a diameter of 2.1m, it represents a cut into the upper fill of an abandoned early Roman well 1682. A coin of the A.D. 350s was sealed by a layer of yellow clay which appears to represent the primary context of the late pit at a depth of *c.* 1.0m. There are also hints of a relining of clay before the final fills which contained a second coin of the A.D. 350s (SF 01014) and some fourth-century pottery along with a larger proportion of third-century material. Among the other finds is a large piece of shed antler derived from antler working.

Object 120 comprises a number of features in the central area of the northern zone which were recognised as either cutting the dark soils which dominate the area west of Building 8 in the north-east corner, or as slumps filling the hollows created by the subsidence of early Roman features. The western limit of this group, which corresponds with the area of dark soils excavated to the underlying gravels and clays in 1998, is arbitrary. Similar shallow scoops might have extended up to the western edge of the excavation trench. The chronological range of material filling these features ranges from the second through to the late fourth century, reflecting the date of the material from the dark earth contexts as a whole. Indeed the latest pits are of a similar date to those in Object 122. Those contexts with the earliest ceramics include the shallow feature 2520 (1.12 by 0.9m, with a depth of 0.12m) with second-century pottery, pit 2856 with 2582, and 2827 with 2810, which produced third-century material. The largest amount of animal bone from any of the pits in this Object came from 2827 (FIG. 37), although pit 3010 also contained a distinct concentration of highly fragmented animal bone. The latter and 2810 are the first and third cuts of an irregular, shallow scoop with maximum plan dimensions of 3 by 1.5m and a depth of 0.25m. The earliest cut also produced a coin of A.D. 287–293 (SF 01780).

A third group of shallow pits (2325, 2587, and 2380/2381) contained pottery of late third/early fourth-century date. Pit 2325 measured 0.7 by 1.3m with a depth of 0.3m, while the plan dimensions of 2587 are 2.3 by 1.5m with a depth of 0.16m. The latter produced a coin of the A.D. 350s (SF 1732). To the east, hollow 2380/2381, with a diameter of *c.* 5m and a depth of 0.5m, represents the upper fills where those of an earlier Roman feature had subsided. It is

FIG. 37. Deposit of chopped and split cattle bone from pit 2827 (Object 120)

bisected by Victorian trench 1036. Two radiates of A.D. 270–285 and 273–285 were found in it, but some of the pottery is of early fourth-century date.

Features with definite fourth-century pottery include 2556, 2990, 2515, and 2528. The latter is a roughly circular cut with a diameter of 1m and a depth of 0.3m, while 2515, with plan dimensions of 1.5 by 1.7m, is shallower with a depth of 0.15m. Steep-sided and slightly deeper at 0.56m is 2556 with plan dimensions of 1.95 by 1.2m, while 2990 is the secondary cut of 2991, which measures 1.64m in diameter with a depth of up to 0.10m. Equally shallow, with a depth of only 0.09m, is the recut. Burnt animal bone was noted from this feature. While the primary fill contained a radiate of the A.D. 270s, the latest coin from the re-cut was of A.D. 353–355 (SF 01708).

The final group of shallow pits includes 2501, 2517, 2550, and 2813, which produced pottery, such as late Roman shell-tempered ware, dating to the second half of the fourth century. Shallow scoop 2501 was partly truncated by Victorian trench 1331. It measured some 0.8 by 0.7m with a depth of 0.2m, while 2813, with a diameter of 2.5m and a depth of 0.22m, also produced a coin of A.D. 388–392 (SF 01821). Feature 2517, with evidence of a re-cut 2535, represents fills into an early Roman feature which had subsided. The primary fills contained a coin of the A.D. 350s and two of the House of Valentinian, A.D. 364–378. The latest coin from 2550, which was a poorly defined cut measuring *c.* 3.0 by 2.0m, with a depth of 0.7m, was of the House of Theodosius, A.D. 388–92.

It is difficult to offer a coherent interpretation of the features in Object 120 except that they indicate continuing activity and occupation through the fourth and into the fifth century across the central and west-central area of the northern zone. With the clear exception of those with concentrations of animal bone, few pits appear to have been deliberately dug for the disposal of rubbish, but the majority attracted late Roman material. They are associated with the dark earth which dominates the archaeology of the northern zone west of Buildings 7 and 8 and it is possible that some are connected with horticulture, or represent the fills of tree-holes, perhaps of a small orchard.

The wells (Object 121) (FIG. 38)

Three features in the northern area were dug to a depth which encountered the modern water table. The fact that water-logged material survives at a depth of *c.* 2.5m below the contemporary Roman ground surface, i.e. about 3m below the present ground surface, suggests that the water table was not appreciably lower in the Roman period. Although we cannot be certain of our interpretation that these features functioned as wells, their dimensions do distinguish them from the other late Roman pits.

Well 1300 is located towards the western limit of the excavation area. It measured 5 by 3.7m in plan with a depth of 2.55m below the contemporary Roman ground surface. The sides slope gradually for the first metre, consistent with a weathering cone, then are near vertical to the base. The lowest fills of a grey, sandy loam contained waterlogged material (reported below, p. 207) and the sherds of an almost complete white-slipped flagon of second-century date (FIG. 68, No. 56). Coins of Valentinian II and Theodosius I, A.D. 388–395, from immediately above the waterlogged contexts at a depth of 2.0m give a *terminus post quem* for the backfilling of the well (SF 0632, 0646). These secondary fills consisted of horizontally-laid layers of gravelly sands and loams (FIG. 38). Residual pottery of first- to third-century date dominates

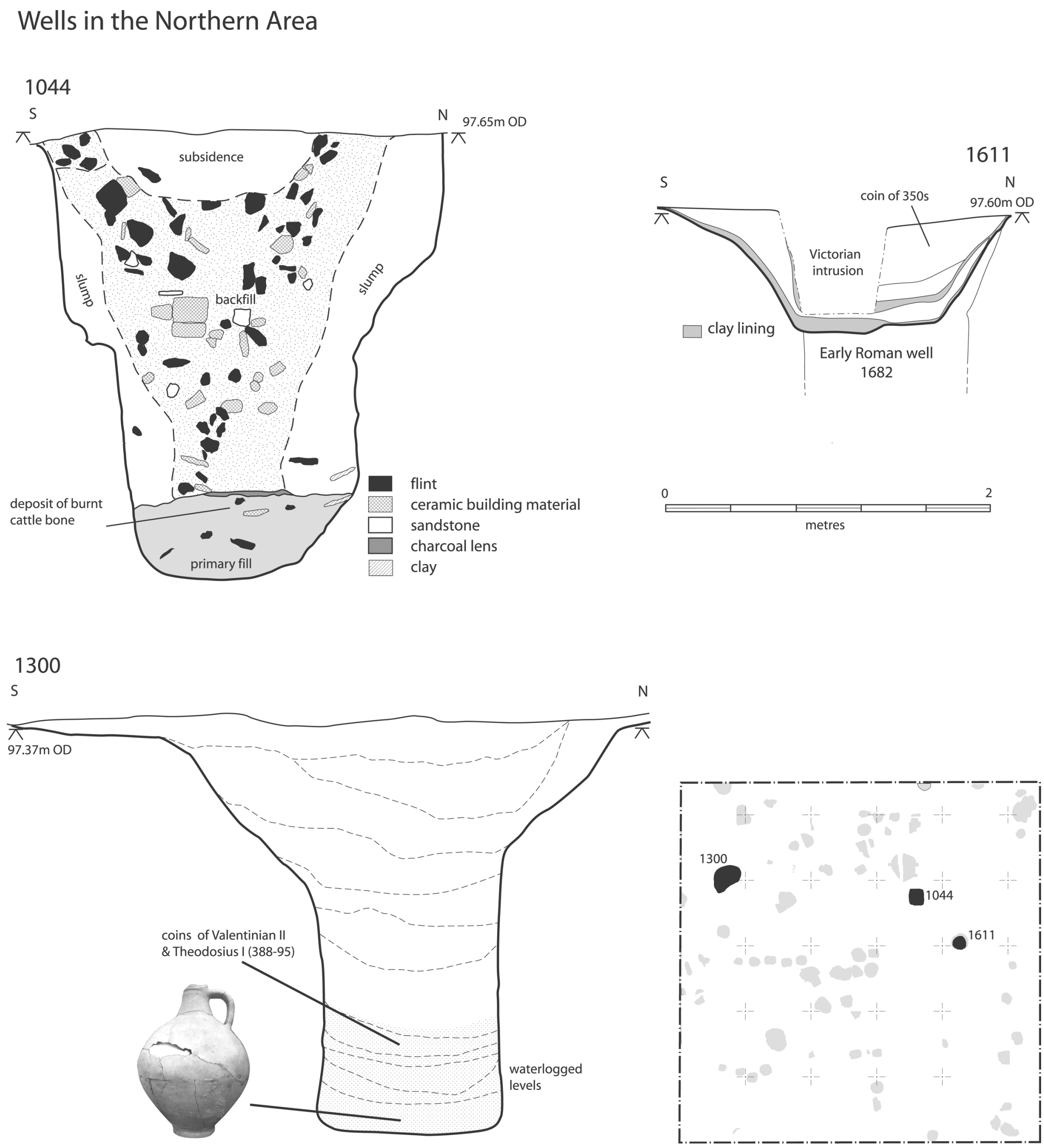

FIG. 38. Sections of wells 1044 and 1300 (Object 121) and of pit 1611 (Object 119) in the northern area

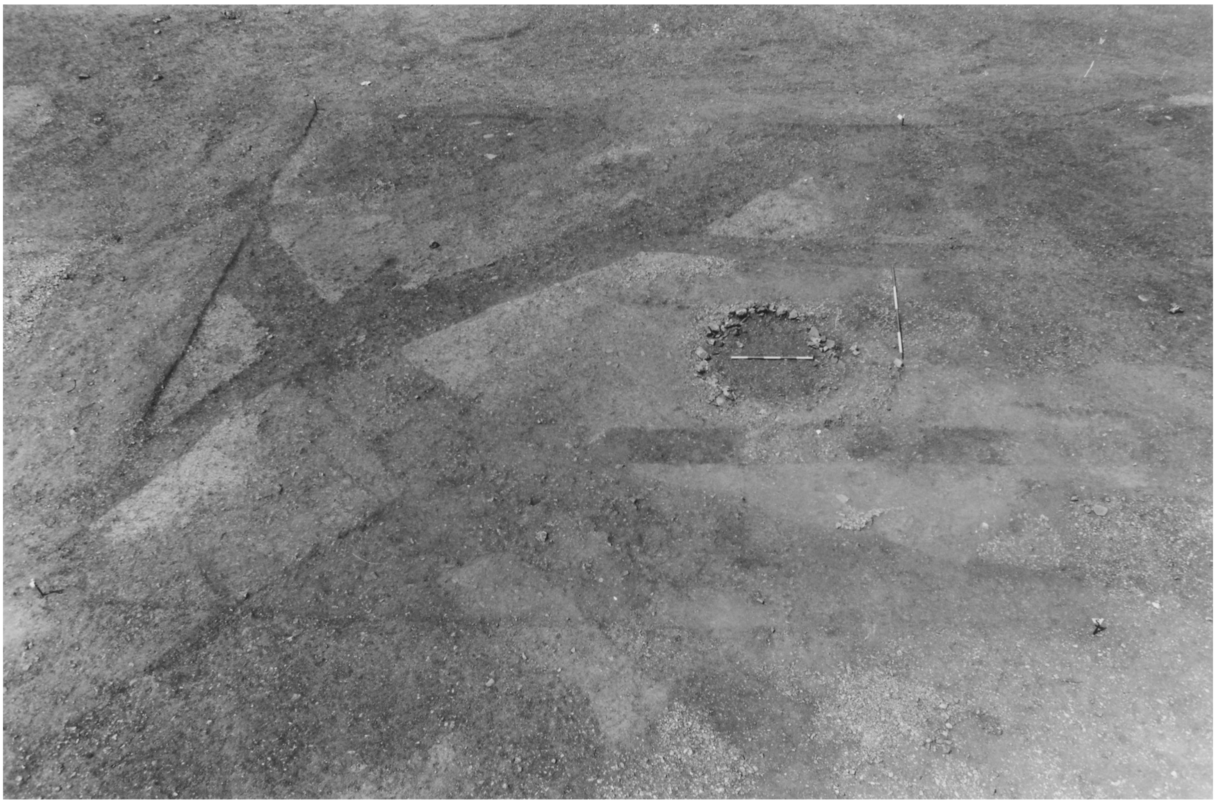

FIG. 39. View of the topmost fills of well 1044, cleaned after removal of the topsoil in 1997; Victorian trenches visible around the well

the finds assemblage from this feature. Even the uppermost fills, which contained a wider range of finds, including fourth-century coins, than those beneath, were dominated by earlier material. Setting aside finds from the primary contexts, the material from this well probably represents the most residual assemblage from any of the late pits in Insula IX. One explanation for this is that it is filled with spoil derived from the digging of a replacement pit or well in the vicinity, just outside the excavated area, which cut into contexts with early Roman material. Such a hypothesis fits the character of the fills and their horizontal layering, which is not consistent with the possibility of a gradual silting-up of the feature.

Well 1044 is located to the east of the northern zone, adjacent to Buildings 7 and 8 (below) (FIG. 39). This was one of the first features to be defined in 1997 following the removal of the ploughsoil. Although the uppermost cut was squarish in plan, the shaft of the well was circular with a diameter of 2.26m and a depth of 2.72m. The lowest fill consisted of yellow clay and gravel and contained fragments of waterlogged wood. Above this was a deposit of clay with flints, ceramic building material, and a concentration of burnt cattle bones, particularly of limb bones (2383). This layer was partly sealed by a lens of charcoal. The middle fills contained more flints and ceramic building material. Two contexts in particular (1610 and 1521) had a high concentration of ceramic building material. Upper contexts also included quantities of freestone as well as flint. The top fill contained large amounts of tight-packed flint as well as ceramic building material. The small assemblage of pottery from this feature included fourth-century sherds from the primary contexts. A coin of A.D. 337–340 was found in the topmost fill. The filling of this feature contrasts with well 1300, but is similar in character to that from well 1170 in the southern half. It is dominated by building materials of stone and ceramics, rather than by domestic rubbish. The deposit of burnt cattle bone just above the primary context is a notable feature. Except that the earliest layers had fourth-century pottery, the finds do not assist in dating the filling of this well. The lack of waterlogged material suggests that the well was kept clean until it was backfilled.

Well 2554 is located close to the north–south street to the west of Building 8. It is a sub-circular feature, bell-shaped in profile and measures 2.1 by 1.8m in diameter with a depth of 2.35m. Initially vertical sides then slope inwards to the base, as if weathered by erosion. The fills fall into three distinct groups, the primary of grey sandy soil with large flints, the secondary of a grey, clayey soil with domestic rubbish and ceramic building material, while the final fills consisted of a black, clayey soil with domestic rubbish and ceramic building materials. There were no datable finds from the primary fill, but fourth-century pottery occurred from context 2551 and above. One, fourth-century coin of A.D. 330+ was found in the upper fill. Just as with well 1044, the finds do not help in determining the date when the well was filled. The character of the fills is perhaps more supportive of a deliberate, rather than a gradual infilling. Like 1044, the lack of waterlogged material suggests the well was kept clean until it was backfilled.

Both the wells and the deeper pits in Objects 118–119 provide crucial evidence for the layout of the northern zone. In particular, we explore below their role in helping to determine property boundaries (below, pp. 70, 73). First, we set out the background to Buildings 7 and 8 along the north–south street.

THE BACKGROUND TO BUILDINGS 7 AND 8

Phases 1–2 (FIG. 40)

Whereas in the southern half of the excavated area the later third century sees the deposition of make-up dumps followed by the construction of masonry buildings, development in the northern half is less substantial and chronologically clear. The evidence for occupation prior to the construction of Buildings 7 and 8 consists of a series of post-holes, gullies and spreads, which may in fact represent the remnants or continuation of earlier occupation in this area.

Towards the end of the life of the diagonal House 1 there is evidence for a fence with substantial posts running along the edge of both streets and defining in part the northern and eastern limits of the property in which the house sat (Clarke and Fulford 2002, fig. 8). This is best seen in the north-west corner of the excavated area, but has become clearer elsewhere in the course of the 2004–5 seasons. In the north-west a row of (predominantly) flint-packed post-holes (Object 41039), each about 0.7m in diameter and with depths ranging between 0.15 and 0.45m, ran for at least 16m along the southern edge of a gully parallel with the east–west

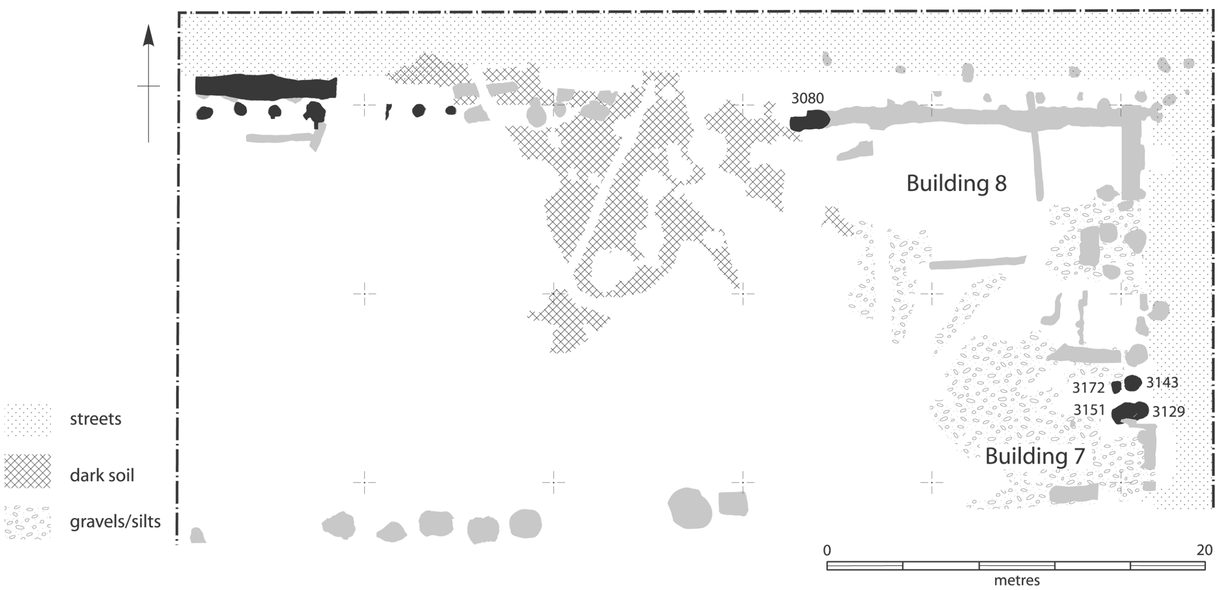

FIG. 40. The context of the development of the northern area from the later third century: the location of post-pits and associated drainage gullies flanking the edge of the streets

street (Object 41040) (FIG. 40). The gully was about 1m in width with a depth of about 0.25m. Possible further traces of these arrangements may be followed eastward to the north–south street. In particular a series of flint-, or flint, stone and tile-packed post-pits cut into the uppermost surface of the gravel metalling of the street was defined over a distance of some 11m towards the intersection with the east–west street. Here the post-pits ranged in diameter between 0.25 and 0.6m with depths ranging between 0.35 and 0.45m (Object 05). In this instance there was no gully between the posts and the street (for further interpretation, see below, pp. 72–3).

Occupying the area between the end of House 1 and the intersection of the streets in the north-east corner of the excavation in the early to mid-Roman period was a timber-framed building at the centre of which was a large, tile-built hearth, first exposed in 1893 (Clarke and Fulford 2004, 9–10). The orientation of this building was the same as that of House 1. Whether its life was co-terminus with that of House 1 is not yet clear, but dark, charcoal-rich sandy soils are associated with its occupation. There is no clear stratigraphic break between the earlier and later occupation here, but a notable defining feature of this area in the subsequent period is a group of two pairs of partly inter-cutting post-pits against the east–west street (3172, 3143, 3151, 3129). The flint- and stone-packed pits ranged in diameter between about 0.7 and 1m with depths of about 0.15–0.4m. They may represent the remains of a 1m-wide gate-structure and are set within an area of gravels and silts (Object 41038) interpreted as a possible yard. This gravel yard appears to be contemporary with the construction of Building 5 and represents the stratigraphic link between the southern and northern halves of the excavated area.

Westwards, and in the area between it and the east–west street a dark, loam-like soil developed during the later life of House 1 and into the later third century (Object 41071). This contained second- and third-century pottery and late third-century coins. A large collection of third-century pottery and bone accumulated in 3080 where the fill of a large, early pit or well had subsided. A later coin of A.D. 330–335 from this loam is likely to be intrusive, perhaps from an unrecognised fourth-century cut.

Against this background we can consider the evidence for buildings along the north–south street, north of Building 5. The full life-history of each building is described and discussed.

BUILDING 7 (FIGS 41–43)

Phase 3

To the north of Building 5 and adjacent to it were the remains of a small, rectangular timber-framed building with a street frontage of some 3.5m and a length of about 7m (Object 03301). The building was defined both by features which related to its structure and by the rectilinear extent of its internal floor area which contained the remains of a hearth. The internal surface was characterised by a dark grey to black, charcoal-rich soil. In this respect the eastern limit of the building quite clearly coincided with the edge of the gravel street, but was also marked by a parallel, shallow, flat-bottomed cut (context 2568: 4 by 0.5 by 0.10m) at the base of which were flints, chalk, stone, and ceramic tile fragments. One edge of this feature was also subsequently defined by a line of smaller flints, set parallel with the street. In contrast, there was no clear evidence for the opposite end-wall where the internal floor surface merged imperceptibly with similar dark soils. The greatest clarity in respect of structural elements derives from two stone post-pads which define the ends of its northern wall. The western end (1515) was made up of a sub-rectangular flint, 0.44 by 0.30m, the eastern (1514) by a large, flat slab of stone, 0.75 by 0.27m, resting on gravel and with its narrower side end-on to the street. The southern wall may, in part, have been shared with the north wall of Building 5. However, at its western end, and opposite the flint post-pad of the north wall, was a linear structure (2198) of flint, tile, and pottery fragments set in a shallow cut (2555) into a dark brown, very compact silty clay. This measured 2.4 by 0.8 by 0.17m with its narrower side

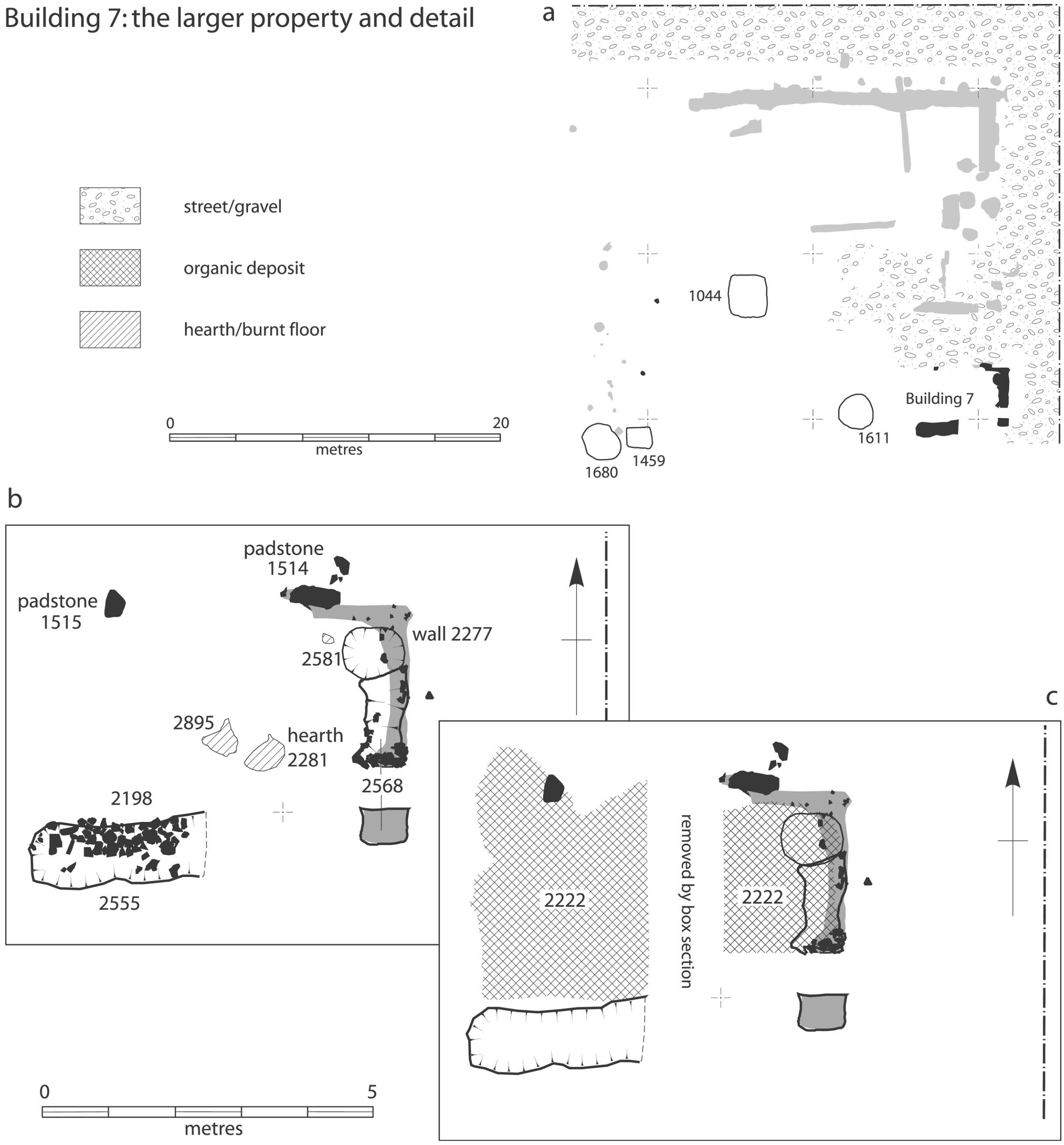

FIG. 41. The development of Building 7: (a) the large property; (b) detail of Building 7; (c) the latest occupation

end-on to the street. Its northern edge is clearly defined by a linear arrangement of tight-packed flints.

In the interior was a setting (0.5 by 0.35m) of burnt ceramic tile and stone, associated with a concentrated area of very dark soil. This structure is interpreted as a hearth (2281). Most clearly, three tile fragments laid end-to-end represent one side of this structure. Possibly related, a further fragment of tile and associated patch of burnt surface (2895) may represent the western limit of this hearth-like feature.

An earlier phase of this building may be represented by the post-hole 2581 which was defined during the excavation of the cut which represents the end wall of Building 7. This was circular with a diameter of 0.9m and a depth of 0.5m. It was packed with large flints, and pieces of tile and stone. Among the finds were an unworn denarius of Julia Domna (A.D. 196–211) and a blacksmith's chisel or drift.

Date

The structure is clearly later than Object 41038 which is stratigraphically contemporary with the construction of Building 5, but whose latest pottery was of second/third- and third-century date. This would place construction and early occupation loosely in the early to mid-fourth century.

Latest occupation (Phase 4)

The latest occupation within the building is represented by two dark soil contexts (Object 41045) and is assigned to Phase 4. It included a concentration of oyster shells and contained pottery dating later than *c.* A.D. 325 as well as clearly residual material, represented, *inter alia*, by coins of second- and third-century date (FIG. 41).

Building 7 — the larger property (FIG. 41)

Defining the limits of the larger property in which Building 7 sat is difficult. While there is clarity over the southern (and eastern) boundaries, there is no certainty about the other two. If the northern limit was simply an extension westward of the north wall of the building, the property would have no immediate access to water. If Building 7 was part of a larger property which occupied the north-eastern corner of the insula and enjoyed access to well 1044, its western boundary would be shared in common with the larger property occupying the north-east corner of the insula (see further below, p. 73). We may hypothesise that the western limit was either co-terminus with the end of Building 5, or extended further west to include pits 1680 and 1459. In the case of the former, extrapolation north of the west wall of Building 5 to the line of the east–west street would just include the well 1044. In this scenario (as in that with pits 1680 and 1459 (Object 118)) Building 7 would have access to water in the context of a larger property. In its immediate environs and close to its rear is the pit 1611 (Object 119) (FIG. 38). This clearly accumulated rubbish in the late Roman period to a depth of about 0.8m. It

FIG. 42. Building 7 from the east in 1998 (north–south street in foreground): padstone (right); remains of hearths (centre); possible wall foundations (left)

FIG. 43. Building 7 from the east in 1999 with trial trenches cutting through the remains of the building

produced fourth-century pottery from its upper fills and two coins of the A.D. 350s, one from its deepest point of about 0.8m. This points to the possibility of it having been deliberately re-dug as a pit in the fourth century, but the original structure (3171), as we now know, was excavated as a well in the mid-first century A.D., but abandoned as such by the third century (Clarke and Fulford 2004). Whether deliberately re-dug, or its fill the result of gradual accumulations associated with the slumping of earlier fills, a single pit in this location does not seem to be consistent with intensive or crowded occupation of Building 7.

In this context let us hypothesise that the boundary of the property was further west and incorporated pits 1680 and 1459. If we then extrapolate the right-angled return north to the east–west street, following the line of post-holes which cuts across 'House 1' (Object 41015), we are presented with the possibility of an even larger compound in the north-east corner of the insula. However, even if associated with Building 7, rather than with activity in general in the north-east corner of the insula, these two pits do not amount to much as indicators of intense occupation. Altogether, and in the larger property setting, the totality of the evidence, including the finds (below), suggests Building 7 may have served as a shop or workshop, busy during the day, but with no permanent, residential occupants. We shall return to the definition of the property or properties in the north-east corner below (p. 70).

Outside the building and to the north was a spread of gravel (2583) which is interpreted as forming part of a yard or lane between Building 7 and its neighbour, Building 8. This contained a bronze coin of the A.D. 340s. It was sealed by a much more extensive series of gravelly spreads (Object 41046), incorporating charcoal, slag (including hammerscale), and building material, which was stratigraphically later than the occupation of Building 7 described above. One of the gravel contexts contained fourth-century pottery later than *c.* A.D. 325 and a coin of the House of Theodosius, A.D. 388+ (SF 01414). The latter is the only evidence of a possible *terminus ante quem* for the end of the occupation of Building 7 before the end of the fourth century.

BUILDING 8

Problems of interpretation

The archaeology of the north-east corner of the insula is difficult to interpret. The reasons for this are twofold. First, there is disturbance from, possibly, two phases of Victorian excavation — the investigations of Joyce which impinged on the north-east corner of the insula in 1866, and those of the Society of Antiquaries of 1893. Neither left a plan of their trenches and it is not possible to distinguish certainly between the two phases in the north-east corner. However, although not exclusive to the north-east corner of the insula (and our excavation), the area contains 'archaeological' trenches on two alignments (FIG. 44). One of these is consistent with the wider pattern of 'trial' trenching and is diagonal to the orthogonal layout of the insula, the other is parallel with the north-south/east-west orientation of the block (Fulford and Clarke 2002). It is just possible that the latter relates to the interventions of Joyce in 1866.

The 'Victorian' excavation trenches are not only the latest stratigraphic events in the area, but

FIG. 44. Building 8: Victorian trenching in relation to the principal late Roman features

their date is confirmed by post-medieval and Victorian finds in the form of pottery and clay-pipe fragments. Collectively, and with the Roman streets, they serve to define a rectangular area with two parallel trenches (1032 and 1036) on a north–south alignment forming the western side and east–west aligned trenches, close to and parallel with the east–west street, forming the north. Shallower trenching also defines one of the most prominent late Roman features of the area, the hearth 1432 of burnt clay (below, p. 64). Only to the south is there no interruption in the stratigraphy linking to Building 7. Within this area a further, wide trench, trending north-east from the north-east corner of House 1, exposed a large and deep-founded, tile-built hearth in 1893 (Fox 1895). This hearth (1433) is of early Roman date (Clarke and Fulford 2002, 137–8). The fact that no mention is made in the account of the 1893 excavation of the other (and later), burnt clay hearth 1432 rather suggests that it was discovered, but not commented on, by Joyce. This would give further weight to attributing to him some at least (e.g. 1259, 1272) of the north–south and east–west Victorian trenches.

Frustratingly, there is some degree of coincidence between the location of the Victorian trenching and the likely position of possible structural elements of the late Roman 'building' (FIG. 44). The north end of the western trench 1036 coincides with, and is at right angles to, the west end (1950) of the northern of two parallel rows of post-holes which cut the surface of the east–west street. The trench might well have destroyed comparable evidence of post-holes. The north–south trenches also coincide in general terms with a break in the late Roman stratigraphy where relatively homogeneous, dark loams extend to their west, while a more complex series of spreads and possible surfaces exist to their east. On the northern side, the east–west trench 1272 is close to the street and cuts along the course of a potential wall-line (as well as hearth 1432).

The second difficulty we have identified (and which may partly result from the Victorian interventions) relates to the relative absence of evidence for all the likely structural elements which make up a 'building'. While it is possible to identify linear arrangements of posts which might have formed the outer walls of the 'building', these could only be recognised along the north and east sides. Equally, wall-construction trenches of the clarity which was found in the case of Buildings 1 and 5 were completely absent. Some evidence of limited, shallow wall-trenching was found to the north and south, but not to the east and west. Moreover, in the case of the possible north wall, there was, as we have seen, disturbance from Victorian trenching.

On the other hand, the positive evidence for the existence of a structure and for occupation of the north-east corner derives primarily from the presence of a substantial hearth 1432 close to the east–west street and the assumption that it was in a covered space (Clarke and Fulford 2002, 149–54). In this context, the linear arrangements of post-holes on the east and north sides are consistent with an interpretation as the principal structural components of the outer walls of a building, rather than as fencing. Similar support for the presence of a building, though not conclusive in its own right, is the presence of the well (1044). Finally, as remarked above, there is the variegated character of the archaeology in the north-east corner. This embraces possible floor surfaces and shallow hollows or pits dug into the dark, charcoal-rich soil, as well as clay spreads, and is distinct from the homogeneous grey-to-black loams which characterise the rest of the northern half of the excavation area to the west of 1032.

The structural evidence (Phases 3–4) (FIGS 45–47)

As we have seen above, the evidence for a possible building is confined to the north, south, and east sides. Let us begin with the north. There are two possible sources of evidence for the north wall. The first comprises two parallel, east–west lines of post-pits which cut the latest surface of the east–west street. The outer (1950, 1968, 1270, and 1538, possibly extending into the intersection with the north–south street with 2228 and 2134) includes posts between 3.5 and 5.0m apart (Object 5, Object 41042). These post-pits have plan dimensions ranging between 0.4 and 0.8m, with a depth no greater than 0.08m. Their comparative shallowness may suggest that these were dug when the street surface was higher, before being subsequently eroded by

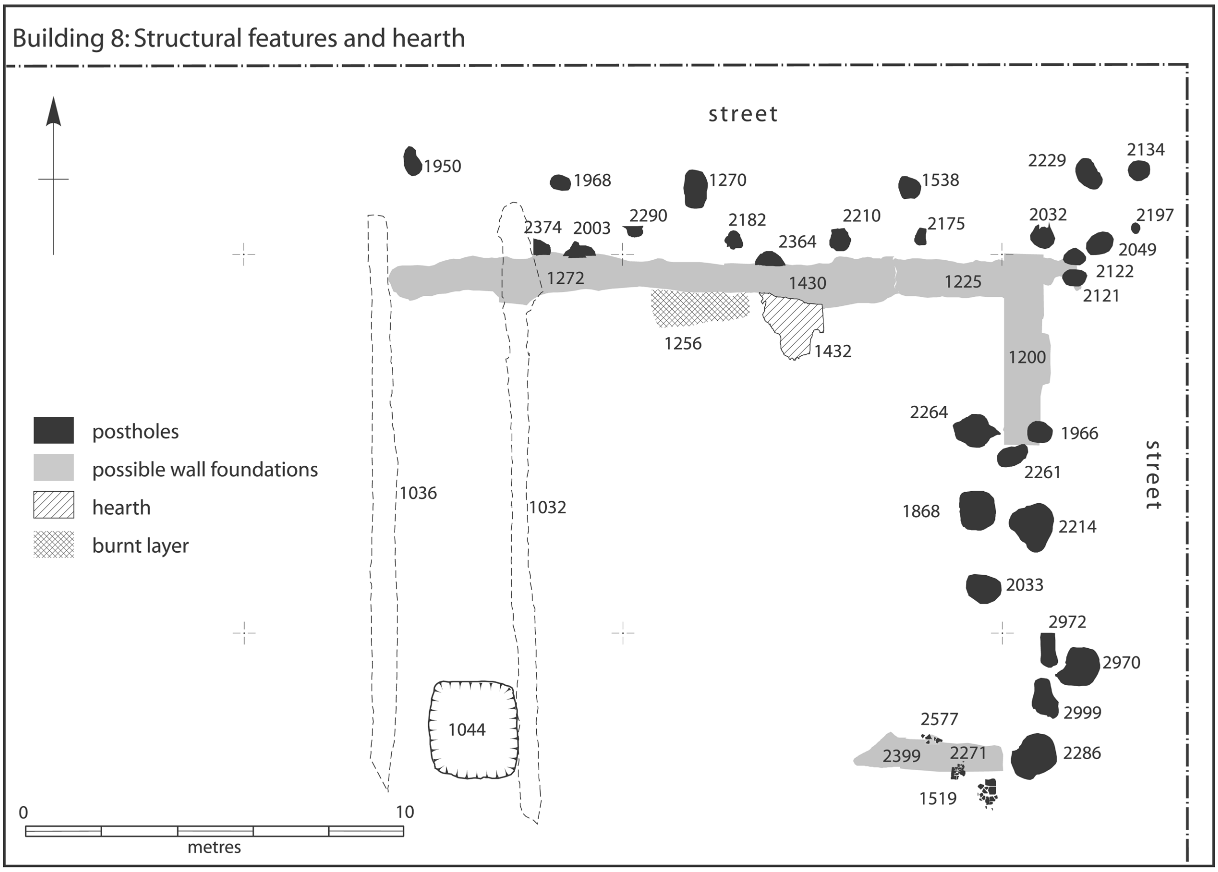

FIG. 45. Building 8: the structural evidence

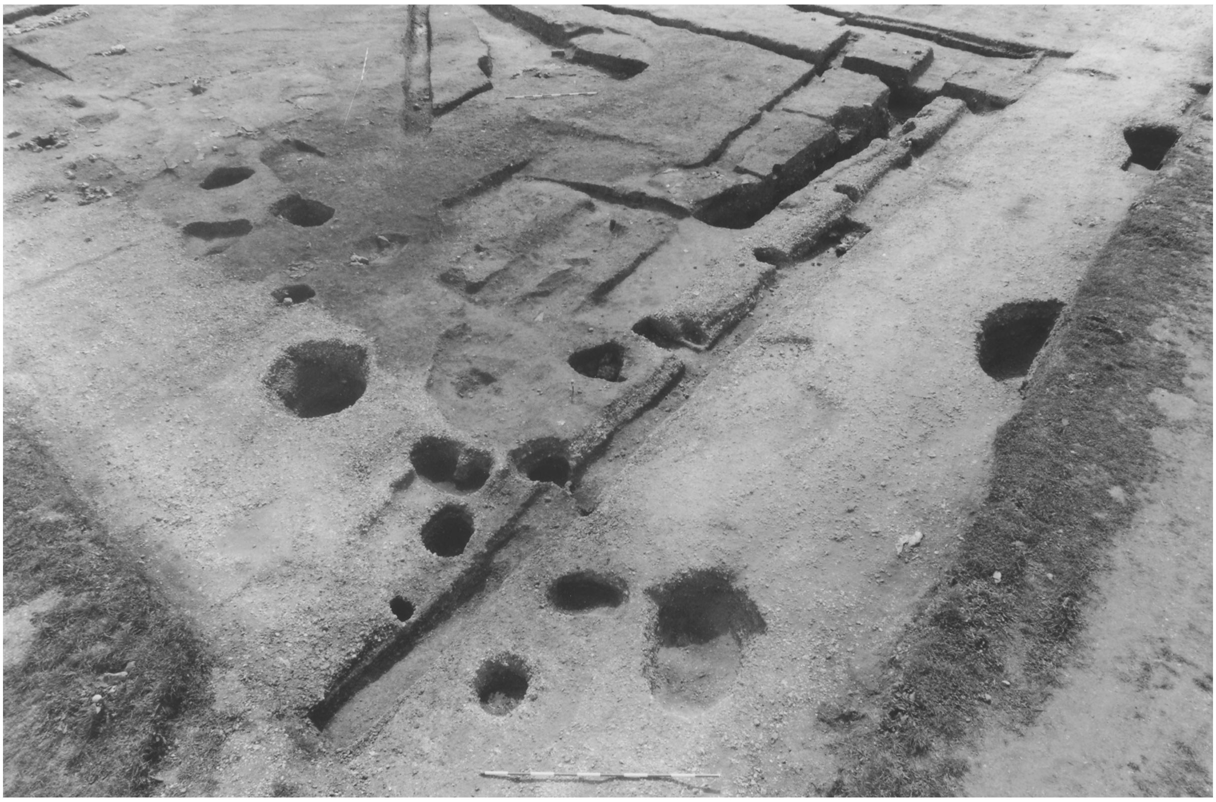

FIG. 46. View of Building 8 in 1999 from the intersection of the north–south and east–west streets looking south-west. Late pits, post-holes, and ditch 1598, etc. cut the surface of the streets. Victorian trenches 1032, 1066, and 1272 are visible towards the top right

cultivation, and that they are comparatively late. One post-pit (1270) contained a coin of A.D. 337–340, suggesting that the post was removed or decayed after that date.

The inner row of post-pits (Object 124), some 1.0m to the south, comprises smaller posts set more closely together. The westernmost post corresponds with 1968 in the outer row. *Pari passu* with the northern row, the easternmost line could extend as far as 2049 and 2197 at the intersection with the north–south street and is provisionally attributed to Phase 4 (Object 41042). The intervals between the posts range between about 0.5 and 2.0m and their plan dimensions range between 0.25 and 0.60m with a depth of between about 0.30 and 0.45m. The variable size of the posts suggests the possibility of the row being made up of more than one phase and type of structure. This 'row' of posts was cut both by the late (Phase 4) gutter (1598, 1824, etc. in Object 41042) with its fill later than A.D. 388, and the Victorian trench 1259, 1272, etc.

While the southern row has no counterpart in plan with post alignments further west along the east–west street, it is possible to argue that the northern row (Object 5) does correspond with the post alignment in Object 41039 (above, p. 54). However, unlike the latter, the posts are cut into the street surface, rather than at its edge. By virtue of their position along the street, both sets of post alignments could have served as fences, rather than as elements of a building. If this were the case in the north-east corner, it would imply a period when there was no structure occupying this area.

FIG. 47. View of the north-west corner of the excavation area and southwards along the north–south street from its intersection with the east–west street in 1999. Late features cutting the street are visible in the foreground

FIG. 48. Building 8: view of structure 3121, possibly forming the southern side of the building, in 1999 (view from the east); street in the foreground

The second source of evidence for a north wall is provided by an east–west cut, 1225, (Object 41048) some 0.15–0.2m to the south of the inner row of posts described above. This extended over about 5.0m and was about 1.05m in width and 0.005–0.19m in depth. It contained fourth-century pottery, including Overwey White Ware, usually dated after *c.* A.D. 325. To the west its line was continued by a deposit of dark brown, sandy silty clay with a depth of 0.2m (1430). This feature was then cut by the deeper (0.8m) trench 1272, 1259 with Victorian finds which continued the line westwards and cuts the hearth structure 1432 (below). There must be a possibility that the latter trench cut through the remains of an earlier, late Roman cut whose extent might have corresponded with the parallel rows of posts immediately to the north. We might tentatively interpret this shallow feature as the foundation, perhaps to take a timber beam, of a phase of the north wall.

Turning south, the east wall of our possible structure is also represented by two types of evidence. First, and recorded as 1200, shallow trench 1225 makes a right angle to return south for 5.0m where it meets a grouping of six to seven post-holes (Object 41048). A north–south row 2264, 1868, and 2033, is flanked to the east by a less orderly group of five or six post-pits (1966/1861, 2261, 2214, 2286 (below), and the outlier 2970). Together these extend south some 12m to the possible southern wall (2271). The first group is characterised by post-pits with evidence of stone-packing and diameters ranging between 0.75 and 1.0m and depths of between 0.12 and 0.6m. Post-pit 1868 contained late third-century pottery. The latter group includes post-pits, also with evidence of stone-packing, and with plan dimensions ranging between 0.4 and 1.27m and depths of between 0.20 and 0.25m. Post-pit 2033 was cut through a small feature 2896 which contained late third/fourth-century pottery. 2033 itself contained late third-century pottery and a coin of A.D. 367–375 which gives a *terminus post quem* for the removal or decay of the post.

South of the above and in alignment with post-hole 2214 is a complicated succession of probable post-holes which are adjacent to the structure (and possible internal wall) 3121 (described below) (FIG. 48). Two adjacent sub-circular cuts, 2999 and 2972 (in Object 41052), with plan dimensions of 0.9–1.0m and 0.36–0.7m and depths, respectively, of 0.25 and 0.42m, were succeeded by a larger, stone- and tile-packed post-hole 2286, measuring 1.2 by 1m with a depth of 0.5m (Object 41053). The earlier post-holes contained second-century pottery, while the latter contained a range of material including Overwey White Ware, usually dated after *c.* A.D. 325.

Adjacent to 2286, and cut by it, is the feature which might constitute the southern wall of the building. This is represented by a cut (2399, 2271) some 4.3m long, 0.5–0.7m wide, and with a depth of 0.1–0.3m (Object 41048). The fill consisted of a grey-brown, gritty clay associated with gravel, ceramic building material, third-century pottery, and animal bone. Either side of this feature are two possible post-pads, 1519 and 2577, composed of tiles and limestone slabs. If the line of this feature is projected west as a southern boundary of a larger property containing Building 8, it meets the well 1044.

There is no evidence for a west wall of Building 8 unless it was destroyed by one of the north–south Victorian trenches 1032 or 1036. Indeed, there is no further clarity as to the western boundary of the proposed property other than the western limit of the northern of the two rows of east–west post-holes (described above) which cut the east–west street. Projecting a line southwards (which is almost coincident with the line of the Victorian trench 1036) embraces the site of well 1044 and meets the north-west corner of Building 5. The possibility of a larger property which embraced Building 7 and our putative Building 8 would allow access to water and overcome the difficulty of the well appearing to sit tight against the southern boundary of the property.

None of the above, including the notable absence of a west wall, can be described as wholly convincing evidence for a structure occupying the north-east corner of the insula. We have started from the assumption that it is appropriate to focus on evidence in the form of cut features. However, the survival of stone post-pads associated with Building 7 reminds us that a similar arrangement could have obtained in the case of Building 8, but has been lost through post-Roman robbing or cultivation and has left no trace. If this appears to be special pleading, a stronger case, perhaps, for the existence of a structure can be made from the presence and nature of 'internal' features, particularly the hearth structure 1432.

Internal feature: the hearth 1432 (Phase 3) (FIG. 49)

The key 'internal' feature is the hearth 1432 (Object 124), close to the east–west street. Made up of reddened clay and tiles with evidence of further oxidation of the underlying soils to a depth of up to 0.25m, the structure measured 1.5 by 1.8m in plan. The north side of the hearth was cut by the Victorian trench 1272. Micromorphological study accompanied by chemical and mineralogical analyses of the structure as it survived in 2002 indicated that the temperatures did not exceed about 550 degrees C, though the deep reddening of the structure is unusual (Collier 2003). While excavation suggested several phases to the structure, the mineralogical study revealed no indication other than of continuous use.

Samples from the hearth were subjected to archaeomagnetic dating and the results showed two date ranges: A.D. 76–141 and A.D. 314–424 (Linford 2000). In terms of archaeological context, the later date is acceptable. Assuming the shallow, east–west slot 1225 (described above) was a structural feature which extended further westwards, the hearth would clearly be earlier than the slot. In fact, as the structure is cut by Victorian trench 1272, the possible relationship is unresolved. Proximity to the southern of the two east–west post alignments on

FIG. 49. Building 8: remains of hearth 1432 from the south

the northern side might suggest that the hearth is later than that arrangement, but possibly contemporary with the northern row.

No evidence of function, such as slag inclusions, derived from the hearth structure itself (Collier 2003). However, the presence in the vicinity of contexts (e.g. 1256 in Object 124) with charcoal and iron-forging slags, including hammerscale, has led to the interpretation that the structure was used for blacksmithing (Clarke and Fulford 2002, 152; below, Tootell, p. 156). A later second- or third-century copper-alloy candlestick of rare, imported type was also found in the above context (Eckardt 1998b), as well as a black glass, segmented bead dated to the fifth to seventh century (below, Crummy, p. 130, FIG. 76, Nos 28–9). The limited amount of pottery from the associated contexts is of second- and third-century date and is residual.

External feature: the well 1044

The second most distinctive feature within the property limits of putative Building 8 is the well 1044 which is described in detail above (Object 121, p. 53). This was cut through spreads of yellow clay and gravels associated with second-century pottery. Its lowest fills contained fourth-century pottery, while a coin of A.D. 337–340 was found in its uppermost fill. It may therefore have been filled before the end of the fourth century (but see further discussion below).

Other features (Phase 3) (FIG. 50)

Associated with the hearth 1432 and to its east and south is an important sequence of contexts running through the fourth century (Object 124). Among several fine, gravelly spreads containing otherwise residual second- and third-century pottery was one (1998) which contained coins of A.D. 260–268 (SF 01287) and of *c.* A.D. 335 (SF 01280). These spreads were cut by shallow features: 1982 was a rectangular cut measuring 2 by 0.5m with a depth of 0.3m, which contained residual second- and third-century pottery as well as animal bone, charcoal, stone tesserae, and slag. A small pit or post-hole (1942) cut into the top of this pit contained two copper-alloy handles of toilet instruments or probes as well as residual pottery. Sealing these features was a further spread of grey, silty sand (1789) which contained fourth-century pottery, including some New Forest and Overwey white wares (usually dated to after *c.* A.D. 325), and a residual coin of A.D. 271–274.

To the west and south of the hearth are spreads of clayey sand and gritty clay, such as 1770 and 3500, which are interpreted as possible floor surfaces and incorporate mostly residual second- and third-century pottery (Object 124). The latest pottery from an overlying occupation layer (3066) which contained charcoal and smithing slag was of late third/fourth-century date.

To the south and adjacent to the possible southern wall 2271, etc. is a distinct, but enigmatic fourth-century sequence (Objects 41052, 41053, already briefly mentioned above). Overlying a layer of brown, coarse, silty sand (3122) containing late third- to fourth-century pottery was a

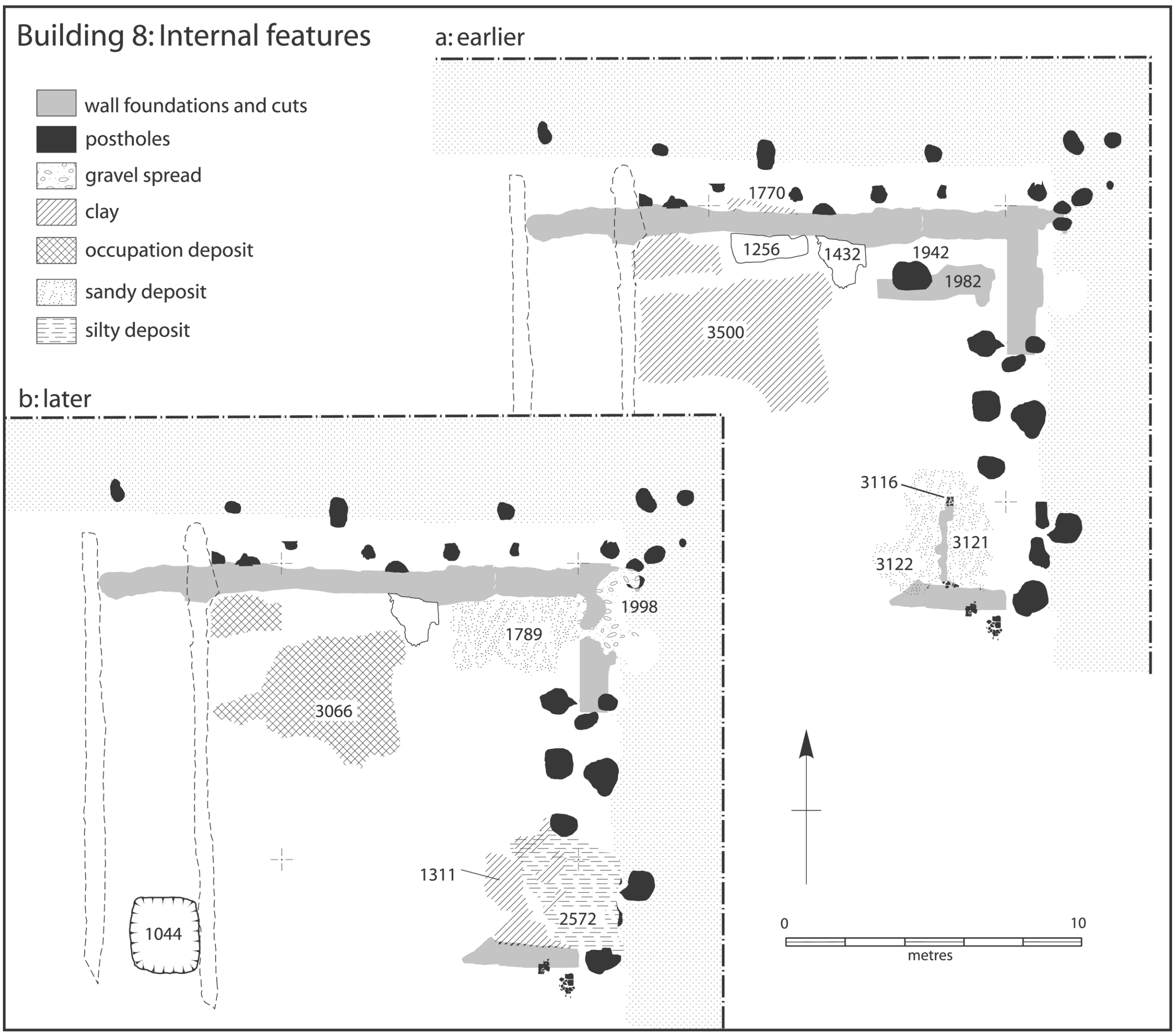

FIG. 50. Building 8: fourth-century internal and external features and occupation: (a) earlier; (b) later

shallow, linear structure (3121) with vertical sides and a flat bottom. It measured 2.65 by 0.28m with a depth of 0.1m and was filled with compact, yellow clay containing ceramic building material, pottery, animal bone, glass, and iron nails. The pottery from this feature included Overwey White Ware usually dated after *c.* A.D. 325. At its northern end was a sub-rectangular post-pad (3116) made of broken ceramic tile and mortar (1.2 by 0.9m, with a depth of 0.25m) which was covered with yellow clay. To the west of this feature was an area of yellow clay which measured 3 by 2m with a thickness of 0.02–0.1m. There was no evidence of it having been burnt. It contained a range of domestic rubbish, including oyster shells, as well as slag and charcoal. This structure of uncertain function was then covered by a layer of dark brown silt (2572) containing occupation material including oyster shells, charcoal, and third-century pottery. Sealing this was a possible floor surface of yellow clay (1311) which contained a range of material including third-century pottery.

Later fourth to fifth century (and later) occupation; possible rebuilding (Phases 3–5) (FIGS 50–51)

Apart from fourth-century coins and a single bead, tentatively attributed to the fifth to seventh centuries, datable finds associated with the late Roman occupation in the north-east corner of the insula are dominated by second- and third-century pottery. To help understand chronological development into the fifth century and beyond we are particularly reliant on the establishment of sequences and relative chronologies. Extending over limited areas two important late sequences can be demonstrated in the north-east corner of the excavated area. First, evidence of later occupation is provided by a pit 1630 which cut the possible floor 1789. Measuring 4.8 by 1.9m with a depth of 0.2–0.3m, the fills contained a range of domestic rubbish, which, judging by the presence of second- and third-century pottery, was largely residual. However, the latest fill contained a coin of Valens, A.D. 364–378 (SF 00934). Cutting the pit was a linear cut 1221 (Phase 4) oriented north–south and with rounded terminals at

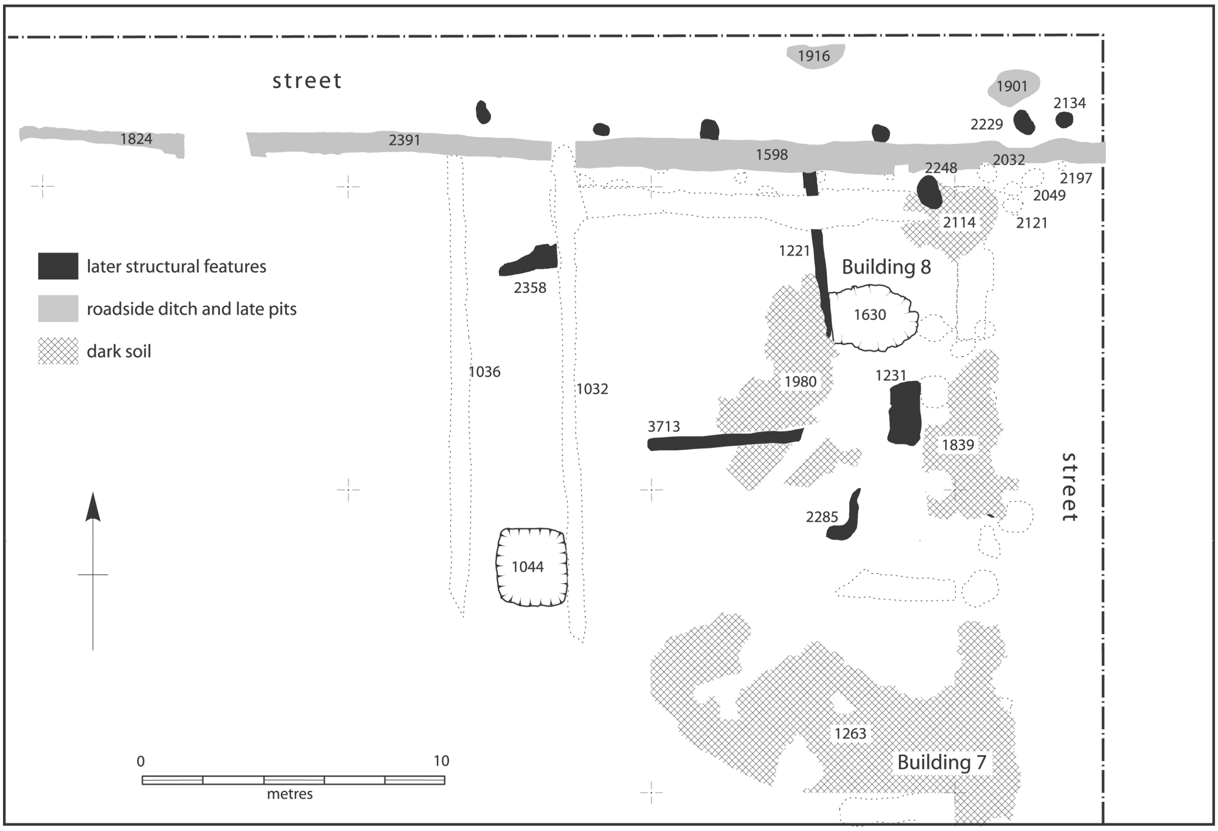

FIG. 51. Building 8: end of fourth- and fifth-century occupation

either end. It measured 6.5m in length with a width of 0.3m and a depth of *c.* 0.3m. Its fill contained residual late third-century pottery. It is tempting to see this as a structural feature, perhaps to be associated with a cut of similar character 3713 3m to the south. Oriented east–west and measuring some 0.45m in width, it ran for a total of 5.1m before being cut by the Victorian trench 1037. Both cuts are assigned to Object 41047. They might represent modification to, or rebuilding of Building 8.

A second important sequence can be demonstrated 1.5m to the north-east. Here context 1998 with a coin of *c.* A.D. 335 was overlaid by a spread of dark soil (2114) (Object 41076) into which was cut a post-hole (2248) with a diameter of 0.75m and a depth of 0.32m. This layer definitely sealed the shallow east–west cut 1225 which formed part of the possible Phase 3 north wall of Building 8 and which contained pottery later than *c.* A.D. 325. While the pottery is residual, of the three coins recorded from 2114 the latest is Theodosian of A.D. 388+. With one and, probably, with both of these 'mini-sequences' we can reasonably demonstrate activity continuing beyond the end of the fourth century.

Other stratigraphically late (Phase 3) features include three other shallow pits, all of which were filled with residual pottery. 1231 was a sub-rectangular cut, measuring 2.3 by 1.1m with a depth of 0.1m. It was oriented north–south close to the north–south street, cutting 1232, also of Phase 3, and was filled with packed gravel and residual, late second-century pottery. To the south-west of the latter, a second, sub-rectangular feature 2285, measuring 1.6 by 1.1m with a depth of 0.2m, which cut 3487, a late second-century make-up, was filled with a grey sandy clay and gravel. It also contained residual pottery of third-century date. Finally, a linear feature 2358, measuring 1.8 by 0.8m with a depth of 0.14m, cut Building 7 contexts. It was oriented east–west close to the east–west street, was filled with flint nodules, gravel ceramic building material and a range of domestic rubbish including residual third-century pottery.

Further late deposits (Phase 4), represented by dark, charcoal-rich soils — sometimes with distinct concentrations of charcoal — were recorded to the south of Building 8 extending over Building 7 towards the southern half and Building 5 (Object 31030). They overlay the Phase 4 gravel surface in Object 41046. They were up to 0.2m thick and contained a rich variety of material culture, much of which was residual. However, coins of the mid-fourth century and the House of Valentinian (A.D. 364–375) were recovered from 1263 and 1980 and a coin of the House of Theodosius, A.D. 388+, was recorded from 1839. At the same time pottery dating later than *c.* A.D. 325 was recovered from 1263 and 1839. Although these contexts cannot be associated with traces of structures, the implication of the finds within them is that they represent evidence of continuing late occupation extending well into the fifth century.

Roadside ditch (Phase 4) (FIGS 51–52)

A ditch (Object 41042) cut along the edge of the late Roman east–west street also cut through the southern of the two east–west rows of post-holes which provide the northern boundary of Building 8 (above, p. 60). It extends eastwards to terminate about the middle of the width of the north–south street and, as originally defined, but less distinctly (as cuts 1824 and 2391), westwards beyond the proposed western limit of the property. Although recognised initially as three separate lengths of ditch, these are all probably part of the one feature. The principal section, cut 1598, measured some 17.5m in length and 0.9m in width with a depth of 0.25–0.35m. Among a number of residual finds, including second- and third-century coins and pottery, brooches and other jewellery fragments, its fill contained a coin of the House of Theodosius, post A.D. 388. This provides a *terminus ante quem* for the cutting of the ditch, and a *terminus post quem* for its filling. The next cut to the west, 2391, measured some 9.7m in length with a width of 0.65m and a depth of 0.2–0.3m. It contained undiagnostic Roman pottery. Similarly the fill of the next length of ditch, 1824, contained residual second- to third-century pottery. This was the shortest of the three lengths, measuring 5.5m in length, 0.35–0.8m in width, and with a depth of 0.24m.

What was the function of this ditch? It was presumably designed to channel water off the east–west street and the area at the intersection with the north–south street. If it was part of a

FIG. 52. Building 8 in 1998 from the east (north–south street in foreground, east–west street on right). Victorian trenches are visible to left and in background. Possible late phase of the building visible as cuts 1221 and 1373 in the middle ground. Shallow construction trench 1225 in right foreground

wider scheme simply to recut ditches along the streets, we might expect to find more than just this limited length. This implies that it was designed to take water away from a building or structure either occupying the surface of the streets or immediately to the south. Apart from the Phase 4 slots 1221 and 3713 described above and the post-holes described below, there is no coherent, structural evidence to associate with it. Otherwise, given its proximity to the hearth 1432, the cutting of the ditch would provide a *terminus ante quem* for the abandonment of the latter and whatever building was associated with it. Once again, stratigraphically, the filling of the ditch (and, specifically, 1598) was not the latest event in this area. It was cut by the irrregularly-shaped and shallow pit 2055 (Object 122, below, p. 75), which contained only residual finds of probable third-century date.

Associated with the eastern end of this ditch and with the intersection of the late Roman east–west and north–south streets is a group of post-holes of uncertain function (Object 41042: post-holes 2032, 2049, 2121, 2134, 2170, 2197, 2229). While two of these (2134, 2229) align with the northern of the two rows of post-holes which front Building 8, the remainder cluster at the intersection, thus reducing the effective width of the north–south street. The post-holes range in size from 0.85 by 0.50m in plan (2229) with a depth of 0.55m to one with a diameter of 0.28m with a depth of 0.34m (2134). These features contained little material amongst which was residual second-century pottery. Without more extensive excavation of the intersection of the two streets to determine whether more such features exist, and whether they spread across the whole width of the north–south street, it is unclear what function these post-holes served.

These features should also be seen in the context of the adjacent pits 1901 and 1916 (Object 122) which cut the latest surfaces of the east–west and north–south streets. The former contained a coin of A.D. 350+ or 388+, the latter a coin of A.D. 388+.

Building 8: a summary

There is neither a clear structure that we can define as Building 8 nor a coherent, overall sequence in the north-east corner in which we can plot structural and associated occupational change. However, in limited areas we can detect stratigraphic sequences which, in at least one case, extend in time beyond contexts which contained Theodosian coins. The hearth 1432 and associated contexts which contained one fifth-to-seventh-century bead is a major feature of the north-east corner of the insula. Its presence argues for the existence of a cover building for which certain supporting evidence can be adduced. Equally a variety of adjacent cuts and post-holes argue — but not with absolute certainly — for phases without a hearth which were both earlier and later than hearth 1432. Coins, but not pottery, are crucial to the dating. On balance we suggest that a building or buildings, both of several phases, occupied the north-east corner during the fourth and into the fifth/sixth century. There is evidence to support a structural phase later than A.D. 364–378. Still later evidence associated with coins of the House of Theodosius comes in the form of post-pits cutting the streets at their intersection and a ditch cut through the surface of the street. The function of the latter may have been as much to drain water away from a building occupying the street surface as one within the angle of the streets (below, p. 75).

The chronology is unquestionably difficult but the start of the sequence can be linked to the construction of Buildings 1 and 5 at the beginning of the fourth century. How long the occupation continued beyond A.D. 400 is extremely hard to ascertain, but the association of a fifth-to-seventh-century bead with the life of the hearth 1432 suggests that our sequence extends well beyond the early fifth century.

DEFINING BOUNDARIES: THE NORTHERN AREA WEST OF BUILDING 8 (FIG. 53)

In our review of the first five years of the Insula IX project we argued that the northern area west of Building 8 was divided into a further four rectangular plots (Clarke and Fulford 2002). The westernmost may well have formed part of the plot of the building, identified from aerial photographs, which occupied the north-west corner of the insula. Apart from the latter, we proposed that the plots were oriented north–south with their shorter side fronting on to the east–west street. The evidence for such an arrangement is not strong and the interpretation rested principally on two observations, neither of which is conclusive. On the one hand, it was noticed that there was variation in the compositional arrangement of post-holes and other linear features which flanked the east–west street, such that two or three distinct groups could be defined. All of them were different in character to the two rows of post-holes and the ditch which formed the northern side of Building 8 (described above). On the other hand, it was noted that there was a discrete cluster of pits (within Object 118) which formed part of the northern side of the presumed boundary between the northern and southern halves of our area. This has elsewhere been defined (discussed above, p. 14) by the linear arrangement of pits in two parallel rows on an east–west orientation. The interpretation, as expressed in the interim report, is that the discrete group of pits within Object 118 formed the southern boundary of Property 11 fronting the east–west street (Clarke and Fulford 2002, 154).

Where there is least evidence is for north–south boundaries between putative plots. The best evidence comes from a north–south alignment of post-holes which can be traced across the remains of the floors of 'House 1' into the area of dark soils beyond to north and south. It is clearly later than the life of the house (Object 41015 (Phase 3)). Further reinforcement of the argument that this arrangement represented a boundary is provided by four substantial pits. Indeed, apart from the well 1300 and the cluster of pits in Object 118 mentioned above, these are the only deep-cut features of late Roman date west of Building 8 and well 1044. On the north–south alignment and coincident with the row of post-holes are the possible well or pit 2554 (Object 121) and pit 1438 (Object 119). At the intersection with the east–west boundary that divides the northern from the southern half of the excavation area is pit 1680 (Object 118). It is beside pit 1459 (also Object 118). Although it is clear from the southern half that not all

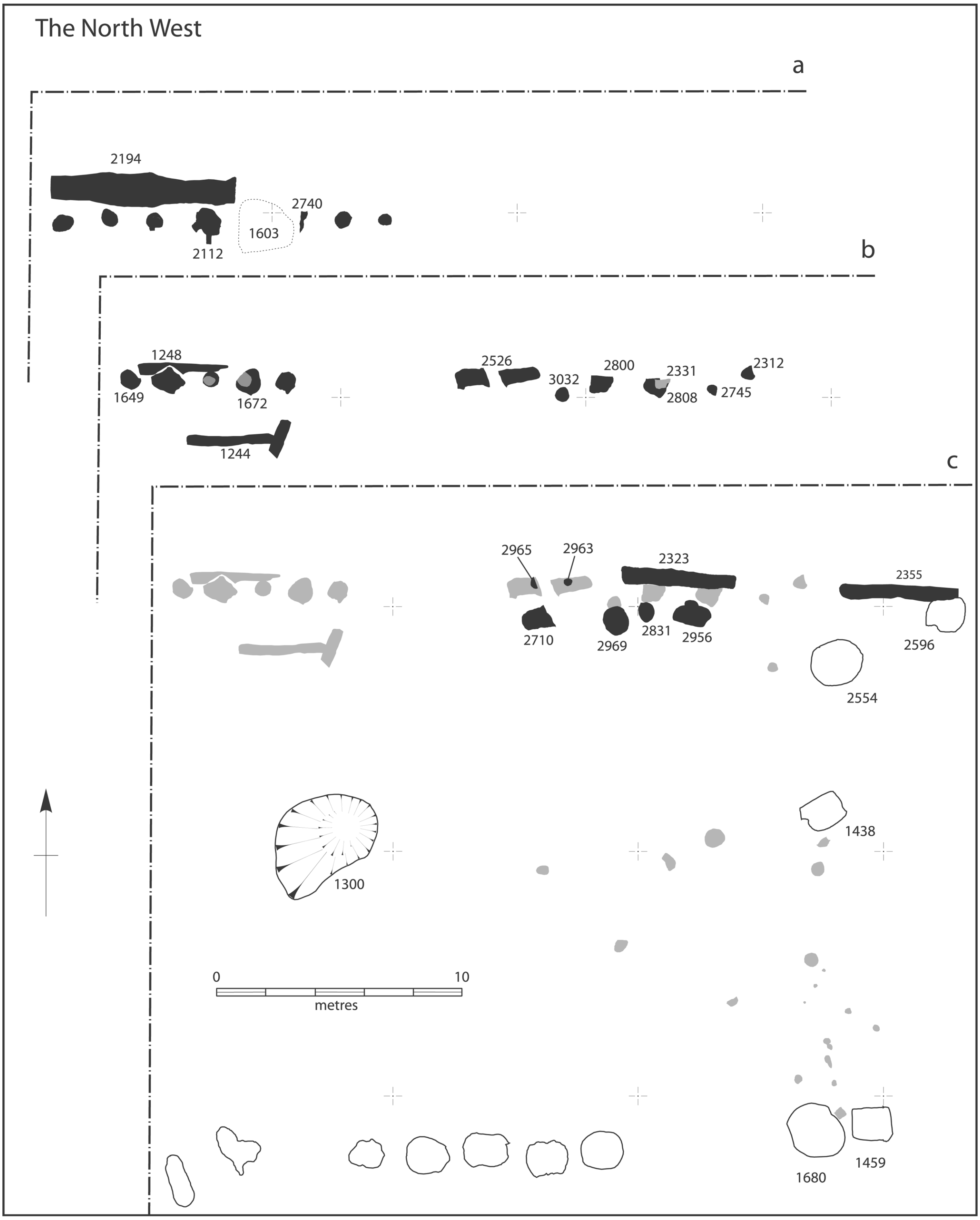

FIG. 53. The north-west area of the excavation: sequence of development: (a) Phase 2; (b–c) Phase 3

pits can be reconciled with boundaries, the coincidence of pit and post-hole evidence here is very suggestive.

Let us now consider the evidence for the occupation of the northern half of the excavated area west of well and pits 2554, 1680 (and 1459). We shall return to an analysis of the well and pits below.

Phase 2

Flanking the east–west street are successive arrangements of post alignments and sections of drainage gullies. The earliest alignment was identified in the western half of the excavated area (Object 41039) and comprises seven sub-circular post-pits cut into the underlying gravel surfaces with plan dimensions in the range between *c.* 0.6 and 0.95m and depths between *c.* 0.25 and 0.45m. A single post-pipe was identified with a diameter of 0.16m. The posts were spaced at approximately 1m intervals with one larger gap of 3m between 2112 and 2740 created by the cutting of the later pit 1603 (Object 122) (FIGS 53a, 54). None of these post-pits contained pottery later than the second and early third century. Fronting the western group of four posts was a shallow ditch (Object 41040), with a width of *c.* 0.9 to 1.4m and a depth of *c.* 0.25m, which contained a *dupondius* of Trajan of A.D. 103–111 and residual pottery of first-century date.

FIG. 54. North-west corner of the excavated area (view from the west): alignments of fence-posts of Phases 2 (right) and 3 (left)

Phase 3

This arrangement was replaced in the north-west by a new line of five posts set some 0.5m closer to the street and packed in pits with ceramic building material and flint (Object 41041) (FIGS 53b, 54). The plan dimensions of the post-pits ranged from *c.* 0.4 to 1.1m with depths from *c.* 0.3 to 0.50m. Two post-pipes were recognised, one with a diameter of 0.3–0.35m, the other of *c.* 0.25m. The packing mostly contained pottery sherds of second- and third-century date, but late third/fourth-century and fourth-century material was recovered from post-pit 1649 and from the post-pipe of 1672.

Further to the east along the street beyond the cut of the later pit 1603 (Object 122) there was also evidence for the replacement of posts and, additionally, for the re-cutting of sections of the roadside ditch (Object 41043). One section of re-cut ditch is 2526 which cuts a ditch fill (2862) which contained fourth-century pottery. It measures some 3.3m in length with a width of 1.3m and a depth of 0.14m. It contained residual third-century pottery and was cut by two post-holes (2963, 2965) with diameters of *c.* 0.3–0.6m and depths of *c.* 0.15–0.25m. These also contained residual second- and third-century pottery. To the east and south are a number of post-holes which can be broadly defined into two parallel and partly overlapping arrangements. First there is a group comprising 3032, 2800, 2331, 2808, 2745, and 2312 (FIG. 53b). These measured between *c.* 0.4–0.5m and *c.* 0.8–1.2m in diameter with depths of *c.* 0.2–0.3m and contained residual pottery no later than third-century in date. Post-hole 2745 with a diameter of *c.* 0.3m and a depth of *c.* 0.45m falls outside these two ranges. A second, east–west row of post-holes (2710, 2969, 2831, and 2956) may be slightly later (FIG. 53c). Certainly post-hole 2969 contained late fourth-century pottery. This group had plan dimensions averaging *c.* 0.7–0.8m and depths of 0.3–0.5m.

Possibly related to this late group is the linear cut 2323; this cuts 2331 and 2800 which belong to the earlier of the two groups of post-holes defined here. It measured 4.7m east–west with a width of 0.7m and a depth of 0.6m (Object 41073) (FIG. 53c). Its character is similar to that of a second east–west cut, 2355, which is located about 4.0m to the east. This measured 4.8m in length with a width of 0.5–0.6m and a depth of 0.2–0.3m (Object 41073). Both features contained late third/fourth-century pottery. The eastern feature 2355 appears to be cut at its western end by the late pit 2596 (Object 122) whose upper fill contained a Theodosian coin. Both probably relate to Building 8 (above, p. 59).

The similarity between the group of features flanking the east–west street in the central section of the excavated area (Objects 41043 and 41073) and the arrangements of post-pits in the north-west corner (Objects 41039 and 41041) is that both suggest two phases of post alignments. In the case of the ‘central’ group there is also evidence of two phases of linear cuts, re-cuts, perhaps, of sections of the street-side ditch. The latter, and the less ordered nature of the post-holes in the ‘central’ sector tend to differentiate the two sets. This difference was one of the reasons for suggesting (Clarke and Fulford 2002) that it reflected the activities of different properties along the east–west street, hence the arguments for Properties 9–12. As we have seen above, the second piece of supporting evidence surrounds the interpretation of the group of pits which forms part of Object 118 on the east–west boundary. We note that there is no continuous row of pits on the southern side of our presumed, east–west boundary which divides Buildings 1 and 5 from the northern zone. It might well follow, therefore, that our group in Object 118 simply reinforces part of the southern boundary of the house which occupies the north-west corner of the insula outside our excavation area, but whose backyard extends eastwards into our northern zone.

Thus a revised, and simpler approach to the northern half of our excavation area is to regard it as part of only two properties. On the one hand, there is the complex which we have termed Building 8 whose western boundary perhaps extends further than we had envisaged in Clarke and Fulford (2002, 152–4, fig. 15). In this modified interpretation we regard pits 2554, 1438, 1680, and 1459 as falling on the western boundary of that property. As now defined, the larger property associated with Building 8 includes Building 7 and the well 1044 (see also above, p. 57) (FIG. 53c). The latest intervention here is represented by the cutting of pit 2596 (Object 122) at what we envisage as the north-west corner of the property. This contained a Theodosian coin as well as possible North African amphora sherds.

West of this boundary, and south of the boundaries along the east–west street there is only one, deep-cut feature which is the well 1300 (Object 121) which also had Theodosian coins among its lowest fills. There remains a group of shallow pits (Object 120) which occupies the ‘central’ section of the northern area. The western limit of this group is largely arbitrary, representing the limit to which the dark soils were excavated directly to the underlying gravel in the 1998 season in the western half of the northern area. Slower excavation revealed several shallow pits within the dark earth, while further (and continuing) excavation of apparently deeper features revealed that they had resulted from subsidence into substantial underlying pits and possible wells of earlier Roman or late Iron Age date. There are no late Roman pits which were deliberately cut deep into the earlier stratigraphy of this area. Just as there are no convincing examples of deep pits apart from those argued as lying on boundaries and the well

FIG. 55. The northern area west of Building 8 in 2000. View south to the remains of 'House 1' from the east–west street. Victorian trenches and late Roman features are visible in the middle ground; possible re-cuts of street-side ditch, 2526 and 2323, in the foreground

1300, there is equally no convincing evidence of structures between the east–west street and the main, east–west property division across the excavation area west of our newly defined Building (and Property) 8.

The evidence for structures, such as it is, is limited to two areas of the northern 'half' of the excavation area. It may be quickly summarised. From the 'central' area we have the three cuts: 2526, 2323, and 2355 (Objects 41043 and 41073) (FIGS 53b–c, 55). One interpretation (Clarke and Fulford 2202, 154) is that they represent the construction trenches for the front walls of small buildings (their narrow end facing on to the street), rather than discrete and limited re-cuts of the street ditch. The principal reason for this suggestion is that they recall the emphasis which was placed on the street-fronting walls of Buildings 1 and 5 — particularly the latter — through the depth to which their foundations were dug relative to those of the other exterior walls. However, if these cuts did represent wall-foundation trenches, there is no evidence at all for the accompanying side- and end-walls. But, if the latter were cut to a shallower depth than the putative street-facing wall, it is very likely that it would be difficult to see traces clearly in the dark soils which characterise most of the northern area of the excavation. From the north-west corner, however, there is evidence of possible beam-slots close to the street (Object 41041 (Phase 3)) and cutting the dark soils where the latest pottery and coins are of late fourth-century date. 1248 runs immediately to the north of the later of the two rows of post-holes and measures 3.55m in length with a width of 0.2m–0.5m and a depth of 0.10m. Less than 3m to the south is a parallel slot, 1244, slightly offset to the east. It measures 4m in length with a width of 0.45m (FIG. 53b).

In conclusion, and contrary to what was suggested by us in Clarke and Fulford (2002), we offer a simpler interpretation where the area to the north of the east–west boundary was essentially subdivided into two properties. In the north-east corner is a larger 'Building/Property 8' whose western boundary is now defined by pits 2554, 1438, etc., and which incorporates Building 7. To the west, the rest of the northern zone is occupied by a large plot associated with the building identified from aerial photography in the north-west corner of the insula (FIG. 3). Potentially, this property would have accounted for more than two thirds of the width of the insula. Apart from the well 1300 and the group of pits which flanked its southern boundary (in Object 118), there is little evidence with which to characterise the occupation of this larger property. The dark soils which characterise the northern area west of 'Building/Property' 8 suggest open ground, possibly used as paddock or orchard, or for cultivation of some kind. Rubbish continued to be introduced into this area, both generally, and through the shallow pits of Object 120, through the later third, fourth and into the fifth century and there is evidence from it of both the latest pottery and the latest coins. The very latest features are the pits 1603/1513 (Object 122) from the north-west corner which contained fourth-century pottery, including rosette-stamped colour-coated ware dating to the second half of the century. In that they cut the line of the post-holes flanking the east–west street and the dark soils to the south which contain one Theodosian issue, they suggest that the very latest arrangements in the northern half of the insula may have differed significantly from those of the fourth century. This chimes with the evidence discussed above in association with Building 8 in the north-east corner. We will return to these and the interpretation of the other latest features within the excavated area of the insula below.

THE LATEST OCCUPATION: NORTHERN AND SOUTHERN AREAS (Object 122) PHASE 6 (FIG. 56)

Much of the evidence of the latest occupation from our excavation in Insula IX has already been introduced as we have defined the evidence for associated structures, property divisions, and occupation. We first considered the southern area along the north–south street, starting from Building 1 in the south-east corner. Here we have evidence of pits dug within and without the building whose fills contain coins of the House of Theodosius, suggesting continuity into the fifth century. Also, immediately to the south of Building 1, we traced a sequence of events, including the digging of shallow pits, which was later than contexts with Theodosian coins. Then we turned to the northern zone, continuing the analysis of evidence along the north–south street to Building 8 in the angle at the intersection with the east–west street. Here, too, there is a local sequence which terminates with post-Theodosian contexts. We concluded with the evidence along the east–west street to the western limit of the excavation. The latest evidence in the form of cut features from across the excavation area has been brought together as Object 122 (FIG. 56) and some of this has already been considered in the contexts of sequences relating to individual buildings (e.g. pits 1354, 1992, and 1993 in association with Building 1). What has not been considered systematically from this Object thus far is the evidence of cuts close to and into the surface of the two streets.

Along the north–south street we have already noted pit 2224 which cuts both the walls of the eastern of the two, north-facing projections of Building 1 and the edge of the street. This is a substantial structure, measuring 2.1 by 1.74m in plan with a depth of 1.4m. It was filled with a greenish, sandy silt with lenses of clay and gravel and contained few finds, which included fourth-century sherds. To the north, and also cutting the edge of the north–south street is 1363, which measures 1.7 by 1.8m with a depth of 0.2m and cuts through a spread of flint and gravel associated with the latest occupation of Buildings 1 and 5. Pit 2240, also shallow, measures 1.05 by 1.11m with a depth of 0.26m and cuts the east wall of Building 5.

Close to the intersection with the east–west street, and cutting the latest surfaces, is 1866, a roughly circular pit with a diameter of 1.5m and a depth of 0.7m. It contained a handful of fourth-century sherds and a fragment of a blue and white glass bead (SF 1207), possibly of Anglo-Saxon date (FIG. 76, No. 20). This is the first of a group of negative features at the intersection of the two streets, some of which have been considered above. The shallow pit 2055 cuts the east–west ditch 1598, which produced a coin of the House of Theodosius, and post-holes 2032 and 2049. Containing only a few residual finds, it measured some 3.78 by 2.88m with a depth of 0.15m and was filled with a grey-brown, sandy silt. Immediately adjacent to the north is the steep-sided and flat-bottomed pit 1901, which measures 1.2 by 1.78m with a

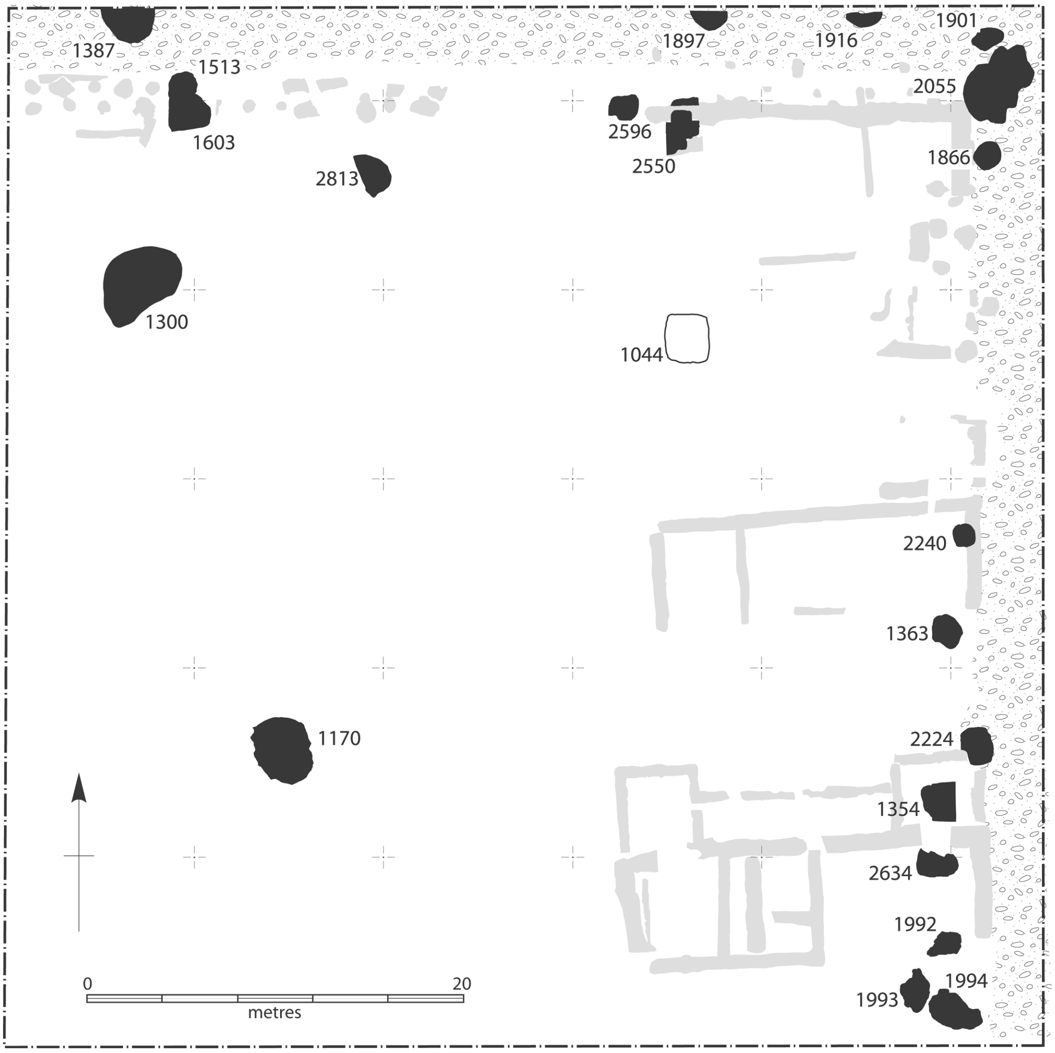

FIG. 56. The latest pits (Object 122)

depth of 0.52m. Along with some fourth-century sherds are two coins, one of A.D. 350+ or 388+.

Along the east–west street and at the edge of the trench is 1916, a roughly circular pit with a diameter of 2.15m and a depth of 0.99m, filled with a greenish-brown, sandy silt. It contained a coin of the House of Theodosius, A.D. 388+, and sherds of the latest fourth-century pottery types. Adjacent to the west and also at the edge of the trench is pit 1897, whose primary fill was roughly circular, with dimensions of 1.93 by 1.01m and a depth of 1.53m (FIG. 57). There were two re-cuts of which the later was for a pit with a diameter of 2.1m and a depth of 0.5m. This contained later fourth-century pottery types. It is possible that the original cut was created by the subsidence of the street into an underlying pit or well.

Pit 2596 is located at the edge of the east–west street (FIG. 57). There is evidence of an earlier phase, but the principal cut has a diameter of 1.5m with a depth of 1m and contained a complete BB1 pottery jar and a New Forest indented beaker (FIG. 63, Nos 38–9) as well as examples of later fourth-century pottery types. Among the metalwork finds is a copper-alloy, cog-wheel-type armlet of late fourth/early fifth-century date. Of five coins from the uppermost fill of this pit, the latest is of A.D. 394–402. Further to the west, pit 1603, cut by the shallower pit 1513, occupies a similar position to 2596 at the edge of the street. It cuts the latest line of post-holes flanking the edge of the street and the dark soils to the south which produced a coin of the House of Theodosius. Pit 1603 measures 2.3m in diameter with a depth of 1.8m, while 1513 is 1.5 by 1.8m with a depth of 0.6m. The pottery from both these pits is of fourth-century

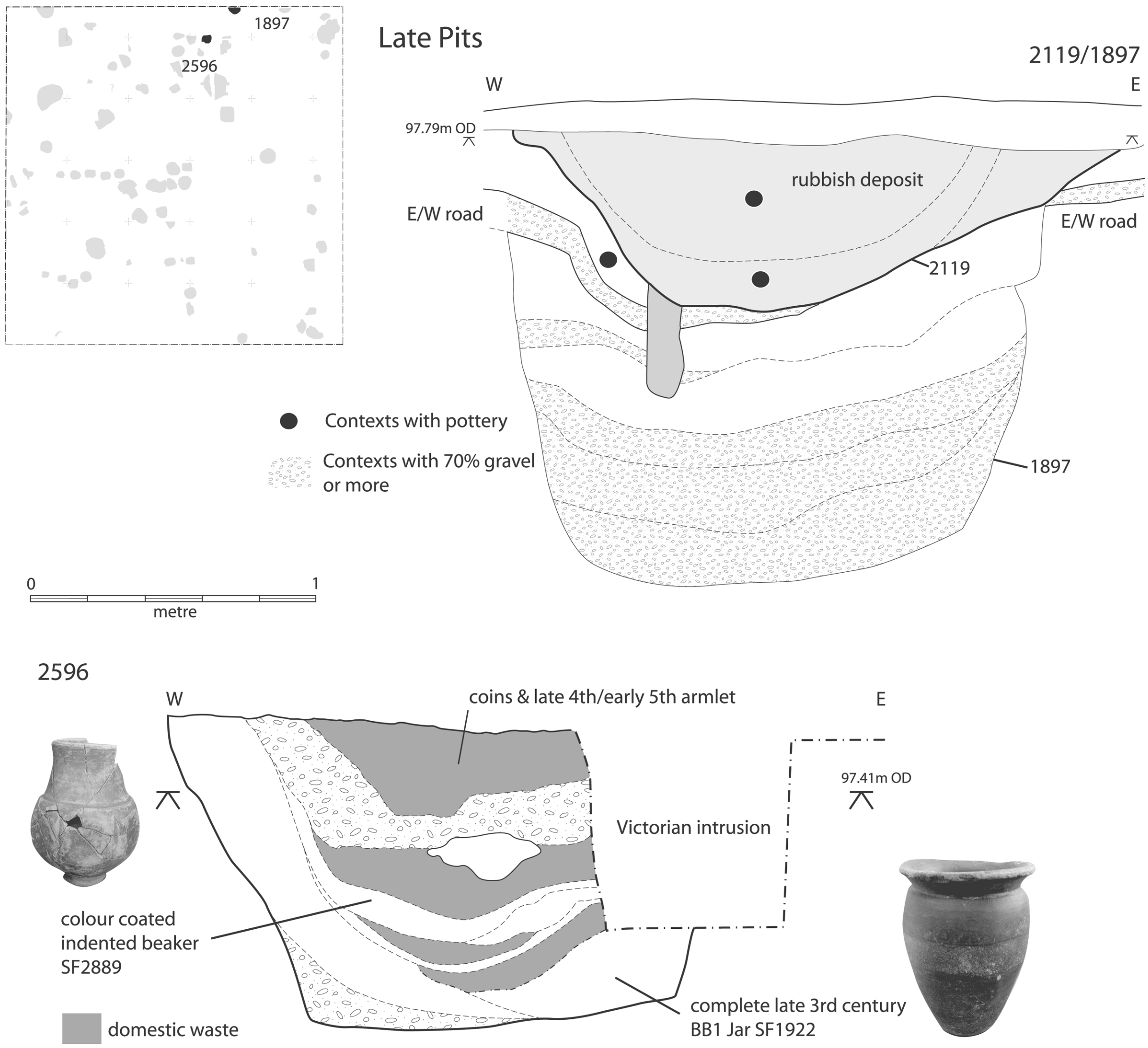

FIG. 57. Sections of the latest pits 1897 and 2596 from the northern area

date. Pit 1603 contained the largest assemblage of animal bone, mostly of cattle and sheep, from any of the pits in this Object. Finally, pit 1387, at the northern edge of the excavated area, can be shown to have resulted from the subsidence of the east–west street into an underlying well. The hollow thus created measured some 2.9m east–west and had a depth of 1.45m. It contained no datable finds.

Although most of the 'late' evidence from the insula is concentrated around Buildings 1 and 8 and thus adjacent to the streets, there is supporting evidence from the interior, particularly from the wells 1300 and 1170, but also from some of the shallow pits in the northern zone. All of this argues for the continuity of occupation across our excavation area into the fifth century. For how long that occupation continued unchanged is almost impossible to determine. It is tempting to think that the interventions into the surface of the east–west street and in the area where both streets intersect represent a new phase of occupation after life within the insula had broken down, but there is no certainty that this is the case. Continuity of life within the insula could have gone on alongside encroachment on, and occupation of the street surfaces.

In trying to determine the end of occupation of the insula we have tantalising evidence from a variety of sources which begin with the construction of uncalibrated sequences of the kind described above whose starting point is the *terminus post quem* offered by coins of the House of Theodosius. Among these, and most tantalising, is the possibility that the fills of well 1300, with

Theodosian coins from the lower fills, derived from the cutting of a successor well in the vicinity. Then there is the deliberate filling of well 1170 with the ogham-inscribed, dwarf baluster column. If we assume that the continuing, fifth-century occupation of Building 1 (and 5) was dependent on continuing access to water, we cannot contemplate the filling of this well until late in the fifth or sixth century. Finally, there is the evidence of possible Anglo-Saxon artefacts, such as the glass beads of possible fifth-to-seventh-century date, one from pit 1866 (FIG. 76, No. 20), cutting the north–south street, and the other from the area of Building 8 (FIG. 76, No. 28). However, none of these finds is unequivocally Saxon.

PART TWO

THE FINDS

CHAPTER 1

THE COINS, POST A.D. 250

By Edward Besly

This report discusses the 474 coins struck after A.D. 250 which have been recovered from the Insula IX excavations. Of these, 247 have been found during archaeological excavation and the remaining 227 through casual, metal-detector search of topsoil and spoil. Because the numismatic details of the excavated coins are already available on the IADB, via the Late Roman website, a different approach from the normal 'catalogue' listing has been taken to the compilation of the accompanying schedule (Appendix 1). (The metal-detected and unstratified coins have been recorded in unconserved condition.) The coins are listed chronologically within Groups 13–21 of the scheme set out by Reece (e.g., Reece 1991): summary details are provided by reign and mints (Groups 13–14, all 'radiates') and by reverse type, ruler, and mints (Groups 15–21).

Contexts identified as late Roman have also yielded a further 66 coins struck from Republican times to the early third century A.D. Whilst a few of the most worn copper-alloy denominations might have been deposited from circulation as late as *c.* A.D. 250–270, it is likely that as found these coins were almost all residual, disturbed from their original contexts by subsequent activities such as the digging of pits or foundations, or by the Victorian excavations. They account for 13.9 per cent of the total coin finds. Within those contexts singled out as 'late Roman pits and wells', there were five obsolete first- and second-century coins, including a first-century irregular Claudian *as* and a virtually unworn *denarius* of Diva Faustina I (*c.* A.D. 141–161), forming 7.5 per cent of the 67 identifiable coins from these contexts.

Despite the large numbers of coins recorded overall from Silchester, there are few reliably-recorded site groups. Table 1 summarises the usable Insula IX finds by period beside Reece's summary of the late George C. Boon's general list of Silchester coins (Reece 1991, no. 45) and figures derived from Boon's own report on the coins from the much-excavated forum-basilica (Boon 2000b). Broad similarities may be noted, but since Insula IX forms the first area of

TABLE 1. SILCHESTER COIN SUMMARIES POST-A.D. 250

		Insula IX		**General list**		**Forum-basilica**	
Group	Date		%		%		%
13	260–75	75	17.3	2144	20.1	134	27.7
14	275–96	67	15.5	1483	13.9	95	19.7
15	296–317	5	1.2	168	1.6	13	2.7
16	317–30	15	3.5	592	5.6	23	4.8
17	330–48	99	22.9	2901	27.2	121	25.1
18	348–64	55	12.7	1068	10.0	41	8.5
19	364–78	85	19.6	1570	14.7	36	7.5
20	378–88	–	–	48	0.5	1	0.2
21	388–402	32	7.4	673	6.3	19	3.9
Totals		433		10,647		483	

Silchester for which anything like a comprehensive picture of coin loss is emerging, this must therefore serve as a marker for future comparisons. A qualitative comparison with the figures for other southern urban assemblages in Reece (1991) shows a reasonably typical pattern, though numbers of coins of the Valentinianic period (A.D. 364–378, Period 19) are strong compared with most, and Theodosian issues (A.D. 388+, Period 21) well represented, though not exceptionally so.

Numismatically, the coins from Insula IX are for the most part well-known types. Attention may be drawn to one apparently unrecorded variety of the 'British' usurper Allectus (A.D. 293–296, SF 01050), an irregular *nummus* of 'Constantine II' which combines elements of issues of both *Augusti* and *Caesares* at the time (SF 00678), and a Trier *maiorina* in the name of Constantius II, an issue of the revolt of Poemenius against Magnentius in A.D. 353 (SF 00715).

About one in three of all coins is irregular, concentrated in the three periods of 'epidemic' counterfeiting (Boon 1988, 113ff.) in the late third century and in the middle of the fourth. This figure is very close to that for the forum-basilica, where 31.1 per cent of the coins listed by Boon were irregular (Table 2).

TABLE 2. SILCHESTER, INSULA IX AND FORUM-BASILICA: REGULAR AND IRREGULAR COINAGE

	Insula IX			**Forum-basilica**		
Group	Reg	Irreg	Irreg%	Reg	Irreg	Irreg%
13–14	94	48	33.8	146	83	36.2
15	5	–	–	13	–	–
16	14	1	6.7	18	5	21.7
17	58	41	41.4	94	27	22.3
18	9	46	83.6	8	33	80.5
19	85	–	–	35	1	2.8
20	–	–	–	1	–	–
21	32	–	–	18	1	5.3
Total	297	136	31.44	343	150	31.1

The high overall rates of irregular coins appear to be typical on a wider geographical scale: 29.9 per cent of 184 coins of A.D. 250–402 from the 1986–95 forum-basilica excavations at Caerwent were copies (unpublished figures). This apparent uniformity does, however, mask differences: at Caerwent 44.4 per cent of radiates were irregular, but only 38.5 per cent of a small sample from Period 18 (A.D. 348–364). The Fosse Lane settlement, Shepton Mallet (Somerset) coin list, to take another recently published site at random, includes 45.5 per cent irregular coins between A.D. 250 and 402. Here, the proportions of irregular coinages for Periods 17 and 18 parallel Insula IX closely — 46.7 and 81.2 per cent respectively, but with a much higher proportion of irregular radiates, 72 per cent (Esmonde Cleary 2001, 220).

The contexts singled out as 'late pits and wells' are of considerable importance and their numismatic evidence therefore deserves closer examination. There are 72 coins from these features, of which 67 are identifiable. Five pre-dating A.D. 250 were certainly obsolete when finally deposited; the remaining 62 are summarised by period in Table 3, which compares the group with the site assemblage as a whole.

Overall the finds from the late pits and wells parallel those from the rest of the site and they may therefore simply reflect the problems inherent in a much worked site: many are from the upper layers of the pits or wells in question. The relatively strong showing of late third-century coins (Periods 13 and 14) is fairly concentrated, in the pits which relate to Buildings 1 and 5 and the mainly shallow scoops (Object 120) in the northern part of the site (Table 4). However, whilst the small overall numbers should be remembered, the weak showing of Valentinianic issues of A.D. 364–378 is remarkable relative to the site as a whole.

TABLE 3. COINS FROM LATE ROMAN PITS AND WELLS: SUMMARY

Period	**Pits and wells**	**%**	**Whole site**	**%**
13	7	11.3	75	17.3
14	19	30.6	67	15.5
15	1	1.6	5	1.2
16	2	3.2	15	3.5
17	12	19.4	99	22.9
18	9	14.5	55	12.7
19	4	6.5	85	19.6
20	–	–	–	–
21	8	12.9	32	7.4
Totals	62	–	433	–

TABLE 4. DISTRIBUTION OF COINS IN THE GROUPINGS OF LATE PITS AND WELLS

Object Period		**115**	**116**	**117**	**118**	**119**	**120**	**121**	**122**
13	–	–	3	–	–	–	3	–	1
14	–	–	3	2	–	–	6	2	6
15	–	–	–	1	–	–	–	–	–
16	–	–	1	1	–	–	–	–	–
17	–	1	1	–	–	1	1	4	4
18	–	–	–	–	1	1	3	1	3
19	–	–	–	–	1	–	2	–	1
21	–	–	–	–	–	–	2	2	4

In summary, Objects, 115, 116 and 117, in the southern part of the site, have produced no coins later than the A.D. 340s. Objects 120–122 are strong in coins of the late fourth century. Several associations with very much later coins (e.g., Object 120, pits 2550 and 2587; Object 122, pit 1354) would appear to demonstrate the residual/redeposited nature of a number of the third-century coins from these Objects. The coins that come from the lower fills of these late features may be summarized as follows:

Object 115, cut 1571: one coin, A.D. 340s
Object 116, cut 2900: three coins, late third century
Object 117, pit 1633: one coin, A.D. 315
Object 118, pit 1482: one coin, A.D. 364–375
Object 118, cut 1634: one coin, A.D. 348–350
Object 122, pit 1354: two coins, A.D. 270–280 and 350s.

The distribution of the latest coins (those post-A.D. 388) has been discussed by Clarke and Fulford (2002, 156ff.). The question of how long coinage continued in use in late or post-Roman Britain, at Silchester or elsewhere, has never been resolved, partly because of a lack of secure archaeological contexts on so many sites. One approach to this question is to examine the evidence of wear on the latest coins in order to gain a sense of their likely lifetime in circulation. The interpretation of 'wear' on hand-made coins of any period is notoriously subjective — nowhere more so than on 'Theodosian' bronzes, the 'AE4s' of the period A.D. 388–402. Quite apart from the problems posed by the generally poor physical state of many excavated coins (and Silchester is no exception), the coins themselves are very often poorly-made objects, with weak or partial impressions. This may reflect poor preparation of blanks, inexpert striking, dies that wore rapidly in use, or simply overworked mint personnel. (There is perhaps a parallel in the atrocious physical appearance of much of the Tower Mint

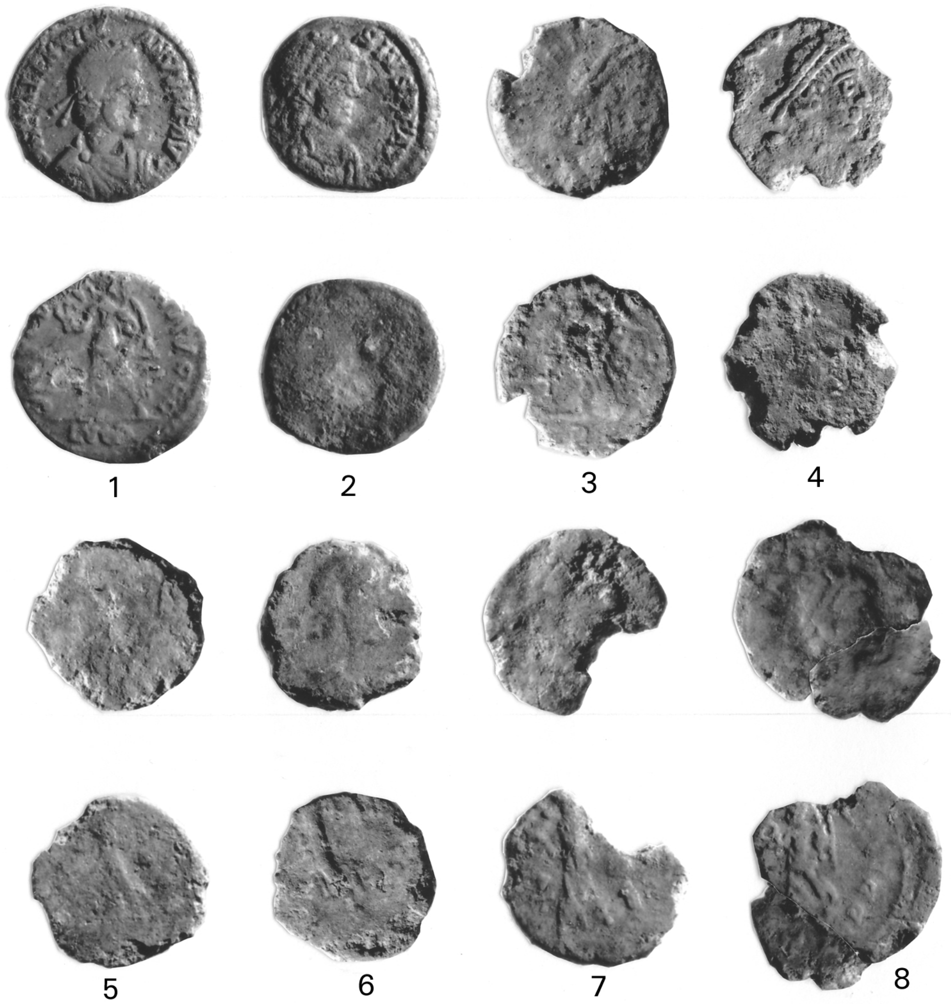

FIG. 58. Coins of the House of Theodosius from Insula IX (Scale 2:1)
(*Copyright National Museums of Wales*)

coinage of King Charles I (1625–49) that resulted from the sheer volume of silver that was coined by hand there between 1632 and 1647.) The problem appears also to be common to all of the *aes* mints usually found: Trier, Lyon, Arles, Rome, and Aquileia. Whatever the cause, a good deal of fairly fresh Theodosian coinage can look to be anything but; accordingly, this is a subject to be approached with considerable caution. The existence of counterfeits of the series provides a further complication; though none has been positively identified here, it is hard to be sure that all are indeed official issues.

The interpretative problems are encapsulated by the two late coins from the silts of the well 1300. One (SF 00646) of Valentinian II is a clear example, but the designs are weak: the apparent 'wear' may well in part derive from weak striking or the use of worn dies (FIG. 58, No. 1). The second coin, of Theodosius (SF 00632), appears, from its reverse, to be heavily worn, but the obverse is crisp and unworn (FIG. 58, No. 2) and the coin must likewise be so. None of the seven Theodosian coins from the pits and wells shows, to my eye, evidence of anything more than modest wear. There are two certain coins of Honorius in the group (SFs 00766 and 01721), which are therefore dated A.D. 395 or later. The first, a Rome coin, is weak but not worn (FIG. 58, No. 3); the second, from its obverse, is unworn, though again the reverse is weak (FIG. 58, No. 4).

Broadening this review to coins from other contexts and those that are unstratified produces for the most part a similar picture. There is, however, a small group of Theodosian coins, the weak designs of which may indicate significant wear through circulation. Of the five coins, three are from ‘dark earth spreads’ (contexts 1279: SF 00598, FIG. 58, No. 5; 1839: SF 01415, FIG. 58, No. 6; 2437: SF 01590, FIG. 58, No. 7), one from a cleaning layer (context 2400: SF 01502, FIG. 58, No. 8), the last unstratified. Unfortunately, in no case can the emperor be identified (and it is possible that some are counterfeits) — a worn coin that is identifiably Honorius would be a valuable find, indeed. In this regard, it is worth comparing the present group with the 22 Theodosian bronzes published by the late George C. Boon from the forum-basilica excavations (Boon 2000b). Of these, only three were positively described as ‘worn’, none of them produced later than A.D. 394. By and large, therefore, it would appear that the Theodosian bronze coins from Insula IX may well have been lost or deposited — as circulating coinage — within a decade or two of their production: by A.D. 410, some could have already circulated for twenty years or so, and a certain degree of wear might be expected. Their contribution to our understanding of late Roman Silchester is therefore limited to their ability to assist in the dating and distribution of late contexts. To conclude, it is worth re-iterating that this latest coinage is poorly made and poorly preserved and to remind the reader of the potentially subjective nature of the basis of the above discussion on ‘wear’.

CHAPTER 2

THE POTTERY FROM THE LATE ROMAN DEPOSITS

By Jane Timby

INTRODUCTION AND METHODOLOGY

The pottery recovered from the later levels and features excavated within Insula IX has been subjected to different levels of analysis reflecting the importance and integrity of the respective contexts. The approach adopted has been used to maximise the amount of information that can be recovered from an assemblage of this size given certain time and financial constraints. It could be argued that a certain level of detailed analysis on a significant proportion of a large assemblage will produce the appropriate patterns with regard to fabric and form composition, patterns of use and discard, and trade and supply to define the site, and that taking the whole assemblage to the same level of recording will simply reinforce the same information. The two main drawbacks to this argument are defining the chronology of the individual groups for stratigraphic interpretation, and looking for intra-site patterning, which may provide some insight into functional differences across the site. In order to address the former, some 80 per cent of the complete assemblage has been spot dated. The latter it is hoped has been addressed to some extent through a detailed study of the pit groups.

The assemblage has been split into three groups: first, material recovered from the contexts excavated by the Victorians; second, pottery recovered from a series of pits associated with the various buildings; and third, other pottery groups from significant layers and other features. A sample of the material from the Victorian contexts was scanned and checked for pieces of intrinsic interest. The assemblages from the pits, some 9,043 sherds, 129kg, and 28 per cent of the assemblage studied, was fully analysed and quantified as a discrete exercise. A report on this material can be found below. Following the analysis of the pit groups and the completion of the report, selected deposits from the northern and southern parts of the site were rapidly scanned. In total some 32,466 sherds, 433kg of pottery, have been looked at from the later Roman horizons. For this latter exercise identifiable named traded or specialist wares were defined but the bulk of the grey coarsewares and other wares of presumed local, or regional, but unknown sources were treated collectively as single groups. A database providing a count and weight per context with a spot date was produced. Individual columns give a count for specific groups of wares: samian, imported fineware, amphora, New Forest wares, Oxfordshire wares, Dorset black burnished wares, Overwey white ware, greywares, and other. A more detailed level of information was recorded on the paper pro forma where other fabrics such as various imported finewares and other named wares are noted as these provide significant information for dating purposes. A commentary on the results of the layers and pit 2634, considered to be one of the latest on the site, can be found below. As much of the samian present was considered to be either redeposited or curated, a detailed samian analysis was not carried out for this part of the Insula IX assemblage, although a note is made of a particularly unusual East Gaulish vessel (Bird, forthcoming).

THE POTTERY FROM THE LATE ROMAN PITS

INTRODUCTION

The following report discusses the pottery specifically recovered from the late Roman pits excavated to date within Insula IX. In total this comprises some 67 discrete features: 64 pits and 3 wells, which have produced in total some 9,043 sherds, weighing 129kg, with an estimated vessel equivalence (EVE) of 11277. In Appendix 2, Table 14 summarises the entire assemblage recovered from the site, whilst Tables 15, 17–20, 22–3 summarise the overall quantities from individual features where significant amounts of material were recovered. Some of the pits and wells can be linked with specific properties and as such have been stratigraphically grouped together (Objects 115–120). Object 121 comprises various wells not included with the property groups, whilst Object 122 relates to the late pits which cut through the street surfaces. Although the majority of the sherds are from pottery types current in the third and fourth centuries, there is also a considerable quantity of earlier redeposited material present. The assemblage is perhaps predictable in general terms for a major town such as Silchester, which would undoubtedly be drawing its supplies from a large range of sources. For this reason, and because the report is concerned only with a selected sample of the material, the focus of the pottery analysis has been very much to look for patterns, or otherwise, from a selected number of broadly contemporary features and to attempt some inferences as to how the deposits may have formed, thus shedding some light on Roman rubbish disposal practices and at the same time highlighting some perhaps more unusual patterns of deposition which appear to manifest themselves at Silchester. The report attempts to understand the social processes behind the formation of the deposits and why the material should be where it is rather than just provide an empirical study.

In the following report the range of fabrics and associated forms present are briefly discussed, followed by a descriptive account of the individual pit groups. The final discussion considers the mechanisms by which the deposits within the pits may have come about.

DESCRIPTION OF FABRICS (Appendix 2, Table 14)

Since the pottery work carried out on the forum-basilica (Timby 2000b) the National Roman Fabric Reference Collection has been published (Tomber and Dore 1998). The forum-basilica report very much focused on the pre-Roman and early Roman periods and a large number of fabrics were defined reflecting in part the much greater diversity of wares found at this time. For this report, where the emphasis is more on the later Roman period with perhaps a greater standardisation of wares, a slightly simpler approach has been adopted. The better known imported or traded wares are described using the codes set out in the National Roman Fabric Reference Collection (NRFRC) (Tomber and Dore 1998 = T & D 1998). As these have been fully discussed in this publication these fabrics are not described further. Regional and local wares not in the NRFRC are described in full below using alpha-numeric coding. Thus all reduced sandy wares are prefixed GREY, oxidised wares OXID, whitewares WHITE, and white-slipped wares WSLIP. As many of the individual occurrences are low it is not considered useful at this stage to produce lengthy fabric descriptions for each of the wares recorded. A full list can be found with the pottery archive. Wares containing a distinctive temper are coded according to the principal inclusions, for example GROG, FLINT etc. For industries such as that in the Alice Holt/Farnham region, the single reference code (ALH RE) found in the NRFRC was further subdivided in the initial analysis to take into the account the range of wares produced in order to look for more detailed nuances of change through time. Full details of these are available in the pottery archive. Where relevant all the fabrics are cross-referenced to the codes used in earlier Silchester reports, shown in square brackets after the new code (cf. Timby 1989b; 2000b).

Continental imports

Amphorae

Baetican (Dressel 20) (BAT AM) (T & D 1998, 84–5).
Cadiz amphora (Camulodunum type 186A) (CAD AM) (T & D 1998, 87).
Gaulish amphora (GALAM) (T & D 1998, 93–5).
African amphora (NAF AM 2) (T & D 1998, 102).
Miscellaneous other (AMP UC).

Mortaria

North Gaulish whiteware (NOG WH) (T & D 1998, 22) [Silch M1].
Soller whiteware (SOL WH) (T & D 1998, 79).
Italian whiteware (ITA WH) (T & D 1998, 73).

Fine wares

Argonne colour-coated ware (ARG CC) (T & D 1998, 47).
Arretine (ARR) [Silch E1].
Central Gaulish black-slipped ware (CNG BS) (T & D 1998, 50).
Central Gaulish colour-coated ware (CNG CC) (T & D 1998, 52).
Central Gaulish white-slipped ware [Silch E19].
Cologne colour-coated ware (KOL CC) (T & D 1998, 58).
Gallo-Belgic craquelée bleutée (GAB CB) (T & D 1998, 13).
Gallo-Belgic Terra Nigra (GAB TN1) (T & D 1998, 15) [Silch E6].
Gallo-Belgic Terra Rubra (GAB TR) (T & D 1998, 17–20) [Silch E7–12].
Lyon colour-coated ware (LYO CC) (T & D 1998, 60) [Silch E26].
Moselkeramik black-slipped ware (MOS BS) (T & D 1998, 61) [Silch E30].
Imported whiteware (source unknown) (IMP WH).
Imported coarseware (source unknown) (IMP CW).
Samian: all samian is subsumed under SAM.

Regional imports

Fine wares

Hadham oxidised ware (HAD OX) (T & D 1998, 151).
Highgate Wood C reduced ware (HGW REC) (T & D 1998, 136).
London fine reduced ware (LON FR) (T & D 1998, 136).
Lower Nene Valley colour-coated ware (LNV CC) (T & D 1998, 118) [Silch E48].
New Forest colour-coated wares (NFO CC; NFO RS) (T & D 1998, 141) [Silch E39, 40/41].
New Forest parchment ware (NFO PA) (T & D 1998, 141).
Oxfordshire whiteware (OXF WH) (T & D 1998, 173) [Silch S43/S47].
Oxfordshire oxidised ware (OXF OX).
Oxfordshire red-slipped ware (OXF RS) (T & D 1998, 176) [Silch E27].
Verulamium whiteware (VER WH) (T & D 1998, 154) [Silch S33].

Mortaria

Lower Nene Valley whiteware (mortaria) (LNV WH) (T & D 1998, 119).
New Forest whiteware (NFO WH) (T & D 1998, 144).
Oxfordshire white-slipped ware (OXF WS) (T & D 1998, 177) [Silch M8].
Oxfordshire whiteware (OXF WH) (T & D 1998, 173) [Silch M2].
Oxfordshire red-slipped ware (OXF RS) (T & D 1998, 176) [Silch M3].

Wiggonholt whiteware (WIG WH) (T & D 1998, 187).
Verulamium whiteware (VER WH) (T & D 1998, 154) [Silch M12].

Coarsewares

Dorset black-burnished ware (DOR BB1) (T & D 1998, 127) [Silch S18].
Mancetter-Hartshill whiteware (mortaria) (MAH WH) (T & D 1998, 189).
New Forest greyware (NFO RE) (Fulford 1975).
GREY 20: ?New Forest greyware. A very hard, well-fired ware, almost a proto-stoneware, dark grey-blue in colour with brownish edges. At x20 the only visible inclusions are rare fine grains of sub-angular quartz.
Late Roman shelly ware (ROB SH) (T & D 1998, 212).
South-West black burnished ware (SOW BB1) (T & D 1998, 129).
Verulamium oxidised ware (VER OX).

Local and unprovenanced

Fine wares

British glazed ware (SOB GL): dark orange sandy ware with a grey inner core. Olive green, slightly metallic looking surface glaze.
Mica-slipped ware (MICA).

Coarsewares

Flint-tempered
Silchester flint-tempered ware (SILCH FL) [Silch F1].
Fabric: a moderately hard, smooth, clean matrix tempered with a moderate to common density of white, calcined, angular flint fragments. These vary in size, the larger pieces reaching 4mm across. Sparse quartz and red iron grains are also present. The colour of the paste varies from shades of brown to red, dark grey or black, sometimes on one vessel, the typical result of bonfire firing.
Forms: vessels are handmade and the repertoire extremely limited. The commonest forms are jars, which broadly fall into two types: bead rim and everted rim.
FLINT: all other flint-tempered wares have been grouped into this heading. Without exception the wares are all residual dating largely to the first century A.D. Greater detail of the range of flint-tempered wares can be found in the forum-basilica volume.

Grog-tempered
Hampshire grog-tempered ware (HAM GT) (T & D 1998, 139).
GROG: as with the flint-tempered wares, most of the other grog-tempered sherds are redeposited first century B.C.–A.D. finds and for this report these have been grouped together. The exceptions are some grog-tempered storage jars in fabrics typical of those found in the Oxford region in the second to third centuries (OXF GROG).

Alice Holt reduced wares (ALH RE) (T & D 1998, 138)

These have been subdivided into:
GREY 2/9: greywares with a slightly gritty sandy texture. Initially GREY2 was distinguished from GREY9 on the basis of an apparent absence of fine mica, but this was not always clear-cut so the groups were later amalgamated. At x20 magnification the paste contains a sparse to common frequency of fine rounded to sub-angular quartz (less than 0.5mm) and sparse black iron. Rare blackened voids from burnt out organic material.
GREY 4: general category for medium-grained, sandy wares in black, brown, and grey fired

wares. Hard, slightly pimply textured paste containing a moderate common density of rounded to sub-angular well-sorted quartz visible at x20 magnification.

GREY 5/6: hard greyware with a light grey-white core. The paste contains fine white mica, and a sparse to common frequency of moderately well-sorted, rounded, dark coloured quartz sand. Individual grains are just macroscopically visible.

GREY 7: a very hard, brittle-like, well-fired greyware with a hard pimply texture. At x20 magnification the paste contains moderately well-sorted, rounded, quartz and sparser grey ferruginous inclusions. ?Late Alice Holt product.

GREY 8: very hard, light grey ware with a lighter core. Slightly rough pimply surfaces. The paste contains a common frequency of ill-sorted, rounded quartz sand less than 1mm in size.

GREY 10/14: [Silch S6/S25] very hard, well-fired greyware with an orange-red core. The surfaces have a distinctive dark grey horizontal streaking. The paste contains a common density of well-sorted, sub-angular white quartz (less than 0.4mm) with a scatter of rounded, dark brown to black, iron inclusions. GREY 14 is a finer version.

GREY 11: fine grey-white fabric with a dark grey-black slipped surface burnished on the exterior. Very fine fabric with sparse fine quartz just visible at x20 magnification and rare, dark grey, ferruginous inclusions up to 1mm.

GREY 12: fine, very micaceous, dark brown ware with a lighter buff-brown fabric. No other visible inclusions apart from occasional voids, some with calcareous linings.

GREY 13: hard, well-fired, highly micaceous greyware with a scatter of ill-sorted, rounded quartz sand, the larger grains up to 1mm, occasionally up to 2mm, giving a speckled effect to the fabric.

GREY 15: a hard dark grey ware with a red-brown/grey sandwich core. The paste contains a common to moderate frequency of distinctive ill-sorted, iron-stained and white, sub-angular to rounded quartz sand with occasional polycrystalline grains. The larger grains are 2–3mm across in size. Some of the grains are facetted reflecting the light.

GREY 16: a very fine, almost powdery grey fabric with a dirty grey-white surface slip. A very fine paste with some fine air voids but no other macroscopically visible inclusions.

GREY 17 [Silch S5]: a mid-grey, well-fired, dense sandy ware with a distinctive pimpled appearance. The clean clay matrix contains abundant, fine, well-sorted, rounded to sub-angular quartz. Occasional grains have erupted from the surfaces. Sparse grains of dark grey, hard, rounded inclusions (?iron) up to 1 mm in size are also present.

GREY 18 [Silch S7]: a very hard, mid-grey ware with a lighter core. The matrix contains a dense frequency of dark coloured, ill-sorted quartz grains, very fine mica and sparse iron.

GREY 19 [Silch S8/S17]: a mainly grey-black reduced ware with some brown and light grey examples. The hard, sandy fabric has a red-brown or brown-grey sandwich effect. A main feature of this fabric is the sparkling quality of the surfaces produced by the light catching flecks of white mica and polished quartz grains. The quartz is variable in size between sherds but is generally fine and present in abundant quantities. The polished nature of the grains is characteristic of the Lower Greensand. Sparse iron, flint, and quartzite are also present. This is an Alice Holt ware dating from the earliest stages of the industry.

In addition Alice Holt grey-black wares closely imitating Dorset black burnished wares were singled out as ALH BB1 and the large storage jars as ALH SJ.

Overwey white ware (OVW WH) (T & D 1998, 146) [Silch S31]

Other miscellaneous wares

Local greywares, medium sandy fabrics, sources uncertain (GREY).
Fine grey sandy wares, sources uncertain (GREYF).
Local oxidised wares, sources uncertain (OXID).
White-slipped wares, sources uncertain (WSLIP).
Whitewares, sources uncertain (WHITE).
Miscellaneous colour-coated ware (CC).

DISCUSSION OF PIT GROUPS

Introduction

The various features under discussion have been split into seven groups by the excavators largely on spatial grounds and this division forms the basis on which the pottery from the various pits is discussed. The wells form an eighth group. Most of the assemblages are very mixed chronologically and determining precise dates for layers is not always straightforward; indeed, in a few cases the coins have determined the lateness of some of the pits and, if reliance had been placed on the pottery alone, discrepancies of up to a century would be apparent. It is thus by no means certain that the absence of certain, late diagnostic indicators necessarily means that the feature should be seen as earlier in relative terms, unless proven on stratigraphic or other grounds.

A further problem is that of recognising how late is late and would we know if a pit is fourth-century or fifth-century. Particular wares regarded as typical of the fourth century include the British colour-coated industries, in particular those of the New Forest and Oxfordshire. The evidence would suggest that Oxfordshire colour-coated wares were being used at Silchester from the later third century before the widespread use of New Forest products. Presumably the colour-coated wares followed in the wake of the Oxfordshire whitewares which were clearly being used at Silchester from the second century, particularly some of the mortaria forms. Other fourth-century indicators include Hampshire grog-tempered ware and Overwey products and some of the DOR BB1 forms. Where all these wares occur together the inference is made that the layer is likely to have been formed quite late in the fourth century. The latest chronological marker is shelly ware which, although rare, does occur in at least two features. This is generally seen as dating to the last quarter of the fourth and into the fifth century.

Object 115 (Appendix 2, Table 15) (FIGS 59–60)

Five shallow pits spatially associated with Buildings 1 and 5 (1246, 1384, 1463, 1571, and 3357) collectively yielded 639 sherds, 8.2kg of pottery. Table 15 summarises the main wares from each of these pits. The average sherd size is relatively close for four of the five pits ranging from 16.8 to 20g, but for pit 3357 it is considerably lower at just 7.3g. Pits 1246 and 1384 contained very modest assemblages of just 35 and 57 sherds respectively; pits 1463 and 1571 had slightly more material with 108 and 117 sherds respectively, whilst 3357 had the largest, albeit most fragmented, assemblage. Pits 1246 and 1463 produced between them three complete vessels that are discussed in more detail below. In all five pits Alice Holt wares dominated the assemblages falling between 55 and 66 per cent by sherd count and 47 and 75.5 per cent by weight for all the pits with the exception of pit 1571, where the weight only constituted 21.3 per cent; this is partly the result of some large Baetican amphora sherds within the group skewing the weight. Fine wares are quite sparse, largely comprising Central Gaulish samian and two sherds of Moselle beaker. A few amphora sherds are also present including six sherds of Baetican Dressel 20, thirteen sherds of Gallic type, one Camulodunum type 186 from Cadiz, and one North African sherd. Some residual material is present, most clearly reflected in the 40 sherds of Silchester flint-tempered ware, 33 of which came from 3357. The presence of further residual grog- and flint-tempered sherds from this feature would account for the overall lower sherd size, suggesting that well-abraded sherds were backfilled.

In terms of dating based on the pottery, pit 1246 does not appear to contain any sherds later than the third century, the latest pieces perhaps being the Moselle beaker, which was no longer produced after *c.* A.D. 250, and sherds from a cable rim Alice Holt storage jar and a flanged bowl in the same ware. The latter suggests a *terminus post quem* of later third century should be placed on the group. Of particular note from pit 1246 was the presence of a small complete grey Alice Holt bowl (FIGS 20, 60.1) from fill 1075. The vessel has side damage, which could be deliberate or accidental.

Most of the pottery from sub-rectangular pit 1384 came from the upper fill 1051, with just

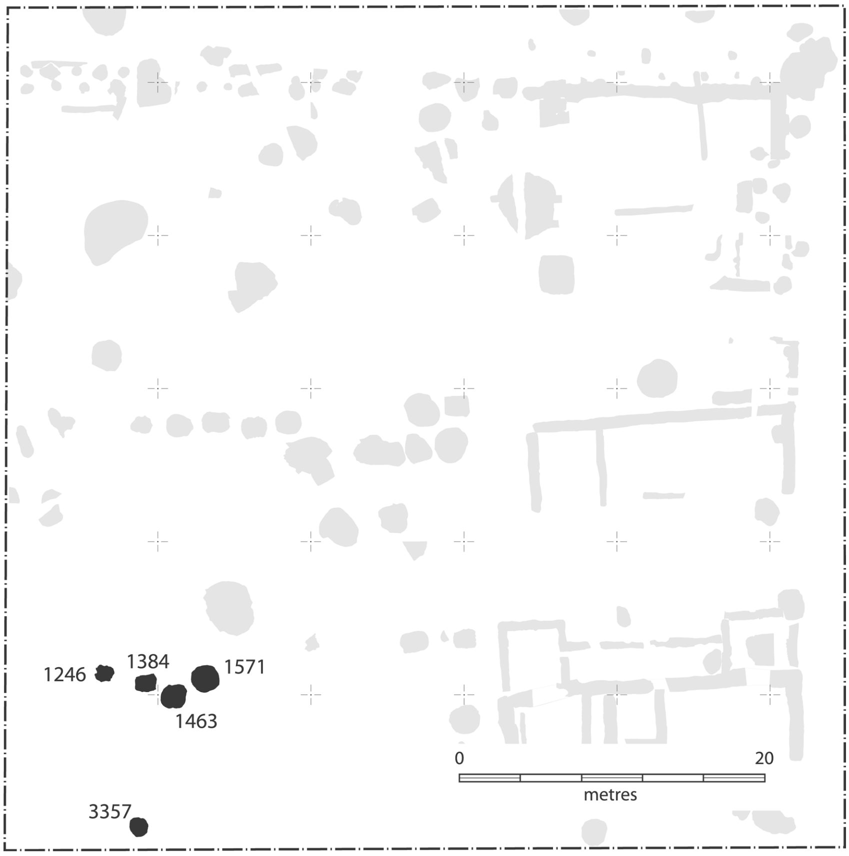

FIG. 59. Location of pits in Object 115

seven sherds from 1377 and none from the lower fill. This group also contained flanged bowls in both Alice Holt ware and Dorset black-burnished ware indicative of a date after *c.* A.D. 270. Unlike pit 1246, this group contained some late Roman colour-coated products, for example both New Forest and Oxfordshire colour-coated wares, the latter including at least two mortaria (Young 1977, types C97 and C100), a dish (ibid., type C45), and a sherd with impressed decoration. Such decoration was not common before *c.* A.D. 330–340. Also of particular note is a sherd of North African amphora. The sherd is relatively abraded suggesting it had been around for some years. The potential importing period for this type of amphora to Britain is generally seen as the third to fourth century. The presence of these wares would perhaps indicate a later date compared to 1246 and that the abandonment of this pit is likely to date to at least the mid-fourth century or after. Looking at the relative proportions of forms from the pit (see Table 16), jars dominate the assemblage accounting for 42.9 per cent of the eve's, followed by drinking vessels (beakers, tankards) at 24.6 per cent, and then coarseware bowls/dishes at 17.3 per cent.

Pit 1463, like pit 1384, produced most of its pottery from the upper fill 1347. Two complete small pots were recovered from this pit: a small greyware handled flask or small jug, probably an Alice Holt product, although a New Forest source cannot be completely discounted (FIG. 60.2), and a New Forest colour-coated beaker (Fulford 1975, form F33) (FIG. 60.3). Both vessels are undamaged. Also from this pit was a sherd of Soller whiteware mortaria; a sherd of an Alice Holt storage jar with two perforations; and a sherd of Oxfordshire colour-coated ware with a graffito (SF 887) (FIG. 60.7). Interestingly drinking vessels are again quite well represented accounting for 56.8 per cent by eve, with jars accounting for 20.9 per cent, and coarseware bowls and dishes for 18.8 per cent. The presence of the New Forest beaker and flanged bowls again in Alice Holt and Dorset black burnished ware might suggest that this feature shares a similar date to pit 1384.

The pottery from pit 1571 came from the single fill 1348, above which were flints and an

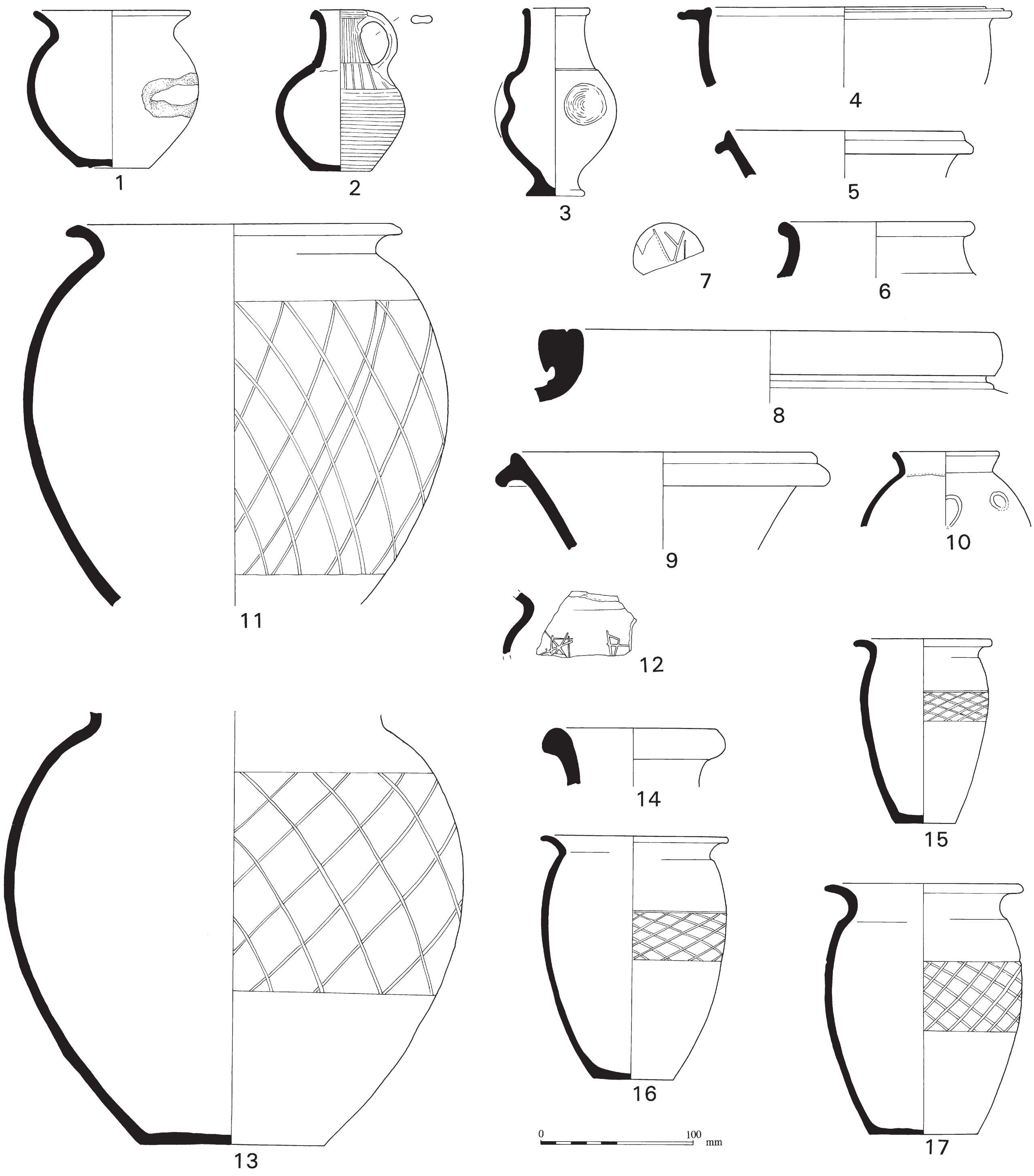

FIG. 60. Pottery from pits in Objects 115 and 116 (Nos 1–17) (Scale 1:4)
(Drawn by Jane Timby)

ironstone capping. Further examples of flanged bowl were present along with a sherd of Moselle beaker, six sherds of New Forest colour-coated beaker, and four sherds of Oxfordshire colour-coated ware, including a dish (Young 1977, type C45), again pointing to a fourth-century date. Confirmation of the pottery dates is provided by a coin dated to the A.D. 340s (SF 00812) from the primary fill. Jars dominate the forms at 42 per cent followed by coarseware bowls/dishes at 29.5 per cent, beakers at 18 per cent, and fineware bowls at 10.5 per cent.

The fifth pit in the group, pit 3357, had a much more mixed assemblage with a number of first-century forms and fabrics. Pottery was recovered from fills 3352 and 3338. In particular there were several sherds of South Gaulish samian (Dragendorff types 24/5, 27, 15/17, and 18), 'Atrebatic-type' 'Surrey bowls', Verulamium whiteware, and several Silchester ware, flint-tempered sherds. There are few obviously late sherds, perhaps the only featured piece being an Alice Holt flanged-bowl of third- or fourth-century date. Jars account for 56 per cent by eve, coarseware bowls/dishes for 16.3 per cent, and drinking vessels for 9.2 per cent. If this pit belongs temporally with the rest of the group, it suggests a different formation process for the composition of the fill and thus perhaps a different function.

Object 116 (Appendix 2,Table 17) (FIGS 60–1)

The Object 116 pits, also potentially associated with Buildings 1 and 5, comprise seven pits (Table 17) and the latest fills of an earlier, possible well, which collectively produced 1,462 sherds of pottery, weighing 19.4kg, 1703 eves. Three of these features were identified as cess-pits (2900, 3251, 3235). The smallest assemblages came from pit 3250 with 29 sherds, pit 3102 with 38 sherds, and pit 2921 with 41 sherds. The largest single group is that from pit 3235 with 521 sherds. There is quite a marked disparity in the average sherd size between the various pits. Pit 2914 stands out as having moderately well-preserved material with an average sherd weight of 24g. At the other end of the spectrum are pits 2900 and 3251 where the average sherd weights are 8.1 and 9.4g respectively. Pits 2904/2921 and 3235 have slightly better preservation with sherd weights of 12.8 and 14.2g.

All the pits contain assemblages dominated by sherds of Alice Holt ware and, in every case, sherds of Dorset black-burnished ware and samian (Central and East Gaulish) are present. Pit 2914, located immediately west of Building 1, has quite a restricted range of material in which samian, Gallic amphora, Dorset black-burnished ware, and Oxfordshire mortaria sherds (Young 1977, types M17 and M20) are all quite well represented at 12.5, 17, 9, and 6 per cent

FIG. 61. Location of pits in Object 116

by sherd count. Other imports include single sherds of Central Gaulish black-slipped beaker and Dressel 20 amphora. A low incidence of redeposited material is evident, with some Silchester flint-tempered and grog-tempered wares. The form spectrum is also perhaps a little unusual, where jars only account for 16 per cent (Table 16). Flasks/small jugs account for 39 per cent by eve, drinking vessels (cups) for 13 per cent, coarseware bowls/dishes for 13 per cent, and mortaria for 9 per cent. In terms of dating the assemblage contained at least three DOR BB1 flanged bowls dating after *c.* A.D. 270, and single sherds of New Forest parchment ware, and New Forest and Oxfordshire colour-coated ware. The New Forest sherd is a flagon or flask (Fulford 1975, type F11) current in the period A.D. 300–350. The samian includes Dragendorff forms 27, 33, 31, and 38. On balance this pit appears to belong chronologically with those already discussed in Object 115, dating to around the mid-fourth century on the basis of the pottery.

Cess-pit 3235, with possible special deposits, produced a particularly large and diverse assemblage of 521 sherds of pottery. Alice Holt products make up over half the assemblage (57.6 per cent). DOR BB1 contributes a further 10.7 per cent. Of note amongst the imports is a redeposited sherd of Italian whiteware mortarium, the first recorded from the recent and continuing excavation campaigns at Silchester. A sherd of a *terra nigra* cup (Cam. Type 56) and one of a North Gaulish mortarium are also present along with a light scatter of other residual first-century material. New Forest wares (Fulford 1975, form F44) and Oxfordshire wares (colour-coated ware, parchment ware, and whiteware) (Young 1977, forms C8, C51, C75, M20) are particularly well represented, accounting for *c.* 5 per cent each of the total by sherd count. Other wares include sherds of Central Gaulish samian, specifically sherds of forms Dragendorff 79, 38, 33, 45, and 35/6. The Alice Holt wares include cable-rim storage jars, flat-rim bowls, and everted-rim jars, one of which shows a pitted, eroded interior from use (FIG. 60.11). A join was observed between sherds in layers 2686 and 2685.

Pottery was distributed through the pit fills with sherds of third-century date present from the lower fills (3207, 3209, 3224). The upper fills produced the latest material, including all the colour-coated wares along with sherds of Overwey (Tilford) ware and Hampshire grog-tempered ware from the top fill associated with a coin dated A.D. 323. The pottery suggests a date in the last quarter of the fourth century. No pottery was recovered from 2697, which contained a high frequency of animal bone. The layer immediately above (2662/2912) contained one of the diagnostically later, colour-coated vessels from the assemblage — an OXF RS bowl, Young type C75, which is given a production date of *c.* A.D. 325–400. Horizon 2924/2912 contained the complete rim of a Gallic amphora (SF 2893) (FIG. 60.14), two almost complete DOR BB1 jars (SF 2890; SF 2890) (FIG. 60.15–16), parts of a third jar of similar type, and the base and body of a large ALH RE storage jar decorated with a burnished line lattice (SF 2894) (FIG. 60.13).

Looking at the overall form composition (Table 16), jars dominate (62.5 per cent eve), followed by coarseware bowls/dishes at 26.5 per cent, and mortaria at 4.5 per cent. Drinking vessels (cups/beakers) are particularly poorly represented in terms of eves which contrasts with the other pits within this group and indeed many of the other late Roman pits.

Cess-pit 2900 produced 216 sherds of pottery distributed throughout the six fills (Table 17). Generally speaking, the material is quite fragmented with an overall sherd weight of just 8.1g. Again Alice Holt wares dominate with 54 per cent by sherd count, 67 per cent by sherd weight. The incidence of other sherds appears to follow the standard fourth-century pattern, with four sherds of NFO CC/RS (Fulford 1975, form F27), eight sherds of OXF RS (Young 1977, form C51), a small amount of DOR BB1, and one sherd of BAT AM. Other fine ware imports include two sherds of samian (Dragendorff 33), four sherds of Central Gaulish black-slipped ware, two of Moselle beaker, and three sherds of Cologne colour-coated beaker. In terms of fabric, beakers are well represented and by eve they constitute 18.6 per cent of the group. Jars dominate at 57.3 per cent, followed by bowls at 19.6 per cent. The standard flanged-bowls in DOR BB1 and ALH RE are present along with one sherd of Hampshire grog-tempered ware generally of late third-century date. The latest datable pottery appears to come from the uppermost two horizons, 2479 and 2493. Pottery from layers 2699, 2659, and 2691 contains nothing necessarily later than mid- to late third century; this is corroborated to a certain extent by the coin evidence. The primary fill, 2699, produced a radiate dated A.D. 270 and the subsequent layer another radiate dated A.D. 287–293. No pottery was recovered from 2654, perhaps suggesting a hiatus in back filling.

Cess-pit 3251 produced slightly less material with 141 sherds, 1330g, but of a similarly poor average sherd weight to those in 2900. Again ALH RE accounts for the largest component, 65.5 per cent by count, 54.5 per cent by weight. The fine wares suggest that this pit contains a higher proportion of redeposited material with pre-Conquest Gallo-Belgic ware (*terra nigra* and *terra rubra* (TR1A), imported whiteware, Central Gaulish white-slipped ware) and one sherd of Silchester ware. Of the two sherds of TR1A, one came from horizon 3227 and one from 3229. Sherds of second- to third-century currency are also present throughout. The latest material includes one sherd of New Forest whiteware and four sherds of NFO CC/RS. Sherds of DOR BB1 are also well represented, one of which carries a graffito (FIG. 60.12). A complete DOR BB1 jar (FIG. 60.17) was recovered from layer 3227. Closer dating other than to the later third/fourth century is not feasible. Unlike pit 2900, the later sherds appear to be distributed throughout the fill from 3228 upwards, perhaps suggesting a more rapid backfilling, possibly using material dug out to create the pit initially mixed with some later sherds. A coin dated A.D. 269–271 came from context 3208 which also contained two sherds of New Forest colour-coated indented beaker. In terms of the form composition this feature stands apart from the other pits in having a particularly high percentage of jars (74.4 per cent eve) and a very limited repertoire, the other form categories present by eve being restricted to bowls/dishes (18.1 per cent) and fineware cups (7.5 per cent).

Pit 2904/2921 similarly conforms to the mid-fourth-century pattern, as already defined, where just over half the wares (53 per cent) are ALH RE, and DOR BB1 is well represented (15 per cent). The British colour-coats include OXF RS beakers and bowls (Young 1977, type C51) and two sherds of NFO RS2. A sherd of Overwey whiteware from 2674 also confirms a fourth-century date for the backfilling. Samian sherds are quite well represented accounting for 4 per cent by weight (forms Dragendorff 30, 31, 31R, 33, 35/6 and Ludo Tg). Jars account for 45 per cent by eve, followed by straight-sided dishes at 25.5 per cent and drinking vessels at 17 per cent.

Pit 3250, a shallow scoop, produced just 29 very fragmentary sherds, the average sherd weight being just 3g. The material is unlikely to represent *in-situ* rubbish and suggests it is just surface sweepings. The latest diagnostic sherd is a piece of New Forest parchment-ware, suggesting the feature dates to the fourth century.

Pit 3102 produced pottery from nine of its sixteen recorded layers. The level of fragmentation is very similar to that seen in 2554 and 2380. The earliest level with pottery is 3182 with 49 sherds and a third-century *terminus post quem* provided by sherds of Dorset black burnished ware. Layer 3144 with further DOR BB1 and a sherd of NFO WH2 and layer 3127 with DOR BB1 suggest a similar date. Several sherds of samian are present throughout, including one sherd of a cup Dragendorff 33 with an incised X from 3127. The assemblage from 3115 is probably slightly later with two sherds of NFO RS2, one a beaker, and a DOR BB1 conical flanged bowl. One sherd of ALH RE has mortar attached. The assemblages from layers 3109, 3107, 3106, and 3101 were all quite small groups with, collectively, two further New Forest wares and mainly ALH RE and DOR BB1 sherds. The form composition is very similar to 1682 with 54.5 per cent (eve) jars, 26.5 per cent coarseware bowls/dishes, and 15.5 per cent drinking vessels.

Object 117 (Appendix 2, Table 18) (FIGS 62–3)

Object 117 comprises seven pits located in the southern half of the site and west of Building 5. (An eighth pit, 1633, belongs to the group but has not been analysed.) Collectively the group yielded 1,521 sherds of pottery weighing 20.5kg. The groups were variable in size ranging from just two sherds in pit 1537 to 375 in pit 1666. The average sherd size ranged from just 8g for pits 1666 and 1326 up to 22.2g for pit 1702.

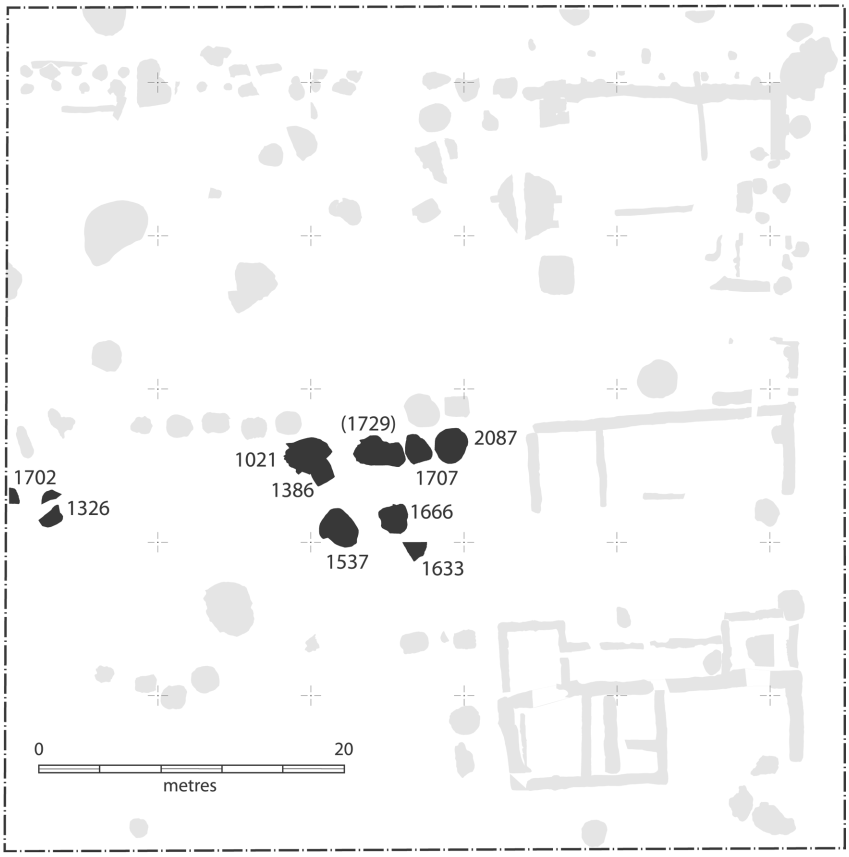

FIG. 62. Location of pits in Object 117

The most westerly pit, 1702 (incorporating 1729), despite quite a high number of defined fills, produced just 51 sherds of pottery distributed through fills 2830, 2819, 2741, and 2707. In addition a further 86 sherds came from cut 2727. Very few featured sherds are present, but of particular note are two sherds with graffiti, one a samian sherd (SF 1909) and one a Dressel 20 amphora (SF 1837) (FIG. 63.19). The high average weight results from three substantial sherds of Dressel 20 from horizons 2741 and 2707. The only fine wares present are three sherds of samian and one sherd of Central Gaulish black-slipped ware, indicating a date from the mid-second to early third century. There are no sherds demonstrably later than the early third century. Alice Holt wares account for 27 per cent by count and DOR BB1 for a further 8 per cent. Silchester flint-tempered wares account for 12.4 per cent of the assemblage indicative of a high level of redeposition. Amongst the imported fine wares from recut 2727 are sherds of Moselle, Cologne, and Argonne colour-coated wares, but there are no British colour-coated sherds. Oxfordshire whiteware mortaria (Young 1977, type M20) of mid- to late third-century date are present. This pit would, therefore, appear to date to the second half of the third century. No pottery was recovered from the latest cut 2844.

Of the other pits in the group with moderately-sized assemblages, 1021, 1666, 1707, and 2087 all contain various British colour-coats and other wares supportive of a fourth-century date. Pit 1021 has a few residual first-century sherds, notably *terra nigra*, Lyon ware, mica-slipped ware, Silchester ware, and one Iron Age sherd. Alice Holt wares account for 50 per cent by sherd count and DOR BB1 for 6 per cent. Other imports include six sherds of Dressel 20 amphora, Moselle beaker, and one sherd of Central Gaulish black-slipped beaker. The British colour-coated wares include NFO CC beakers (Fulford 1975, type F27), OXF RS bowls (Young 1975, C75) and one sherd of Lower Nene Valley ware. One noticeable feature with the material from pit 1021 is the recurrence of sherds potentially from the same vessels, suggesting that either the backfilling was a single operation or that the same source material was

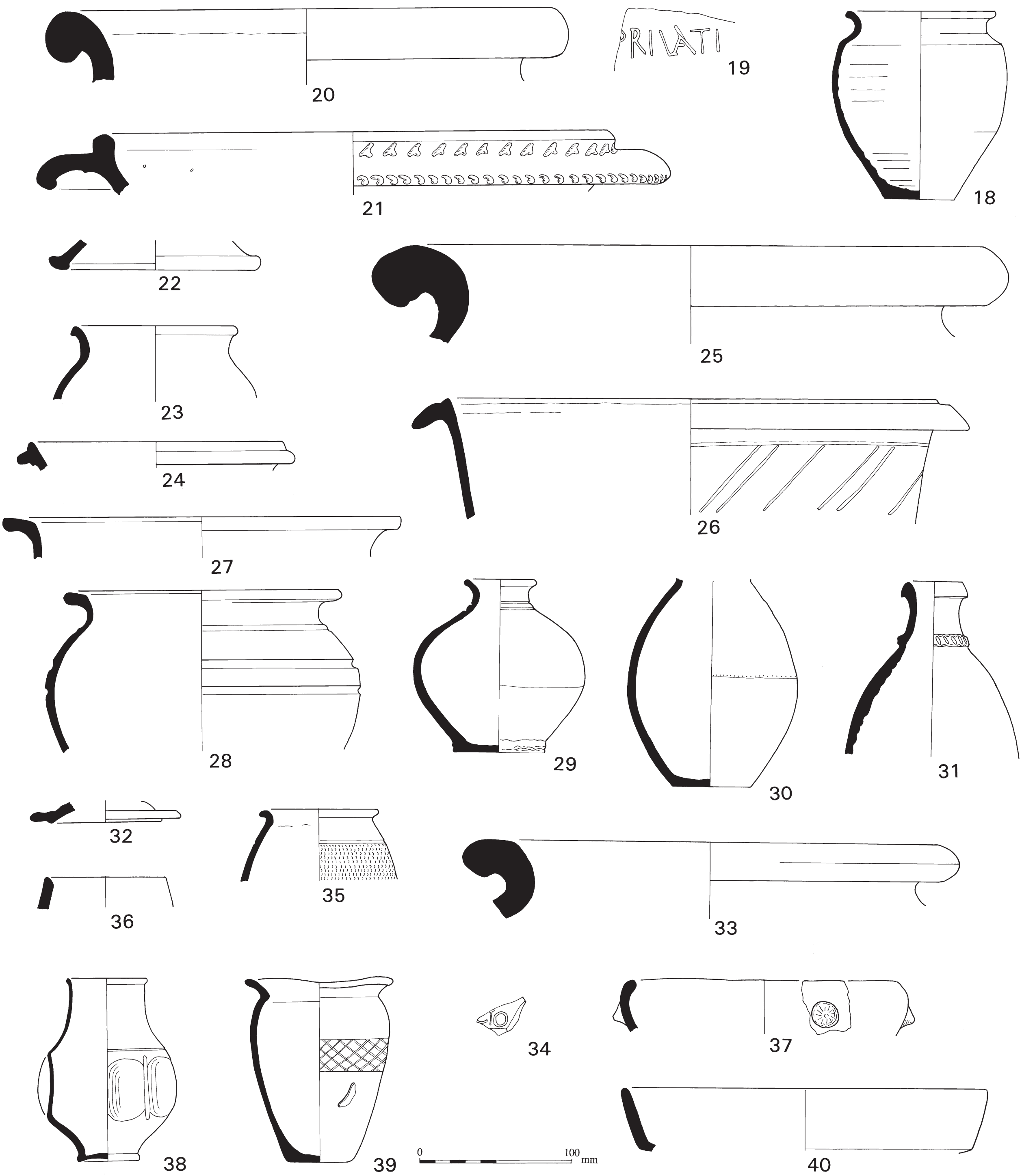

FIG. 63. Pottery from pits in Objects 117–120 and 122 (Nos 18–40) (Scale 1:4)
(*Drawn by Jane Timby*)

being used. This appears to bridge the layers attributed to the Victorian investigation and those left undisturbed. Most of the assemblage was recovered from the upper levels (1299 and 1251), some 198 sherds, with just 41 sherds from the lower levels. The material from the lower levels is better preserved, with an average sherd weight of 24g compared to 13.8g for the upper material. The latest diagnostic sherd from the lower levels is a conical flanged-bowl in DOR BB1 for which a date of the later third century onwards can be proposed. There are no colour-coated wares but there is one sherd of Hampshire grog-tempered ware. The upper levels produced later material dating well into the fourth century with colour-coated wares and a sherd of Overwey (Tilford) ware. The same spectrum of forms can be seen as found in the other mid-fourth-century pits, with jars accounting for 52.6 per cent (eve), bowls/dishes for 23.7 per cent, and beakers for 13.3 per cent.

Pit 1666, closest to the buildings, contained the largest assemblage in this group. Again Alice Holt wares dominate at 44 per cent by count followed by DOR BB1 at 19 per cent. Of note are a worn sherd of Mancetter-Hartshill mortarium and an Oxfordshire whiteware mortarium (Young 1977, type M17). The New Forest wares include examples of Fulford (1975), types F63.1, F89 and F102, indicative of a fourth-century date and Overwey (Tilford) ware is present. Jars account for 55 per cent, bowls/dishes for 24 per cent, and drinking vessels for 11.4 per cent eve.

Pit 1707 with 474 sherds follows the same general trends. The Oxfordshire wares include a colour-coated beaker of Young (1977) type C22 and a whiteware mortarium (ibid.) form M17 with a decorated flange (FIG. 63.21). Jars account for 62.4 per cent, bowls/dishes for 26.2 per cent, and beakers for 5 per cent eve. Pit 2087 also conforms to the trends shown by the other fourth-century Object 117 pits. It produced some 306 sherds weighing 3678g of which just 56 came from the undisturbed lower fills (1799, 2010). The remaining 250 sherds were recovered from the Victorian investigation. In contrast to pit 1021 above, the Victorian redeposited material was less fragmented, with an average sherd weight of 13g compared to 8g from the lower levels. The latest material from the lower levels comprises a sherd of OXF RS and two sherds of HAM GT, indicating a date in the later third century at the earliest. There are no other colour-coated wares present but a number of residual pieces. The Alice Holt wares include one vessel with a reconstructible profile (FIG. 63.18). Amongst the redeposited sherds from the lower fills is a sherd from an Iron Age vessel, possibly a saucepan-style pot. Other residual material includes a sherd of Cadiz amphora, whiteware butt beaker (Cam type 113), Central Gaulish *terra nigra*, Verulamium whiteware, and nine sherds of samian, one piece with two rivet-repair holes. The New Forest wares from the Victorian backfill include a flagon, a bowl (Fulford 1975, type 63.1), and an indented beaker; there are no Overwey sherds. In terms of forms, jars are again dominant at 62.3 per cent, followed by bowls/dishes at 23.5 per cent and drinking vessels at 15.6 per cent.

The final pits analysed in the group, 1326 and 1537, produced much less material, 24 sherds and 2 sherds respectively. Pit 1326, a shallow scoop, contained well-fragmented sherds with an average weight of just 8g. The presence of one sherd of OXF RS and one sherd of Tilford ware suggests a fourth-century date for the fill. From its base, pit 1537 produced one sherd of Central Gaulish samian (Drag. 37) and the rim of a whiteware flagon, which would typologically belong to the mid- to late second century.

Object 118 (Appendix 2, Table 19) (FIGS 63–4)

The pottery from eight of the linear pits in the northern part of the site constituting Object 118 was examined — a total of 1,000 sherds weighing 22.8kg. Again the average sherd size is very variable across the pits ranging from 8 to 9.1g for pits 1019, 1020 and 1680 up to 22.6g for 1480 and 45.7g for 1459.

Pit 1480 appears to be the earliest abandoned pit in the group containing an assemblage of pottery typical of the third century. The sherds are moderately well preserved, although the assemblage is very modest with just 33 sherds. Amongst the group is a substantial part of an ALH RE squat jar akin to Lyne and Jefferies (1979) type 3B.11 (FIG. 63.28) with internal sooting; the base is missing. The vessel probably dates to the third century along with a sherd of whiteware mortaria, probably Lower Nene Valley whiteware. Seven sherds of redeposited, Silchester flint-tempered ware are present but no fine wares.

Pits 1019, 1020, 1459, 1576, 1634, and 1680 all contain British colour-coated wares or other types indicative of dates in the fourth century. In all cases ALH RE sherds dominate the groups accounting for between 33.5 and 64 per cent, followed by DOR BB1 or HAM GT wares. A join was observed between a Central Gaulish samian sherd in pit 1634 and one in pit 1576.

FIG. 64. Location of pits in Object 118

Both these pits also contained single, complete or almost complete vessels. In pit 1576 a complete ALH RE narrow-necked, small jar or flask was recovered from the upper fill (1288) (FIG. 63.29). In pit 1634 the lower part of an ALH RE flask (Lyne and Jefferies 1979, type 1B) was recovered missing its neck and rim (FIG. 63.30).

Pit 1459 produced the largest assemblage of some 311 sherds weighing 14.2kg. The high average sherd size is the result of eight large sherds of Dressel 20 amphora, one sherd of which has a ground edge. This pit has a marked presence of Hampshire late Roman, grogged-ware which contributes a greater percentage overall than the Alice Holt wares, 38 per cent by sherd count compared to 23 per cent, and a massive 71.5 per cent by weight compared to just 8 per cent for ALH RE. The grog-tempered sherds feature largely as storage jars, with at least one flanged bowl. Dorset black-burnished ware is quite marked, as are sherds of LNV CC, KOL CC, samian, and London greyware. Amongst the LNV CC is a rim from a box, as well as beakers. The OXF RS sherds include examples of Young 1977, types C58 and C75, the latter being a bowl form dated to the period A.D. 325–400. This assemblage shows one of the more diverse range of forms and one of the highest incidences of storage jar (Table 16). Drinking vessels account for 12.8 per cent, jars for 39 per cent, and flasks for 11.7 per cent.

Pits 1019, 1020, 1576, 1634, 1680, and 2335 all had assemblages dominated by ALH RE, accounting for between 33.5 and 64 per cent. With the exception of pit 2335, sherds of NFO RS/CC and OXF RS were present in all these pits and Lower Nene Valley colour-coated ware occurred in pit 1019. Specific forms include OXF RS mortaria (Young 1977, C97) and New Forest beakers (Fulford 1975, type F27) and a bowl. Pit 2335 produced three sherds of NFO RS/CC, including indented beaker.

Overwey (Tilford) ware, generally seen as dating to the fourth century and particularly common in later fourth-century deposits, is present in pits 1019 and 1634. The latter pit also produced a coin of A.D. 348–350. A sherd of late Roman shelly-ware, also from pit 1019, generally current from the last quarter of the fourth century, suggests this is one of the latest pits to be filled in this group. Jars dominate the groups from 1019 and 1576, followed by plain-rimmed dishes in 1019 and flasks/ flagons in 1576.

Pits 1020 and 2335 had a particularly marked residual component with several pre-Conquest sherds, notably from 1020 *terra rubra* (GAB TR1C), imported whiteware, wheelmade grog-tempered ware (Silchester fabric G4 in Timby 2000b, 235), and Silchester ware, and from 2335 an Arretine platter (Conspectus form 12), GAB TR1B, Silchester ware, and grog-tempered ware. The residual component is to some extent reflected in the low average sherd weights for the groups of just 8.6g and 9.4g respectively.

Pit 1680 contained the remains of two Central Gaulish samian vessels with patterns of wear consistent with heavy use/long life. One is a base of a Dragendorff 36 with extensive wear on the underside, the other a Dragendorff 38 with a very worn internal surface and a very abraded rim with further wear on the external surface above the flange.

Object 119 (Appendix 2, Table 20) (FIGS 63, 65)

The pottery from the four pits making up Object 119 was analysed (pits 1292, 1293, 1438, and 1611); an assemblage of some 504 sherds weighing 5.9kg. Neither pit 1292 nor pit 1438 produced any Oxfordshire or New Forest colour-coated wares, pit 1292 just yielding a single sherd of Lower Nene Valley colour-coated ware. Alice Holt ware dominated both groups and included one base with an incised X on the underside from 1292. The pottery from 1438 suggests a third-century date, although it should be noted that a coin dated A.D. 337 came from the upper fill whilst the presence of a single sherd of Tilford ware from 1292 would indicate that this was probably filled in the later fourth century.

Samian ware is notably well represented across the Object 119 pits, accounting for between 3 and 9 per cent by sherd count. Pit 1293 produced small amounts of Oxfordshire and New Forest products and included a sherd of a Lower Nene Valley whiteware mortarium indicative of a fourth-century date.

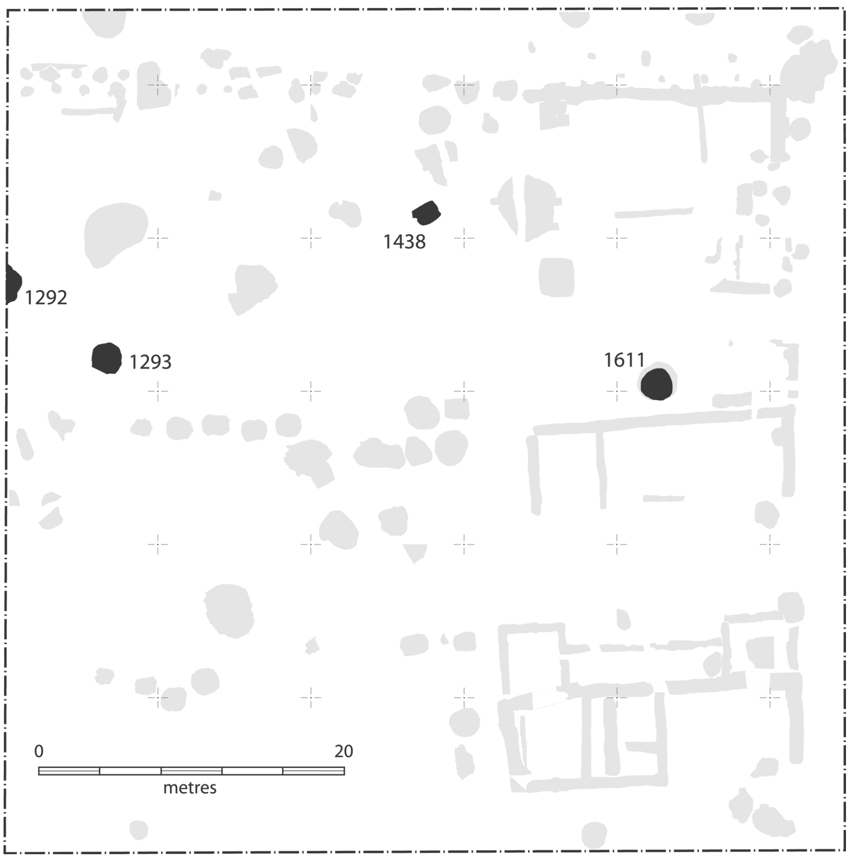

FIG. 65. Location of pits in Object 119

Pit 1611, cut into the top of an earlier well, produced some 214 sherds, 2.3kg, in fairly fragmented condition with an average sherd weight of 10.8g. The layers contain a particularly high frequency of DOR BB1, 31.5 per cent by sherd count compared to 46.5 per cent ALH RE. Of the 86 sherds from 2079, 52 are DOR BB1, the latest forms being jars and plain-rimmed dishes of third-century currency. Also present is a flat-rimmed jar, Lyne and Jefferies (1979) type 3A. A DOR BB1 flanged bowl featured amongst the eight sherds from 2078 and a fourth-century NFO RE beaker, a colour-coated Fulford (1975) type 30, from 1624. The uppermost levels, 1612 and 2171, produced a small number of further colour-coated wares including a NFO RS black-slipped flask and other NFO CC and OXF RS sherds. There appear to be few redeposited early Roman sherds present, most of the wares showing a later second- to fourth-century range.

In terms of form incidence the pits are fairly typical, in that jars are dominant in the two pits with sufficient data to quantify, 1293 and 1611 (Table 21). Drinking vessels are quite well represented at 9.6 per cent (1293) and 18.5 per cent (1611), as are fine ware bowls and dishes (14.7 per cent) in the former, a reflection in part of the high samian content.

Object 120 (Appendix 2, Table 22) (FIGS 63, 66)

Object 120 comprises a concentration of pits and shallow scoops and the uppermost fills of an earlier well. Pottery from 16 pits was examined. Many of these only contained small assemblages of pottery and Table 22 only itemises the contents of those with in excess of 50 sherds, a total of 11 features. In total the group produced some 1,700 sherds, weighing 17.3kg and 1583 eves.

The individual features can be placed into five chronological groups on the basis of the pottery present but also taking into account any stratigraphic relationships. The earliest pit is 2520, which does not appear to contain any material later than second century, although with only 27 sherds the assemblage is very small.

FIG. 66. Location of pits in Object 120

The next group of pits (2856 with context 2582, and 2827 with context 2810) all contained third-century wares, largely Oxfordshire whitewares including mortaria Young (1977) types M10 and M14. None of the groups contained any British colour-coated wares but quite a few redeposited first-century sherds are present. Pit 2827 contained one ceramic counter (SF 1927) fashioned from a sherd of ALH RE and a coin of Carausius dated A.D. 286/7.

The third group is defined by the presence of OXF RS sherds, mainly as beaker sherds, which could potentially date to the later third or early fourth century. This includes pits 2380, 2325, 2381, and 2587. Pits 2325 and 2587 included some DOR BB1 sherds decorated with oblique lattice. Two coins, one dated A.D. 270–285 and the other to the 350s, came from pit 2587.

The next group of pits all contained wares more definitely of fourth-century currency, in particular, New Forest colour-coated wares, parchment ware, and Overwey (Tilford) wares alongside further Oxfordshire products. Specific forms include Fulford (1975) beaker type F34 and Young (1977) types C29, C45, and C51. Included in this group are pits 2556, 2990, 2515, 2528, and possibly 2550. Pit 2515 also produced a HAM GT flanged bowl and 2528 the substantial part of a grog-tempered storage jar (FIG. 63.33). Pit 2990 produced two coins from the upper fill dated A.D. 265–274 and 353–355.

The final group of pits and scoops (2501, 2535/2517/2537, 2550, 2813) all contained sherds indicative of a date in the second half of the fourth century. Pit 2501 produced unidentified colour-coated sherds and one piece of late Roman shell-tempered ware. Pit 2537/2517/2535 had a sherd of a bowl Young (1977) C78, a type made between A.D. 340 and 400. A sherd of samian with a graffito (SF 1727) (FIG. 63.34) also came from this deposit and a number of fourth-century sherds, for example a DOR BB1 flanged bowl and an OXF RS beaker. Two coins of A.D. 364–367/8 were recovered from the complex. Pit 2813 also produced a good suite of late wares including a HAM GT bowl with applied bosses (FIG. 63.37), New Forest colour-coated ware, and whiteware and Overwey wares. Parallels for the bossed bowl, but in a pale grey ware, can be found at Dorchester-on-Thames (May 1977, fig. 8.1) in a deposit containing third- and fourth-century wares mixed with Saxon material. A coin of Valentinian II (A.D. 388–392) from this pit confirms its very late date. Pit 2550 contained unidentified colour-coated sherds with barbotine and white-painted decoration, a number of New Forest wares, a Lower Nene Valley bag-shaped beaker, Hampshire grog-tempered ware, and Overwey sherds. Again a late date is confirmed by a coin dated to A.D. 388–392.

Pit 2380 produced 116 sherds from fills 2352 and 2353. The latest diagnostic sherd is an OXF RS bowl of Young (1977) type C75 dated A.D. 325–400. Other sherds include two third-century OXF WH mortaria, of Young (1977) type M18, and quite a high incidence of samian (7 per cent by sherd number) with examples of Dragendorff forms 31, 37 and 79. Two later third-century coins came from fill 2357. As observed with the other wells domestic wares dominate, in particular jars at 58 per cent eve, with storage jars contributing 8 per cent of these, bowls at 26 per cent and mortaria at 12.5 per cent.

An analysis of the forms from the five pits and one (former) well with a sufficiently large sample (Table 21) shows a slightly different composition of types between the pits. Pit 2381 did not match the expected trend where jars tend to be dominant; drinking vessels (beakers, cups) account for 35.8 per cent eve compared to jars at 29.5 per cent. This contrasts with the groups from 2517/2535/2537, 2813, 2380, and 2550 which show a more typical pattern where jars are dominant, accounting for around 50 per cent followed by coarseware bowls/dishes. Again, beakers and cups form a close third for 2813 and 2550. Pit 2810 has a higher proportion of jars including storage jars, collectively accounting for 72.6 per cent, followed by coarseware dishes at 10.1 per cent. By contrast to the other groups beakers do not feature at all from the rimsherds.

Object 121: wells (Appendix 2, Table 24) (FIGS 67–8)

Pottery from three of the late Roman wells was analysed as part of this phase of work: 1044, 1300, and 2554. These all produced quite sizeable assemblages, particularly 1300 with 459

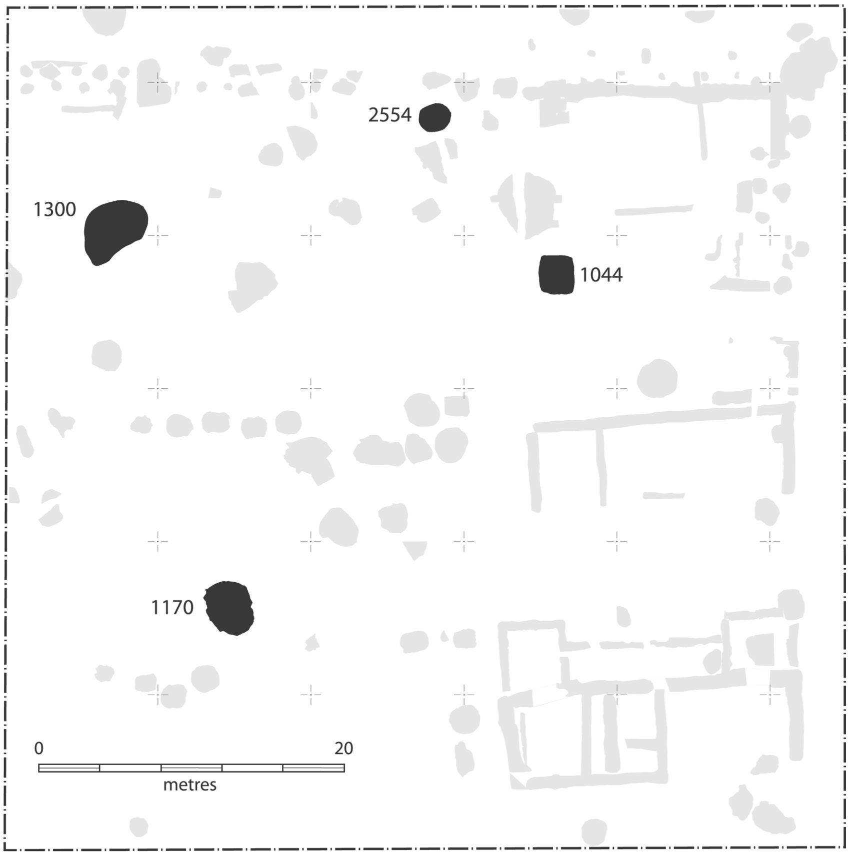

FIG. 67. Location of wells in Object 121

sherds. The average sherd weight was quite high for wells 1044 and 1300 at 23.8g and 19.2g, respectively, but markedly lower for well 2554 at 13.5g.

Well 1044 produced an assemblage of 146 sherds weighing 3.5kg. The lowest horizon, 2383, produced 36 sherds amongst which were New Forest colour-coated wares and whitewares and OXF RS Young (1977) forms C51 and C81, indicating abandonment in the fourth century. A sherd join was observed between 2382 and the succeeding horizon, 2389. Further pottery was distributed throughout the feature (1778, 1610, 1534/1521, and 1045). Other forms and fabrics of note include a large sherd of African amphora, cable-rim ALH RE storage jars, NFO CC beakers Fulford (1975) type F33, OXF RS Young (1977) type C100, HAM GT, and OVW WH. Storage jars are quite common in the group, largely in ALH RE wares and make up 27 per cent of the assemblage by eve (Table 24). Other jars contribute a further 49 per cent, followed by coarseware bowls/dishes accounting for 14 per cent. In contrast to many of the pit groups, drinking vessels are not represented by eve. A small number of obviously redeposited sherds are present but these are quite sparse. A coin of A.D. 337–340 came from the uppermost fill 1045.

Well 1300 produced a particularly large group of material, some 477 sherds, 9.5kg. The lowest fill contained two sherds of Silchester ware of first-century B.C.–A.D. date and the substantial part of a white-slipped flagon possibly from the Staines area (FIG. 68.56). The vessel is missing its rim and has been deliberately pierced with two holes through the body zone. The vessel is not likely to be later than second-century. The following two layers, 1620 and 1619, collectively yielded just seven sherds: four further Silchester wares and three ALH RE sherds, one decorated with incised vertical lines, all of which also suggest a date in the early Roman period. Layer 1590 produced a single greyware base sherd with traces of internal residue. Layer 1357 produced Valentinianic and Theodosian coins of late fourth-century date along with 22 sherds of pottery; the pottery does not reflect the obvious late date of the deposit, the latest diagnostic material being two flat-rimmed ALH RE jars Lyne and Jefferies (1979) type 3A, a

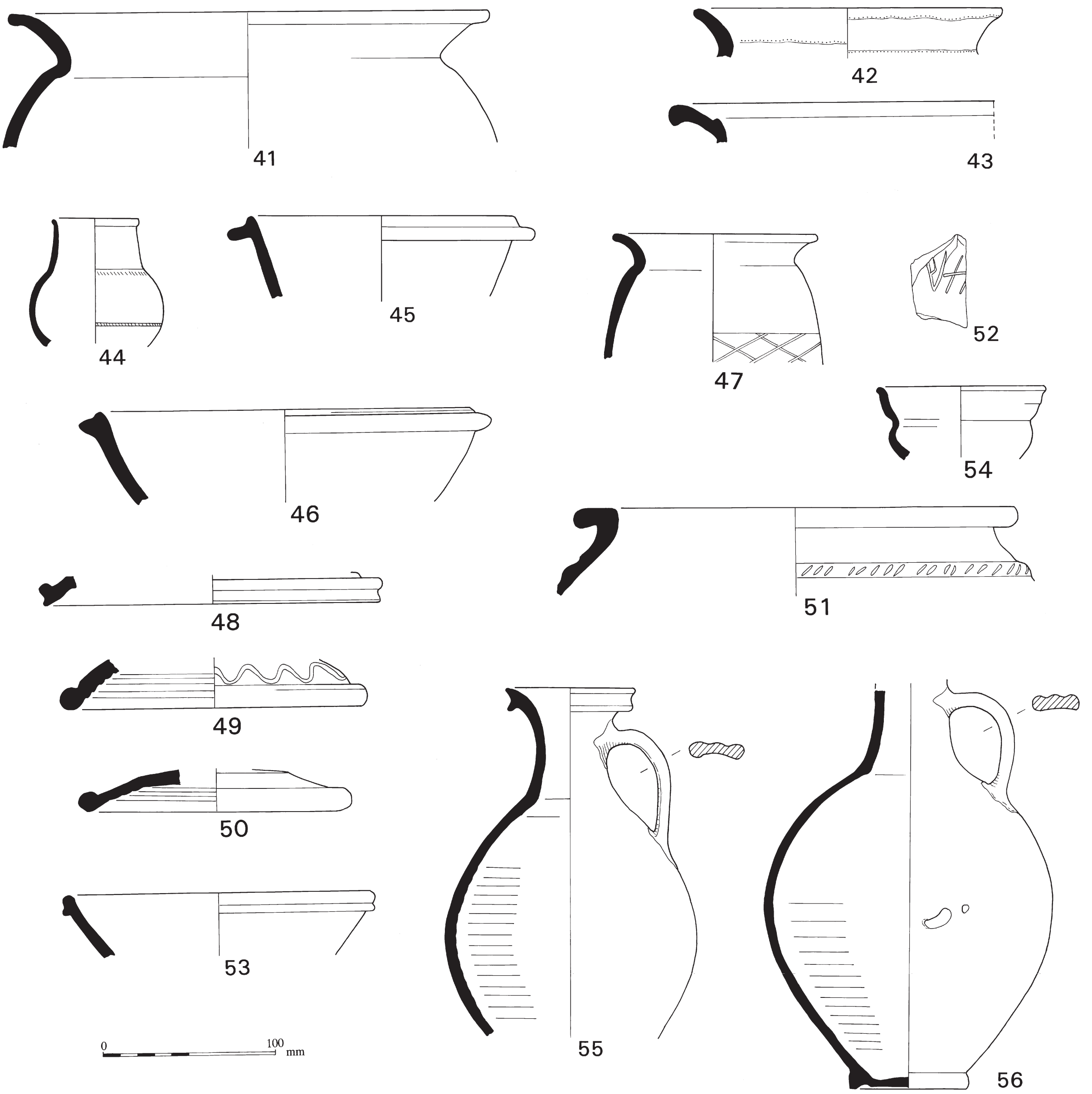

FIG. 68. Pottery from pits in Objects 121 and 122 (Nos 41–56) (Scale 1:4)
(*Drawn by Jane Timby*)

DOR BB1 plain-rimmed dish, and a small sherd of CNG BS. Layers 1341, 1340, and 1329 similarly produced mixed material with nothing of late Roman date, in fact 1341 had a sherd of a first-century *terra nigra* platter. The quantity of material increases from layer 1325, with an assemblage of 120 sherds, but again the chronology is mixed with several first-century sherds alongside later colour-coated wares LNV CC and KOL CC. Of particular note is a British glazed cup imitating samian form Dragendorff 27 (FIG. 68.54) and a large part of a white-slipped flagon (FIG. 68.55); this vessel is slightly distorted forming a useable second. Again none of the sherds would appear to be later than third century. Layer 1319 also produced a moderately large number of sherds in which there was one of a New Forest parchment ware jug, possibly Fulford (1975) type P94, thought to have been in production in the first half of the fourth century. The strap handle of a DOR BB1 jug also came from this layer, as did several sherds of samian, but again no late Romano-British colour-coated wares. The largest dump of pottery came from the uppermost layer, 1301 — some 195 sherds. Despite a number of fourth-century coins none of the classic fourth-century pottery types are present. Sherds of

Verulamium and Mancetter-Hartshill mortaria are represented and several Oxford whitewares. One of the latest diagnostic forms is a single conical flanged DOR BB1 bowl of later third- to fourth-century type.

Overall, jars dominate the assemblage by eve at 62.5 per cent, followed by flagon at 11 per cent and coarseware bowls/dishes at 9.5 per cent. Although clearly most of the pottery used to backfill this feature appears to be residual, the average sherd size is moderately good at 19.2g. If midden material had been used to backfill the feature it might be expected that the sherds would be in a more fragmented condition; an alternative is that soil from freshly dug material incorporating pottery from earlier occupation horizons was used.

The possible well 2554 with 267 sherds, weighing 3.5kg, showed a similar level of fragmentation to pit 2380. No pottery was recovered from horizon 2557, the first group coming from 2551 and comprising 122 sherds. Although no British colour-coats were present, sherds of HAM GT and OVW WH and a flanged ALH RE bowl suggest a fourth-century *terminus post quem*. A single sherd of OXF RS from 2395 and a sherd of NFO CC and two of NFO WH2 from 2378 similarly support a late third- or fourth-century date, but occur alongside material largely of second- to third-century date. Jars again dominate (47 per cent), followed by coarseware bowls/dishes (25 per cent) and flagons (15 per cent).

No pottery from the fourth well, 1170, in this group was examined as it had been completely excavated in 1893.

Object 122: the other late pits (Appendix 2, Tables 23 and 21) (FIGS 63, 68–9)

The remaining late pits comprise eight examples with in excess of 60 sherds (1354, 1513, 1603, 1897, 1916, 1992, 1993, and 2596) (Table 23), with a further seven pits with smaller assemblages (1363, 1866, 1901, 2055, 2224, 2240, and 2257). In total these remaining late pits yielded some 1,104 sherds weighing 16.6kg with 1614 eves. Pit 2634 within Building 1 was subsequently studied at a later date, so the quantitative data were not available to be included in

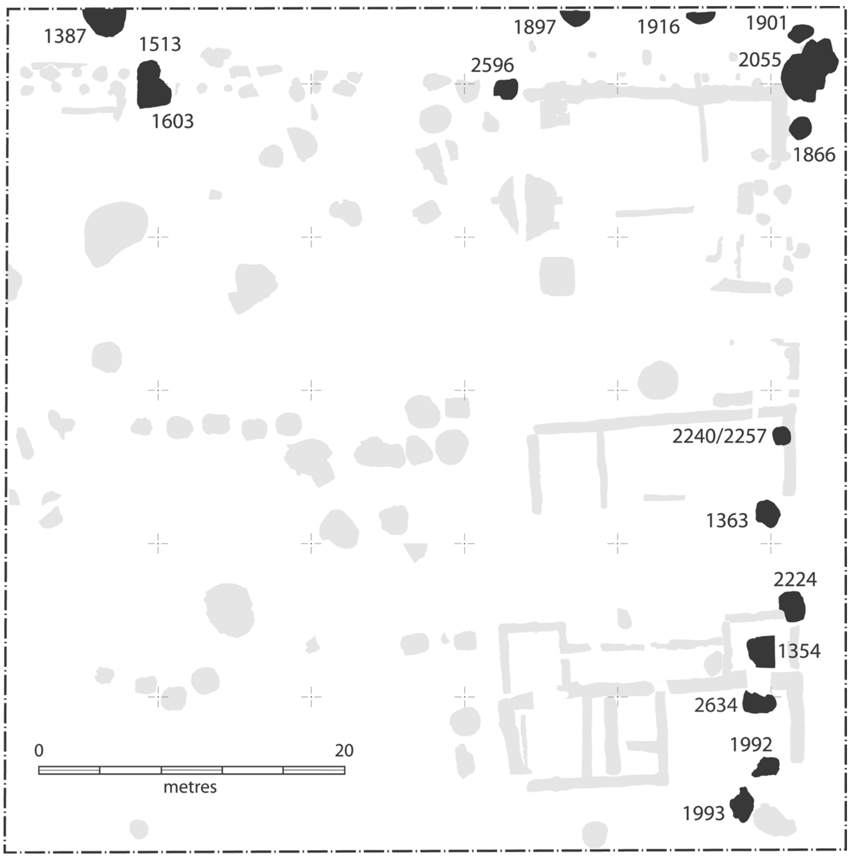

FIG. 69. Location of pits in Object 122

the comparative analysis of the pits in Object 122. As with the Object 120 pits, these can be split chronologically.

Potentially the earliest is pit 2240, although the assemblage is quite small with just 36 sherds. There are no imported or British fine wares present apart from three redeposited whiteware sherds. Alice Holt sherds imitating DOR BB1 would suggest the group should be third-century or later. Pit 2055, another small assemblage, similarly produced no New Forest or Oxfordshire wares but did have a single sherd of Nene Valley colour-coated ware. Again none of the wares need date later than the third century. In view of its location it is possible that the assemblage from 2055 is entirely residual, although the material was not excessively fragmented, with an average sherd weight of 17g. Similarly no late colour-coated wares were present in 2257 which could also be third-century. Pit 2224 contained a sherd of OXF RS indicating a later third- or fourth-century date and pit 1363 with just coarsewares including a DOR BB1 flanged-bowl may be of similar date.

Pit 1866 similarly contained a small assemblage, in this case only eight sherds, amongst which were two OXF RS sherds and one ALH RE flanged bowl indicating a date in the later third or fourth century. Pits 1513, 1603, 1901, 2224, and 2257 all contained a range of typical fourth-century products, notably Oxfordshire and New Forest wares, Overwey wares, and Hampshire grog-tempered sherds, although none in any great quantity. Pit 1603, cut by 1513, produced a small, but moderately well-preserved assemblage of 46 sherds. Amongst the fine wares are sherds of Cologne ware, OXF RS of Young (1977) type C51, NFO CC, and Argonne ware. These, combined with a conical flanged bowl in DOR BB1, suggest a late third- or fourth-century date. Pit 1513 produced nearly twice as much material with further conical-flanged bowls in ALH RE and DOR BB1, sherds of NFO CC including an almost complete indented beaker (possibly Oxfordshire ware) (FIG. 68.44), and three sherds of OXF RS, including a bowl of Young (1977) form C83 with impressed rosette stamps and a mortarium, suggesting a mid- to late fourth-century date. Pit 1901 produced only 16 sherds but these include NFO CC, HAM GT, and OVW WH, indicating a mid- to later fourth-century date. A coin of A.D. 330 was also recovered from this pit.

Pits 1354, 1897, 1916, 1992, 1993, and 2596 all produced frequent sherds of the later wares, and, in the case of 1897, a sherd of North African amphora and a late Roman shell-tempered sherd, suggesting that these pits should perhaps be regarded as late fourth-century or later in date. Other specific forms or fabrics of note include a HAM GT flanged-bowl (FIG. 68.46), HAM WH, Young (1977) mortaria types C97, WC7 and bowls C51, and a later type with rosette stamps, Fulford (1975) bowls F86 and beakers F27. A pottery counter (SF1714) from pit 1916 was made from a sherd of ALH RE. Pit 1916 produced a coin dated A.D. 388+ from the top fill and pit 1354 several fourth-century coins, the latest of which is dated A.D. 395–402, confirming the late date intimated by the pottery assemblage. Pit 1992 produced an almost complete, small DOR BB1 straight-sided dish of which approximately 80 per cent is present.

Of particular note from the lower fill of 2596 is a complete, small fourth-century DOR BB1 jar and a NFO or OXF RS indented beaker (FIG. 63.38–9). The DOR BB1 jar rim has been broken in antiquity and ground smooth; the base edge also shows considerable wear. There is a small longitudinal hole on the lower body, although it is difficult to determine whether this is deliberate, or due to some other damage. Coins from the upper fill provide a *terminus post quem* of A.D. 394–402 for this feature. Two other mid-fourth-century coins and two late third-century coins also came from the pit. In addition to a high incidence of New Forest colour-coated ware (10.5 per cent by sherd count), pit 2596 also produced two possible North African amphora sherds, seven moderately large sherds of Dressel 20 amphora, one of which had been burnt, a moderately high proportion of DOR BB1, at 22.5 per cent by sherd count, and six sherds of OXF RS, including a dish of Young (1977) type C45.

A breakdown of the forms by eve (Table 21) shows all the pits to be dominated by jars. However pit 1354 stands out in that the assemblage only shows as jars, mortaria, coarseware bowls/dishes, and flagons, whereas in the other pits beakers/cups are well represented alongside jars and bowls/dishes.

Pit 2634 within Building 1, analysed separately from the other pits of Object 122, has been identified as one of the latest discrete features excavated. The two fills (2633 and 1321) produced a moderately large assemblage of 153 sherds weighing 1783g and with 46 eves. The sherds were fairly well fragmented with an overall average sherd size of 11.6g. In terms of composition the group is quite diverse, with a mixture of fine and coarsewares, and a single, very small, ?intrusive, post-medieval Surrey-Hampshire Border ware. The imported fine wares include a rimsherd of a Central Gaulish samian dish (Dragendorff 31) with a worn exterior, and four other sherds of samian, two from mortaria (Dragendorff 45), and three sherds of KOL CC beaker. Regional wares include 21 sherds of New Forest beakers (Fulford (1975) type 44), 3 New Forest whitewares, a sherd of a Nene Valley 'castor ware' box, and 10 sherds from Oxfordshire colour-coated vessels, amongst which are a dish (Young (1977) type C50) with white-painted decoration and a bowl (Young type C75). Also present are two rim fragments from Oxfordshire whiteware mortaria, one of Young type M22, and the other with a broken flange in the range of Young type M17–M22. Overall the fine/specialist wares account for 25 per cent by count of the whole assemblage. Residual wares include a sherd of Dressel 20 amphora and three of Verulamium whiteware. The coarsewares comprise eight sherds of OVW WH, seven sherds from a HAM GT jar, 74 Alice Holt sherds, one from a storage jar, five DOR BB1 sherds (one a bowl base and one from a plain-rimmed dish) one coarse grey sandy ware, and one greyware, type unknown. The latter sherd is a completely new fabric to the Insula IX material examined to date. It is from a wheelmade vessel and has a moderately hard, grey paste with a smooth exterior and rough interior with inclusions protruding from the surface. The paste contains a moderate frequency of sub-angular, ill-sorted, fine-textured argillaceous inclusions, possibly a siltstone or mudstone, grey or black/brown in colour, accompanied by rare organic inclusions.

The high number of table or specialised wares might seem unusual and perhaps even deliberately selective. The range of vessels is quite an interesting one where jars (as represented by rims) are clearly in the minority, but with a range of dishes, bowls, mortaria, beakers, and a box. The New Forest beaker form F44 occurs in deposits dated A.D. 300–350 at Portchester (Fulford 1975), but the relatively high number of New Forest sherds alone indicates quite a late deposit. The Oxfordshire wares C50 and C75 date to the period A.D. 325–400+ (Young 1977). The Overwey whitewares also signal a date sometime after *c.* A.D. 325. Clearly the deposit dates to the fourth-century and the presence *inter alia* of a Theodosian coin would suggest it dates to the later fourth-century or later. The unusual greyware sherd may be significant in terms of a late Roman, unknown production, assuming it is not redeposited.

GENERAL DISCUSSION

PITS AND WELLS

The above section has provided a fairly detailed description of the assemblages recovered from various selected late Roman pits and wells. There is clearly quite a range of patterns present across the pits and wells in terms of fabric and form composition, the chronological span of material, and the quantity and condition of the assemblages. How does one thus distinguish the differences between routine disposal of what we would perhaps regard as household rubbish, i.e. material that has no further functional use due to breakage, tainting, replacement of unfashionable or unwanted goods etc., and material that has been deposited through ritual, i.e. where the deposition of sherds or pots has been a deliberate act for a purpose other than simple discard? Trying to interpret the archaeological record is fraught with problems because the archaeologists are to some extent bound by their own cultural values and practices. The contents of the pits and wells reflect a small preserved sample of the total pottery population. It cannot, unfortunately, be assumed that there should be a direct correlation with either the properties within whose plots the pits lie, or necessarily with the spatial presence and organisation of activities nearby. The recognition of 'placed' or structured deposits within

FIG. 70. Pits with a high percentage of drinking vessels

prehistoric contexts is now quite a widely acknowledged phenomenon (Richards and Thomas 1984; Hill 1995), indicating that the deposition of artefacts was, in some cases, a more overt practice with social meaning. The Roman period perhaps brings in a more complex pattern of social behaviour where there is essentially a mixing and intermingling of two separate cultures each with their own beliefs and mores. To what extent indigenous customs may have persisted through the Roman period has not really been explored in depth.

Certain recurring patterns can be observed across a number of pits, highlighting other individual features which appear to deviate from the pattern for one reason or another. The 67 pits looked at can be split chronologically on the basis of the pottery present. At least two pits (1537 and 2520) do not appear to contain any pottery later than the second century. A further 17 pits would appear to have a *terminus post quem* in the third century, of which 8 can be regarded as later third- or possibly early fourth-century (1246, 1702/2727, 1438, 2381, 2587, 1363, 1866, 2224). The remaining 51 pits all contain typical fourth-century material. Of these, eleven can be singled out as probably the latest in the sequence on the basis of the pottery present. Three of these (1019, 1897, 2501) contain sherds of late Roman shelly ware (ROB SH), generally considered to date from the third quarter of the fourth century onwards, and eight (3235, 2813, 1354, 1513, 1916, 1992, 1993, 2596) contained British colour-coated forms typical of the second half of the fourth century along with Overwey wares. Pit 2813 also yielded the bossed dish which is the only candidate in terms of a new form introduced in the very late Roman or sub-Roman period. Another problem with dealing with the end of Roman Britain is that of identifying features dating to after the fourth century. There need not necessarily be any change of vessels present, presumably the same wares continued to be preserved and used, perhaps supplemented by other materials such as wooden or leather vessels. The relatively high incidence of samian in many of the fourth-century features might suggest continued use of such wares well after they were available in the market-place. The fifth-century pit 2634 contained no pottery necessarily later than *c.* A.D. 350.

FIG. 71. Pits with a high proportion of first-century A.D. pottery

The recurring pattern of wares found in the fourth-century (or later) pits is a dominance of Alice Holt ware followed by Dorset black burnished ware and the presence of sherds from the two major British colour-coated industries: New Forest and Oxfordshire. Other late indicators, although not as common, include sherds of Overwey ware, late Roman shelly ware, North African amphora, and Hampshire grog-tempered ware. In most cases jars dominate the form occurrence on the basis of eve, followed by bowls/dishes, but a recurrent feature is a moderate and fairly consistent presence of smaller drinking vessels (cups and beakers), often between 13 and 25 per cent of the total eves. Any deviation from what appears to be the normal pattern of jars, followed by bowls and drinking vessels might imply special deposits. Examples of such could include pits 2381, 1513, 2900, 2914, and 1463 where there are noticeably high percentages of small drinking vessels (see Tables 16 and 21) (FIG. 70). Pit 2087 is unusual in that dishes and bowls are nearly as common as jars, 35.8 compared to 36.9 per cent eve, and pit 2914 has 39 per cent beaker followed by jars and bowls/dishes each at 16 per cent eve. Pit 1459 also deviates from the trend with a higher proportion of fabric HAM GT and a dominance of storage jar.

It is noticeable that all the pits with pottery analysed contain a mixture of both coarseware, domestic and storage ware, and finer, better quality table-wares, and that the percentages of the latter are fairly consistent between 8 and 16 per cent. This could be construed as typical of an urban deposit; much lower incidences of fine wares might be expected in rural situations, although the percentages are probably comparable with the large late Roman villas.

Certain pits show a much higher incidence of redeposited material, notably that dating to the first century A.D. In most cases these pits also show a poor average sherd weight indicative perhaps of deliberate backfilling using material cast up from digging the pit or nearby pits. Not all pits with poorly preserved sherds, however, necessarily contain obviously redeposited material. In the latter case it is possible that midden material has been used to backfill the features rather than the pits acting as direct repositories for domestic or other waste. The

FIG. 72. Pits with poorly preserved pottery (average sherd weight: <10g)

position of the pits with first-century wares in relation to the underlying archaeology could be of some interest in terms of whether they are located near, or over, pre- or early Roman features. Pits that stand out in particular with high levels of redeposited first-century material include 1020, 1021, 1480, 3251, and 3357 (FIG. 71). Pits with poorly preserved sherds in general (i.e. an average sherd weight below 10g) include 1019, 1020, 1438, 1666, 1680, 1993, 2335, 2381, 2587, 2813, 2517/2535, 3010, and 3357 (FIG. 72). Two situations might arise for the use of midden material to backfill features: first, the pit itself is no longer required, or contains waste such as cess requiring covering and second, the midden itself might need disposing off, particularly perhaps in the summer months when mixed midden deposits with food refuse become more smelly and attract flies and other pests thus necessitating the digging of pits to bury it. If this was the case a higher incidence of other waste material, such as animal bone, might be expected in the same deposits. In the autumn/winter months such material was perhaps deposited in fields as manure when the crops were planted, thus explaining, to a certain extent, why one tends generally to get relatively small proportions of what must have once been complete, albeit broken, pots in a single context or feature.

Certain pits do contain quite substantial parts of whole vessels. The domestic arena is the one within which most pottery was likely to have been used and discarded. This is reflected in the much higher proportions of coarse cooking-ware in most of the pits to other wares such as those used for serving, eating, and storage. It is difficult to distinguish between what is perhaps an almost complete vessel discarded because it no longer had any value or use, and one that might be interpreted as a placed deposit and perhaps deliberately broken. At least eight pits produced complete or very near complete pots: 1246, 1463, 1513, 1576, 1992, 2912/20, 2596, and 3235. Semi-complete vessels were recovered from pits 1634, 2087, and 1480 and well 1300 (FIG. 73). Of the complete pots, a squat-necked, ALH RE greyware bowl (FIG. 60.1) came from the only fill in pit 1246, and two small vessels, a NFO CC indented beaker and a greyware flask (FIG. 60.2–3), came from the upper fill of pit 1463. Pit 1513 also produced a

NFO CC beaker from its lowermost fill (FIG. 68.44), but the vessel from pit 1576, a complete flask (FIG. 63.29), came from the upper fill. Pit 2912/20 produced two DOR BB1 jars from the lower fill of cut 2920 (FIG. 60.15–16) and a third DOR BB1 jar (FIG. 60.17) came from the lowermost fill of pit 3235, part of the same sequence. Pit 1992 produced a small DOR BB1 'dog-dish'. Finally, pit 2596 produced a complete DOR BB1 jar from the lowermost fill (FIG. 63.39) and an indented NFO or ?OXF CC beaker (FIG. 63.38) from midway up in the sequence.

The Silchester antiquarian pottery collection housed at Reading Museum contains a large number of complete vessels which appear to have been deliberately damaged or have had their use changed by making a hole or holes through the vessel wall or base (cf. Fulford and Timby 2001). Of the pottery vessels from the recent excavations at least three could be regarded as deliberately holed: the DOR BB1 jar from 2596, the jar from 1246, and a flagon missing its rim from well 1300 (FIG. 68.56). The pewter flagon from the well (1170) containing the ogham stone had also been deliberately pierced (Fulford *et al.* 2000, fig. 4). It has been suggested that these could be the product of a deliberate act to 'kill' the vessel. There is no obvious pattern in terms of where these vessels are deposited within features, with examples from the bottom, middle, and top of features, although the position might have some relevance in terms of the process by which a pit or well was filled. Vessels at the base might signal the abandonment of the well or pit or might be some sort of propitiatory offering to guarantee water or safe storage. If the vessels signal abandonment of the feature then the subsequent infilling might be expected to be rapid. This could have been the case, for example, with 2912/2920 where the sherd size was average and the composition of material quite mixed with frequent redeposited sherds. Vessels deposited at the top of features might also be regarded as some form of closure deposit.

Another observation that can be made on the nature of the fills of the pits is how the pottery is distributed throughout the fills. In some cases the pottery comes largely from the upper fills, for example 1384; in others sherds are distributed fairly evenly throughout the sequence, for

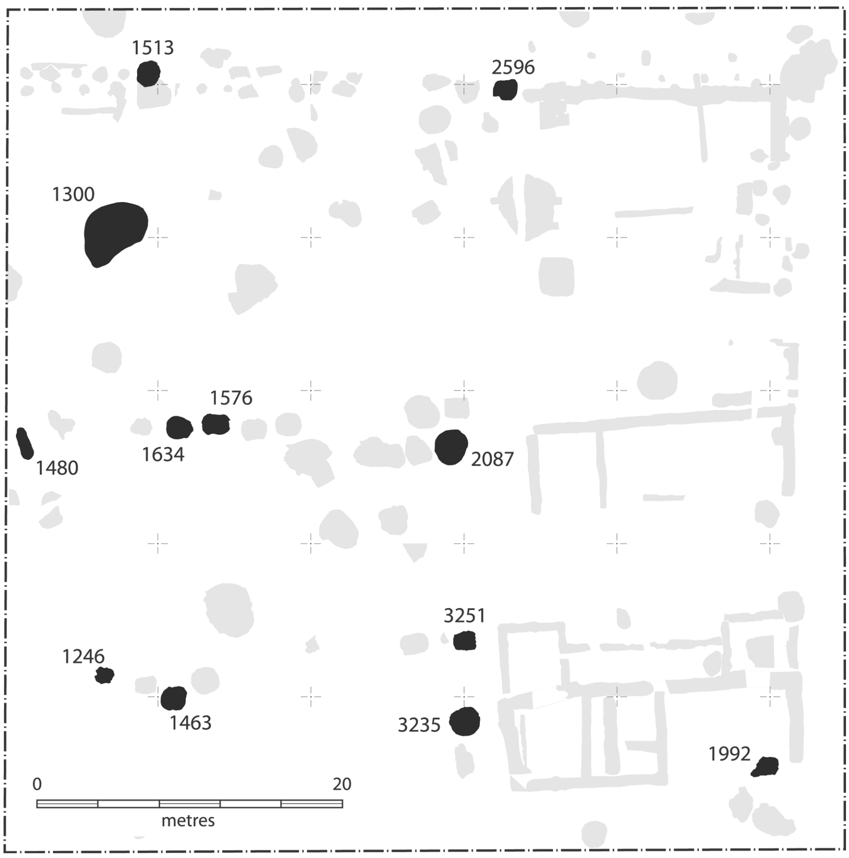

FIG. 73. Pits with complete and semi-complete pottery vessels

example 3251, 2596; in others such as 1246 and 1571 there are just single fills. The upper fills may simply represent levelling deposits.

Pottery from three fourth-century wells was analysed. One noticeable feature is that despite a fourth-century date, British colour-coated wares were very poorly represented compared to many of the contemporary pits, but samian is quite marked, accounting for between 5 and 7 per cent by sherd count. Well 1300, despite a moderately good average sherd size, appears to contain mostly redeposited material until the uppermost level, which is where the first fourth-century sherds feature, the coins in this case dating the feature much later than the pottery. The vessel composition for the wells very much reflects the trend identified from the pits as fairly typical of the fourth century with a preponderance of jars, followed by open forms (dishes and bowls), and then drinking vessels, which are similarly well represented in the wells despite a low incidence of colour-coated ware.

There has been relatively little study of Roman refuse patterns. There is also a paucity of data available from other sites against which to compare the Silchester pits where isolated sequences can be identified. The evidence produced by the Silchester pits could variously support three hypothetical models. The main variable is the extent to which the rubbish enters features directly from the use areas; does it enter the pit directly or is it mediated through secondary processes such as middening?

In the first model the refuse is seen as directly entering the pit, the material being specifically linked with the individual property with which the pit is associated. In such a situation one might expect to find significant proportions of single vessels and perhaps a mixture of other refuse and an organic-rich environment. Accumulation might be expected to be quite slow, so deposits may be well sorted through biological activity. Any sherds from single vessels should derive from the same horizon. Although no one pit can be identified specifically matching these criteria, the presence of the almost, but not quite complete vessels from 1634, 2087, and 1480 might hint at this process. The average sherd size in 1480 was good but the presence of occasional redeposited sherds might suggest use of backfill material.

A second model could suggest the presence of middens associated with the individual properties through which rubbish passed before entering the pits. The pit contents would perhaps be more heterogeneous compared to the first model reflecting different periods of accumulation. In addition refuse lying in open middens may be more open to post-depositional processes than rubbish protected in pits, for example trampling or compaction would reduce sherd size, organic rubbish might show evidence of scavengers, such as dogs or rodents gnawing bones. If several pits were filled from the same source over a similar period of time, sherd links could be expected between pits. The horizons within the pits might be more definable in terms of tip lines. Backfill from the digging of pits might form the core of such middens or be added to existing middens causing earlier material to be added to later material. The manner in which the pottery was analysed did not allow for extensive searches for links, particularly in the less distinct greywares, so this thread cannot be pursued at present. Only one sherd link was observed between two pits — 1634 and 1576 (Object 118) — perhaps linking these two pits not only temporally, but also in the manner of their function or abandonment. Pit 1021 from Object 117 was the only pit where sherds apparently from the same vessels recurred through the fills. Any of the features showing a more mixed composition of material, such as well 1300, or with poor sherd preservation, or with a high proportion of residual material could support this model.

The third model to be considered is that the rubbish used to backfill the pits was derived from a centralised midden through which all refuse from a larger settlement zone was accumulated. This would assume that the pits adjacent to properties existed for other reasons, for example, cess-pits that required covering, or waterholes or wells no longer in use that needed backfilling, as opposed to the pits being dug as direct receptacles for rubbish within the property boundary. This model would suggest more administrative control, with rubbish perhaps being taken outside the city walls. The consequences of such a system would be that the refuse used to fill the features would have all gone through a similar post-depositional process and that more homogeneity might be expected across several features. Episodes of filling might be expected to comprise one or two dumps rather than ongoing accumulation as could happen with the above two models.

It is likely that the pits were dug and filled for a variety of reasons and that elements of all three models could be invoked in different situations. The fairly consistent proportions of vessel types and proportions of coarsewares versus fine wares might strongly support the use of midden material in many cases. It is perhaps the pits noted above that deviate from recurring fabric and form trends that require some other form of explanation. To analyse this pattern further other components of the pits need to be taken into account in terms of other artefacts and ecofacts (bone, charred grain/plant remains), but also soil composition, the relationship of layers and so on. Evidence from the pottery suggests a wide level of heterogeneity in the detailed composition of the pit fills with little suggestion, other than perhaps pit 1021 where sherds of the same vessels recurred throughout the layers, that the fills were derived from a single source. Either we are looking at a series of localised middens, or a centralised midden, or a mixture of the two. Different strategies may have been employed for different situations: pits with cess or rotting organic material would require sealing daily with material relatively easily to hand. Use of midden deposits to fill the upper levels of features might hint at a more planned exercise, perhaps to level up the land for cultivation or to fill communal wells.

OTHER LAYERS AND FEATURES

Of the layers and features spot-dated two groups have been selected for commentary: an earlier group comprising Objects 31017 and 31023 and a later group comprising Objects 31024 and 31030. Tables 26–27 (Appendix 2) provide quantified summaries by sherd count and weight respectively for these groups. The earlier group comprises some 1,357 sherds, 17.44kg; the later group some 3,222 sherds, 33.47kg. The average sherd weight across the two groups is almost identical at 13g, reflecting material that is moderately but not excessively well fragmented. The two groups are also very similar in terms of the relative percentages of the different wares present. Amphorae account for 2.3 per cent of the earlier group and 1.9 per cent of the later group. Specifically these include largely Dressel 20 and Gallic types in both groups, with additional examples of Haltern 70 and Camulodunum type 186 from the early group, and five sherds of a later Roman Biv, and a possible North African sherd from the later group.

Of the imported fine ware groups samian accounts for 5.3 per cent by count of the earlier group and 6 per cent of the later group, whilst other imported fine wares account for 1.8 and 2 per cent respectively. These latter sherds largely comprise Central Gaulish black slip, Mosellekeramik, Cologne and Argonne colour-coated wares. Table 28 provides a more detailed breakdown by sherd count of the named traded wares from the selected contexts. Other imports of note include a Mayen sherd from 1980. The British regional colour-coated industries of Oxfordshire and the New Forest appear better represented in the earlier group at 4.9 and 3.8 per cent compared to 3.6 and 2.7 per cent in the later group. Identifiable forms from the earlier group include examples of Young (1977) types C75 and M14, and from the later group M14, M22, C50, C51, C68, and C75. New Forest beakers, Fulford (1975) type F27, occur in both groups. Overwey whiteware, generally regarded as current from *c.* A.D. 325, is also present at around 1 per cent in both groups, suggesting that the two cannot be easily distinguished on ceramic grounds or that the overlap is too great. This is reinforced by the presence of later Roman shelly ware generally seen as dating from *c.* A.D. 360/370 from layer 1852 in the defined earlier group and from 1996 and 1316 in the later group.

If the data are split into material recovered from the northern part of the site and the southern part of the site and compared with that collectively from the late pits (Table 29) there are both concordances and divergences between the three groups of data. The level of amphora is fairly consistent across all three and one might suppose that the majority of this is likely to be residual or reused. The level of imported, earlier Roman fine ware (other than samian) from the northern layers seems very high at 6.15 per cent on sherd count compared to 1.46 per cent from the pits and 2.21 per cent from the southern half of the site. Conversely samian is much more frequent from the southern part compared to the north, 6.08 per cent compared to 2.18 per cent. Conflated, the two figures give closely similar totals. The pits produced 4.45 per cent samian. This patterning is difficult to explain and may reflect differential use of wares by different households, different sources for the 'rubbish' material, or differing underlying archaeology bringing up greater or lesser proportions of earlier material. A detailed analysis of the chronology of individual wares and the likely level of redeposition from individual contexts may elucidate this. The levels of later Roman wares from the New Forest and Oxford industries are slightly higher in the pits than both the northern and southern areas, but all broadly within the same limits. Dorset black burnished ware, however, is nearly twice as common in the pit fills compared to the layers, whilst greywares, predominantly from the Alice Holt/Farnham industries, are slightly more frequent from the layers.

The data derived from the two selected groups have been amalgamated as typical of the later Roman horizons at Silchester. This is set alongside the data from the Insula IX pits and from other settlements in southern Britain where quantified data relating to later Romano-British occupation could be found (Table 30). The closest site geographically to Silchester with available data is Neatham, designated a Roman small town (Millett and Graham 1986). The figures in Table 30 are derived from the seriated late Roman figures (ibid., table 20). Not surprisingly in view of its proximity to the Alice Holt/Farnham kilns these wares completely dominate the Neatham assemblage, accounting for 94.6 per cent. The diversity of wares is considerably less than at Silchester, with negligible imports and only 0.4 per cent samian. The only similarity to Silchester is in the amount of New Forest ware present which appears to be around 1.3–1.7 per cent for both sites. Other late groups from small Roman 'urban' settlements with data include Alchester and Asthall, both in Oxfordshire. The Period 9 (fourth-century) assemblage from Alchester (Evans 2001) has a higher proportion of regional tablewares, just over 14.8 per cent compared to Neatham with 3.7 per cent and indeed Silchester, which only shows 7.28 per cent. This is undoubtedly explained by the proximity of the Oxfordshire kilns to Alchester. Asthall, slightly further away from the Oxfordshire production sites, by contrast has considerably less at just over 3.9 per cent (Booth 1997) and is thus more comparable to Neatham. Samian wares remain highest at Silchester at 3.5–4.21 per cent compared to these smaller settlements. The Saxon Shore fort at Portchester also produced a moderately high percentage of regional colour-coated and related wares with 17.2 per cent (Fulford 1975). In this case the emphasis is towards New Forest wares reflecting the relative, geographical proximity of these kilns.

Comparing Silchester with other major towns such as Colchester, London (Symonds and Tomber 1991), and Wroxeter (Timby 2000) also shows a number of divergences. The data from London appear to vary quite widely across the different sites examined by Symonds and Tomber. Two sub-sites have been selected for comparison (Billingsgate bath-house and Dowgate Hill) to demonstrate this variability as well as an overall breakdown for London. Looking at the overall figures for London and Colchester produced by Symonds and Tomber (1991, table 6), the levels of imported fine wares are slightly lower than at Silchester but amphorae (residual) at London account for nearly twice as much as at Silchester. Amphorae are similarly well represented at Colchester. The levels of samian from London and Silchester are fairly close, but are slightly higher at both Wroxeter and Colchester. Alice Holt wares specifically account for 16 per cent for London (other greywares are not included in the figure given here). Of the regional colour-coated industries the London figures suggest these account for 7.3 per cent, almost identical to Silchester, slightly higher at Wroxeter at 8.9 per cent and less from Colchester, but undoubtedly compensated there by other more local colour-coats such as Hadham ware. The pattern generally holds across these major settlements for a greater diversity of fine and specialist wares from both continental and regional sources compared to the smaller urban sites. The figures overall also suggest that proximity to a pottery production site will greatly influence the levels of material present at any nearby consumer site whatever its status within the settlement hierarchy and that if it is a specialist or fine-ware production site it will skew the overall figures when trying to compare levels of fine or specialist wares.

CHAPTER 3

THE LATE ROMAN GLASS

By Denise Allen

INTRODUCTION

This report discusses all glass fragments from the late Roman pits and wells as well as all identifiably late Roman glass from non-pit contexts. All the glass from the late Roman contexts was very fragmentary, and much of it could not be closely identified or dated. In any context, where several fragments were believed to be from the same vessel, these have been counted as one, and, using this criterion, the maximum Roman vessel count is 135 (plus three pieces which are almost certainly post-medieval in date). The great majority is from earlier periods, with only three fragments showing characteristics which might suggest a later third- or fourth-century date (see Table 5). The fragments are catalogued in Appendix 3.

TABLE 5. NUMBER OF DATED GLASS FINDS (I.E. WITH RECOGNISABLE, DATABLE FEATURES) IN THE PITS AND WELLS

Object	**Bottles (1–2 century)**	**Vessels (1–2 century)**	**Vessels (2–3 century)**	**Vessels (3–4 century)**	**Vessels total**	**Window**
115		1			5	1
116	8		1	1	30	
117	3		1		22	3
118	3				15	5
119	2				5	
120	4-5	3			29	
121	2	3			15	
122	5-8	2		2	21	1
Total	Max 31	9	2	3	138	10

JOINTS

The only two certain joining fragments (Nos 36, 43) from contexts 2908 and 2924 are from the same pit (3235) and not far apart in the stratigraphic sequence (FIG. 74, No. 4).

Two fragments (Nos 16, 27) that may be derived from the same vessel come from context 2479, the top fill of pit 2900, and from context 2495, one of the top fills of pit 3235. These two pits are in the same area but about 3m apart. If these two fragments are really from the same vessel, it would suggest that either rubbish was spread about or that both pits were filled from a single midden. On the other hand, as this is a common vessel type and as no actual joint could be observed, it is possible that the two fragments in fact derive from different vessels.

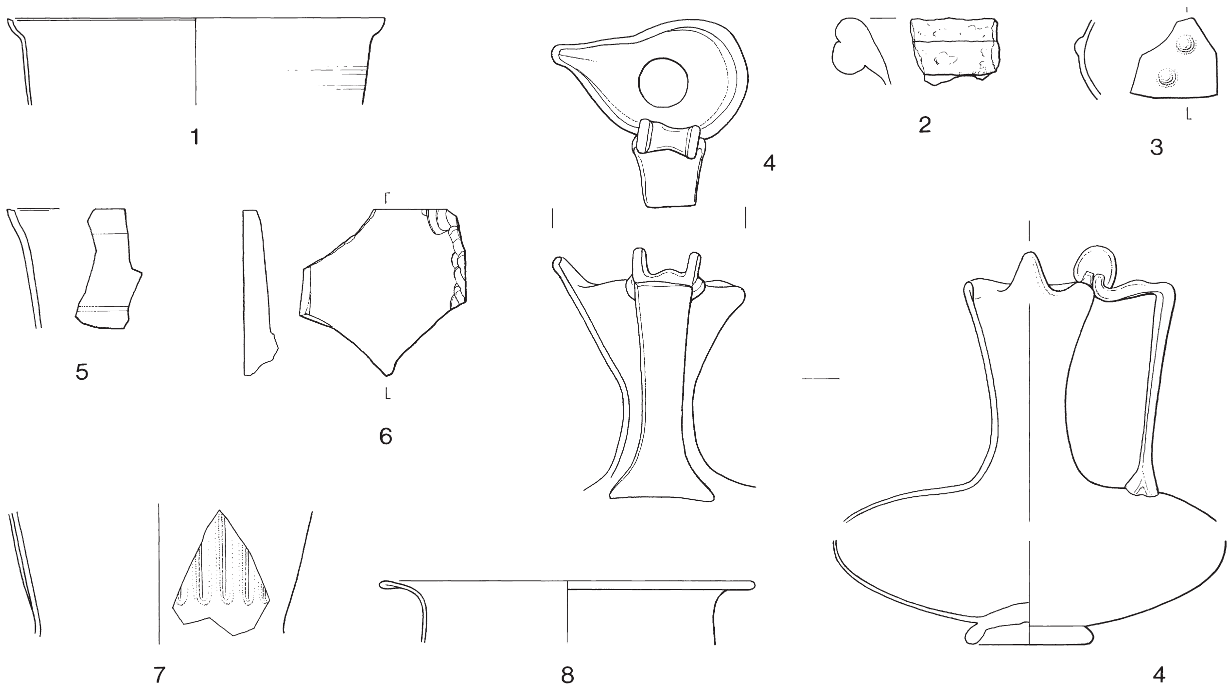

FIG. 74. The glass (Scale 1:2)
(*Drawn by Brian Williams*)

VESSEL GLASS OF THE FIRST AND SECOND CENTURIES

By far the majority of recognisable Roman glass vessel fragments are of first- and second-century date. Most of these are from bottles — blue-green glass containers made in large quantities and in common use during the first two centuries A.D. Even small fragments, especially of the square- or hexagonal-bodied variety ('prismatic' bottles), are easy to recognise (although other large, thick-walled, blue-green vessel fragments may sometimes be included amongst their number), and they often make up a large part of glass assemblages. A maximum of 31 bottles may be represented here. One of the bottle fragments (No. 104; FIG. 74, No. 6) appears to have a grozed edge, suggesting that it was re-used for some secondary purpose.

A further nine vessels are represented which are of first- or early second-century date. Two are blue-green, cast ribbed ('pillar-moulded') bowls — No. 106: Object 120, pit 2380; No. 122: Object 121, well 1300 — which were common first-century forms. A more unusual form was the mould-blown version of this bowl type, represented here by a blue-green fragment from Object 122, pit 1603/1513 (No. 138; FIG. 74, No. 7). This, too, dates to the later first century, but does not occur as frequently as the cast ribbed bowl.

There are two examples of the long-necked jugs which were common during the later first and earlier second centuries, one blue-green (No. 96: Object 120, pit 2827) and one amber (No. 123: Object 121, well 1300), and one body fragment either from a similar jug, or a closely related form of ribbed jar, of yellow-green glass (No. 10: Object 115, pit 1571).

In addition, a colourless fragment with an indent may come from a beaker of late first- or second-century date (No. 119: Object 121, well 1044). The base of an amber unguent bottle or flask is most likely to belong to the first century (No. 93: Object 120, pit 2827) and a blue-green tubular rim fragment is also likely to be from a bowl of the later first of earlier second century (No. 144: Object 122, pit 1916).

All these forms, with the possible exception of the mould-blown, ribbed bowl, are common finds on sites of the first and second centuries, and would not have been regarded as particularly valuable or exceptional items.

VESSEL GLASS OF THE LATER SECOND AND THIRD CENTURIES

Only two fragments could be recognised with certainty as representing forms of this date. The more substantial, interesting, and unusual is the small discoid jug with side-spout, which was found in fragments in Object 116, scattered in contexts in pit 3235 (Nos 34, 42) (FIG. 74, No. 4). A complete profile can be reconstructed, forming a type which occurs occasionally on British sites (Caerleon, Colchester, Verulamium amongst others) but not in huge quantities. They were made in both blue-green and colourless glass, and occur in second- and third-century contexts.

The other piece from this period is a fragment (No. 48: Object 117, pit 1702) from the base of the commonest cup form in circulation — the cylindrical cup with two concentric base-rings, commonly known as an Isings 85b (Isings 1957, form 85b). Several rim fragments were found during excavations at the Silchester forum-basilica (Allen, D. 2000, 316–17, fig. 146, nos 13–15).

VESSEL GLASS OF THE LATER THIRD AND FOURTH CENTURIES

Only three very small fragments may be dated to the late Roman period, and this is only done on the basis of colour and quality, rather than any indisputable feature of decoration or form. There is a small cup rim whose colour (greenish-colourless glass with pinhead bubbles) combined with an unfinished edge may suggest a late Roman date (No. 28: Object 116, pit 3235). In addition, two indeterminate fragments of bubbly yellow-green glass may also be late in date (Nos 146, 151: Object 122). This means that late Roman glass is surprisingly under-represented in these late Roman contexts: a further search through the glass from all contexts of Insula IX excavations revealed a further seven fragments with features which suggest a late Roman date. The only one of these of any possible quality is the fragment tentatively identified as part of the 'chain' handle of a third- or fourth-century jug (No. 7). There are also a colourless fragment with pinched-out points which may represent a fairly common form of third-century drinking cup (No. 6; FIG. 74, No. 3), possibly three examples of later Roman colourless bottles or jugs (Nos 3–5; FIG. 74, No. 2), and two late third- or fourth-century cup rims (Nos 1 and 99; FIG. 74, Nos 1 and 5).

A chronological overview of the Roman glass industry shows that during the fourth century the range of glass vessels in production seems to have been more limited, lacking the same degree of experimentation and diversity as was apparent in the first three centuries A.D. This late period also saw a change in the way glass was being used, with many fewer vessels being used as containers for storage and transportation during the later third and fourth centuries, and glass assemblages being increasingly dominated by drinking vessels (Cool and Price 1995, 235–6, with reference to the glass from Colchester). It is difficult to add substantially to this picture with an assemblage comprising less than a dozen, very small, almost featureless fragments, but the paucity of glass during the late third and fourth centuries in Insula IX may in itself be significant. At the forum-basilica and elsewhere in Silchester, late Roman glass of good quality was present, including cut and engraved vessels, and pieces decorated with applied coloured blobs (Boon 1974, 230–1, fig. 36 nos 4 and 8; Allen, D. 2000, 313, fig. 146, nos 19, 22–3; Price 2000, 316–21, no. 42, fig. 317). There are better pieces amongst the earlier glass from the site, including the small discoid jug found, presumably residually, in pit 2135, so this is likely to have implications for the changing status of the occupation.

The forum-basilica site, in addition, produced window-glass of characteristic late and post-Roman types (Allen, D. 2000, 314), whereas all the window-glass studied so far from the excavations in Insula IX is of the 'cast', matt-glossy variety. There has been recent experimental work by Mark Taylor and David Hill on the method used to make this type of window-glass (Allen, D. 2002, 102–11), and its production seems closely linked to that of early Roman 'cast' bowl forms. The exact date at which it began to be replaced by cylinder-blown window-glass is still not clear, but the evidence suggests somewhere around the end of the third century. The ten small fragments reported here are likely to be residual, from earlier building debris.

POST-ROMAN GLASS

A small fragment (No. 52) of facet-cut glass (probably Victorian) was found in context 1251, the top fill of pit 1021, which was excavated in 1893.

An indeterminate fragment (No. 32) of green glass with heavy flaking iridescence on the surfaces comes from context 2679, one of the upper fills of pit 3235. This is a cess-pit containing some ritual deposits and there is no evidence of it having been disturbed by the Victorians. While it is possible that this fragment is post-Roman in date, its unusual surface may have been caused by the fragment being buried in cessy material.

CHAPTER 4

THE SMALL FINDS

By Nina Crummy

INTRODUCTION

This report includes all non-ceramic finds from the late Roman pits other than the coins (above, Besly), vessel- and window-glass (above, Allen), querns and other worked stone (below, Shaffrey), iron nails (below, Eckardt), and metalworking waste (below, Tootell and Allen). To these have been added other finds of late Roman date from the remaining late Roman contexts.

The small finds from the Silchester excavations to date are very numerous, and a distinctive characteristic of the assemblage is the high proportion of residual early Roman material and the low number of late Roman items. There are, for example, no brooches characteristic of the fourth century such as Crossbows or glass centre-boss plates, but instead many dated to the second half of the first century, with Nauheim derivatives being particularly well-represented.

The principal mechanisms by which the early material has reached the ploughsoil are later Roman ground disturbance, medieval and later agricultural activity, and the disturbance caused by the excavations of the Victorian period, the latter cutting through all levels irrespective of date and retaining only a limited number of artefacts. The first factor also ensures that a certain proportion of early material will be present in the backfill of the late Roman pits and wells, and identification of dated objects clearly in contexts beyond their horizon of use may provide a valuable benchmark against which to compare those that cannot be closely dated.

The objects from these late Roman features are briefly catalogued in Appendix 4, and are summarised below by object and pit. Discussion of individual pieces has usually been restricted to those items which contribute specifically to the identification of the terminal date of the features, or to the interpretation of the deposit, or to craft activities. This material is then examined by functional groups. Finally, a few late Roman items from other contexts are also described, and this slightly enlarged assemblage is set in the context of the late Roman material from other towns in southern Britain.

CATALOGUE (Appendix 4, FIG. 75)

The catalogue takes the form of a table with contextual and object information summarily presented. Column 1 gives the Object number, Column 2 the feature type and cut number, and Column 3 the fill number. The material is presented in numerical order within those columns by turn. Column 4 gives the small finds number, Column 5 the material, and Column 6 a brief description of each item, usually restricted to a single key word. Further detail is given in Column 7, and the dimensions of the item in Column 8.

The number given in Column 9 is the functional category to which the item belongs, as defined in Crummy, N. 1983, 1988, and 1992. Where the identification is far from certain, the category number is in brackets. The categories represented in the Silchester assemblage are: 1, dress accessories; 2, toilet or medical instruments; 3, textile-manufacture or textile-working equipment; 4, household utensils and furniture; 5, items used for recreation; 6, weighing and

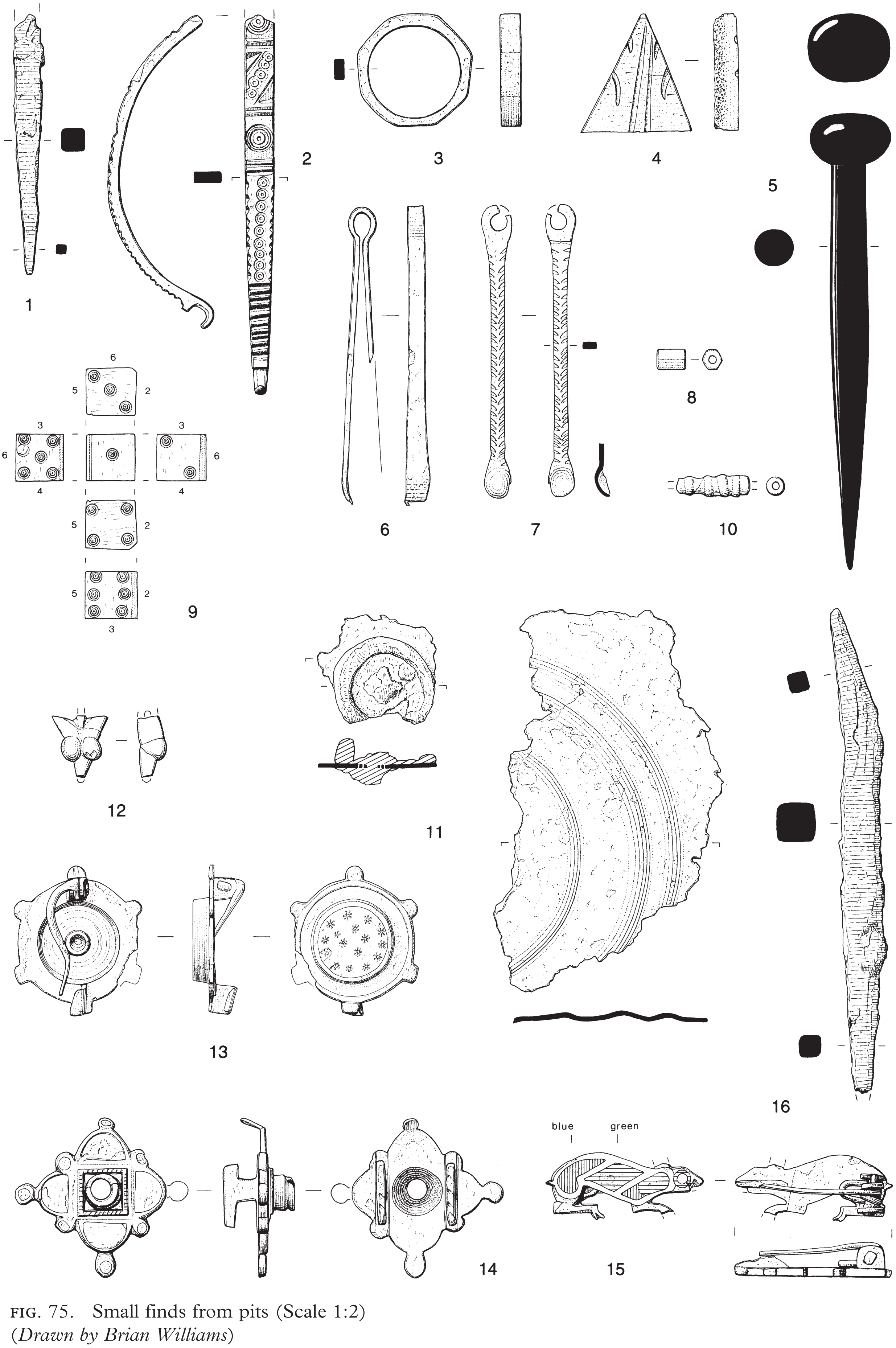

FIG. 75. Small finds from pits (Scale 1:2)
(*Drawn by Brian Williams*)

measuring equipment; 7, writing equipment; 8, objects associated with transport; 9, structural material from buildings and services; 10, tools; 11, general fasteners and fittings; 12, objects associated with agriculture, horticulture, and animal husbandry; 14, religious objects; 15, objects and waste material from metal-working; 16, waste material from bone-working; 18, items of general or unknown function.

THE LATE ROMAN PITS AND WELLS (BY OBJECT)

Object 115

Pit 1246: iron awl. The identification of awls is not always clear, but this small example is well-preserved (FIG. 75, No. 1). Another awl was found in pit 2900 (Object 116), and a third from well 1044 (Object 121). While the problem of residual items means that none need necessarily be late Roman, to find three awls in a limited number of features within a limited area is a strong argument in favour of leather-working having been an important craft activity within the insula.

Pit 1384: copper-alloy shaft, possibly from a brooch pin; iron nail shaft fragment.

Pit 1571: copper-alloy shaft, possibly a toilet instrument handle; glass bead. The glass bead cannot be closely dated, but its small size, dark green colour, and biconical form are most typical of late Roman necklaces, and similar examples have been found in green and other colours in fourth-century graves at Lankhills, Winchester (Guido 1979, especially G100 and G438). None of the graves containing beads of this form dates to later than *c.* A.D. 380.

Pit 3357: antler ?inlay. This is a small thin disc of antler, slightly convex and with a rough edge. It is similar to a disc of the same size but thicker from Object 120. Waste debris from antler-working occurs in Objects 116 and 119.

Object 116

Pit 2900: copper-alloy armlet fragment; copper-alloy furniture nail; iron cleat from footwear; iron spatula-spoon; iron stylus; iron awl; iron strip; iron wire fragment; two bone hairpin shaft fragments. The armlet fragment can be dated to the late fourth or early fifth century (FIG. 75, No. 2). It is of the type described at Lankhills, Winchester, as Type E, at Colchester as multiple-motif (Crummy, N. 1983, 45), and by Cool as multiple-unit (1993, 89). The best dating evidence for the form is from burials, with two graves containing similar armlets at Colchester dated to later than A.D. 360 (Butt Road graves 171 and 378: Crummy 1983, 45; Crummy *et al.* 1993, tables 2.52, 2.67), four from Lankhills dated to A.D. 370–390, and one from Lankhills to A.D. 390–410 (Clarke, G. 1979, 307, 309, table 2, graves 351, 347/50, 351, 396, and 430). A child burial from near *Durobrivae* contained two examples of the form as well as six wedge-shaped amber beads typical of the early Pagan Saxon period and four decorated beads of black glass, again most commonly found in the fifth century (Guido 1999, 22–3). The burial was dated to approximately A.D. 390–420 (Crummy, N. 1999; 2000).

The other objects represent a wide range of activities and seem unlikely to form a coherent contemporary assemblage. The awl, however, is one of three from the late Roman features (see Object 115, pit 1246 above).

Pit 2914: bone hairpin. This is Type 3, which dates very broadly from *c.* A.D. 150 to the fourth century (Crummy, N. 1983, 21–2; 1992, 144).

Pit 2921: copper-alloy finger-ring; copper-alloy sheet offcut; bone hairpin fragment. The finger-ring is of late Roman type with transverse grooves or mouldings on the hoop. The very top of the hairpin is missing, but, as the shank is straight, it must be of a type belonging to the first and/or second centuries and is therefore residual. The offcut points to the manufacture of sheet-metal objects, but, being a single object, this is unlikely to be contemporary with the use of the pit.

Pit 3235: copper-alloy finger-ring; copper-alloy sheet fragment; copper-alloy fragment; iron wire; iron stylus; iron strip; iron sheet fragments; antler inlay; polished pebble (?counter). The finger-ring is plain and externally octagonal (FIG. 75, No. 3), a type that often occurs in Britain in the fourth century, when finger-rings were more popular in general, but is also found on the Continent in the second and third centuries and even as early as the Augusto-Tiberian period (Crummy, N. 1983, 49, no. 1788; Bertrand 2003, 41). The notching on the sides of the triangular piece of antler inlay (FIG. 75, No. 4) suggests it is of late Roman date rather than residual (see Object 117, pit 1021). It may be contemporary with the large group of inlay fragments from Gloucester found in a late fourth- or early fifth-century context sealed by dark earth (Hassall and Rhodes 1975, 73). The pebble is so well formed and polished that, though it bears no obvious marks of working, it is unlikely to have been shaped solely by natural forces. It is of a size consistent with board-game counters.

Pit 3251: copper-alloy armlet fragment; iron hobnails; iron double-hooked fastener or cleat; iron ?nail shank fragment; refrozen lead sheet puddle; glass bead; jet hairpin; bone hairpin; worked antler offcuts. The bone hairpin is a residual second-century form. It is a variant of Type 2, which has a straight shaft and simple pointed head, with one or more grooves cut into the shaft just below the head. This example has the same grooves but the head consists of a reel beneath a bead topped by a small cone. The straight shaft places the date of this pin to no later than *c.* A.D. 200, as from about A.D. 150 pins began to be made with a swelling to the shaft (Crummy, N. 1992, 144). The bead cannot be closely dated. The jet hairpin (FIG. 75, No. 5) has a globular head and probably dates to the late third or fourth century (Crummy, N. 1983, 27, Type 1; Allason-Jones 1996, 43–4). The antler offcuts may be late Roman or Saxon, as red deer antler was a much-utilised material in those periods (MacGregor 1985, 32). One is the residue from a long straight strip, probably veneer but possibly a connecting-plate from a late fourth-century or later composite antler comb. A large unused fragment of a shed antler was found in Object 119, pit 1611.

Object 117

Pit 1021: copper-alloy tweezers (FIG. 75, No. 6); copper-alloy toilet spoon; iron ring. The feathering on the sides of the toilet spoon (FIG. 75, No. 7) is a form of decoration most often found in the late Roman period, occurring on both metal and bone objects (see Object 116, pit 3235). It occurs, for example, on the metal fittings of a jewellery box from a late fourth-century grave at Colchester (Crummy, N. 1983, figs 90–1), on a nail-cleaner from *Segontium* in a late fourth-century to post-Roman context and on another from Uley in a fifth-century or later context (Allason-Jones 1993, 172, fig. 10.5, 72; Woodward and Leach 1993, 177, fig. 135, 6), and also on a strap-end from Winterton from a late Roman context (Stead 1976, fig. 111, 109). The recovery of the spoon with tweezers suggests that they came from the same set.

Pit 1666: copper-alloy stud; copper-alloy ?earring; copper-alloy sheet fragments; iron ring-fitting; iron joiner's dog; iron cleat; iron sheet fragments; glass bead; bone die; bone hairpin; bone shaft fragment. The hairpin is again a second-century variant of Type 2, with a straight shaft with a single groove at the top and the head trimmed into a small knob. The glass bead is a type that often occurs on necklaces in late Roman graves (FIG. 75, No. 8). The die has very small double ring-and-dot motifs and conforms to the rule of opposite faces totalling seven (FIG. 75, No. 9). It is blundered on the side for '5'; one motif has been set too far in from its corner and left unfinished, to be replaced by one in the correct position. While the delicacy of the motifs suggests that the die was made by a craftsman with specialist tools, the blundering suggests that little importance was attached to the overall appearance of the piece.

Pit 1702: iron strip fragment (?reinforcement); iron ?handle fragment; pottery counter.

Pit 1707: copper-alloy stud; iron collar; iron sheet fragment or offcut; glass bead; bone needle fragment; bone shaft fragment. The kidney- (or heart-)shaped bead in opaque green glass is typical of the fourth century. Fourteen exactly similar beads came from a necklace (or necklaces) in a grave at Colchester dated to A.D. 360 or later (Crummy, N. 1983, fig. 37, 1482–4; Crummy *et al.* 1993, tables 2.55, 2.67, grave 69). The form is rather more common in blue, with examples found at Lankhills and Colchester in graves spanning the fourth century in

date (Guido 1979, 298–9, graves 199 and 336; Crummy, N. 1983, 34–5; Crummy *et al.* 1993, tables 2.54, 2.55, 2.67, graves 1 and 609).
Pit 2087: copper-alloy sheet fragments; small iron ring or washer; iron nail; iron goad; lead sheet fragment; bone needle. The diameter of the goad is only 13mm, whereas most cluster round about 25mm, suggesting that it was used for small animals such as sheep or goats, rather than for oxen.

Object 118

Pit 1019: two iron strap fragments; iron nail; iron shank fragment. The shank fragment is very narrow and of circular section; it may be from an awl or similar pointed tool, or from a needle.
Pit 1459: iron fragment; green glass cylinder bead (FIG. 75, No. 10). The bead is a small tapering segmented cylinder of green glass, with a wide neck between each segment, so that it appears more like an occasionally collared tube than truly segmented. Though green glass segmented beads do occur in the Anglo-Saxon period they tend to be neatly segmented (Evison 1987, text fig. 11; Guido 1999, 44–5), and there is no reason to suppose that this particular 'necked' variety is anything other than late Roman in date, since 24 very similar beads were found in a late grave at Poundbury (Guido and Mills 1993, 101, fig. 72, 3–4).
Pit 1480: iron hobnails.
Pit 1634: copper-alloy studs and sheet fragments; iron L-shaped fitting; iron ring; iron strap fragment; iron shank fragment; shale armlet fragment. The copper-alloy items all derive from a wooden box clad, at least partially, in thin sheeting attached by studs, some of which have an iron shank set in lead beneath the copper-alloy cap. One piece (SF 804) has concentric mouldings and is likely to be part of the lock-plate (FIG. 75, No. 11). It is possible that all these pieces represent the lock-plate only, but boxes with more extensive cladding or decorative sheet fittings are also known (Henderson, A.M. 1949, pls 47–8; Waugh and Goodburn 1972, fig. 48; Crummy, N. 1983, 85–8; Cool 1993, fig. 69; Riha 2001; Harrison 2002). Some of the iron fittings may also derive from the box, in particular the iron ring, the ?nail shank, and the strap fragment, which may be all that remains of a hinge. The shale armlet fragment is small and, while it may have been part of the contents of the box, it would probably have been complete, or at least, larger, if it had been. The L-shaped iron fitting is also less easily accommodated as a related item.

Sheet metal was used on boxes throughout the Roman period, and fragments such as these are impossible to date accurately. However, the condition of the cladding is probably an indication that it is residual in this pit, and the absence of any well-preserved iron fittings supports this.
Pit 1680: iron nail.

Object 119

Pit 1293: amber fly (FIG. 75, No. 12). The head-end of the fly is damaged, but it appears to have been perforated for suspension as a pendant. Its form is rudimentary, but similar to that used for Romano-British enamelled fly brooches, that is, with an almost entirely two-dimensional body, the triangular outline broken only by the head and the end of the abdomen (e.g. Hattatt 1987, fig. 46, 974–5). The exaggerated size of the eyes on the Silchester piece suggests a specific reference to a large fly such as a bluebottle or horsefly.

Pliny notes that amber was expensive, that it was chiefly used for protective amulets for babies, and, worn on a necklace, was a remedy for fever (*Historia Naturalis* 37.48–51). This implies that the substance was the important factor for these charms, not the form. Amber pendants found on the Continent are often zoomorphic, with the animals represented including lions, birds, fish, and shell-fish, many having an amuletic significance. The range of creatures represented on a necklace from Poitiers composed entirely of amber charms, many paralleled at Herculaneum, suggests that the form is indeed of secondary importance, though it may itself sometimes also be considered as highly potent, for example amber *mano-fica* pendants (Strong 1966, pl. 43, 122; Brown and Henig 1977, pl. 2.V, b–c, 2.VI; Bertrand 2003, 71).

Amber objects of the High Empire from the workshops in Aquileia are rare in Roman Britain, and are generally of extremely high quality. They also usually come from military sites, which suggests that they probably entered Britain as personal possessions, rather than through trade, for example a ram's horn from the Wroxeter fortress, and a finger-ring and a knife-handle from Carlisle (Webster 2002, 127, fig. 4.27, 212; Henig and Padley 1982; McCarthy *et al.* 1983). The trade in amber in the Mediterranean world declined after *c.* A.D. 200, but it remained in vogue in the Northern provinces and an increasing number of amber items appear in late Roman contexts in Britain (e.g. Chapman 1974; Henig 1984; Allason-Jones 1989, nos 581–2; Crummy *et al.* 1993, tables 2.52, 2.54–2.55). It is therefore impossible, given the simplicity of the Silchester fly, to be certain of its date and place of manufacture, though it is perhaps most likely to be an Aquileian product.

Pit 1611: copper-alloy shaft fragment; copper-alloy sheet fragment; iron tumbler-lock slide key; iron strap fragment; two iron strip fragments; iron nail head; antler fragment.

Comparable keys from Verulamium (though with slightly rounded rather than flat upper edge) were found in both second- and fourth-century contexts (Manning 1972, nos 77–8). The naturally-shed antler is waste debris from antler-working and may be late Roman or Saxon, like the offcuts in Object 116, pit 3251 above.

Object 120

Pit 2325: shale armlet fragment.

Pit 2380: copper-alloy sheet fragments.

Pit 2501: iron nail; iron stud.

Pit 2517: copper-alloy sheet fragment.

Pit 2528: copper-alloy tweezers fragment.

Pit 2537: shale armlet fragments.

Pit 2550: enamelled copper-alloy disc brooch; copper-alloy sheet fragment; iron joiner's dog; iron ploughshare tip. The disc brooch is of second-century date and residual here (FIG. 75, No. 13). It is complete apart from one lug which has broken away taking part of the rim with it. The raised centre is filled with blue enamel into which are set two circles of small millefiori star-shaped flowers interspersed with similar but even tinier flowers. In form this brooch is exactly paralleled by two from Nornour, Isles of Scilly, both with a blue field, though one is set with chequers instead of flowers, and the other has red spots around the edge (Hull 1968, nos 202–3). The ploughshare tip is also residual, being of the Iron Age and early Roman flanged variety rather than the D-shaped bar of the later Roman period (Manning 1985, 43–4).

Pit 2556: antler inlay? This roughly-made small disc is very similar to that from Object 115, but twice the thickness.

Pit 2587: copper-alloy boss.

Pit 2725: enamelled copper-alloy fitting. This object has T-shaped projections at the rear to allow it to be fitted into a larger object, and then turned at right angles so that the bars of the T held it in position (FIG. 75, No. 14). The larger object was probably a leather strap with two small parallel incisions, but this method of attachment is unusual, and seems rather insecure. A complete example of the same form, with a small ring with decorated outer edge fitted into a looped projection riveted to the centre, was found at Little Waldingfield, Suffolk (Martin *et al.* 1999, fig. 94, H). There is a rectangular version from Ballan, Les Aumônes, Indre-et-Loire, which has the same looped projection and decorated ring as the Suffolk fitting (in the collection of the Société Archéologique de Touraine in the Musée de l'Hôtel Goüin at Tours). It too is enamelled, but is also nielloed, a combination of decorative techniques that may indicate a date between A.D. 70 and 90 (Boucher 2004, 20, fig. 1, 3). The ring on these fittings clearly swivelled freely, which implies that a second strap was either attached to it or passed through it. Given the decoration on the outer edge the latter is most likely. The size and decoration seems most appropriate for a jewellery or toilet-box with suspension chains or straps, such as that carried by the woman on a mosaic from Piazza Armerina (Croom 2002, pl. 8; Crummy, N. 2005).

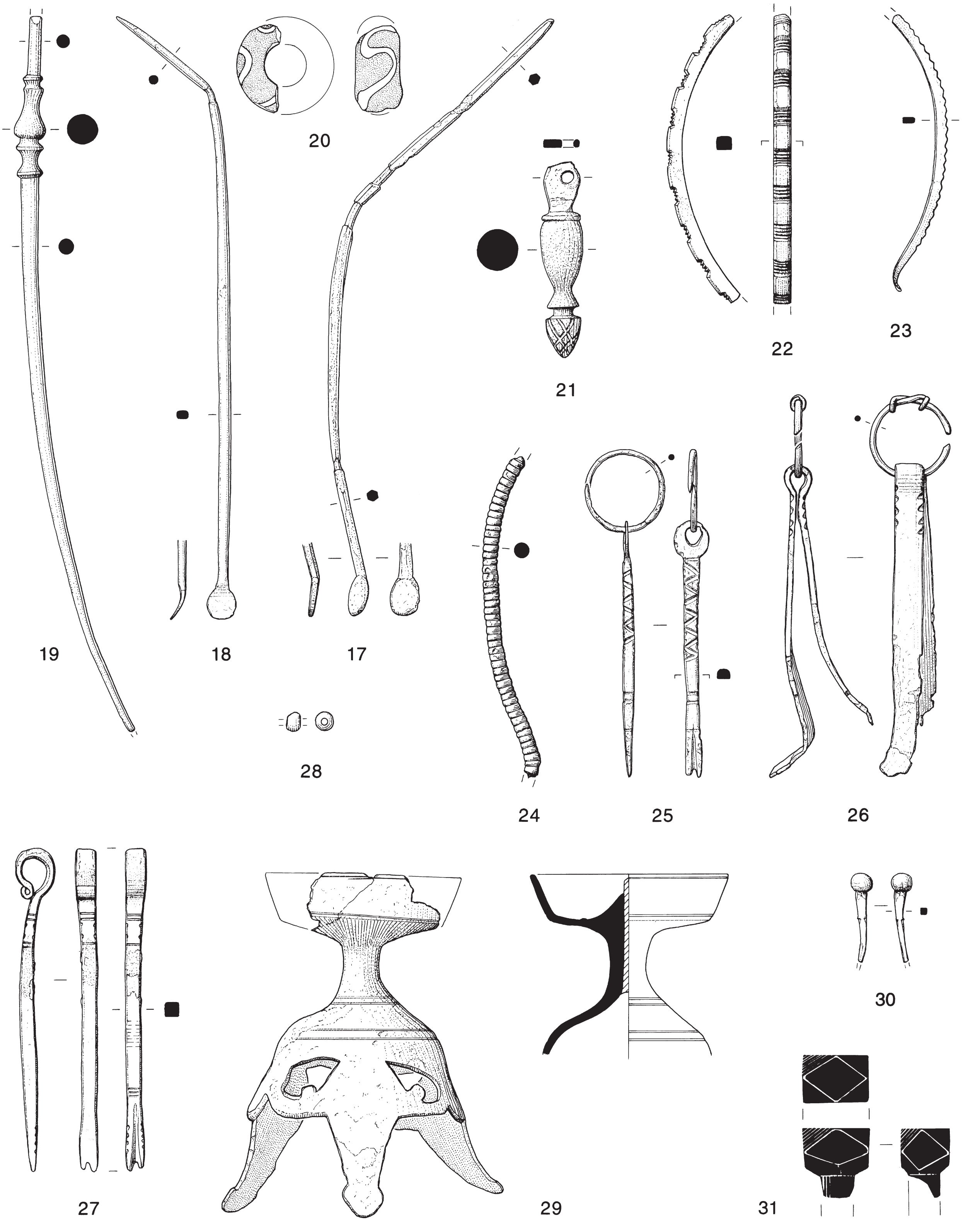

FIG. 76. Small finds from pits and other contexts (Scale 1:2)
(*Drawn by Brian Williams*)

Pit 2813: iron curved strip fragment.
Pit 2827: copper-alloy Colchester brooch; copper-alloy hare plate brooch (FIG. 75, No. 15); copper-alloy stud fragment. The small Colchester brooch belongs late in the series, probably dating to *c.* A.D. 40–60. It is well out of its horizon here, as is the hare plate brooch, which probably dates to the second century, perhaps running into the third, though stratified examples are scarce and even then often residual, as here. An example from Leicester was in a context dated to *c.* A.D. 200–250 (Kenyon 1948, fig. 82, 5), while one from Richborough was found at the bottom of a late third-century ditch (Henderson 1949, no. 44).
Pit 2991: iron cleat.

Object 121

Well 1044: copper-alloy ?brooch bow fragment; iron joiner's dog; iron awl (FIG. 75, No. 16); iron shank or bar fragment. The awl is the third to be recovered from the late Roman features (see Objects 115 and 116). The identification of the copper-alloy fragment as a brooch bow is far from certain.
Well 1300: two copper-alloy toilet spoons (FIG. 76, Nos 17–18); copper-alloy toilet instrument handle (FIG. 76, No. 19); copper-alloy wire fragment; iron strip fragment; lead weight; lead sheet fragment; refrozen lead puddle. The recovery of three toilet instruments is unusual; two are complete, or nearly so, the third has lost its functional ends and all are bent. In view of the presence of other damaged votive material from Silchester, this may represent deliberate breakage. The bent-wire fragment may be all that remains of the shaft of a fourth toilet instrument.

The refrozen lump of lead may be evidence of lead casting, or may simply be debris from a fire. The weight is from a steelyard and, at 257g, is about ten Roman ounces at a weight of about 309g to the *libra*, which is comparable to that of the Seven Sisters hoard of weights from Neath (Davies and Spratling 1976, 127), and about the mean for the set of weights from Heidelberg (Nuber 1981, 506). At about 325g to the *libra*, suggested by some sources, it is still heavier than 9 ounces.

Object 122

Pit 1354: copper-alloy brooch bow?; copper-alloy nail; copper-alloy sheet fragments; iron cleat; lead-alloy vessel base sherd. The lead-alloy sherd is undoubtedly from a pewter platter, and may perhaps be evidence for recycling.
Pit 1387: iron ?bolt-plate fragment.
Pit 1603: copper-alloy nail.
Pit 1866: copper-alloy strip or ?offcut; glass bead fragment. The bead is annular, made of cobalt blue glass with a white wave (FIG. 76, No. 20). The type occurs from the Late Iron Age into the Pagan Saxon period, and dating is therefore difficult (Zepezauer 1993, Group 4.2.6; Guido 1978, Group 5a; Guido 1999, Group 6ix). It is smaller than many Roman examples, though there is an even smaller bead from a second-century context at Verulamium, Hertfordshire (Charlesworth 1972, 213, fig. 79, 71), but is much the same size as those of various colours with zigzag trail from Anglo-Saxon sites, in particular an exactly similar blue with white example from the cemetery at West Stow, Suffolk (Evison and Cooper 1985, 74, fig. 276, 11). A Pagan Saxon date may therefore be postulated for this item, but is by no means assured.
Pit 1897: shale fragment. This may be a fragment of wall veneer, or furniture, or perhaps an offcut from shale-working.
Pit 1916: pottery counter.
Pit 1992: copper-alloy pendant (FIG. 76, No. 21); iron concave handled vessel; iron spike. As the pine-cone terminal of the pendant is a symbol of the *thyrsus* this may be an apotropaic charm linked with the worship of Bacchus (Henig 1977, 361), though the form of the pendant is similar to that of military strap-tags.
Pit 1993: iron fitting; iron chain link fragment?; iron sheet fragment.

Pit 2224: copper-alloy fragment.
Pit 2596/3068: copper-alloy armlet; copper-alloy ?buckle; iron cleat; iron spade shoe fragment; iron nail (and fragments); iron shank or bar fragment. The armlet is of the type with teething between the crenellations, otherwise known as the cog-wheel type (FIG. 76, No. 22). The best comparative dating evidence is: Gadebridge, later than A.D. 353 (Neal and Butcher 1974, 139, fig. 60, 159); Colchester, Butt Road Grave 171, A.D. 360+, and Butt Road Grave 647, A.D. 367+ (Crummy, N. 1983, 40, fig. 43, 1659; fiche, nos 1658, 1660–4, 1666–71; Crummy *et al.* 1993, tables 2.52, 2.67); Winchester, Lankhills Grave 369, A.D. 370–410, and Grave 438, A.D. 360–370/80 (Clarke, G. 1979, 305, Type D1e, nos 554, 568); Neatham, late fourth to fifth century (Redknap 1986, fig. 73, 100–1); Dorchester-onThames, early Saxon Grave 3, first quarter of the fifth century (Kirk and Leeds 1954, fig. 29, 2 and 5; White 1988, 109); Pennyland, Milton Keynes, small fragment from a Pagan Saxon sunken-featured building (Williams, R. 1993, 107, fig. 56, 34). Of these well-dated examples perhaps the most important are those from the early Saxon grave at Dorchester-on-Thames, one of a small group of burials containing both characteristically late Roman and early Saxon items, initially dated by Kirk and Leeds (1954) to the late fourth century, but shifted by White (1988) into the first quarter of the fifth century. The fragment from a sunken-featured building at Pennyland is likely to be either residual or a curated item, rather than an indication of usage in the Pagan Saxon period. There are many other examples of these armlets that are generally dated to the fourth, or late fourth, century, and others either lack good contextual details, come from ploughsoil, or are unstratified, context-types often characteristic of very late Roman material (some other references to this type of armlet may be found in Swift 2000, 310).

THE ASSEMBLAGE IN GENERAL

Table 6 summarises the functional categories present in Objects 115–122. Items only doubtfully attributed to categories in Table 6 are here bracketed as additions to the certain items. Iron nails are omitted as the majority were not registered as 'small finds', but see Eckardt, below, p. 139.

TABLE 6. SUMMARY OF FUNCTIONAL CATEGORIES REPRESENTED IN EACH OBJECT
(for categories, see above p. 121–2)

	Categories														
Object	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**9**	**10**	**11**	**12**	**14**	**15**	**16**	**18**
115	1 + (1)	(1)	–	(1)	–	–	–	–	1	–	–	–	–	–	–
116	12	1	–	1	(1)	–	2	–	1	3	–	–	1 + (1)	2	7
117	4	2	2	–	1	–	–	–	–	7 + (1)	1	–	(2)	–	10
118	3	–	–	5	–	–	–	–	–	1	(1)	–	–	–	4
119	–	–	–	–	–	–	–	–	–	3	–	1	–	1	4
120	6	1	–	(2)	–	–	–	–	–	4	1	–	–	–	4
121	(1)	–	–	–	–	–	–	–	1	1	–	–	–	–	1
122	6	3	–	1	–	1	–	1	–	3	1	(1)	1	–	14
Totals	32 + (2)	7 + (1)	2	7 + (3)	1 + (1)	1	2	1	3	23 + (1)	3 + (1)	1 + (1)	2 + (3)	3	44

The preponderance of items in Categories 1 (dress accessories), 11 (fasteners and fittings), and 18 (items of general and unknown function) is typical of the overwhelming majority of Roman small finds assemblages, and similarly, the low number of items from the other categories is also to be expected.

A high level of residuality is demonstrated by the hairpins and brooches in Category 1 (dress accessories). Three out of four datable hairpins or fragments recovered are of first- or second-century date, as are both of the brooches and at least one, if not both, of the possible brooch fragments. This picture is, however, balanced by six iron cleats from footwear; these are undoubtedly late Roman and are a characteristic feature of Silchester assemblages of that date. The forum-basilica site produced twelve, of which eight came from Period 7 (late Roman) and three from Period 9 (Victorian). The only one from Period 5 is a variant form (Richards 2000a, 372–3).

It is often the less well-represented functional categories that reveal most about the nature of occupation on a site, but where there is a high element of residual material the patterns of deposition can be very misleading. For example, the high number of items in Category 4 (household utensils and furniture) in Object 118 all come from pit 1634 and probably all derive from a single box that was perhaps broken up, perhaps when this or another pit was dug, and then redeposited in the fill (see above). Similarly, the two styli from Object 116 (Category 7) need not necessarily be evidence for a set of late Roman writing equipment, but may be residual from earlier activity on the site — all the more likely in the light of a high number of styli found during the excavation seasons of 2002 and 2003.

It is, however, worth noting that all three tools (Category 10) in the assemblage are awls and that they are spread across the site in Objects 115, 116, and 121, a consistency of deposit which may suggest that leather-working was one of the crafts practised here in the late Roman period. The three, perhaps four, items associated with agriculture may also be contemporary, particularly in the light of evidence for crop-growing inside other large Roman towns at this period (Crummy, P. 1992, 33, 108–16; Milne 1992, 29). The small quantity of metal-working debris (Category 15), consisting mainly of small, refrozen lead drips or puddles and offcuts of copper-alloy sheet, is both too sparse and too general on all Roman sites to be taken as evidence for concentrated craft activity here. Similarly, the evidence for antler-working is scarce (Category 16), though it is supported by finished antler objects and is typical of the period.

In terms of functional categories, therefore, the assemblage presents little evidence that particular activities predominated on the site in the late Roman period, and what evidence there is must be viewed with caution given the level of residual material.

One overwhelming characteristic of this assemblage in the light of the Silchester late Roman project is the paucity of objects that can be positively dated as late fourth or early fifth century. The only items which can be said with any degree of confidence to belong to the fourth/fifth century transition are two armlet fragments. Both armlets are Roman-period types that originated in the late fourth century and continued in use into the fifth century, when they may appear in unambiguously transitional or Pagan Saxon contexts. That most of the dated examples of each type come from late fourth-century contexts may, however, be misleading. It is noticeable that convention lies behind many of the assigned dates. The use of 'fifth-century' does not appear until publications of the 1980s (Redknap 1986 for Neatham; White 1988 for Dorchester-on-Thames), and the issue of terminal dates is often side-stepped (Crummy *et al.* 1993 for Colchester). In other words, far more of these examples may have been deposited in the fifth century than is apparent, and therefore the Silchester fragments may be said to date to no later than a conventional *c.* A.D. 400, but might well be even later than the equally conventional *c.* A.D. 420. The very fact that they are fragmentary may indicate an even later date for the backfills that produced them.

From the remainder of the small finds produced by the excavations so far, several other items may be added as evidence for occupation in the late Roman period. They are:

(1–2) Two more armlet fragments, both belonging to the second half of the fifth century (SF 00742, context 1397, Phase 3, notched (FIG. 76, No. 23); SF 00582, context 1253, Phase 5, ribbed (FIG. 76, No. 24)).
(3) A nail-cleaner with incised zigzag decoration down both the faces and edges of the blade (SF 00938, context 1608, not phased, apparently intrusive in early Roman context (FIG. 76, No. 25)).
(4) Tweezers on a slip-knot ring with decorative notching at the top of the blades (SF 00568, context 1094, Victorian trench (FIG. 76, No. 26)).
(5–7) A nail-cleaner with groups of fine incised lines on the shaft and notching on the edges of the tip (SF 1292 (FIG. 76, No. 27)) from the very late Roman pit 2634 (Phase 6); this pit contained some very late fourth-century pottery and seven coins, the latest of which dates to A.D. 388–392 (SF 01270), as well as a blue glass biconical bead (SF 1268), paralleled in late Roman graves at Colchester and Lankhills (Crummy *et al.* 1993, table 2.54–2.55; Guido 1979, 297–300), and a small fragment of a finger-ring (SF 1285) with transverse decoration, also probably late Roman.
(8) One unit from a black glass segmented-bead (SF 1156) from context 1256, Phase 3 (FIG. 76, No. 28); the type belongs to Guido's Group 2ii, well-dated examples of which are generally from sixth-century contexts, though there is a probable example (it may be jet) from a fifth-to-seventh-century grave at Sarre, Kent (Guido 1999, 20–1, 173); this fragment is rather smaller in diameter (4mm) than those illustrated by Guido (6–10mm), and it may be that it is of deep blue, green, or purple glass rather than true black, in which case it may date to the late Roman rather than the Migration period.

The same context also produced a candlestick (SF 00583) with three legs ending in sub-triangular feet (Eckardt 1998a; 1998b) (FIG. 76, No. 29). The lower body is decorated with pelta-shaped openings and parallel grooves. The cup-shaped drip-collector is decorated with further horizontal grooves and has a central iron spike. No other example is known from Britain but close parallels are known from Belgium (Goethert 1997, 192, fig. 125; Amand and Mariën 1976, B11, no. 10). This imported candlestick can be dated to the later second or third century A.D. and is residual in this context, or had survived in use for a long period. Also probably residual is a small gold-stud (FIG. 76. No. 30; SF 2245), which is similar in form to the copper-alloy ones used to decorate wooden furniture. It may have been used on a jewellery box or similar, decorative item. It is not diagnostically late Roman but comes from a pre-Building 1 context (Phase 1).
(9–10) Two jet hairpins with faceted cuboid-heads (Crummy, N. 1983, Type 2, 27; Allason-Jones 1996, 40–1). One (SF 1786, context 2637, Phase 3) comes from the late Roman subsiding floor in the extension of Building 1 (FIG. 76, No. 31), the other is from topsoil and retains only a small stump of the shaft below the head (SF 64, context 1000).

While the current Silchester excavations have produced these few objects of late Roman style, other items characteristic of the late fourth century are absent. For example, though there is some evidence of antler working from the site, there are no antler combs, in particular no triangular examples, nor any zoomorphic belt-buckles or strap-ends, though very late material has been found in earlier excavations at Silchester (Boon 1959; 1974, *passim*). However, comparison with some other late Roman (i.e. late fourth- into fifth-century) assemblages suggests that this absence need not necessarily indicate an early end to occupation in this insula. Table 7 compares the Silchester assemblage with those from Portchester and Neatham in Hampshire (Cunliffe 1975; Millett and Graham 1986), Keston in Kent, the Marlowe Car Park site and associated sites in Canterbury, also Kent (Philp *et al.* 1991; Blockley *et al.* 1995), the Beeches Road site in Cirencester, and the villas of Frocester and Kingscote in Gloucestershire (McWhirr 1986; Price, E. 2000; Timby 1989a), and also with that from the Silchester forum-basilica excavations (Fulford and Timby 2000), looking only for eleven specific object types that represent a solid fourth-century or transitional fourth- to fifth-century date in the relevant periods, or, in the case of Portchester, in the whole assemblage from A.D. 280 onwards. Most of the objects chosen are 'Roman' in character, some span both periods, and only the modified pig fibula is 'Anglo-Saxon'.

TABLE 7. THE INCIDENCE OF DIAGNOSTICALLY LATE ROMAN/EARLY ANGLO-SAXON MATERIAL FROM SOME SITES IN SOUTHERN BRITAIN

(Type 4 bone hairpins have a faceted cuboid head, Type 5 have one or more reels beneath a conical or ovoid head (Crummy, N. 1983, 22–4))

Object type	*Silchester Insula IX*	*Silchester forum-baslica*	*Portchester*	*Neatham*	*Cirencester Beeches Road*	*Frocester*	*Kingscote*	*Keston*	*Canterbury Marlowe Car Park +*
developed–Crossbow brooch	–	2		1	1	–	–	1	–
multiple motif armlet	1	1	4	–	1	2	2	1	6 (minimum)
crenellated and toothed armlet	1	1	1	3	–	–	–	–	–
Crummy Type 4 hairpins	–	2	8	1	–	3	3	–	13
Crummy Type 5 bone hairpins	–	4	34	5	–	8	2	1	33
glass segmented bead	1	–	6	2	3	6	1?	–	6
zoomorphic belt fittings	–	–	1	1	1	–	1	–	–
antler comb	–	–	3	–	1	1	–	–	1
shale spindlewhorls	–	2	12	–	2	6	1	–	1
spoons with 'chip-carved' junctions	–	–	1	–	1 (+ 2 related forms)	1	–	–	–
modified pig fibula	–	–	1	–	–	–	–	–	–

Several factors influencing the quantities and types of objects present in Table 7 should be noted. The high number of bone hairpins from the Marlowe Car Park site at Canterbury is artificially enhanced by the presence in the assemblage of dumped waste from a bone workshop, but it is worth noting that Canterbury also produced five metal and four jet versions of Type 4 that are not shown in Table 7. Similarly, the number of glass segmented beads at Canterbury is enhanced by the recovery of four fragments from a single necklace. The number of examples of each object type is also affected by the size and type of the excavation. For example, Canterbury was a large area rescue excavation, Cirencester and both Silchester sites much smaller research excavations, and Frocester a long-term research project involving field-walking as well as excavation. The use of an object type also affects its depositional characteristics. Table 7 shows that antler combs were comparatively scarce, as were zoomorphic belt-fittings. The latter are associated with military personnel and their absence from Insula IX is therefore not wholly surprising. Antler combs are, in general, rare finds on occupation sites; only five fragments have been found on excavations in London in the 1970s and 1980s (Museum of London Archaeological Archive) and all five were associated with bath-buildings, so again their absence from Silchester Insula IX is not unusual. The working practices of different material cultures will also have affected the data in Table 7; the presence of only one modified pig fibula, at Neatham, stresses the fact that methods of producing such basic commodities as textiles differed between the late Roman and early Anglo-Saxon populations.

A better guide to judging how representative the Insula IX assemblage is of site occupation continuing uninterrupted well into the fifth century should therefore be based on the number of object types, rather than the number of objects, present. Here Portchester scores highest, with ten out of the eleven characteristic object types present, followed by Neatham, Cirencester, Kingscote and Frocester all on seven, and Canterbury on six. Silchester forum-basilica has five, and Keston and Silchester Insula IX three. The assemblages from the late pits and wells on Silchester Insula IX and from Period VII (dated to A.D. 300–450) at Keston are both very small, and the inevitable conclusion is that the size of an excavated assemblage is the major factor affecting the presence or absence of these object types.

Therefore, though the late pits and wells contained no items specific to the material culture of the Migration period, and though only three items can be said with any degree of confidence to belong to the fourth- to fifth-century transition — two armlets and part of a glass bead — the Insula IX assemblage can be ranked equally with the other assemblages shown in Table 7.

CHAPTER 5

THE WORKED STONE

By Ruth Shaffrey

The worked stone from late Roman Insula IX includes a range of objects typical of assemblages from this period: rotary querns and whetstones; roof- and floor-tile; and other, shaped building-stone (Appendix 5, Table 31). Some tesserae and other assorted objects such as shale bracelets are covered elsewhere in this report. Other, small objects of stone (amber, jet, and shale) are reported above (Crummy).

ROTARY QUERNS

Rotary querns were retrieved from five late Roman contexts, mostly late Roman pits (see Table 31). They are made from Old Red Sandstone (ORS), imported from the Forest of Dean/Wye Valley, and Lodsworth Greensand, imported from West Sussex. Niedermendig Lava, imported from Germany, also occurred, but only survived as very small fragments with no worked edges in pit 3235 (Object 116). There are two fragments of ORS (SF 362 and 2226), both of upper rotary querns, and four fragments of Lodsworth, three upper and one lower stone fragment. Both materials are well represented at Silchester (Shaffrey 2003). Although there are more fragments of Lodsworth than ORS in this assemblage, the sample size is insufficient to disprove previous results which indicated that Lodsworth was predominantly used during the early Roman period and ORS in the later (idem). Indeed the ORS fragments occurred in very late contexts associated with Building 1.

Most of the quern fragments are small, so little can be determined about their typology but the one fragment of Lodsworth that can be identified is of the flat-topped type (SF 1773), and another (SF 1859) is of a projecting hopper type. The latter type is typically late Roman and has been seen on other sites such as Portchester in a fourth-century context (Peacock 1987, 71). This fragment was found in the top fill (2482) of the large cess-pit 3235 and is unlikely to be residual.

BUILDING STONE

At least eighteen contexts produced fragments of limestone, ORS, and Pennant sandstone which are likely to have been used for roofing because of their typical, thinly-bedded nature (see Table 31). Few of these retain any original edges but were imported to Silchester and are known to have been used for roofing in the town. Some examples were found in pits and others in yards, fills of foundation trenches, or interior surfaces. It is noticeable that this material appears to be quite evenly spread across the site.

Other examples of thinly-bedded stones seem more likely to have been used for flooring because of the nature of the wear on them. Contexts that produced stones worn in this way include examples of Lower Greensand, Pennant sandstone, and ORS (see Table 31). Most of the recorded examples come from pits in the northern half of the site. It seems likely that both flooring and roofing materials are derived from earlier stone buildings as they are found in deposits pre-dating or contemporary with the late Roman buildings rather than in layers associated with the disuse of these structures.

In addition to the numerous fragments of roof- and floor-stones, there is a small number of blocks of shaped building-stone, including two substantial blocks of tufa. The latter may have functioned as a socket-stone. Other blocks of both tufa and fine-grained limestone were probably also utilised for building; these were recovered from contexts 1612, 2077, 2579, and 2663. A single fragment of worked Purbeck marble was found in a late third-century dump deposit, 2467 (Object 31019). Three further pieces come from make-ups or construction trenches of the southern stone buildings, again suggesting that residual material associated with earlier stone buildings had been re-used. Stone tesserae were also recovered from late Roman contexts and these have been reported on separately by Allen and Fulford (2004).

WHETSTONES

No object of typical whetstone-form was recovered from late Roman contexts, but there are three pieces of stone with patterns of wear consistent with their having been used as whetstones (Table 31). Two are fragments of thinly-bedded ORS of a type likely to have been used originally for roofing and one is of sarsen. One (context 3103) may pre-date the late Roman occupation but the other two are contemporary with it. The shaft of the ogham stone was also used in this way (Fulford, Handley and Clarke 2000).

CONCLUSIONS

Most if not all of the flooring, roofing, and architectural fragments are probably derived from earlier stone structures in this or neighbouring insulae. Some of the querns and whetstones may also be earlier, but most can be attributed to the late Roman occupation either on the basis of context or on stylistic grounds.

All the object types recovered and their lithologies are typical of assemblages recovered from Silchester (Allen and Fulford 1997; Fulford 1984, 1989; Fulford and Timby 2000; Shaffrey 2002; 2003) but they provide additional late Roman examples to add to our understanding of material use at this time.

CHAPTER 6

CERAMIC BUILDING MATERIAL FROM THE LATE ROMAN PITS AND WELLS

By Peter W. Davies and Hella Eckardt

Ceramic building material constitutes one of the most common forms of material found on any Romano-British site. In Insula IX, the first six years of excavation produced 1351kg of brick and tile from the late Roman pits and wells. This material was recorded on site and then discarded, with only decorated fragments retained for detailed study.

Most of the excavated ceramic building material is probably derived from earlier masonry buildings on this and neighbouring insulae rather than from the late Roman buildings in Insula IX (cf. Fulford and Cram 1979, 204), which also used stone roof-tile (above, Shaffrey) and thatch. The common occurrence of brick and tile fragments in the late Roman pits does, however, throw light on the robbing, collection, and deposition of these earlier building materials in the late Roman period. Ceramic building material makes up a significant proportion of the material deposited in pits and wells and therefore forms part of the analysis of

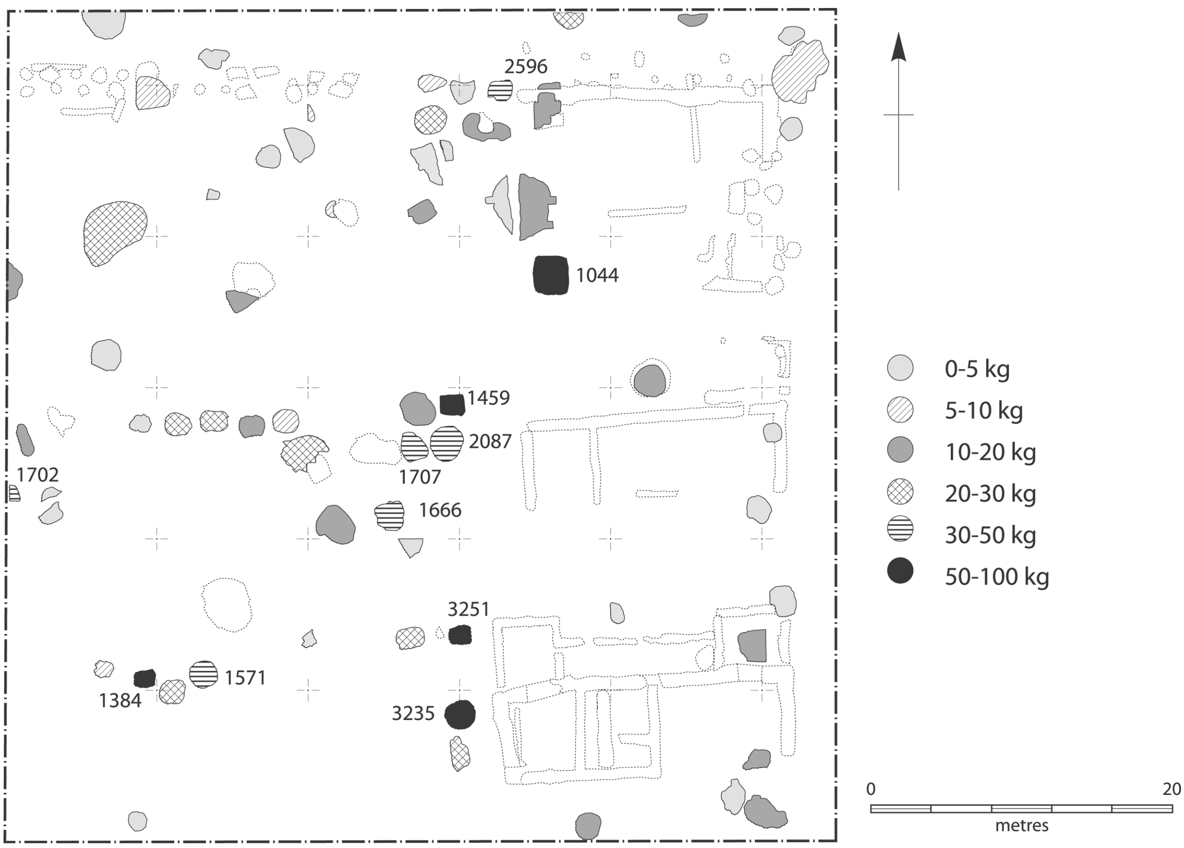

FIG. 77. Distribution of ceramic building material by weight across all late Roman pits and wells

the assemblage composition of these features. In cases of especially high concentrations of brick and tile, it may be possible to relate them to late Roman buildings, or to associate them with the deliberate sealing of features, perhaps in advance of building work in that area. It is hoped that a more detailed analysis of types of building material (i.e. different forms of roof tiles, hypocaust elements, tesserae) will reveal some spatial patterning, which in turn may relate to the location of buildings, including those of earlier date. Finally, any patterning observed in Insula IX can be compared with the material recovered from the forum-basilica (Timby 2000a).

In order to compare and plot the spread of this material across the pits and wells, the amount of tile from all fills was combined to create a total weight for each cut feature (see table on Late Roman website). These data can then be plotted to show deposits of tile across the excavated area (FIG. 77). This is, of course, not a complete picture, as only ceramic building material from late Roman pits and wells was studied; in other words, the distribution of the material is determined by the location of the pits. Nevertheless, there are some striking differences in the amounts of tile deposited. Most pits and wells produced between 0 and 10kg or 10 and 20kg, but there are also many containing 20kg and more. It appears that many of the pits containing larger quantities of tile are located on top of or just south of the earlier Roman House 1. Especially substantial deposits come from well 1044, the two cess-pits directly associated with Building 1 (3235 and 3251), and pits 1384, 1459, 2987, 1571, 1702, 1707, and 2596. Well 1044 produced the relatively high quantity of 282kg of ceramic building material. This extremely high concentration suggests that the well was deliberately sealed using demolition debris presumably derived from nearby structures, roofed, or partly roofed with ceramic tile. A coin (SF 00771) from the top fill (1045) of this well provides a *terminus post quem* of A.D. 337–340 for this event.

The latest pits (Object 122), many of which are cut into the streets, generally contained less tile, reflecting both their smaller size and perhaps the absence of ceramic building material from the latest buildings and layers in this area.

It may be thought that the distribution of tiles is simply a reflection of the size and depth of the pits and wells in which they were found. The relationship between pit volume and quantities of material found is explored in more detail by Eckardt in Part V.

All the ceramic building material from Insula IX was identified before discard, using the following categories: '*tegula*', '*imbrex*', 'unidentified tile', 'brick', 'tessera' and 'flue tile'. It is therefore possible to examine the material recovered from the late Roman pits and to distinguish between roofing, flooring, hypocaust, and general building material. The fragments grouped under 'unidentified' are generally very small and abraded pieces. All identification was carried out by long-term volunteers and over the years a downward trend in the percentage of fragments identified as 'unidentified' has been noted. This is, however, unlikely to have affected the data set seriously.

A number of trends can be observed. As perhaps expected, unidentified (and usually small) fragments represent the largest category of ceramic building material in virtually all pits (FIG. 78a). These flat pieces of ceramic building material are derived from either *tegulae* or flat tiles. The second most significant category is made up of *tegulae* which are also more common than *imbrices* in the majority of individual pits. This may be because the flat *tegulae* were selected for levelling or infilling over the curved *imbrices*. It may, however, simply be due to the fact that there would have been more *tegulae* than *imbrices* on a Roman roof and that the latter also only have about half the weight of *tegulae* (cf. Brodribb 1987, 11).

Objects 116 and 121 are very strongly represented with *tegulae*, but that is partly a function of the fact that these objects contain very large cut features (FIG. 78b). *Imbrices* are quite strongly represented in pits both directly associated with Building 1 and either side of the principal, east–west property boundary. Only a relatively small number of individual pits, however, contain more *imbrices* than *tegulae*. When the location of these pits is plotted, a bias towards the north-western part of the excavated area is apparent.

Flat brick fragments are proportionally much rarer and do not occur evenly across the pit groups (FIG. 78c). The large pits in Objects 116 and 121 again stand out but very little brick

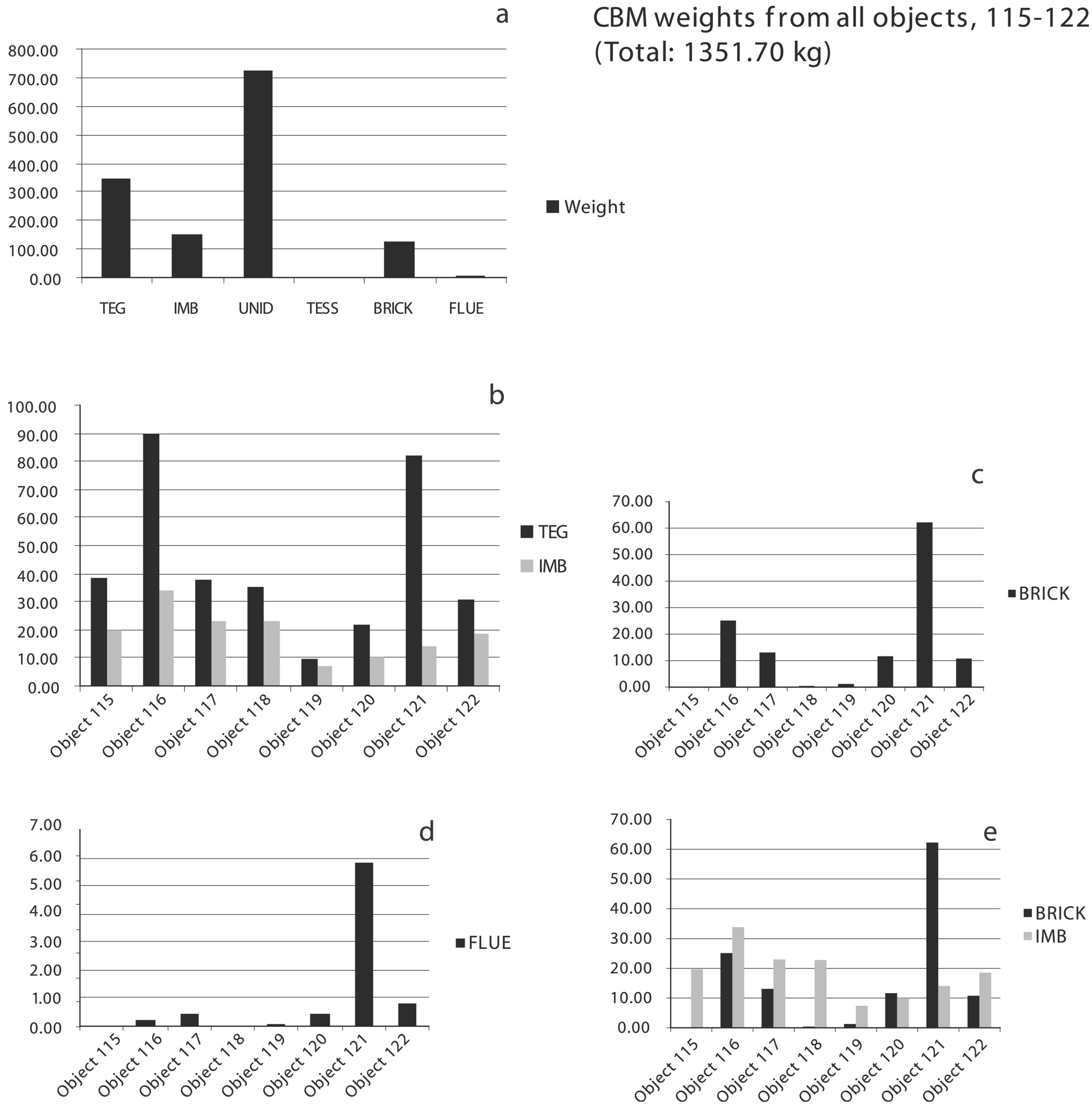

FIG. 78. Ceramic building material (CBM) by weight from all pits and wells: (a) all categories of CBM; (b) *tegulae* and *imbrices*; (c) flat brick; (d) flue tile; (e) flat brick and *imbrices*

was recovered from Objects 115, 118, and 119. In Object 116, the pits directly associated with Building 1, every single pit contained some brick. It is also noticeable that while brick fragments were found south of the proposed fence line (Object 117), virtually none were found to the north of it (Object 118).

In most pit groups more *imbrices* than brick fragments were found (FIG. 78e), but bricks are very strongly represented in Object 121 (the wells). This pattern is caused by the very large amount of brick (61.05kg) deposited in well 1044, which also contained large amounts of *tegulae* (66.50kg) and unidentified ceramic building material (142kg) but a relatively small amount of *imbrex* fragments (6.90kg). This suggests that this well was filled deliberately, and preferentially, with *tegulae* and flat, ceramic building-material.

The only other pit that contained a proportionally significant amount of brick (6.28kg) is the fifth-century pit 2596 in Object 122. Here, however, the amount is almost equal to that of *imbrex* (6.75kg) and *tegula* (7.67kg) fragments, perhaps suggesting that no such selection by shape took place.

Very few ceramic tesserae were recorded from the late pits and wells. They are generally very large (up to 25 by 30mm).

Only very small amounts of flue-tile have been recovered from the site (FIG. 78d). The majority come from the wells (Object 121), particularly from well 1044, which, as already discussed, contained very large quantities of ceramic building material generally. With the exception of the 5.75kg from well 1044, all other pits and wells contain no more than 0.50kg of flue-tile. This may reflect the absence of high-status heated rooms in earlier buildings within and around Insula IX, or that the material, as in well 1044, was introduced from outside the insula where no late Roman heated rooms are attested.

As in all large Roman ceramic building material assemblages, a number of paw prints were recorded. These are of dog (1327, 1511, 1610), ?cat (2383), cattle/sheep (1610), and two unidentified prints (1051, 1610). A number of tiles have curvilinear impressions (e.g. 1710, 1610), but none have batch marks on the edge (cf. Timby 2000a, 116).

We can compare the results from Insula IX with those from the forum-basilica excavations (Timby 2000a). The basilica assemblage is dominated by flat tile (53 per cent), followed by *tegulae* (19 per cent) and *imbrices* (6 per cent). Our categories of 'unidentified flat tile' (54 per cent), *tegulae* (26 per cent) and *imbrices* (11 per cent) are broadly comparable. The slightly different recording systems (the current system does not record flat wall and floor tiles separately) may mask a stronger showing of flat wall and floor tiles at the basilica. Flat brick appears to be a little more common in Insula IX than in the basilica. In the basilica assemblage, flue-tile is rare (1 per cent) and was not found in the area of a known hypocaust. In Insula IX, flue-tile again only makes up 1 per cent of the total assemblage and no spatial patterning could be identified.

Compared with the basilica site, Insula IX appears to have produced fewer tiles that have been stamped or batch-marked in some other way. This may be due to a smaller sample size (and it should be noted that tile from layers as opposed to pits was not studied for this report) or reflect the difference between public and private building projects.

In general, it has proven difficult in Insula IX to link the ceramic building material to either specific late Roman or earlier buildings, but this picture may change with the progressing excavation of the early Roman phase. However, the quantities of material from pits associated with Building 1 (Object 116), well 1044, and the very late pit, 2596, though not very large in absolute quantities, might indicate that Building 1 and structures in the north-east of the insula made use of ceramic tile to some extent. On the other hand, the presence of flue-tile in the assemblage from well 1044 might rather indicate that it was introduced from elsewhere.

CHAPTER 7

IRON NAILS

By Hella Eckardt

Iron nails are common finds on all Roman sites, and in most site reports only typical and/or unusual types are published. Instead, we provide a brief overview of the nail assemblage and also discuss iron nails as part of the overall pit assemblages (Eckardt, Part V). Iron nails in pits may have been discarded on their own or may have still been attached to the wood they once helped to fasten; very large concentrations may relate to demolition activity. The weight of iron nails per pit is used for quantification as most nails were too badly corroded and fragmented to calculate minimum numbers accurately (see table on Late Roman website). Overall, quantities of nails appear relatively low but there is considerable variation both between pits and between objects (FIGS 79–80). Objects 115, 119, and 121 produced very small amounts with Objects 117 and 122 producing the most. (This is, of course, also related to numbers of pits per object). Plotting the distribution of pits containing more than 100g, more than 200g, and more than 400g shows a number of possible trends but no clear pattern (FIG. 79). All but three of the pits with more than 400g of nails occur in the southern half of the excavated area, the majority

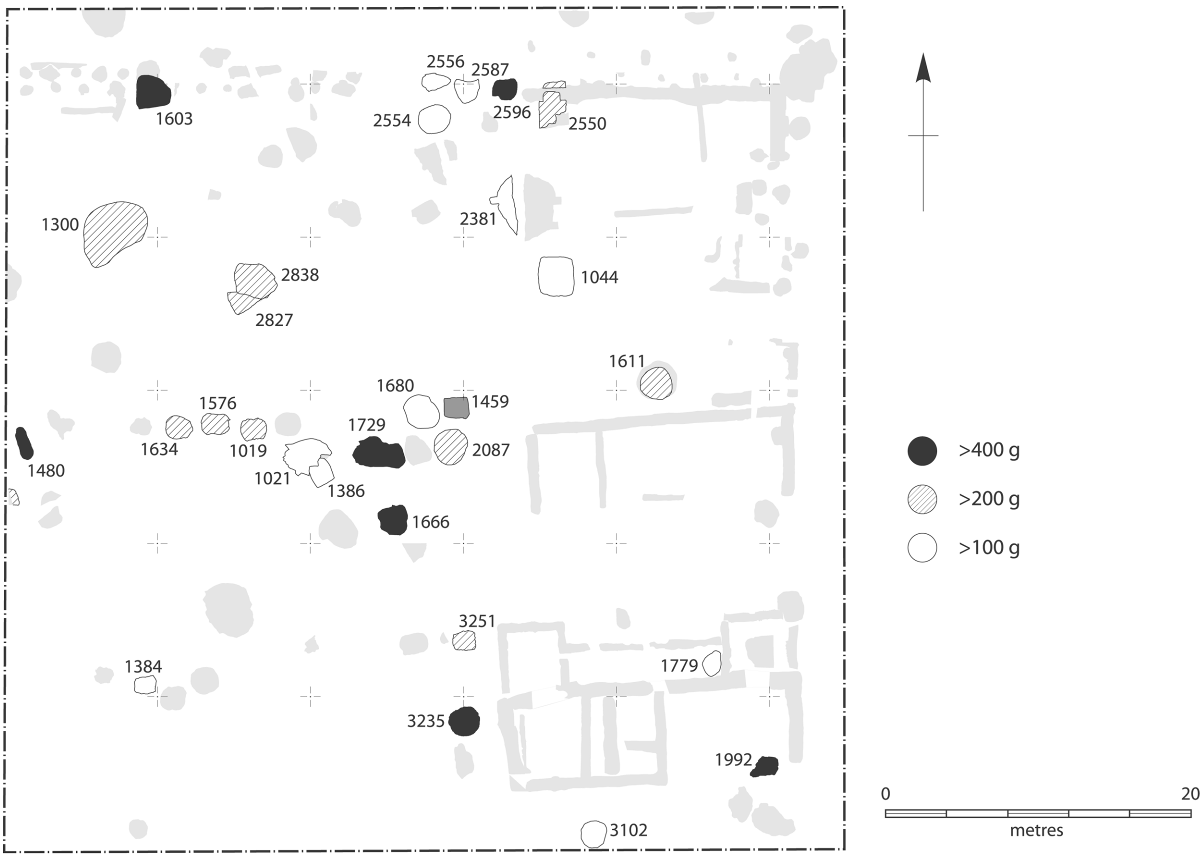

FIG. 79. Distribution of nails by weight across all late Roman pits and wells

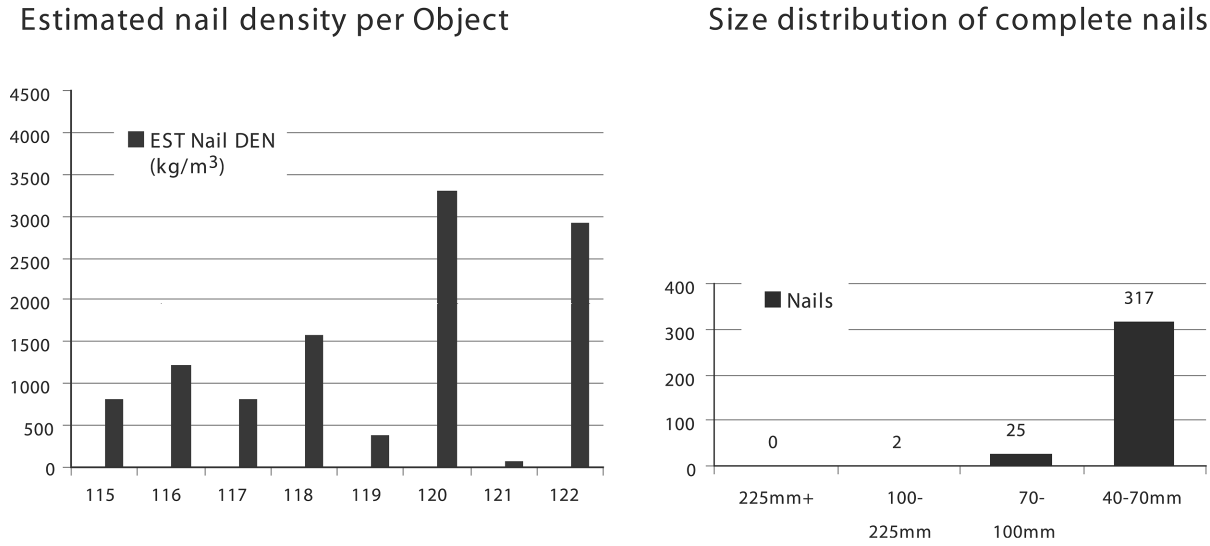

FIG. 80. Nails: quantitative analyses: (a) estimated density of nails per object; (b) size distribution of complete nails

being associated with Buildings 1 and 5. The greatest incidence of pits with less than 100g of nails is in the northern half of the excavated area among the shallow pits of Object 120 and the latest pits of Object 122. However, three of the very latest pits (1603, 2596, 1992) also contain significant amounts of nails. When considering the weight of nails in relation to pit volumes (by object), Object 120, which comprises the pits just south of the east–west street, is very strongly represented, as are the very latest pits (Object 122) (FIG. 80a). The large pits to the west of Building 1 contain more nails per volume than the others south of the proposed fence-line, but clearly less than those in the central-northern part of the site.

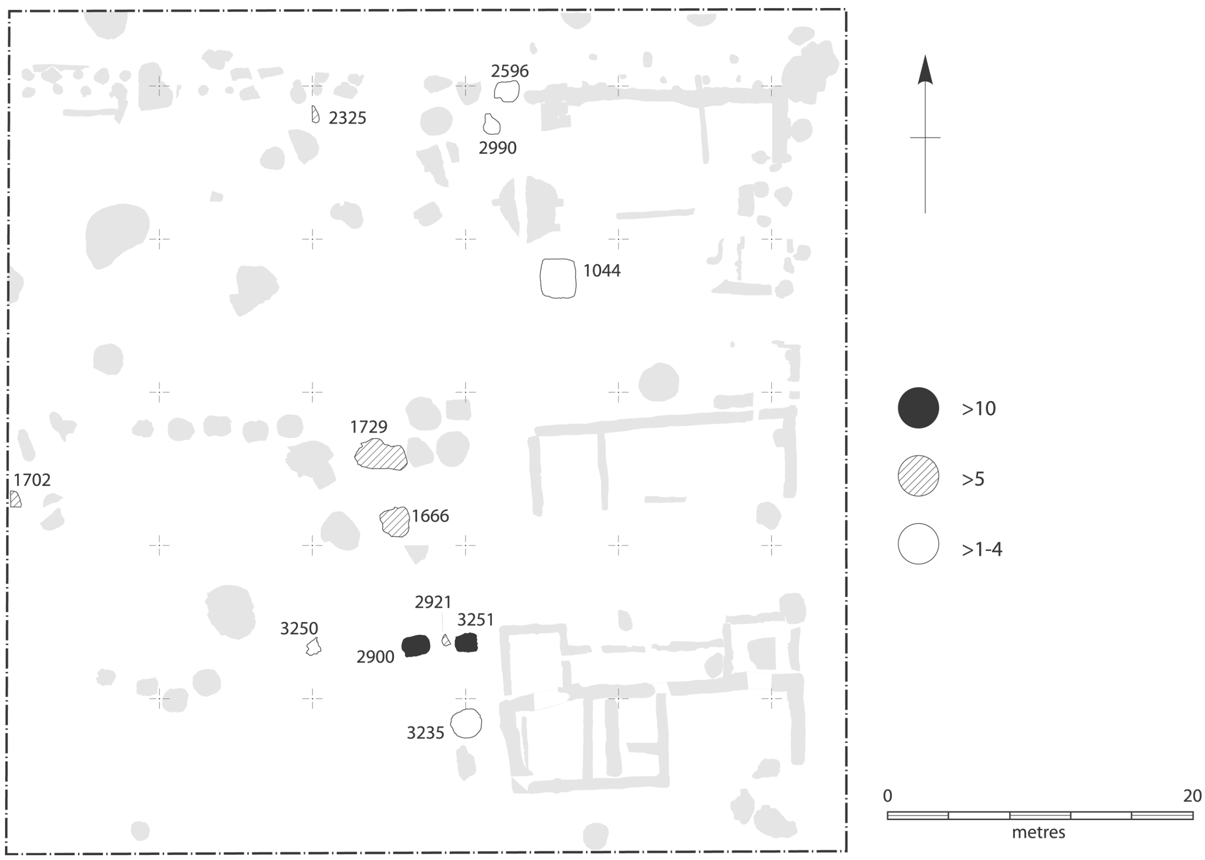

FIG. 81. Distribution of hobnails across all late Roman pits and wells

Complete iron nails were measured (FIG. 80b), using the length categories suggested by Angus, Brown and Cleere (1962, 958) and Sim and Ridge (2002, 113). All have a square-sectioned shaft and a flat (only rarely a domed or pyramidal) head (cf. Manning 1985). Of the 344 complete examples, the vast majority fall into the 40–70mm category, which is clearly the most common nail size on Romano-British sites (cf. Sim and Ridge 2002, 111–15). This finding suggests that the nails deposited in the pits do not come from the demolition of substantial timber structures. During recording it was noted that many nails are bent, presumably because they were distorted when removed from wood; 175 such bent nails were recorded. Many of these were incomplete and it is therefore not possible to relate the 175 bent nails to the total number of complete nails (344). They do, however, represent a significant proportion (15.5 per cent) of all the recognisable nail fragments and complete nails recorded from the pits (1,128).

Hobnails were recorded individually. They are generally quite rare finds, with a maximum of 18 recorded from a single pit (FIG. 81). The highest concentration of hobnails was recorded from Object 116, in particular from pits 3251, 2900, and 2921, adjacent to Building 1. This may relate to the disposal of a shoe, whereas the occurrence of one or two nails may well just represent accidental loss and the deposition and re-deposition of domestic rubbish.

PART THREE

IRON-MAKING AND IRONWORKING

The following two contributions consider, first, the distribution and context of the various types of slag derived from iron-making (smelting) and iron-forging (smithing) across the excavated area (Tootell) and, second, the character and chemical composition of the hearth bottoms/slag basins (Allen). While the microscopic waste typical of iron-smithing is clearly present, Allen's analyses indicate that the composition of the slag basins/hearth bottoms is consistent with that of other slags from elsewhere in southern Britain which are definitely to be associated with the smelting of iron.

CHAPTER 1

IRON-MAKING AND IRONWORKING: THE ARCHAEOLOGICAL CONTEXT

By Klare Tootell

As a waste product of both the iron-smelting and smithing process, slag is an important archaeological indicator of the types and extent of these activities occurring at a given site. Slag varies greatly between individual sites as its composition is governed by the stage at which the slag was produced during the smelting/smithing process. Smelting slag is formed when iron ore is heated to a sufficiently high temperature for the iron particles to begin to coalesce and form the bloom and for the unwanted minerals (such as sands, silts, and clays) to liquefy and drain down to the bottom part of the furnace (Cleere and Crossley 1985). The process is rather inefficient and thus iron-making produces quantities of iron-rich slag, a great deal of which can be re-used to make more iron. The subsequent processing stages of refining and smithing iron to make artefacts produce largely similar types of metalworking residues distinguishable only by size and quantity (Crew 1996).

The type of furnace and the way the slag was either tapped or raked etc. to remove it from the process often dictates its appearance and composition. The majority of slags are not found *in situ* but rather in nearby dumps outside the building or area in which the process was performed (Crew 1995). This point is particularly relevant here given that the slag deriving specifically from the pits and wells in Insula IX is, in some cases, from features securely associated with certain buildings. Since slag does not normally travel very far in bulk naturally, either in its larger form or as microscopic hammerscale flakes and globules, metalworking residues within pits and wells are likely to have been purposefully dumped. Concentrations of microscopic hammerscale flakes and globules may well indicate the proximity of working hearths, while hearth bottoms, which are usually substantially heavy, are not likely to have fallen or blown into a pit naturally. As many of the slags found are amorphous and unclassifiable due to heavy corrosion and subsequent loss of texture, quantification by weight and spatial distribution of slags is the most effective and preferred method to identify specific areas of iron-working activity in Insula IX. It must be noted, however, that plotting slag spatially by weight may be slightly misleading, as there are so many different types and variations of slag itself. For example, a significantly large amount of light, vesicular fuel-ash slag may still weigh less than a single, dense hearth-bottom. Moreover, the absence of slag from a context or group of contexts may be as significant as its presence elsewhere.

Late Roman material from both the pits and the occupation layers was examined for this report and weighed a total of 16.43kg. Two thirds by weight (67 per cent) derived from the occupation layers, with one third (33 per cent) from the pits and wells. The majority of the slag discussed here is represented by the larger masses of slags removed directly from a context by the excavator as opposed to the microscopic slags extracted from environmental samples. The presence of microscopic slags within the pits and layers cannot be fully defined as not every context was sampled and examined microscopically. The environmental sampling programme at Silchester only began to use magnets systematically from 2000 onwards meaning that only 44 (17 per cent) of the total pit fills were actively scanned for microscopic metalworking residues. This figure is even less for the layers which were only sampled in specific instances. Indeed, only 6.7 per cent of layers from 2000 onwards were sampled. Moreover, post-Roman cultivation has truncated the latest Roman layers. The metalworking from the pits and wells will be discussed first, then that from the occupation layers.

THE PITS AND WELLS (FIGS 82–5)

A total of 5.46kg of slag was excavated from the late Roman pits and wells of Insula IX. Slag was present in 48 (19.4 per cent) of the 248 fills of the late Roman pits.

There does appear to be a very subtle pattern noticeable in the spatial distribution of the slag weights across the late Roman pits (FIG. 82). It would seem that although the pits are quite evenly distributed across the excavated area, there is a slight difference between the distribution of slag in the northern half and that in the southern half.

In the southern half, the larger concentrations of slag are found in pits close to Buildings 1 and 5, as is the case with 3235, 2900, 2087, and 1707. The other two pits of note in the southern half, 1702 and 3357, might potentially relate to buildings west and south of the trench edge. There is a very apparent absence of slag from the many pits in the south-west of the trench, particularly those in Objects 115, 117, and 118, where there are also no buildings in close proximity. Conversely, in the northern half in Object 120, where there is no clear structural evidence, there is a fairly even spread of pits containing slag.

The slag from the very latest pits (Object 122) also presents an interesting distribution. As FIG. 83 shows, 13 of the 16 pits are void of any slag at all, with 85 per cent of all slag from Object 122 being found in pit 1354 in the southern half of the insula, within the area of Building 1. This also includes slag probably derived from smelting iron. There is a small amount of slag within pit 2596 in the northern half near Building 8, but some of the material here may be intrusive.

In some ways, the distribution of the different types of slag mirrors the trends seen in the

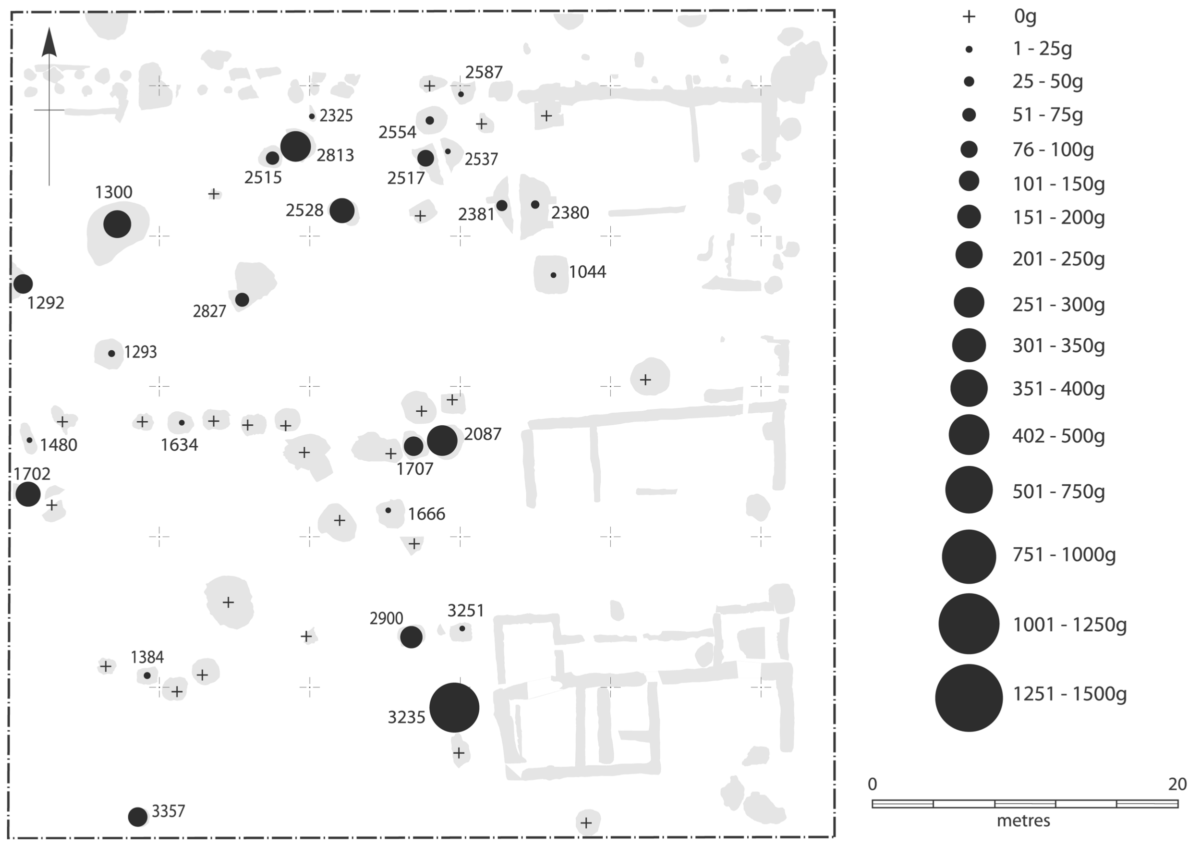

FIG. 82. Distribution of all types of iron slag by weight across the late Roman pits and wells

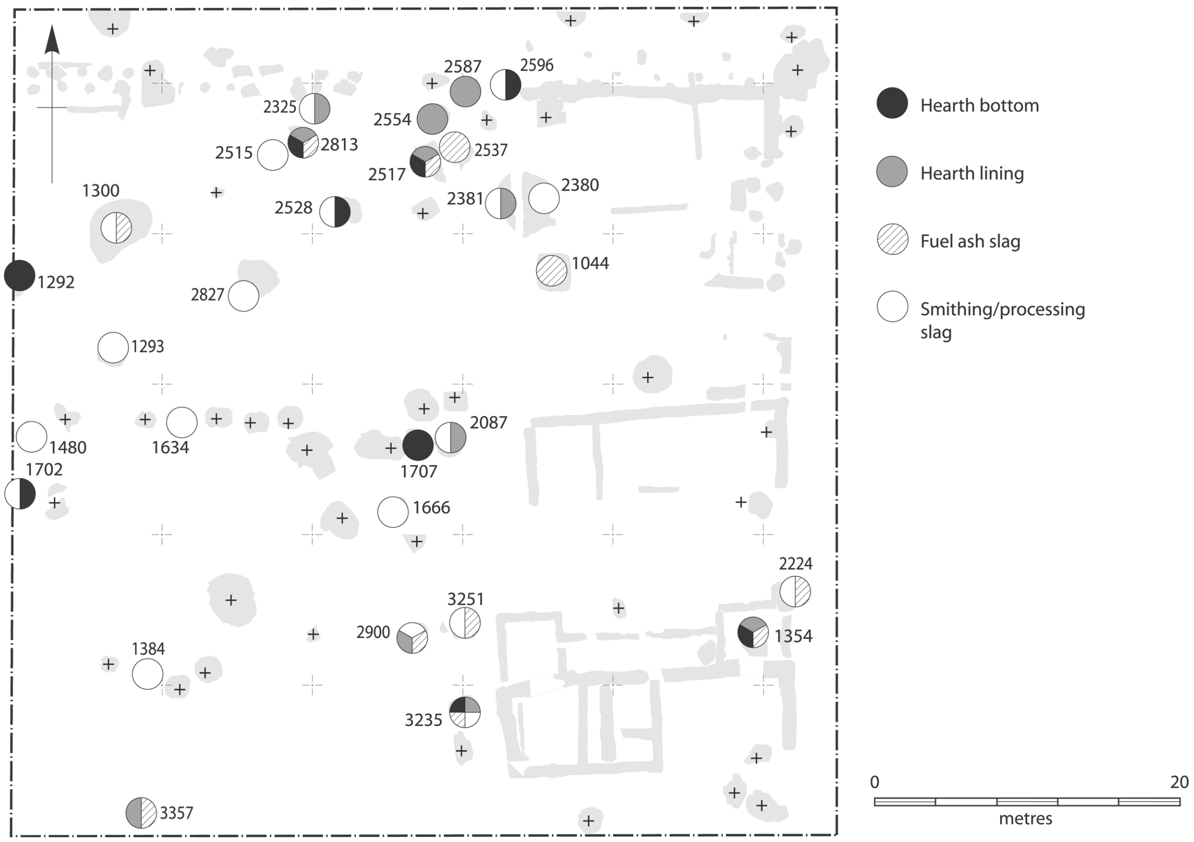

FIG. 83. Distribution of iron slag by type across the late Roman pits and wells

weight distribution (FIG. 83). For example, in the southern half the pits with a greater diversity of metalworking residues are those nearest to Building 1, with hearth bottoms in particular occurring in them (the hearth bottom in pit 1702 may possibly relate to a building west of the trench edge). In the northern half of the excavated area, where the weight distributions showed quite an even spread of slag, the diversity seems to be best represented in a cluster of pits to the west of Building 8, with four hearth-bottoms occurring in a relatively small area. General smithing/processing slag is fairly evenly spread across the excavated area, but the fuel-ash slag and hearth-lining seem to follow the pattern of occurring close to the buildings in the southern half and very markedly within the above-mentioned cluster of pits in the northern half.

Object 115

The shallow rubbish pits of Object 115 produced little slag. Three of the pits contained no slag at all whilst one pit, 1384, produced a meagre 10g of unclassifiable material. The southernmost pit 3357 produced 94 per cent of the slag from the entire object; the 160g of material consisted mainly of fuel-ash slag with a small fragment of burnt lining. The slag derived from the primary fill of the pit. A very small amount of non-diagnostic hammerscale was also recovered from this fill.

Object 116

The seven pits of Object 116, located immediately west of Buildings 1 and 5, produced a total of 1.25kg of slag but over half of the pits did not produce any evidence of metalworking at all. The bulk of the slag from this object derived from two pits, in particular 2900, which produced 260g, and, more significantly, 3235, which produced 1.01kg, making it the second largest quantity of slag recovered from any of the late Roman pits. The slag from pit 2900 consisted predominantly of fuel-ash and smithing slag with a couple of fragments of burnt clay-lining. The primary two layers of this feature contained no slag or hammerscale whatsoever and metalworking residues only appear from the third layer upward, a layer that produced 185g of slag. The upper layers containing slag sandwiched a layer of charcoal, which, although containing no slag itself, did contain small amounts of metal fragments and hammerscale. The tiny amounts of hammerscale found in all four upper fills of 2900 mainly comprised globules and flakes measuring up to 3mm and some surface-chilled spatter forms (Allen and Fulford 1987).

Pit 3235 produced the most slag of Object 116 and, although this feature has sixteen fills, the slag derived from only three of these — 2686, 2495, and 2482. One of the thickest fills produced 460g of predominantly fuel-ash and smithing slag, with only very little associated hammerscale. The remaining 550g of slag, which consisted largely of smithing slag attached to burnt clay-lining, derived from the upper two layers alongside a large amount of animal bone and some neo-natal human bones. Again, there was only a small amount of hammerscale associated with these layers. The nature of the upper fills of this pit, especially the top two, suggests a deliberate infilling of the pit with material not necessarily from the surrounding area. From the sixteen layers, only five produced hammerscale in very small amounts and two of those layers may have been brought in from elsewhere on site.

The only other pit to have produced any slag was 3251, which yielded a mere 3g of fuel-ash and smithing slag from its final fill of dumped tile and animal bone.

Object 117

The pits of Object 117, which follow and lie south of the suggested east–west fence-line dividing the excavated area, produced a total of 860.5g of slag, though only half of the pits within this object produced metalworking residues.

The majority of the slag from this object came from its most easterly feature, pit 2087, which contained 355g of slag. The entire amount was recovered from the primary fill of the intrusive Victorian cut 1295. This material mainly comprised weighty pieces of slag attached to burnt clay-lining along with a few smaller pieces of smithing slag.

The twice re-cut pit 1702 contained 295g of slag. The primary fill of the original cut produced a small amount of smithing slag, whilst fill 2825, a couple of contexts above, contained a small amount of a silicate slag and fuel-ash slag mix. Slags such as this may suggest that the fuel was just left to burn away after a hearth was used (Allen, pers. comm.). The majority of the slag from this pit comes from the primary fill of the final re-cut. A single hearth-bottom and a couple of small slag prills weighing 195g in total were excavated from this fill alongside a small amount of hammerscale globules and flakes measuring up to 8mm.

The slag from pit 1707 derived entirely from its secondary fill, 1511. The slag comprised a single, small hearth-bottom weighing 190g. The remainder of the slag from Object 117 derived from pit 1666 which yielded only 20g of smithing slag from its final fill.

Object 118

Only two of the nine east–west-aligned pits of Object 118 produced slag and only in negligible amounts, totalling only 40g.

The most westerly pit 1480 contained one piece of smithing slag weighing 25g and the single fill of pit 1634 contained 15g of unclassifiable metalworking residue.

Object 119

The pits of Object 119 contained a total of 180g of slag. Two of the four pits contained no evidence for metalworking at all.

89 per cent of the slag from Object 119 came from pit 1292 to the far west of the group. A single hearth-bottom, weighing 160g, within the final fill constituted the entire slag from this pit.

The remainder of slag for this object comes from pit 1293, which contained 20g of smithing slag.

Object 120

The fifteen shallow scoops of Object 120 produced a total of 1.05kg of slag. The majority of the slag came from pits 2813, 2528, and 2517, whilst seven other pits contained varying amounts weighing between 3 and 100g and five pits produced no slag at all.

Nearly 40 per cent of the slag came from pit 2813. The single fill of this feature produced 400g of metalworking residue, consisting of a highly vesicular, hearth-bottom weighing 137g and possibly another smaller hearth-bottom of 81g. The remainder of the material comprised pieces of smithing slag and fuel-ash slag.

As with many of the late Roman pits, the entire weight of slag from pit 2528 came from only one fill and was represented by one hearth-bottom and some mixed slag. The 260g of slag from this pit derived from the final fill of the re-cut 2518. Similarly, the bulk of slag from pit 2517 was also in the form of a small hearth-bottom. The only fill of this pit contained 110g of metalworking residue comprising a small hearth-bottom, a fragment of slag attached to burnt clay-lining, and a couple of pieces of fuel-ash slag.

Heavily re-cut feature 2827 produced 80g of a silicate slag and fuel-ash slag mix from the primary fill of the initial cut. None of the other fills produced any metalworking residues. The only fill of pit 2515 contained 65g of unclassifiable material and pits 2381 and 2380 contained similar weights from their single fills represented by 60g of hearth lining with some amorphous slag and 50g of smithing slag respectively.

The only fill of pit 2325 contained 20g of material represented by a small piece of slag attached to burnt clay-lining and a fragment of amorphous, unclassifiable material. There was however a small amount of hammerscale within this fill, comprising a number of globules and flakes measuring up to 4mm in size.

Pits 2537 and 2587 contained negligible amounts of metalworking residue — 3g of fuel-ash slag in the former and 5g of burnt clay-lining in the latter.

Object 121

The three undisturbed wells of Object 121 produced metalworking residues totalling 368g of material.

The bulk of the slag derived from well 1300 in the north-west of the trench. The 335g of slag from this well came from the upper four fills. The latter contained a mixture of processing material, including 190g of mixed silicate-slag and fuel-ash slag in the final fill, and a general mixture of smithing and fuel-ash slag in the other three.

Well 2554 contained only 30g of slag in the form of a fragment of burnt clay-lining within fill 2395. Although no slag was recovered from any of the other fills of this well, the fill below 2395 contained a small amount of metal fragments and hammerscale globules and flakes measuring up to 6mm in size.

Only a negligible amount of slag was produced from well 1044. Just 3g of fuel-ash slag was recovered from the penultimate fill of this feature.

Object 122 (FIG. 84)

Although only three of the sixteen pits post-dating the late Roman street-front buildings had evidence of metalworking, Object 122 otherwise produced the most slag of all the pit groups, with a total of 1.53kg. 85 per cent of this slag derived from pit 1354 in the south-east corner of the trench that is associated with the very latest phases of Building 1.

All of the 1.3kg from pit 1354 came from its primary fill where a bowl-shaped furnace-bottom represents the bulk of the slag. It is larger and denser than any of the smaller hearth-bottoms, which evidently represent the more ubiquitous type found within the pits. It also indicates definitive evidence for smelting from the late Roman pits and wells (below, Allen). A considerable amount of fuel-ash slag accompanied this furnace-bottom as well as a small fragment of hearth-lining. However, as this pit was excavated pre-2000, we have no evidence of microscopic slags that may or may not have been present in either the primary or the secondary and final fill.

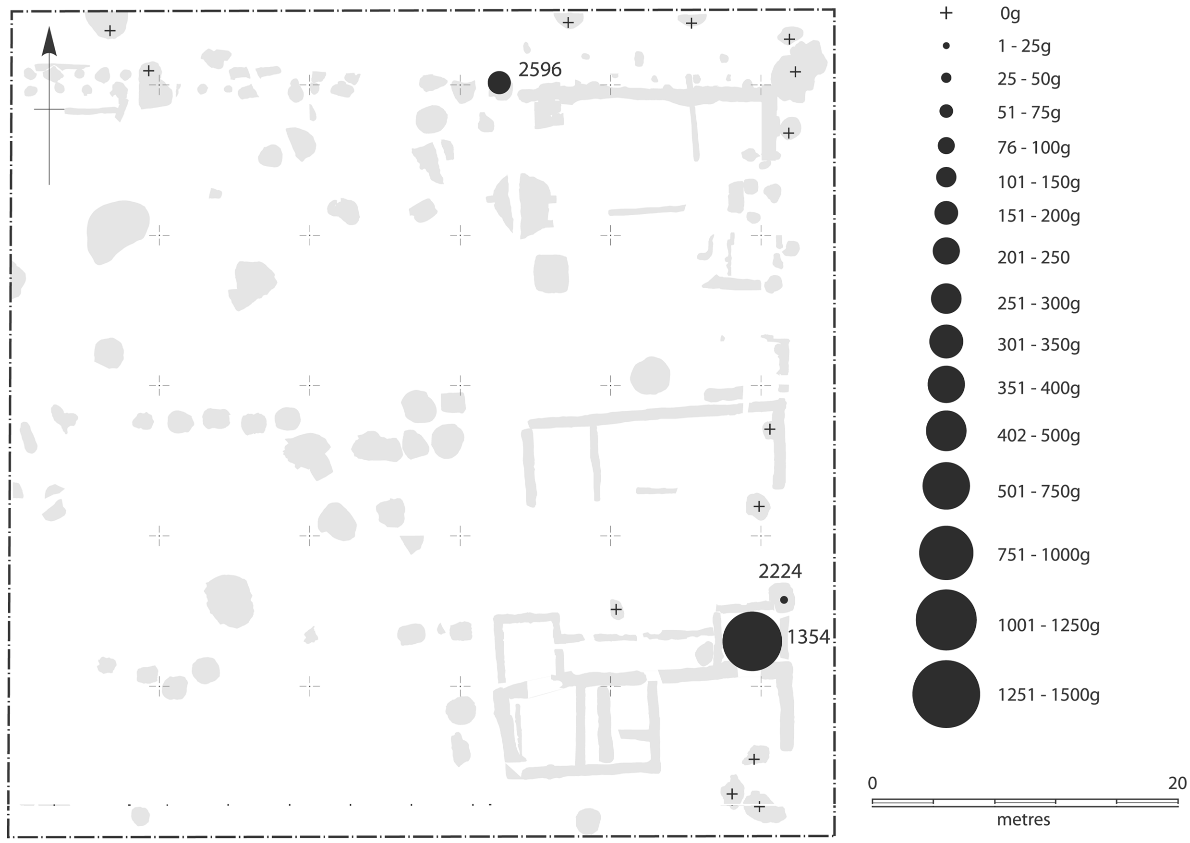

FIG. 84. Distribution of iron slag by weight from the latest pits (Object 122)

Some of the slag from pit 2596, weighing a total of 225g, may be intrusive, as 160g of this total was attributed to the cut, not a context. However, it is assumed that the unclassifiable slag constituting this 160g is from the pit. The remaining 65g of slag derived from the fourth fill and is represented entirely by a fragment of a small hearth-bottom.

The only other slag from Object 122 comes from the single fill of pit 2224, which yielded only 10g of fuel-ash slag and some unclassifiable material.

PITS: DISCUSSION

There appears to be no correlation between the size of the pit and the amount of slag found within it (FIG. 85). The largest concentrations of slag certainly do not come from the largest pits. Indeed, half of the ten pits with the greatest volume contained no slag whatsoever. Equally, the top three concentrations of slag derive from the 33rd, 10th, and 40th largest pits respectively. FIG. 85a illustrates this lack of correlation. As the pit volume (in grey) decreases, the slag (in black) does not show any complementary trend. The distribution of slag throughout the pits seems completely unrelated to their size. This is also clear from FIG. 85b, a graph showing density of slag per object. This graph clearly shows that the shallow scoops of Object 120 (of which many of the features are no deeper than 0.2m) have the highest density of slag.

The nature and volume of slag from the pits and wells seem to suggest that small-scale iron smithing with some smelting were the predominant forms of metalworking within Insula IX, but certainly in no great quantity. The relatively frequent hearth-bottoms and small amounts of accompanying smithing and fuel-ash slag would seem to support this. There were relatively few pit contexts that produced any slag certainly indicative of smelting. Only two, small-bowl, furnace-bottoms were found in northern half pits 1292 and 2813, with the largest example deriving from the very late pit 1354 in the south-east corner. It was interesting to note in the case of the furnace-bottom from pit 1354 that, although accompanied by a small amount of

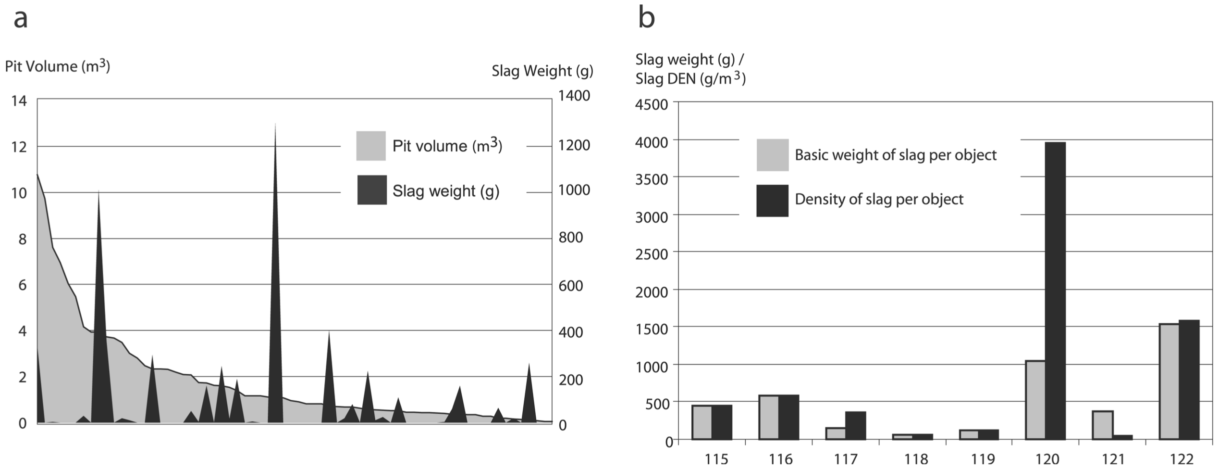

FIG. 85. Density of iron slags in the late Roman pits and wells: (a) weight of slag in relation to pit volume; (b) weight and density of slag per object

fuel-ash slag, there was a noted absence of the larger quantities of slag to be expected from smelting activities of any scale. Nevertheless, it is notable that this pit is near to the large hearth 1380. It might be plausible to propose that iron smelting was occurring either within Building 1 or in close proximity to it in the latest phase of occupation.

THE LAYERS (FIGS 86–8)

A total of 10.97kg of slag was excavated from the late Roman layers of Insula IX, nearly twice as much as from the pits and wells. Neither the southern nor the northern half had significantly more metalworking residues than the other, with a total of 5.54kg of slag (50.5 per cent) deriving from the southern half and 5.4kg (49.5 per cent) deriving from that of the northern.

The difference between the two halves appears to lie in the phasing and distribution. As FIGS 86–7 show, the majority of slag in the southern half occurs in Phases 1 and 2, within the late third-century dumping and levelling layers preceding the construction of Buildings 1 and 5, and during the construction phase itself within wall foundations and as packing for post-holes. The level of slag then drops dramatically during the Phase 3 (fourth-century) occupation when the projecting wings and corridor were added to Building 1 and the shared gravel-yard was formed. The Phase 4, latest, occupation, has an equally small level of slag within the layers associated with possible industrial activity. The amount of slag then increases again in Phase 5 within the dumps and levelling layers associated with the latest occupation of Buildings 1 and 5 (FIG. 88).

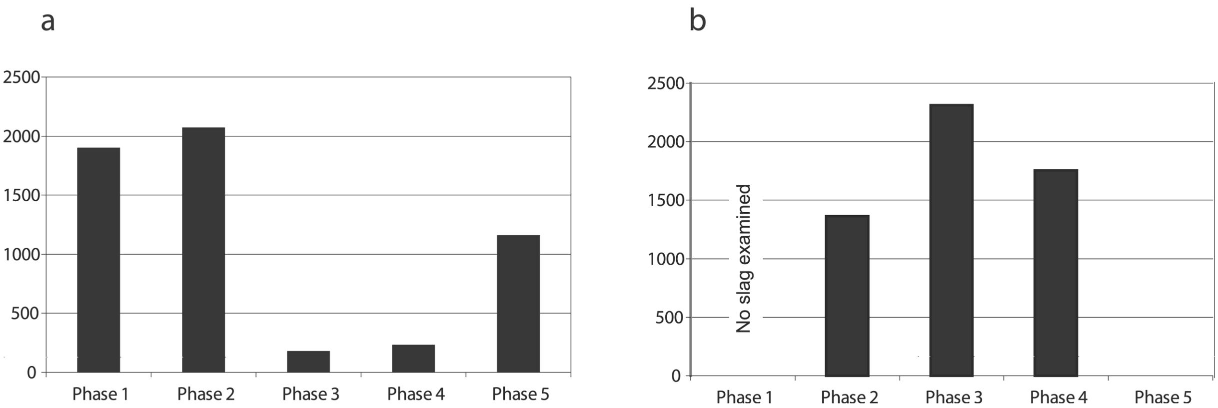

FIG. 86. Weight of slag by phase: (a) the southern half of the excavated area; (b) the northern half of the excavated area

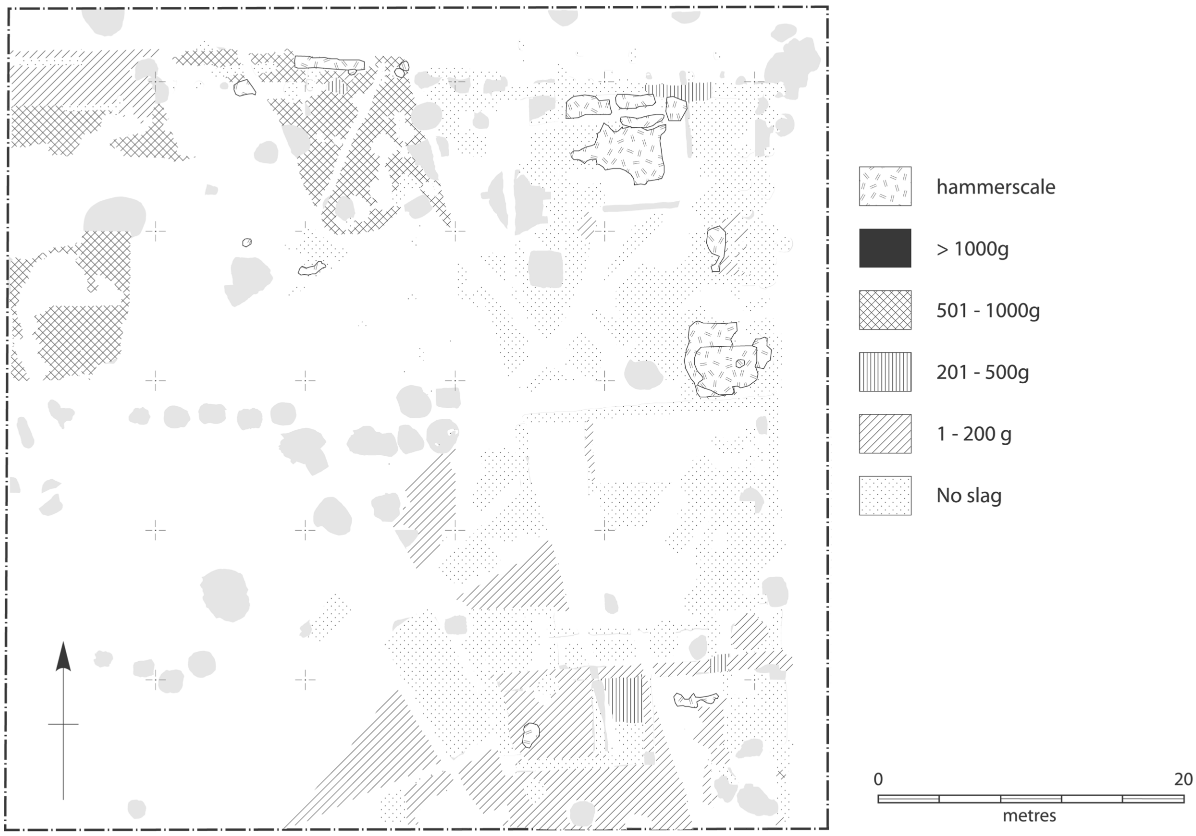

FIG. 87. Distribution of all slags by weight across contexts (other than pits and wells) of Phases 1–3

The northern half on the other hand (FIG. 86) shows a more consistent representation of metalworking residues. As FIG. 87 illustrates, in the Phase 2, late third-century occupation, the slag is clearly limited to the centre of the northern excavated area which complements the concentration and range of slag from the contemporary shallow scoops of Object 120 (see above).

The volume of slag then rises slightly during Phase 3, mid-fourth century. The majority of slag from this phase is restricted to occupation in the north-west corner of the excavated area away from the area of construction. During Phase 4, the late fourth century, the volume of slag decreases slightly, but the majority remains concentrated within the centre of the northern excavated area with some metalworking attributed to the dumps over Building 7 and in the gravel spreads south of Building 8 (FIG. 88). Unlike in the southern half, the Phase 5, latest Roman occupation and disuse deposits contained no metalworking residues at all.

In summary, the majority of slag from the southern half derives from dumps and levelling prior to the construction and occupation of Buildings 1 and 5, whereas the quantities of slag in the northern half are fairly consistent and derive largely from occupation and accumulation layers in the north-west and centre of the excavated area, perhaps related to the building in the north-west corner of the insula.

SOUTHERN HALF (FIGS 86–8)

Phase 1 (FIG. 87)

The late third-century series of make-up layers produced a total of 1.9kg of slag, second only to Phase 2.

The majority of slag from this phase came from Object 41081, represented by layers that

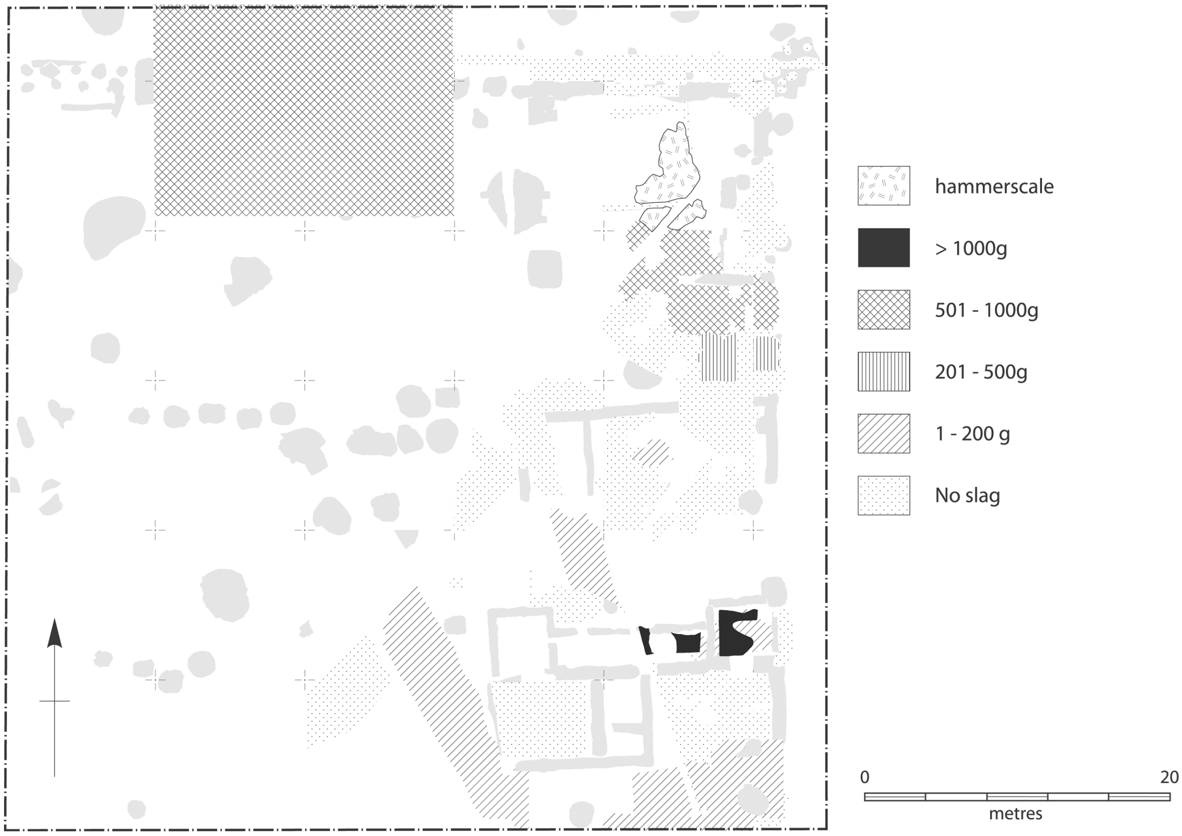

FIG. 88. Distribution of all slags by weight across contexts (other than pits and wells) of Phases 4–5

appeared to continue in use in Phase 1 of late Roman Building 1 but which originated in the previous phase. Of the 1.12kg of slag recovered, 82 per cent derived from layer 3468 — a compact dark brown layer containing a significant amount of small finds. This layer produced 915g of diverse metalworking residues, including a 250g hearth-bottom, processing slag, silicate slag, and slag with attached hearth-lining. It also contained 575g of slag most likely related to smelting that, in its molten form, had filled a cavity made by a shovel or similar tool and had solidified in that shape.

Fuel-ash slag and vesicular, sandy-clay hearth-lining (150g) were excavated from 2613, a spread of orange, gritty sand interpreted as an external surface in the previous phase. The remainder of the slag for this object came from substantial levelling deposit 3103 which produced 45g of fuel-ash slag and from another, smaller spread of orange, gritty, sandy soil, 2614, which contained a meagre 8g of anomalous slag.

The group of dumps and spreads that constitute Object 31019 yielded a total of 780g of metalworking residues. Of the twenty contexts within this object, interpreted as the provision of secure foundations for Building 1, only four contained slag.

The yellow-brown, silty clay 2419, one of the most easterly spreads of the group, produced 420g. This weight is wholly attributed to a single furnace-bottom. Similarly, the extensive, dark, gravelly spread 2488 produced a single fragment of hearth-bottom weighing 190g.

Layer 3469 contained 130g of mixed and unidentified slag, whilst gritty make-up spread 1734 contained only 40g of an amorphous mixed slag.

The two earlier pits filled to provide a level surface for the construction of Building 1 (Object 41080) produced no metalworking residues whatsoever. Similarly, the relatively ephemeral make-up deposits for Building 5 (Object 31026) produced no slag at all.

Phase 2 (FIG. 87)

The end of third-century Buildings 1 and 5 produced a total of 2.1kg of slag.

From this phase 73 per cent of the slag is attributed to the structural elements of Building 1 (Object 31021), which contained 1.51kg of metalworking residues. For the most part, the slag seems to have been re-used as structural materials within walls or as packing material for post-holes. Indeed, the largest amount of slag from this object derived from 2445, the packing for post-pit 2446. A 600g bowl-shaped furnace-bottom had been used as packing with a scattering of three pieces of fuel-ash slag weighing 40g. Within the same series of post-holes leading south from wall foundation 2186, two small pieces of fragmented, silicate-slag weighing 60g were also found in fill 3413 of post-hole 3414. Within the fill of wall foundation 2186 itself, 265g of a partly-melted, vesicular sandy-clay were recovered that may have been hearth-lining. Although no slag was recovered from the black, charcoal-rich, oval spread 2428, a small amount of hammerscale was found in the form of approximately twenty flakes measuring between 2 and 6mm.

Two other gravel wall-foundations had metalworking residues contained within them. The northern east–west wall 2090/1198, produced a single, small, highly vesicular, furnace-bottom weighing 175g, and the north–south wall 2208/1424 produced a fragment of hearth-lining and a piece of processing slag weighing 180g.

A single piece of corroded iron with attached slag (130g) was excavated from the primary gravel fill 3181 of a large post-pit 2092.

The remaining small amounts of slag for this object came from 3123, the fill of linear cut 3128 parallel with the series of post-holes to the east, and 3407, a deposit of orange-yellow, hard clay interpreted as the possible remains of a clay surface. The former produced a 40g slag pellet and the latter contained 20g of fuel-ash slag.

Unlike, the structural features of Building 1, those of Building 5 (Object 31020) contained barely any metalworking residues at all. A total of 30g of smithing slag derived from the gravel fill 1429 of wall foundation cut 2040. No slag was recovered from any of the associated internal floor surfaces. Although there was little slag found within the structural features of Building 5, a total of 530g was excavated from the line of post-holes (Object 31015) extending south from its eastern wall. The entire 530g derived from the fill of the most northerly post-hole 3185/3186. The slag comprised a smelting-furnace-bottom and four pieces of processing slag. It is also interesting to note that although post-hole fill 3187/3194 did not produce any slag, it did produce a rounded piece of iron-cemented sand that represents the only piece of possible ore found in the late Roman contexts.

Phase 3 (FIG. 87)

With a total of 180g, the fourth-century creation of a potentially shared, open-yard and the additions of two rooms and a corridor to Building 1 produced the least evidence for metalworking of all the phases of occupation in the southern half.

From Phase 3, 75 per cent of the slag derives from the features associated with the construction of the towers and corridor (Object 31017). Only three of the fifty-six contexts produced any slag and all were from occupation/industrial layers on the eastern side of Building 1. The majority was recovered from 3134, a dark floor/occupation layer within the original eastern room of Building 1. The entire 110g from this context comprised a single, small hearth-bottom.

The remaining 25g of slag from this object come from two contexts within the eastern tower. A 20g piece of unclassifiable slag derived from thin burnt layer 2621 and a 5g piece of pillious slag was recovered from occupation layer 2604 on top of a clay floor.

A tiny amount of hammerscale was recovered from post-hole fill 2770, although no other slag derived from this context. The hammerscale comprised only four flakes measuring 2–4mm.

Only 45g of metalworking residues were found within the deposits comprising Object 31023 located next to the walls of the new wings and corridor, as well as extending between Building 1 and Building 5 near the north–south street. Two small pieces of unclassifiable slag weighing 40g derived from dark gravel spread 3215 to the west of the western wing-room, and a single

5g piece of pillious slag came from dark, silty occupation/rubbish deposit 1761 immediately to the west of Building 5.

Object 31028 consisting of features set into the gravel spreads of Object 31023, such as lines of flint and a post-hole, contained no metalworking residues whatsoever.

Phase 4 (FIG. 88)

The latest Roman occupation features with suggested industrial activity produced only 230g of metalworking residues from the one object within this phase.

Object 31024 is represented by a number of hearths, pits, and gravel spreads, although only two contexts yielded any slag. A single 200g hearth-bottom comprised the entire amount of slag within extensive gravel surface 1996 which covers post-holes of the demolished Building 1 and extends south underneath the excavation trench. The remainder of the slag from this object derives from 1826, the primary fill of pit 1779, where a tiny piece of pillious slag was recovered weighing 30g. None of the scorched layers or contexts directly associated with the hearths contained any slag at all.

Phase 5 (FIG. 88)

The latest phase of Buildings 1 and 5, represented by a series of fairly extensive spreads (Object 31030), produced a considerably greater amount of metalworking residues than the two preceding phases, with a total of 1.16kg. Of the five contexts containing slag, four were deposits related to the disuse of Building 1 (97.5 per cent of the slag), whereas only one related to Building 5 (2.5 per cent of the slag).

The bulk of this weight derived from the substantial dump 1752, from which a total of 1.04kg of slag was recovered. This comprised two large hearth-bottoms (one with attached hearth-lining) plus numerous pieces of processing slag and fragments of hearth-lining. The underlying dump deposit 1886, which in turn covered the latest of the floors and deposits in the eastern wing-room, also contained some metalworking residues in the form of three small pieces of fuel-ash slag weighing a total of 25g.

A single, small, but very dense piece of slag weighing 50g constituted the entire amount of slag from clayey silt 2484 associated with the final abandonment of Building 1. Four pieces of fuel-ash slag (two with attached hearth-lining) weighing 15g were recovered from 2451. This spread of building material and domestic rubbish is particularly associated with the disuse of some of the pits located in the southern part of the excavated area.

A moderately small amount of hammerscale was extracted from context 1980 in the south-east corner, although no large slag was found. This dark spread, interpreted as a late Roman, dark-earth, abandonment spread and possibly affected by ploughing, produced a small number of hammerscale flakes up to 6mm in size with globules up to 1.5mm in diameter and a couple of surface-chilled spatter forms.

The only slag found in deposits relating to the disuse of Building 5 derived from dark, disuse spread 2167 from which only 30g of unclassifiable slag were recovered.

NORTHERN HALF (FIGS 86–8)

Phase 2 (FIG. 87)

The late third-century occupation deposits of Phase 2 produced a total of 1.37kg of slag.

Of the slag for this phase, 98 per cent came from Object 41071, represented by twelve external deposits near the centre of the excavated area. Out of these twelve, only three contexts contained slag, most notably 1787, an extensive accumulation-deposit thought to have been in use well into the fourth century, and 2862, a very similar deposit and potentially the same. These contexts contained 545g and 800g of slag respectively, the former comprising a number of very small hearth-bottoms, some processing slag, and a fragment of hearth-lining, and the latter comprising a furnace-bottom weighing 680g and some general mixed slag. The only other context to contain metalworking residues was 2394, a spread that had slumped into a depression and contained only 10g of hearth-lining.

Accumulation deposit 2321, although producing no large slag at all, did produce microscopic slag in the form of a relatively large amount of hammerscale flakes, measuring between 1 and 6mm in size, along with globules and a surface-chilled spatter form. A moderately small amount of hammerscale was also recovered from possible occupation spread 2878, which may have been part of an open-yard area. This microscopic slag comprised only flakes measuring up to 4mm in size.

The only other object of Phase 2 to have contained slag was Object 41038, interpreted as an open-yard area consisting of gravels and silts north of Building 5. The only context to produce any slag was 3140, a spread of cessy silt over a metalled area which yielded a single small piece of processing slag weighing 20g. The overlying spread 3139, although producing no large slag, yielded a small number of hammerscale flakes, ranging in size from 1 to 5mm. The relatively wide and shallow roadside ditch along the east–west street (Object 41040), the line of substantial post-holes for a fence or boundary (Object 41039), and the post-holes in the north-eastern corner (Object 5) did not produce any slag at all.

Phase 3 (FIG. 87)

The features associated with the construction of Buildings 7 and 8 in the mid-fourth century produced a total of 2.31kg of slag.

The majority of slag from Phase 3 came from Object 41041, which yielded 1.2kg. This object is represented by a number of occupation features in the north-west corner of the excavated area. Of the slag from this object, 76 per cent came from a dark-earth spread, 1247, rich in finds, which covered virtually all of the north-west corner of the trench. The 930g of slag from 1247 does not comprise a large amount scattered across a large expanse. It is represented by three, very dense, smelting furnace-bottoms and some hearth-lining.

The remainder of slag from this object derives from build-up along the east–west road 1282 and possible floor surface 1281, the former producing a hearth-bottom and some processing slag weighing 190g, and the latter producing one single, very small hearth-bottom weighing100g.

A total of 450g of metalworking residues was recovered from Object 41048, which comprises the external walls of Building 8 and its internal features including a large hearth, 1432, which has been interpreted as a smithy. There was, however, a distinct lack of slag from the associated contexts of Object 41048 with 97 per cent of the slag deriving from Victorian backfill 1273, where a highly fragmented hearth-bottom and some processing slag represent the majority of the metalworking evidence. The only other slag from this object came from 1256, a spread of charcoal-rich soil associated with a hearth that produced a single piece of amorphous slag weighing a meagre 10g.

Object 41048 did, however, produce a small amount of microscopic slag, although its significance should not be over-estimated as there was increased sampling of this area due to its presumed function. Occupation surface/floor layer 3077 and possible metalworking surface 2994 did not produce any slag from direct excavation, but small amounts of hammerscale flakes and globules ranging in size from 0.5 to 3mm were present. These contexts were sampled specifically because metallurgy was suspected. Hammerscale (though no large slag) was also recovered from floor surface 3066, associated with firing platforms 3059 and 2942 of hearth 1432. Compared with the very small amounts of hammerscale found across the site, floor 3066 produced one of the relatively larger amounts, comprising a mixture of flakes, globules, and surface-chilled spatter forms measuring up to 5mm in size.

Objects 41043 and 41073 are represented by a series of post-holes and gullies in the centre of the excavated area to the south of the east–west street. Apart from the fill of robber-trench 2324 producing a small number of hammerscale flakes, the gullies of Object 41073 contained no metalworking residues at all. However, the post-holes of this object contained a total of 395g.

Most of the slag (81 per cent) derived from 2954, the packing fill of post-hole 2956, where two pieces of slag (one with attached hearth-lining weighing 320g) were used to pack the post. Slag with hearth-lining (45g) was also excavated from the dump/packing deposit overlying the same post-hole. The remaining slag from this object came from the packing of post-hole 2808 in the form of a single 30g piece of slag.

Several post-hole fills from Object 41043, although producing no large slag, yielded micro-slags in the form of hammerscale. Post-hole fills 2332 and 2312 contained paltry amounts of hammerscale flakes measuring up to 4mm in size. Fill 2317 produced slightly more hammer-scale, including flakes measuring 3mm, one globule, and one surface-chilled spatter form. Post-hole fill 2729, however, produced one of the largest amounts of hammerscale from the layer deposits, although it must be noted that this still constitutes a relatively small amount, given how little hammerscale has been recovered in general from the late Roman deposits of Insula IX. Approximately one hundred flakes and globules, measuring 1–7mm and 1–5mm respectively, along with surface-chilled, spatter forms, were extracted from this context.

A total of 160g of slag was excavated from Object 3301, comprising the contexts making up Building 7. The majority of slag derived from linear feature 2198, which is suggested to be the southern wall foundation of Building 7. This feature contained four relatively small pieces of processing slag weighing a total of 145g. One piece of unidentifiable slag weighing 15g was also recovered from context 1572, a 5–10cm arbitrary spit taken from below 1263 and 1485 to attain better definition. Although no slag was recovered by direct excavation of burnt floor surface 2895, two hammerscale flakes measuring up to 3mm were recovered from the environmental sample.

The deliberately laid, silty-clay and gravel surfaces of Object 41044 produced only 65g of metalworking material. Of the seven contexts within the area immediately outside Buildings 7 and 8, only one accounted for the entire 65g. A single piece of unidentifiable slag was recovered from gravel spread 2244.

The structural evidence from the earliest phase of Building 8, forming a possible, small square-structure/room (Object 41052), produced no metalworking evidence at all apart from two hammerscale flakes from possible clay hearth 2559. Its subsequent re-fashioning (Object 41053) produced only a small amount from re-surfacing layer 1311, represented by a single 20g fragment of vitrified sandy clay that would have been hearth-lining.

The series of small post-holes (Object 41015), possibly representing property demarcations, produced no slag at all apart from a small amount of hammerscale from post-hole-packing 2531. This was comprised largely of flakes measuring 3mm with one globule and a couple of surface-chilled spatter forms.

Phase 4 (FIG. 88)

The latest occupation of the northern half of the insula yielded 1.76kg of slag, although this amount derived entirely from three contexts.

Of the three, dark-soil contexts associated with Building 7 **(Object 41045)**, only spread 2222 produced any metalworking residues. A single hearth-bottom represents the entire 210g of slag deriving from this object. Similarly, only one context contained slag from the gravel spreads south of Building 8 comprising Object 41046. The entire amount (545g) of slag from this object came from 2077, an extensive spread of dark clayey-sand. The bulk of this slag is represented by a furnace-bottom weighing 400g, with the remaining slag consisting of a few pieces of fuel-ash and silicate slag.

Object 41049, represented by layers of dark soils to the west of late Building 8, produced 56 per cent of the slag from this phase. Of the three layers, only one, context 2322, produced any metalworking residues. This arbitrary cleaning layer, which was 2.5cm thick and covered approximately 60m^2, produced 1kg of slag. The assemblage from this context comprised over thirty pieces of processing slag of similar composition and appearance with a very small hearth-bottom and a fragment of hearth-lining.

Object 41047, associated with the latest phase of Building 8, produced no slag at all. Neither was slag recovered from the gullies and post-holes of Object 41042 along the east–west street. Equally, the spread of dark soil and the post-hole cut into it comprising Object 41076 contained no slag at all.

Phase 5

Object 41051, represented by dark-earth spread 2351, as the only context of this phase south of the east–west street, contained no slag.

THE LAYERS: DISCUSSION

The most noticeable observation to be made about the slag from the southern half is that 93 per cent is associated with the earliest (Phases 1–2) and latest phases (Phase 5) of Building 1. The former relate in part to the make-up for and construction of the building, while the latter related to the very latest occupation associated with it. The weakly-represented Phases 3 and 4 need to be seen in the context of the evidence of the contemporary pits of Object 116, particularly 3235. Though some of the earliest slag may have been introduced from elsewhere, the remaining evidence suggests low-level or intermittent iron-working and iron-making throughout the life of Building 1 and into the fifth century.

The layers of the northern half, however, produced relatively consistent amounts of slag through the phases. The majority of the contexts are of a dark earth or occupational character. Taken with the slag from the pits, notably Object 120, the evidence also suggests low-level or intermittent iron-working and iron-making through the fourth and into the fifth century. The metalworking evidence also seems consistently located in the north-west and central northern part of the excavated area and is, perhaps, to be associated with the building in the north-west corner of the insula, outside the excavated area. The evidence from the areas of Buildings 7 and 8, which are largely devoid of pits, illustrates the problems of identifying the function of prominent features like the hearth 1432. How much evidence would be consistent with an interpretation as a smithing forge? Contexts close to the hearth were sampled for microscopic residues, but there was no wider, systematic sampling of contexts across the whole area of the excavation. Microscopic residues of hammerscale and globules, consistent with the initial interpretation, were present, but that representation cannot be set in the context of a wider survey of contemporary contexts across the excavated area.

The metalworking residues from the layers also show that not all slag was immediately disposed of in pits and dumps. There are a number of examples within Insula IX to show that certain forms of slag, especially hearth-bottoms, were selected to be used as a sturdy construction-material in the form of post-hole packing and within masonry wall foundations.

SUMMARY

Overall, Insula IX did not produce large quantities of slag. The forum-basilica at Silchester excavated in the 1980s produced a total of 90.5kg of slag (Richards 2000b, 421), over five times the amount (16.43kg) found in Insula IX. Of this, 62kg was from the late Roman phase of industrial activity (Period 7), which means that even the late Iron Age and earlier Roman phases of the forum-basilica produced more slag than the late Roman occupation of Insula IX. At about a quarter of the amount from Period 7 of the forum-basilica, the quantity and nature of the metalworking residues from the much larger area of Insula IX certainly do not suggest a large-scale, metalworking industry in the late Roman period in terms of either smelting or smithing (below, Allen).

However, the combined evidence from the pits and the layers indicates low-level or intermittent iron-smithing and smelting (below, Allen) across the excavated area, particularly in association with Building 1 and the property associated with the unexcavated building in the north-west corner of the insula. There is little evidence associated with Building 5, with only small quantities from the associated pits of Object 117. The layers associated with Buildings 7 and 8, where there were few pits, did, however, produce the microscopic residues consistent with iron-smithing. Large slag masses, perhaps not surprisingly, were rare across the occupation surfaces of these buildings. In this context the interpretation of Building 8 as a smithy, at least for some of its life, remains reasonable.

It is significant that, contrary to the prediction that most metalworking residues are to be found in pits (swept away from the area of processing), there is twice as much slag in the layers as in the pits and wells of Insula IX. The metalworking debris from the forum-basilica, however, shows almost the reverse of this with 66.6 per cent of slag deriving from the pits and the remainder from the layers, though the latter were heavily truncated by Victorian excavations (Richards 2000b, 422). This supports the proposal that metalworking was not on a large-enough scale within Insula IX to create large dumps of debris within nearby pits. Indeed, some of the rather substantial hearth-bottoms (which account for most of the slag weight) are present in contexts, such as foundations and the packing of post-holes, where they were perhaps re-used for their durability and hardness rather than simply deposited as a waste product of nearby industrial activity.

To conclude, the late Roman metalworking residues from Insula IX do not indicate intensive iron-making and iron-forging. Any metalworking that occurred was most likely small-scale smithing and smelting that seemed largely localised to Building 1 and the north-west and northern central part of the excavated area, perhaps to be associated with the unexcavated building in the north-west corner of the insula. Microscopic residues of iron-smithing are largely confined to the areas of Buildings 7 and 8.

CHAPTER 2

THE SLAG BASINS

By J.R.L. Allen

Submitted for examination were eleven saucer- or basin-shaped lumps of slag, namely, Objects 1198, 1247 (A, B), 1298, 1391, 2077, 2419, 2748 (A, B), 2862, and 3185. After thorough cleaning, all were sawn vertically to reveal a cross-section for handlens/binocular microscope inspection. A subsample for x-ray fluorescence analysis was taken from the central parts of nine of the lumps.

The slag basins are for the most part virtually pristine, the main losses being small breakages from around the edges. Several are locally encrusted with a strongly adhering selvage of orange-red sandy clay, occasionally slightly chalky, with chips of flint. As these encrustations can appear on both upper and lower surfaces of the lumps, they are considered to post-date the formation of the slag and to have arisen during burial.

CHARACTER IN HAND-SPECIMEN

The group has a total weight of 3.423kg, the individual basins ranging in weight from 73g to 794g with an average weight of 311g (Table 8). The basins are oval in plan and in cross-section range from weakly double-convex, through plano-convex, to strongly concavo-convex.

Individually the basins present up to three kinds of surface: upper, lower, and broken. In the case of basins of double-convex cross-section, the least convex surface is initially taken to be the upper one; the upper surface otherwise ranges from roughly planar to strongly concave. Typically, the upper surface is partly occluded by fragments of charcoal but elsewhere, except for the round-lipped mouths of open vesicles, is uneven but smooth, where a free surface of slag has chilled in the presence of a gas above. The lower or moulded surface can be very uneven, often entrapping a little sand and chips of flint or charcoal, but on a scale of 5–10mm normally displays smooth, warty protuberances. These are considered to represent places where viscous slag failed completely to fill small, irregular cavities on the surface that supported the basin. Two specimens (2748A, 3185) show on the underside what appear to be casts of the marks made when some kind of tool (?bars of square or rectangular section) was deployed, either to shape a hollow to receive the slag or to agitate the contents. Broken surfaces are easily recognised because they reveal gas vesicles in cross-section.

The slags are dense and locally microcrystalline, on the sawn faces ranging in colour from greenish grey to greenish black. Gas vesicles vary from common to abundant. Typically, they are small and rounded (<5mm), with a smooth interior, and when elongated lie normal to the lower surface (1198, 1247B, 1298, 1391, 2748B, 3185). The larger vesicles (<15mm) tend to be irregular in shape, although still with largely smooth interiors, and are often found near the upper surface, to which they tend to lie parallel (1391, 2077, 2862, 3185). The slags are otherwise homogeneous throughout, with no sign of a repeated vertical zoning in the form of patterns of colouration, crystallinity, vesicles, or inclusions. The latter vary from absent to a scatter of charcoal chips and occasional lumps of sandy clay.

CHEMICAL COMPOSITION (Tables 8–9)

The subsamples secured from the slag basins were crushed and then ground in a small agate ball mill. Pressed-powder pellets were then made for trace-element analysis. After determining the loss on ignition, the major and minor elements were analysed on fusion beads made using lithium tetraborate flux. Analyses were carried out using a Philips PW 1480 x-ray fluorescence spectrometer with a dual-anode Sc/Mo 100Kv 3Kw x-rate tube. Calibrations were achieved on the basis of six international reference standards. The major and minor elements appear in Table 8 in terms of their oxides and the trace elements are given in Table 9.

TABLE 8. MAJOR AND MINOR ELEMENT COMPOSITION OF SLAG BASINS FROM INSULA IX

Basin	*Weight* (g)[1]	*Composition* (wt/%)											
		SiO_2	Fe_2O_3	MnO	Al_2O_3	MgO	CaO	TiO_2	Na_2O	K_2O	P_2O_5	LOI[2]	Total
1198	133	33.36	64.20	0.13	3.51	0.77	2.39	0.27	0.00	1.18	0.41	–4.86	99.94
1247A	254	19.11	84.25	0.05	1.63	0.16	0.36	0.13	0.00	0.38	0.29	–5.33	101.05
1298	133	25.29	72.29	0.15	1.26	0.28	0.71	0.10	0.00	0.71	0.64	–0.37	100.76
1391	794	23.51	73.00	0.15	2.58	0.92	3.28	0.20	0.00	1.31	0.82	–4.73	101.03
2077	362	18.41	74.68	0.20	1.89	0.89	2.36	0.15	0.00	0.76	1.41	0.27	101.02
2419	368	21.35	72.51	0.06	1.31	0.16	0.60	0.11	0.00	0.48	0.62	4.33	101.52
2748A	109	27.71	71.28	0.09	2.55	0.31	1.06	0.21	0.00	1.18	0.41	–4.86	99.94
2862	621	7.26	90.72	0.06	1.10	0.23	0.41	0.09	0.00	0.38	0.36	0.90	101.50
3185	329	20.59	79.88	0.07	1.77	0.14	0.33	0.16	0.00	0.23	0.60	–3.55	100.22

1 The weights of basins 1247B and 2748B, which were not analysed, are 247g and 73g respectively.
2 Loss on ignition.

TABLE 9. SELECTED TRACE-ELEMENT COMPOSITION OF SLAG BASINS FROM INSULA IX

Basin	*Trace element* (ppm)							
	V	Cr	Co	Ni	Cu	Zn	Pb	Zr
1198	37	54	44	<5	51	25	19	193
1247A	27	36	64	20	109	40	8	70
1298	35	43	290	167	194	61	10	77
1391	42	53	55	15	45	43	9	133
2077	39	40	48	55	84	59	10	82
2419	30	35	102	186	159	45	11	136
2748A	34	45	80	28	158	45	16	152
2862	15	64	63	100	71	42	9	54
3185	31	56	130	66	263	54	7	128

The slags are very rich in iron, in terms of Fe_2O_3 measuring 64.20–90.72 per cent and averaging 75.86 per cent. Silica is very variable but generally abundant, averaging 21.84 per cent and ranging from 7.26 to 33.36 per cent. Of the minor components, alumina is the most plentiful at an average of 1.96 per cent and a range of 1.10 to 3.51 per cent. It exceeds lime in abundance by between 0.79 and 5.4 times. Lime (av. 1.02%) is a very minor component but between 1.8 and 3.6 times more common than magnesia (av. 0.43 %). Potassium as oxide in abundance lies between these two. Sodium is not represented in any of the analyses. There are very small quantities of manganese oxide (av. 0.09%), titania (av. 0.16%), and phosphorus pentoxide (av. 0.62%).

Copper, zinc, and lead are the trace elements in the slag basins most closely linked to human activities, as well as occurring naturally in rocks and ores. Copper averages 126 ppm in the slags and varies over a roughly six-fold range (45–263 ppm). It averages about 2.7 times more abundant than zinc, roughly equalling the latter in 1391 but in 3185 rising to 4.9 times more prevalent. Zinc is much less abundant and also less variable (av. 46 ppm, range 25–61 ppm), as is lead (av. 11 ppm, range 7–19 ppm).

DISCUSSION

Dense iron-rich slags are not confined to the processes of iron-making and the fabrication of iron objects, but can arise during non-ferrous metallurgical operations, especially the production of copper from sulphide-bearing ores. The trace-element composition of the slag basins from Insula IX makes it highly unlikely that a non-ferrous operation is represented. The amounts of copper, zinc, and lead are very low, of the order of 10–100 ppm (Table 9), and compare well with results for Romano-British iron-making slags from sites in the Severn Estuary (Allen and Fulford 1987, table 7; Fulford and Allen 1992, table 9). In contrast, slags from the post-medieval copper-making industry in the Bristol Channel-Severn Estuary, exploiting ores that include the double sulphide, yield copper and lead values of the order of 1000 ppm and values for zinc of the order of 10,000 ppm (Allen and Fulford 1990, 301; Allen 2001, table 2).

There is, however, one possibly significant difference between the trace-element composition of Insula IX slags and those recovered from the Severn Estuary. In the latter the heavy metals invariably occur in the order Zn>Cu>Pb, whereas the invariable order at Insula IX, as noted above, is Cu>Zn>Pb. Moreover, at Insula IX copper is much more variable in amount than either zinc or lead. This suggests that, if iron-making was the activity, some copper-bearing ore was occasionally used or, if the slags record a smithing process, either copper-alloy objects were at times being treated or there was a degree of contamination, perhaps from the use of soil dug within the urban site (Cook *et al.* 2005).

Generally, but not invariably (see Sim 1998; Bayley *et al.* 2001; McDonnell and Swiss 2004), the iron-making process available in the Roman period involves three stages in the progression from ore to finished product: the production of a bloom of pure iron heavily contaminated with slag, the refining of the bloom by sweating-forging (primary smithing), and the manufacture of the artefact (secondary smithing). Slags are a by-product of all stages.

The slag basins from Insula IX (Table 8) cannot be distinguished in terms of their major and minor element composition from Romano-British tap slags from sites in the Severn Estuary (Allen 1988; Allen and Fulford 1987, table 7; 1990, table 5; Fulford and Allen 1992, table 9). This is true not only for the overall proportions of the elements present, as represented by their oxides, but also for the ratios between the various pairings of the oxides (e.g. Al_2O_3:CaO, CaO:MgO). This suggests that the slags derive from rich ores and clays similar to those exploited in the Severn Estuary (Fulford and Allen 1992). McDonnell and Swiss (2004, 376) concluded that tap slags from Roman Worcester were more silica-rich than those from the Severn Estuary, which is surprising, given that haematite resembling that from the Forest of Dean is the only ore so far recorded from Worcester (Allen and Fulford 1987, 279). Different analytical procedures were, however, applied to the Worcester slags. Analytical procedures different again were applied by Starley (2003) to a group of concavo-convex slag basins considered to record smithing from a Roman industrial site in London. These slags exhibit great chemical variation. In terms of their iron and silica contents, some resemble the slags from Insula IX, whereas others are several times more siliceous. They are also much more variable than the Silchester materials in terms of the oxide ratios.

Chemical composition, density, and size of the slag basins suggest that, rather than representing secondary smithing, they relate either to the refining of blooms produced elsewhere (?*Calleva*, imported) or to the small-scale smelting of iron in simple bowl furnaces (this earlier technology continued in parallel with the introduced shaft furnace).

The conventional interpretation of slag basins from Roman Britain is that they are smithing hearth-bottoms (e.g. Crew 1993; Salter 1997; Bayley *et al.* 2001; Cowgill 2004). They are said partly to form 'just below the blowing hole in the smithing hearth' (Crew 1993), and can be of comparatively low density, incorporating fused clay and probably fuel-ash slag (Crew 1993; Cowgill 2004). The upper surface is said sometimes to have 'a depression formed by the air blast' (Bayley *et al.* 2001, fig. 21; Starley 2003, 131), but the typical overall concavity of this face, if that is something different, is plausibly due to shrinkage as the mass of slag cooled.

The slag basins present no features which critically deny the possibility that they represent small-scale iron-smelting in simple bowl-furnaces. They are dense and compositionally identical to proven iron-making slags. Moreover, given the evidence of cut rather than natural faces, it is clear that none of them displays the repeated vertical zoning that would be expected if they had come from smithing-hearths subject to the intermittent operation of day-to-day or even within-a-day practice. Instead, each basin would seem to represent a single pyrotechnological event. Potential iron ores and hammerscale were not sought at the contexts of the slag basins, so this evidence is not available to either support or deny the possibility of smelting.

PART FOUR

BIOLOGICAL AND ENVIRONMENTAL ANALYSES

CHAPTER 1

THE ANIMAL BONE

By Claire Ingrem

THE LATE PITS AND WELLS

The animal bone assemblage has been subdivided according to the eight object groups described above (Part I.2), each made up of a number of similar features such as pits, wells, and shallow scoops. This report presents the data collected from the assemblage in its entirety, followed by a consideration of the characteristics of each individual object group, after which the material is interpreted and discussed alongside previously excavated faunal assemblages from Silchester and other contemporary sites. Tabular data and figures are presented in Appendix 6. As a result of disturbance caused by the Victorian excavations, residuality cannot be completely ruled out, although contexts considered particularly problematic at the time of excavation have been excluded from analysis. The assemblage of dog bone is reported on separately by Clark (below, Part IV.2).

METHODOLOGY

The animal bone was identified and recorded at the Centre for Applied Archaeological Analysis (CAAA), Department of Archaeology, University of Southampton. All fragments greater than 10mm from the hand collected material and greater than 5mm from the environmental samples were recorded to species or size category to produce a basic fragment count of the Number of Identified Specimens (NISP). All anatomical elements were identified to species where possible with the exception of ribs and vertebrae which were assigned to size categories. Fragments categorised as large mammal are likely to belong to horse or cattle, those in the medium mammal category to sheep/goat or pig, and those in the small size category probably represent a variety of small wild animals. Mandibles and limb bones were recorded using the zonal method developed by Serjeantson (1996) to allow the calculation of the minimum number of elements (MNE) and the minimum number of individuals (MNI); this is based on the most numerous zone of a single element, taking into account size. Percentage survival figures were obtained by dividing the minimum number of elements (proximal and distal ends of long bones) by the number of times it occurs in the body and presenting this as a percentage of the minimum number of individuals.

The presence of gnawing, butchery, and burning together with the agent responsible was recorded. The percentage of bone butchered has been calculated using the figures for cattle, sheep, pig, horse, and large and small mammals only (see below 'Intra-site variation' and Table 37). Measurements were taken according to the conventions of von den Driesch (1976) and Bull and Payne (1982) for mammals, and Cohen and Serjeantson (1996) for birds. The wear stages of the lower cheek teeth of cattle, sheep, and pig were recorded using the method proposed by Grant (1982) and age attributed according to the method devised by Payne (1973) and Legge (1982). The fusion stage of post-cranial bones was recorded and age ranges estimated according to Getty (1975). Measurements of the crown height of horse teeth were recorded and age estimated according to the method of Levine (1982). Cat age was estimated from epiphyseal fusion using the method of Habermehl (1975), but discrepancies noted with the state of fusion in comparative specimens suggests that age estimates should be treated with caution.

A selected suite of elements was used to differentiate between sheep and goat during recording according to the methods of Boessneck (1969) and Payne (1985). These were the distal humerus, proximal radius, distal tibia, metapodials, astragalus, calcaneum, and deciduous fourth premolar. No elements belonging to goat were positively identified, therefore the ovicaprid remains are generally referred to as sheep. Size was used to differentiate domestic cat from wildcat and domestic/greylag goose from other wild geese. Galliforms were identified following the criteria of Cohen and Serjeantson (1996) and are referred to as domestic fowl for the purposes of this report. A separate record was made of skulls, skeletons, and articulated bones in order to investigate the possibility that some features contained special deposits. As the occurrence of isolated teeth and skull fragments may be all that remain of animal skulls their presence is noted where they occur in primary fills.

Data from the sieved samples has been used to investigate recovery bias through the analysis of species and anatomical representation (both NISP and MNI). As the samples were only made available at a late stage in the project the material was excluded from more detailed analyses.

Fish from the sieved samples were identified by Dr Alison Locker using her personal reference collection. The dog remains were recorded by Dr K. Clark and form the subject of a separate report.

At the request of the project manager, the data were recorded on line on the Integrated Archaeological Database (IADB), a recording method specially devised for this project. This did not allow the author the usual control over recorded data, and unfortunately, the analysis has been restricted by the loss of some recorded data, particularly that related to butchery and other surface modifications.

DATA

A total of 8,336 fragments of animal bone were recovered by hand collection from late Romano-British pits and wells of which 2,593 (31 per cent) are identifiable to order or species level (Appendix 6, Table 32a). The NISP values include fragments belonging to individual skulls, skeletons, and articulated bones which are listed separately in Table 32. The assemblage is clearly dominated by fragments belonging to cattle which represent more than half (57 per cent) of the identifiable remains; fragments belonging to sheep/goat and pig comprise much smaller proportions (15 and 11 per cent respectively). Calculation of the MNE and MNI suggest that sheep and pig were more numerous than the NISP data indicates, although cattle are still numerically dominant with a minimum of 26 cattle, 11 sheep, and 9 pigs represented (Table 33). Of the remaining domestic animals, horse is poorly represented (1 per cent) and domestic fowl (3 per cent) slightly more numerous. Cat and goose are present and the variable size of their bones suggest that both domestic and wild forms are represented.

A variety of wild animals are represented including wildcat (*Felix silvestris*), pine marten (*Martes martes*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), hare (*Lepus europaeus*), woodcock (*Scolopax rusticola*), pigeon (cf. *Columba livia*), jackdaw (*Corvus monedula*), and raven (*Corvus corax*). In addition, duck is represented by mallard (*Anas platyrhyncos*) and teal (*Anas* spp.) size remains. A considerable number of rodent bones were recovered, including the partial skeleton of a field vole (*Microtus agrestis*) and one amphibian bone (Table 32a). A single identifiable fish bone, a dentary belonging to pike (*Esox lucius*), was recovered by hand collection.

The sieved samples produced 7,223 fragments of animal bone of which 9 per cent are identifiable and in which cattle, sheep, and pig are present in almost equal numbers. In addition to species present in the hand-collected material, an atlas belonging to weasel (*Mustela nivalis*) and the remains of both freshwater and marine fish are present with clupeid, salmonid, pike, cyprinid, eel (*Anguilla anguilla*), scad (*Trachurus trachurus*), flatfish, and probably smelt

(*Osmerus eperlanus*) all identified (Table 32c). The majority (66 per cent) of the fish remains belong to eel; all were recovered from the group of cess-pits (Object 116) and during recording it was noted that most were very small (<150mm total length).

The majority of the identifiable material was recovered from pits associated with the substantial stone properties known as Buildings 1 and 5, located in the southern part of the site (Table 32). Almost half (n=1262) came from the group of mainly cess-pits comprising Object 116, and approximately a quarter (n=603) from another group (Object 117) aligned east–west and thought to respect a fence line separating these properties from the timber-framed buildings to the north. The shallow rubbish pits in this area (Object 115) produced a much smaller (n=147) quantity of identifiable animal bone.

In contrast, a relatively small amount of animal bone came from the groups of pits, cut features, and shallow scoops associated with Buildings 7 and 8 and the north-western property. A second east–west line of pits comprising Object 118 is located to the north of the fence line mirroring Object 117; these pits produced a reasonable amount (n=180) of identifiable fragments whilst the cut features (Object 119) and the shallow scoops (Object 120) contained few identifiable specimens (n=48 and n=56 respectively).

A small amount (n=45 and n=252) of material came from the three wells (Object 121) and a group of features which either directly cut through the road surface or appeared to post-date the late Roman street-front buildings (Object 122).

Anatomical representation

Anatomical representation of mammals from the hand-collected material is shown in Table 34a (i)–(ii) according to NISP. Fragments belonging to the mandible, scapula, pelvis, and radius dominate the cattle assemblage; however when large mammal fragments (likely to be from cattle) are taken into account most parts of the body are present, though there are more bones from the trunk and upper limbs than from the head. Fragments belonging to the mandible are the most frequent element in the sheep and pig assemblages, although some major limb and metapodial bones are fairly well represented. Of the remaining domesticates, horse is represented by fragments from most parts of the body and domestic cat by two partial skeletons. Most of the wild animals are represented by just a few fragments each; however cranial, major limb and feet are present for both roe and red deer, whilst apart from a metapodial, hare is represented solely by major limb bones and pine marten by a tibia. Most of the bird remains are major limb bones; the only cranial bones belong to domestic fowl and jackdaw (Table 34b).

Anatomical representation of major domestic mammals in the sieved samples is shown in Table 34c. The volume of sediments sampled was relatively small compared to those recovered by hand collection, and the relatively high frequency of sheep and pig phalanges in these indicates that recovery bias is the most likely explanation for the under-representation of these small bones in the material recovered by hand.

The fish assemblage is dominated by vertebrae, although pike, cyprinid, and eel were represented by a few bones from the head or appendicular region (Table 34d).

Age and sex

Ageing data from tooth eruption and wear indicates that over half (54 per cent) the cattle were over three years of age at the time of slaughter and a further third were between two and three years of age (Table 35a). There is little evidence for very young animals; only two specimens belong to animals below three months and three to animals aged between 15 and 24 months. Epiphyseal fusion data also indicates that the majority of cattle were over three years of age at the time of death (Table 36a).

According to the dental data few very young sheep were slaughtered, although there is evidence for the death of at least four individuals under two years of age including a neonate (Table 35b). Approximately a third were culled between the ages of two and three years and another third between three and four years of age. The epiphyseal fusion data similarly suggest that most sheep were slaughtered between the ages of two and three and a half years of age (Table 36b).

The sample of ageable pig teeth is small but does indicate that most pigs were slaughtered prior to reaching adulthood, although some young adults are represented (Table 35c). The limited epiphyseal data supports the culling of immature pigs (Table 36c).

Only five bones (all of which fuse between 12 and 24 months) were able to provide an indication of the age at death of horse and all were fused (Table 36d). A single mandibular premolar (P3/P4) provided a crown height of 35mm indicating that at least one horse was aged between 10 and 14 years at the time of death. All of the partial cat skeletons retain some unfused epiphyses indicating that most died below 8½ months of age.

Apart from a metatarsal whose proximal and distal ends are unfused and a humerus whose ends have a porosity indicative of a juvenile, all of the domestic fowl bones belong to adult birds

Of the 17 pig canines recovered, 12 belong to males. Five out of 11 tarsometatarsus belonging to domestic fowl possess either a spur or spur scar, found respectively on adult and immature cockerels.

Taphonomy

Fragmentation

A large proportion of the material was extremely fragmented and consequently over two-thirds (69 per cent) of the hand-collected assemblage is unidentifiable or could only be assigned to mammal-size categories. This material includes a considerable number of large mammal skull, limb, vertebral, and rib fragments, and medium mammal limb and rib fragments (Table 34a(ii)).

Density mediated preservation

To assess the degree to which the assemblage has been biased by density mediated processes of destruction, the percentage survival has been calculated for cattle, sheep, and pig and is shown in comparison to the model proposed by Brain (1969) in Appendix 6, FIGS 120a–c. Cattle remains show little similarity with the model, some of the most robust bones such as mandibles, distal humeri, and tibiae are under-represented, whilst many other elements, particularly scapulae, pelves, astragali and calcaneus, are over-represented. In the sheep assemblage, distal humeri, distal tibiae, proximal radii, axis, and atlas are notably under-represented, whilst proximal metatarsals are significantly over-represented. A similar pattern is visible for pig with regard to under-represented elements, whilst scapulae, pelves, and calcaneus are over-represented. These patterns of over- and under-representation are therefore unlikely to result from density mediated taphonomic processes and explanations must be sought elsewhere.

Effects of recovery

With the exception of a dentary belonging to pike, all the fish remains were recovered by sieving and hence the programme of environmental sampling has transformed the fish bone assemblage. As mentioned above, comparison of the hand-collected and sieved material also indicates that the scarcity of small bones such as carpals, tarsals, and phalanges of medium-size mammals is a function of recovery.

Butchery

A considerable proportion of the identifiable assemblage and fragments assigned to size classes display evidence of butchery in the form of cut and chop marks, and a single large mammal limb bone fragment had been sawn through (Tables 37, 43). Chop marks are much more numerous than cut marks and most were seen on fragments of cattle and large-sized mammal bone. A lower frequency of butchery marks was seen on sheep, pig, and medium-sized mammal remains compared to large mammals but sheep and pig possess similar percentages with chop marks again more common than cuts. Two fragments of horse, one roe deer, three red deer, one hare, and three goose bones also displayed evidence for butchery.

Chop marks were seen on all skeletal elements belonging to cattle but scapulae and pelves were most affected. Chops were seen in a variety of locations and orientations; many specimens displayed several chops in differing directions and locations; however recurring patterns were also seen, with scapulae frequently obliquely chopped through the spine and neck, pelves through the acetabulum, and mandibles through the body.

Evidence for butchery was observed on bones recovered from all areas of the site. The group of cess-pits (Object 116) had the highest percentage of butchered bone, where almost half of the remains displayed cut or chop marks including a first phalanx belonging to horse which had been cut. The southern pit alignment (Object 117) also contained a considerable amount with more than a quarter of the assemblage possessing evidence for butchery (Tables 37, 43). In addition to the obvious cut and chop marks, limb bone fragments frequently possessed longitudinal fractures suggestive of them having been split axially, and helical fractures often associated with deliberate breakage for marrow extraction. Much of the material in context 1511 (pit 1707, Object 117) had also been butchered.

Gnawing

Only a very small proportion (4 per cent) of the identifiable and size categorised remains displayed evidence of gnawing, mostly by dogs, although in a few cases (n=6) rodents were responsible and one bird bone had marks suggestive of human chewing (Table 38). A higher average (7 per cent) was seen on the bones of the major domesticates than on those fragments assigned to size categories (2 per cent). Most object groups produced similar proportions of gnawed bone apart from the shallow rubbish pits (Object 115), the shallow scoops (Object 120), and the late pits (Object 122) from which smaller quantities were recovered (Table 38). Some of the eel remains were crushed probably as a result of chewing or possibly during the manufacture of *garum*.

Burning

A small proportion (3 per cent) of the identifiable assemblage displayed evidence of having been burned. Most of these were assigned to the cattle and large mammal categories, although proportionately the small mammal remains were most affected (Table 39a). Most of the burnt bone was recovered from the wells and late pits (Objects 121 and 122), whilst none was found in the group of shallow rubbish pits (Objects 115) or cut features (Object 119) (Table 39b). Two contexts produced large numbers of burnt fragments: context 2383 in well 1044 contained a considerable number of burnt cattle, mainly limb bones, and context 1604 in a late pit (1603) produced mainly sheep long bones.

Pathology

A few specimens displayed pathological abnormalities including a first phalanx with exostosis indicative of arthropathy in an old dog (p. 192) and a tibiotarsus belonging to domestic fowl which had been broken and later healed.

Metrical data

Measurements taken are given in Table 41 and have been compared with data from contemporary late Romano-British sites held on the Animal Bone Metrical Archive (ABMAP) held by CAAA. With the exception of two measurements, all of the cattle bones are within the size ranges of those from the other sites. The exceptions are a scapula whose length of the distal articulation is slightly smaller (2.4mm smaller) but still comparable with scapulae recovered from the entire Romano-British period. The other bone is a metatarsal which has a slightly larger (by 3.4mm) breadth at the point of distal fusion and probably belonged to a large bull.

All of the sheep measurements are comparable to those held on ABMAP for the late Romano-British period. Few comparable measurements for late Romano-British pigs and horse are held on the database, however where available these are comparable and the remaining measurements fall within the range for the entire Romano-British period. It was not possible to calculate withers height due to the scarcity of complete limb bones.

ANIMAL REMAINS FROM THE PITS (OBJECTS 115–122)

Object 115 (FIG. 89)

The majority of the animal remains recovered from Object 115 came from the uppermost fills of pit 1384 (1051) and pit 1463 (1347), both of which are dominated by cattle. Overall, 12 per cent of fragments belonging to major domesticates, horse, and large and medium mammals displayed butchery marks and most of these came from pit 1384. Terrier-sized dog remains were recovered from pits 1384 and 3357 and are described in detail in the separate report below by Kate Clark.

Pit 1384

Sixty-seven fragments belonging to the three major domesticates were recovered from context 1051 (Table 42). The anatomical representation of cattle (Appendix 6, FIG. 121) indicates that all parts of the body are represented. The quantity of horse (n=15) is inflated because, with the exception of a humerus displaying chop marks and a calcaneum, the remains comprise loose teeth belonging to a single individual aged between 10 and 14 years at the time of death. 15 per cent of the fragments displayed evidence of butchery (Table 37), in addition a red deer tibia had been chopped and cut on its distal epiphysis. The primary fill (1383) was void of bone.

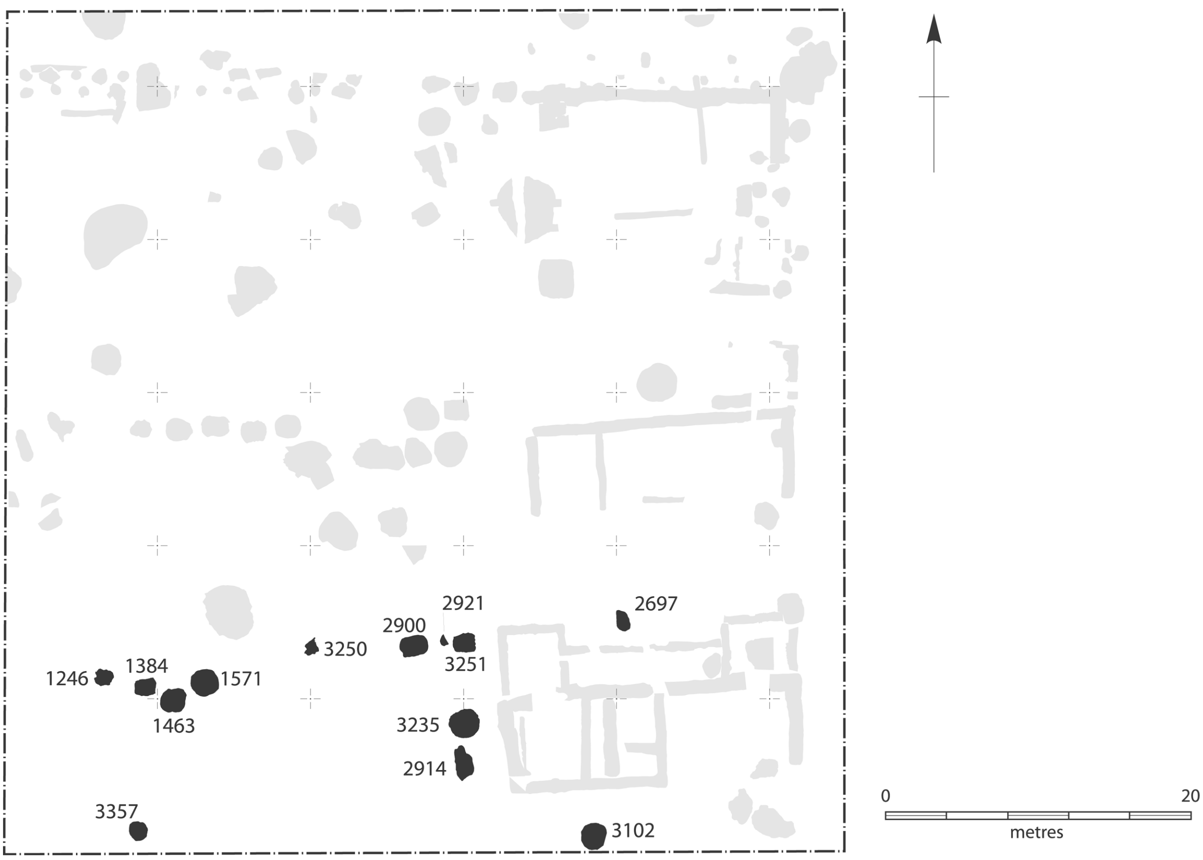

FIG. 89. Location of pits in Objects 115–116

Pit 1463

The cattle assemblage from context 1347 is more restricted, being comprised predominantly of major limb bones and teeth (Appendix 6, FIG. 121). The primary fill (1601) was void of bone.

The remaining pits and contexts contained few identifiable fragments, although in addition to the more general animal bone, the primary fill (3352) of pit 3357 contained upper molars belonging to both cattle and sheep, a pig maxilla, and a scapula belonging to red deer.

Object 116 (FIG. 89)

Pits 2900, 3235, and 3251 contained the majority of the animal bone recovered from this object group and all are dominated by cattle. Overall, the frequency of butchery marks is 13 per cent, although most came from these three pits. Most (83 per cent) of the sieved material also came from these cess-pits (Table 32c), including all of the fish remains. The dog remains represent animals of various sizes and ages and are described in detail in the report by Kate Clark. Of particular interest are the radius and metapodial which display evidence for butchery, the almost complete skeletons of a pup and adult, and the presence of pathology seen on bones recovered from pit 3235. The almost complete skeleton of an animal deliberately killed came from pit 3251 where, amongst other pathological remains, three metacarpals, fused as the result of a healed fracture, suggest the paw was immobilised and cleaned during healing.

Pit 2900

Cattle remains were generally distributed throughout pit 2900, although the majority came from the uppermost fills (2479 and 2493). All parts of the cattle skeleton are represented, although fragments belonging to the scapula are clearly over-represented as are fragments of mandible and pelvis (Appendix 6, FIG. 122). Sheep and pig remains were found in most contexts and a horse incisor was recovered from context 2479.

The partial skeleton of a domestic cat was recovered from context 2659 and another three domestic cat bones came from context 2691. A partial cattle skull and a matching pair of articulating femora and pathological tibiotarsi~~i~~ belonging to domestic fowl came from context 2654, a domestic fowl skull from context 2493, and a pair of domestic fowl ulnae and a probable domestic fowl radius from the primary fill (context 2699).

The remains of several wild species were found in this pit; a mallard-size duck bone and a roe deer radius came from context 2493, while context 2654 produced a metapodial and pelvis belonging to hare, the latter displaying cut and chop marks. Context 2659 contained a radius belonging to hare.

In this pit, overall 11 per cent of the fragments possess cut and/or chop marks, although there is some variation in frequency between the contexts; contexts 2479, 2654, and 2691 contained relatively high percentages of butchered bone, whereas contexts 2493 and 2659 contained a lower proportion.

Pit 2914

Cattle and sheep are fairly evenly represented in this pit when fragments comprising partial skulls and skeletons are excluded. In addition to the more ordinary animal bone remains, context 2696 produced a partial cattle skull which had been butchered, a horse carpal, the partial skeleton of a pig, and a mandible belonging to a neonatal lamb. The primary fill (context 2902) produced a roe deer first phalanx and fragments of cattle, sheep, and pig skulls. The frequency of butchery in this pit averages 8 per cent.

Pit 3235

The majority of the cattle remains from pit 3235 came from the two uppermost fills (2482, 2495) and a middle fill (2686), although bone was recovered in smaller quantities from most other contexts. Again, cattle are represented by all parts of the body, with mandible, scapula and pelvis notably over-represented (Appendix 6, FIG. 122). The sample size for sheep and pig is small but cranial, major limb, and foot bones are all present and sheep mandibles are clearly over-represented. Horse was present in two contexts, a radius in context 2679 and a first phalanx with oblique cuts on the distal epiphysis from context 2495. The primary fill (3224) produced a metapodial belonging to a neonatal sheep/goat, neonatal pig femur and tibia, the upper molars of cattle, sheep, and pig (which may be all that remains of the skulls) and eight bones belonging to at least two domestic fowl. In addition, out of 21 fish bones recovered from this pit, 17 came from the primary fill with both eel and cyprinid represented (Table 40b).

Several contexts contained skulls, partial skeletons or other deposits which differ from the usual mixture derived from food waste. Context 2482 produced an articulating axis and atlas belonging to cattle, the latter with evidence for butchery in the form of both cut and chop marks. Context 2495 produced a scapula and humerus belonging to a neonatal lamb, context 3209 a neonatal lamb femur, a mandible and third phalanx belonging to neonatal pig, and fragments of rib and vertebra belonging to neonatal medium-sized mammal. In addition the remains of several wild species were found; context 2686 produced a roe deer mandible and a fragment of red deer antler which had been chopped. Context 2482 produced an immature cat humerus, a fragment of red deer antler displaying chop marks, and a goose femur the size of greylag. Context 2679 produced a red deer femur. Context 2495 produced a dentary belonging to a medium-size pike. Context 2663 produced a tibiotarsus and fibula belonging to a mallard-size duck.

Overall, 16 per cent of the identified fragments possess evidence for butchery and these are distributed amongst the various fills.

Pit 3251

The largest quantity of animal bone came from pit 3251 in which sheep and pig remains are almost equally represented. The majority of the bone in this pit came from the two uppermost fills (2674, 3208) (Table 42). As with the other pits in this group, cattle, sheep, and pig are represented by all parts of the body; cattle radii as well as scapulae are notably over-represented (Appendix 6, FIG. 122), whilst the mandible is the most frequent sheep and pig element. A horse tibia came from context 3226 and an upper molar and a tibia belonging to red deer from context 3228. The majority of the fish remains came from this pit where they were recovered from several adjacent fills (3226, 3227, 3228, and 3229); eel are the most numerous but clupeid, salmonid, cyprinid, and flatfish are all represented (Table 40b).

This pit produced the remains of several skulls, partial skeletons, articulated bones, and a few neonatal remains. Context 2674 contained several cattle skulls, at least three of which showed evidence of having been poleaxed, an articulating tibiotarsus and tarsometartasus belonging to raven, and four limb bones and a rib belonging to an immature cat. Context 3208 contained a partial cattle skull and an ulna belonging to raven, context 3251 a partial cattle skull, and context 3217 a partial cattle skull, a partial sheep skull, a probable wildcat skull, and the partial skeleton of a domestic fowl. Context 3228 produced the partial skeleton of an immature wildcat, a jackdaw, and a field vole, as well as a neonatal pig humerus and medium-mammal rib. Context 3229 contained another partial jackdaw skeleton, possibly belonging to the same individual as that in context 3228. Evidence for butchery was only present on the cattle and sheep skulls.

Overall, 14 per cent of the fragments display evidence for butchery, although the frequency varies throughout the fills.

Pit 2921

The remains recovered from the primary fill (2909) included a maxilla belonging to pig but the majority of the bone came from context 2487 (Table 42) which was dominated by fragments belonging to cattle representing most parts of the skeleton.

Object 117 (FIG. 90)

The majority of animal bone was recovered from pits 1666 and 1707, although pit 2087 contained a significant amount whilst little came from pits 1021 and 1702. Overall 14 per cent

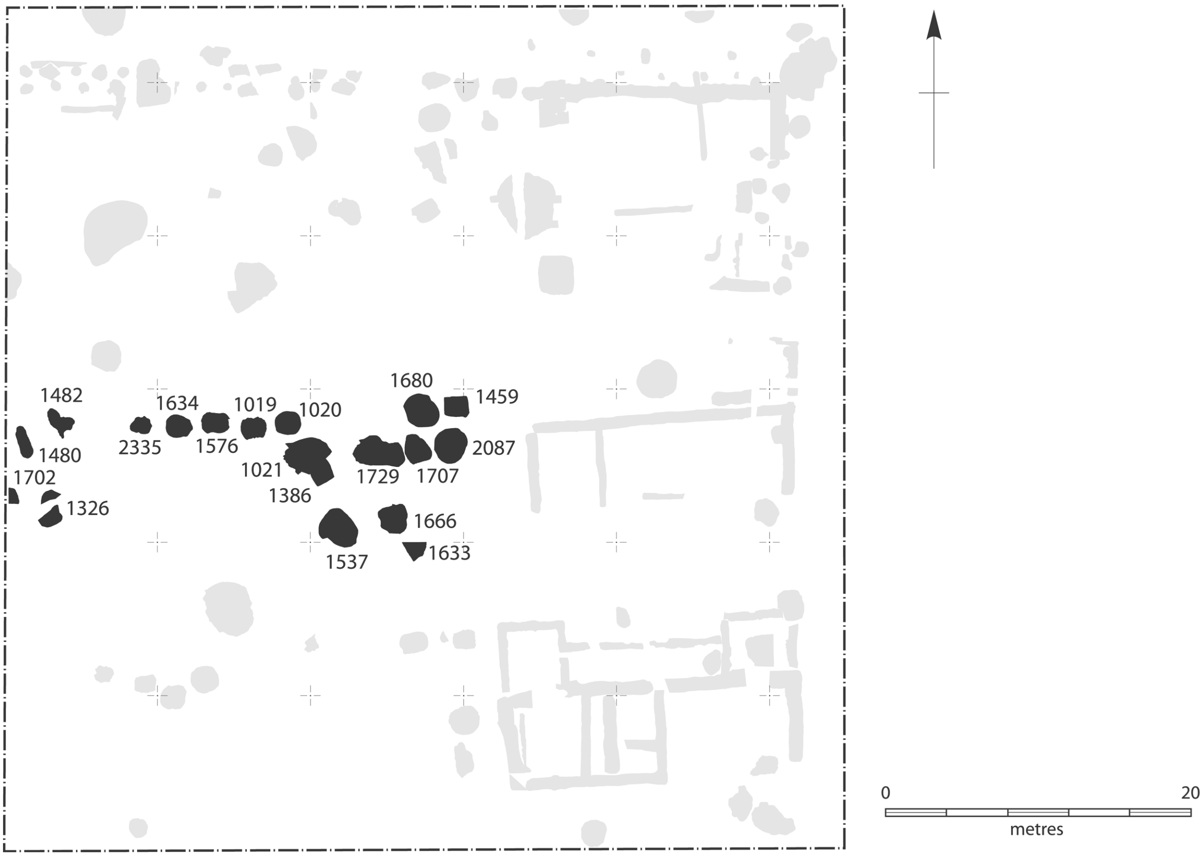

FIG. 90. Location of pits in Objects 117–118

of the fragments display evidence for butchery, although a slightly higher (18 per cent) frequency occurs in pit 1666, whilst only 6 per cent of the material from pit 1702 is affected.

Pit 1666

Again, cattle are represented by all parts of the body, although this time the majority of fragments belong to the forelimb bones and mandible (Appendix 6, FIG. 123a). The sample of sheep and pig is too small to discuss in terms of body-part representation.

A few wild species are present; context 1974 produced a mandible belonging to roe deer and contexts 1931 and 1918 both produced hare radii. Context 1853 contained a mandible and two ulnae belonging to immature cattle, possibly from the same individual, a roe deer scapula, two goose bones, and a pigeon bone. Several bird bones came from context 1665, including a partial domestic fowl skeleton, two teal-size duck bones, and four bones belonging to a member of the thrush family (*Turdidae* spp.), the size of a blackbird. The primary fill (1974) produced skull bones belonging to cattle and pig and a domestic fowl-size radius, as well as the roe deer mandible mentioned above.

Butchered bone was found in all contexts and overall 18 per cent had cut and/or chop marks but the highest frequencies came from context 1853 (24 per cent), although again the sample sizes are small.

Pit 1702

Animal bone was recovered from several contexts in this pit but most was undiagnostic. Fragments belonging to cattle dominate the relatively small identifiable component, most of which came from context 2339, although sheep and pig are both represented (Table 42). In addition, context 2819 produced a horse lower molar.

Pit 1707

The upper levels of pit 1707 were subjected to Victorian disturbance, but they contained little bone. Altogether, the pit contained a large amount of animal bone including a significant amount of sheep and pig remains. Elements from all parts of the cattle skeleton are present, although again the assemblage is dominated by scapulae (Appendix 6, FIG. 123a). The sheep and pig assemblages are fairly small but again all parts of the body are represented with mandibles, tibiae, and, in the case of sheep, metacarpals and pelves most frequent (Appendix 6, FIG. 123b–c).

Fills 1478 and 1511 produced the majority of the bone and these had not been subjected to Victorian disturbance unlike the upper levels. Context 1511 produced a partial pig skeleton, five goose bones, including an ulna the size of a domestic bird which had been chopped, and a woodcock bone. Context 1478 produced a metacarpal belonging to a neonatal lamb and the pine marten bone. Three contexts produced fragments of red deer: context 1238 a first phalanx, context 1290 a third phalanx, and context 1511 a scapula. The primary fill (1662) included two woodcock and domestic fowl limb bones.

Most of the butchered bone came from context 1511 and although other contexts had higher frequencies the sample sizes are small (Table 37).

Pit 2087

Relatively small quantities of bone belonging to the major domesticates were distributed throughout the pit and context 1362 produced a scapula belonging to neonatal pig. The primary fill (1799) produced a probable domestic fowl femur containing medullary bone indicating that it belonged to a hen in lay.

The primary fills in pit 1537 (1512) included a skull fragment belonging to cattle and in pit 1021 (1382) a femur belonging to domestic fowl.

Object 118 (FIG. 90)

Of the features belonging to Object 118 only one produced significant quantities of bone (Table 43), although small quantities were recovered from other pits (Table 42). Overall 12 per cent of the remains displayed butchery evidence.

Pit 1459

Most fragments came from pit 1459 where as usual cattle are dominant and sheep and pig present in smaller and almost equal numbers. Most of the remains were recovered from the primary (1539) and secondary fills (1479), although bone was distributed throughout the pit. Mandibles and scapulae are again clearly over-represented, although elements from all parts of the body are present (Appendix 6, FIG. 124). A partial cattle skull displaying chop marks, a femur belonging to a neonatal lamb, and a femur belonging to roe deer which had been chopped were recovered from context 1479. The animal bone recovered from the primary fill included cattle skull fragments, a sheep upper molar, and a pig maxilla. Context 1479 also produced a relatively high frequency of butchered bone (26 per cent).

Pit 1680

In addition to a few bones belonging to the major domesticates (Table 42) recovered from this pit, context 1618 produced a horse astragalus and a tibia belonging to hare. Overall, 13 per cent of the remains displayed butchery marks.

Object 119 (FIG. 91)

Pit 1438

Of the nine fragments of animal bone recovered from this feature only a single sheep metatarsal from fill 1644 was identifiable. The remaining fragments may derive from one specimen. There is no evidence for butchery.

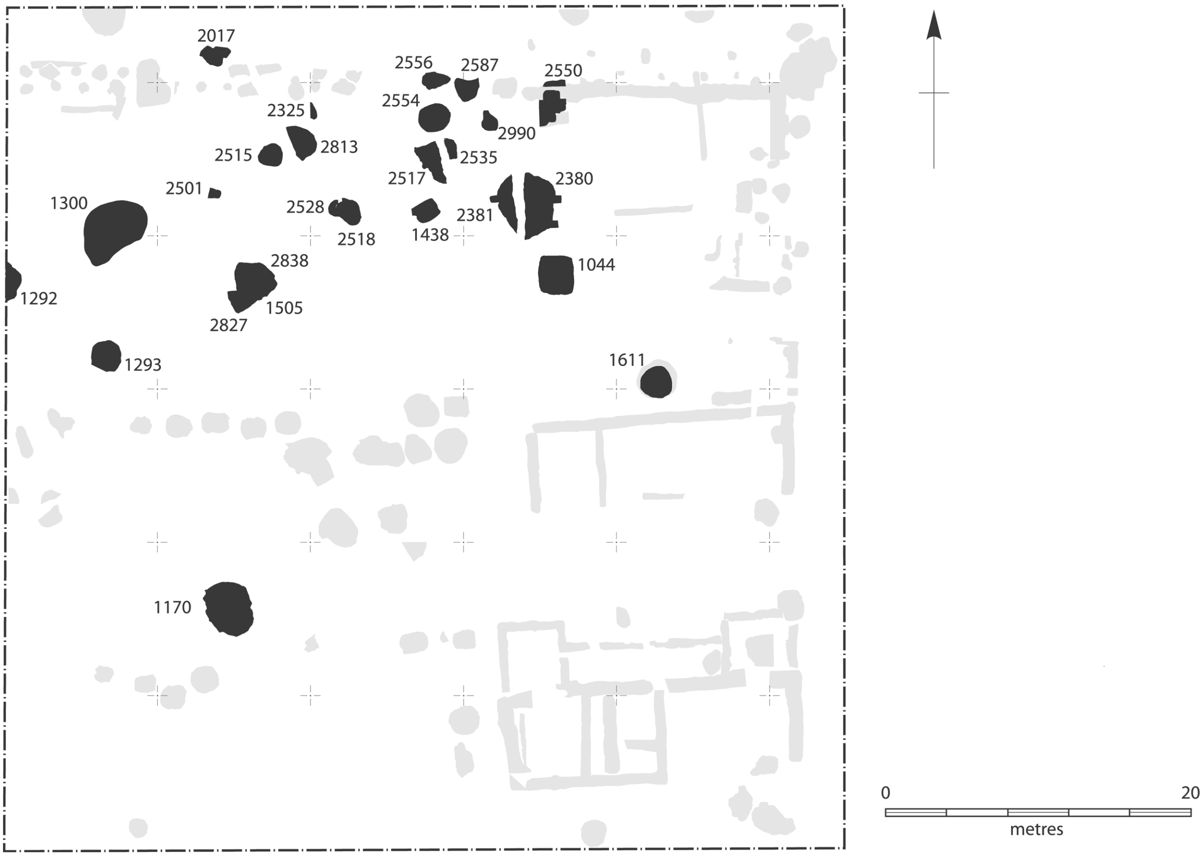

FIG. 91. Location of pits in Objects 119–121

Pit 1611

Fill 1612 contained the majority of fragments in this feature and all belong to the three major domesticates, with cattle and sheep present in almost equal numbers (Table 42). Pig are absent from fill 1624 which produced four immature sheep limb bones, possibly belonging to the same individual, and a single bone belonging to galliform. Cattle was the only taxa identified in fill 2078. Overall, 14 per cent of the remains display evidence for butchery.

Object 120 (FIG. 91)

The small size of the sample of identifiable material recovered from this object group and the presence of isolated teeth in several of the primary fills suggest that poor preservation may be partly responsible. Upper molars belonging to cattle were recovered from pits 2325, 2515, 2550, 2587, and 2827, and one of horse from pit 2380.

Pit 2827 produced much of the animal bone recovered from this object group, although small quantities of bone, mostly unidentifiable, were spread throughout the group. Overall only 2 per cent of the assemblage from this group of features display evidence for butchery.

Object 121 (FIG. 91)

A small sample of animal bone was recovered from the wells and 9 per cent of it displays evidence for butchery. The majority of the animal bone came from well 1044, where, although the identifiable sample is small, cattle are again dominant and all parts of the body represented; upper molars belonging to sheep and pig were also present. Context 2383 in this well contained a considerable number of burnt cattle, mainly limb, bones. Well 2554 produced a tooth fragment belonging to horse and a cattle upper molar.

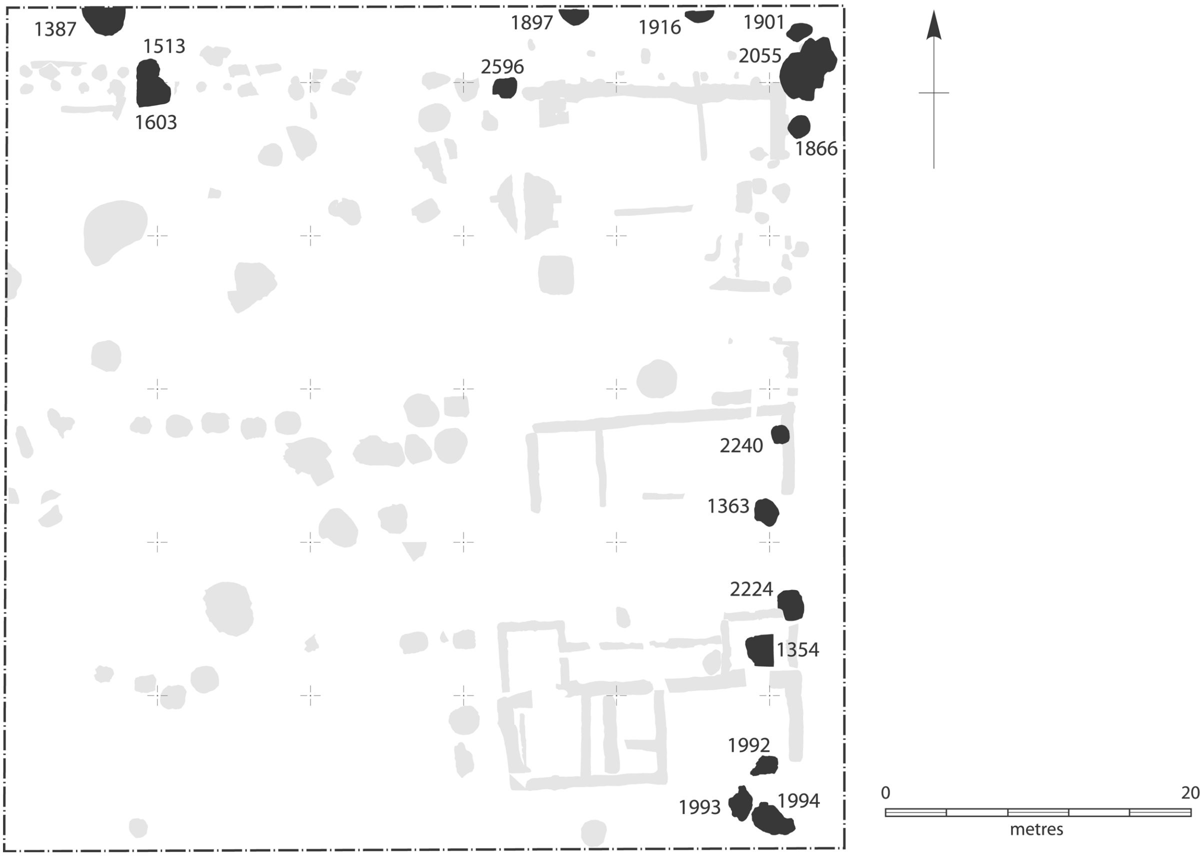

FIG. 92. Location of pits in Object 122

Object 122 (FIG. 92)

The majority of animal bone came from pits 1354, 1603, and 2596, although sample sizes are again small. Upper molars, belonging to cattle were recovered from the primary fills of pits 1992 and 1993, and those of sheep from pits 1992 and 1354. Overall 9 per cent of the material displayed evidence for butchery.

Pit 1354

Of the two contexts that produced animal bone (1353, 1391) most came from context 1391, where cattle, sheep and pig are all represented (Table 42). Fragments belonging to the major limb bones of cattle are most numerous, although loose teeth and foot bones are also present. Pig is absent from the smaller assemblage recovered from context 1353.

Pit 1603

Cattle and sheep are almost equally represented and pig scarce in this pit. Almost all the cattle and sheep remains derive from a middle fill (1604); all parts of the body are present and some of the remains have been burnt, mostly sheep long bones. Only 3 per cent of the fragments in this pit had cut and/or chop marks. Context 1628 produced an astragalus belonging to horse.

Pit 1992

In addition to the more usual animal bone deposits, pit 1992 produced a first phalanx belonging to horse from the primary fill (1904).

Pit 2596

Pit 2596 produced a neonatal lamb humerus from context 2558 in addition to a few fragments belonging to cattle, sheep, and pig.

DISCUSSION AND INTERPRETATION

Major domesticates

Species representation

Whichever method of quantification is considered, cattle clearly dominate the assemblage and their relatively large body size leaves little doubt that beef was the meat most frequently consumed at Insula IX. Research at other urban Romano-British sites by Maltby (1994, 88) suggests that the practice of dumping large concentrations of cattle processing-waste can create a false impression of species frequency. For instance, at Dorchester Greyhound Yard, cattle accounted for 35 per cent of the identifiable assemblage from deposits dated to A.D. 75–120, but the proportion varied between 16 and 73 per cent according to context group, with features near the centre of the insula producing twice the proportion of pits behind the eastern frontage. Faunal material recovered from previous excavations at Silchester forms a useful body of comparative data with which to investigate the Insula IX animal bone. A predominance of cattle was evident in material recovered from the South Gate (Barker 1983, 67), from late fourth-century material at the back of the South Gate (Maltby 1984, 199), and from an area south of the North Gate and the later third- and fourth-century deposits (Hamilton-Dyer 1997). This predominance of cattle in most areas of Silchester and in all the cut feature groups at Insula IX suggests that the relatively low-representation of sheep and pigs is unlikely to be the result of differential disposal or recovery (cf. the analysis of material from layers and spreads, below, p. 184). At the forum-basilica (Grant 2000, 425–500) sheep bones are most frequent and pig are almost as numerous as cattle in the Period 7 deposits, but it appears that as a whole the inhabitants of the city ate more beef than other meats, although better quality food was consumed in the forum-basilica area.

Species representation at Silchester therefore conforms to the general pattern of species representation noted by King (1978) when reviewing over a hundred Romano-British sites. A trend away from sheep toward cattle and pigs was noted at the more 'Romanised' settlements such as villas, towns, and forts, which by the late Romano-British period is apparent at all site types. This is clearly visible at urban centres in southern Britain, such as Winchester where cattle accounted for 46–54 per cent of the identified fragments (Maltby 1994, 87), Dorchester Greyhound Yard where deposits dated to A.D. 250–450 comprised 36–47 per cent cattle (ibid.), and Chichester where cattle accounted for 58 per cent of the third- to fourth-century deposits (Grant 2000, 475).

Age at death

The largest proportion of beef eaten came from adult cattle, likely to represent animals previously exploited for milk, manure, and/or traction, but some was also provided by skeletally immature animals, probably kept primarily for the production of high quality meat. While the presence of a few very young animals suggests that some breeding took place at the site, it does not appear that milk production was important. This is supported by evidence from other areas of Silchester which also produced a predominance of adult cattle. For instance, in the small sample from the South Gate (Barker 1983, 67) there was no evidence for a peak in immature or young deaths. Similarly, the cattle remains from the late fourth-century South Gate deposits (Maltby 1984, 206) and those from the area south of the North Gate and from later third- and fourth-century deposits (Hamilton-Dyer 1997) belonged mostly to adult animals, whilst in the Period 7 deposits at the forum-basilica six out of seven mandibles belonged to adults (Grant 2000).

The majority of cattle mandibles recovered from other urban and military sites, including Portchester Castle (Grant 1975), Vindolanda (Hodgson 1977, 12), and Exeter (Maltby 1979, 155–6), also belong to adult animals — a pattern believed to reflect the organisation of cattle marketing resulting from the need to provision these centres with meat (Maltby 1981, 182). In contrast, rural settlements, which probably provisioned themselves, tend to have a higher proportion of immature cattle (Maltby 1981, 181). As mentioned above, at Insula IX toothwear suggests a significant proportion of animals were culled before reaching skeletal maturity and this may suggest that cattle were raised in the environs of Silchester so that it was to some extent self-sufficient. As Maltby states (1994, 85), it is likely that much of the land around urban settlements was farmed by its inhabitants and some previously excavated buildings at Silchester are believed to have functioned as barns, cattle stalls, and pig sties (Boon 1974). A similar, albeit weak, pattern was observed by King (1991, 17) for late Romano-British sites whereby slaughter patterns in the towns become more like those seen on rural sites as the result of late Roman de-urbanisation.

The evidence from Insula IX indicates that most mutton came from prime-aged sheep between two and four years and although these would also have produced some wool, it appears that the demand for high-quality meat was more important. The presence of a few neonatal lamb bones again indicates that some breeding took place in or near the city. In the material recovered from the area south of the North Gate and the later third- and fourth-century deposits (Hamilton-Dyer 1997), sheep of all ages were represented, whilst mandibles from Period 7 deposits at the forum-basilica (Grant 2000) indicate three peaks in slaughter: young lambs killed within a few months of birth, sub-adults (M3 just erupted or in early wear), and fully adult animals. At other urban and rural sites, the emphasis on the slaughter of second- and third-year sheep has been interpreted as evidence for the importance of meat production and a greater level of farming efficiency (Maltby 1981, 175). However, some rural sites, such as Barton Court Farm (Hamilton 1978, 129), Shakenoak Farm (Cram 1978, 128–35), and Balksbury (Maltby, n.d.), have produced a larger proportion of mature animals, probably related to the importance of wool production. King (1991, 17) also notes that both urban and rural sites tend to have adult ages at death reflecting the development of a wool economy. At Winchester Northern Suburbs and nearby Owslebury (Maltby 1994, 96) wool appears to have been of some importance to the economy with most sheep over three years old when slaughtered. At Insula IX, the slaughter of sheep whilst between two and four years of age suggests that whilst meat production was important, wool was also a consideration.

As would be expected for an animal kept solely for meat, pigs were generally slaughtered before reaching adulthood. Some breeding is evidenced by the presence of neonates, although the low number of females suggests pork may also have been imported from nearby villages. Pigs of all ages were recovered from the area to the south of the North Gate (Hamilton-Dyer 1997) whereas those from Period 7 deposits at the forum-basilica (Grant 2000) displayed peaks in mortality during the first year and between 17 months and 3 years. As at Insula IX, most of the pig mandibles from Period 7 deposits at the forum-basilica (ibid.) which could be sexed belong to boars.

Anatomical representation

The recovery of cattle, sheep, and pig fragments belonging to all parts of the body indicates that some whole carcasses were originally present at the site. A consideration of fragments assigned to mammal-size categories suggests that the under-representation of cattle mandibles and dense limb bones seen in comparison with the model of Brain (1969) is most likely due to the high degree of fragmentation rendering much of the material unidentifiable. Mandibles and major long bones possess good marrow and their fragmentary nature suggests that intensive processing for marrow and grease extraction may have taken place. In contrast, scapulae and pelves are not good marrow bones and are unlikely to have been subjected to such intensive butchery and processing, being discarded virtually intact once the meat had been removed. The presence of skulls and limb extremities is not unusual, in fact large numbers of skulls, mandibles, and metapodials are typical components in accumulations of primary butchery waste on urban sites of this period (Maltby 1985, 52).

Sheep mandibles, scapulae, and pelves are present in numbers expected for an assemblage affected by density mediated preservation but a similar pattern is evident with regard to the major long bones; this is difficult to explain unless these too were subjected to intensive processing. Again, the presence of elements from all parts of the body suggests that at least some sheep arrived at the site as whole carcasses, probably on the hoof. The absence of atlas and axis may be related to primary butchery practices, whilst the low representation of distal phalanges in comparison with the sieved material suggests that these small bones were missed during hand recovery. The pig assemblage also displays similarities with that seen for cattle, and with sheep in respect of the atlas, axis, and distal phalanges, suggesting that pigs were treated in a similar fashion during primary butchery but that mandibles may have been considered worthy of marrow extraction.

Disposal

The mixed nature of the deposits suggests that the material from Insula IX derives from a range of activities including primary butchery and food preparation, and it is possible that most parts of the cattle skeleton were distributed along with the meat, as has been suggested at Exeter (Maltby 1979, 87). Such patterning may also result from the admixing of layers or secondary dumping of animal bone collected from other areas of the town but, given the absence of large dumps of primary butchery waste and the ubiquitous occurrence of mixed deposits, processes of this kind are unlikely to be wholly responsible.

The mixing of primary butchery and food-processing waste and the relative scarcity of major long bones is not confined to Insula IX. In the late first- to later second-century assemblage from the defences, mandibles, skull, metapodia, and scapulae were the most numerous cattle elements with major meat-bearing bones quite rare (Maltby 1984, 205–6). Maltby suggests the presence of primary butchery waste might indicate the long-term practice of butchery activities in that area of the town, but notes that its ‘mixed nature’ could be indicative of several different episodes of disposal, or admixing with other layers. At the forum-basilica (Grant 2000, 425–500), despite the difference in species representation, all parts of the cattle skeleton are represented in the Period 7 deposits, both waste and meat-bearing bones. In the deposit from the North Gate, cattle are represented by all anatomical elements, with small limb bone fragments comprising 50 per cent of the material (Hamilton-Dyer 1997); many bones display evidence of butchery with some breaks thought to result from the breakage of bone during marrow extraction and several bones axially chopped through the epiphysis. The absence of marked concentrations of primary butchery waste in the late fourth-century deposit recovered from the South Gate led Maltby to suggest the material represented the waste from a wide range of activities, including food preparation and cooking (Maltby 1984).

Other Romano-British towns (Maltby 1985, 52) have produced assemblages with relatively few good meat bones, horn cores, and phalanges, explained by their removal elsewhere. The horns and phalanges probably found their way to a location where tanning and horning took place, the latter remaining attached to the hide. Similarly, it has been suggested that scapulae and pelves were separated from other major meat-bearing limb bones in late Romano-British deposits from Gloucester and Colchester because they are not good marrow bones (ibid.). At Zwammerdam, Netherlands, most limb bones had been axially split and their articulations chopped leading to the interpretation that the bones had been boiled for broth (van Mensch 1974), or alternatively grease or marrow (King 1978, 225).

The low frequency of gnawing seen on the bones assigned to animal size categories in comparison to that seen on the remains of cattle, sheep, and pig may represent a bias caused by fragmentation. Alternatively, intensive processing for the removal of marrow and grease would render much of the resulting unidentifiable material unattractive to dogs. Evidence from the major domesticates suggests that some bone refuse was accessible to dogs and from the incidence of gnawed bone recovered from pits and wells it would appear that at least some of the material represents the secondary deposition of discarded refuse left lying around.

Horses

Horses are generally poorly represented at Romano-British sites, especially in deposits representing butchery waste (Maltby 1981, 184). The scarcity of equid remains from areas of

Silchester where the animal bone has been interpreted as food remains led Grant (1989, 137) to suggest that horse bones found in Roman deposits recovered from the Silchester amphitheatre may represent 'animals used in spectacles mounted in the amphitheatre'. Butchery marks on equid bones tend to be scarce at British sites (ibid.), although according to Maltby (1994, 89) horses were exploited for meat but probably not as intensively as cattle. Evidence from the Netherlands suggests consumption of horsemeat was the subject of taboo in the Roman military world but not among the native population (Lauwerier 1999, 111), with dead military horses tending to be dumped outside settlements whereas at native sites they were more often dumped inside. Variation in the proportion of horse bones recovered from rural, compared to urban sites, in Britain has been noted by Maltby (1994, 89) who suggested that a greater emphasis on the acquisition of beef by the urban population resulted in the retention and disposal of working animals at rural settlements. This suggests that the proportion of horse remains seen at British sites might reflect the attitudes of different sectors of society toward horsemeat and may even indicate the existence of taboos.

The low representation of horse at Insula IX also suggests that equids may have been treated differently from the domestic food animals both during and after life. Isolated teeth recovered from a single context (1051) in Pit 1246 are thought to be all that remains from the original deposition of a horse skull and mandible. Deposits of this nature are common features of Iron Age ritual and their occurrence in Romano-British pits and wells may indicate the continuation of this practice (Grant 1989, 137). Grant believes these animals were 'not necessarily sacrificial' but may represent natural mortalities 'offered in dedication or as symbols of the importance of the live animals'.

Wild species

A variety of wild animals are present and some, such as the roe and red deer and hare, almost certainly represent the remains of animals deliberately hunted for food. In contrast, although cat and pinemarten meat may have been eaten, these animals were probably more valued for their pelts. The rodent and amphibian bones are almost certainly the remains of pit-fall victims. Roe deer, red deer, and hare were also recovered from the late third- to fourth-century material piled around the back of the South Gate (Maltby 1984), whilst Period 7 deposits at the forum-basilica produced a wider range of wild species when birds and fish are considered (Grant 2000). The range of wild species recovered from Insula IX and other areas of the town is evidence that in this respect too, Silchester conforms to the national trend noted by King (1991, 18) whereby wild species become more abundant in the later Romano-British period.

Birds

The predominance of adults and females may suggest that domestic fowl were being kept by the inhabitants of Insula IX to produce eggs, although some (probably male) juveniles would have been slaughtered for meat. This contrasts with the evidence from Period 7 deposits at the forum-basilica (Serjeantson 2000, 491) where the assemblage contained very high proportions of males and immature domestic fowl. Serjeantson (2000, 499) suggests that laying-hens may have been kept in nearby villages which supplied eggs and young birds to the town and raises the possibility that older cocks may have been used for sacrifices or cockfighting, a sport likely to have taken place in areas where people gathered, such as the forum-basilica. It has already been suggested that diet in this area differed from other parts of the town in respect of the types of meat eaten, and it would seem that, whilst poultry may have been kept at Insula IX, such mundane practices were not taking place at the forum-basilica.

Duck and woodcock almost certainly represent the remains of animals deliberately hunted for food. It is possible that wild birds such as pigeon, raven, and jackdaw were deliberately captured and they too may have been valued for meat and feathers but alternatively they may simply represent natural casualties. A variety of wild fowl were also recovered from the late third- to fourth-century material piled around the back of the South Gate (Maltby 1984), with duck, partridge (*Perdix perdix*), and golden plover (*Pluvialis apricaria*) all represented. In addition to domestic fowl, Period 7 deposits at the forum-basilica (Serjeantson 2000) produced goose, duck, woodcock, pigeon, jackdaw, and passerine, whilst from the area to the south of the North Gate and the later third- to fourth-century deposits (Hamilton-Dyer 1997) duck, goose, woodcock, snipe, and passerine are all present.

Fish

A few fish remains have been recovered from other areas of Silchester; the Period 7 deposits at the forum-basilica produced cyprinida, bass (*Dicentrarchus labrax*), sea bream (*Sparidae*), mullet, and flatfish, whilst in the later third- to fourth-century deposits south of the North Gate (Hamilton-Dyer 1997) salmonid, sea bream, and ballan wrasse were identified. Fish remains from these areas show similarities with those recovered from Dorchester Greyhound Yard (Hamilton-Dyer, n.d.) and, apart from the cyprinids, may all have been caught in the sea, probably on the east or south-east coast (Hamilton-Dyer 2000), and imported fresh to Silchester.

It is interesting that the fish remains from Insula IX came from the group of cess-pits, especially as a few specimens exhibit signs of having been chewed which, combined with their extremely small size, suggests they may have passed through the gut. With the exception of pike and the cyprinids which cannot tolerate any excessive degree of salinity (Wheeler 1979, 109), the other fish could be estuarine (cf. the evidence of oyster, Williams, below). The Romans are well known for producing *garum*, a fish sauce made from decomposed fish, usually clupeids (Wheeler and Locker 1985; Bateman and Locker 1982), and stored in amphorae. Pliny (in Flower and Rosenbaum 1980) provides many recipes for *garum* and advocates the use of 'any small fish', including a recipe for 'homebrew' which involves boiling the fish and brine in an earthenware pot until it has reduced, after which the liquid is strained off as *garum*. The remaining 'hallec' (solid residue containing the bones) was, apparently, also valued. Evidence for provincial sauce production has been recovered from London (Bateman and Locker 1982) and York (Jones 1988), whilst at Lincoln it has been suggested (Dobney *et al.* 1996, 54–5) that concentrations of sand eels and small clupeids in late Roman contexts may be evidence for local production. Although the identification of *garum* in the archaeological record is usually associated with large quantities of fish bones and the amphorae used for storage, the small size of most of the remains at Insula IX, particularly the clupeids, eel, and cyprinid, make it tempting to consider the possibility that a type of fish sauce composed of locally available species was being manufactured at a seaport or estuary town and imported to inland cities such as Silchester (Serjeantson, pers. comm.). Alternatively, these small fish may represent the gut contents of larger species, but the virtual absence of such specimens at Insula IX makes this scenario less likely.

INTRA-SITE VARIATION

The bulk of the animal bone came from the group of cess-pits and the pit alignment in the southern part of the site associated with the substantial stone buildings. Although there is some variation in anatomical representation between feature groups and individual contexts, the overall pattern suggests that most features contain a mixture of food remains, butchery, and processing waste. Deposits of this nature are unlikely to result purely from food consumption and may be, at least partly, the result of secondary dumping or admixing of layers.

The descriptions of individual pits above have shown that some of those in the southern area of the site contained particularly large amounts of animal bone and some of these included certain deposits which could be interpreted as 'deliberately placed'. This is particularly so for the three cess-pits where deposits of a slightly unusual nature were found distributed throughout the fills. As we have seen, pit 2900 contained the partial skeleton of at least one domestic cat, a partial cattle skull, a matching pair of articulating femora, and pathological tibiotarsii belonging to domestic fowl, a domestic fowl skull, and a pair of domestic fowl ulnae. Pit 3235 contained an articulating axis and atlas belonging to cattle, and several bones belonging to neonatal lamb and pig. Similarly, pit 3251 contained several cattle skulls, a partial sheep skull, an articulating tibiotarsus and tarsometartasus and an ulna belonging to raven, a wildcat skull, partial cat, domestic fowl, jackdaw, and field vole skeletons, as well as neonatal pig. Neonatal human and dog remains were also recovered from several contexts, including pits 3235 and 3251, and are discussed in detail in separate reports.

The interpretation of the nature of these deposits is not straightforward as a deposit of cattle skulls with evidence of butchery could simply represent a location where primary butchery waste was deposited. Similarly, natural casualties, including neonates and wild species hunted for their fur or feathers, would almost certainly have been dumped in a convenient pit. However, in many societies animals take on a symbolic role and there are many ethnographic examples (Szynkiewicz 1990; Tambiah 1969) of particular species or body parts possessing symbolic meaning. The occurrence of these somewhat unusual deposits, especially when dog and neonatal human remains are included, is therefore interesting and the possibility that they represent some form of symbolic action should not be ignored. Fulford (2001, 201) suggests the definition of ritual is met where the empirical evidence displays both a repetitive and irrational character and the presence of relevant deposits at Insula IX has already been recognised (ibid.), including two wells each containing a pierced flagon, pits containing complete or almost complete pottery vessels, and a dog skeleton placed in an upright position against the side of a pit. Similar deposits have also been recovered from other areas of Silchester (ibid.) and Grant (2000, 477) raises the possibility that the remains of two neonatal pigs recovered from a well at the forum-basilica may represent 'votive' deposits. The latter is supported by similarities with deposits from wells at Portchester Castle (Grant 1975), where neonatal pig bones were found in association with skulls and new-born human remains. At Chelmsford (Luff 1982), an urban settlement dating from the first to fourth centuries A.D., a well had been recut six times and the shafts contained isolated horse skulls, foetal and young lambs, human bone, raven, cockerel and goose bones. The presence of isolated horse skulls and the overall peculiarities of the assemblage led Luff to interpret this deposit as 'votive'.

CONCLUSION

When considered alongside material previously excavated from Silchester and contemporary Romano-British settlements, the assemblage from Insula IX confirms the overall importance of cattle in the economy at Silchester, in line with the national trend. This implies that the animal bone recovered from Silchester's forum-basilica and amphitheatre represents the non-routine nature of activities taking place at certain locations within the town. The predominance of mature cattle suggests that Silchester was primarily a consumer site which obtained its meat supply from the rural hinterland, although the presence of some juvenile and sub-adult animals points toward a degree of self-sufficiency in meat production. The mixing of primary butchery and food waste appears to have been common practice in many areas of the town including Insula IX where it has been suggested that the apparent scarcity of major limb bones may result from intensive bone processing, for marrow and grease extraction. Whilst much of the animal bone from Insula IX clearly results from mundane butchery, industrial and food preparation activities expected at an urban site, the presence of more interesting, possibly 'deliberately placed', deposits may represent activities of a symbolic nature.

THE LATE ROMAN LAYERS

A considerable amount of animal bone was recovered from layers associated with the late Roman Buildings 1 and 5, while the northern part of the site produced a smaller quantity. The assemblage from the southern part of the site can be divided into four phases: Phase 2 – late third-century Buildings 1 and 5; Phase 3 – fourth-century additions to Building 1; Phase 4 – the latest Roman occupation; Phase 5 – the end of Buildings 1 and 5. It can also be further subdivided into object groups according to location. The assemblage from the northern part of the site can be divided into three phases: Phase 3 – construction of Buildings 7 and 8 during the mid-fourth century; Phase 4 – the latest Roman occupation; Phase 5 – disuse. Again, this assemblage can also be further subdivided into object groups according to location.

METHODOLOGY

The assemblage was assessed in September 2003 at the Centre for Applied Archaeological Analyses, University of Southampton. All bone fragments were examined, with the number of potentially identifiable and unidentifiable bones being counted, for each context, to provide a basic NISP (Number of Identified Specimens Present) total. Any bones or teeth that could provide metrical, ageing, or sexing information were recorded, and the presence of butchery, burning, and gnawing marks was also noted. During recording, notes were made concerning the general character of the assemblage, particularly in respect of anatomical representation.

BONE CONDITION

In order to estimate the potential of the assemblage, the condition of the bone in each bag was graded on a scale of 1 to 5. That graded as '1' was deemed to be in excellent condition, demonstrating little post-depositional damage. By contrast, material graded as '5' had suffered severe surface erosion and could be identified only as 'bone'. In both the northern and the southern assemblages, the majority of the material was in moderate condition (Grade 3) and as such retains evidence of butchery and other surface modifications; a considerable amount was in poor condition (Table 44a–b).

THE SOUTHERN ASSEMBLAGE

A total of 8,529 fragments, including 218 recovered from the sieved samples, were examined of which only 1,449 (17 per cent) are identifiable (Table 45a). Cattle clearly dominate the identifiable assemblage with sheep/goat and pig represented by much smaller amounts. A few bones belonging to horse, dog, and domestic fowl are also present. Wild species are represented by red deer, hare, and rodent. A single bone probably belonging to a neonatal human was also recovered.

Phase 2

Phase 2 deposits produced a total of 129 identifiable fragments from two object groups. Overall cattle account for 55 per cent, sheep/goat 20 per cent, and pig 12 per cent of the identifiable assemblage; apart from unspecified bird the remaining species are poorly represented (Table 45a–b). Some evidence for butchery and burning was noted.

Object 31020, associated with Building 5, produced just 18 identifiable fragments of animal bone most of which belong to cattle, although sheep/goat, pig, and horse are also represented. The majority of cattle specimens are tooth fragments and the presence of a maxilla was also noted.

A larger number of identifiable fragments (n=111) came from Object 31021 associated with Building 1; again most belong to cattle with sheep/goat and pig present in smaller numbers. Horse is absent but two dog bones, a single galliform specimen, several other bird bones, and the human neonate bone also came from this group. The cattle assemblage includes both cranial, major limb, and foot bones. The unidentifiable component includes ribs and vertebrae probably belonging to dog. The proportion of cattle in Object 31020 is considerably higher than that in Object 31021 but this could be a function of sample size (Table 45b).

A total of nine bones could provide metrical data, five belonging to cattle, three to sheep/goat and one to pig (Table 46). Dental ageing data could be obtained from two cattle and one sheep/goat specimen(s). Evidence for butchery and burning was noted.

Phase 3

A total of 451 identifiable fragments came from Phase 3 deposits with cattle (45 per cent) again the dominant species being more than twice as numerous as either sheep/goat (21 per cent) or pig (17 per cent). As in Phase 2, other species are minimally represented, apart from unspecified bird which accounts for 10 per cent of the identifiable assemblage (Table 45a–b).

Object 31017 is associated with the addition of two towers linked by a corridor to Building 1. It produced the largest sample from this phase with a total of 280 identifiable fragments of which 37 per cent belong to cattle, 21 per cent to sheep/goat, 20 per cent to pig, and 15 per cent to unspecified bird. Horse, dog, and galliform are also present. Wild species are represented by red deer and hare and a small mammal specimen may belong to a juvenile cat. A considerable number of the cattle remains are foot bones, although a variety of other elements are present including teeth, scapulae, and pelves. An articulating portion of vertebrae was also recovered.

Object 31018 produced just two identifiable fragments, one belonging to cattle, the other to sheep/goat.

A total of 162 identifiable fragments came from Object 31023 which consists of a number of gravel deposits laid down between Buildings 1 and 5. Cattle (62 per cent) are more numerous than in Object 31017 at the expense of pig (11 per cent), whilst sheep/goat (19 per cent) are similarly represented in both groups. Horse, dog, red deer, hare, and unspecified bird are all present in small numbers. The identifiable component is made up predominantly of cattle lower limb bones and teeth. Context 2676 produced the majority of the bone. The material was extremely fragmentary, mostly as a result of ancient activity; consequently a large proportion was unidentifiable, although during recording the large number of limb bone fragments belonging to large-size mammal (probably cattle) was noted. The dog remains comprise two mandibles belonging to the same individual which are well preserved having the incisor teeth still in place. Red deer is represented solely by a fragment of antler.

Object 31028, a line of post-holes south of Building 5, produced just seven identifiable fragments; all belong to sheep/goat and are mainly tooth fragments.

Metrical data could be obtained from 23 cattle, 7 sheep/goat, and 6 pig bones. Dental ageing data are available from 7 cattle, 10 sheep/goat, and 1 pig specimen. In addition, 4 pig canines could provide sexing information (Table 46). Evidence for butchery, gnawing, and burning was noted.

Phase 4

The single Object 31024 in this phase contains two possible hearths, associated pits and gravel surfaces; it produced 156 identifiable fragments of animal bone. Cattle are again the dominant taxa (53 per cent), with sheep/goat (19 per cent) and pig (19 per cent) almost equally represented (Table 45a–b). Horse, dog, and galliform are all represented by one fragment each. Several fragments of unspecified bird are present and one belonging to small mammal. The majority of cattle remains are lower limb bones and loose teeth, although some other elements are represented.

Metrical data could be obtained from seven cattle, three sheep/goat, and two pig bones. Dental ageing data are available from one cattle and three sheep/goat specimens (Table 46). A single pig canine could provide sexing information. Evidence for butchery, gnawing, and burning was noted.

Phase 5

This phase produced the largest sample of identifiable animal bone fragments (n=708) all from Object 31030, which consists of a series of fairly extensive disuse spreads (Table 45a–b). As in all the other phases, cattle predominate (63 per cent), whilst sheep/goat (19 per cent) are more numerous than pig (11 per cent). Horse, dog, and galliform again make up a very small proportion of the assemblage, as do red deer and hare. The proportion of unspecified bird (2 per cent) is lower than in the other phases. The cattle assemblage contains a large proportion of loose teeth and lower limb bones (including feet), although the presence of other elements, particularly scapulae and pelves and some limb bone fragments belonging to large-size mammal, was also noted. Context 1989 contained a large proportion of limb bone fragments belonging to large-size mammal, the fragmentation having occurred mostly as a result of ancient activity. Fragmentation in other contexts (such as 2451), however, is the result of modern disintegration. Most of the red deer specimens are antler.

Metrical information could be obtained from 19 cattle, 6 sheep/goat, and 3 pig bones (Table 46). Dental ageing data are available from 11 cattle, 13 sheep/goat, 2 pig, and 1 horse specimen. Sexing information could be obtained from 3 pig canines. Evidence for butchery, gnawing, and burning was noted.

THE NORTHERN ASSEMBLAGE

A total of 2,161 fragments of animal bone was recovered of which 17 per cent are identifiable to taxon. The majority of bone (n=1,326) came from deposits dated to Phase 3 and the least (n=15) from Phase 5. Cattle are the dominant species being more than twice as numerous as sheep/goat. Pig and horse are present in significant but smaller numbers and dog is represented by just two fragments (Table 47). Several wild species: red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), hare (*Lepus europaeus*), and fish are present in small numbers.

Phase 3

The majority of bone recovered from layers associated with the construction of Buildings 7 and 8 came from Object 41048 (Building 8), interpreted as a smithy (Table 49). Of the 135 identifiable fragments the majority belong to cattle. However, a wide range of species is represented, both domestic and wild, including sheep/goat, pig, horse, dog, roe deer, red deer, hare, and galliform. Bones belonging to the head and feet of cattle are most numerous, although other elements, including scapulae and pelves, are present. Particularly noteworthy is the presence of a neonatal pig bone and a piece of roe deer antler. Sample sizes from other objects are small; of these the largest assemblages came from layers associated with Building 7: Object 3301, which produced 43 identifiable fragments, and Object 41052, the earliest room, which produced just 22 identifiable specimens. Cattle, sheep/goat, and pig were present in both of these but the sample is too small to withstand any form of detailed analysis.

A total of fifteen bones can provide metrical data, twelve belong to cattle and three to sheep/goat. Ageing information is available from four mandibles and/or loose teeth belonging to cattle and five to sheep/goat. There is some evidence for butchery.

Phase 4

A total of 134 identifiable fragments were recovered from layers associated with the latest occupation and these are distributed across six objects (Table 49). Disuse layers in Building 7 (Object 41045) produced the largest sample with 34 identifiable specimens, mostly lower limb bones belonging to cattle. The accumulation deposits (Object 41049) produced the second largest sample consisting of 30 identifiable fragments, of which the majority are horse teeth. A roadside ditch (Object 41042) produced 29 identifiable specimens and again most are teeth and foot bones belonging to cattle. Again, sample sizes are insufficient to withstand detailed analyses.

Two cattle bones are able to provide metrical data (Table 48). Ageing data are available from six mandibles and/or loose teeth, four belonging to sheep/goat and two to horse. There is some evidence for butchery and burning.

Phase 5

Ten identifiable fragments were recovered from layers associated with the disuse of the site. All came from Object 41051. Apart from the remains of cattle (n=8), the only other taxa represented is pig. Most of the cattle bones are loose teeth and foot bones.

One cattle bone can provide metrical data (Table 48). Ageing data can be obtained from a single pig tooth. There is some evidence for butchery and burning.

DISCUSSION

The assemblage recovered from the late Roman layers in Insula IX is comparable in size (10,511 fragments) to the hand-collected bone from the pits and wells (8,480 fragments). The material hints at the existence of some spatial patterning and chronological changes in dietary preferences. Perhaps the most important result is the confirmation of trends observed in the much larger pit assemblage in terms of species and body part representation.

Cattle are clearly the dominant species, a pattern seen not only at Insula IX but also at numerous contemporary sites and thought to reflect a high degree of 'Romanization' (King 1978; 1991) and economic change (Hamshaw-Thomas 2000). In fact, the proportion of cattle in the southern (56 per cent) and northern (55 per cent) parts of the site in all phases is almost identical to that seen in the pit assemblage (57 per cent).

However, there is some variation in taxa representation between both the individual phases and the object groups within single phases; in some cases this is likely to be a function of sample size but in others it requires further explanation. The most obvious variation occurs in the southern part of the site between the Phase 3 Objects 31017 and 31023 in respect of cattle and pig frequencies, suggesting that differential disposal is responsible. There is also considerable variation between the overall taxa representation in Phases 3, 4, and 5, indicating that dietary preferences changed over time. A similarly low proportion of horse was recovered from the layers (in all phases) to that in the pit assemblages, as usual for a site of this period. Galliform appear to be less numerous in the material from the layers and this is likely to reflect differential disposal, probably indicating that kitchen and table waste was generally deposited in pits. Variation in sample size according to object group is also likely to reflect the spatial patterning of bone waste disposal. In the northern half, there is little change in the proportion of sheep/goat over time. Pig appears to decline in Phase 4 but this could well be a reflection of the small size of the sample.

Body part representation was not recorded in detail as few of the object groups produced animal bone in sufficient quantity to allow for a detailed comparison of this characteristic. However, a high incidence of teeth, lower limb, and podial bones was noted in the cattle assemblage, as was the presence of scapulae and pelves and the fragmentary nature of limb bone fragments in certain contexts. A similar pattern was evident in the pit assemblage leading to the suggestion that major meat-bearing bones, rather than being absent, were invisible due to problems of identification resulting from the intensive processing of cattle limb-bones. The mixing of primary butchery and food-processing waste and the relative scarcity of major long bones is not confined to Insula IX; it has also been observed at other areas of Silchester (Maltby 1984, 205–6; Hamilton-Dyer 1997). Other Roman towns have similarly produced evidence for processing activities, as at Cirencester where, although skull and mandible fragments predominated, major meat bones were also present having been stripped of meat and processed for marrow (Maltby 1985, 52).

CHAPTER 2

THE DOG ASSEMBLAGE

By Kate Clark

Dog remains were recovered from pits 1384 and 3357 (Object 115), 2900, 2921, 3235 and 3251 (Object 116), 2087, 1702 and 1707 (Object 117), 1611 (Object 119), and 2596 (Object 122) (FIG. 97) (Appendix 7).

Object 115

Pit 1384

All canine remains from this pit were recovered from context 1051; they include the mandible of a gracile small terrier-sized dog with no wear on the teeth, but in which the second premolar has been lost and the alveolus filled. Other terrier-sized elements in this pit are an ulna, axis and scapula, and the proximal unfused femur of an animal less than 36 weeks of age.

Pit 3357

Context 3352 yielded the right femur of an animal older than 24 weeks, and the left ulna of an animal older than 20 weeks. These elements are probably from the same dog with the build of a large terrier.

Object 116

Pit 2900

This pit contained a single fragment of ulna in context 2699, and the mandible of a small terrier-sized dog in context 2691. The mandible has no visible toothwear, but there is crowding of the first and second premolars.

Pit 2921

Context 2694 contained the mid-shaft fragments of a radius and ulna, and the distal portion of a right tibia of a labrador-sized dog, with a knife-mark anteriorly on the distal shaft, was recovered from context 2481.

Pit 3235

From context 2482 came the femur of an animal standing approximately 42cm at the shoulder, and a third metacarpal of a dog of similar stature. Also recovered were another third metacarpal of a dog of *c.* 35cm shoulder height, and the unfused humerus of an animal less than 32 weeks of age.

Context 2495 yielded the third metacarpal of an animal of *c.* 41cm at the shoulder. Also present are a baculum, a fibula, a terrier-sized tibia fragment, and the proximal portion of a radius. The radius is of a fairly large animal and exhibits two parallel knife cuts anteriorly on the shaft, and the bone has also been gnawed by dogs. The unfused femur of a dog less than 32 weeks of age was recovered from context 2663.

Context 2679 contained the partial skull of a mature dog with very worn teeth. The animal had sustained a deep depressed fracture across the right frontal bone extending from the midline suture to the orbit which has deformed the orbital margin. The injury was inflicted by a rounded blunt instrument, and a residual healed draining sinus indicates subsequent osteomyelitis infection. The animal's head is a similar size to that of a modern medium-sized terrier but with a broad, square snout. This context also yielded the third metacarpal of a very large adult dog, standing *c.* 61cm at the shoulder, and the unfused femur of an animal less than 32 weeks of age.

Context 2685 contained an atlas of a dog the size of a robust terrier. From context 2686 came the bowed left ulna of a very small adult dog, approximately 24cm at the shoulder, and two metacarpals of larger adult dogs standing *c.* 48cm and *c.* 41cm. Also present in this context are the humerus, tibia, sacrum, and hindpaw of at least one juvenile animal less than 28 weeks of age.

From context 2908 the third metacarpal of a very small animal of approximately 25cm shoulder height, two second phalanges, and three unworn canine teeth were recovered.

Context 2924 contained the complete skull of a young adult dog with toothwear visible only on the incisors. The cranium is similar in size to that of a modern medium-sized terrier, but the snout is disproportionately long.

Context 3209 contained the almost complete skeleton (but lacking cervical and most thoracic vertebrae) of an adult male dog standing approximately 50cm at the shoulder. This is the stature of a modern labrador, but the build of this animal is significantly more slender. There has been an injury to the second and third lumbar vertebrae, probably caused by a blow across the back, which has resulted in some distortion of the left articular processes.

Context 3209 also produced the almost complete skeleton of a neonate pup, and the femur, tibia, and hindpaw of at least one other infant. From the same context came a pair of mandibles of a young animal, the size of a small terrier, with adult dentition but no toothwear, and with the congenital absence of the third molar (a condition not seen before the early Roman period and associated with the breeding of small dogs).

The remaining material from this context is from the limbs and paws. A bowed left tibia indicates a very short (*c.* 25cm at the shoulder) but robust animal, and the left hindpaw of a dog of similar stature may be from the same individual. Another small dog, *c.* 32cm in height and older than 20 weeks, is represented by second, fourth, and fifth metacarpals, and an animal of less than 28 weeks by third, fourth, and fifth metatarsals. The distal portions of three further metapodials are notable by their remarkable size and would be from a dog the size of a mastiff. The animal was older than 20 weeks, and one metapodial has been chopped on the mid-shaft anteriorly.

Context 3224 produced the mandible of a terrier-sized dog with a small degree of toothwear, a mandibular fragment with some wear on the teeth and infection of the jaw below P_4 buccally, and the partial skull of a small terrier-sized animal. Other material from the context comprises the proximal left femur, right radius, and scapula of a terrier type, immature ulnae fragments, and the second, third and fourth metacarpals of an animal less than 28 weeks of age. At least one neonate is represented in a mandible, humerus, and ulna.

Pit 3251

The canid remains from context 2674 are of a single dog standing *c.* 48cm at the shoulder and similar in build to a modern labrador. The skeleton is almost complete to the third lumbar vertebra, but the pelvis, most of the hindlimbs and right forepaw are absent. The skull has a very short and broad muzzle and the jaws are fairly robust. The teeth are well worn, and age-related periarticular exostoses around the articulating margins of the first and second lumbar vertebrae indicate that the dog is mature.

The dog has been deliberately killed by a single blow with a sharp blade, the size of a cleaver, which has left a transverse chop across the left temporal bone extending across the midline suture into the left temporal. The animal had suffered an earlier traumatic injury to the right side of the occipital triangle which resulted in the displacement of the posterior part of the sagittal crest ventrally; substantial healing has occurred so this injury was sustained some time before death. There is substantial dental pathology; one carnassial has been lost with subsequent infection and resorption of the maxillary bone, and the infection has extended to the orbital margin. First and second premolars have been lost with associated resorption of the bone, and the left first and second incisors have also been lost. There is a chop mark on the second lumbar vertebra which has removed the ventral portion of the cranial face. As the third lumbar vertebra is present, this would appear to be an unsuccessful cut to remove the hind portion of the carcass. There is a complete set of ribs; one has mild periostitis and another exhibits a well-healed fracture.

Context 3217 contained the partial skull of a mature dog, with sutures fused and obliterated. The animal's head resembles that of a modern greyhound, and the dog has sustained a fracture above the right orbit which had become infected.

The almost complete skeleton of an immature dog was recovered from context 3226, and the missing elements (distal portions of the left humerus, radius and ulna together with second and fifth metacarpals) were contained in context 3227. The animal was less than 20 weeks of age but with adult, unworn, dentition. No baculum was recovered so this is probably a female. The animal had suffered a fracture of the left humerus shortly before death. The fracture has partially united and there is massive callus formation with infection and draining sinus. The right fifth metacarpal exhibits periostitis distally, probably the result of infection after a minor penetrating wound.

Context 3228 produced second, third and fourth metacarpals of a dog older than 20 weeks. The metacarpals are fused together from the mid-shaft to the distal epiphyses as a result of very well healed fractures of the distal shafts of each bone. There is slight distortion, but it is possible, using the third metacarpal, to estimate the shoulder height of the dog at *c.* 28cm. The animal would have been permanently lame, and initially on three legs, but the minimal distortion and absence of evidence of infection suggests the paw was immobilised and clean while healing took place.

Context 3229 contained a patella and tarsal bone of an adult or sub-adult dog, and the radius and ulna of a neonate.

Object 117

Pit 2087

The left femur of a juvenile animal less than 32 weeks of age was recovered from context 1296, with a horizontal knife mark on the proximal anterior surface just below the femoral head.

Pit 1702

The only canid bone from this pit is the proximal left humerus of a robust terrier-sized dog from context 2705.

Pit 1707

Context 1511 contained the partial skeleton of a young dog, older than 20 weeks but less than 32 weeks. A skull from this context has adult but unworn dentition, and is probably from a robust terrier-sized animal. The morphology of the skull is notable in that there is virtually no post-orbital constriction, indicating a very broad and possibly domed head. Two right mandibles of small terrier-size were recovered, both robust. One has no wear on the teeth, the other has very little wear but has lost the second premolar and there is some recession of the jaw below the carnassial indicating infection.

Context 1511 also produced a bowed right tibia of a small adult dog, standing 27cm at the shoulder, and a proximal left tibia fragment which may be from the same animal. An adult humerus of a dog of similar height may be from the same individual, together with a metatarsal, scapula and pelvis.

Remains of at least one larger dog in context 1511 comprise the distal right tibia, axis, and an atlas which has sustained a fracture on the right margin of the wing which has healed with some distortion; this injury may be the result of a blow to the neck. A fourth metatarsal of an adult dog indicates a shoulder height of *c.* 48cm.

Appendicular remains from context 1478 (humerus, radius, femur, and pelvic fragment) are probably all from the same animal, a dog standing *c.* 27cm at the shoulder with slightly bowed forelegs. The animal is over 40 weeks of age, and, although it is the size of a small terrier, it has robust joints.

The mandible in context 1478 is likely to be from a larger and younger animal, similar to a medium-sized modern terrier, with robust jaws. The dentition is adult but there is no wear on the teeth.

At the bottom of the pit, in context 1662, the skeleton of a dog was recovered (FIG. 30). No baculum was present and, in view of the high level of recovery of all small bones of this skeleton, this probably indicates that the animal was female.

The build and stature of the dog, as defined metrically by the limb bones and the axial skeleton, is very similar indeed to that of modern labradors, and the animal would have stood approximately 53cm at the shoulder. In contrast, the head is relatively small and facially the animal would have more closely resembled a terrier type. However, although the anterior portion of the mandibles also suggests a terrier shape, the posterior section where the major muscle attachments embed is very robust, both in height and thickness. This is more characteristic of the jaws of a modern English Bull Terrier or Rotweiller. Also the tympanic bullae, the acoustic cavities of the inner ear, are relatively very large and of a size more compatible with the skull of a modern greyhound.

The muzzle of the dog, although not large, is noticeably unrefined in that there is little variation in the width of the anterior section of the palate, and there is little concavity in the frontal area. The animal does, however, exhibit the congenital absence of the lower third molars, a condition caused by lack of room for the eruption of the rearmost teeth, because diminution of the jawbone in smaller dogs proceeds faster than the reduction in the size of the teeth. The dog from Silchester is not particularly small, and it is interesting to see the phenomenon in early mandibles of this size.

The occipital angle of this skull — the angle described between the basal plane of the cranium and the occipital bone — can be calculated and this can suggest the carriage of the head. For example, greyhounds, with very low head carriage, have an occipital angle of less than 90 degrees and this can be as low as 85 degrees, small terriers score between 92 and 95 degrees and larger terriers, labradors, and alsatians produce angles between 97 and 120 degrees. This dog from Silchester produces 91 degrees, suggesting that it carried the head low.

The dog is mature, and possibly elderly; all the bones are fused, and the molar teeth are very well worn, although tooth wear in dogs is notoriously variable. The right tibia and fibula are fused together which is a common manifestation in elderly dogs, and osteomata (button warts) such as that visible on the skull at the fronto-parietal suture are again frequently seen in old dogs.

The arthropathies observed on the upper vertebrae — periarticular exostosis on the upper cervical and thoracic bodies — may also be a reflection of the animal's maturity. These manifestations are common in all older animals. However, the more advanced arthropathy in the lumbar vertebrae, leading to complete fusion of two vertebral bodies in the lower spine (spondylosis), could be associated with traumatic injuries noted in the second lumbar vertebra where the neural spine has been fractured and displaced to the left. Indeed, injuries to the back of the animal associated with subsequent infection can be seen in three sections of the thoracic spine also, and the lesion involving the ninth thoracic vertebra shows that the infection had lodged within the bone of the neural spine to set up a draining osteomyelitis. It would appear that the vertebral arthropathies may result from injuries to the neural spine, the most likely cause of these intermittent manifestations being blows across the back.

Further trauma is visible in the forelimbs in the left ulna and the left fifth metacarpal, the latter being in an early stage of healing and infected, so the animal would have been lame at the time of death. There is further slight evidence of infection in the sequestra and surface pitting visible on the left radius and humerus, and on the right fourth metacarpal which again would have caused the animal to limp. Toe bones also indicate infection or the growth of reactive bone at the joint margins.

There are two separate traumatic events visible in the skull. The first is a healed depressed fracture of the forward part of the muzzle, and this would have been due to a substantial blow. It was sufficient to realign the nasal bones downwards, causing a malocclusion of the incisor and canine teeth. This misalignment is very obvious in the lower canines, particularly the left, where the ‘normal’ wear on the anterior edge is visible, as is another ‘abnormal’ plane of wear on the posterior edge which would not normally be in occlusion. These areas of wear cannot have happened simultaneously, and the rearrangement of the muzzle following the trauma almost certainly caused the phenomenon. The right lower canine has been worn almost to a stump, again indicating malocclusion and asymmetry of the jaw following the injury. The upper third and fourth incisors on the left are also missing, and although the tooth-sockets have filled there is clear evidence that infection followed the tooth loss.

The dog suffered another blow to the muzzle after the first injury had fully healed. A transverse fracture is clearly visible some 40mm from the muzzle tip, and there is evidence of early healing around the fracture margins. The injury was probably not sufficient to kill the dog, but the small degree of healing shows that the animal died shortly after it was sustained.

Object 119

Pit 1611
A single fragment of atlas was recovered from context 1642, the top fill of an earlier well (1682) into which a late Roman rubbish pit (1611) is cut. The same context also contained the left tibia of an infant.

Object 122

Pit 2596
Context 2855 contained the partial skull of an animal which would have resembled a robust terrier type.

MINIMUM NUMBERS OF INDIVIDUALS

These are based on the most commonly occurring elements in each pit, taking into account size where measurement has been possible.
Object 115: pit 1384 – 1, pit 3357 – 1
Object 116: pit 2900 – 1, pit 2921 – 1, pit 3235 – 5, pit 3251 – 4
Object 117: pit 2087 – 1, pit 1702 – 1, pit 1707 – 3
Object 119: pit 1682/1611 – 1
Object 122: pit 2596 – 1

AGE

The assemblage includes dogs of all ages from neonate to elderly, but the majority belong to the sub-adult and early adult groups. Only two elderly dogs were identified — the skeleton in context 2674 of pit 3251, and the skull in context 2679 of pit 3235.

Although neonate material was recovered, it is not present in the large numbers reported from sites such as Winchester and Owslebury (Maltby 1987a, 1987b), where Maltby considers such assemblages to represent deliberate population control, including the disposal of litters.

SIZE

Measurements are detailed in Appendix 7. Shoulder height estimates (Harcourt 1974; Clark 1995) were possible on limb bones and metapodials from Objects 116 and 117, and indicate minimum numbers of individuals of the following stature:
Object 116: 25cm, 28cm, 32cm, 42cm, 49cm, 61cm
Object 117: 24cm, 27cm, 48cm
In addition, a very large animal was present in pit 3235 (Object 116, context 3209). Although the metapodials from this animal are not complete and length measurements could not be obtained, they are substantially larger than the metapodia of the dog providing the shoulder height of 61cm, also in pit 3235.

PATHOLOGY

Arthropathy

Age-related arthropathy was observed in only one individual (the skeleton in context 2674 of pit 3251).

Infection

Object 116
Pit 3251: maxillary teeth, rib, humerus (post-traumatic), metacarpal, cranium (post-traumatic)
Pit 3235: mandible, cranium (post-traumatic)
Object 117
Pit 1707: mandible

Trauma

Object 116
Pit 3251: cranium (2), rib, humerus, forepaw
Pit 3235: lumbar vertebrae, cranium
Object 117
Pit 1707: atlas

BUTCHERY

Object 116
Pit 3251: cranium chop, vertebra chop
Pit 3235: metapodial chop, radius cut
Pit 2921: tibia cut
Object 117
Pit 2087: femur cut

DISCUSSION

The number of small dogs (less than 35cm at the shoulder) is a reflection of the apparent overall dog population in the late Romano-British period (Clark 1995), where short dogs appear to be in the majority. Bow-legged animals occur from the early Romano-British period, as does the congenital absence of the lower third molar and crowding of the premolars; these conditions are due to the rapid diminution of the species, whereby the jaw size decreases at a faster rate than tooth size. Both these conditions are observed in this assemblage from Silchester. Variability in skull morphology in all size groups is also a feature of Romano-British dogs, as is the presence of very large dogs, for example the animal standing 80cm at the shoulder from Shakenoak Farm (Cram 1973) and the Great Dane-sized animal from Bradwell

Villa (Westley 1975), but it is interesting that at Silchester these giant animals are only visible in fragments of distal metapodials with evidence of chopping.

Ageing evidence suggests that most dogs died as sub-adults or young adults. While this may possibly indicate that the remains are the result of population control, the relatively low numbers of neonates and infants do not accord with the pattern of remains discussed by Maltby at other southern Romano-British sites. At Owslebury he comments on the spectacular concentrations of neonatal pups dumped in the third- and fourth-century cess-pits (Maltby 1987b), and considers that the high rate of immature mortalities in the large assemblage from Dorchester also represents a deliberate policy of population control (Maltby 1990). At Oakridge he identifies the deliberate destruction of complete or substantial parts of litters (Maltby 1993a). While younger dogs contribute the majority of remains at Silchester, this feature of high concentrations of neonates and infants is absent.

Three of the dogs in this assemblage had survived significant traumatic injuries to the head, one of which (in pit 3251) was clearly the result of a blow from a blunt instrument rather than a kick from a human or other animal such as a horse. Among the canine remains excavated between 1890 and 1909, which cannot be accurately dated within the Roman period, Cram has noted that of the 54 measurable skulls 12 exhibited healed fractures of the frontal, maxilla, or nasal bones and these injuries occurred in both large and small animals (Cram 2000). Such a high incidence of healed head injuries in dogs has not been recorded from any other site. However, it should be noted that no British publications record similar quantities of complete or near-complete canine skulls.

While these traumatic injuries may initially suggest that the dogs at Silchester were routinely mistreated, the evidence of the forepaw of the little dog from 3251 (context 3228) points to more benign human intervention. To immobilise the paw in the correct position, prevent infection, and sustain the dog during recovery indicates a high level of care and suggests that general maltreatment of dogs at Silchester may not be the correct interpretation of this assemblage.

It is rare that cause of death can confidently be identified in dog remains, but there is incontrovertible evidence for the despatch of the individual in context 2674 of pit 3251 (Object 116). The blow from a broad blade which killed this mature dog appears to have been precisely placed and the sharpness of the instrument is attested by the fact that the skull has been cleanly penetrated but not crushed.

There is also evidence of disarticulation of the spine of the same animal, but indications of butchery in the assemblage as a whole are few, comprising cut marks on three limb bones from pits 3235, 2921 and 1295 and the chopped metapodials from the very large dog discussed above.

CHAPTER 3

THE OYSTER SHELLS

By Sandie Williams

INTRODUCTION

Oysters (*Ostrea edulis)* played an important part in Roman cuisine and medicine, and are mentioned on numerous occasions by the classical writers, including Juvenal (*Satire* 4.1.141), Pliny (*Natural Histories* 6.32.21(6)), and Macrobius (*Saturnalia Convivia* 3.13). The amount of oyster shells found on Romano-British sites may thus be a good indication of a highly Romanised community. Urban sites with an abundance of oysters include Frere's (1972) excavation at Verulamium, where he discovered what is thought to have been an oyster bar, and Milne's (1985) study of the Roman quayside at Pudding Lane in London. Military sites where an abundance of oysters was found include *Segontium* Roman fort (Casey *et al.* 1993) and a letter found at Vindolanda describes how one soldier received 50 oysters from Cordonovi (Bowman 1994). The excavations at Holcombe Villa, Devon (Pollard 1974) indicate that the oyster shells were distributed within various rooms in the villa, including the bath-house and kitchen, as well as within other domestic rooms, and also in a midden. However, little quantitative and comparative work has been carried out on oysters from urban, military, and rural sites.

Silchester is an inland site and the considerable quantities of oysters discovered in the forum-basilica and in Insula IX must represent a significant investment in terms of transport costs. Britain was, of course, famous for its oysters in antiquity. For example, Juvenal (*Satires* 4.1.141) states that British oysters came from *Rutupiae* (Richborough). There is no direct evidence for this but it has been suggested that timber-lined tanks discovered at Wickford in Essex may have been used for storage before oysters were sent around the country, or perhaps even to Rome itself (Alcock 2001). Transport inland would have been first by coastal routes, then by boats up estuaries and rivers. Other possible oyster-bed locations around Britain are found off the south coast, including Hayling Island and the Isle of Wight (Currie 2000). Both these sites are still well known as breeding grounds to this day. Further east the main supplier of oysters to Colchester appears to have been Mersea Island. This small island, lying between the estuaries of the rivers Colne and Blackwater, is separated from the mainland by the Pyefleet channel. The Pyefleet is the historic breeding ground of Colchester oysters. Another major breeding ground for oysters during the Roman period was around Whitstable in Kent, again, still in use today. A Thames estuary source is also suggested for the Pudding Pan (quayside), London oysters, which were associated with a small worm (*polydora ciliata*), which is found locally in the Thames estuary (Milne 1985, 92–3). It was also surmised from the condition of the shells that they had been roughly opened *in situ*, which may indicate that the oysters were also sold on the quayside, possibly by the fishermen who had caught them.

Detailed study of the Pudding Lane oysters also suggests that both cultivated and natural oysters were exploited in the Thames estuary throughout the Roman period. In the first century, deposits of oysters of all sizes and quality were found, indicating the harvesting of natural oyster beds. In the second century, the shells show a more uniform size, thus indicating that these were of a cultivated variety.

LATE ROMAN OYSTERS FROM SILCHESTER

Over the course of the seven years of excavations in Insula IX (1997–2003), over 24kg of oyster shells have been discovered on the site. Only a relatively small proportion (5.4 per cent) comes from the late Roman layers and it is the intention of this report to examine the contexts in which these shells have been found, and to plot their spatial and chronological distribution. As the material is very fragmented, no attempt has been made to identify the source of the oysters, or to distinguish between natural and cultivated specimens. For the same reason, oyster shells were weighed, rather than counted. One of the main questions in this study is to discover whether the oyster shells are more abundant in the northern area of the site, where the majority of buildings were of timber construction, than in the southern area, where the buildings were of masonry construction. In other words, is there a connection between the consumption of oysters and the status of the buildings? It is also hoped the study will show whether there was an increase or decrease in abundance of the shells over time in the late Roman period.

Twenty-six late Roman contexts produced oysters and these contexts are mainly from within the structures and from associated layers, with relatively few oysters coming from the rubbish pits (Table 10).

TABLE 10. OYSTER SHELLS FROM THE LATE ROMAN CONTEXTS

Building No.	*Context No.*	*Weight* (g)
Building 1	1323	4.74
	1416	15.29
	1418	5.30
	1424	77.02
	3183	5.72
	3422	8.10
	1785	19.8
	3204	67.55
Total		**143.55**
Buildings 1 & 5	1752	31.86
	3215	34.71
Total		**66.57**
Building 7	1485	7.65
	1572	8.09
	1643	5.47
	2011	2.50
	2926	212.80
	3050	3.44
	3104	33.77
	3140	16.73
Total		**290.45**
Building 8	1224	68.83
	1631	15.90
	2077	1.64
	2571	16.46
Total		**102.83**
Pit	Pit 1666	1.58
	Pit 1666	14.21
	Pit 2087	8.64
Total		24.43
N–S Street	1989	679.72
Grand Total		**1307.55**

Table 10 shows how the oyster shells were distributed spatially throughout the insula. As the most substantial building in this area, it could be assumed that Building 1 would have the highest quantity of oyster shells. However, this is not the case. Throughout all the late Roman phases, Building 1 accounts for only 143.55g of shells, with a further 66.57g from the area separating Buildings 1 and 5. While Building 8, the most substantial timber building in the northern area, contained 102.83g, the less substantial Building 7 contained the highest quantity of oyster shells in the area, with a total of 290.45g.

Surprisingly, few oysters were retrieved from the pits associated with the buildings. The only pits which contained oyster shells were pits 1666 and 2087, associated with Building 5 (Object 117). These pits are located west of Building 5 and south of the proposed fence line dividing the site. The relatively small quantity (24.43g) of oysters from rubbish pits is striking, especially given the large quantity of animal bone that has been recovered from them. This may suggest that oysters were neither consumed in large quantities nor disposed of in the same ways as other domestic rubbish.

Instead, oysters seem to come from make-up and general occupation layers. It has been suggested (Alcock 2001, 55–6) that oysters were used for building purposes, both as make-up and in making concrete, and we can examine this suggestion by examining the date of the relevant contexts (Table 11).

TABLE 11. THE CHRONOLOGICAL DISTRIBUTION OF OYSTERS FROM THE NORTHERN AND SOUTHERN AREAS

South Area	*Phases*	*Weight* (g)	*North Area*	*Phases*	*Weight* (g)
	1	5.72		1	N/A
	2	92.67		2	266.74
	3	55.30		3	124.90
	4	24.57		4	1.64
	5	711.58			
Total (g)		**889.84**	**Total (g)**		**393.28**

In terms of chronological distribution, the most striking result is that in the southern part of the site oysters do not come from make-up and occupation layers (Phases 1–4), but rather from deposits associated with the end of the occupation of Buildings 1 and 5 (Phase 5). This may suggest that oysters were only deposited in or near the building when rubbish was no longer cleared away, or that oysters from earlier levels were re-deposited in among the latest material. In the northern half, oysters do come from the occupation Phases 2 and 3, but not from the latest deposits, suggesting that different processes were at work there. It is also interesting that in Phases 2–3 generally more oysters come from the relatively low-status buildings in the northern half than from the relatively high-status masonry Building 1 in the south. It is only with the latest deposits that the overall balance shifts in favour of the southern half.

CONCLUSION

The total quantity of oyster from the late Roman contexts is small, perhaps representing no more than a couple of dozen whole oysters (cf. Somerville 1997). Nevertheless, this very basic analysis of oyster shells from the late Roman layers has clearly demonstrated that there are both chronological and spatial patterns in their use. The total weight for all the late Roman oyster shells is 1.3075kg, and the quantities (22.6925g) already recorded from the ongoing excavations (which have not reached all the early Roman layers) indicate that more oysters were consumed during the early, rather than the late occupation of the insula. This is supported by the evidence from the North Gate (Somerville 1997) and from the forum-basilica excavation

(Grant 2000, 430, table 67), which showed that 57 per cent of recorded oyster shells came from early deposits. That oyster consumption was not a universally early phenomenon is demonstrated by the Holcombe villa (Pollard 1974) where oysters appear to be most abundant in the fourth century. Interestingly, the largest group (54 per cent of the late assemblage) from Insula IX came from Phase 5, latest fourth/fifth century, in association with Building 1.

Within the late Roman deposits, there is some evidence for variation between the northern and southern half and across phases, but the quantities involved are generally small. Perhaps the most striking finding is that very few oysters were deposited in the rubbish pits and wells, which did, however, contain a large amount of animal bone.

CHAPTER 4

THE HUMAN REMAINS

By Hilary Snelling

INTRODUCTION

During excavation of the late Roman pits and wells from Insula IX at Silchester a small number of human neonate bones were recovered. Some of these were not recognised until an analysis of the animal bones had taken place and human bone was found among them, however bones from context 3217 (pit 3251) were immediately identified as human and recovered separately. The majority of the bones come from a single pit (3251) from two sequential contexts, 3280 above 3217. A far smaller number of bones were recovered from three other pits (3235, 1707, and 1682). In addition, a bone fragment from one of the foundations of Building 1 (context 1422) was identified as possibly neonatal human but is too fragmentary for further analysis (FIG. 96).

METHODOLOGY

The human bone was identified and recorded at the University of Southampton in the laboratory of the Centre for Applied Archaeological Analysis (CAAA), Department of Archaeology, Highfield Road, Southampton.

All of the human neonate bone was identified and recorded using standard human remains methods (Bass 1995) and with measurement points for human neonates as per Buikstra and Ubelaker (1994). The infants were aged using long-bone lengths as per Scheuer *et al.* (1980) regression models based on London University Institute of Child Health (ICH) data. Although more recent work (Gowland and Chamberlain 2002) suggests that the regression method may give a skewed age distribution, this is not considered a problem in this analysis due to the small number of infants under consideration. In addition, cross-checking of the two methods shows that ageing from femur length as per Gowland and Chamberlain falls within the error margin given for each individual (±2 weeks). As the length of gestation can readily vary by this much for individual births, the number of full-term (neonate) and premature babies does not change using either method. Where possible the ilium was assessed for morphological appearance as per Schutkowski (1993) to assign a possible sex to the infant in question. Differences in mandible morphology described by Schutkowski and by Loth and Henneberg (2001) could not be carried out with any confidence in this case. It should be noted that sexing of neonates using either of these methods is very uncertain and should be used as an estimate only.

Recording was done on a Microsoft Access 2000 database, designed by and for the author, for transfer to the Silchester Integrated Archaeological Database (IADB) database. Bone from each context was recorded individually and then at pit level to assess a minimum number of individuals (MNI).

RESULTS

A number of human infant bones were found at the site, all from pits in non-grave contexts. Only a brief outline of each context is presented here including:

number or short description of bones recovered;
minimum number of individuals (MNI);
estimated age of individuals;
notes on ageing.

As pieces or fragments of flat skull are not useful for calculating MNI they are described only as ‘flat skull’ in this section.

Full details are included in Appendix 8:
FIG. 125: Visual record of the bones
Table 59: Full inventory of bones
Table 60: Ageing data
Table 61: Measurements

BRIEF DESCRIPTION BY OBJECT/PIT/CONTEXT (FIG. 95)

Object 116

Pit 3235

Context 2482 (uppermost layer of pit)
Seven bones in total were recovered, all of them long bones, giving measurements which have enabled reasonably accurate ageing. A minimum of two individuals are represented here:
Age 1 = 37 ± 2 weeks in utero (i.u.)
Age 2 = 34 ± 2 weeks i.u.
Two incomplete bones, a distal humerus and proximal ulna, do not allow for accurate ageing. However they are much smaller than the other bones and are likely to represent a third individual.
Age 3 = < 32 weeks i.u.

Context 2495 (below 2482)
One left femur only was recovered, the length gives a similar age to Age 2 in the above context and it cannot be considered a separate individual with any confidence.

Pit 3251

Context 3208 (second uppermost layer)
Almost a complete skeleton was recovered from this context, long bones from both legs, whole right arm, lower left arm, some flat skull, a number of ribs and both ilia. All long bones give an estimated age of:
Age 4 = 39 ± 2 weeks i.u.
The tentative sexing of the ilium suggests that this infant was a female.

Context 3217 (below 3208)
Right maxilla and mandible, upper left arm, both scapulae, both clavicles, some flat bones, sphenoid and petrous-mastoid from the skull, vertebrae, and ribs were recovered. The single tooth crown could not aid accurate ageing but the right humerus and distribution of elements strongly suggest these bones are from the same individual as those from context 3208.

Object 117

Pit 1707

Context 1238 (second uppermost layer)
Some flat skull and a left humerus.
Age 5 = 38 ± 2 weeks i.u.

Context 1511 (second lowermost layer)
Right femur and proximal right tibia.
Age 6 = 33 ± 2 weeks i.u.

Object 119

Pit 1611

The infant remains came from the top fill (1642) of an earlier well (1682) into which a late Roman pit (1611) was cut.

Context 1642
Left tibia only.
Age 7 = 38 ± 2 weeks i.u.

PRESERVATION

All the bones were recovered in a moderate-to-good condition, with a little taphonomic evidence of root marks and some slight mineral deposit. There are no pathology or cut marks evident on any of the bone. Although there are miniscule 'scratch marks' on the left tibia in context 1642, these are considered taphonomic rather than man-made.

DISCUSSION

AGE SUMMARY

TABLE 12: AGE SUMMARY: (A) PER PIT; (B) OVERALL

(a) Age Summary per pit

Pit	*Age ± 2 weeks*	*MNI/Pit*
3235	<32	
3235	34	
3235	37	3
3251	39	1
1707	33	
1707	38	2
1611	38	1

(b) Minimum Age overall

Pit	*Age ± 2 weeks*	*MNI*
3235	<32	1
1707	33	
3235	34	1
3235	37	1
1707	38	
1682	38	1
3251	39	1

Here babies of less than 37±2 weeks are considered premature or stillborn, and 38±2 weeks and over as neonatal or full-term. The MNI when bones from each pit are treated separately is seven: three premature, four neonatal. The MNI of similar aged individuals from all pits is five: three premature and two neonatal. As the bones from pits 3235, 1707, and 1611 are all of a comparable age (37/38 weeks i.u.) and there is no replication of bone element, they could theoretically be from a single individual making the MNI only four. It is considered that the MNI of seven from separate pits is the most likely.

BURIAL

As at Insula IX, infant remains from Roman villa sites have been found in pits, wells, or post-holes, alongside animal bone which is often suggestive of deliberate or votive acts of burial (Scott 1991). Whether such deposits are related to ritual or were just treated as a disposal method remains unclear. However, for some reason certain babies of this age (whether premature or newborn) were afforded a different end to those of even slightly older children who would have presumably been buried in a dedicated cemetery with the respective adults. One possible reason for selective burial may be the act of infanticide, a practice not unknown during the Roman period. Studies of infant burials have suggested that a predominance of infants of about full-term in age may point to a high incidence of infanticide (Mays 1993). Although the number of individuals from Silchester Insula IX is too low to draw this conclusion, the fact that these infants were found in rubbish pits suggests they were not considered for a cemetery burial for some reason. It would also seem likely that not all premature/neonate children were treated in the same way due to the small number of individuals recovered. At the Roman cemetery site of Poundbury, Dorset (Farwell and Molleson 1993) remains of 132 babies were found including 11 of premature and 49 of full-term ages. Moreover, the fact that five foetal babies (<28 weeks i.u.) were also found is highly indicative that even very premature babies were considered as deserving normal burial practices and were not in general treated to a specific, and different, funerary practice as suggested by Gowland and Chamberlain (2002).

Object 116

There are bones from a minimum of four infants here. Both pit 3235 and pit 3251 contain bones of babies likely to be about full-term. Whilst the neonate in pit 3251 is almost complete and likely to represent a single individual, pit 3235 also contains bones from at least two other babies, possibly stillborn at a premature age.

The full representation of bone elements from pit 3251, and the fact that the contexts from which the bone was recovered are sequential, suggest that only one individual is represented, having been deposited in the pit as a complete baby. This is the only infant for which it is possible to estimate sex and, from the ilium, it is considered female. This is of interest as, if infanticide was practised, it has been suggested that unwanted female children may have been selected (Mays 1993).

Object 117

There is a minimum of two infants represented, one full-term and one younger. Although both contexts (1238 and 1511) are from the same pit (1707), context 1238 is from the Victorian excavation period and consists of backfill of the pit excavated at that time. Therefore the origin of the single bone found in this context cannot be discerned. Context 1511 is much nearer to the bottom of the pit and the bones, albeit only two of them, were found *in situ*. These bones are from a premature baby very similar in age to that designated Age 2 in Pit 3235. Whilst it is possible that the bones from both pits could belong to the same individual, the spatial distribution makes this unlikely unless they were deposited in separate pits in a deliberate act.

Object 119

The single bone found in this context (1642, pit 1611) is from a full-term baby, similar in age to those found in Object 116, (pit 3235) and from the Victorian backfill (Object 117, pit 1707). Again due to the positioning of the pits it is unlikely the bones were from the same individual unless the bones were deliberately distributed in separate pits.

'Deliberate' deposits

The pits in which human neonate bones have been discovered may have been used for 'deliberate' placement of bone, possibly for ritual purpose for which there is also past evidence at Silchester (Fulford 2001). The pits from both Objects 116 and 117 also contained a diverse assemblage of animal bone, including deer, fish, bird, cat, and many dog bones in addition to the remains of domestic animals. Bones such as those of neonate lamb, red deer, a partial pig skeleton, wild and domestic bird, and a single pine martin bone are suggestive of a use for the pits which was considered more than just the disposal of general day-to-day waste. Inclusion of such bones in an assemblage would fit with the act of deliberate placement of single, human neonate bones, rather than the disposal of stillborn babies. However this would not seem the case in at least one instance — the apparent deposit of a complete baby in pit 3251.

OTHER HUMAN REMAINS FROM SILCHESTER

The infant bones found in Insula IX are not the first human bones to be recovered at Silchester. A number of bones recovered during the Victorian period are discussed in detail by Balderston (2002). Further human bones were recovered from the North Gate during the modern excavations (Firth and Fulford 1997; Firth 2000). The majority of these were from adult remains. However, Insula IV yielded a child *c.* 14 years old in a lined tub found with the remains of a cat and, more relevant to the present discoveries, a number of infant bones were also recovered.

In the 1860s 'The importance of sieving was appreciated – they even found the tiny bones of infants buried "at the entrance to the forum"' (Balderston 2002, 8). During the 1890s and 1900s, the Antiquaries also discovered infant bones in Insula I, Insula IV (the forum), and Insula XXXV. These remains also appear to represent deliberate deposits. In addition to a child 'older than newborn' found in a pit near House 2 in Insula I, bones of a second infant were found in a small urn near the same house. Whether these were deposited when the child died or later as individual bones is unknown at this time and the size of the urn would be a determining factor in deciding this. The urn is apparently still housed at Reading Museum and could possibly be examined to this end.

This period also saw the excavation of bones of a full-term neonate in a rubbish pit in Insula IV, to the north of the forum. In addition to the description above, this suggests at least two infants were recovered in this area.

Insula XXXV gives perhaps the most interesting infant assemblage. Though described as 'bones of two newborn babies' by the Antiquaries, on re-examination Balderston identified three left femurs and hence three individuals must be represented, two of which were full-term plus a third of about four weeks old. As these bones were also found in association with unusual animal bone (including a stork leg), this again suggests deliberate deposit of the infant remains.

From Balderston's paper (2002, 18–19) no ilium is shown as present which could be used to estimate sex, although two right mandibles are present which perhaps could be examined using the methods of Schutkowski (1993) or Loth and Henneberg (2001), although this was not successful for the sample in context 3217 above (see also Scheuer (2002) for comments on mandibular sexing). However, estimation of sex for these individuals would help in identifying any female or male bias towards infanticide or special deposit of infant remains.

Measurement and ageing of the above infant remains is recommended using methods as per the recently recovered neonate bone. This would allow all the bones to be included in similar categorisation of premature, full-term, or older babies.

SITE COMPARISON

There have been a number of other Roman sites where bones from premature and newborn babies have been found in conjunction with buildings. The original published measurements from these sites have been used by the current author to assign age by the Scheuer *et al.* (1980)

method, so that age profiles are comparable to the Silchester study. However bones from previous Silchester excavations have only been aged according to the descriptions given, as there are no measurement details for these.

TABLE 13: PREMATURE AND FULL-TERM BABIES: COMPARATIVE DATA FROM OTHER SITES

	Age in weeks 28–37 (Premature)	38–43 (Full-Term)	>43 (Postnatal)	Total
Silchester Insula IX	3	4	0	7
Silchester other	0	4	1	5
Total Silchester	3	8	1	12
Winterton Roman villa[(a)]	5	15	0	20
Rudston Roman villa[(b)]	3	12	4	19
Old Winteringham Roman settlement[(a)]	2	12	2	16

	Age in weeks 28–37 (Premature)	38–43 (Full-Term)	>43 (Postnatal)
Silchester Insula IX	43%	57%	0%
Silchester other	0%	80%	20%
Total Silchester	25%	67%	8%
Winterton Roman villa[(a)]	25%	75%	0%
Rudston Roman villa[(b)]	16%	63%	21%
Old Winteringham Roman settlement[(a)]	12.5%	75%	12.5%

[(a)] Winterton Roman Villa (Denston 1976)
[(b)] Rudston Roman Villa, Humberside (Bayley 1980)

As can been seen, the total numbers of premature and neonate bones from Silchester are comparable to the numbers recovered from other Roman sites. However, when considered in isolation, Insula IX has yielded a higher number of premature bones in relation to those from full-term babies.

CONCLUSION

From this analysis it is possible to conclude that overall there is present a minimum of four individuals with ages: <32, 34, 37/38 and 39 ± 2 weeks i.u., including one full-term, possibly female, neonate. However as the bones were found in four pits spread over three areas of the site, it is probable that bones from infants of similar ages found in different pits are in fact from separate individuals. This would make a maximum of seven individuals, aged as above plus 33 ± 2 weeks i.u., and two of 38 ± 2 weeks i.u. There is evidence that the pits were not just used for general waste, and that the human bones may have been placed in them in some deliberate way. Whether this is through a ritual act involving only a few neonate bones, or the disposal of a child 'not fit for cemetery burial' remains unclear.

CHAPTER 5

THE MACROSCOPIC PLANT REMAINS

By Mark Robinson with Nancy Fulford and Klare Tootell

INTRODUCTION

The Roman town of Silchester is situated on well-drained sandy flint gravels. The sandy loam which develops from them would probably have been acidic enough for the preservation of ancient pollen in sealed contexts but the use of calcareous building materials and the presence of much bone amongst the refuse deposited in the town has rendered the soil circumneutral. There is sufficient earthworm activity to ensure pollen does not survive undisturbed but conditions are not sufficiently calcareous for the preservation of mollusc shells other than the most robust shells, particularly of marine species. The water table is 2m below the ground surface so the anaerobic preservation of organic material due to waterlogging could only be expected in the bottoms of wells. However, wells were found in Insula IX by the nineteenth-century excavators of the town. The degree of human settlement activity made it extremely likely that charred plant remains would be present in the archaeological deposit as a result of plant material being burnt with insufficient oxygen for complete combustion.

The nineteenth- to early twentieth-century archaeobotanical work undertaken on Roman Silchester (Reid 1901–1909) was primarily concerned with establishing the history of the British flora and in particular which exotic species were Roman introductions. This objective was highly successful, with 148 plant taxa, mostly preserved by waterlogging, being identified, including the earliest British records for many taxa. Although some of these species have now been shown to have been present in Britain prior to the Roman period and doubts have been cast on the identification of others (e.g. *Prunus lusitanica*; Godwin 1975, 197), the work of Reid demonstrated both the range of new horticultural crops grown in Britain by the Romans, for example coriander, dill, and several varieties of plum, and the trade in fruit from the Mediterranean region, for example figs. Reid, however, was unable to identify cereal remains other than noting the presence of *Triticum* sp. (wheat).

The aims of the environmental archaeological research on the current excavation project were to establish the local late Roman environment of Insula IX and to recover evidence for diet and activities. If possible, the evidence was to be related to individual properties. Changing environmental conditions at the end of the Roman period were regarded as of particular importance. To these ends, and bearing in mind the likely preservational factors, a sampling strategy was devised and implemented. Bulk samples of 10–20 litres were taken from a wide range of contexts for processing on-site to recover charred plant remains. Samples of 10 litres were also taken from waterlogged deposits for laboratory analysis of macroscopic plant and insect remains.

The sampling for charred plant remains was successful, although their concentration was low. In addition, however, calcium phosphate mineralised remains were noted in a few of the flots and residues. Such preservation tends to be characteristic of latrines. Bulk flotation alone is not an effective technique for the recovery of mineralised remains and even though the heavy residues were being retained, they had only been sieved down to 2.0mm. Therefore, samples were taken for laboratory analysis. The majority of the late Roman waterlogged pits and wells had been excavated in the nineteenth century. Unfortunately, Reid did not start his botanical work on Silchester until after the excavation of Insula IX was completed in 1894. However, one deep pit was found which had not been disturbed and low concentrations of macroscopic remains were recovered from it. Insect remains were not found.

The processing of the late Roman waterlogged samples was undertaken by Klare Tootell and the remains recovered were identified as part of her MSc dissertation (Tootell 1999). The processing of the late Roman samples for charred and mineralised remains was done by Nancy Fulford and the material from some of the samples was identified as part of her project on the different means of preservation of plant remains at Silchester (Fulford, N. 2003). Their results form major parts of this study. All identifications have been checked by the author.

WATERLOGGED PLANT REMAINS

METHODS AND RESULTS

Pit 1300 was the only late Roman pit found to contain undisturbed waterlogged sediments. The pit was about 2.67m deep, extending about 0.60m below the permanent water table. It comprised an unlined circular shaft, 1.08m in diameter, which was interpreted as a well, although a pierced ceramic flagon had been placed at the bottom and the pit had become filled rapidly. The pit was dated on coin evidence to the very late fourth/early fifth century A.D.

A sequence of ten bulk samples, each of at least 10 litres, was taken from the fills of the pit. Even though the lower sediments were waterlogged, they contained very little organic material and it was clear that the laboratory sieving of standard 1kg samples could not yield sufficient items for study. It was therefore decided to subject the full bulk samples to machine flotation onto a 0.1mm sieve. The samples from the waterlogged contexts were each of 10 litres:

Sample 92: context 1621 – bottom deposit in pit
Sample 91: context 1620 – above context 1621
Sample 90: context 1619 – above context 1620
Sample 86: context 1590 – above context 1619

The heavy residues were sieved to 2mm and checked for items which had not floated, which showed that recovery had been effective. The flots were sorted in the laboratory using a binocular microscope and all seeds were picked out for identification. The concentrations of seeds were low and their preservation was poor. However, useful assemblages of a diverse range of species were identified from Samples 92 and 90. The results from those samples are quantified in Table 64, nomenclature following Stace (1997). Remains were absent from Sample 91 and only three seeds were found in Sample 86. Uncharred seeds were also present in the non-waterlogged samples from the upper fills of the pit. They comprised a restricted range of species and some were obviously modern. By far the most numerous seeds in these samples were of *Atriplex* (orache), which was almost absent from the waterlogged samples. It is possible that a high concentration of these seeds in Sample 27 from context 1340 represented a rodent hoard. There was, however, no evidence for any post-Roman contamination of the waterlogged deposits.

The majority of the seeds in both Samples 92 and 90 were from native herbaceous plants. The most numerous seeds were of wetland plants, the seeds of the following plants being abundant in both samples:

Ranunculus flammula (lesser spearwort)
Juncus articulatus gp. (rush)
Eleocharis palustris or *uniglumis* (spike rush)
Carex spp. (sedge)

These four species comprised 44 per cent of the seeds in Sample 92 and 55 per cent of the seeds in Sample 90. Seeds were also present of plants of grassland, such as *Ranunculus* cf. *repens* (creeping buttercup), *Rumex acetosella* agg. (sheep's sorrel), and *Potentilla anserina* (creeping cinquefoil), of waste ground within settlements, such as *Hyoscyamus niger* (henbane), *Ranunculus sardous* (hairy buttercup), and *Conium maculatum* (hemlock), and of frequently disturbed ground, such as *Polygonum aviculare* agg. (knotgrass), *Urtica urens* (small nettle) and *Chenopodium album* (fat hen). Sample 92 also contained a major element of seeds from plants of waste ground vegetation developing into scrub. Seeds of *Rubus fruticosus* agg. (blackberry), *Sambucus nigra* (elder), and *Urtica dioica* (stinging nettle) comprised 25 per cent of the seeds in this sample. In contrast, these species comprised only 11 per cent of the seeds in Sample 90.

There was a slight presence of seeds of cultivated plants. Sample 92 contained a seed of *Coriandrum sativum* (coriander) and two indeterminate stones of *Prunus* sp. (plum, cherry etc.). Sample 90 contained two seeds of *Ficus carica* (fig), a fragment of nut shell of *Juglans regia* (walnut), and an indeterminate stone of *Prunus* sp. A fragment of *Corylus avellana* (hazel) nut shell was also present in this sample.

INTERPRETATION

It is not easy to determine the origin of the waterlogged seed assemblages in Samples 92 and 90. Some of the seeds were undoubtedly from the vegetation growing in the immediate vicinity of the top of the pit, while others had been transported to the site. The free-draining geology of the site and the depth of the water-table means that it is unlikely that the wet-ground vegetation which provided a major component of the seed assemblages in both samples would have been able to grow around the top of the pit unless there were frequent spillages of water on the ground. The seeds did not, however, include some of the species which might be expected to grow in mud on a settlement site, for example *Ranunculus sceleratus* (celery-leaved crowfoot), *Juncus bufonius* (toad rush), and *Polygonum persicaria* (red shank). *R. flammula*, *J. articulatus* gp., *E. palustris* or *uniglumis*, and *Carex* spp. have more of the character of vegetation of marshy pasture. A possible explanation for the seeds of wetland plants is that dung from domestic animals that grazed on marshy pasture was deposited around the pit. Cut marshland vegetation can be used for thatch or flooring material, although, with the possible exception of the *Carex* spp., the wet-ground plants are not tall-growing species, *J. articulatus* spp. being creeping rather than tussock rushes. *R. flammula* and *Eleocharis* spp. are not usual hay-meadow plants, so it seems less likely that the seeds were from grassy vegetation cut as fodder. The other seeds of grassland plants, *Ranunculus repens* and *Potentilla anserina*, could either have been from vegetation growing on site or could likewise have been amongst dung.

The seeds also contained a distinctive element of species that grow on rather nutrient-rich disturbed to neglected ground as commonly occurs on settlements. They included annual species such as *Urtica urens*, *Chenopodium album*, and *Polygonum aviculare* agg. (knotgrass), which are members of the Chenopodietalia community of spring-sown arable fields, vegetable plots, and settlements (Silverside 1977, 236–43). There was no evidence that any of the seeds had been derived from crop-processing. Some of the weeds were species which are particularly associated with settlements, for example *Hyoscyamus niger*, now a rare plant but formerly common on middens. The results suggested some parts of the site, such as semi-shaded areas behind buildings, had developed tall waste-ground vegetation of stinging nettles in which brambles and elder bushes were becoming established. A reduction in seed of these species from Sample 92 to Sample 90 could be interpreted as a reflection of the clearance of such vegetation from the vicinity of the pit.

The various remains of food plants probably represented a background scatter of domestic refuse on the site, some of which entered the pit. *Coriandrum sativum* (coriander), *Prunus* sp. (plum, cherry etc.), and *Juglans regia* (walnut), although all Roman introductions, would have probably been grown locally. *Corylus avellana* (hazel) nuts could have been obtained from local woodland. *Ficus carica* (fig), however, is likely to have been imported. It is possible to grow figs in Britain, but these are Adriatic varieties which develop unfertilised fruit and do not have robust seeds. The Smyrna varieties of fig, which require pollination to set fruit and have robust seeds likely to be preserved by waterlogging, are pollinated by the fig wasp. The cultivation of Smyrna fig is limited by the distribution of the fig wasp, which occurs in the Mediterranean region and the Near East but does not occur in Northern Europe.

CHARRED PLANT REMAINS

METHODS AND RESULTS

Bulk samples of up to 20 litres were processed using a modified 'Siraf' flotation machine. Flots were caught on a 0.25mm mesh and residues were sieved to 2mm. Flots and residues were sorted using a binocular microscope. Flotation was found to have been effective and only larger dense items were present in the residue. 136 samples totalling 1941.5 litres were analysed from 115 contexts. The seed and chaff remains recovered were identified and the results incorporated into the site database. The full list of taxa identified from the late Roman contexts is included in Table 62. The detailed results from five of the richer, more interesting samples are given in Table 65. Summary results are also given in FIG. 93.

The concentration of remains from Insula IX was low, averaging only 0.26 items per litre. Remains were present in 56 samples from 47 contexts. In the majority of contexts with remains, the charred items were both sparse and poorly preserved. Only seven samples contained more than 1.00 items per litre (with two containing more than 2.00 items per litre: Sample 315, context 2385 and Sample 392, context 2913), with the highest concentration of remains, 9.42 items per litre, in Sample 315. The most consistently represented items were cereal grains and weed seeds but cereal chaff and other food plants were also present.

The most abundant cereal, both in terms of quantity of grain and frequency of occurrence, was *Triticum spelta* (spelt wheat), represented by both grain and chaff. Some wheat grain and chaff could only be attributed to *T. dicoccum* or *spelta* (emmer or spelt) or *Triticum* sp. (wheat) but all could have been spelt wheat. There was a single short free-threshing grain of *Triticum* sp. (rivet or bread wheat). The only other cultivated cereal identified with certainty was hulled *Hordeum vulgare* (six-row hulled barley), represented by a few lateral grains. The majority of the barley grain, however, could only be identified to the level of hulled *Hordeum* sp. A single grain of *Avena* sp. (oats) was found but it was not possible to determine whether it was from a wild or cultivated species.

Other crop remains were few. A single seed of *Pisum sativum* (pea) was found in Sample 152 from context 1665. A seed of a large legume, probably a pea or bean, was found in Sample 342 context 2481. A pip of *Vitis vinifera* (grape) was identified from Sample 315 from context 2385. Sample 374 from context 2699 contained 16 seeds of *Brassica* or *Sinapis* sp. (cabbage, mustard, wild turnip, charlock etc.). While it was not possible to determine whether they were from a cultivated or wild species, they did not show the small size and elongated rectangular cells on their surface which characterise *Brassica rapa* ssp. *sylvestris* (wild turnip). The only wild food plant item was a single fragment of nut shell of *Corylus avellana* (hazel) from Sample 392 from context 2913.

Weed seeds were about as numerous as cereal grain in the samples. The majority were from annual weeds which commonly, or even usually, occur as weeds of cultivation. One of the most abundant was a large-seeded grass, *Bromus* S. *Eubromus* sp. (brome grass) which was most likely to have been *B. secalinus* (chess). The remains in Sample 99 from context 1624, one of the richer samples, were almost entirely seeds of *Bromus* cf. *secalinus*, and they comprised major components of other richer samples, for example Sample 392 from context 2913. Other species in this category included *Agrostemma githago* (corn cockle) and *Vicia* or *Lathyrus* sp. (vetch, tare etc.). Seeds were also present of perennial herbaceous plants but they were mostly from taxa able to tolerate cultivation, such as *Rumex* sp. (dock) and Poaceae indet. (grasses). Sample 315 from context 2385 stood out in that it contained 81 seeds of *Spergula arvensis* (corn spurrey).

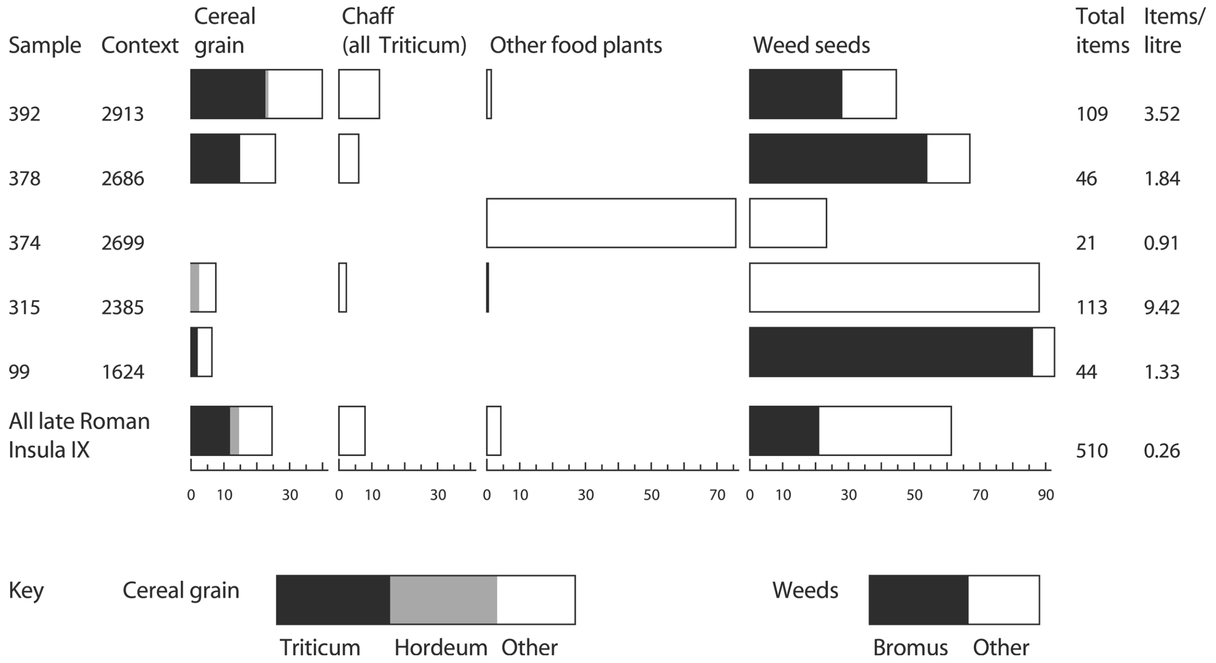

FIG. 93. Summary results of charred plant remains from late Roman pits and wells, Insula IX

Some of these seeds were larger than the usual size range for *S. arvensis* var. *arvensis* (allowing for the shrinkage which occurs with charring), falling within the size range of *S. arvensis* var. *maxima* and var. *sativa* (Pals and Dierendonck 1988). These larger-seeded varieties include both modern fodder crops and a weed of flax cultivation in Continental Europe.

INTERPRETATION

Archaeological assemblages of charred plant remains other than charcoal generally arise from major destructive episodes of burning, the deliberate burning of items for ceremonial purposes, the burning of utilised vegetative material, for example old thatch or bedding, and as a result of crop-processing. The remains arising from crop-processing tend to be biased towards cereal crops and their weeds. They can include small quantities of crops accidentally burnt during the parching of hulled cereals so that they can be de-husked, the drying of grain to make it hard enough for milling, and the parching of malted grain. The remains can also comprise the waste cleaned from the crop as part of any of these processes and either burnt for disposal or as fuel.

The charred assemblages from late Roman Silchester did not result from catastrophic fires and although there were placed ritual deposits containing pottery and animal remains, these deposits did not include charred material. Charred vegetative remains of herbaceous plants, such as cereal culm nodes (straw 'joints') were absent from the late Roman samples. The predominance of cereal grain, chaff, and weed seeds suggested that, with the exception of Samples 315 and 374, the remains were mostly the result of cereal processing while the relatively high proportion of weed seeds might imply that the remains were waste. There was no evidence of sprouted grain, so it is unlikely that the remains were related to malting. Given that the most abundant cereal identified was spelt wheat, this leaves the interpretation of the majority of the remains as waste from the processing of spelt wheat.

Such waste is commonly found on Romano-British settlement sites where spikelets of spelt wheat were being de-husked and the final stages of cleaning the grain were occurring. However, the major waste product from this process is chaff, in particular wheat glumes. Although spelt glumes were present in the Silchester samples, they were outnumbered by grain and weed seeds. For example, two of the richer samples, Samples 378 and 392, comprised 36 per cent grain, 11 per cent chaff, and 58 per cent weed seeds. When plant material is being burnt, chaff and lighter weed seeds are more vulnerable than cereal grain to complete combustion and therefore tend to be under-represented in charred assemblages. Even so, it is usual to find some rich assemblages dominated by chaff on sites where large-scale processing of spelt wheat was occurring. It does not seem a very plausible explanation that at Silchester chaff removed by winnowing was not burnt but weed seeds (along with some grain) cleaned from the crop by sieving were burnt. Carbonised chaff is also lost where material is exposed to weathering because it is particularly vulnerable to the effects of wetting and drying. The low concentration of remains, the general uniformity of assemblages (with the exception of Samples 315 and 374), and the relatively poor state of preservation of the remains would be consistent with the interpretation that the material from the late Roman phase of Insula IX represented a general background scatter of debris which had been re-worked from occasional, or perhaps earlier, crop-processing. It is clear that crop-processing was not a major activity on the site.

A useful contrast was shown between the charred remains from the late Iron Age and late Roman contexts at the Silchester forum-basilica analysed by M. Jones (2000). The late Iron Age samples (Phase 2), which dated from 15 B.C. to A.D. 40/50, had a concentration of 14.0 items per litre, with 52 per cent being cereal grain and chaff being present. They suggested that the processing of *Triticum spelta*, *Hordeum vulgare*, and perhaps *Triticum dicoccum* was a significant activity in this part of the site in the late Iron Age. The late Roman samples (Phase 7), which dated from A.D. 250 to 400, had a concentration of only 1.36 items per litre, with less than 7 per cent being cereal grain and chaff was absent. Although the concentration of late Roman remains was higher than that from Insula IX, the charred assemblages from the two parts of the town in this period had much in common and the material from the forum-basilica likewise had the character of a background scatter of weathered debris.

An alternative explanation for the late Roman charred remains of Insula IX is that the cereal grains and weed seeds were 'tailcorn' from grain which had undergone most stages of processing elsewhere. When hulled wheat grain which has already experienced spikelet sieving, de-husking, and winnowing is subjected to further sieving, the waste product tends to comprise weed seeds along with some cereal grain which passes through the sieve (Hillman 1981, 133). This material is known as tailcorn after the smaller size of the cereal grains. The charred remains from Samples 93, 378, and 392, for example, were typical of tailcorn, with the most numerous remains being of seeds of the large-seeded grass *Bromus* cf. *secalinus* (chess) followed by cereal grain. While tailcorn makes good fodder for domestic animals and could have been imported for this purpose rather than being generated on the site, it is unclear why the remains should then become charred.

Samples 315 and 374 contained assemblages of different character from those from the other samples. Sixteen seeds of *Brassica* or *Sinapis* sp. (cabbage, mustard, charlock etc.) were the most abundant items from Sample 374 from context 2699 and it is possible that they had been accidentally burnt during their preparation for consumption. Whether the seeds were from *Brassica nigra* (black mustard) or another cultivated or wild species, they would have been edible and imparted a good flavour to savoury dishes.

The numerous seeds of a large-seeded variety of *Spergula arvensis* (corn spurrey) in Sample 315 from context 2385 raise the possibility that some of the seeds in this sample were from the cleaning of a flax crop. Some of the other seeds in this sample were from plants which readily grow as flax weeds, for example *Agrostemma githago* (corn cockle). However, no remains of flax were found in the sample and some cereal remains were present.

Very little of the charred remains appear to have been burnt kitchen or table waste, although this is perhaps the source of the *Brassica* or *Sinapis* seeds in Sample 374, the seed of *Vitis vinifera* (grape) in Sample 315, the nut shell fragment of *Corylus avellana* (hazel), the seed of *Pisum sativum* (pea), and the probable pea or bean. It is also possible that some of the charred spelt wheat and barley grains resulted from cooking accidents to cleaned grain.

The low concentration of remains and the general uniformity of the assemblages means that little interpretation can be made of the distribution of charred remains across the site. In general, the highest concentrations of remains were found in contexts with higher concentrations of domestic refuse.

The weed seed assemblages gave little information on crop ecology other than evidence for possible flax cultivation. *Galium aparine* (goosegrass), which is characteristic of autumn-sown cereals, was absent but the total number of weed seeds was too small to be certain that all the cereals were from spring-sown crops. The only weed seed assemblage to give information on soil type was Sample 315 from context 2385, which included seeds of *Spergula arvensis* (corn spurrey), mentioned above. *S. arvensis* is characteristic of light acidic soils as indeed occur in places around Silchester.

MINERALISED PLANT AND ARTHROPOD REMAINS

METHODS AND RESULTS

The bulk flotation onto a 0.5mm mesh sieve and the heavy-residue sieving to 2mm that were undertaken to extract charred plant remains also resulted in the recovery of calcium phosphate mineralised plant and invertebrate remains. They were found in 14 samples from 14 contexts. Two samples, Sample 378 from context 2686 and Sample 392 from context 2913, contained considerably higher concentrations of remains than the other contexts. These two contexts were both layers in pit 3235, a pit immediately to the west of Building 1 which dated to the mid-fourth century A.D. Sub-samples of 1kg were taken from each of these contexts for laboratory analysis. The samples were sieved to 0.5mm, dried and sorted under a binocular microscope. The remains were identified and the results incorporated into the site database. Full lists of all the taxa identified from the late Roman contexts are given in Table 62 for plant remains and Table 63 for animal remains. The detailed results from Samples 378 and 392 are given in Tables 66 and 67. Nomenclature for plant remains follows Stace (1997).

The means of preservation by calcium phosphate mineralisation can make identification of items very difficult in comparison to the identification of waterlogged or charred remains. Calcium phosphate replaced seeds were first discussed in detail by Green (1979). He noted that mineralisation was by poorly-crystalline apatite. Preservation can range from a mineral pseudomorph of a cavity in soil left by the complete decay of a seed to the individual replacement of each cell as its contents decay. Mineralisation of the entire seed coat is rare and often only the void left by the decay of the cotyledons is mineralised (McCobb *et al.* 2001). Sometimes this forms a full internal cast showing the cell pattern of the inside of the seed coat. If the seed coat is mineralised, it can take the form of internal casts of woody cells. Insect remains, such as fly puparia, are often represented by mineralised body cavities, again giving internal casts. In contrast, woodlice exoskeletons tend to be represented by mineralised scelerites (skeletal plates).

All these factors applied to the mineralised remains from Silchester. The seeds were compared with an extensive range of reference material. Specimens of modern seeds were cut open, when necessary, to examine internal details for identification purposes. Even so, some seeds which would be readily identifiable if preserved by charring or waterlogging could only be identified tentatively, for example *Fragaria vesca* (wild strawberry). In addition to seeds, other fruit remains included much fruit skin, in the form of rolled fragments. It was compared with reference material of skins of edible fruits which had been preserved in ethanol when fresh. The majority of the fragments most closely resembled the skin of *Malus* sp. (apple) but it was not possible to make firm identifications. Many vegetative plant fragments remained unidentified, although some pinnules of *Pteridium aquilinum* (bracken) could be recognised.

Diptera (fly) puparia were identified by comparison with specimens in the Hope Entomological Collections of the Oxford University Museum of Natural History. This collection is not comprehensive but has the advantage that the specimens were identified from the adult flies which hatched from them. Adequate reference material was available for neither Isopoda (woodlice) nor Diplopoda (millipedes) and their remains were not identified further.

The mineralised remains were very restricted in the archaeological features in which they occurred and the distribution of these features over the site was also limited. All but two of the

14 contexts with mineralised remains were the fills of just four pits from Object Group 116: pits 2900, 2914, 3235, and 3251. These pits were of late third- to late fourth-century date and were situated immediately to the west of Building 1. They have been interpreted as cess-pits which had also been used for the disposal of domestic refuse, although the occurrence of placed animal skulls, dog skeletons, and, in one instance, human bones, suggested there was also a ritual purpose to the pits. A total of six contexts from pit 3235 contained mineralised remains, with very high concentrations of remains in Sample 395 from context 2920 and Sample 398 from context 2924. The only other contexts to contain mineralised remains were context 1539, from pit 1459, which was to the NW of Building 5, and context 3495, a general layer. Samples 82 and 359 from these two contexts contained a total of three items between them.

The majority of the seeds were of edible species. Hulled cereal grains were particularly numerous in Sample 398 from context 2924. They proved difficult to identify but included some lateral grains of *Hordeum vulgare* (hulled six-row barley) and single-grained spikelets of *Triticum spelta* (spelt wheat). (Two- and three-grained spikelets of spelt wheat were absent.) Hulled cereal grains were also well-represented in Sample 395 from context 2920 but were almost absent from the other samples. Cereal bran was present in some of the amorphous lumps of calcium phosphate in these two samples.

The most numerous fruit seeds in the samples were of *Pyrus* or *Malus* sp. (pear or apple), 67 being recorded from Sample 398. Modern specimens of *Pyrus* and *Malus* seeds can readily be distinguished on their surface cell pattern. *Pyrus* sp. has small isodiametric cells whereas *Malus* sp. has elongate woody cells. Similar elongate woody cells underlie the surface cells of *Pyrus* sp. The mineralised seeds from Silchester mostly displayed the elongate cell pattern, although some were just represented by cotyledons. Since it was not possible to determine which layer of cells had been mineralised, it was not possible to identify individual seeds to genus. However, seeds of *Pyrus pyraster* Burg. (wild and cultivated pear) tend to be narrower and taper to a hooked point at their base whereas seeds of the plausible species of *Malus*, *M. sylvestris* Mill. (crab apple) and *M. domestica* Borkh. (= *M. sieversii* (Ledeb.) Roem. see below) tend to be broader and more quadrate in appearance. On this basis, the Silchester material has the general appearance of a population of *Malus* sp., rather than *Pyrus* sp., seeds, although it is possible that some *Pyrus* sp. seeds are also present. Many fruit-skin fragments in Samples 395 and 398 were tentatively attributed to *Malus* sp.

Other fruit included *Prunus* sp., represented by partial internal casts of the stones, sometimes with a few mineralised fragments of the stone attached. The majority of *Prunus* sp. remains could not be identified with certainty but a stone of *P. domestica* (plum, bullace etc.) was recorded from Sample 392 from context 2913 and a stone of *Prunus avium* (sweet cherry) from Sample 398 from context 2924, both layers in pit 3235. Sample 398 also contained a single seed of *Cucumis sativus* (cucumber) which was distinguished from *C. melo* (melon) on the basis of its surface cell pattern. Seeds of *Ficus carica* (fig) and possible *Fragaria vesca* (wild or alpine strawberry) were found in Sample 395 from context 2920, another layer in pit 3235. A seed of *Vitis vinifera* (grape) in the form of a very distinctive internal cast was discovered in Sample 466, from context 3229 from pit 3251. Several samples contained one or two seeds of *Rubus fruticosus* agg. (blackberry).

Seeds used as culinary herbs and spices were found in eight of the samples. *Coriandrum sativum* (coriander) was present in several samples from pits 3235 and 3251 and from layer 3495, while *Brassica* or *Sinapis* sp. (mustard etc.) and *Anethum graveolens* (dill) were also found from these two pits. Additional seeds of flavourings found in Sample 395, from context 2920 from pit 3235, included *Satureja hortensis* (summer savory), while seeds of *Papaver somniferum* (opium poppy) and *Apium graveolens* (celery) were found in Sample 398, from context 2924 from pit 3235.

Remains of edible legume seeds were restricted to Samples 395 and 398. Both samples contained seeds of *Lens culinaris* (lentil). Most were just represented by a pair of cotyledons but the seed coat with its distinctive elongate hilum survived on some. A possible seed of *Vicia faba* (field or Celtic bean) and some unidentified large legume seeds (pea or bean) were also present in Sample 398.

Weed seeds, although generally outnumbered by seeds of edible plants, were also present. Some were from annual plants which readily grow as weeds of cultivation, such as *Agrostemma githago* (corn cockle) and *Bromus* cf. *secalinus* (brome grass). Some seeds of waste-ground vegetation, such as *Urtica dioica* (stinging nettle), were also present. Samples 378 and 392, both from layers in pit 3235, respectively contained 14 and 12 seeds of *Conium maculatum* (hemlock).

Much mineralised vegetative plant debris was present in Samples 395 and 398 from the two rich deposits in pit 3235. It included unidentifiable leaf fragments and stem fragments, some of which could have been cereal straw. Some frond fragments of *Pteridium aquilinum* (bracken) could be recognised in Sample 398.

Mineralised insect remains were particularly abundant in Samples 395 and 398 but were also present in some of the other samples. They were almost all pupae/puparia of Diptera (flies). The majority of the remains were from two taxa, *Psychoda* cf. *alternata* (trickling filter fly) and *Fannia* sp. eg *F. scalaris* (latrine fly). Puparia of Sphaeroceridae, which includes sewage flies, were also present. The other insect remains comprised a few Coleoptera (beetles). The invertebrate remains also included fragments of Isopoda (woodlice) and Diplopoda (millepedes).

Some of the samples contained objects of vertebrate origin which had been replaced by calcium phosphate mineralisation. Samples 355, 448, and 462 each contained mineralised nodules which tend to be associated with latrines and are thought to be voided by humans, although there is doubt as to what they represent. A mineralised goat, or less likely, sheep-dropping was found in Sample 383 from context 2908. It was cylindrical, about 10mm long and 9mm in diameter. The ends were slightly concave. Sample 466 from context 3229 contained 51 items which resembled rat droppings. They comprised mineralised comminuted plant debris, were about 9mm long and 2–4mm in diameter. Some of them showed the characteristic ‘stalk’ on one end and were slightly curved.

INTERPRETATION

The preservation of plant and invertebrate remains by calcium phosphate mineralisation is usually a feature of latrine pits. Phosphate ions from sewage react with calcium ions from calcium carbonate, either within the fill of the pit, for example pieces of limestone, marine mollusc shells, or mortar fragments, or from the substrate into which the pit was cut. Bones in a deposit possibly provide a source of both calcium and phosphate ions. Phosphatization is probably associated with microbial decay processes and fluctuating water levels appear to be necessary to enable the free movement of water carrying dissolved ions (McCobb *et al.* 2001). As seed coats and other biological membranes decay, so the ions are able to diffuse through them and precipitation occurs within the enclosed space. Calcium phosphate mineralisation has occasionally been recorded from other categories of organic-rich deposit, for example a Bronze Age midden at Potterne, Wiltshire (Carruthers 2000), although mineralisation at Potterne was possibly related to the Lower Greensand geology of the site.

There is no reason to doubt that the pits at Silchester in which mineralisation occurred had been used as cess-pits. The insect remains were strongly suggestive of latrine fauna. The larvae of the fly *Psychoda* cf. *alternata* (trickling filter fly) develop in organic-rich water where they feed on decaying matter. The common name has arisen because it is often abundant in sewage filter beds but the larvae of this species also occur in latrines, disused feeding troughs on farms, washings from animal cages, and kitchen U-traps (Smith 1989, 37). The other fly abundantly represented by immature examples in the Silchester pits was *Fannia* cf. *scalaris* (latrine fly), whose larvae develop adhering to the side of latrines at the top of the level of their liquid, or semi-liquid, contents. Much of the mineralised plant material was consistent with food remains which had passed through the human gut. The majority of the seeds were from edible plants where it was both likely that they would be consumed and that not all would be destroyed by the digestive process.

Some aspects of what is preserved by mineralisation have already been considered under the difficulties of identification. It is clear that the process favours items where there is an envelope through which the ions can diffuse and within which they can become concentrated, resulting in the precipitation of calcium phosphate. Preservation is thus biased towards items such as seeds, where there is an intact seed coat, and fly puparia, where there is a tough larval skin. It was significant that the cereal remains were mostly hulled grains and the spikelets of spelt wheat were all single-grained. It is likely that grain was consumed at Silchester as flour products and as porridge of grain which had been rubbed to de-husk it and probably crushed. The only grains to be preserved would be those few which escaped these processes. Single-grained spikelets of spelt wheat are both tougher than multiple-grained spikelets, so are likely to escape de-husking, and because they are small, more likely to escape seed cleaning. In contrast, a much higher proportion of seeds would be preserved of fruits where the seeds are usually swallowed intact, for example grapes and figs. However, some items which did not enter the deposits intact were also preserved. It is uncertain whether the prevalence of fragments of fruit skin, probably of apple, in the two richest samples, was because there is a feature of the fruit skin that renders it likely to be preserved or because the sewage which gave rise to these deposits contained very high concentrations of fruit skin.

While the majority of the insect remains were of individuals which lived in the pits and the possible rat droppings were perhaps derived from an animal which had been scavenging in pit 3251, the plant remains were from various external sources. The majority of the food plant remains were likely to have been from locally-grown produce of arable field, orchard, and garden. The lentils (*Lens culinaris*) and the beans (*Vicia faba*) could have been grown under arable cultivation as well as the cereals, although it is thought more likely that they would have been grown in horticultural plots alongside the herbs and spices. Given that there are very few finds of lentils from Britain, it is possible that they were imported. The quantity of apple remains suggested that there were orchards of *Malus domestica* (cultivated apple) in or around the town, rather than that *Malus sylvestris* (crab apple) was being collected from woodland.

Some of the rarer edible fruit had perhaps been imported. *Vitis vinifera* (grape) could have been grown locally and there is evidence for vine cultivation in Roman Britain. Bedding trenches interpreted as being for viticulture and *Vitis* pollen were recorded from Wollaston, Northants. (Brown *et al.* 2001). However, it is also likely that there would have been trade in raisins from the Mediterranean region. The *Ficus carica* (fig) was almost certainly a Mediterranean import (see above). The *Cucumis sativus* (cucumber) presents somewhat of a problem of interpretation. Cucumber can be grown outdoors in Britain without protection, and although no longer grown commercially, hardy 'ridge' and 'Japanese' cucumbers are popular amongst amateur gardeners. These varieties, however, are commonly germinated indoors or under glass and planted out in late spring once the danger of frost has passed. If seeds are directly planted in open ground in late spring without the protection of glass jars, the shorter growing season makes it difficult to obtain fruit. The Emperor Tiberius was provided with cucumbers in winter which had been grown under a glazed frame (Pliny, *NH* 19.23). While it would not have been beyond the capabilities of Roman technology in Britain to have made horticultural bell-jars or cucumber frames, there is no evidence for such artefacts. Cucumbers might not now be regarded as an item of long-distance trade in ancient times. However, the cucumber fruit of modern culinary taste is immature and unripe, with a green colour. It deteriorates rapidly after picking, whereas ripe cucumbers have a longer life. Interestingly, Pliny (*NH* 19.23) notes that small green cucumbers were popular in Italy whereas cucumbers were grown to the largest possible size in the provinces and had the colour of wax. To test the durability of ripe cucumbers, a mature cucumber was purchased in Pompeii, Italy. When it was consumed, after five further weeks of ripening, the cucumber possessed a fine flavour and the skin had turned a bright yellow. The main differences between the fully-ripe and an unripe cucumber were that the core surrounding the seeds was more gelatinous, the skin was tougher, and the seeds were more robust. The importation of mature cucumbers by sea from Spain to London and hence on to Silchester therefore seems plausible.

The seeds of arable weeds were mostly probably seeds which had been consumed with cereal products, having escaped any crop cleaning and the effects of food production. One of the weeds, *Agrostemma githago* (corn cockle), was almost entirely dependent on seed properties, which meant that it was difficult to separate from grain, for its persistence as an arable weed in Britain from its introduction in the late Iron Age until its virtual extinction in the twentieth century with improved techniques of crop cleaning. Another weed, *Lithospermum arvense* (corn gromwell), has seeds which are extremely hard due to their high silica content so they sometimes survive milling.

Not all the weed seeds were from species which commonly grow as arable weeds, for example a couple of the samples contained single seeds of *Urtica dioica* (stinging nettle) which was perhaps growing on the site. Some of the seeds, for example *Rumex* sp. (dock) and *Urtica urens* (small nettle) could either have been from the vegetation of the site or from plants growing as arable weeds. However, a problem arises with the interpretation of seeds of *Conium maculatum* (hemlock) in Sample 378 from context 2686 and Sample 392 from context 2913, both layers in pit 3235. They were the most abundant seeds in both samples, with 14 seeds in Sample 378 and 12 seeds in Sample 392. It is possible that they were from waste-ground vegetation on the site, in which case it is unclear why hemlock seeds were absent from the other samples and seeds of other plants of waste ground were not better represented in these two samples. Hemlock seeds are poisonous but it is possible they could have been consumed in small quantities for medicinal purposes.

Some of the unidentified plant stems and the frond fragments of *Pteridium aquilinum* (bracken) in Sample 398 perhaps represented animal bedding which had been discarded into the pit. There was, however, no evidence for hay amongst the mineralised remains.

In addition to the fly puparia, Samples 395 and 398, from pit 3235, contained a very few mineralised Coleoptera. These included the dung beetle *Aphodius* sp., likely to have been living in animal droppings around the pit and a possible example of *Tipnus unicolor*, a synanthropic beetle of indoor habitats.

DISCUSSION

It was particularly fortunate that three contrasting lines of evidence from macroscopic plant remains were available for the late Roman phase of Insula IX at Silchester. Each had its biases: the waterlogged remains towards the site vegetation and activities, the carbonised remains towards cereal-related activities, and the mineralised remains towards diet, particularly fruit consumption. If better-preserved, undisturbed waterlogged deposits had been found, it would have been possible to recover a greater range of plant material and to add insect evidence. Even so, the results from Silchester were very useful.

The results suggested that there were areas of waste-ground vegetation such as stinging nettles alongside some of the buildings but there were also areas where domestic animals were, on occasions, enclosed. It is possible that working animals used on the site were pastured on wet grassland outside the town, leaving evidence for their grazing in droppings. There was not much evidence for living conditions in the buildings of Insula IX. Bracken was probably imported for use as animal bedding and the synanthropic beetle *Tipnus unicolor* scavenged in indoor habitats. Flies swarmed around the latrine pits of Building 1.

The dietary evidence suggested that spelt wheat and six-row hulled barley were the main cereals consumed but there was little evidence for the earlier stages of crop processing on the site. Indeed, it is even possible that the charred processing waste that was found had been brought there as animal fodder. The latrine evidence showed a varied diet of plant foods with other species being added by the charred and waterlogged remains. Cereals supplemented by some lentils, field/Celtic beans, and peas probably comprised the staples but the diet was enlivened with a range of flavourings. They included coriander, celery seed, summer savory, opium poppy seed, mustard (or at least hot-tasting *Brassica* or *Sinapis* seeds), and perhaps dill. There appears to have been a rich fruit component to the diet, with apples predominating. Other fruit likely to have been grown locally included plum, cherry, and perhaps wild/alpine strawberry but the occurrence of grape, fig, and cucumber pointed to exotic imports. Hazel nuts and walnuts were eaten and it is possible that blackberries were gathered. There was even a hint that hemlock might perhaps have been taken for medicinal purposes.

The results from late Roman Silchester raised some interesting points of interpretation. While spelt wheat and six-row hulled barley were the major cereals of Roman Britain, the low concentration of charred plant remains was unexpected. Large quantities of charred cereal remains are sometimes found on rural settlements, often in association with corn-driers, ovens which appear both to have been used for the parching of hulled cereals, so that they could be de-hulled, and for the parching of sprouted spelt wheat as part of the malting process (e.g. Veen 1989). Malting does seem to have been an activity which also occurred in some Roman towns. A high concentration of late Roman charred sprouted spelt wheat, probably related to malting, was found within the walls of the town of Alchester (Robinson, unpublished). A rich deposit of sprouted charred grain, chaff, and weed seeds was found at Roman Alcester (Colledge 1985–86). Perhaps Insula IX of late Roman Silchester was fully urban in that the occupants of the site were not engaged in rural activities alongside whatever industrial, commercial, or service duties they performed. Cereals were perhaps obtained as clean grain and flour or even bread, rather than grown on plots the occupants cultivated outside the town walls or purchased as spikelets which needed to be de-husked and the grain ground on-site. These results contrast with the interpretation placed by Boon (1957, 179) on the out-buildings and large yards possessed by some of the houses as 'urban villas' which farmed the surrounding landscape. Indeed, the evidence from Insula IX would suggest some such yards were used for metal working rather than agricultural activities.

Another curious aspect of the site is that the occurrence of calcium phosphate mineralised remains was almost restricted to a small group of pits adjacent to Building 1. Other pits on the site, of similar depth, were presumably also used as latrines yet mineralisation did not occur in them. The propensity for mineralisation is enhanced by the presence of many small bone fragments, as shown by the occurrence of dog coprolites with much comminuted bone on medieval sites in Oxford and the preservation of human coprolites with many small fish bones on a prehistoric coastal settlement site in Thailand (Robinson, unpublished). However, the layers of pits 3235 and 3251 did not contain more bone fragments than some of the other deposits on the site. Looking at calcium phosphate mineralisation more generally, it is very rare on Roman sites in Britain, whereas it commonly occurs on Roman sites in Italy, for example at Pompeii (Robinson 1998) and on medieval sites in Britain, both urban and rural (Green 1979, 283). Of the discoveries from Roman Britain, mineralised remains from Uley Roman temple were from a ritual shaft and represented hay (Girling and Straker 1993). Remains from Colchester (Murphy 1992, 283) and London (J. Giorgi, pers. comm.) were more comparable to those from Silchester in that they were from cess-pits in Roman towns. They likewise included many fruit seeds.

The status of apple at Silchester is interesting. The native wild crab-apple (*Malus sylvestris*), which has small, very sharp-tasting fruit about 25mm in diameter, has certainly been exploited in Britain since the Neolithic (Moffett *et al.* 1989). Recent DNA sequencing of modern apple species and varieties has shown that the cultivated apple (*Malus domestica*) is not a hybrid with *M. sylvestris* in its ancestry, as previously thought, but is descended without hybridisation from *Malus sieversii* (Harris *et al.* 2002; Juniper *et al.* 1998). *M. sieversii* is native to the northern slopes of the Tien Shan Mountains, on the border between Kazakhstan and China. There have been many finds of *Malus* seeds from Romano-British sites including Silchester (Reid 1901) but only in ones and twos. It has not been possible to determine whether they were *M. sylvestris* or *M. domestica.* The discoveries from Silchester and also from a Roman latrine in London (J. Giorgi, pers. comm.) were on a much larger scale, comparable to the concentrations of mineralised apple pips found in Pompeii (Robinson, unpublished). Juniper (1998) regards the cultivated apple as a Roman introduction to Britain without citing any archaeological evidence. However, the accounts of Roman authors of apple cultivation, including the propagation of favoured varieties by grafting (Cato, *De Agricultura* 40–1) demonstrate that *M. domestica* was known to the Roman world and it is highly plausible that it was a Roman introduction.

Most of the other fruit, for example the cherry and plum (Moffett *et al.* 1989, 246), and the herbs and spices, for example the coriander and the summer savory, were Roman introductions but by the late Roman period were usual components of the Romano-British diet in town and country. Fig and grape are not usual finds on rural settlements but are known from several Roman towns, for example York (Hall and Kenward 1990, 338). There are few records of lentil and cucumber from Roman Britain. In the case of lentils, a crop which can easily be grown in Britain, this perhaps is a factor of preservation, lentils being less likely to be charred during processing than cereals and not being readily preserved by waterlogging; mineralised latrine deposits are very rare. However, charred lentils were identified from York (Hall and Kenward 1990, 342) and J. Giorgi (pers. comm.) reports several recent discoveries from London. Cucumber was perhaps a rare import. All the food plants found at Insula IX, including cucumber, have been recorded from Roman London (J. Giorgi pers. comm.; Willcox 1977).

The contexts investigated for this study included the very latest archaeological features from Insula IX of Silchester. Pit 1300, from which the waterlogged remains were obtained, dated to the very late fourth to early fifth century A.D. If activity at Silchester continued into the fifth century, then some of the charred assemblages were of this date and the richest deposits of mineralised material came from pit 3235, which belonged to the mid-fourth century. All the assemblages were of fully Roman character. There was no evidence for any change in status or hint at a Saxon presence. Major changes in the cereals grown in England occurred following the end of the Roman period (e.g. Pelling and Robinson 2000), with spelt wheat falling out of cultivation and *Triticum aestivum* (free-threshing bread-type wheat) rising to prominence, yet only a single grain of free-threshing wheat was identified from any of the samples. Occupation of Silchester seems to have terminated with a sudden collapse rather than a gradual decline.

While the occurrence of both waterlogged and mineralised fig seeds provides evidence for trade with the Mediterranean region, the scale of importation of exotic foodstuffs should not be over-estimated. A single fig contains several hundred seeds. Mineralised assemblages from latrines in Roman Pompeii and early post-medieval England can be dominated by fig seeds (Robinson, unpublished). The remains from Insula IX need only represent the occasional purchase of a few expensive fruit in order to demonstrate wealth or status. Their archaeological significance is more that such trade was occurring up to the end of the fourth century.

The detailed analysis of biological remains from the fourth-century fill of a Roman well at Skeldergate in the *colonia* at York (Hall *et al.* 1980) enables a more detailed comparison to be made with the results from the waterlogged samples from pit 1300 as well as some of the results from the mineralised deposits. Fig, coriander, walnut, apple, plum, and cherry were all recorded from the Skeldergate well. There were seeds of waste-ground plants from vegetation likely to have been growing near the well and also the remains of imported vegetation, including bracken fronds. The Skeldergate well also contained categories of evidence not found at Silchester Insula IX. These included blocks of peat cut from moorland, seeds of two fibre plants, flax and hemp, and leaves of an ornamental shrub, *Buxus sempervirens* (box). Both flax and box have been recorded from earlier excavation at Silchester and indeed seeds of *Spergula arvensis* (corn spurrey) were present in the same sample from a well as the flax seeds (Reid 1902).

When allowances are made for the biases introduced by different means of preservation of the evidence, the results from late Roman Silchester are probably comparable to those from other major towns in Roman Britain. The range of food plants, including the presence of imported species, has already been mentioned. The presence of possible rat droppings in pit 3251 is of more general interest. Black rat (*Rattus rattus*) was a Roman introduction which has been identified from York (including the Skeldergate well) and London (Armitage *et al.* 1984; Rackham 1979). However, rats do not seem to have been able to thrive on rural settlements nor in the small towns of Roman Britain. It is possible that the medieval success of rats as synanthropic pests was due to microevolutionary changes in the genetics of black rats. Overall, the environmental archaeology of Insula IX, with its presence of rats, the lack of crop-processing debris, the presence of figs and the occurrence of latrines with mineralised plant remains, characterises late Roman Silchester as fully urban.

PART FIVE

THE CHARACTER, CHRONOLOGY, AND USE OF THE LATE ROMAN PITS

THE CHARACTER, CHRONOLOGY, AND USE OF THE LATE ROMAN PITS: THE SILCHESTER FINDS ASSEMBLAGE

By Hella Eckardt

It is a common complaint that excavation reports rarely manage to connect the finds to the excavated archaeology. This chapter aims to summarise and analyse some of the finds information contained in the specialist reports and to combine it with the available stratigraphic and spatial data. Particular emphasis will be placed on the analysis of the finds from the late Roman pits as these represent well-quantified and closed assemblages. In the main stratigraphic discussion only selected pits (usually closely associated with specific properties) have been discussed. This chapter will analyse pit assemblages using the pit groupings employed in the specialist reports. The Silchester recording system and the IADB in particular provide the means of recreating the contents of pit fills in detail, thus allowing us to 'reunite' the finds with their archaeological context. It is hoped to identify any patterning within and between pits and to relate these to the late Roman occupation in Silchester Insula IX.

The chapter is divided into four parts. The first is concerned with the character and use of the pits. It will examine the depth of pits and the numbers of fills and intercutting. This section will also include an analysis of key finds groups such as infant bones, complete pots, and articulated dog skeletons. The second part examines the chronology of the pits, building on the information provided in the pottery and coin reports. The third section is again concerned with the character and use of the pits, but focuses on overall pit assemblage composition rather than specific groups of artefacts. It will compare assemblages from the northern and the southern half of the site to identify differential deposition patterns across the site. This work will focus on well quantified and common groups of material, in particular tile, pottery, animal bone, and nails/slag. Finally, two pits are selected for detailed study, leading to the full reconstruction of their total finds assemblage. It is hoped that such an integrated approach will be of particular use in identifying evidence for structured deposition on this site.

THE CHARACTER AND USE OF THE PITS

THE ARCHAEOLOGY OF THE PITS

More than sixty late Roman pits and wells were cut through the earlier diagonal House 1 and associated deposits. The pits and wells are associated with the late Roman street front buildings and can be divided into two groups chronologically. The larger, earlier group (Object 115–Object 121) consists of pits and wells thought to be associated with the late Roman street front properties (Phases 2–4), while the second group consists of very late features (Object 122) which cut through street surfaces and therefore post-date the Roman street grid (Phase 6). The features also vary in terms of their shape and function. Thus there are rubbish-pits,

FIG. 94. The distribution of pits by object group

cess-pits, wells, and shallow scoops of questionable function. Finally, spatial groupings of pits can be observed, for example to the rear of Buildings 1 and 5 (FIG. 94).

We can examine the internal stratigraphy of these cut features to gain a better understanding of their character, use, and, to a lesser extent, chronology. Table 68 shows which pits are either re-cut or have been cut by other pits, with the context numbers for those secondary cuts given in brackets. A high intensity of inter-cutting and re-cutting is to be expected in areas of the site where rubbish was regularly deposited. Table 68 also lists the number of fills, the depth of the pits, and the presence of cess. These all provide an insight into the function of the pits by indicating how substantial each feature was and whether it was dug for the one-off disposal of material or remained open for some time. The finds assemblage from the pits, which will provide even more detailed information on the kind of material deposited in the late Roman town, will be discussed below.

There is no evidence for re-cutting or inter-cutting in Object 115 and although most of the pits are quite substantial, they only contain a maximum of three fills. This group of pits is located *c.* 18m to the west of Building 1 and the pits appear to have been dug for the disposal of rubbish in a few distinct episodes.

Of the pits grouped in Object 116, only one (pit 3251) is cut by other pits (2904 and 2921). It is noticeable that the three pits (3251, 3235, 2900) with the greatest depths and longest sequence of fills are located immediately next to Building 1. Among the fills of these three pits, cess deposits (e.g. mineralised seed and plant remains) were identified during excavation. These large features appear to have been kept open for some time to dispose of rubbish and cess whenever necessary. Despite being so conveniently close to the house, only one is cut by new pits, perhaps indicating that the same pits stayed in use for a relatively long time, with rubbish and cess being emptied out of the pits and taken off the site regularly. Finds and environmental analysis suggest that the rotting rubbish attracted flies and rats. A number of possibly ritual deposits (infant remains and complete vessels) were also found amongst this material (see below). In contrast to two large cess-pits (2601 and 2434) associated with the earlier occupation of the insula, these cess-pits do not seem to have had a timber superstructure.

Object 117 appears to show the highest frequency of inter- and re-cutting, with four (1702, 1537, 1707, 2087) out of eight pits being cut. The depth measurements indicate that the features located towards Building 5 (i.e. on the eastern end of the line) are more substantial, with many containing a relatively long sequence of fills. It is interesting that some of the re-cutting of substantial pits (1707, 2087) occurs next to the proposed fence line dividing the insula. This might indicate that the yard or garden area next to the fence and the building provided a convenient location for rubbish disposal but that little effort was made to maintain a pit in a fixed location. Some of the pits on the western end of the line may relate to buildings in the unexcavated part of Insula IX.

The picture from the other side of the proposed fence line could hardly be more different. The pits grouped in Object 118 show no inter- or re-cutting at all, but instead are mostly of a similar size and all are lined up neatly along an east–west axis. Their depth ranges from 34cm to 130cm and they generally contain fewer fills than the pits grouped in Object 117. While the pits on the western end of this line are not necessarily shallower, they generally have only one fill, while those on the eastern end have more fills. It is difficult to know what building(s) the rubbish disposal along this line relates to but usage seems to have been less intensive (and not as long-term?) as that next to Building 5 on the other side of the fence. That some of these pits were quickly filled, possibly from the same source or midden is supported by a pottery join between two neighbouring pits (1634 and 1576).

The division between Object 117 and 118 which was made on the basis of location and arrangement is thus supported by the apparent differences in their cutting and filling. We will examine below whether there are significant differences in the finds assemblages either side of the assumed fence line.

Object 119 is in many ways an unsatisfactory grouping of four pits. These pits are quite widely dispersed and are of widely differing depths. Most cut into earlier occupation and make-up layers, but pit 1611 is a rubbish-pit cut into an earlier well, the top fill of which did contain infant bones. All four pits have between two and four fills. They were grouped in this object because they represent the more substantial features in the northern half of the site and, as such, form a useful contrast with the shallow features grouped in Object 120. It is certainly interesting that the northern half of the site (with the exception of the pits located immediately next to the fence line) does not appear to have as many deep rubbish- and cess-pits as the southern half. This may relate to intensity of occupation, although it is of course also possible that rubbish from Buildings 7 and 8 was disposed of elsewhere.

Object 120 groups a large number of relatively shallow pits, all located in the northern part of the site. Many of these shallow features may in fact represent rubbish accumulations in the tops of slumped earlier features rather than deliberate cuts. There are, however, at least four instances of inter-cutting/re-cutting (2991, 2537, 2528, 2827) with pit 2827 being cut three times. Most of the shallow pits contain only a single fill, suggesting that they were dug quickly to dispose of rubbish in discrete acts and with little respect for any earlier pits. These features are located in an open area of the site, to the west of Building 8. They may have been used by the occupants of that structure or belong to houses located outside the excavated area.

Four wells were identified on the site (Object 121). These are obviously much deeper than the rubbish-pits (ranging in depth from 235 to 272cm). Well 1300 has the longest sequence of fills (12). Well 1170 was excavated by the Victorians and thus all the backfill was recorded as one fill; the original sequence was clearly much more complicated.

Object 122 groups together all those pits which are cut through either the roads or layers associated with the demolition of the late Roman buildings. Two (1603 and 1897) of these very late pits show evidence of inter- or re-cutting, the latter being cut twice. It is noticeable that all the pits with long sequences of fills and considerable depth (i.e. 1m: 1387, 1603, 2596, 1897; and 1916 and 1866 which are nearly 1m deep) are located on or just south of the east–west road. This may indicate that they were used for a different purpose than the pits located along the southern stretch of the north–south road on the site of the by-now-demolished Building 1. The latter seem to contain fewer fills, with quite a few very shallow examples. It should be noted that the deep pit 1994 is a modern intrusion.

These pits all relate to the latest Roman or indeed post-Roman occupation of the site and they certainly seem to indicate that the east–west road had ceased to be a major urban thoroughfare. Given their depth and the evidence for re-cutting, is it possible that the hard surface of that road was used for occupation.

SELECTED ARTEFACTS IN PITS

In prehistoric and, recently, Roman archaeology, there has been much debate on what constitutes rubbish and on the concept of structured deposition (e.g. Hill 1995; Fulford 2001; Ross 1968). Below, we will attempt to plot the composition of pit assemblages across the site and to analyse the total assemblage from two pits. Here, we will focus on the distribution of selected artefacts for which a 'ritual' significance is commonly suggested. These are complete (sometimes pierced) pottery vessels (cf. Fulford and Timby 2001), infant remains, and articulated dog skeletons and skulls. While this discussion is based on the relevant specialist reports, it is hoped that visualising their spatial distribution in this way will help to reunite these objects with their archaeological context, much in the same way as will be done for a range of artefacts for which no 'ritual' significance is suggested (e.g. tile, pottery, animal bone, slag: see below).

Complete pots (FIG. 95)

The apparently ritual deposition of complete, and sometimes pierced, pots is a common phenomenon at Silchester (Fulford and Timby 2001) and complete or almost complete pottery vessels have been found in a number of the late Roman pits. If pots were complete or

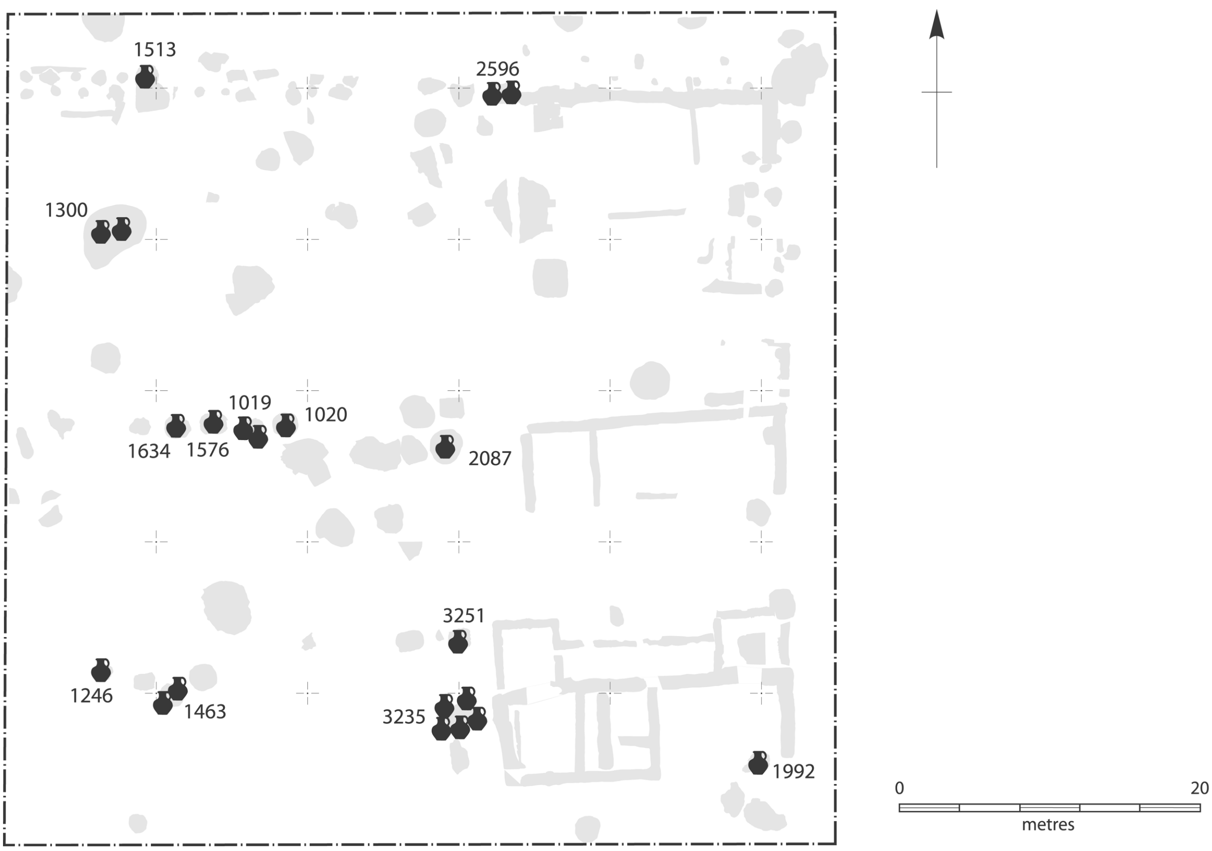

FIG. 95. The location of pits with complete or semi-complete pots

substantially complete, they were recorded as small finds on site. Where pots were pieced together during the post-excavation pottery analysis, they were not given a SF number and they are not photographed. Many of the latter may represent the disposal of damaged vessels, or vessels which broke after deposition, rather than ritual deposits but it is difficult to distinguish between rubbish and ritual, especially if the complete vessels are not pierced and are mixed in with other sherds. Only one of the complete vessels from the late Roman pits is pierced (a flagon from context 1621, well 1300). This vessel is missing its rim and in one other case (the BB1 jar from context 2898, pit 2596) the rim was ground smooth in antiquity. A complete amphora rim was found with several complete or almost complete vessels in pit 3235.

Most of the material has been found in the southern half of the site and the two, large cess-pits next to Building 1, and in particular pit 3235, stand out (Table 69 and FIG. 95). The only two complete and undamaged late Roman pots (beaker and jug/flagon) from the whole of the excavated area were found in pit 1463, one of the small group (Object 115) located a little distance to the west of Building 1. The remainder were found broken in the pits adjacent to Buildings 1 and 5.

The finds from the northern half come from two pits (1634, 1576) along the east–west boundary-line, from well 1300, and from two of the latest pits. The deposition of pierced or unpierced vessels in wells may have been especially significant, and perhaps linked to rites related to protecting water supplies within the town. In this context it should be noted that the late Roman well 1170 (which was excavated by the Victorians and contained the famous ogham stone) also contained a pierced pewter flagon (Fulford *et al.* 2000). The sample is small, but it is possible that flagons were selected for wells while jars and beakers occur mainly in pits.

The neighbouring pits 1634 and 1576 may have been filled at the same time and from the same source as pottery sherd joins were observed in these two features. The other two pits (1513, 2596) located in the northern half of the site belong to the very latest occupation of the site (Object 122). Both are just to the south of the east–west street.

Infants (FIG. 96)

The deposition of infant bones on Romano-British settlement sites is a common phenomenon but has long baffled archaeologists. Silchester is no exception, with infant remains already recorded during the Victorian excavations of the site (Balderston 2002). The infant remains from the current excavations (above, Snelling) are found in pits located to the west and to the north of Buildings 1 and 5 (FIG. 96) and are thought to belong to both stillborn and newly born infants. Two pits (1707, 3235) contain the remains of two (3235: possibly three) individuals, while all the others appear to contain the remains of a single individual. Most pits contained only a small proportion of the skeleton and, while this may reflect the only partial survival of fragile bones, it is also possible that even individual infant bones were ritually deposited. Pit 3251 contained an almost complete skeleton, probably of a female infant.

Snelling has already commented on the practice of infant burial in Roman Britain, so this section will focus on their archaeological context, that is the pit assemblages and their location on site. The almost complete skeleton and the remains of a further two individuals from the two large pits located immediately to the west of Building 1 (pits 3235 and 3251) will be discussed in detail in the analysis of the total assemblage from these two features (see below).

Pit 1707 is located just to the west of Building 5. This is a substantial feature which was re-cut in antiquity and apparently partially excavated by the Victorians. Leg bones of a premature individual are in one of the lower fills (1511) which is covered by a context (1478) that contained an irregular coin of Tetricus I dated to A.D. 271–280 (SF 00837). The same fill (1511) contained pottery and glass vessel fragments, animal bone, ceramic and stone building-material, iron nails, some charcoal, an iron sheet fragment, and a glass bead. Six glass beads have been found in the late Roman pits and one other (fill 3217, pit 3251) is associated with infant remains.

The remains of another infant came from context 1238 which was disturbed by the Victorian

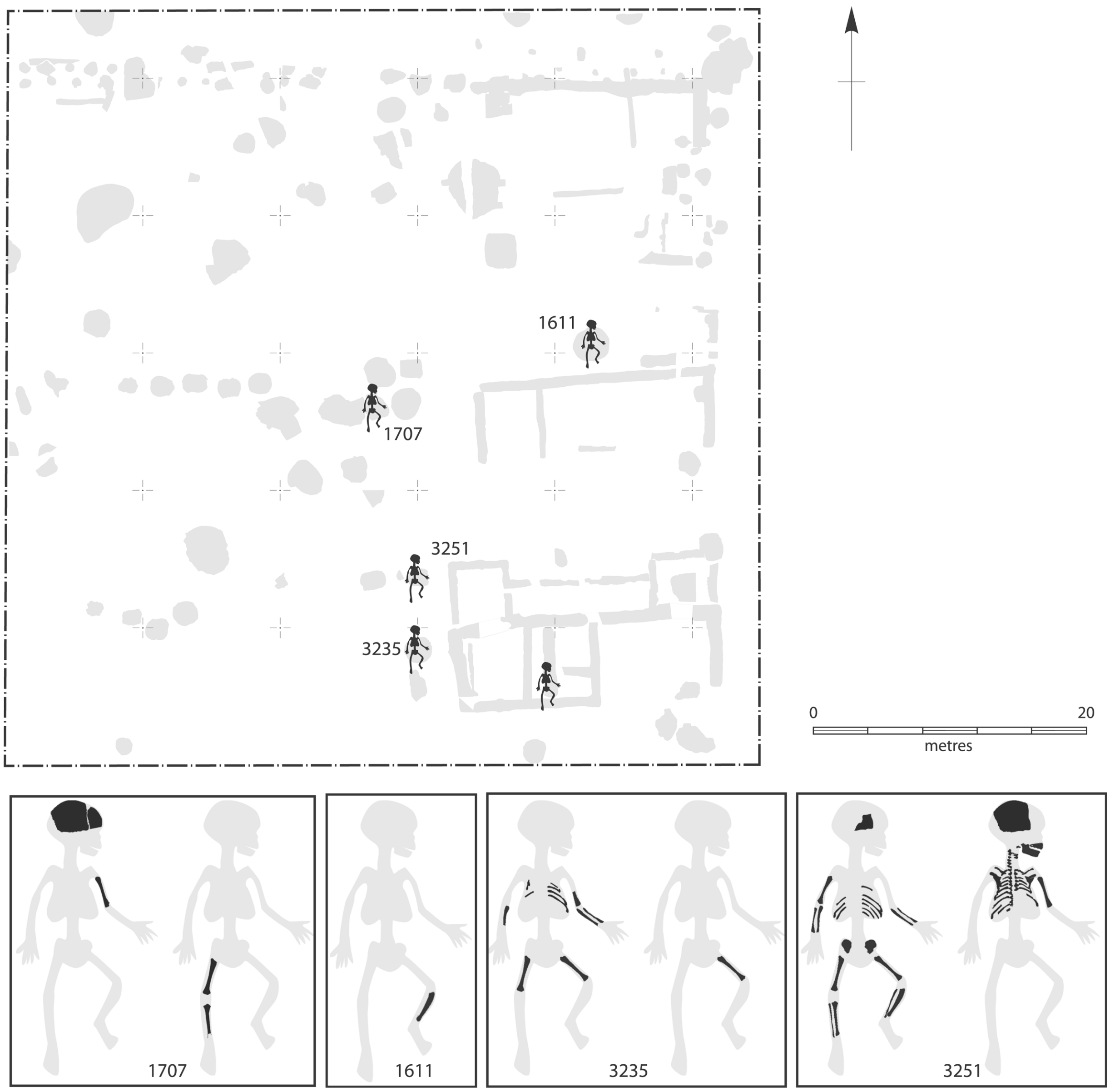

FIG. 96. The location of pits with infant remains

excavations. It contained pottery, animal bone, ceramic and stone building-material, iron nails, some charcoal, an illegible coin, and a fragment from a shale vessel.

A single leg-bone from a full-term infant was found in context 1642, at the interface between the fills of an earlier well (1682) and those of a late Roman rubbish-pit (1611). This context contained animal bone (including a single dog bone) and an iron-strip fragment. The final filling of the well and the cutting of the pit can be dated to after A.D. 350 on the basis of coin evidence. Pit 1611 is located to the west of Building 7 and represents the only feature from the northern half to contain any infant remains.

During post-excavation analysis of the animal bone from Insula IX, a further single infant leg-bone was identified; it was found in context 1422, a gravel fill of one of the north–south walls of Building 1. This fill also contained pottery, animal bone, and ceramic building material. It is possible that an infant (or at least one infant bone) was ritually deposited among the foundations of Building 1, but it is equally possible that it was mixed in with general rubbish that was used to fill this trench.

Dogs (FIG. 97)

The dog remains from the late Roman pits are discussed in detail by Kate Clark (above). A variety of sizes and ages are represented and many of the dogs have been quite badly treated, with most injuries identified in the head, neck, and back area. There is, however, one small dog (pit 3251, context 3228) whose injured paw was kept clean and immobilised. At least one dog (pit 3251, context 2674) was killed and there is evidence for butchery on many of the larger dog remains, perhaps suggesting that they were fed to other dogs, or eaten by people. While there are a few pups, neonatal remains (which probably relate to population control) are rare (cf. Maltby 1993b).

The often quite harsh treatment during the animals' life appears to be in contrast with the structured, and possibly ritual way in which many dog carcasses were deposited (cf. Clark 1995, 10–11). Elsewhere in Britain, the deposition of complete dog skeletons in human burials is well attested in the Iron Age (cf. Whimster 1981; Wait 1985) and is also known from Roman sites (Philpott 1991, 204; Clarke, G. 1979, 239–45). Articulated skeletons are known from pits and wells on many sites, and these have often been interpreted in terms of structured deposition (Fulford 2001; Alexander and Pullinger 1999, 45–58; Barber and Bowsher 2000, 19–20, 319–20, fig. 111).

This section will consider the pit contexts which contain dog remains in more detail and study the canine remains in relation to the associated finds assemblage as a whole. In Insula IX, eleven late Roman pits contained dog remains and it is noticeable that the vast majority are again located in the southern half of the site. Only the top fill of pit 1611 and one (2596/3068) of the very late Roman pits (Object 122) from the northern half contained dog remains. This once again underlines the impression that the pits in the northern half are used differently to those in the southern half.

Three features (1707, 3251, 3235) contained the remains of multiple individuals and articulated skeletons. Skulls (in addition to the articulated skeletons) were also only found in

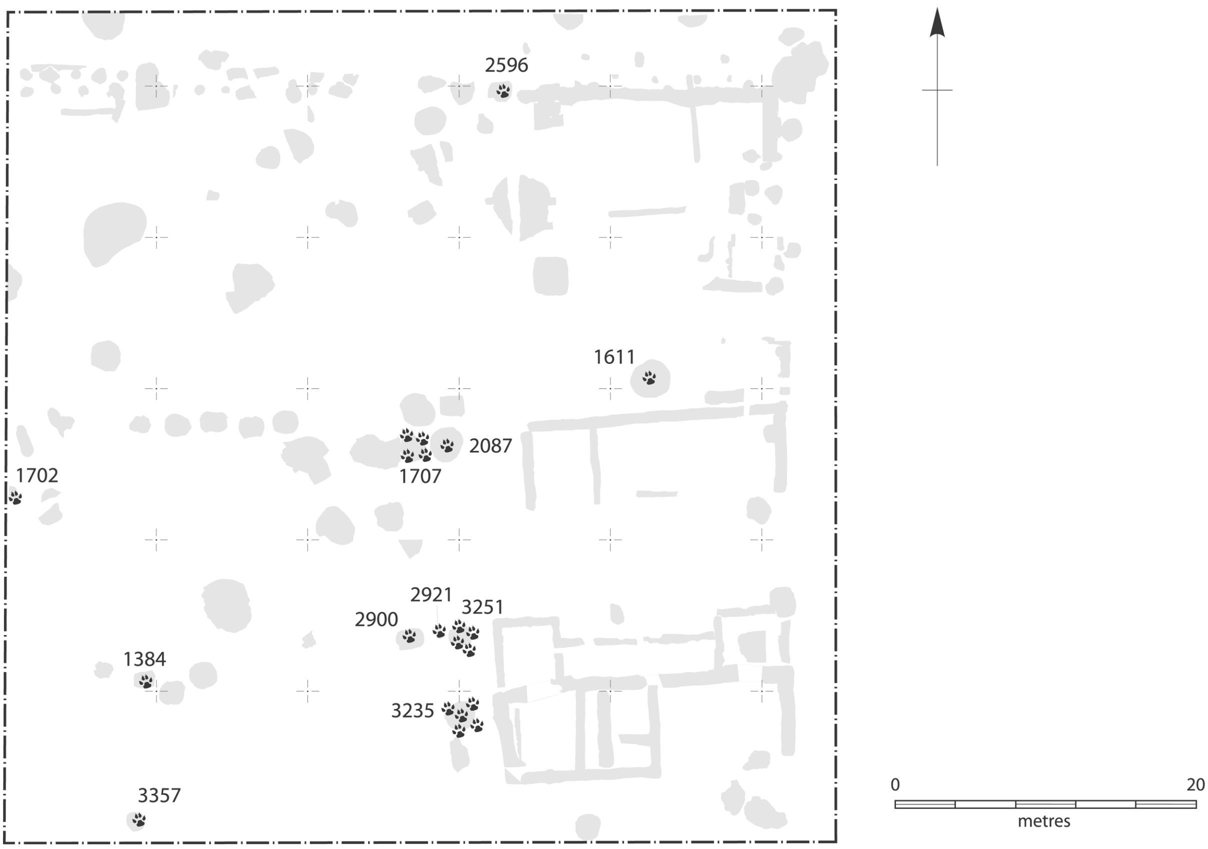

FIG. 97. The location of pits with the remains of dogs

these three pits, while mandibles occur more commonly (e.g. 1384, 2900). Two (3251, 3235) of the pits with large amounts of dog remains are located immediately to the west of Building 1 and next to two further pits (2900, 2921) containing some canine remains. Pit 1707 is probably associated with Building 5.

Strikingly, the three pits with articulated and multiple dog remains (1707, 3251, 3235) also contained human neonatal remains. This association would support a 'ritual' interpretation, which is further strengthened by the presence of complete pots in some of the pits (3235, 3251) which contained both dog and infant remains. The significance of both dogs and infants is illustrated clearly by the structured deposits in the ritual 'shafts' at Ridgeon's Gardens, Cambridge (Alexander and Pullinger 1999, 53–8). However, as each of the Silchester pits contains a sequence of deposits, it is important to examine precisely in which contexts neonatal humans, dogs, and other potentially ritual remains occur (below, p. 238).

THE CHRONOLOGY OF THE PITS

The many rubbish- and cess-pits and wells discussed above have been attributed to the late Roman phase because they are stratigraphically later than the diagonal House 1, either cutting through its demolished foundations or cutting through dark soils overlying the clay dump into which the latest phase of House 1 is set. Within these late Roman pits, two main groups can be distinguished. The larger, earlier group (Objects 115–121) consists of features thought to be associated with the late Roman street front properties, while the second group consists of very late features (Object 122), some of which are cut through street surfaces and therefore post-date the Roman street grid. So far, however, little has been said about the absolute chronology of these pits. Two groups of material (pottery and coins) may be used to achieve a more precise chronological framework. These will be discussed in broad contextual categories, distinguishing between rubbish- and cess-pits (Objects 115–120), wells (Object 121), and very late Roman pits (Object 122).

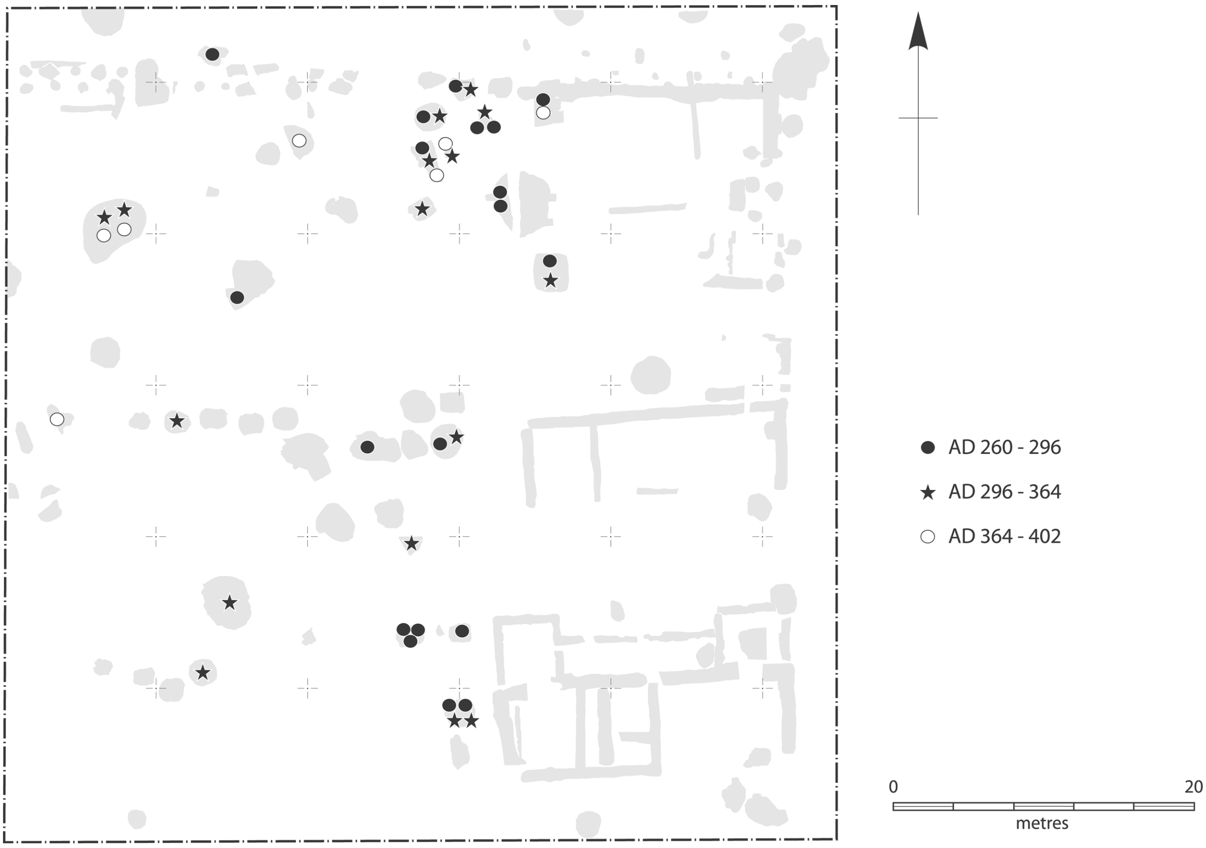

FIG. 98. Coins from the late Roman pits and wells (Objects 115–121)

THE COIN EVIDENCE

Seventy-two coins were found in the fills of the pits and wells, of which 67 are identifiable. Five coins pre-date A.D. 250 and are clearly residual. The coins are discussed in detail by Edward Besly (Part II.1) but an attempt is made here to discuss them in the context of a broader pit analysis, and in combination with other dating information. This section will also plot the spatial distribution of all coins, regardless of whether they were found in pits or layers.

To gain a more detailed understanding of the spatial distribution of the coins from this excavation, they were divided into four broad chronological categories (A–D, see Table 70) and coin periods (P 1–21, see Table 71) based on Richard Reece's (1993; 1995) work. If the date ranges of the coins from the pits and wells thought to be contemporary with the late Roman Buildings 1, 5, 7 and 8 (Objects 115–121) are plotted, an interesting picture emerges (FIG. 98). Coins of Phase B (A.D. 260–296) occur across the site, with multiple examples from the large cess-pits adjacent to Building 1 and from several of the shallow features along the east–west street. Coins dated to Phase C (A.D. 296–364) are also distributed fairly evenly across the pits, with multiple examples from cess-pit 3235 and well 1300. Coins dated to Phase D (A.D. 364–402) are, however, restricted to the northern half of the site. This is in many ways a surprising result, as the late Roman occupation in the northern half (and especially in the north-western and central part of the site) is much less substantial than in the southern half.

The latest group of pits (Object 122) includes those cut directly through street surfaces or stratigraphically post-dating the late Roman street front buildings. Others come from pits 1354 and 2634 cut into Building 1. Fourteen coins were found in four of these very late Roman pits (FIG. 99). There is some earlier material, but all four pits contain coins dated to Phase D (A.D. 364–402), with two very late coins coming from pits 2596 and 1354. The legible coins from pits cut through the actual street surface (1916, 1901) date to A.D. 330 and A.D. 388+, providing a *terminus post quem* for the partial abandonment of the street grid.

While it is possible that the coins provide a rough indication of changing foci of activity on

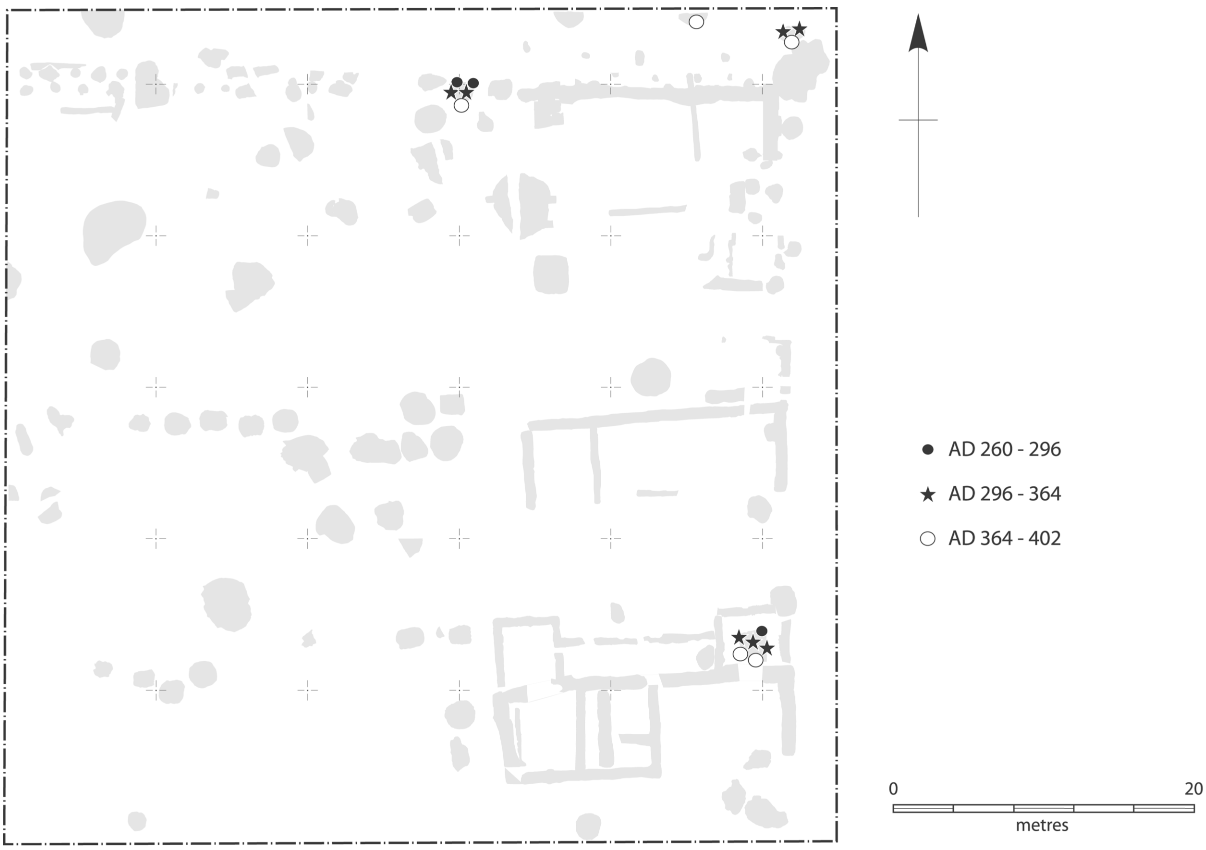

FIG. 99. Coins from the latest Roman pits (Object 122)

the site, several complicating factors have to be taken into account, especially when dealing only with coins from the pits and wells. Many of the coins may have been in circulation for considerable periods and the difference between coin production periods and likely loss date can, of course, be significant. We may also expect a considerable time lapse between the initial digging of pits and wells and their final fill. Some of the material deposited in the pits may be derived from pits and middens in other parts of the site (cf. p. 222, above) and thus incorporate significant amounts of earlier material. An example of the time-spans covered by coins found in a single feature is the top (and only) fill (2342) of pit 2517 which contained four coins, ranging from the second to the later fourth century in date. Equally, the top fill of the very late Roman pit 2634 contained coins dated from the mid-second to the very late fourth century.

It has been suggested previously (Clarke and Fulford 2002, fig. 17) that late coins may preferentially survive in the shadow of the two streets. It is also possible that coins survive better in cut features and that the distribution pattern described so far simply mirrors that of all the coins lost across the site. Plotting the spatial distribution of coins by phase but regardless of whether they come from pits or layers (FIGS 100-1) shows a diffuse pattern. Coins occur within or next to all the buildings, although preserved floor levels with coins are very rare. The south-western area, the western edge of the site, and the area north of the proposed east–west boundary-line are perhaps less strongly represented. It is striking that so many coins come from the northern-central area where there is no evidence for structures and even the rubbish-pits are often no more than very shallow depressions. This may indicate that rubbish from other buildings (such as that in the north-west corner of the insula) and areas was redeposited here.

That the pit coins do not simply mirror the general coin distribution pattern is demonstrated by coins dated to the latest phase from pits and wells in Objects 115–121 (Phase D = A.D. 364–402). While largely absent from pits (except the latest in Object 122) in the southern half (FIG. 98), coins dated to this period do occur in layers from the southern half (FIGS 99–100). Their scarcity from pits in the southern half may thus reflect specific changing occupation and

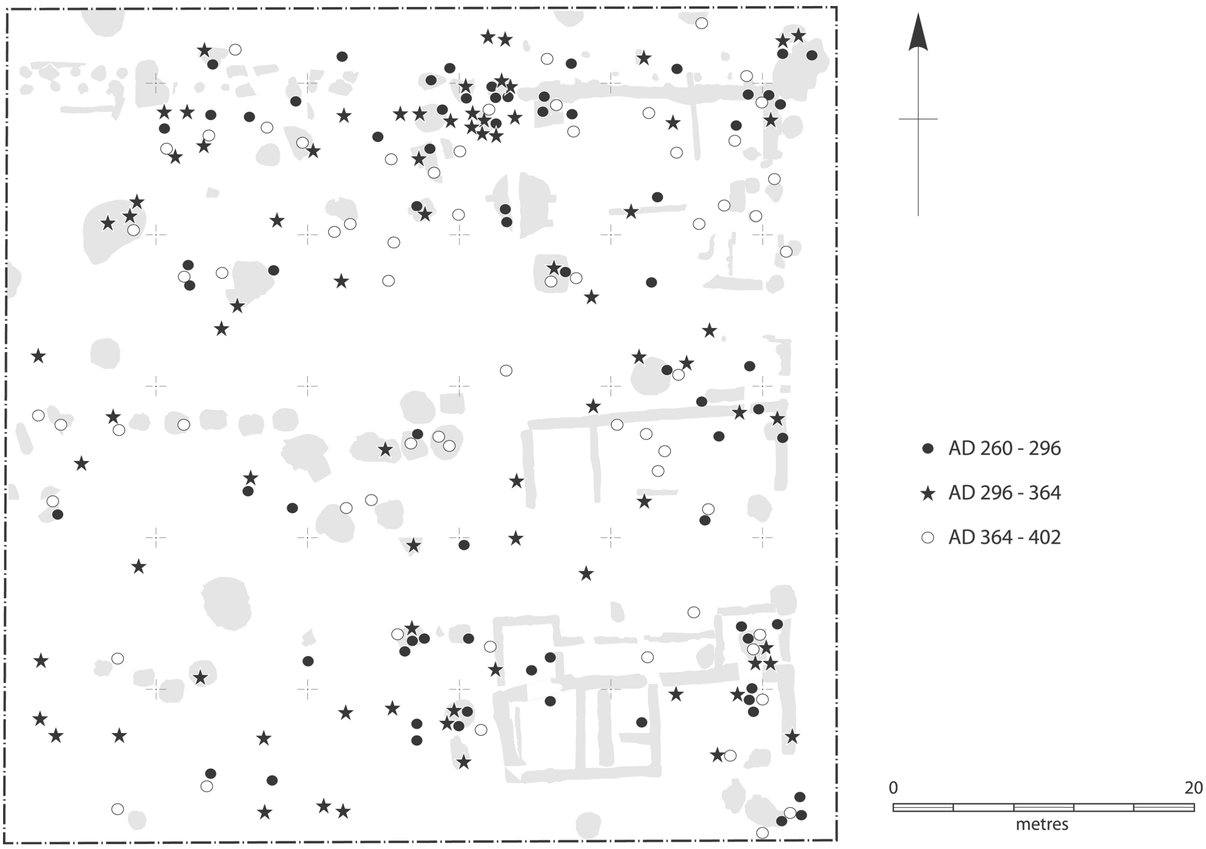

FIG. 100. Coins from all contexts (including pits and wells)

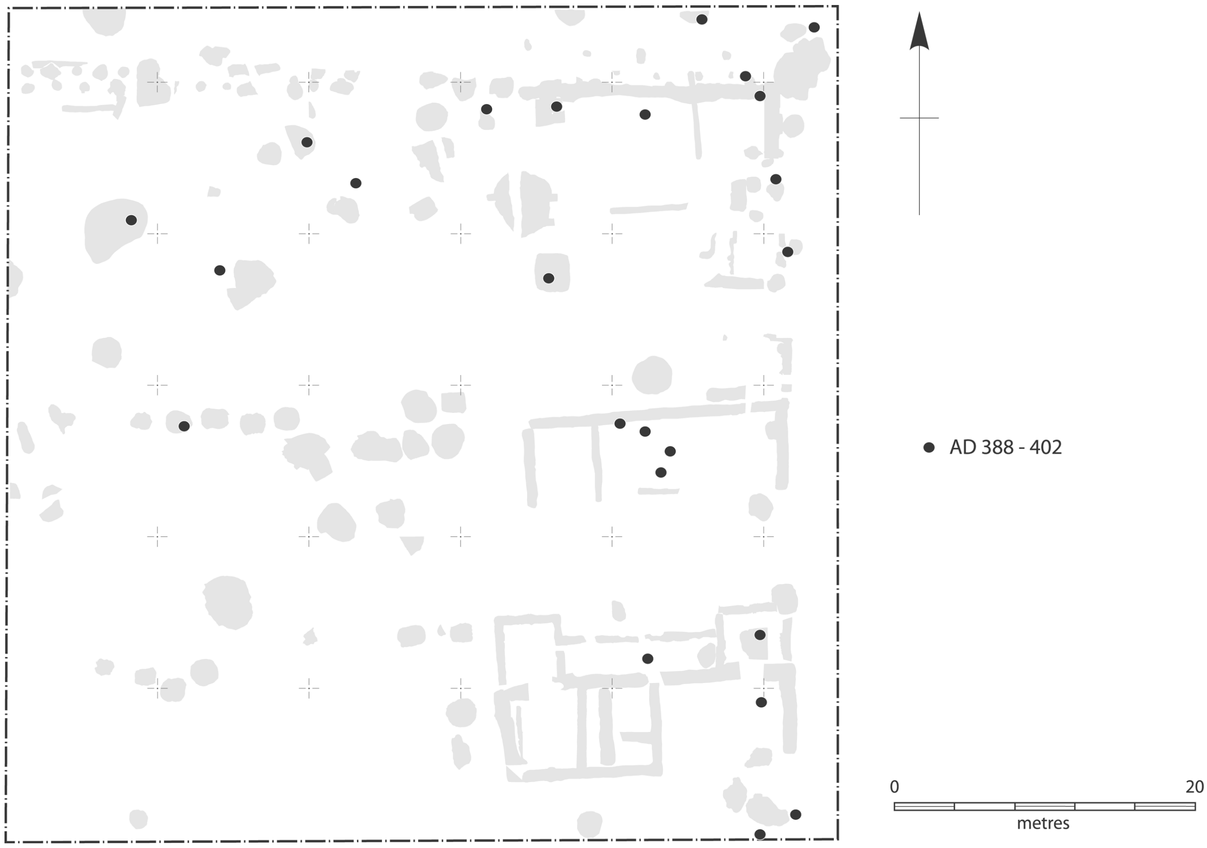

FIG. 101. Coins of the House of Theodosius (all contexts)

rubbish disposal patterns in this area rather than overall activity and coin loss patterns. Conversely, the latest Roman coins from the northern pits may reflect a particular kind of activity in that area, or indicate that floor sweepings from elsewhere on the site were deposited in this area.

THE POTTERY

While pottery is much more common than coins and thus has the potential to date many more features, it provides a much broader date-range and residual sherds may be misleading, especially where assemblages are small. FIG. 102 shows the distribution of pottery groups from pits dated exclusively to the third century which do not appear to contain any fourth-century sherds. These pits may in fact belong to an earlier phase or contain residual and re-deposited material. The latter is certainly the case with pit 1438 which contained third-century pottery, but a coin dated to A.D. 337. It is interesting that two pits (2055, 2240) attributed to the very latest occupation (Object 122) contain pottery dated exclusively to the third century (FIG. 103). Both are, however, very small assemblages and the location of 2055 (which appears to cut into the street junction) would support their attribution to the very latest phase of occupation in Insula IX.

Pits containing material dated to the later third and fourth century are quite evenly spread across the site (FIG. 102). Assemblage size may well be a factor here. Pits belonging securely in the fourth century seem to cluster either side of the proposed fence line and in the northern-central part of the site (FIG. 102). Finally, there is a group of pits which contained distinctively late fourth-century sherds (FIGS 102–3). In many cases, this late date is supported by the coin evidence (e.g. 3235, 1634, 2813, 2535, 2550, 2596, 1901, 1354), but in several others pottery is the only material evidence for attributing pits to the latest phase (e.g. 1513, 1992). As with the coins, many of the pits with the latest material are located in the northern half of the site.

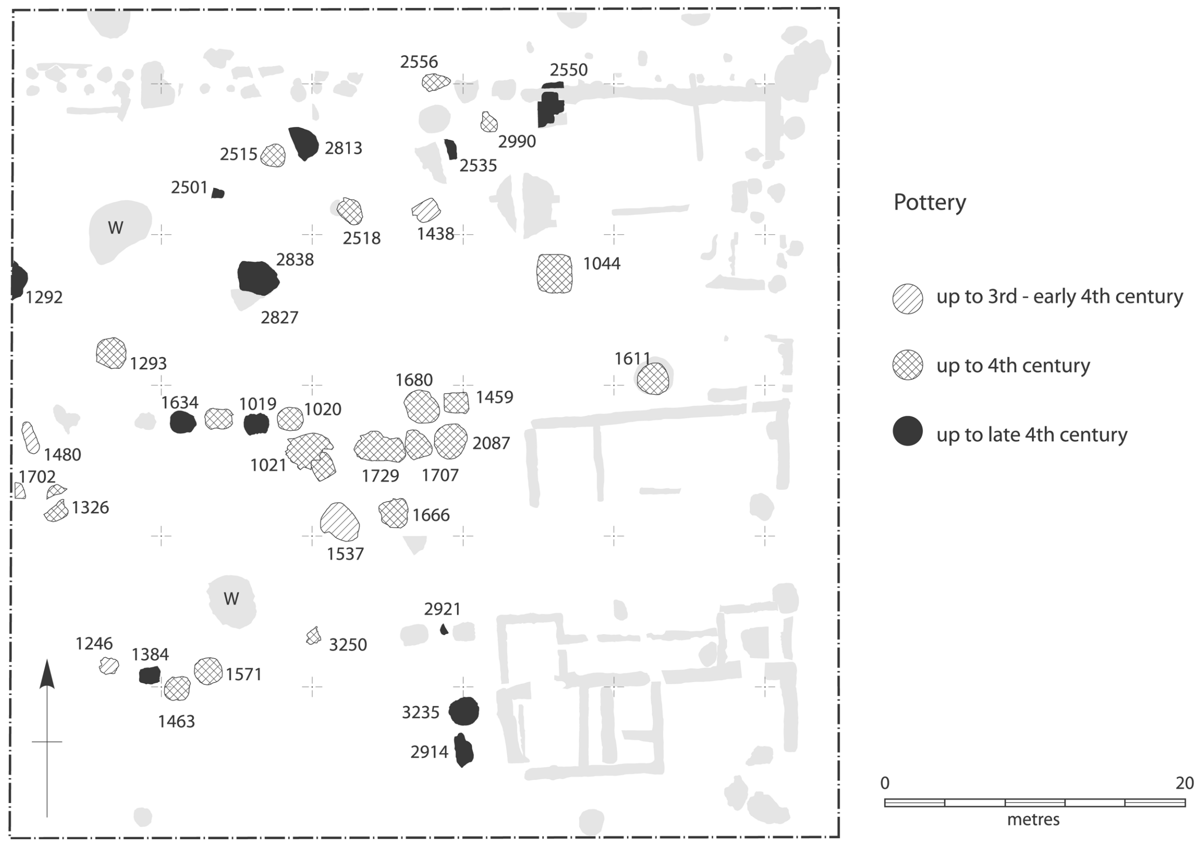

FIG. 102. Dated pottery from the late Roman pits and wells of Objects 115–121

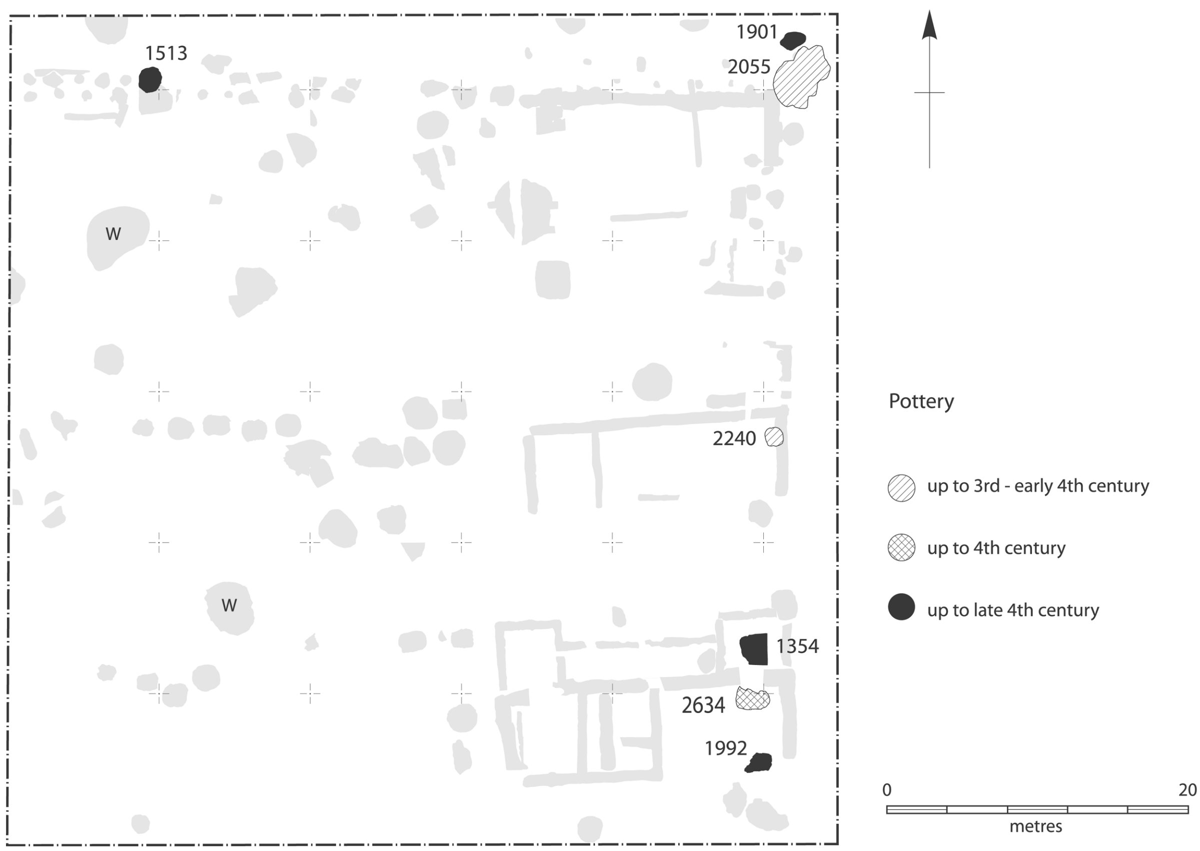

FIG. 103. Dated pottery from the latest pits of Object 122

Thus both 1634 and 1019 are located to the north of the proposed fence line, although it should be noted that the pits located to the south of the fence did contain fourth-century pottery. There is some late fourth-century material from the large cess-pit (3235) next to Building 1 (see below) and from two pits apparently cut after Building 1 was largely abandoned (1354, 1992).

PIT ASSEMBLAGE COMPOSITION

This section will examine pit assemblage composition, both in terms of the proportions of common groups of artefacts (such as tile, pottery, and animal bone) from objects and pits and in terms of the total assemblage from selected pits. For the former, proportions of common artefacts will be studied at object and pit level and compared across the site. For the latter, all finds are studied by fill/layer rather than overall pit, but this is only possible for two selected pits (3235, 3251). It is hoped that such a 'holistic' approach will go some way towards relating finds assemblages, which are usually studied in isolation by specialists, to each other and to their archaeological context. While aspects of pit assemblages (such as pottery) have been studied in relation to their specific contexts before (e.g. Millett and Graham 1986; Rigby 2004; Barclay, Biddle and Orton 1990), there are still few published attempts to study complete pit assemblages from Romano-British sites. Creighton (1985) studied animal bone, pottery, and small finds from late Roman pits at Portchester and Clarke (1997, 1999) examined pits within the fort at Newstead. Most recently, Woodward and Woodward (2004) interpreted the fills of a number of deep shafts in Dorchester as structured foundation deposits.

OVERALL PIT ASSEMBLAGES

It is very difficult to identify special or structured deposits when so little is known about 'normal' rubbish deposits on Romano-British sites. Indeed, perhaps there is no such thing as normal rubbish (cf. Hill 1995)? Previous sections of this chapter have concentrated on unusual

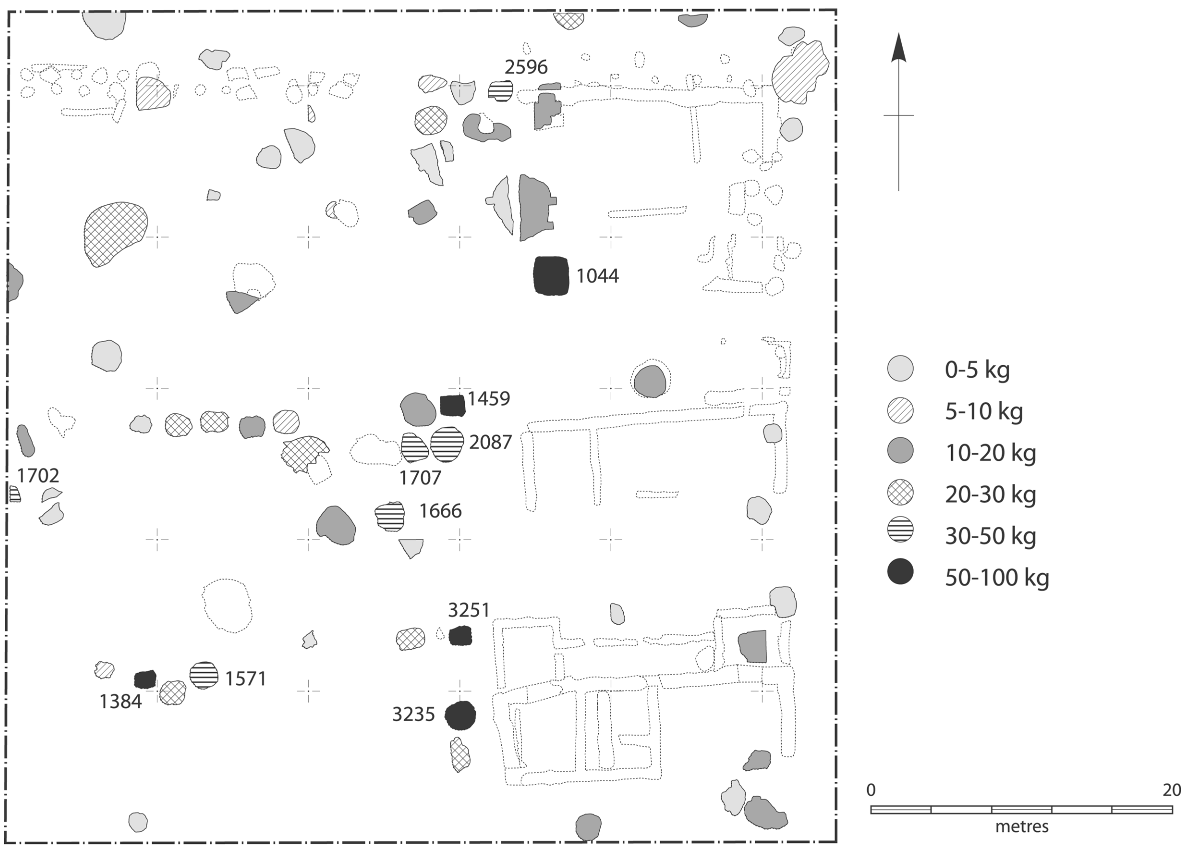

FIG. 104. The distribution of tile by weight across all the late Roman pits and wells

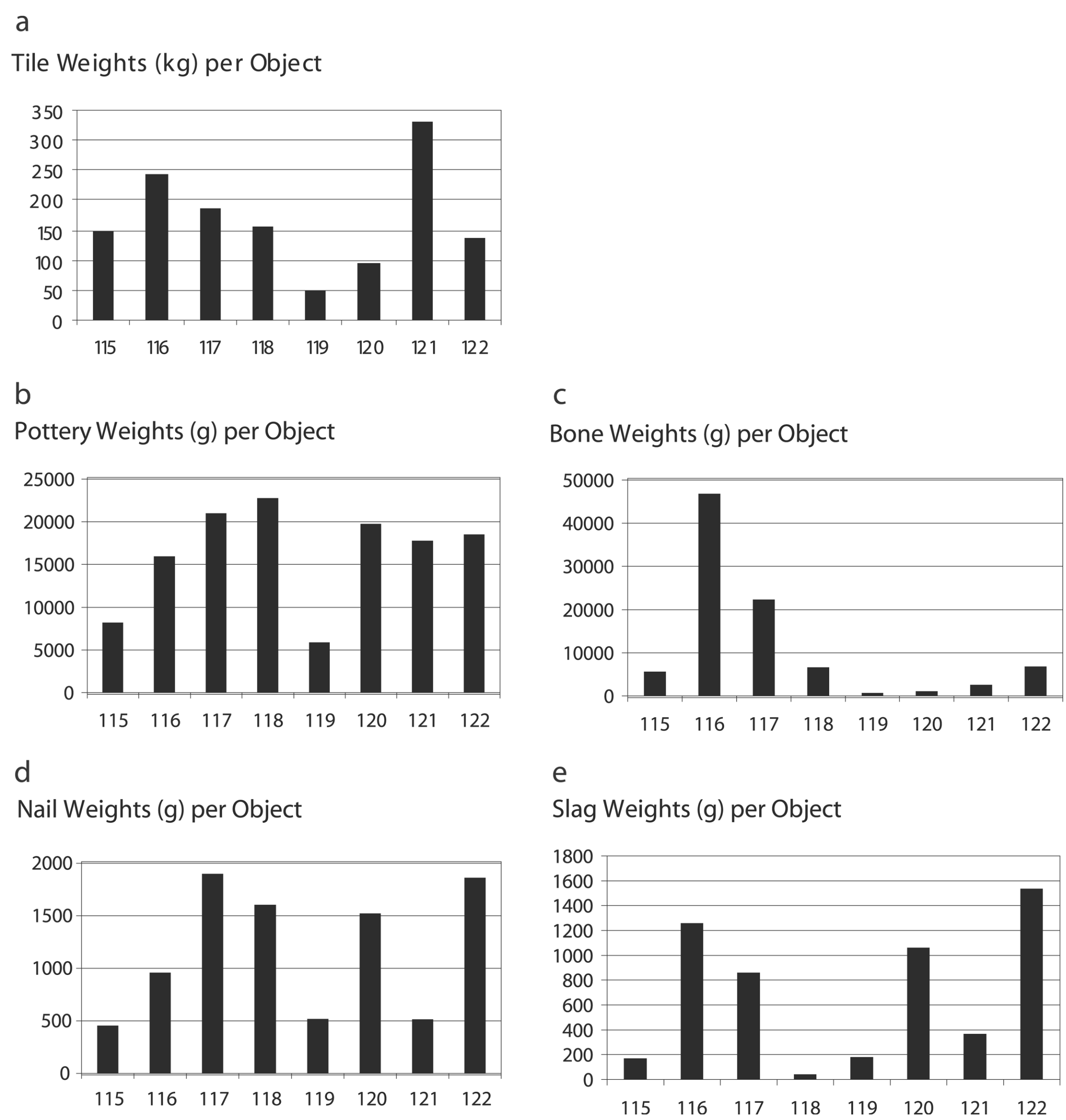

FIG. 105. The weights of tile (a), pottery (b), bone (c), nail (d), and slag (e) by Object (115–122)

artefacts/ecofacts to identify structured deposition but here the focus is on the majority of the domestic rubbish found in Insula IX. Tile, pottery, and animal bone make up the bulk of material found on site but from the specialist reports it is often difficult to build up a picture of how common they are in specific areas and whether specific object groups or pits are dominated by refuse of a particular kind. Do all pits contain a roughly equivalent mix of structural remains (roof-tiles) and domestic waste (pottery and animal bone)? Are there differences between different areas of the site, in particular between the northern and the southern half (where the structural evidence already suggests fundamental differences)?

A simple comparison of groups of material by weight across objects immediately shows some patterning (FIG. 105). By weight, tile is by far the most common material and the graph shows that it is frequently deposited in wells (Object 121), presumably to seal them (Eckardt, above, p. 136) (FIG. 104). Tile is also common in the pits associated with the southern stone buildings (Objects 115–117). On the other hand, it is noticeable that, although slightly less common, tile is still well represented in the pits associated with the northern half (Objects 118–120), suggesting that residual material is spread across the site fairly evenly. Tile appears to be less common in the pits either side of the proposed fence line.

Pottery and bone, both representing domestic refuse, appear to behave very differently (FIG. 105). Pottery occurs relatively evenly across the whole site, with only Objects 115 and 119

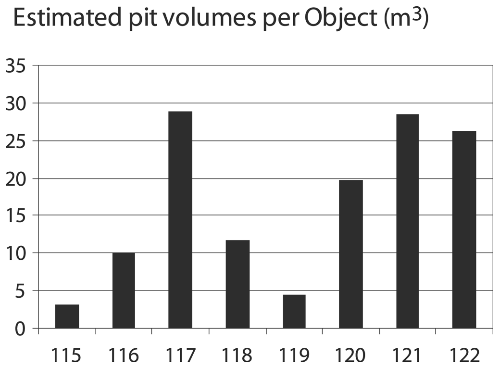

FIG. 106. Estimated pit volumes per Object (115–122)

producing relatively small amounts. Very substantial quantities come from the northern half and from the wells. By contrast, the deposition of animal bone is very strongly linked to the southern stone buildings (Objects 116 and 117) and falls off sharply in the northern half. It is also noticeable that animal bone is not generally deposited in the wells, even though the wells contain other domestic refuse (such as pottery) and structural remains (such as tile).

Iron nails and slag are, of course, less common than pottery and bone but, even with the smaller quantities involved, it is possible to identify some patterning (Eckardt, Tootell, above, p. 139, p. 146) (FIG. 105). There is a marked fall-off in slag between the pits either side of the fence dividing the insula (Objects 117 and 118). Overall, slag appears to be associated with the stone buildings in the south and the central open area in the north. Nails occur more evenly

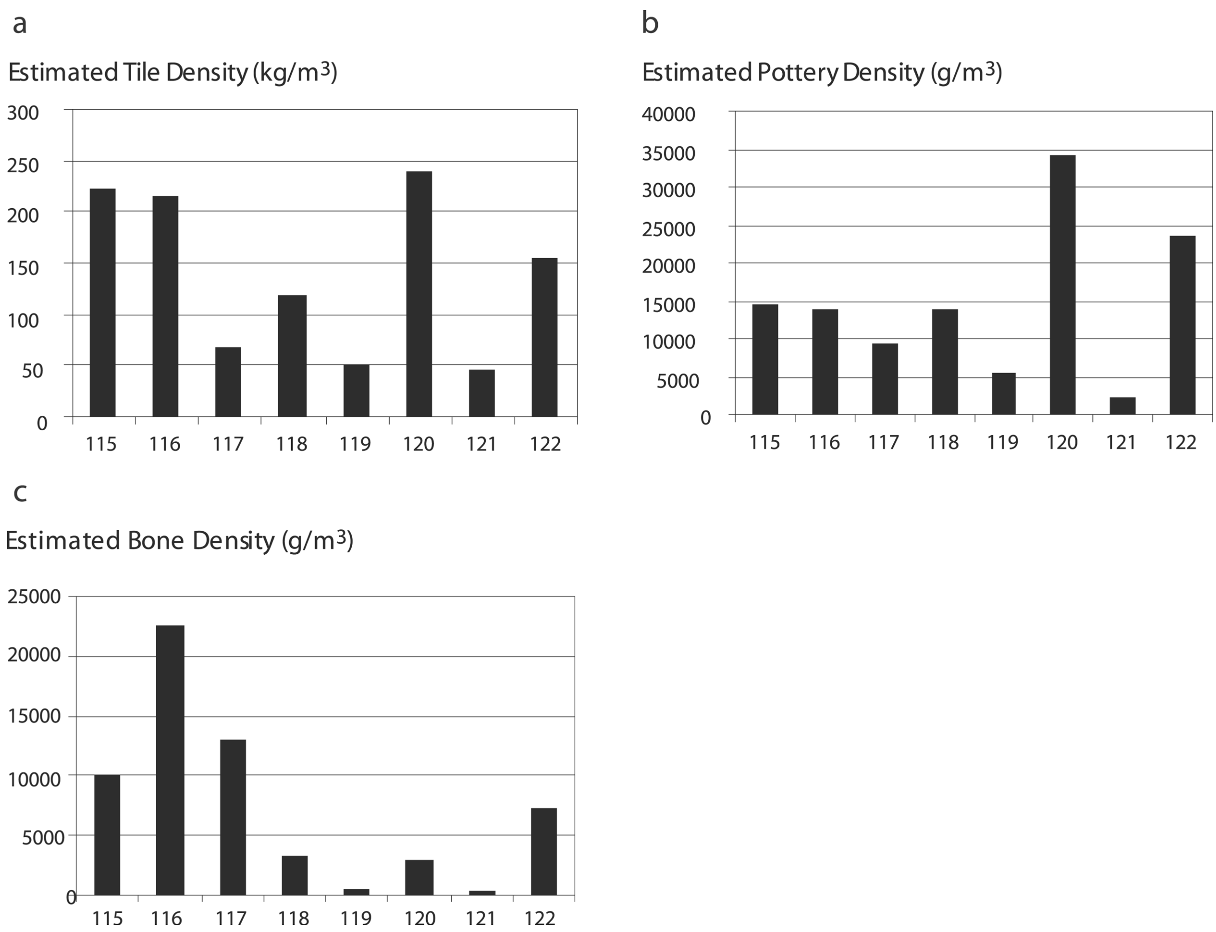

FIG. 107. The density of tile (a), pottery (b), and bone (c) by Object (115–122)

across the whole site but are especially common either side of the fence and in the latest Roman pits (Object 122).

In a next step, the weights of material culture from the late Roman pits clearly ought to be related to the size and depth of pits. All weights (by object) are thus shown in relation to pit volumes. The volume of all the late Roman pits has been described as a truncated cone and calculated using three basic parameters — the top diameter, the bottom diameter, and the depth of the feature. The volume of each pit is represented mathematically as: $V=(\pi h/(3(r-q)))*(r^3-q^3)$ where V is the volume, r is the radius of the top of the circle, q is the radius of the bottom of the circle and h is the distance between them. Where a pit is clearly circular (or sub-circular) and its top, bottom, and depth measurements are known it has been treated as a frustrum of a cone and its volume calculated accordingly. Where a feature is irregular in shape its volume has been calculated (a) by assuming it is a frustrum, and (b) by assuming it is cubic (or sub-cubic). In these cases a mean of the two has been taken as the feature volume. In all cases the volumes can only be a best estimate.

The graph (FIG. 106) shows some interesting variations in pit volumes across the site. Pits to the south of the proposed fence lines (Object 117) stand out, as do the four wells (Object 121). Although most features in Object 120 are shallow, their combined volume is significant. By contrast, the combined volume of the large cess-pits immediately to the west of Building 1 (Object 116) is surprisingly small.

We can now examine the total weight of selected groups of material in relation to the volumes of the pits (by object) they come from. The resulting picture (FIG. 107) can be compared to the straightforward weight charts above (FIG. 105). Taking pit volumes into account depresses the showing of all categories of objects in the very substantial wells (Object 121). The same applies to Object 117, the pits to the south of the proposed boundary-line running across the site, as these include some very large features. The relatively shallow features in the northern half (Object 120) appear to be comparatively full of material.

For tile, the adjusted picture still supports the suggestion that tile was spread fairly evenly across the site rather than deposited in pits immediately next to the stone buildings it might originally have come from.

More interesting is the comparison of bone and pottery. These are both categories of domestic refuse but their deposition varies considerably across the site. Pottery is spread relatively evenly across the site, while animal bone is very strongly associated with the southern half of the site (Objects 116 and 117). The strong showing of pottery in the shallow scoops (Object 120) in the northern half of the site is especially marked, while animal bone appears to be only rarely deposited in these features. Some bone and quite a lot of pottery occur in the very late Roman pits (Object 122) which also contain significant amounts of tile. This

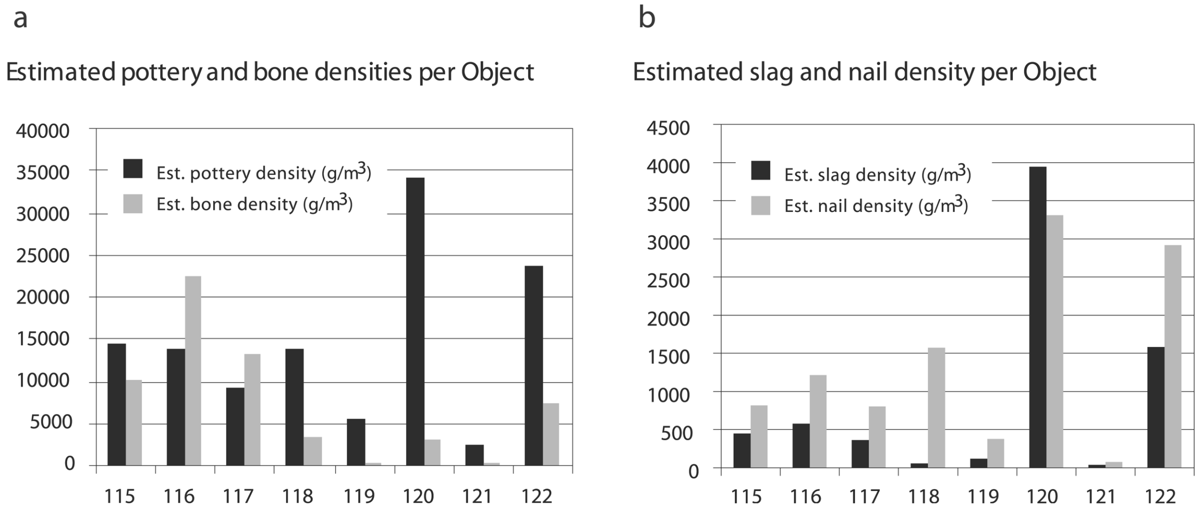

FIG. 108. The combined densities of pottery and bone (a); and slag and nails (b) per Object (115–122)

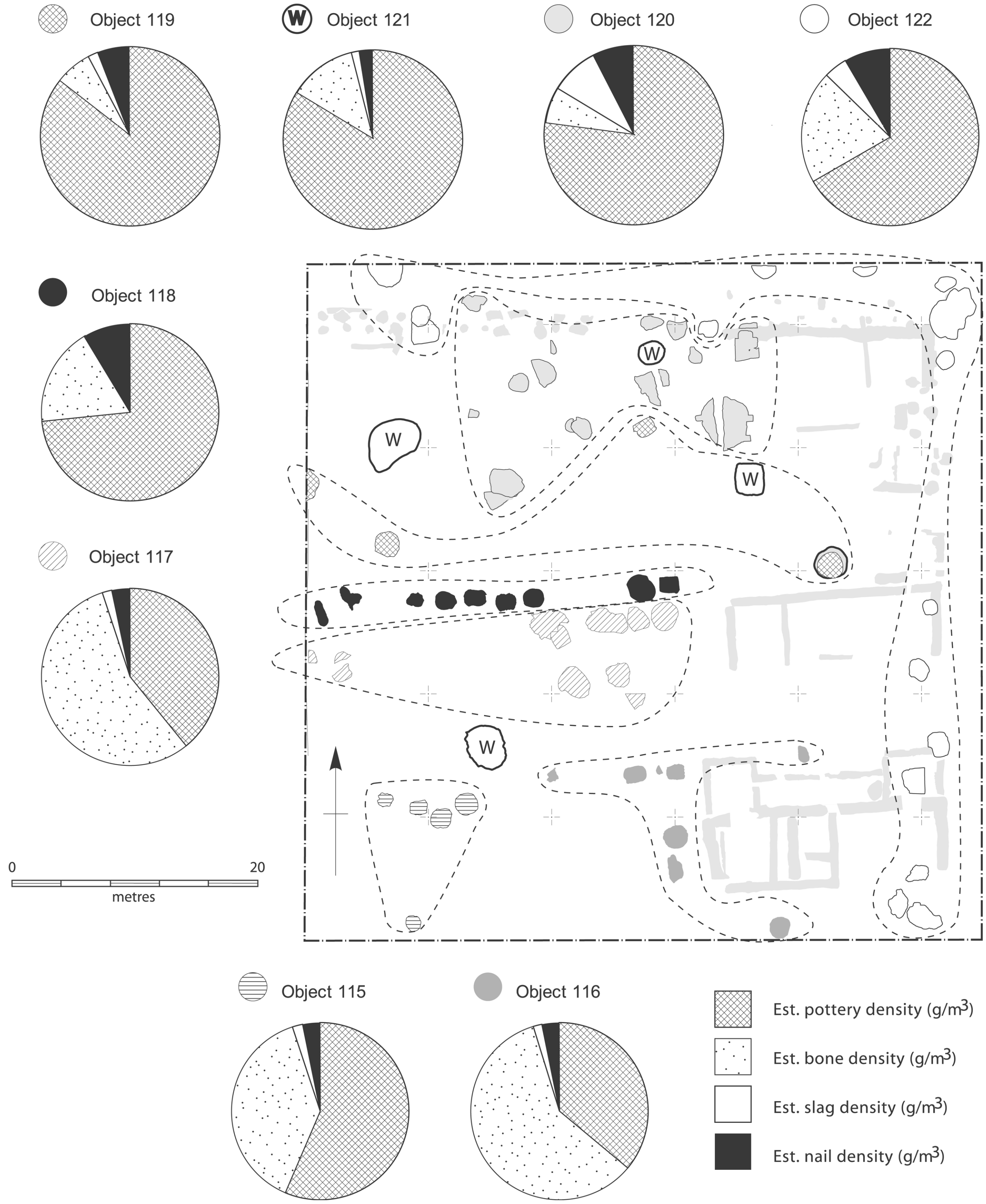

FIG. 109. The relative proportions of bone, pottery, slag, and nails by Object (115–122)

contrasting behaviour of pottery and animal bone is clearly evident in FIG. 108, which shows both types of domestic refuse in relation to pit volumes.

Much smaller quantities of nails and slag were recovered but it can again be shown that these two categories of 'rubbish' are not necessarily deposited in the same way (FIG. 108). The only group of pits where slag is more common than nails is that made up of the enigmatic shallow scoops in the northern half. In all other contexts nails (which may relate to structural remains, i.e. dismantled timbers, or represent material selected for recycling) are more common than slag (the residue of industrial processing).

We can also show the relative proportion of domestic and industrial rubbish (pottery, animal bone, nails, and slag) in relation to the spatial distribution of our pit groups. Tile has been excluded from this analysis as its dominance by weight blurs any patterns occurring in the deposition of the other materials. FIG. 109 shows again that bone is very strongly represented in the southern half, especially in those pits directly associated with Buildings 1 and 5 (Objects 115–117). By contrast, the northern pits and even the wells contain proportionally more pottery.

In a next step, I will examine assemblage composition in much more detail for two pits. This will involve both the study of overall quantities of rubbish and their distribution across pit fills and the discussion of patterning within the pottery and animal bone assemblages.

SELECTED PITS IN DETAIL

Two pits (3235, 3251) were selected for more detailed study. Both these large pits are located immediately to the west of Building 1 and both contained large amounts of finds, cessy material and 'ritual' deposits. They thus offer an opportunity to examine patterns of rubbish disposal and structured deposition in more detail. Pit 3251, with an estimated volume of 4.92m^3, is considerably larger than pit 3235, with an estimated volume of 2.36m^3. Nevertheless, and with the exception of animal bone, more material (in terms of weight) was retrieved from pit 3235. If we examine the overall assemblage composition for the main categories of 'domestic rubbish' from the two pits, a number of observations can be made.

Pit 3251 is very strongly dominated by animal bone, producing very little in terms of slag and nails. Pottery is also not strongly represented. Pit 3235 shows a more even spread of materials but, compared to the rest of the site, is still dominated by animal bone deposits (FIG. 110).

Specialist analysis has already demonstrated that the animal bone deposits from these two pits contain many species that are otherwise rare in Insula IX. Thus cats, weasels, jackdaws, ravens, and many types of fish only occur in Object 116 and within this group almost exclusively within these two pits (cf. Ingrem, above, and Table 32a and c). This may indicate unusual or high-status activities (such as processing of fur, ritual deposits, and a high-status diet in the associated Building 1), or it may simply be a reflection of the fact that the cess-pits were sampled more fully than other pits on site.

Both pits are quite similar, both in terms of overall percentage of butchery marks and in terms of frequency of chop vs. cut marks (Tables 37, 43). They are also similar in terms of the major species represented (Table 42), with cattle especially strongly represented in pit 3251.

There may be some patterning in the anatomical representation of cattle (Appendix 6, FIG. 122), with cattle radii and scapulae over-represented in pit 3251 and cattle mandibles, scapulae, and pelvis and sheep mandibles over-represented in pit 3235.

Turning to the pottery from the two pits, a number of similarities and differences can be

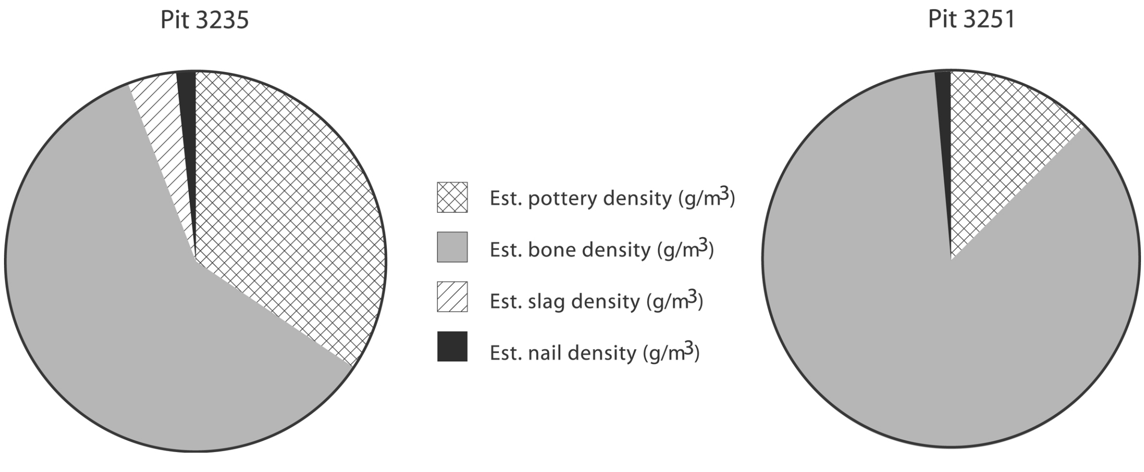

FIG. 110. The relative proportions of pottery, bone, slag, and nails from pits 3235 and 3251

observed at pit level. Both pits are dominated by Alice Holt ware and, as expected, both show a general dominance of local and regional fabrics. Imports (by sherd count) appear to be slightly more common in pit 3251 but the picture is reversed when using weight (cf. Table 17).

Pit 3235 was filled in the last quarter of the fourth century, while pit 3251 is dated to the later third to fourth century. Both contained first-century material but the proportion of residual pottery is perhaps more marked in pit 3251. Based on the spread of late sherds through the pit fills, Jane Timby also suggests that pit 3251 was perhaps filled more rapidly, possibly using material dug out to create the pit initially mixed with some later sherds.

Examining the overall form composition (Table 16), the emphasis on jars in both pits is obvious. Compared to the rest of the site, jars are especially strongly represented in pit 3251, which otherwise has a limited repertoire of bowls and dishes. There are some cups from pit 3251 but drinking vessels and storage and serving vessels (i.e. all associated with fluid contents) are not represented.

We can also consider the quantities and forms of glass vessels from these two pits. The first point to make is that pit 3251 produced only four small fragments, while pit 3235 produced a wide range of fragments of varying size from sixteen contexts. This corresponds well with the relative proportions of pottery in the two pits and suggests that pit 3251 contained mainly butchery and kitchen waste (animal bone, etc.) as opposed to cooking, storage and serving vessels. In terms of the forms represented, pit 3251 contained fragments of a bottle and of a flask. In addition to many unidentifiable fragments, pit 3235 contained fragments from at least four bottles, two jugs (one of which was largely complete), two fragments from a jug, flask or bottle, and one cup fragment. Some of the gaps observed in the forms and functions of pottery vessels are thus filled by glass forms. Joins were observed between fragments in fills 2908 and 2924 in pit 3235, suggesting that, although they are separated by a number of intervening deposits, they are derived from the same source, possibly a midden. Some of the glass vessels are of first- to second-century date and thus clearly residual.

Overall, there is an emphasis on animal bone and vessel forms associated with storage and cooking and these patterns may therefore suggest that rubbish associated with food processing, preparation, and storage rather than table waste was deposited in these two pits. With the exception of a quernstone fragment from pit 3235, the small finds do not appear to be related to these food-processing activities (see below).

In a next step, we will examine assemblage composition by layer within each pit. This is important as, while 'ritual' deposits may be concentrated in specific pits, it is by no means certain that they were deposited at the same time or in relation to each other. Thus, if infant remains are found at the top of a pit while an articulated dog skeleton is found in the primary fill, it is possible that this original deposition had long been forgotten by the time the child was buried. In order to fully understand the significance of, for example, an infant burial within a pit, it is also important to know exactly what was found in the same fill and whether the range and relative proportions of material vary from those in other fills.

First, I will examine categories of material across the pit fills to establish whether, for example, tile or pottery occurs relatively evenly across all fills. Secondly, I will look at all the finds from individual layers to see whether proportions of material vary between fills. In particular, are the layers which contain infant bones, articulated dogs, and complete pots different in any way?

Pit 3235

As on the site and object level, tile (by weight) represents by far the largest body of material from this pit (FIG. 111). These tile fragments are, however, not evenly distributed throughout the fills. Instead, they appear to be concentrated in the higher fills of this feature, perhaps indicating a desire to seal or stabilise a rubbish- and cess-pit that had been in use for some time. Large tile deposits, with some of the tile set on edge, are associated with the infant remains (2482, 2495) and some tile is found in the same layer as the complete pots (2924) but very little in the deposit (3209) that contained the articulated dog skeletons.

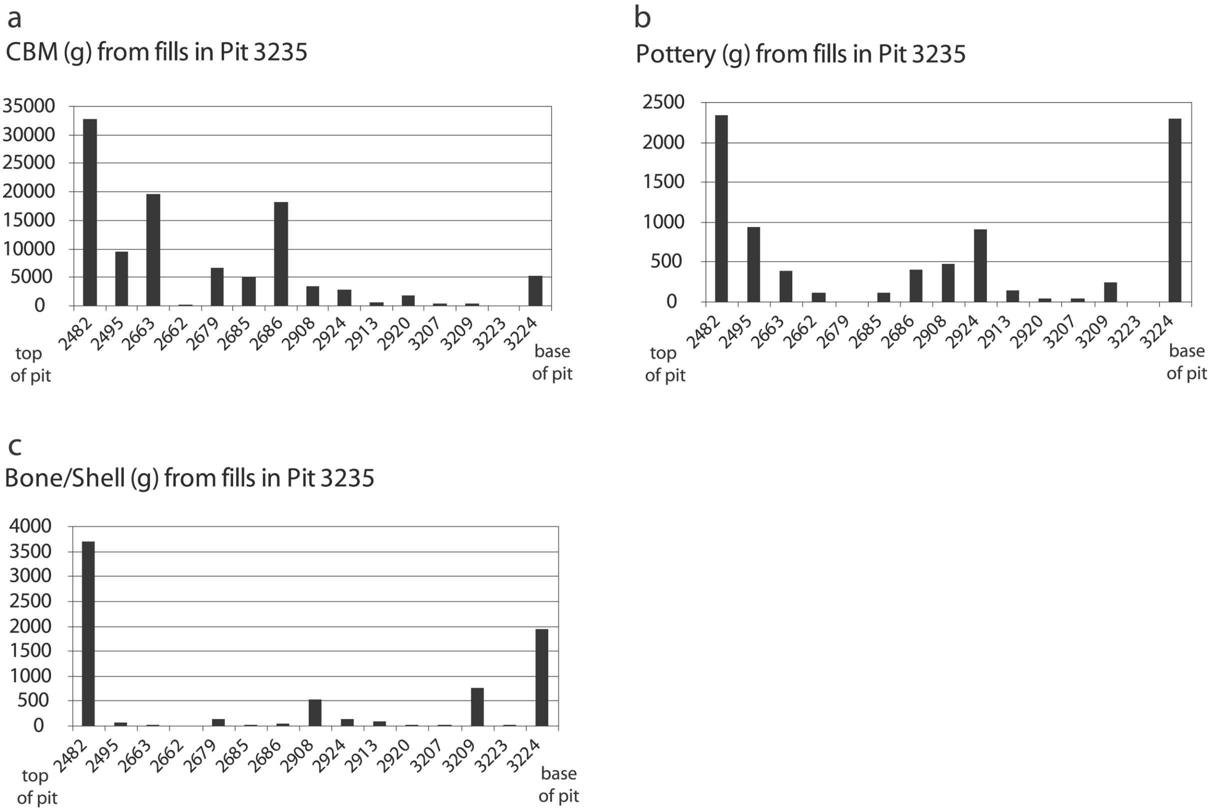

FIG. 111. Ceramic building material (a), pottery (b), and bone/shell (c) by weight from pit 3235

The distribution of pottery is perhaps slightly more even across fills, but with noticeable concentrations in the primary and final fills (FIG. 111). The peaks in the middle fills do not coincide exactly with those for tile. Significant amounts of pottery were found in fills that also contained infant remains (2482, 2495) and complete pottery vessels (2924). The latter is interesting as it suggests that vessels recovered as sherds, but subsequently reconstructed as complete or almost complete, were deposited together with some fragmentary pottery, rather than in a fill that contained no other ceramic material. Might this association argue against a 'ritual' interpretation? Small amounts of pottery were associated with fill 3209 which also contained two articulated dog skeletons.

The bias towards the primary and especially the final fill is even more marked for animal bone than for pottery (FIG. 111). Relatively little animal bone was recovered from the intermediate fills, with the exception of fills 2908 and 3209. The latter contained the articulated dog skeletons. Again, is it possible to suggest that the 'ritual' character of that deposition is diminished by the presence of other animal remains? Among this material were remains of a neonatal pig and lamb but also other butchery/food waste.

It is interesting that some of the unusual animal remains, in particular the fish remains, do not necessarily occur in deposits that also contain large quantities of animal bone. Thus, fish remains were identified in fills 2495, 2663, and 2913. The same is true of the mineralised seeds and other plant remains which were found in fills 2686, 2924, 2913, and 2920.

Showing pottery and bone in relation to each other underlines the bias towards the primary and final fill and the dominance of animal bone in the top fill (which is, however, dwarfed by tile) (FIG. 112).

Some slag and iron nails were found in pit 3235 but quantities are generally small. Most of this material was found in the top two fills (2482, 2495) which also contained the infant remains. Some nails were found in fill 3209 with the two articulated dogs but none in fill 2924 which contained the complete pots (FIG. 112).

Apart from five coins and a number of unidentifiable iron, bronze, and antler fragments,

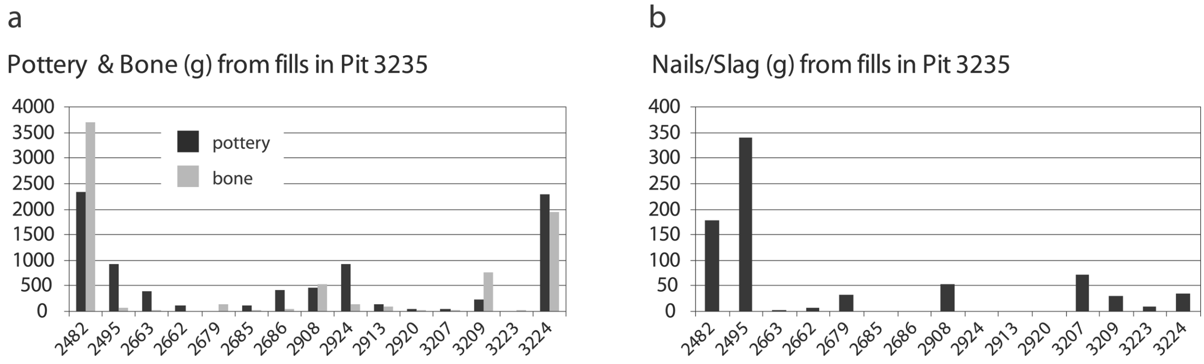

FIG. 112. Combined weights of pottery and bone, and nails and slag from fills in pit 3235

there are two possible counters (2482, 2495) and an iron stylus (2685). The latter two small find categories, with their connotations of leisure and literacy, may point to a relatively high status for the occupants of Building 1. The coins are concentrated in the top fills (2482 (2); 2495 (2); 2663 (1)). The final fill (2482) also contained a quernstone and a bronze finger-ring; as this fill also contained infant remains, it might be possible to think of 'grave goods' (coins, ring?) or symbolic offerings; thus Hill (1995, 20) has suggested that Iron Age quernstones relate to fertility and fecundity.

We can also think about assemblage composition in terms of individual layers, focusing on the four layers containing complete pots, articulated dogs, and infants (FIG. 113).

As expected, tile is proportionally very dominant in the top two fills and also very strongly

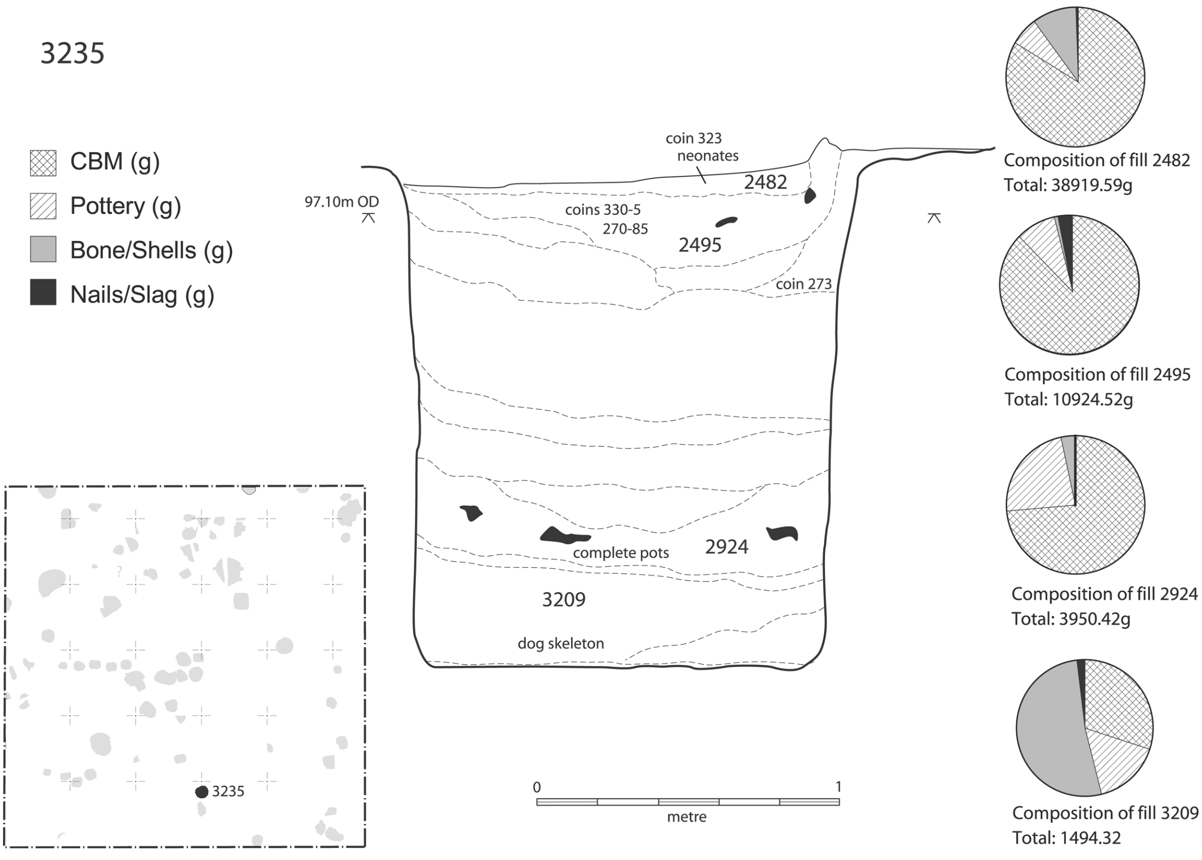

FIG. 113. Section of pit 3235 showing the location of infants, dogs and complete pots; and pie-charts showing the ratios of the principal finds (ceramic building material, pottery, bone/shell, and nails/slag) from the associated contexts

represented in fill 2924. The latter has a much stronger showing of ceramic vessels and also included a number of complete pots (weights not included). Fill 3209 by contrast has a relatively small amount of tile but a very high proportion of animal bone, which again does not even include the articulated skeletons. It should be noted that, in terms of absolute quantities, this fill contained much less material than, for example, the final fill 2482. The graphs illustrate again that the special deposits are found in fills that also contain a lot of similar material (dog skeletons with other bones and complete pots with lots of sherds).

Pit 3251

As with pit 3235, quantities of finds from pit 3251 vary significantly across fills (FIG. 114). Virtually all the ceramic building material comes from the top two fills, again perhaps suggesting that a smelly and unstable pit was sealed with large amounts of residual tile.

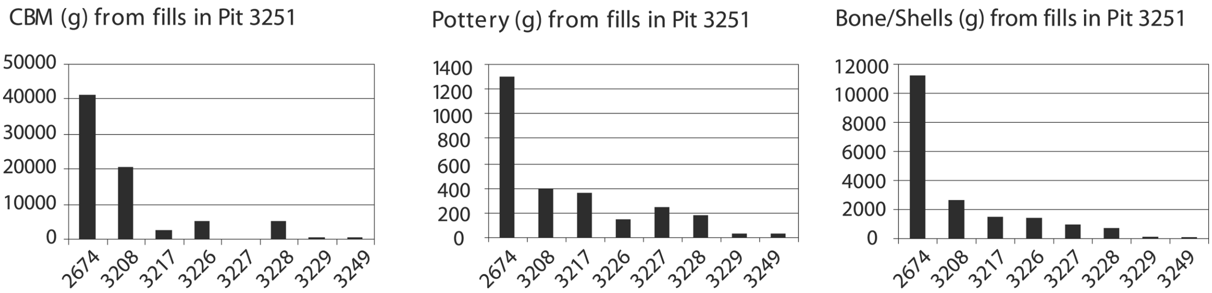

FIG. 114. Ceramic building material (a), pottery (b), and bone/shell (c) by weight from pit 3251

Pottery follows a similar pattern but with a more even spread through the middle fills. Again, very little material comes from the primary and secondary fill. The same is true of animal bone (and the very small amount of shell). This pit appears to have been either emptied very regularly or the lower deposits must have contained mainly organic and cessy material, though mineralised seed and other plant remains were only recovered from context 3229. It is really only the top fill in which the vast majority of the material was deposited. Combining pottery and bone underlines the emphasis on animal bone in this pit, especially when compared to pit 3235 (FIG. 115).

This pit also contained a wide range of 'unusual' bones, in terms of articulated dog or other skeletons, in terms of species representation, and in terms of neonatal animal remains (FIG. 115). The fish remains are concentrated in the lower fills (3226, 3227, 3228, 3229) which contained decreasing amounts of other animal bones. Some of the fish remains may have passed through the gut, perhaps indicating that these fills contain more cess than butchery

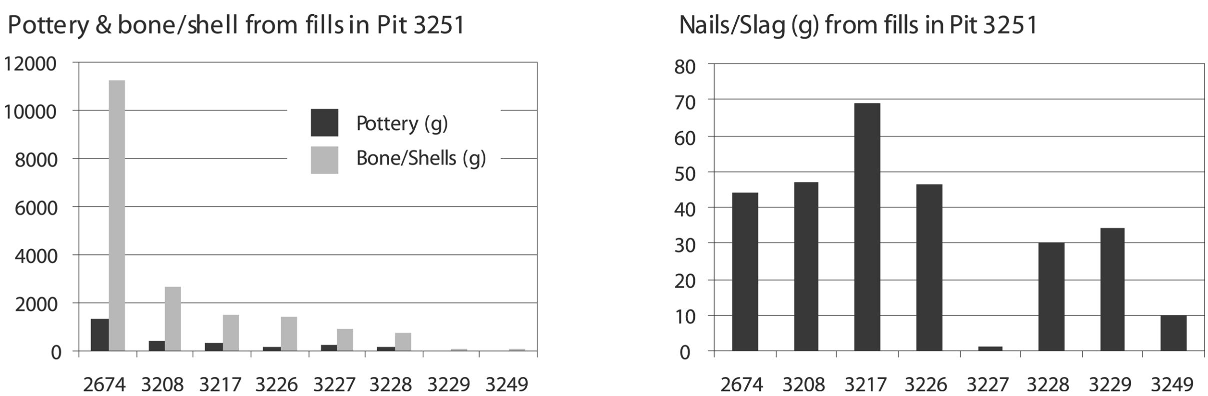

FIG. 115. Combined weights of pottery and bone/shell, and nails and slag from pit 3251

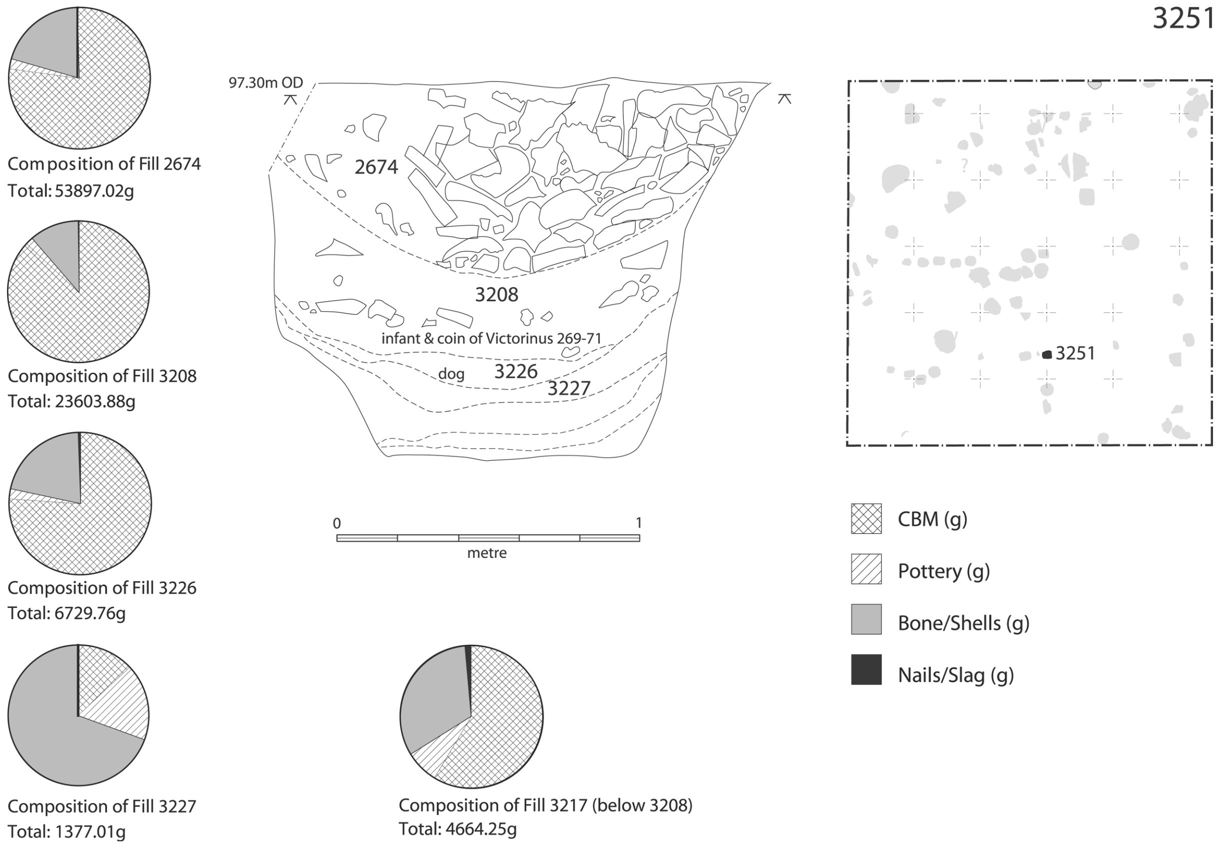

FIG. 116. Section of pit 3251 showing the location of infants, dogs, and complete pots; and pie-charts showing the ratios of the principal finds (ceramic building material, pottery, bone/shell, and nails/slag) from the associated contexts

waste. Partially articulated remains of raven and jackdaw occur both in the top fills (2674, 3208) and some lower fills (3228, 3229). Dog skulls and parts of articulated skeletons occur in almost all fills (2674, 3208, 3217, 3226, 3227, 3228, 3229). The neonatal pig remains come from fill 3228.

Only small amounts of nails and very little slag were found in this pit. These are, however, quite evenly spread across the fills and the distribution of nails does not show the strong bias towards the top fill observed for all other materials.

Pit 3251 produced a range of small finds which perhaps shows an emphasis on items of personal adornment, especially when compared to those from pit 3235 (see above). In addition to objects associated with bone- and metal-working (3228, 3227), a bone (3226) and a jet (3228) hairpin, an armlet fragment (2674), and a glass bead (3217) were found.

As with pit 3235, pit 3251 contained a number of fills with 'special' and potentially ritual deposits (FIG. 116). The infant bones found in contexts 3208 and 3217 are from the same individual, an almost complete neonatal female. These are the two upper fills just below the final deposit (2674) of large amounts of material. Both 3208 and 3217 contain tile, pottery, and animal bone, suggesting that the infant was not placed into a 'clean' layer of soil. Fill 3217 also contained a dog skull. Fill 3208 contained more material overall than fill 3217 (cf. FIGS 114–115). Both are dominated by ceramic building material, but 3217 contains more animal bone, suggesting once again that dog remains are buried with other animal bones. Fill 3208 contained the remains of a raven and a partial cattle skull, while fill 3217 contained partial cattle, sheep, cat and dog skulls and some domestic fowl. This is unusual within the wider site context, but similar remains were recovered from fills that did not contain infant remains from this pit and from pit 3235. A coin (dated to A.D. 269–271) was found in fill 3208 and a blue glass bead in fill 3217. Coins were found in the same fill as infant remains in pit 3235 but whether they represent 'grave goods' must remain an open question. Fill 3217 also contained a blue glass bead, which may have been associated with the infant remains but which may also represent the casual loss of a very small object.

It is possible that the final dumping of material in the top fill (2674), which also contained a partial dog skeleton, helped to seal the infant burial. Once again, this deposit is dominated by ceramic building material but there are also substantial amounts of animal bone which included some jackdaw, raven, and cat as well as several cattle skulls.

The complete dog skeleton found in the neighbouring fills 3226/3227 was found in a deposit that also contained some pottery, bone, and nails, but comparatively little ceramic building material. Fill 3227 also contained a complete pottery vessel. Again, complete pots and articulated dog remains respectively are associated with significant deposits of pottery and animal bone. Fish remains are especially strongly represented in these two fills. Fill 3226 also contained a bone hairpin.

The principal similarity between the two pits, both of which contained evidence in the form of mineralised seeds and plant remains that they had served for at least part of their life as cess-pits, can be seen in the complex associations of material with both human (infant) and articulated dog remains. The relevant contexts produce marked peaks in the quantified finds' data associated with the 'special' deposits. This is especially apparent in the uppermost fill(s) of both pits which contain, relative to the other contexts, exceptionally large quantities of these associated finds, whether material culture, animal or human bone, including articulated remains. Conversely other context data also point to periods of use when little is deposited in the pits. These contexts tend to be associated with the fish and mineralised plant remains which are indicative of cess-type deposits. We may consider that these contexts represent, on the one hand, periods of time of uncertain duration in which cess-type fills accumulated, on the other, distinctive episodes of short duration which involved deposition of pottery vessels, perhaps smashed at the moment of discard, and human and/or animal remains, frequently articulated in the case of dog, but also skulls of the principal domesticates. A recurring feature of the latter group of deposits is their association with undistinguished remains, such as tile, pottery sherds, animal bone, etc. The key question is whether this nullifies an interpretation that regards the deposits as in some way votive (cf. Woodward and Woodward 2004). While there can be no certain answer regarding the intent behind these deposits, this close analysis demonstrates that they do represent 'special' events distinguishable by their character from the rest of the fills. These deposits embrace infant and canine death — in one case deliberate — as well as waste which is typical of high levels of consumption, such as feasting. The very particular concentrations of debris in the final fills of both pits are intriguing. They indicate a deliberate decision to abandon the pit in question, rather than to excavate out the contents and re-use it. We may speculate that, together, the evidence may point to major events in the life of the household, including deaths, departures, or even abandonment.

CONCLUSION

For a long time, archaeologists have been aware of the need to present integrated material culture assemblages, both in terms of artefacts relating to one another and in terms of relating these artefacts to their original contexts (cf. Perring 2002, 61–5). This chapter has attempted to relate the artefacts found in the late Roman pits to each other and to the contexts in which they were found. This focus on pits is partly a consequence of the lack of floor deposits which could be used to identify different areas of activity. Using the weight per volume of a wide range of common artefacts found in the pits has revealed a number of patterns across the site. The differences between the northern and the southern half of the site in terms of types of buildings appear to be reflected in the material deposited in their associated pits. There is considerable variation in the ways in which major categories of structural and domestic rubbish are deposited. For example, animal bone is very strongly associated with the southern stone buildings while pottery, tile, and slag are surprisingly common in pits in the northern half which have no clear association with buildings within the excavated area. These patterns are encouraging despite the fact that issues of residuality and re-deposition remain difficult to understand, especially in urban contexts (Perring 2002, 62).

A number of pits may be identified as having special significance on the basis of the finds of complete pottery vessels, articulated dog skeletons, and infant remains. The more detailed analysis of two such pits layer by layer shows that the deposition of material across fills is not uniform, and that the special deposits are not necessarily associated directly with each other. It also appears that they rarely occur in otherwise 'empty' layers but are instead usually associated with broken pottery and animal bone respectively. One explanation is that they relate to major events in the life (and death) of the associated household. More work, in particular on the more subtle patterning of material (e.g. Cool and Baxter 2002), and on the exact context and composition of 'rubbish', is clearly required before we can truly begin to understand the evidence for structured deposition in Roman Britain.

PART SIX

DISCUSSION AND SYNTHESIS

DISCUSSION AND SYNTHESIS

By Michael Fulford

SETTING THE SCENE: THE REORGANISATION OF THE INSULA

The late Roman occupation of Insula IX, as we have defined it, develops after the demolition of existing buildings and a major reorganisation of the layout of the insula. In addition to the demolition of the latest phase of 'House 1', the remains of the building to the south, known as House 2 from the excavations of 1893–94, were reduced to foundation level. Furthermore, no existing wells survived the reorganisation and three or four new ones were sunk. The setting aside of wells and buildings, which also occupied large areas of the insula on markedly different orientations, offered the opportunity of radical re-planning of the internal space. In the case of new property boundaries, these were established on the same north–south/east–west orientation as the street grid. Within the excavation area the change is represented most clearly by the digging of two parallel, but discontinuous rows of pits on an east–west orientation. We confidently extrapolate this alignment across the full width of the insula on the basis of discoveries made in 1893 and subsequent aerial photography. We interpret these pit alignments as straddling an otherwise archaeologically invisible property boundary, such that a northern zone representing about 19 per cent of the area of the whole insula was created. More tentatively, we have interpreted the southern edge of our excavation area as marking the southern boundary of the property embracing Buildings 1 and 5. Were this line extended the full width of the insula, it would define a further re-allotment of space, a second zone accounting for about 22 per cent of the area of the insula and embracing a further building identified from aerial photography on the west side of the insula. North–south divisions within the new overall allotments of space are less easy to define within the excavation area. In this report we have moved from suggesting several north–south boundaries in the northern zone (Clarke and Fulford 2002) to one which separates a plot containing Buildings 7 and 8 from one containing the building which occupied the north-west corner of the insula. Assuming that Buildings 1 and 5 belonged to a separate property from that occupying the west side of the insula, the division between them would appear to fall west of well 1170, i.e. around the west edge of the excavation area. Altogether we propose three substantial properties within the excavated area.

Moving south beyond the excavation area, there is space for one further east–west division to provide a roughly equivalent area to that occupied by Buildings 1, 5 and that on the west side of the insula. The modern droveway, which was not touched by the excavations of 1893–94, runs obliquely across this area, obscuring possible, further late buildings. Next to the south we encounter the properties which fronted the main east–west street of the town. Together these account for about 40 per cent of the insula (FIG. 118). Although incorporating at least one house (House 3) whose orientation suggests it originated before the Roman street grid, they otherwise probably evolved with a north–south orientation from about the mid-first century A.D. when the new street grid was established.

This radical re-planning of the insula and re-allocation of space takes place in the second half of the third century. The earliest, relevant evidence for the date of this within our excavation area consists of the third-century pits, well, and other features associated with the predecessor to Building 1 which will be fully reported subsequently (Clarke and Fulford 2002, 141, fig. 8). For the moment we have the evidence of a series of radiocarbon dates from the timbers of well 3011 which suggest a date of the outer ring of the sample of 202–240 cal AD (Galimberti *et al.* 2004). A major element of the reorganisation is the demolition of the latest phase of House 1 in the third century. It lay on a north-east/south-west orientation and its earliest (timber) phase dates back to the mid-first century A.D. A *terminus ante quem* for its demolition is provided by the primary contents of pits dug through the foundations. For the most part these contain fourth-century pottery and coins, but pit 1537 only contained a small quantity of second/third-century pottery.

Pit 1707, which otherwise contained late third/fourth- and fourth-century pottery, produced the articulated skeleton of a dog which was subjected to radiocarbon dating. On the basis of two radiocarbon dates (above, p. 38), the date of the dog is squarely in the third century. Unless the dog had been mummified in some way before burial, the evidence would suggest that pits were being dug through the remains of the house before about A.D. 300. Radiocarbon dates were also obtained from fragments of wood preserved at the base of well 1170 (above, p. 40). These point to a mid-third-century date, which suggests the wood is to be associated with the construction of the well, perhaps the well-lining. As the preservation of the wood was not good enough to assess the position of the sample points in relation to the sapwood, we cannot be sure how close the date is to the date of the felling of the wood. Nevertheless it is interesting to observe that the three separate sets of radiocarbon dates are earlier than the date of the majority of pit fills determined on the basis of coins and pottery.

On stratigraphic grounds we can also be confident that the remains of House 2, on a similar orientation to House 1 and occupying the middle ground of the insula, were lost at about the same time as House 1. Though comparatively ill-defined by the excavation of 1893, to the extent that the limits of one of the two ranges associated with this house were not found, further lengths of foundations on north-east/south-west and north-west/south-east orientations were recognised towards the southern limit of the excavation area. These can reasonably be associated with the remains of House 2 and they were cut by two deep pits with third-century material (Clarke and Fulford 2002, 136–43).

Even if the nature of the archaeological evidence does not point to a single date for the reorganisation, it seems reasonable to suppose that this was the case and that the event took place in the second half of the third century. Alongside the radiocarbon dates the absence of stratified examples of the abundant issues of radiate coins from relevant contexts seems to suggest a date before the 270s. The dating of this event will be explored in the next volume of reporting on the Insula IX project, *The City in Transition*, when the evidence for a predecessor to Building 1, also aligned with the north–south street, will be reported.

What precipitated this extensive reorganisation of the insula? The fact that we can demonstrate with certainty that at least two thirds of the insula were affected suggests single ownership. Thus, a change of ownership may have been the context for the re-planning and re-building. The latter may have simply been a rationalisation of the internal space to bring it into line with the street-grid which had been established some two hundred years earlier. However, we should not overlook the fact that the origin of the orientations taken by the earlier buildings, e.g. House 1 and House 2, can be traced back to the late pre-Roman Iron Age (Fulford and Timby 2000). Thus, the re-planning also symbolically eradicated a link which went back to the origins of *Calleva*.

The town plan of *Calleva* shows many other buildings oriented differently from the layout of the Roman street-grid (Fox 1948; Fulford 2003). It is pertinent to ask whether there is evidence for similar, large-scale reorganisation of the town elsewhere than in Insula IX in *Calleva*. Without the benefit of renewed excavation to examine relationships and secure dating evidence, we might accept as indications of earlier buildings being replaced, the presence of buildings, particularly those oriented with the Roman street-grid, impinging on the plan of others laid out on other orientations. What we cannot assume is that any building laid out in relation to the Roman grid is late. Excavations beneath the forum-basilica have revealed an arrangement of timber buildings dating from the mid-first century A.D. which co-ordinate with the Roman grid

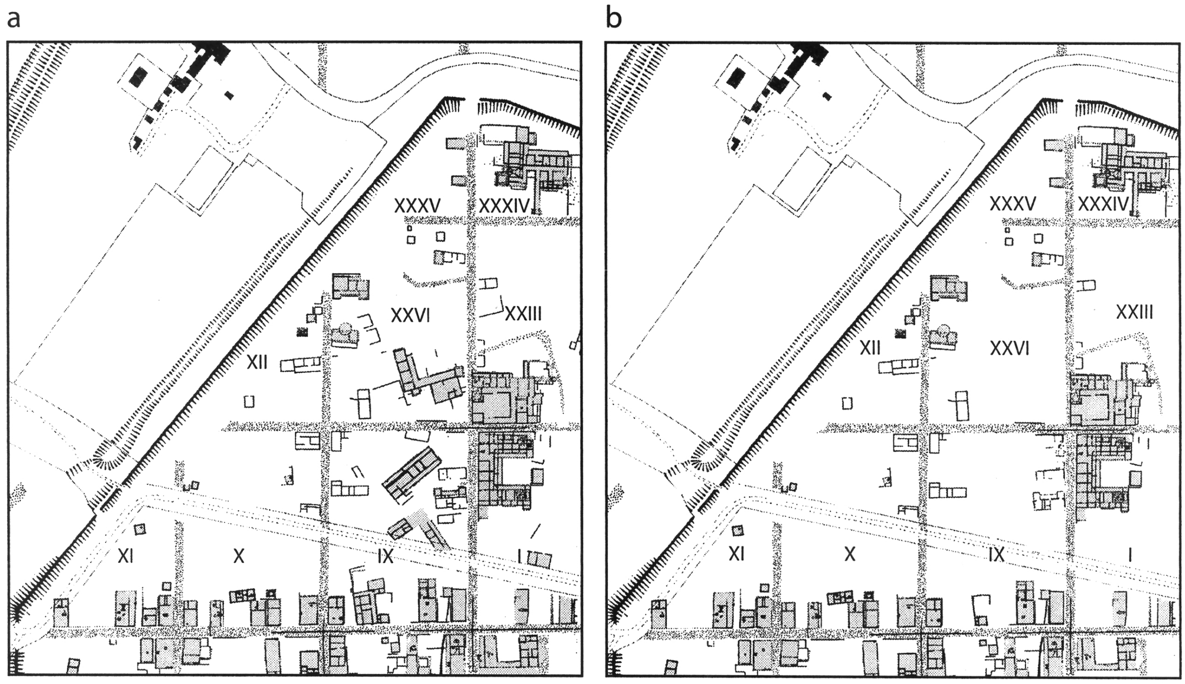

FIG. 117. Silchester, the north-west quarter of the town: (a) with all buildings either excavated by the Society of Antiquaries or plotted from aerial photography (Bewley and Fulford 1996); (b) with late Roman buildings only

(Fulford and Timby 2000). House 2 in Insula XIX has evidence of an early, but undated phase associated with mosaics, also laid out in relation to the grid (Hope and Fox 1899).

Insula XXVI, immediately to the north of Insula IX, meets our primary criteria, offering examples across the whole insula (FIG. 117). House 2 is at an oblique angle to the Roman street-grid, but Fox and Hope could make little sense of it (1901, 242–3, pl. 32). It appears to have been replaced by one or two, narrow-fronted buildings identified from aerial photography and aligned to the east–west street (Boon 1974, folding plan; Bewley and Fulford 1996, fig. 15).[1] Block 2 also appears to partly overlie one or two buildings, one of which is on an 'early' orientation (Fox and Hope 1901, 242, pl. 32; Boon 1974, folding plan; Bewley and Fulford 1996, fig. 15). The description of the poorly preserved structure, oriented north-east/south-west, of House 3, both by Joyce, its original excavator (1881a, 330), and Fox and Hope (1901), is reminiscent of that of House 1 in Insula IX now known to have been destroyed by about the mid-third century. Intriguingly, the plan of House 1 in Insula XXVI is similar to that of our Building 1. It is also interesting to observe that the excavators recorded that, like those of our late Roman Buildings 1 and 5, the foundations of Block 2 were of gravel.

While it is difficult to argue the case for radical re-organisation of the two insulae immediately adjacent to the east (I and XXIII) because their plans are dominated by those of a few large town-houses, with clearly complex histories, it can be proposed for those to the west (FIG. 117). Both Boon (1974) and Bewley and Fulford (1996), on the basis of aerial photography, add new buildings aligned with the Roman grid to the plans of Insulae X to XII. Boon also goes further than The Royal Commission in suggesting further additions of structures on 'early' alignments in Insulae X and XII. Possible reasons for their being missed by the Society of Antiquaries' excavators are that either the foundations of Roman grid-oriented buildings were of gravel and not spotted during trial-trenching (cf. our Building 5), or that they

[1]Boon's 1974 plan includes a number of 'new' buildings identified from aerial photography which were not recorded during the Society of Antiquaries' excavations. Not all of these buildings are accepted by the Royal Commission on Historical Monuments (England) whose plot of aerial photography is more cautious (Bewley and Fulford 1996).

were otherwise too poorly preserved to be seen. The fact that these foundations are clear on the aerial photography indicates that they are later than the later Roman heightening of the streets (and that they were not subsequently buried by any further heightening of the streets). Potentially, therefore, the whole north-west quarter of *Calleva* saw redevelopment in the late Roman period. Only further excavation will determine whether that redevelopment took place within existing property boundaries within each insula or, as is indicated for Insula IX, involved new layouts. In the case of Insula XXVI the latter seems the more likely. The scale of these changes invites further consideration as to the nature of the ownership of the insulae. Is it the case of a private individual owning the larger part or the whole of one (e.g. Insula IX) or more insulae (the north-west quarter), or does the scale of redevelopment indicate ownership and initiatives on the part of the *respublica* of *Calleva*?

Scrutiny of the plan of *Calleva* identifies several other examples of buildings on 'early' orientations whose plan is incomplete, such as House 3 in Insula XVI, or House 3 in Insula XVII in the southern half of the town. Towards the southern limit of the walled town in Insula VIII, where the *mansio* is located, there is further evidence of several incomplete plans of buildings on 'early' orientations suggesting their early abandonment and demolition and another radical, perhaps insula-wide, reorganisation (Fox and Hope 1894). There is no evidence for the date of the changes in Insula VIII and it would be premature to go beyond the north-west quadrant and suggest a city-wide reorganisation in the second half of the third century. However, it is to this period that we assign the construction in masonry of the city wall (to the A.D. 280s) (Fulford 1984) and the use of the basilica (of the forum-basilica) for metalworking (Fulford and Timby 2000).

CHARACTERISING THE LATE ROMAN OCCUPATION

To characterise the nature of the late Roman occupation we have the evidence of both buildings and their associated properties and contexts, whether pits, wells or general layers. We have argued above that, perhaps from the outset, but otherwise from the early fourth century, when a front elevation was added, Building 1 and Building 5 belonged to the same property. To the north, along the north–south street, the buildings known as Buildings 7 and 8 are assigned to a single property. The remainder of the northern area is attributed to the building identified from aerial photography which occupies the north-west corner of the insula. Thus, even if the excavation has not secured the plan and development of one of the buildings (in the north-west corner), or, with certainty, the full extent of the southern property of Buildings 1 and 5, we have the prospect of exploring the nature of the lifestyle and occupation of three late Roman properties in Insula IX (FIG. 118).

Until the addition of the projecting rooms and linking corridor, Building 1, like Building 5, resembled in general terms the plan of many of the narrow-fronted shops-cum-workshops which can be located across the plan of the town and, in particular, along the main east–west street (FIG. 119). With the addition of the new, north-facing elevation we have a house which resembles House 1 in Insula XXVI, though, internally, there is no evidence for flooring of 'red tile mosaic' (Fox and Hope 1901, 242). This may have been lost through ploughing, though we note some rough tile-flooring in a mid-fourth-century phase of the eastern room. The latter, with its associated hearth and apparently open southern side, appears to be the work-room of the house. We interpret the south side as having had barn-like doors which would allow large objects, like carts and wagons, to be brought in and out from the street. This arrangement is paralleled in Building 5, which also has no certain evidence of a south wall for the larger of its two rooms. Interestingly, unlike the early Roman tradition of shops and workshops opening directly on to the street, as in Pompeii and Herculaneum, in the case of both Buildings 1 and 5 access does seem to have been at the side. This recalls early Roman arrangements in London (e.g. Perring and Roskams 1991; Perring 2002, 64–72). The living quarters in both Buildings 1 and 5 seem to have been in the western part — one internal space in the case of Building 5 and three at ground level in Building 1. We consider that Building 1 had an upper floor with further living accommodation, though the workroom was either open to the roof to allow smoke from

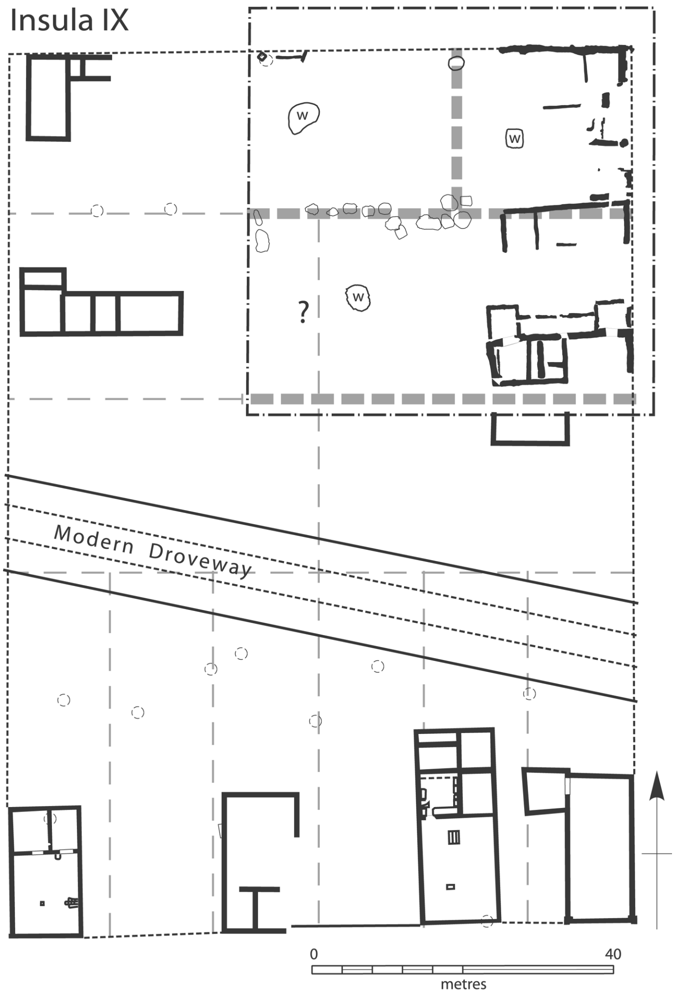

FIG. 118. Proposed property divisions within Insula IX

the hearth to escape, or there was a chimney against the north wall. Despite its modest aggrandisement, on the basis of the hearth and associated deposits of slags, Building 1 seems to have continued to function as a combined workshop and residence throughout its life. Although Building 5 was less well preserved, we have no reason to believe that it, too, did not continue to function as a combined workshop and residence throughout its life. Its somewhat slighter construction compared with Building 1 may mean that it was only of one storey. Equally, the lack of evidence for a hearth in the workroom may simply be a function of poor preservation, rather than an indication of a slightly different character to the nature of the occupation. The relationship between the two buildings, with the larger confronting the smaller, may suggest that Building 5 was of a dependent status, perhaps accommodating slaves in its smaller living quarters, while the owning family occupied Building 1. The character of the occupation and the relationship between the two buildings can be further explored through the associated pits in their backyard.

The bulk of our detailed finds' evidence derives from such pits and the wells, with further samples drawn from the associated layer contexts representing both occupational and make-up activity. However, conscious that make-up layers may well incorporate material introduced from outside the insula, we have concentrated our research effort on the contents of the pits and wells which are distributed across the excavated area, with a particular focus on the presumed east–west division between the northern and southern halves. Certain categories of material — ceramics (and ceramic building material), animal bone, iron-working and iron-making slags, charcoal, and copper-alloy coins — are widely, but not necessarily evenly,

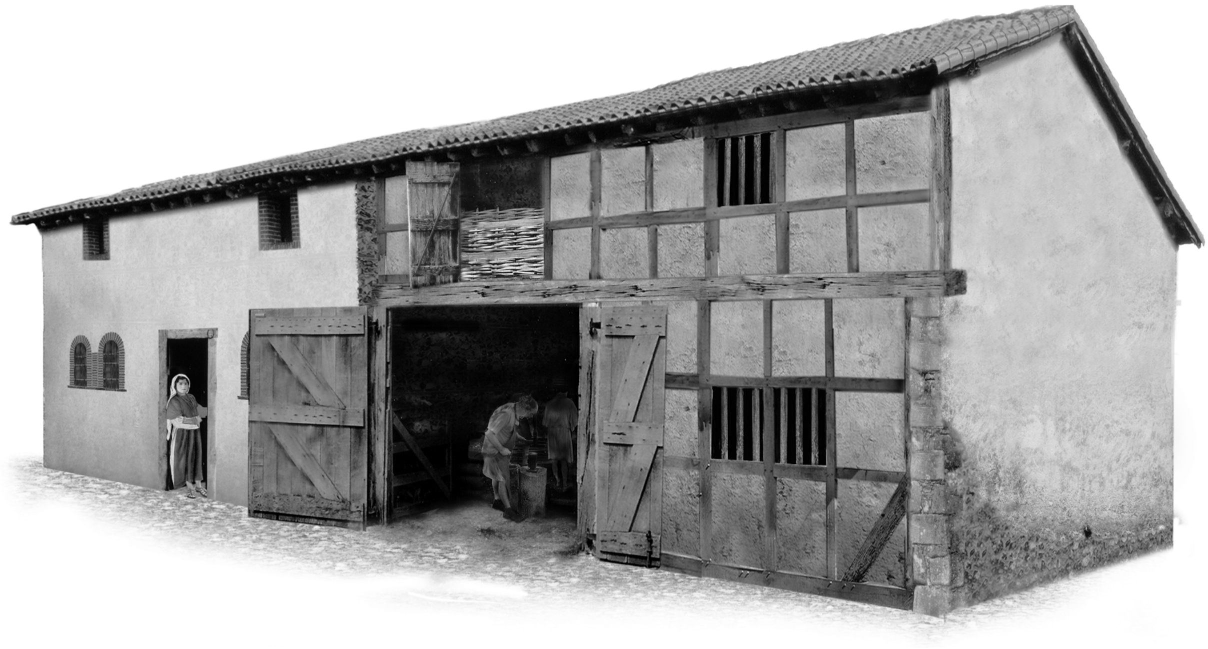

FIG. 119. Reconstruction of Building 1 by Margaret Mathews (from the south)

distributed across the excavated area. Glass, worked stone, other 'small finds' of copper alloy, bone, etc. and categories of biological evidence, such as mineralised and water-logged plant remains, fish and bird bone, are rare and limited to certain locations.

Of the widely distributed materials some generalisations can be made both about their character and their distribution. In the case of the pottery, for example, we note that there is a high tenor of residual material throughout the excavated area, but particularly in the north-east in the area of Buildings 7 and 8. We have quantified in some detail the ceramic building material from the pits and note that it is greatly fragmented with seldom even a piece as large as half a tile surviving. This strongly suggests that it has been extensively re-worked and reduced over time. In the case of the animal bone, Ingrem has observed from the material both from pits and general contexts across the excavated area an under-representation of mandibles and major limb bones. Their fragmentary nature is consistent with them having been intensively processed for marrow and grease extraction. In the case of the slag reported by Tootell, the quantities are small with only some 16kg in total recovered from across the excavation area. Nevertheless, including the hearth bottoms, which are evidence of some iron smelting, and hammerscale, which is a product of forging, slag is associated with all three properties within the excavation area. This suggests that iron working, certainly in the form of smithing, but perhaps also in the shape of some smelting, took place across the excavated area. As discussed above by Eckardt, fourth-century coins are distributed across the whole of the excavated area. However, later fourth-century coins are only found in pits in the northern half, while those of the latest issues of the House of Theodosius are found along, or relatively close to, the streets, including in association with Building 1. When one of possibly the latest events to have taken place within the excavated area — the deposition of the ogham stone — occurred in an area largely devoid of coins later than the mid-fourth century, we are reminded that much stratigraphy has been lost through cultivation across the insula and the wider, walled area.

In the case of one category of widely-distributed material across the excavation area, carbonised plant remains, it is the absence, or rarity of a particular type which appears to be significant. Mark Robinson has noted the lack of chaff, which is generally regarded as evidence of cereal cleaning, from across the site. From this he infers that crop processing was not a major activity in Insula IX. This is supported by the lack of quernstones from across the excavation area. Of a total of six, only one is typologically of a late Roman type, while two others are of a material — Old Red Sandstone — which is more common in the late Roman period. The remainder are probably residual.

Distributed across the excavated area, it is to the contents of the pits, however, that we need to look to gain insights into the life and occupations of the different properties. The extent to which they and their contents may be regarded as representative sources of evidence to reconstruct the life and occupations of the inhabitants of Insula IX is open to question. In the first place they are relatively rare, even in the context of the fourth century to which the majority belong. For the fifth and, potentially, the sixth century the pits are, like contemporary material culture, rarer still. Why were they dug? In some cases, such as with pits in close proximity to buildings, they functioned in part at least as cess-pits and this is confirmed by the presence in them of mineralised insects, seeds, and bone. If the disposal of rubbish and cess was their main purpose, even allowing for periodic emptying and the disposal of contents across the backyards or beyond the bounds of the insula, one might reasonably have expected to find more. In other cases the pits appear to mark property boundaries. The fact that possible boundaries are not 'confirmed' by continuous rows of pits suggests that the cutting of one or more pits is prompted by intermittent events, but what were they? That pits lie close to boundaries may have been driven by the desire to keep the main area of the backyard clear of intrusions, not by the need to make a statement about a boundary. What lies behind the group of shallow pits in the northern half (Object 120), or the group of pits adjacent to the well 1170 in the southern half (Object 115)? The former represents a complex association, of which only a few of its members were deliberately dug as pits. The latter may have been dug in relation to events associated with the functioning of the well, such as ceremonies to ensure the continuity of water in a dry summer. Equally the location of the group may have been determined on practical grounds. The pits may simply have occupied a cleared space around the well to avoid activities taking place in the main open area of the backyard. A further frustration in determining purpose is that it is not easy to distinguish 'primary' contents from material which may be associated with the soil used finally to fill the feature. In searching for a rational explanation for the pattern and contents of the pits, it is tempting to invoke the mantra of ritual. With a view to understanding better their character and use, Eckardt has analysed the finds' assemblages from the pits in detail. Although the occurrence of complete, or near-complete, skeletons of infants and dogs, and of complete or near-complete pots indicates an element of structured deposition, the presence of other material — tile, pottery sherds, miscellaneous animal bones, etc. — is more indicative of rubbish disposal. Even with the careful analysis of two pits in detail, it is difficult to escape the fact that there is considerable ambiguity between their possible ritual and functional roles. Nevertheless, the similarities between their latest fills, which contain large and varied assemblages of material, suggest that these, at least, represent major events in the life of the household.

BUILDINGS 1 AND 5

In considering the evidence for the life and occupations of the inhabitants of Buildings 1 and 5, we need to approach it fully aware of its character and of the limitations outlined above. To develop our understanding, we need first to consider the evidence of the pits outside the buildings. Immediately outside of and to the west of Building 1 are four substantial pits (2900, 2914, 3235 and 3251 (part of Object 116)), all of which contained mineralised remains suggesting that they served as latrine pits for at least part of their life. The coin and pottery evidence suggests that these pits were mostly filled in in the late third/early fourth century, with only the upper fills containing fourth-century pottery; in the case of 3235 these also included some later fourth-century material as well as two coins of the first half of the fourth century.

A second group of pits, part of Object 115, is located adjacent to the well 1170. The three key pits (1384, 1463 and 1571) contain fourth-century pottery and 1571 a coin of the A.D. 340s. While none of these pits produced material certainly late fourth-century in date, as a group they would appear to be a little later than the four cess-pits close to Building 1, but none produced mineralised material.

A third group of smaller pits can be defined within, or immediately adjacent to, Building 1. The more important are 2634 from the east room of the main house and 1354 from the eastern of the two projecting rooms on the north elevation, both of which produced Theodosian coins. We should also note 1779 and a group of shallow pits (1992, 1993 and 3461) immediately to the south of the building. These constitute the latest of our three groups. We shall return to these below in connection with the discussion of the latest occupation and abandonment of the site.

Common to the early and late groups of pits is the presence of small quantities of iron-forging slags, as well as some hearth bottoms, which we see as indicative of limited smelting of iron. Further evidence of the forging of iron derives from the presence of microscopic residues including hammerscale in contexts associated with Building 1 through the fourth century. Perhaps not surprisingly, there is almost no evidence of this activity from our second group of pits which is some distance from the building. Overall we conclude that iron-forging and iron-smelting are one feature of the life of the occupants of Building 1 throughout its life. Although, comparatively, this material bulks large in the archaeological record, it is difficult to convert this into days worked or quantities of artefacts produced, particularly when we can suppose that some of the waste has been transported away from the insula. It would probably be wrong to conclude that iron-working and iron-making represented the principal activity, because there is also the evidence of the comminuted animal bone noted by Ingrem from all groups of pits and from the other contexts associated with the building. This suggests that the intensive processing of bone to extract marrow fat and grease was also a feature of life in Building 1 throughout its occupied history.

Further evidence of occupation is provided by several offcuts of antler from the cess-pit 3251. These point to the working of bone, including the preparation of inlays or veneers, and are complemented by pieces of red deer antler with cut marks which were recovered from pit 3235. Pit 1384 from the central group of pits also produced a chopped tibia of red deer.

To the range of possible occupations we may also add leather-working which is evidenced by two iron awls from pits 1246 and 2900. Finds in such small numbers obviously raise questions of significance, particularly as to whether they are residual, but they do represent the only finds of tools (including knives) from contexts associated with Building 1. On the other hand, and in the face of the evidence of the residues of iron-working and bone-processing, the absence of other tools associated with metalworking or with the intensive processing of bone, though striking, cannot be taken as negative evidence for those activities. In this context two awls appear as an abundance! Nevertheless, similar uncertainties of interpretation arise with other finds possibly indicative of activities associated with the building. We should note, for example, as further possible evidence of metalworking, fragments of copper-alloy sheet, the refrozen lead sheet puddle from pit 3251, and the lead-alloy fragment from the fifth-century pit 1354. Of evidence of other activities we note the fragments of two querns from pit 3235.

Although we can only confidently point to the iron-working and the processing of bone for fat and grease continuing into the fifth century, the number of activities that might have been carried out from time to time in Building 1 is impressive. Linked with the large eastern room and its associated hearth, we therefore propose a workshop associated with a wide range of craft and specialised functions. With the possibility of access into the building for large items, we might envisage that the range encompassed both small-scale activities, such as bone- and leather-working, and the building and repair of large items such as carts and wagons. The intensive reduction of the animal bone might suggest candle- or soap-making.

While there are tiny numbers of craft tools from Building 1 and associated contexts, there are none that might be associated with agriculture or horticulture. Several strands of circumstantial evidence, however, would suggest that the household was involved with both. First, we note the clear space of the backyard and the distribution of pits either close to the building or the central feature, the well 1170. This area could have been used as an orchard (we note the large numbers of apple pips and the evidence for other fruits from the mineralised remains in the cess-pits) or a garden, perhaps growing some of the other plants evidenced from the cess-pits. The presence of a sheep or goat dropping — surely indicative of the presence of live animals close by — among the mineralised remains from pit 3251 would be more supportive of the first interpretation. Alternatively, it might be seen as evidence for the introduction of manure for the garden plot. The third strand of evidence is more circumstantial and concerns some of the animal remains. Claire Ingrem has noted the presence of bones representative of the whole skeletons, including the skulls — some with evidence of pole-axing — of cattle, sheep, and pig, as well as bones of neonate sheep and pig, among the pits adjacent to Building 1. While it is perfectly plausible for the household to have bought or traded in complete animals which were butchered on site, the presence of the neonates might suggest a more immediate derivation. They could have been raised either in the backyard (supported by the presence of the sheep/goat dropping), or on land outside the town, owned or rented by the household. Robinson has interpreted the small amount of cereal remains, chaff and weed seeds from the pits close to Building 1 as representing 'tailcorn', i.e. fodder for animals.

Altogether the cumulative picture that is emerging from the evidence associated with craft/artisanal activities and some of the animal remains is of a household with a very developed and diverse strategy for subsistence. Complementing the range of artisanal occupations, there is evidence for animal husbandry embracing cattle, sheep/goat, pig, and domestic fowl. This could have contributed both to domestic requirements and to the supply in a small way of the urban market. It is likely, but much harder to prove, that some of the other foodstuffs, such as the fruits, which are evidenced in the cess-pits, derived from the backyard or from land outside the town, which also included pasture for raising stock.

How does this evidence of occupation translate into quality of life of the household of Building 1 (FIG. 119)? Though largely, if not completely, flint-built and of two storeys with an element of pretension reflected in the projecting rooms and corridor of the northern elevation, there is no evidence for interior décor. Floor surfaces, which survived in the fill slumped into the underlying pit beneath the eastern, projecting room, were of clay. In the workroom the mid-fourth-century floor was made up of horizontally laid, irregular fragments of broken tile. This very limited picture may partly derive from destruction by the plough to the level of the foundations, but even in the very similar house (1) in Insula XXVI, there was only evidence of tile mosaic (?= tessellated floor) in one room and the corridor (Fox and Hope 1901, 242).

Quality of life was surely affected by the proximity of the cess-pits immediately outside the house around which flies would have swarmed; the pits have produced the mineralised remains of trickling filter fly, sewage and latrine fly, and rat droppings. While we cannot adduce any direct correlation, we note the evidence of infant mortality. The cess-pits 3251 and 3235 produced the remains of three premature and one full-term, female neonate, which was represented by an almost complete skeleton.

Materially, the evidence from Building 1 and its environs is not rich, with ceramics dominating the assemblage. Although the presence of the battered pewter flagon at the bottom of the well 1170 suggests the possibility of further metal tableware, the finds from the pits and associated contexts indicate that, for the larger part, colour-coated pottery from the Oxfordshire and New Forest workshops met the needs of the table. There is a very little glass, particularly from the cess-pits 3235 and 3251, and, where form is identifiable, it is in the shape of cups, jugs, and bottles. Many of the fragments are of early Roman date and probably residual, but the discoid jug of second- or third-century date from pit 3235 is likely to have been a genuine loss of the early fourth century. Otherwise there are just two fragments, probably of cups, of third-/fourth-century glass, with one piece from each of the pit groups.

The issue of residuality recurs with the pottery, but we may presume that some of the third-, or second/third-century pottery finds are also likely to be genuine losses of the period, rather than residual, re-worked, sherd material from earlier occupation. Among the tablewares pottery drinking vessels are quite well represented with percentages in the range of 13 to 19 per cent in three of the five pits close to the building. In the central group of three pits around the well the percentages are higher — 18, 25 and rising to 57 per cent in one pit. Pottery, particularly BB1 from Dorset, which is consistently represented in ratios in excess of 10 per cent, and Alice Holt greyware, supplied the great majority of the cooking and storage wares, with mortaria, both white-ware and red-slipped, well represented from the Oxfordshire workshops.

If this points to a degree of affluence, it finds little correspondence in the few finds of personal items, such as jewellery. Examples of late Roman copper-alloy finger-rings and armlets occurred in the cess-pits close to the building. A jet pin and bone pins of early Roman date are also present in these pits. The context, with so much other material of a late date, might suggest that these are genuine survivals, finally lost in the late third and fourth century. Antler inlay is there too, with a further possible late fragment from the isolated, small pit 3357. The pits around the well 1170 produced only one possible late Roman small find — a biconical, green glass bead — and one fragment of a third/fourth-century glass vessel. Crummy's comparative survey highlights the poverty of the Insula IX 'small finds' assemblage at a general, 'site' level, in comparison with three villas, a 'small town', a late Roman 'Saxon Shore' fort, and the Silchester forum-basilica. That poverty is markedly reinforced when the finds from the two town-houses close to the city wall on the east side of Cirencester (Beeches Road) are considered (McWhirr 1986). However representative these may yet prove to be of a late Roman town-house, they indicate a considerable gulf in material wealth from that of the 'poor' household of our 'developed' workshop, Building 1.

Nevertheless, and even though there is the possibility of their being residual, the styli suggest that members of the household were literate. There are also two, fragmentary and uninterpreted graffiti on contemporary pottery sherds from pits in both groups, Objects 115 and 116. Later, the presence of the ogham inscription is evidence of another form of literacy in the fifth century.

The pits close to the building with their remarkable range of plants preserved through mineralisation offer a remarkable insight into the cereals, fruits, and vegetables consumed by the household. Though this process of preservation appears to favour complete seeds, rather than, say, well known staples like grain which has been dehusked, the range is nevertheless impressive. While the majority of the food remains represented here were probably grown locally, there are also certain (fig) and probable (lentil, grape, and cucumber) imports. The Gallic, North African, and Asia Minor (Biv) amphorae may also have reached the household intact with contents of wine and oil. Yet, establishing the relative importance in the diet of these different types of plant foods is well nigh impossible. As Robinson reminds us, 'a single fig contains several hundred seeds'. Nevertheless, it is likely that spelt wheat and six-row hulled barley were the main cereals, supplemented by some lentils, beans, and peas. These were enlivened with a range of flavourings, coriander, mustard, celery, etc. There was also a rich fruit, notably apple, component in the diet. The presence of mineralised hemlock seeds presents a particular problem of interpretation. Although poisonous, they may have been taken in small quantities for medicinal purposes.

Just as with the plant foods, similar issues of interpretation surround the relative importance in the diet of meat represented by animal, bird, and fish bone, where we can document the presence and relative abundance of individual species. Here, too, there is a remarkable range of evidence, particularly from the cess-pits close to the building. While beef (cattle) dominates the bone material, it includes the other main domesticates, sheep and pig, as well as some wild animals such as roe deer and hare, both showing evidence of butchery. There is also limited evidence for the butchery, or de-fleshing, of dog from two pits, and of horse from one pit, 1384. Domestic fowl is present along with some duck and goose, and a single example of raven. Both freshwater and marine fish species are present, including eel, pike, salmonid, cyprinid, clupeid, and flatfish. Oyster is also present in small quantities. While the freshwater species could be obtained locally from the Thames, Kennet, and Loddon, the marine fish and oyster were traded in. For a 'developed' workshop, the range of food types preserved in the pits is impressive. With some exotic elements it suggests a more varied, if not richer, diet than the impoverished assemblages of 'small finds' and glass would suggest.

What other sources are available to help us build up our characterisation of the life-style and occupations of the household of Building 1? We have seen that the 'close' world of the pits next to the building has yielded a rich story with a greater variety of material and biological remains than from elsewhere within the whole excavated area. Eckardt has explored in detail the composition of two of these pits and has shown how difficult it is to define pattern and purpose. The remains of neonate infants and dogs are disposed along with human (and animal) waste and a wide range of material culture, particularly pottery, and animal bone. What, perhaps, is interesting, is that there is no separate deposition from all other waste of the human and dog remains which are indivisible in this context. Were dogs valued differently from the infants? The evidence would suggest not. Amongst the not inconsiderable dog population from the 'close' pits of Object 116, there is clear evidence of mistreatment, with evidence of injuries to the head, including a mortal blow with a cleaver, to two dogs. There is also some evidence of butchery. On the other hand, one young dog shows evidence of careful treatment of a broken leg. Dogs, whether as domestic pets, or as guard dogs exposed to abuse and violence, were a part of everyday life of the household. Is it deliberate that they and the infants are clustered in the pits close to the building, or is it merely coincident with the location of the cess-pits?

In this regard, there is a clear difference between the assemblages of the pits close to the building and those around the well 1170. This is reflected not just in the scarcity of dog and infant bones, the absence of bird and fish remains, and in the limited range of other animal species, with cattle clearly dominant, but also in the absence of evidence of mineralised remains and, thus, cess. Contemporary 'small finds' and glass are very rare, but we have noted above that the pottery is distinctive because of the very high proportion of drinking vessels from all three pits. One pit also contained a deliberate deposit of a complete example of a New Forest beaker and an Alice Holt or New Forest pottery flagon. If the cess-pits close to the building contain the richest range of rubbish, representative of day-to-day life and events, but also including some feasting, do those around the well represent special occasions, marked by feasting and drinking? Were these celebrations related to the working of the well, or to episodes associated with the life, birth, marriage, and death of members of the household? In contrast with the cess-pits with their evidence of re-cutting, the comparative poverty of the material and biological assemblages of the 'central' pits might suggest that they were dug and filled over a short period of time.

BUILDING 5

With the 'central' pits of Object 115 we perhaps share contexts with Building 5 which, we have argued above, formed part of the same property as Building 1. The reason for a separate treatment of Building 5 is that there is a distinct group of pits (Object 117) which relates to it.

The building itself is simple with a single, internal division. We have suggested that the small space at the west end represented the living quarters, while the large space invites interpretation as a workshop. Like Building 1, the lack of evidence for a south wall suggests the possibility of large, barn-like doors. More plausibly, and in the light of the evidence for the raising of domestic animals, which we have inferred from the nature of the animal bones associated with Building 1, we would argue that this space was indeed a barn or byre for sheltering the animals of the larger, combined property of Buildings 1 and 5. In this regard the absence of evidence for a hearth is supportive of such an interpretation. What, then, do the finds from the adjacent pits add to the story?

Let us consider evidence for occupation. Four pits contained small quantities of iron-working slag, including one hearth bottom and very small quantities of hammerscale, etc. Three pits contained large assemblages of domesticated animal bone whose character is very reminiscent of that associated with the pits close to Building 1. While cattle dominate the assemblage as a whole, one pit produced a partial pig skeleton and a bone of a neonatal lamb, while others, singly and collectively, produced all parts of the cattle skeleton. Part of a domestic fowl skeleton was recovered from one pit, while another produced a bone from a hen in lay. While none of this constitutes proof, it supports the interpretation that stock raising and the keeping of fowl formed a part of the livelihood of the combined property. There is a small iron goad from pit 2087. We might also note the mineralised evidence for possible animal bedding — the bracken from pit 3235 adjacent to Building 1.

Materially, finds other than pottery are very poor and, as with the examples from the pits associated with Building 1, there is a probability that some at least of the bone pins and other early Roman items are residual. Only a copper-alloy toilet-spoon from 1021, a possible iron ring-brooch from 1666, and a green glass bead from 1707 are more confidently fourth-century items. There is no third/fourth-century glass, but there is one fragment of a second/third-century cup. With the pottery, however, there is greater comparability with the assemblages associated with Building 1, particularly Object 116. With only one pit (1707) with a percentage as low as 5 per cent, others have produced ratios of drinking vessels in the range of 11 to 16 per cent of the assemblage. This is very similar to the ratios in the pits belonging to Object 116 close to Building 1.

In terms of the quality of life as represented by the evidence of food remains, we have noticed above the presence of the main domesticated species, including cattle in particular, but we can also add goose to the list. There is one dog bone with evidence of de-fleshing or butchery. In addition, there is a range of wild species represented, including red and roe deer and birds comprising members of the thrush family, pigeon, woodcock, and duck. Wild birds are slightly more diverse and numerous than those derived from the pits associated with Building 1. In marked contrast with the pits of Object 116 there is no evidence of fish, though there is a tiny quantity of oyster. Also, in contrast with the pits of Object 116, there is no evidence of mineralisation and thus no evidence for the diverse range of plant foods associated with Building 1. If this phenomenon relates to the intensity of use of the cess-pits, it implies a smaller population or household than that associated with Building 1.

This may account for the lower incidence of infant and dog remains. Only two infants and a minimum of five dogs are represented, in both cases approximately half the size of the population from the pits of Object 116. In other respects the association in the pits of infant and dog mirrors the pattern established for Building 1 (above).

For the most part the pit assemblage associated with Building 5 compares well with that associated with Building 1, but there are some clear differences. While the lack of carbonised and, especially, mineralised remains from the pits of Object 117 precludes us from comparing the evidence for plant foods, the absence of fish and the extreme rarity of oyster in a context where the same sieving regimes were conducted on all pits is striking. On the other hand, it is interesting to note the slightly greater incidence of wild bird in Object 117. Despite the greater volume of the pits of Object 117 compared with those of Objects 115–116, we note that both the density of bone and pottery were less than for Object 116. This may be a function of the intensity of use, including the different size of respective households. When compared with Object 115, the density of bone was greater, but that of the pottery slightly less.

While noting the different quantities and densities of the various categories of finds, the archaeological evidence does not allow us to differentiate between the occupations associated with the two southern buildings. These point to non-intensive stock raising, iron-working, and the processing of bone for marrow fat and grease as the principal activities. More specifically, the lack of a hearth in the larger space of Building 5 might add extra weight to the interpretation of it having been the byre housing the domestic animals of the joint property.

In terms of quality of life, however, there are differences, both in respect of the numbers and type of personal small finds, but, more particularly, in relation to food consumed. Here the absences of fish and of containers associated with imported foodstuffs are notable. A slightly greater range of wild bird, as associated with Building 5, is usually seen as an indicator of status. On the other hand, in this context, it may be evidence of difficulty in obtaining food. None of this would contradict an interpretation mooted above which saw Building 5 as dependent on Building 1 and the home of a smaller household of the slaves or workers associated with the larger house. There is one 'ownership' graffito '[P]RIVATI' (the vessel of Privatus) from pit 1702, but it is inscribed on a sherd of a Dressel 20 amphora, a type of vessel which was imported to *Calleva* from as early as the late first century B.C. up until the mid-third century A.D. The probability, therefore, is that it is either residual in this pit or, as a long-curated vessel, that it was inscribed before the construction of Building 5. Indeed, the filling of the pit is dated to the second half of the third century and, as the most westerly of the group Object 117, may not be connected with the property in which Buildings 1 and 5 were located.

Finally, we might note, too, that at about 27m^2, the area of the living accommodation of

Building 5 is only some 39 per cent of the equivalent area of Building 1. If we take an upper storey into account for Building 1, but not, as we have argued, for Building 5, the living area of the latter amounts to only 24 per cent of the accommodation available in the larger house.

BUILDING 7

When we move northwards along the north–south street into the property associated with Buildings 7 and 8, we are confronted with several difficulties. The first of these is the difficulty of identifying structures, another is the relative lack of pits altogether, while there is the further difficulty of establishing whether those on the western boundary are to be associated with Buildings 7 and 8 as opposed to the third property to the west. It is also not clear whether we can, or should, differentiate between Buildings 7 and 8 in trying to characterise the occupation of what now seems to be a single property. If we are right in our interpretation, then both buildings are served by the one well, 1044. We have also noted that material from both pits and general contexts has a high tenor of second/third-century material. Is this residual or evidence of the long survival of pottery and other artefacts into the fourth century?

Building 7 appears to be a single-room building with a central hearth. Close to it are two pits, one certainly a cut feature (1459, Object 118), the other (1611, Object 119) probably comprising accumulated contexts where the fills of an underlying early Roman well had consolidated and slumped. The latter is situated close to the west end of the proposed building and is likely to have trapped material associated with its use. While neither of these produced iron-working slags, there is evidence of hammerscale, etc. from the yard area, immediately to the north of Building 7, in the late third/early fourth century. 1611 produced a large piece of naturally shed antler with evidence of a tine chopped off. This is the sole piece of evidence that antler might have been worked in Building 7.

Personal items are limited to a single item from each pit: a late Roman, green glass, cylinder-bead and a fragment of an early Roman hairpin, probably residual. The pottery assemblages from the two pits are consistent with deposition around the mid-fourth century, though the incidence of residual material in 1611, which contained two mid-fourth-century coins, is striking. This well-dated context would favour the interpretation that the material had survived in use up until the time of its final loss. Also remarkable from 1459 is the diversity of forms present and the large quantity of Hampshire late Roman grogged ware, mostly comprising sherds from storage jars, and accounting for some 38 per cent of the assemblage by sherd count. The proportions of drinking wares at about 13 per cent from 1459 and 19 per cent from 1611 are comparable to ratios from the pits adjacent to both Buildings 1 and 5. The few fragments of glass vessels from these two pits are residual.

In many respects the character of the animal bone assemblages, particularly that of the main domesticates, from these pits recalls that of the bone from Objects 116–117 adjacent to Buildings 1 and 5, but there is less diversity, even compared with the pits associated with Building 5. Apart from cattle, sheep and pig, among wild animals there are only single bones of hare and deer. There are no bones of bird, domesticated or wild, or of fish. Horse is represented by a single bone, as are dog and an infant. The presence of some neonatal and immature lamb bones and of some cattle-skull fragments invites the interpretation that the occupants also kept some animals, but the quantities are small and we should note the low density overall of bone from these features. The occupants may simply have had access to the meat of these animals from time to time. Altogether the small assemblages, of which part derives from only one certainly cut pit, suggest a further degree of impoverishment and a poorer quality of life compared with the pits associated with Building 5. Even the pottery, which shares many characteristics in common with the assemblages from the pits of Objects 116 and 117, has a distinctiveness in terms of the incidence of storage jars and 'residual' vessel fragments. Both these attributes are not inconsistent with an overall profile of poverty and low status.

BUILDING 8

With Building 8 we are confronted with considerable challenges of interpretation, not least in determining the nature and extent of the ground plan. As we have argued above, the presence of the hearth 1432 implies some kind of a containing structure and there is reasonable structural evidence in the form of post-holes and slots on two or three sides. Associated contexts in what we interpret as the internal space of this building occupying the north-east corner of the insula have yielded widely distributed evidence of iron-forging in the form of hammerscale and microscopic spatter through the fourth century and into the latest stratified deposits of the fifth century or later. This includes the adjacent, very late pit 2596. The pottery assemblages from almost all these contexts comprise a significant proportion of second- and third-century material, but there is a good series of stratified fourth-century coins to help calibrate the sequence. What we lack here, however, are cut pits, except for well 1044 and those that run along the north–south line, which we are now interpreting as the boundary between the larger, combined property of Buildings 7 and 8 and the property to the west. These could, however, belong to either property. Between this line and the edge of the presumed building are several deposits filling the hollows created by the slumping of fills into early Roman pits and wells. These are part of Object 120.

The pits along the north–south alignment were originally assigned to different Object groups. Pit 2554, for example, was tentatively identified as a well on the grounds of its depth, but this seems less likely now given its location on a proposed boundary. The latter is also a feature shared by 1438. Only pit 2596, which produced a Theodosian coin and belongs to the latest group of pits, has produced a single, contemporary, personal item. This is a late fourth-century copper-alloy bracelet of cog-wheel type. Otherwise, identifiable items from these pits consist solely of fourth-century coins, as from 1438, 2554, and 2596. This is also true of the pits in Object 120, three of which contained coins of mid- to late fourth-century date. There is also a fine, enamelled second/third-century copper-alloy disc-brooch from 2550 associated with a Theodosian coin. The same context also produced the tip of an iron ploughshare of probable late Iron Age/early Roman date. The late Roman pit 2537 produced fragments of a shale armlet which cannot be closely dated. Late layers associated with Building 8 produced a rare example of a copper-alloy candlestick, a survival from the second/third-century, and a black glass, segmented bead of very late or post-Roman date. There is also a fragment of Old Red Sandstone roofing-slate reused as a whetstone.

The ceramic assemblages from pits 1680, 1438, and 2554 form a distinctive group. They are dominated by Alice Holt grey wares, which comprise jars, bowls and dishes with a high tenor of second/third- and third-century material. Sherds of colour-coated tableware and drinking vessels are rare. In the case of 2554 the material was highly fragmented, which might suggest that it was largely reworked and residual before deposition. The very late pit, 2596, adjacent to the east–west street, produced a more characteristically fourth-century assemblage, including colour-coated drinking vessels and tablewares dating to the second half of the fourth century. There are also two possible North African amphora sherds. The lower fill also contained a complete BB1 jar with a broken rim, subsequently ground smooth before deposition. The shallow pits and hollows associated with Object 120 produced small assemblages with material dating from the late third century through to the late fourth century. A high proportion of jars at around 50 per cent of the assemblage is a feature of these contexts within this property, but there are also some which produced high ratios of drinking vessels. The proportion of the latter in 2381 was 36 per cent; in 2550 it was about a third. The few fragments of glass vessels from all the above pits are residual.

The animal bone assemblages from all these pits are individually small and invite little comment. The density of bone is correspondingly very low compared with any of the pit groups associated with Buildings 1 and 5. It is possible that the material is entirely re-worked from earlier contexts and, thus, residual.

The well 1044 can reasonably be considered separately from the rest of the pits since its filling may well be associated with the end of the occupation of the north-east corner of the insula. However, the only closely datable objects are two coins, the later of which is from an upper fill and is dated A.D. 337–340. Among the finds there were no contemporary personal items, but they include the third example of an awl, perhaps to be associated with leather-working, from the excavation area as a whole. The ceramics assemblage is relatively small, but it echoes those of the nearby pits with its high ratio of storage jars (as in 1459) and Alice Holt grey wares. All forms of jar account for 76 per cent of the material. Colour-coated vessels are rare with drinking vessels only represented by a few body sherds. There is one large sherd of a North African amphora.

The animal bone assemblage is equally small, but a lower context produced a considerable number of burnt cattle, mostly limb, bones. It is tempting to associate these with a deliberate act of pollution and closure of the well.

Taken together, all the pits and the wells we have discussed contain assemblages which are distinct as a group from those associated with Buildings 1 and 5. However, there are also particular facets of the collections which merit further discussion. The assemblages of the two pits to the rear of Building 7 bear the closest resemblance to those of the pit groups to the south, particularly in relation to the large finds categories of pottery and animal bone. Yet, we have noted the very limited species range of the animal bone and the high proportion of storage jars from 1459. That position is echoed by the material from the well 1044. The latter also shares with three of the other pits forming the proposed north–south boundary and the shallow scoops and hollows of Object 120 a high proportion of Alice Holt grey ware and, for the most part, a lack of drinking vessels. The very late pit 2596, however, has a distinctive pottery assemblage with its high proportion of New Forest colour-coated drinking and tableware vessels and BB1. Also, and unlike the other pits to the south, it produced an assemblage of iron-working slags. We have noted the absence of bird and fish bone throughout, but the animal bone as a whole may be entirely residual from the other pits except for the very late pit 2596 and the possible, special deposit in well 1044.

What does this all amount to in terms of our interpretation of the life and occupation(s) of the inhabitants of Buildings 7 and 8 in the north-east corner of the insula? In relation to both the material culture and the animal bone assemblages, the contents of all the pits in terms of the quantities and diversity of their finds represent a marked step down from those associated with Building 5. The one common denominator is the evidence for iron-working, but for the most part this derives from general layers, rather than pits. The latter, as a group, are a further step down in terms of the quality, quantity, and diversity of finds from the Building 5 pits when compared with those associated with Building 1. A key question is whether this amounts to evidence of permanent occupation by households, or whether it is only sufficient to suggest the existence of workshops where the occupants' permanent residence was elsewhere in the town. If physical proximity is a reliable guide, the evidence from the pits associated with Building 7 may be sufficient to argue for a small, permanent household there, if only for a relatively short period around the mid-fourth century. With Building 8, even if we accept that the pits forming the western boundary are to be associated with it, there is insufficient to argue confidently for permanent occupation by a household. Not only is there an issue about how much of the pottery is re-worked from earlier contexts and therefore certainly residual, but the size and character of the animal bone assemblages argue for their being entirely residual too. If we set aside those pits, we are left only with the material from the shallow scoops and hollows. Yet there are no absolute criteria with which to determine permanency or otherwise of occupation and we should be careful not to overemphasise one interpretation which relies heavily on two categories of evidence. The presence of the well could be argued as evidence of a permanent household, however poor, but one that did not depend on meat and was not reliant on ceramics. After all, by the mid-fifth century, if not earlier, most of the population of Britain managed without pottery. Alternatively, Building 7, with its associated pits, might have acted as the living space for the whole property. This lack of occupational evidence is reminiscent of the area specialising in metal-working in north-west Southwark (Hammer 2003).

In considering the evidence of occupation(s), hearth 1432 and the distribution of iron-forging residues across the north-east corner are indicative of blacksmithing over much, if not all, of the period and into the fifth century. The very late pit 2596, where slags are associated with a Theodosian coin, compares with 1354 in Building 1 to the south. It is possible that the high proportion of jars, conspicuously storage jars from 1459 and 1044, perhaps used as containers for water drawn from the well, relate to this activity. Their presence certainly adds a distinctiveness to the pottery assemblages of this area. We should also note the presence of an awl, one of three, and the only tool type, from the excavation area.

THE NORTH-WEST PROPERTY

The final area to be discussed is the strip to the west of Building 8 which we suggest forms part of the property to be associated with the masonry house occupying the north-west corner of the insula (FIG. 118). We advance this interpretation over that which argued for sub-division of the area into small plots fronting onto the east–west street (Clarke and Fulford 2002). The area contains one well (1300) and two principal groups of pits (from Objects 118 and 120), one of which forms part of the southern boundary on the east–west alignment, and a cluster of shallower pits across the eastern half of the excavated area. As we have suggested above, these probably extended across the entire area but were not recognised in the excavation of the western half in 1998. Except for fence posts along the edge of the east–west street, no convincing structural evidence has been recovered from this area. What, however, from the evidence available can be inferred about the occupation(s) and life of the inhabitants of the building which lies within this property, but outside the excavated area?

Let us consider first the east–west pit alignment on the southern boundary (part of Object 118). We have already reviewed two of this group as part of the discussion of Building 7. Of the remainder, there is a discrete group of four or five pits: 2335, 1634, 1576, 1019, and 1020, of which 2335 is much shallower than the rest. Of these, the latter two were excavated in 1893 and we can make no safe assumption that they were backfilled with the material excavated from them, although it has been assessed. Pit 1480, which contained earlier, third-century pottery, lies further to the west of the above group. The remaining pits are distinguished by the high proportion of Alice Holt greyware, which accounts for between a third and two thirds of the assemblages. Just as this is reminiscent of the contents of the pits which form the boundary with Building 8 to the east, so, too, does the presence of complete and almost complete vessels in the undisturbed pits 1576 and 1634 remind us of the pits around well 1170 (Object 115). In this case the vessels are Alice Holt greyware flasks or necked jars. The fact that both pits contained joining sherds of the same vessel suggests that they were open and filled at the same time. A coin from 1634 indicates that this occurred about the mid-fourth century. Pit 1634 also contained fragments of copper-alloy sheet-cladding for a wooden box. There was no animal bone from pit 1576 and the assemblage from pit 1634 was very small and the pieces unidentifiable; they were probably residual, perhaps introduced with the soil with which the pit was backfilled. We should note, too, the absence of iron-working slags — a feature also shared with the pits around well 1170. Altogether, and although we are reliant on the finds from only two of this tight group of four or five pits, the evidence suggests that their cutting, filling, and closure may be associated with a special event symbolised by the deposition of the pots and the copper-alloy-clad box. In terms of special occasion (and of date) this links them with the pits around the well associated with Buildings 1 and 5 across the boundary (Object 115). In terms of contents (the complete greyware vessels and the high percentage of Alice Holt greyware as a whole), the link is with the pits forming the boundary with Building 8.

If the pits along the southern boundary of the property have produced evidence more consistent with special event(s) than of daily life, we can now turn to the remainder of the small, shallow scoops and pits which form Object 120 for evidence of the latter. The first point to note is that, although only one pit (2813) contained more than half the iron-making and iron-working slags from the pits within this property, several others contained some of this type of material, including both hearth bottoms and microscopic forging residues. The latter was also noted from the Phase 3 gully flanking the east–west street and associated post-holes. This picture is reinforced by the slags found in the general contexts in this area of Phases 2–4, from the late third through to the late fourth century. While the total quantities of iron-forging and iron-making slags are small, their prevalence throughout the sequence and in most contexts, whether pit fill or general layer, argues for them being a true reflection of at least one of the occupations of the household of the north-western building, our third property. The alternative explanation is that they represent material introduced (with manure?) from elsewhere in the town. While there is no evidence for their presence in two of the latest pits certainly in this property, notably 1603 and 1513, we note the relatively large assemblage in 2813 associated with a Theodosian coin. As we have seen, there is also slag in the ambiguously located, very late pit 2596 on the boundary with Building 8.

The pits of Objects 119 and 120 contain small assemblages of pottery, which can be dated through from the late third century to the late fourth/early fifth century, with two assemblages associated with Theodosian coins. They contain representative types of both table- and kitchenware. A few assemblages, such as one from the later fourth-century pit 2813 and another from the third-century pit 2810, can be singled out for special comment. The former produced a very high proportion of drinking vessels representing just about one third of the assemblage, the latter a high percentage of jars, including storage jars, amounting to 73 per cent of the group.

The small finds from these pits are not very helpful for characterising lifestyle, in that none appears to be certainly of late Roman date. The most exotic find is the early Roman amber fly, possibly part of a pendant, from a fourth-century pit, 1293, but a further notable find is a copper-alloy plate-brooch, depicting a hare, of second- or second/third-century date from 2827. This is probably an early pit amongst the group since its pottery is of third-century date. Pit 2325, probably of early fourth-century date, produced a fragment of a shale armlet which cannot be closely dated. The fragments of two greensand (Lodsworth) querns, neither from pits, are also probably residual. No fragment of third- or fourth-century glass was recovered from any contexts in this area.

Only very small quantities of poorly preserved animal bone were recovered from these pits. The presence of teeth from several pits, mostly of cattle, but also of horse, indicate that skulls were once present. Once again, as with the pits described above in association with Buildings 7 and 8, we note the generally very low density of animal bone from the pits in this property.

Our last source of evidence for determining lifestyle and occupation of the inhabitants of this property is the well 1300. This is the latest of a group of four in the north-west of the excavated area (Clarke and Fulford 2002). Unfortunately the high proportion of residual, first- to third-century pottery from the secondary fills which contained the vast majority of the pottery is not helpful to us. Even the primary fills produced early material, including a damaged, but largely complete, second-century flagon, with two holes pierced through its body. Given the association of Theodosian coins with the contexts stratified immediately above, its deposition is likely to be third/fourth-century; hence it provides further evidence of the deliberate retention and use of early objects in the late period.

In this context, it is probably unwise to assume that the group of three copper-alloy toilet instruments from one of the final and topmost fills is anything but residual. However, the context also contained two mid-fourth-century (residual) coins and Nina Crummy notes that the recovery of three such instruments is unusual. We will return to this below when we review together the evidence for the latest occupation from the excavation area.

The most important material to be recovered from the well is the waterlogged material from the lowest contexts. This is associated with the deposition of one, damaged, second-century flagon and a handful of first/second-century sherds, which, we suggest, are residual, given the late coins stratified immediately above. We have also noted that, stratigraphically, this is the latest of a group of four wells, with the next in date having been filled in the period of the late second to mid-third century. Altogether, the evidence suggests that the well was still open and receiving material into the fifth century.

There are two particularly interesting aspects to this very late, waterlogged seed assemblage. The first is the presence of some cultivated plants, including coriander, plum or cherry, and fig, which is an imported species. Walnut and hazel are also present. The second is the relative abundance of seeds of wetland plants which, given the free-draining geology of the immediate environs, were likely to have been transported to the site from wet ground. Mark Robinson suggests that this material may have been introduced by domestic animals grazing marshy pasture outside the town. A third element is the presence of species, such as nettle and henbane, associated with waste ground in the immediate vicinity of the well. Finally, we note the lack of seeds associated with crop-growing.

Although we only have the rear of the plot in which the building occupying the north-west corner of the insula was situated and so lack the, no doubt, plentiful evidence to be derived from adjacent cess-pits, we can draw some conclusions about occupation and lifestyle. Presence of a range of slags suggests that this property, like the other two we have defined in our excavation area, was engaged in iron-working. Even though we lack the evidence of neonatal animals, skulls and complete skeletons, we can reasonably infer from the waterlogged material in the well that the raising of domestic animals was also part of the way of life of this household. We envisage that they were brought back from fields outside the town to be stalled on the property. On the other hand, the evidence for the intensive processing of animal bone is more limited and we have noted from Hella Eckardt's study of the pit assemblages the low density of animal bone in pits throughout the northern half of the excavated area (except for the two associated with Building 7). The presence of shallow scoops and pits and the general distribution of rubbish, particularly pottery, across the property throughout the late Roman period is a distinctive feature. This may suggest a deliberate manuring of the backyard to support the growing of vegetables or a small fruit orchard.

Lacking those cess-pits close to the building, which are such an important source of evidence for Building 1, we have very little with which to assess wealth and status. Indeed, none of the small finds is certainly contemporary with the late occupation. As with the absence of glass, bird, and fish bones, it would be premature to rely on this negative evidence. The pottery assemblage is typical, including both tableware from the New Forest and Oxfordshire industries and kitchenwares from south-east Dorset and Alice Holt Forest, and represents continuous occupation into the fifth century. The presence of fig in the late well is, perhaps, our sole indicator of status, but the crucial evidence from the building's cess-pits awaits excavation in the future. More on the basis of the plan of the building as derived from aerial photography, than from the finds, we might suggest that the property was broadly equivalent in status to Building 1, or the joint Buildings 1 and 5.

In terms of events marked by special deposits, we have noted that there are parallels between the close group of pits on the southern boundary (in Object 118) and the group in Object 115 which clusters around the well 1170 in the backyard of Buildings 1 and 5. Whereas feasting and drinking seem to be evident in the latter group, this does not seem to be the case with the former, where the emphasis is in the placed pottery vessels. Both groups belong to around the mid- to late fourth century. There is, however, the earlier and isolated pit group (2381) with a high proportion of drinking vessels.

CHANGE THROUGH TIME

Although there are difficulties over the close dating of the re-planning, it is clear that the northern part of the insula, including the area under excavation, had taken its new form with a clear east–west boundary running across the foundations of House 1 in the second half of the third century, and certainly by A.D. 300. Thereafter we can see no evidence of change to property boundaries until, perhaps, the latest phase of occupation. Around the beginning of the fourth century we see the construction of Buildings 1 and 5. If the addition of the north-facing elevation was not contemporary with the initial construction of Building 1, it followed very soon after. With the stratigraphic link across to the north-east property comprising Buildings 7 and 8, we can see contemporary structural development in the early fourth century. In the north-west we lack the evidence for the date of the unexcavated building, but, on analogy with findings across the excavated area, we would presume a late third-/early fourth-century date for its initial construction. This is supported by the range of dating for the structures and activity revealed in the rear of the plot. Thereafter, little changes in the excavated area through the rest of the fourth century and into the fifth, but we shall consider the latest contexts and the end of the occupation below. The static nature of the occupation through the fourth century in structural terms is very striking. In the case of Buildings 1 and 5, there is evidence for the rebuilding of the former in the late fourth century, but in its original plan, and with no apparent change to the internal distribution of space and associated functions. With Building 5, on the other hand, there is no indication of internal change, or of rebuilding, throughout its life. Determining the layouts of the timber buildings in the north-east corner of the insula is difficult, but we note that there is also, like Building 1, evidence for a late fourth-century phase of (re)building in the case of Building 8. Hearth 1432 was a robust structure, with the deep penetration of the oxidation of the underlying soils an indication of its long life. Indeed, as with the hearth located in the east room of Building 1, 1432 is the only hearth structure in the area of Building 8.

Each property was certainly served by one well throughout the late period. In the light of the interpretation advanced above, the fourth possible well, 2554, on the boundary between the two northern properties, is unlikely to have served that function. Against the background of change and the abandonment of wells in the early Roman period, the continuity of the use of the same sources of water over more than a century in Insula IX is remarkable, a further comment on the conservatism of the late occupation. This is also borne out by the evidence for occupations and lifestyle, derived particularly from the pits, which gives no indication of change until the latest phase of occupation. However, we need to be cautious. The incidence of pit cutting and filling is not regular throughout the late period and we should allow for variation between the properties on the basis of the arguments we have established above. There is a better sequence of evidence from the first half of the fourth century from Buildings 1 and 5 than there is from the northern half of the insula where the bias is towards pit fills datable to the second half of the century. Only from pit 3235 at the rear of Building 1 is there secure evidence of a late fourth-century date for the uppermost fills. Otherwise, neither from the rear of Building 1 nor from Building 5 is there evidence for the cutting of new pits in the second half of the fourth century. Whether this is a result of a change of practice in the disposal of cess and other household waste, or a reflection of diminished numbers in the household, is a matter of speculation. We should also note that the pits from Building 1 have also provided a rich strand of evidence for diet and environment from the mineralised remains, a type of resource absent elsewhere across the excavation area. Nevertheless, the particular themes of iron-working and, probably, the intensive processing of bone can be attested across the excavation area throughout. At a general and, perhaps, unexceptional level, too, we may note the consumption of meat from the three main domesticated species of cattle, sheep, and pig and the use of a wide range of pottery vessels, principally from four regional suppliers, into the fifth century.

THE WIDER CONTEXT

From our analysis of the three properties, a number of themes emerge, which we can consider first in the context of *Calleva* itself, and second in relation to other urban communities in Britain. These themes include occupation(s), status, including consumption of food and material culture, and behaviour.

While the volume of iron-working waste is not large, some 16.5kg, it includes the microscopic residues of forging, a reasonable tell-tale of *in situ* working, even if there might have been some redeposition from earlier periods. It also includes dense hearth bottoms, which appear to be evidence for iron-smelting on a small scale. It is present across the excavated area throughout the sequence and in the latest deposits (to be discussed further, below). There is a further reference to metalworking in the report of the excavation of the southern half of the insula in 1894. Cakes of a non-ferrous 'kind of metallic substance' similar to those discovered in House 4 of Insula VIII were found in a room of House 3, one end of which abuts the east–west street (Fox 1895, 445–6). As Tootell points out, the scale or intensity of iron-working in Insula IX appears to be somewhat less than that attested in the adjacent forum-basilica, where 62kg of iron-forging slags were reported from the surviving late Roman (Period 7) deposits; these, it should be noted, had been extensively truncated by the Victorian excavators (Richards 2000b). Iron-working slags were also present among the late Roman or disturbed deposits by the North and South Gate (Bayley 1984; Fulford *et al.* 1997).

Although it is difficult to judge scale, because there is a lack of well described, quantitative data, similar evidence for late Roman iron-working has been reported from a number of other Romano-British towns. The assumption, even where hearth bottoms are recorded, is that only forging of iron, rather than smelting, was taking place. However, as Allen has pointed out (above), these slag basins are what might be derived from iron-making in a bowl-shaped pit, rather than a shaft furnace. There are a few sites where quantities have been recorded. For example, intensive working on a scale comparable to or greater than that indicated for the Silchester forum-basilica is evidenced at north-west Southwark, London, in the third and fourth centuries (Periods 3 and 4), particularly on Sites E and F (Hammer 2003; Starley 2003). On a lesser scale, perhaps more comparable with that recorded here for Insula IX, we can cite Dorchester, Dorset, where McDonnell reports a total of 60kg of slag from a first- to fifth-century sequence at the Greyhound Yard site. He noted a large number of small deposits in stratigraphic block 44 from behind the street-frontage properties at the Greyhound Yard site, which includes fourth-century occupation, and commented that, 'This represents a high background level' (McDonnell 1993). Also, at the Colliton Park site, in the north-west of Dorchester, Dorset, an iron-working hearth was reported (RCHM(E) 1970, 558). At Canterbury, on the Marlowe sites and elsewhere, iron-working slag was noted from third- and fourth-century contexts (Periods 3 and 4), but not in quantities which excited comment (Barford and Bayley 1995, 1100). Similar observations were made on a small quantity (20kg) of retained slags from a number of sites at Cirencester, but these were not confined to the late Roman period (Bayley 1998). The scale evidenced at these larger towns is modest when compared with that from a small town like Worcester where iron-making appears to have been a principal function of the settlement with excavations producing tonnes of residues (Dalwood and Edwards 2004; McDonnell and Swiss 2004). This focus of activity appears also to be the case at other specialist 'small towns', such as Brampton, Holditch, and Wilderspool (Burnham and Wacher 1990, 203–34).

The question for Silchester and Insula IX (given the evidence from the forum-basilica) is whether the scale of late Roman iron-working is greater than that evidenced in other towns or different from that at earlier periods. As we have seen in the case of Cirencester, iron-forging (and some smelting) has also been attested in several towns, including those mentioned above, in the early Roman period. The scale in early Roman Southwark is only a little less than in the later periods (Starley 2003), while, in the case of Colchester (Culver Street), much of the evidence, including smelting, pre-dates the fourth century (Bayley and Budd 1992). At Greyhound Yard, Dorchester McDonnell (1993) observed that the greatest quantities of iron slag were associated with early Roman contexts. Except for Southwark, none of the above evidence is sufficiently well contextualised, spatially and chronologically, to allow a close comparison with Insula IX. There, we conclude, the scale and extent of the evidence through time indicates that iron-working, including both smelting and smithing, was a distinctive aspect of life for all of our three properties through the fourth and into the fifth century. Taken together, the evidence from Insula IX and the forum-basilica indicates a significant amount of iron-smelting and smithing in the late Roman period.

Our second strand of evidence for characterising occupational activities derives from the animal, bird, and fish bone. From this material we can infer stockraising, hunting, fishing, butchery, systematic bone-processing to extract marrow and grease, and bone(antler)-working. We can associate all these activities with the households of Buildings 1 and 5 with the possible exception of hunting and fishing. Although deer, wild birds, freshwater fish, and eel are present in the cess- and rubbish-pits, we cannot be certain that the occupants themselves engaged in these activities.

The case for stockraising relates primarily to the incidence of neonates of cattle, sheep, and pig, which are unlikely to have been raised far from the point of consumption. The presence of sheep/goat droppings in a cess-pit behind Building 1 is also very suggestive. We also postulate that Building 5 served as a byre for Building 1. This all adds weight to George Boon's contention that agriculture, both animal husbandry and crop-growing, was an important part of the town's economy (Boon 1974, 243–66). Building on the evidence from the early excavations, he noted the presence of agricultural tools among the collection of ironwork from the town, particularly in the two late Roman hoards from the town. He argued, on the basis of their plans and parallels with structures associated with villas, that certain buildings served as farm buildings — granaries, byres, barns, threshing floors, etc. Actual evidence of crops was, in his words, 'meagre', but there was plentiful evidence for brassicas, herbs, fruits, etc. However, even though the lack of buildings and the identification of fields and trackways in the vicinity of the town added further weight to the argument, very few of the intramural finds could be regarded as necessarily secure evidence of local agriculture. More supportive indicators for the agricultural exploitation of the extramural territory has subsequently come from pollen evidence, in this case antedating the construction of the earthen defences of the town, *c.* A.D. 200. This included plant species associated with both arable and pasture (Keith-Lucas 1984).

The character of the faunal evidence from late Roman Insula IX can, as we have seen, be paralleled in several respects in other Romano-British towns. The recovery of the bone of very young animals is dependent on good recovery by hand or by sieving and it is clear that there is indeed 'missing' evidence from some assemblages (cf. Maltby 1993b, 317). However, we note the relative abundance of neonates and juveniles of sheep and pig, as well as of cattle, from Greyhound Yard, Dorchester (Maltby 1993b, 315–38), which would suggest, as at Silchester, local stockraising. As with Insula IX, much of this evidence from Greyhound Yard derives from cess- and rubbish-pits behind the street frontages. Without such a category of contexts, and without the associated evidence of appropriate recovery methods, we can infer little from negative evidence from elsewhere. However, on the basis of positive results from two towns we can hypothesise that animal husbandry, albeit, perhaps, on a limited scale, formed part of the economic life of the late Romano-British town. Further circumstantial evidence in favour of this hypothesis is the developing 'urban' age profile of the animals at death, which is evident here at Silchester and elsewhere in Britain (Ingrem above, pp. 179–80; Maltby 1994).

There is also a developing urban pattern in the treatment of animal bone. Claire Ingrem notes the under-representation of cattle mandibles and dense limb bones among the Insula IX assemblage. She interprets this as due to the high degree of fragmentation which renders much of this material unidentifiable. Mandibles and major long bones possess good marrow and their fragmentary nature suggests that intensive processing for marrow and grease extraction may have taken place. This might have been for the manufacture of soap, candles, or glue, which may have been another by-product of this activity. This is a particular feature of the bone associated with Buildings 1 and 5, but it is also noted among the bone from the northern properties. It has also been attested at the North Gate (Hamilton-Dyer 1997). The practice has been reported elsewhere among late Roman urban assemblages of animal bone from Cirencester, Dorchester, and Winchester (Maltby 1993b, 315–38; 1994; 1998).

Finally, we note the evidence for the working of antler. Fragments came from all properties, but with a particular concentration in pit 3251 next to Building 1. Bone-working material has also been reported from early fourth-century Colchester (Crummy 1981) and there is strong evidence for manufacture from the find of over 1,700 bone casket- or furniture-mounts from fourth- or fifth-century Gloucester (Hassall and Rhodes 1974). Recently, excavations in north-west Southwark (London) have produced a large assemblage of antler from late Roman contexts on several sites, including from one of those associated with iron-working (Hammer 2003; Pipe 2003).

The picture of occupational behaviour that emerges from Insula IX can thus be paralleled in other Romano-British towns. The rich evidence associated with Buildings 1 and 5 in particular suggests that households adopted a diverse strategy towards maintaining a livelihood. This was based partly on a variety of craft and trade activity and partly on animal husbandry. It is interesting that there is negative evidence (but just a possibility of flax cultivation) from Insula IX as far as crop-growing and processing are concerned, for there is some evidence from pollen for arable cultivation in the vicinity of the town (Keith-Lucas 1984). It may be that crop-processing took place elsewhere in the town. There is also slender evidence for the grinding of corn, but the presence of whole grains among the mineralised seeds shows that cereals were being consumed, perhaps in the form of gruel. Other forms of positive and negative evidence may be helpful in characterising the scope of trades and occupations. For example, while the presence of the iron awls points to the possibility of leather-working, there are no spindlewhorls to indicate spinning.

That the strategy of working households like that of Buildings 1 and 5 was successful is indicated by the range and, to some degree, exotic character of the remains of their food and drink. At one level this is indicated by the sheer variety of species represented by charred, mineralised, and, in the case of the north-western property, waterlogged plant remains. There is evidence for imports in the form of fig from both Building 1 and the north-western property and of grape and cucumber from Building 1. Although quantities are small, they are supplemented by sherds of African and Asia Minor oil and wine amphorae, the former being noted from contexts associated with all three properties. The presence of the mineralised lentils, rarely recorded from Roman Britain, but which could have been grown locally, indicates the capacity to sustain diversity among the staple foods.

In stark contrast, the material evidence in the form of portable finds of metal, bone, and stone does not indicate a rich household and this correlates with both the size of the buildings and the lack of evidence for interior decoration. While the lack of evidence for wall plaster may just be attributable to the state of preservation of the buildings, the absence of formal floor surfaces, such as tessellated pavements, is probably more significant. Architecturally, however, some aspiration towards pretension in Building 1 is indicated by the provision of the north-facing elevation with the verandah roof, probably supported on dwarf, stone columns. Although there are difficulties in making like-with-like comparisons, particularly with very different sizes and types of excavation, Nina Crummy's comparative survey of small finds from a range of sites and excavations, none of which is larger than Insula IX, points up the relative poverty of the latter assemblage. For example, several types of typical fourth- and fourth/fifth-century personal ornament are absent, making a marked contrast with the finds from the town-houses at Beeches Road, Cirencester and other late Roman sites. The contexts of these finds, for the most part from above internal and external surfaces associated with the buildings, reminds us how much we have lost of the late Roman stratigraphy of Insula IX. More striking, perhaps, is the almost total absence of late Roman glass from Insula IX, which also makes a strong contrast with the Beeches Road, Cirencester assemblage (McWhirr 1986).

With the ceramics comparison is more difficult because different sites will have different spatial relationships with the main late Roman pottery producers of Southern Britain. The Insula IX assemblage is, however, by no means poor. It draws on four main suppliers of which the most important in terms of quantity is the nearest, the Alice Holt potteries. Interestingly, consistently second in quantity, and accounting for up to about a quarter of the assemblage, is the South-East Dorset (BB1) pottery, which travelled from the shores of Poole Harbour (perhaps with salt), a distance of over 65 miles (about 100km). This is followed in importance by the mortaria and fine ware (colour-coated) suppliers of the Oxfordshire and New Forest industries, each approximately equidistant from Silchester at about 40 miles. Possibly compensating for the lack of glass (or metalware), we note the relatively high proportions of drinking cups and beakers, amounting to between 13 and 25 per cent of the total EVEs of individual assemblages. Jane Timby comments on the relative lack of diversity of the pottery assemblage at the nearby small town of Neatham, which is also very close to the Alice Holt potteries. At the same time she notes the broad resonance of the Insula IX assemblage in terms of both diversity and the representation of regional and imported wares with the assemblages of the larger towns, comparable in size and role with Silchester, of Colchester, London, and Wroxeter (above, p. 115). This observation can also be applied to a second category of essentially low-value artefacts, the copper-alloy coins whose pattern of loss compares with those from other Southern Romano-British towns (Besly, above, p. 82).

BEHAVIOUR

We have attempted above to define both a distinct character to Insula IX in terms of its properties, buildings, and evidence for occupation and lifestyle, and attributes associative of a more general 'urban' quality which can be paralleled in other Romano-British towns. However, it is more difficult to recognise a specifically urban character to other aspects of behaviour. In this regard we depend heavily on interpretations of the pattern and purpose of the numerous pits, which have been a focus of study, and which we can tentatively divide into three groups. First, there are the cess- and rubbish-pits linked to Buildings 1, 5 and 7, which contain a wide range of material culture and biological remains. Two of these have been analysed in detail by Hella Eckardt (above, p. 238). Distinguishing features of this group are the presence of the remains of dogs and neonate infants, sometimes surviving as articulated or part-articulated skeletons. This in itself is a distinctive attribute, as is the almost total lack of evidence for butchery and consumption of the meat. We should note that the neonate remains of other domesticated animals, such as cattle, sheep, and pig, are also present. Nevertheless, although distinct in their treatment in life, the human and dog remains are treated no differently than other waste in death. This inevitably raises the question whether the disposal of these animal and human remains among quantities of other domestic rubbish, including cess, represents a ritual act or is merely evidence of a value system which did not distinguish between them and other animal remains after death. Both of the pits studied in detail by Eckardt have in common evidence for major events, represented by the dumping of material among their uppermost fills, including articulated human and animal remains. These deposits may represent major episodes in the life of the associated household, in this case Building 1.

Although we lack systematic data from elsewhere in Silchester, we note from Balderston's study (2002), cited by Snelling (above, p. 204), that the early excavations recovered infant, including full-term neonate, remains from rubbish-pits. There is also the mention of the recovery of 'several skulls of very young babies' from the drain of the latrines attached to the town baths (Hope and Fox 1905, 369). However, we can turn to the Greyhound Yard site in Dorchester, Dorset for comparable evidence for the recovery of infant remains from the cess- and rubbish-pits behind the street frontages (Rogers 1993). That this practice is not confined to towns is borne out by the finds from cess- and rubbish-pits at, for example, the small town of Baldock, Hertfordshire (Henderson 1986) and the 'Saxon Shore' fort of Portchester Castle, Hampshire (Hooper 1975), as well as at villas and other rural settlements (above, p. 205). Not all infants were disposed of in this way within the settlement, however, as the late Roman cemetery at Poundbury, Dorchester, Dorset reveals (Farwell and Molleson 1993).

The same pattern also holds for dogs whose remains represented frequent finds in wells and rubbish-pits in the Society of Antiquaries' excavations at Silchester (Cram 2000, above, p. 195). We can find similar contextual evidence at Dorchester, Dorset, where one pit produced the remains of at least twenty dogs (Maltby 1993b, 326–9), and from Baldock (Chaplin and McCormick 1986, 408–9), where the largest group was represented by the remains of four dogs. Although the context and nature of deposition may be indistinguishable between different types of site, larger numbers from single pits may be an urban characteristic (cf. Maltby 1993b, 327, table 59; Fulford 2001).

Yet this is not the sole pattern of disposal in towns of infants, dogs, or even cats. Pits and other contexts are recorded which were clearly dedicated for the single purpose of burying an infant, dog, or cat. We note the burial of the dog upright in pit 1707 (above, p. 38) and, from the early excavations at Silchester, for example, we find an infant buried in a cooking-pot in Insula I (Fox and Hope 1890, 743), the burial of a dog in a pit in Insula II (Fox 1892, 288), and, from the 1991 excavations, the burial in a tile cist of a cat by the North Gate (Fulford *et al.* 1997, fig. 11; Hamilton-Dyer 1997, 133). In the case of the dogs we cannot be entirely certain that their remains were the sole intended occupants of the pits in question and this uncertainty prevails elsewhere. From Dorchester, Dorset, where multiple dog-burial is common, we find one example of a possible, dedicated burial of a single dog at the Greyhound Yard site (Maltby 1993b, table 59). With infants, however, there is plentiful evidence of single, dedicated burials.

Once again at Greyhound Yard, Dorchester, where we have already noted disposal in cess-pits, thirteen were found in cut graves (Rogers 1993), and single interments of infants are recorded from floors within the late Roman town-house (Building 182) at Colliton Park (RCHM(E) 1970, 572–3). A further association of a single late Roman infant burial with a town-house can be demonstrated from the Beeches Road site, Cirencester, where, a little distance from Building XII.1, was the interment of an infant with a complete pottery vessel (Bayley and King 1986). We can also see a similar type of interment at Building XXVIII.3 at Verulamium in the third century (Frere 1983, 238). Earlier, in the second century, however, single, infant burials are reported from the Period II shop-cum-workshops of Insula XIV (Frere 1972, 56, 57). This pattern of cut graves for infants is also echoed at villa sites (above, p. 205). In the absence of the discovery so far of cess-pits associated with town-houses, we cannot be certain that there was no disposal of infants in this manner in such contexts. Nevertheless, the lack of cut graves for infant burials from the workshop environment of late Roman Insula IX, compared with their associations with town-houses elsewhere, is notable and may be an indicator of social distinction.

While our first category of pits is highly distinctive in the character and nature of its fills and contents, the same is not true of the second category which is defined most broadly as pits (other than wells) not dug for the regular receipt of household waste and cess. These range from pits where the fills and the finds give no clue as to purpose, to those which contain artefacts or biological remains which in some way stand out from the general assemblage of material culture and biological data. The most distinctive are those with complete or near-complete vessels, mostly of pottery. Pits of this type exist in Objects 115, 118, and 122. We shall return to the latter, the latest group of pits, in the following section. In Object 115, one pit (1463), which contained two complete pottery vessels, also produced an assemblage of cattle bone, represented by major limb bones and teeth, and a high incidence of sherds of pottery drinking vessels. In the second group, two pits (1576 and 1634) contained, respectively, a single complete and a near-complete pottery vessel, but no animal bone, except a few fragments in one, which were probably introduced with the soil with which the pit was back-filled. Pit 1634 probably also contained a wooden box covered in thin copper-alloy sheeting. Neither human nor dog bone is represented in any of the above pits and slag is also absent. What is interesting about the complete/near-complete pottery vessels in this group is that they are definitely not associated with wells. In an earlier study we noted the frequency with which multiple groups of pottery vessels were associated with pits excavated at Silchester and elsewhere (Fulford 2001). Although often described by the early excavators as ‘pits’, the majority were of a depth which meant they could have served originally as wells. They were also mostly of early (first- to second-century) Roman date (Fulford and Timby 2001). This association of multiple deposits of pottery vessels in early Roman wells is also emerging with the continuing excavations of Insula IX (Clarke and Fulford 2002).

Next, within our second group, are pits with distinctive assemblages of animal bone and/or pottery sherds. In Object 115 the cattle and horse bone in pit 1384, where drinking vessels accounted for 25 per cent of the sherd assemblage, invited comment. In contrast, pit 1571 in the same group contained a high percentage of drinking vessels in the sherd assemblage, but the animal bone did not contain identifiable pieces and may have been introduced with the fill. This pit was sealed by large pieces of ironstone and flints. The shallow pit 2381 in Object 120 also contained a very high percentage (38%) of drinking vessels. We suggested above (p. 266) that the cutting and filling of these pits in Objects 115 and 118 (and 120) might be associated with particular and special events, which, in one group at least, might have been accompanied by feasting and drinking (above, p. 259). Interestingly all these pits appear to be contemporary, dating to around the third quarter of the fourth century.

The final group within our second category of pits includes those whose contents appear to have no obviously distinctive attributes. Examples of such pits would be 2554, 1438, and 1537 within Objects 121, 119, and 117. One feature which these have in common is their depth. Indeed, 2554 was originally considered to have been a well. However, as the fill of 1537 suggested, these might have been dug to hold posts. A distinctive find at the very base of the latter pit were two large, residual sherds, one of Central Gaulish samian, the other of a white-ware flagon, in each case more than one hundred years old at the time of burial.

The third category of pit is the well. Here a distinction has to be drawn between the contexts associated with their use and those associated with the filling on abandonment of the primary function. We can fairly confidently identify three pits which were originally dug for use as wells, two of which had single, votive type deposits in their primary fills. Well 1170 contained a battered pewter flagon whose body has been deliberately pierced, while well 1300 produced a damaged pottery flagon of second-century date which had also been deliberately holed in the body. The significance of such pierced containers is hard to establish, not least because they are not confined to wells (Fulford and Timby 2001). However, in the primary context of a well, their deposit might be associated with some ceremony to ensure abundance of water, perhaps in times of drought. In their different ways, each well has attracted comment in regard to its secondary fills, following abandonment of their primary function. Most notably, well 1170, first excavated in 1893, is celebrated for the deposit of the dwarf stone-column, inscribed with ogham, which links it to a number of examples of Romano-British wells which produced architectural and/or inscribed stone fragments from their secondary fills (cf. Esmonde Cleary 2000). There is less to comment on in the other two wells, but the deposit which probably marked the end of the primary use of 1044 contained a number of burnt cattle, mainly limb, bones. The remainder of the fill produced a small assemblage of pottery sherds, among which there were no drinking vessels. In the case of 1300 the secondary fills were very largely dominated by residual pottery, no later in date than the third century. Even the uppermost fill which contained fourth-century coins and the largest assemblage of material from a single context of its fill produced no certainly fourth-century pottery. One explanation for this is that the well might have been filled with spoil dug from a replacement close by which cut through early layers. However, we have also noted above (p. 262) how much apparently 'residual' pottery continued to be deposited through the fourth century in the northern half of the excavated area. While it is difficult to extract common themes from so small a sample, it could be argued that there are distinctive characteristics about the terminal fills of all three. The deposit of the ogham-inscribed column in one, burnt cattle bone in a second, and residual copper-alloy artefacts and pottery in the third are certainly suggestive of ritual associated with abandonment.

This analysis of the pits and their contents from Insula IX serves to separate out a number of strands which were buried in the coarser data derived from Silchester and elsewhere and analysed earlier (Fulford 2001). Even if we cannot easily penetrate the mentality which lies behind these 'special' events, we can recognise one common theme. This attaches importance in returning to the earth certain objects and/or food remains, around which, we believe, there are important associations for the households in question, perhaps in relation to 'rites of passage', or acts of propitiation. However, we note that the total number of such pits is not great and that might suggest that their creation and filling are related to events of very special significance. We can also compare them with the special deposits within pits, as discussed above in relation to 3235 and 3251. Indeed, it is quite possible that there are events represented here with significance beyond the family circle. Would, for example, the delivery of Britannia from the *barbarica conspiratio* of A.D. 367 by Count Theodosius have been widely celebrated? Certainly a number of our pits, and in two separate properties, are of about the right date.

We can pursue some of these problems of interpretation in relation to the latest occupation and deposits and the abandonment of Insula IX.

THE LATEST OCCUPATION AND THE ABANDONMENT OF INSULA IX

We have argued above from the coin and stratigraphic evidence that all three properties within our excavation area were occupied in the early fifth century. The intensity of occupation may not have been as great as in the first half of the fourth century, but there is no question of any property being abandoned before A.D. 400.

Our evidence for examining occupation in the fifth century and later is slight, not least because of the destruction of the uppermost stratigraphy by subsequent medieval and modern cultivation. With the exception of very limited areas in association with Buildings 1 and 8, where we can demonstrate short, stratified sequences which are later than contexts with coins of the House of Theodosius, we are left with a number of isolated negative features — pits, post-holes, and wells. Since there are no recognisable ceramics which need be later than the late fourth or early fifth century, these features have been defined as the latest on the basis of the presence of a coin of the House of Theodosius, or by stratigraphic association. Edward Besly has warned (above, pp. 83–5) of the problems of trying to assess differential wear on Theodosian coinage. His view is that, for the most part, the latest coins ceased to circulate as such 'within a decade or two of their production'. That still leaves the question of when they entered the archaeological record.

Features cutting the late Roman street surface were assumed to be very late (Object 122), given the fourth-century evidence for structures and boundaries respecting the edge of the streets. That this need not always be the case is indicated by pit 1387 cutting the east–west street. Subsequent excavation has shown that this feature, which contained no datable finds, was created by the subsidence of the street into a much earlier and underlying pit or well. The comparative ease with which features could be recognised as cutting the light-coloured, gravel surfaces of the streets contrasts with the difficulties in recognising cut features in the dark soils of, for example, the northern zone. Although other pits in Object 120 contained the latest pottery which could have been deposited after A.D. 400, only two also produced coins of the House of Theodosius.

Although generally smaller in volume than the earlier, fourth-century pits whose contents have been discussed above, some of the latest contain illuminating assemblages of finds, which deserve further consideration. They can be divided into four groups: those associated with Building 1, a scatter in both properties across the northern half of the excavated area, those cutting the streets, and the wells. Although, in a stratigraphic sense, all these features are 'terminal', the question needs to be asked whether the pits can also be divided between those representing behaviour associated with continuing occupation of the fifth century or later, and those whose fills can be regarded as evidence of a terminal, or abandonment activity, such as the wells.

Well 1170 provides a good example of an abandonment event. With the deposition of the dwarf, ogham-inscribed column, it could no longer have been used as a well. We have also interpreted its fill of building materials of flint and tile as redeposition in 1893 of its original fill, presumably derived from the demolition of all or parts of Buildings 1 and 5. Equally it is doubtful whether well 1044 could have been used again after the deposit of burnt cattle bone and other material which are at the interface of the 'dry' and 'waterlogged' contexts towards its base. This event is not closely dated by the associated finds and could belong in the fourth rather than the fifth century. However, the final fills of the well are among the latest stratigraphic events in the north-east of the excavated area, where there is other evidence for continuation of occupation into the fifth century. In the case of well 1300 it is less easy to define an abandonment event but it is clear from the horizontal layering of the stratigraphy that it was filled deliberately, rather than silted up over time. On account of the lack of an obviously distinctive finds assemblage, including classic fourth-century pottery from the large ceramic assemblage within it, we have argued that the filling of this well may have been precipitated by the digging nearby of a further, deep feature. However, Nina Crummy has commented on the unusual presence of three copper-alloy toilet instruments (along with two fourth-century coins) in the uppermost contexts associated with pottery otherwise no later than third/fourth-century in date. How do we explain such an assemblage, which, on the basis of the coins of the House of Theodosius from the lower fills, cannot have been deposited before the fifth century?

In the case of the pits, distinguishing between 'normal' and 'abandonment' assemblages (if such a category of pit exists) is complicated because we do not know how to model patterns of rubbish disposal at a time when the production of many types of artefacts, like ceramics, which previously were so abundant, was ceasing and replacements were no longer available. Certainly there are pits which do not contain examples of the latest pottery which, on the basis of their stratigraphic position, are unquestionably very late. One example would be 2224, which cuts the corner of the north-east room of Building 1, which, in turn, contains a pit (1354) with a coin of A.D. 395–402. This and others of its kind produced only small assemblages of pottery where the chance of the more abundant, earlier fourth-century wares being present in the soil with which the feature was backfilled was, presumably, relatively high, and the chance of the latest, correspondingly less. Pits 1866, 1901, and 2055, which belong to this group, are all located at the intersection of the east–west and north–south streets and close to other pits (1897, 1916, and 2596) which do contain both the latest pottery and coins. Collectively they point to fifth-century or later activity in this north-eastern area of the excavation both on the street and beyond into Insula XXVI.

With one exception our latest pits are distinguished from earlier examples by the lack of animal bone. Pit 1603 cuts the line of the latest fence along the east–west street and the dark soils to the south which produced a coin of the House of Theodosius. Though without associated coins and with pottery no more closely datable than late third/fourth century, this is the only example among the latest pits to contain a sizeable animal bone assemblage, including cattle and sheep long bones. Some of the latter, just as in the case of the cattle bone in well 1044, were burnt. In turn, 1603 is cut by 1513, which contained some pottery of the mid- to late fourth century, but no shelly wares. Thus, in terms of the ceramics, but not the bone, the contents of these two, intercutting pits resemble those with the residual assemblages described above.

As we have seen above, abundance of bone is associated with earlier, fourth-century, cess- and rubbish-pits, notably those close to Buildings 1 and 5, but there are also earlier pits with little or no bone, which have other distinguishing features, such as complete, or near-complete, pottery vessels, as in Objects 115 and 118. The latter aspect then provides a link with pit 1902, which contained a near-complete BB1 dish, and pit 2596, which contained two near-complete vessels, one a BB1 jar with a very worn rim. On the basis of coin and stratigraphic context, these are both certainly of fifth-century or later date. Otherwise their pottery assemblages, with frequent sherds of the latest wares, link them to pits 1354, 1897, 1916, and 1993 of Object 122 and pits 2550 and 2813 of Object 120. A further link between 1354, 2813, and 2596 is the presence of a significant quantity of iron-working slag, including hearth bottoms. Here, then, is a group of fifth-century pits whose contents also contain examples of the latest Roman material culture.

Compared with the earlier history of Buildings 1 and 5 when the pits were external to the buildings, 1354 (and 2634) were dug inside Building 1. Both with coins of the House of Theodosius, 1354 was cut into the slumped fills within the eastern of the two north-facing rooms, while 2634 was located east of the hearth in the east ‘work room’ of the main house. The latter was later than contexts with sherds of Asia Minor (Biv) amphora. Although producing an example of a late pottery assemblage, pit 1354 contained no sherds of drinking cups or beakers among a collection of mortaria and coarseware jars, bowls/dishes, and flagons. Among the copper-alloy finds, there are six coins, but only a nail is a clearly identifiable item among the other fragments from the pit.

Pit 2634 also produced a relatively large number (7) of coins, as well as several other artefacts of copper alloy, including personal, ‘late’ items such as a nail-cleaner, a finger-ring, and a blue glass, biconical bead. The presence of a sestertius of Antoninus Pius recalls the occurrence of other large, obsolete coins elsewhere, notably at temple sites such as Lamyatt Beacon, Somerset (Besly 1986, 308, noting other instances at Brean Down, Somerset, and Maiden Castle, Dorset). The pottery assemblage also has a strong residual component, more so than pit 1354. It comprised a diverse assemblage of fourth-century Roman pottery sherds where the fine and specialist wares account for over a third of the collection. All the major late Roman wares, as well as some earlier, including Central Gaulish samian and Nene Valley ware, are represented. Despite the size of the assemblage, there are no obvious joins. If the pottery assemblage links this pit with other residual assemblages, such as 1603, etc., the number of personal items is outstanding, forging a connection with the collection of copper-alloy finds from the top fill of the well 1300 where the pottery assemblage was distinctively residual.

Otherwise the number of identifiable finds of copper alloy, except coins, from each of the latest pits is limited to a couple of items, including long-curated pieces, like the second-century, enamelled disc-brooch from pit 2550. Pit 2596 also produced five coins in total.

On the basis of the above analysis, we tentatively suggest that we can break the very latest pits into two or three groups. First there is a group which contains the latest pottery and coins along with other finds and material and which includes individual pits which, stratigraphically, are clearly fifth-century in date. We might suggest that these assemblages date to the period when the latest wares were sufficiently available to influence their composition. However, the number of high coin losses noted in 1354 and 2596 might imply that coin was no longer circulating as such when these pits were filled. These assemblages, which might be interpreted as small, terminal hoards, provide a link with 2634 and a second group among the latest pits. The latter contain contents which are distinguished by the comparatively residual nature of their pottery assemblage and the presence of other clearly curated items in copper alloy and other materials. But for the presence of coins of the House of Theodosius, the contents of these pits would be regarded as 'residual'. The third group of pits, therefore, comprises the stratigraphically latest, which contain no obvious very late items, only 'residual' material. It was one of these pits (1866), incidentally, which produced a possible Anglo-Saxon bead.

In the latter category we need to discount the possibility that the contents of these pits simply reflect the material in the soil with which the pits were backfilled. Our aim should be to try to distinguish between intended (effectively invisible, therefore, in this group of pits) and unintended contents. In this context we have seen in our analysis of earlier, fourth-century, pit contents (above, p. 264) that there are examples of pits in their entirety, and of contexts within pits, which contained either almost no ceramic or bone finds (e.g. pits 1537, 1576, and 1634), or finds of any kind (pit 1537). While part of this absence may be clearly intentional, with pits being filled with 'clean' soil, it also may partly reflect a relative lack of material of any kind in the soils used to fill the features. Against this background, if we find a relatively large and diverse collection of residual material in a pit which is demonstrably later than A.D. 400, as in the case of 2634, or the uppermost fill of 1300, it would seem unlikely to have arrived by chance. So we contemplate the possibility of pits with contents of deliberately selected objects or fragments of objects in a range of materials from copper alloy to ceramics. We suggest that pits in this second group were dug and their contents assembled and deposited at a time when coins had ceased to circulate as currency and the latest pottery was no longer in circulation, or recognisable as such, i.e. after about the mid-fifth century. How long into the fifth or sixth century this practice might have continued is impossible to say. The deliberate selection and deposition of complete and fragmentary Roman material in pits like 2634 and well 1300 raises the possibility that these represent deliberate terminal deposits, returning to the soil the last vestiges of Roman material culture before abandonment of the site.

Alternatively, these pits merely represent the continuity into the fifth or sixth century of the long-established practice of intentional, ritualised deposition (Fulford 2001). Some of the deposits at the late/post-Roman hilltop settlement at Cadbury Congresbury, Somerset, provide a parallel for what we have observed here (Rahtz *et al.* 1992, 197, 242–6). This would leave the closure of well 1170 with the deposition of the ogham stone as the only, certainly recognisable act of abandonment in the excavated area. However, one of this group of pits (1603) contained an animal bone assemblage whose burnt character is reminiscent of the possible 'closure' deposit from well 1044. The animal bone from the latter has, unfortunately, yielded insufficient material for a radiocarbon determination. In arguing for a coherence and a context for this group of latest pits, we cannot exclude the possibility that the residual character of the contents of the smallest (e.g. pits 2240, 1363) was determined by chance.

With this categorisation of the pits we find examples of our latest groups in association with Building 1 and in the northern zone (above, FIGS 97, 100). The latter is associated with activity which impinges on the east–west street, particularly around the intersection with the north–south street. It also cuts the line of the boundary running along the edge of the east–west street. Interestingly it is from this area that we have our only possible Anglo-Saxon artefact, a bead, which is tentatively assigned a sixth-century date. Equally three of the four later fourth-century copper-alloy bracelets come from the north-east corner of the insula; the fourth deriving from a pit associated with Building 1. Also we note that two pits (1897, 2596) in this north-eastern area (and well 1044) produced examples of possible North African amphora sherds. Although this may be a coincidence, the only other example from the excavation occurred in the upper fill of a mid- to late fourth-century pit (1384) in Object 115. North African cylindrical amphorae of this kind were being produced from the later second century onwards and there is no doubt that examples were reaching Britain in the third and fourth centuries. However, examples were also reaching South-West Britain between the later fifth century and the mid-sixth century (Bv) (for overview, see Tyers 1996, 80–2, 104–5). On the basis of the proposed, possible chronology of the latest pits, we might tentatively propose that there was activity in the late fifth to sixth century which impinged on the east–west street and the northern zone, but whose focus lay in the insula to the north. We have also noted above that the very late pit 2634 in Building 1 was cut through contexts associated with sherds of Biv amphora.

Whether occupation extended this late in Building 5 is even more difficult to determine. We have two of the latest (i.e. post *c.* A.D. 450) deposits from inside Building 1, of which 1354 might be earlier than 2634. Interestingly 1354 is in the north-facing range which we argue was demolished before the core of the building. That demolition is the earliest occasion that dwarf columns of the kind which carries the ogham inscription were released. Elsewhere it has been argued that the linguistics of the ogham (which has a *terminus post quem* of *c.* A.D. 300/325) would permit an early date for our inscription, perhaps late fourth/early fifth-century, rather than later fifth- or sixth-century (Fulford *et al.* 2000). We cannot, of course, tell whether the stone was inscribed when it formed part of the verandah of the north-facing range (assuming that to be the source of the column) or later, but, if the latter, we suggest that its existence — marking the property of Tebicatos — implies the continued existence of at least the core of Building 1. That it might have stood alone for a while is suggested by the loss of the capital and its generally battered appearance. The deep, vertical grooving on the rear, suggestive of the stone being used to sharpen knives, tools, etc. might also have occurred after its removal from the building. Re-excavation of the well 1170 in 1998 produced quantities of flint and ceramic building material which, we argue, was derived from the demolition of Building 1 or another nearby building. The latest date we can give for that event is after the filling of pit 2634, which cannot reasonably be earlier than the mid-fifth century, but could be considerable later, paralleling the occupation to the north.

In compiling and evaluating the evidence for the late (from a Romano-British perspective) chronology of *Calleva* there has been modest progress since George Boon's defining paper based on loose finds from the early excavations (Boon 1959). Indeed the Insula IX excavation has produced contexts for some of the types of finds discussed by Boon. What we have found in Insula IX complements and contrasts with the evidence from the forum-basilica where the post-Roman finds were almost exclusively of glass. With one exception, an unusual flask or flagon of yellow-green glass (Price, J. 2000, 320–1), the collection was of red-streaked window-glass of the kind which is associated with Anglo-Saxon ecclesiastical sites of the seventh to ninth century (Allen, D. 2000, 314). This was found among the very latest contexts within the basilica (Fulford and Timby 2000, 78), the majority of which were associated with iron-working slags. From a similar context there was also a possible sherd of a North African amphora, the only one of its kind from the excavation (Williams, D.F. 2000, 225). The excavation of the South-East Gate also produced a piece of the red-streaked window-glass (Price, J. 1984, 116), while from the North Gate, we have the skull(s) with a fifth/sixth-century radiocarbon date from the upper silts of the outer ditch (Fulford 2000). Inside that gate and cut into the tail of the rampart were some examples of very late pits (Phase 9.2) with pottery assemblages comparable to our latest Insula IX categories (Fulford *et al.* 1997).

While the above examples include independently dated material, for the most part from sound, stratified contexts we should not overlook the evidence for other possible 'abandonment' events from the town. Prominent among the pits and wells excavated by the Society of Antiquaries are two with very large assemblages of ironwork. The first was discovered in 1890 in Insula I, immediately to the east of Insula IX, in pit N to the south of House 2 (Fox and Hope 1892). The second was found in 1900 in well 2 close to the eastern margin of Insula XXIII, immediately to the north of Insula I (Fox and Hope 1901). These hoards contained a wide variety of tools — blacksmith's, farrier's, carpenter's, shoemaker's, as well as agricultural and miscellaneous tools, and a number of bronze items. On the evidence of the associated pottery vessels, the collections were deposited in the late fourth century or later (Boon 1974, 164–5, 270–2; Manning 1972b, 246–9). To both authors the nature of the deposits and the lack of coherence of the two collections suggested a votive explanation for their burial. These are exceptional assemblages, both in terms of size and composition, but there are resonances in their character and composition — the miscellaneous character of the material and the inclusion of broken or scrap items — with the contents of our latest pits with their 'residual' collections of objects. While it would seem that the second hoard was part of the closure of a well, originally some 6.5m in depth, we cannot be certain of the context of the second, whose excavated depth was not recorded beyond the level (5 feet) at which the ironwork started to appear.

From this gradually accumulating evidence it is becoming harder to resist the notion that there was widespread occupation within the town walls in the period between the fifth and the seventh century. At the same time there is growing evidence among the very latest contexts for deliberate acts of closure or abandonment. The challenge now is to attempt to characterise the society and economy of the period.

TEBICATOS AND HIS MILIEU

Our sources for reconstructing the life of the insula and the town after A.D. 400 are very limited. For the fourth century we have been dependent in large part on the finds from closed groups, mainly cess-pits and other negative features. We have observed that the volume and character of the evidence for the later fourth century is less than that for the earlier and middle part of the century, and we have therefore suggested a less intense occupation. In coming to this conclusion we need to recognise our dependence on a particular type of context and the possibility that by the later fourth century other means may have been used to dispose of occupational waste. Nevertheless, we could see evidence for the continuation to *c.* A.D. 400 of most of the activities associated with the earlier fourth century. From the latest pits we can argue for engagement with the region through the representation of the latest types of pottery from the major producers, particularly through the presence of the distinctive Late Roman shelly ware. Part of that engagement may have involved the continued production and working of iron in small quantities. This is present in the latest features in both northern and southern areas, including 1354 and 2596, both of which have aspects to their contents which would suggest a date after *c.* A.D. 425. The link with the evidence from the latest contexts from the forum-basilica, some of which produced examples of red-streaked window-glass, suggests that the production and forging of iron remained a characteristic of life in fifth-century (and later) *Calleva*.

The quantity of animal and bird bone identifiable to species from the latest pits is small and there are very few bones of animals or birds other than the principal domesticates (cattle, sheep/goat, and pig), with horse and bird (including fowl) merely represented by a handful of bones. Deer, fish, dog and cat are not recorded at all (and nor are there neonates or any other human remains). Evidence of plant remains is confined to fragments of wood charcoal. While this may in some part be a reflection of the nature of the surviving deposits, it does point to a significant reduction in the range of food resources available to the households of Insula IX. Although the incidence of neonate bone is limited to a lamb humerus from pit 1992, we assume that some cattle, sheep, and pig continued to be raised on the land immediately adjacent to the town. Since its taphonomy is no different from that of earlier contexts, we also note that, notwithstanding the smaller quantities, the same intensive processing of the bone for marrow fat and grease continued into the fifth century.

Despite the unpromising character of the latest assemblage, which is conspicuously reflected in the poverty of metalwork finds, most of which are assigned to the category of 'unknown function', there are elements which argue for a relatively high status for the occupants, or a status commensurate with that of the fourth-century inhabitants. First, there are pieces of typical latest Roman metalwork such as the copper-alloy 'crenellated' armlet from pit 2596 and the nail-cleaner from pit 2634. Second there are the fragments of North African cylindrical (Bv) and Biv (Asia Minor) amphorae which need not be residual in these latest contexts. Third, there is the evidence for a literate and, thereby, probably high-status Irishman occupying Building 1 in the fifth century.

One of the most striking finds to challenge our understanding of the period after A.D. 400 to be made from Central Southern Britain is the dwarf column from well 1170 inscribed in ogham and discovered in the excavation of 1893. Although originally questioned as a possible forgery (Fulford and Sellwood 1980), we have since argued that it should be re-instated as a genuine find (Fulford *et al.* 2000). The fact that we now have a considerably better understanding of its context has been very helpful in moving debate forward. Re-excavation of the well 1170 has produced wood from the basal contexts which might be associated with the construction of the well-lining (above, p. 40). Indeed, radiocarbon dating has yielded dates which point to a date in the second half of the third century.

In our reassessment we established a new reading of the name (which is in the genitive case) with TEBICATO[S] replacing EBICATO[S] and the full reading: TEBICATO[S] / [MAQ]I MUCO[I..], which translates as (*The something) of Tebicatus, son of the tribe of N*. It has previously been assumed that this was a memorial stone (Boon 1974, 77–8), but no trace of a body has yet been found. Although it may conceivably lie elsewhere in the insula or the town, there is much to commend an interpretation which links the stone to property. Mark Handley reminds us that '"land" is also possible, given that in an Irish context ogham inscriptions were used to denote familial title to land' (Fulford *et al.* 2000, 11). The linguistics suggested an early date to us, perhaps late fourth to fifth century, but earlier commentators had favoured a date no earlier than A.D. 450 (Boon 1974, 77–8).

We have suggested an original context for the dwarf column as part of the fabric of the north-facing elevation of Building 1, which we would argue was demolished before the core of the house and sometime after the filling of pit 1354. We would date the latter to *c.* A.D. 425, or possibly later. We cannot be certain that the column was in position in the verandah of Building 1 before its demolition, rather than, say, resting against the surviving core of the house when it was carved, but an early date for the ogham would certainly allow for this possibility. However we construe the position of the stone when it was carved, it is difficult to understand the choice of its particular, final destination in a well in a backyard of an insula where adjacent properties were certainly occupied in A.D. 400, and very probably in the second half of the fifth century, too, if it was not intimately associated with Building 1 (and 5). Both the location within the insula, away from the main east–west street, and within the town as a whole, away from public buildings and grander town-houses, assume that the larger town existed beyond Insula IX at the time of the carving of the ogham. Indeed, as others have observed, the inscription on the stone was making a statement which assumes a larger audience (Boon 1974, 77–8; Fulford *et al.* 2000, 16–17). The latter would comprise both those who could read the message in ogham and, by association, those who could not. As possible evidence in support of the first audience we have 'some Celtic fragments', one or two of which may be contemporary with the stone (Boon 1974, 75–6). Whereas before the re-examination of Insula IX the ogham stone seemed to stand alone as an isolated piece of evidence of the post-A.D. 400 history of the town, we can now see it associated with a particular property at the heart of a still vibrant community in the fifth century. It becomes a pointer to the nature of one facet of the Callevan community at that time. Communities of 'outsiders' have a long history at *Calleva* as the early Roman dedications by the *collegium peregrinorum* demonstrate (Frere and Fulford 2002). Equally, they are no stranger in the late period elsewere in Southern Britain, as we can see from the evidence from the Lankhills cemetery for the presence of 'Danubians' in fourth-century Winchester (Clarke, G. 1979), or for the presence of possible Anglo-Saxons, or otherwise Germanic people, in Dorchester-on-Thames around A.D. 400 (Kirk and Leeds 1954). To these two, neighbouring, Germanic groups, we may now add an Irish group at *Calleva* in the fifth (and sixth?) century.

That there were regular contacts between the Roman world and, more particularly, between Britain and Ireland, is hinted at by the activities of the Church. The deacon Palladius, for example, was sent as bishop to Ireland in A.D. 431 (as noted by Sharpe 2002, 80). Assuming journeys from the Continent came via Kent and/or London to South-West Wales, travellers would have passed through *Calleva*.

THE END OF OCCUPATION

In the absence of datable material culture and radiocarbon determinations from appropriate contexts, how long Insula IX and the wider Callevan community continued is almost impossible to determine. The presence of red-streaked window-glass is a key component of the evidence from the forum-basilica, pointing to the possibility of occupation continuing to the seventh century, or even later (Fulford and Timby 2000, 580–1). Since this material has strong associations with Anglo-Saxon churches, it is hard to resist taking the evidence yet further and suggesting the possibility that, as at Lincoln (Jones, M.J. 2002, 127–30), the remains of the forum-basilica contained a church, though implausibly an Anglo-Saxon one, but from when, and until when? Implicit in this suggestion is a further distancing from the interpretation that the small, apsidal structure to the south-east of the forum was a church (Frere 1976; Boon 1974, 173–84; King 1983; Cosh 2004).

Our evidence from Insula IX is complementary to that from the forum-basilica, but our latest datable material is no less secure than the red-streaked window-glass, and cannot be taken beyond the fifth to seventh century. The presence of imported amphorae sherds from North Africa and Asia Minor from our latest contexts and a stratified glass bead with a date focused in the sixth century could be dismissed as residual, but the spatial and chronological coincidence of these rare finds is striking. It would have been helpful if these vessels were accompanied by African Red-Slipped Ware and Late Roman C to strengthen the observation made above, that the late fifth to mid-sixth century offers a wider, British context for the presence of the imported amphorae in post-Roman *Calleva*. It is also pertinent to note that latest Roman contexts in London have similarly produced sherds of East Mediterranean amphorae which would not be out of place in a late fifth- to mid-sixth-century context, but whose deposition, on a conservative chronology, has been argued to be closer to A.D. 400 (Merrifield 1983, 250–1).

Alongside the artefactual evidence there are our projections beyond A.D. 400 which have been made on the basis of the changing character of the material with which the latest pits were filled. We believe we can identify pits which contain assemblages of deliberately selected, residual material, which, in the case of the pottery, even include individual sherds of individual vessels that are generally not the latest to have been produced. Whether these sherds were long-curated pieces or recent re-discoveries by the fifth-century occupants of the insula, it is not possible to say.

We can see throughout the recent literature of Late Roman Britain an urgency to end urban life early in the fifth century as a correlate of the demise of the most conspicuous and abundant forms of Roman material culture such as copper-alloy coins and pottery (e.g. Casey 1979; Esmonde Cleary 1989, 131–4; Wacher 1995, 408–21). Underpinning this is an assumption that a developed material culture is a *sine qua non* of urbanism and the conceptual difficulty of understanding the nature of a community with little or no material culture. A contrasting view, pointing to the evidence for the continuity of life and organisations in the fifth and sixth centuries, is put forward by Dark (1994; 2000) and, more recently, Sharpe (2002). To take the debate forward, three observations need to be made. There is no complementary evidence for movement from town to the countryside where there are identical difficulties in identifying settlement, whether continuing 'Romano-British' occupation after A.D. 400, or early Anglo-Saxon. There is evidence from fourth-century deposits in Insula IX for a local subsistence strategy certainly involving animal husbandry, but also, by inference, crop-raising. Third, we have noted the longevity of some material culture associated with the fourth-century occupation of the insula. While some of this is undoubtedly residual in the sense that it has been dug up from earlier levels in the digging of a pit or a foundation and then re-deposited, the majority is genuinely material that has been curated for generations. We note, for example, the prevalence of second- and third-century finds in association with Building 8. Nina Crummy has drawn attention to the age of some of the items deposited in the cess-pits close to Buildings 1 and 5. If these were re-deposited rubbish, it is hard to explain their particular associations and spatial concentrations. If the flagon at the base of well 1300 was placed as an offering when the well was commissioned in the second half of the third century, it was at least a century old. If it was only deposited shortly before the coins of the House of Theodosius in the context above, it may have been more than two hundred years old. As our own, contemporary experience suggests, material culture can survive and be used for generations. Against this background, therefore, it is hard to accept a rapid end to the use of surviving Roman material in the early fifth century. Some items could well have been in use a hundred or more years on into the sixth century. The presence of Roman artefacts in sixth- and seventh-century Anglo-Saxon graves is another indication of their potential longevity (White 1988). In other contexts we are comfortable with a scarcity or absence of material culture in the sixth and seventh centuries. The nearby Anglo-Saxon settlements at Cowdery's Down, Basingstoke and Chalton in south Hampshire provide good examples of contemporary sites with exiguous assemblages of material culture (Addyman *et al.* 1972; Millett and James 1983). Against this backgound we have no reason not to assume a continuing 'Romano-British' or 'sub-Roman' population at Silchester till at least the late sixth, if not the seventh, century and the period of the emergence of the Anglo-Saxon kingdom of Wessex (cf. Boon 1974, 74–5). While the nature of that occupation remains elusive for the moment (though there is a high-status inflection to the material evidence that does survive), we can move forward on the premise that there *was* a population. Thereafter, the absolute scarcity of Anglo-Saxon material culture within the walls becomes a problem. We should note, too, that our wells show no signs of significant silting before their deliberate backfilling. This suggests that they were in use up to that moment and that their final filling was not part of a much later process to level the ground for ease of cultivation.

Silchester is one of a small group of towns which did not re-emerge as such in the later Anglo-Saxon period and it is the only example located in England south of a line drawn between the Thames and Severn Estuaries. Unlike Caistor-by-Norwich or Wroxeter, for example, to the north, it does not have a successor close by; Reading is 10 miles to the north, Basingstoke 7 miles to the south. The evidence of the deposition of the ogham stone and the nature of that of the great ironwork hoards suggest there was deliberacy in the abandonment of the settlement. This might be understood in the context of the incorporation of the residual *civitas* of the Atrebates into the Anglo-Saxon kingdom of Wessex and the elimination of a potential rival. One process that might have legitimated an evacuation of the town might have been the construction of a monastery on the site of the forum-basilica where our potentially latest, post-Roman and pre-eleventh/twelfth-century material, including the red-streaked window-glass, has been found. If the city wall served as the *vallum monasterii*, it would have been appropriate to clear the intervening ground of settlement to create the monastic precinct. While this provides a model for the larger withdrawal from the town, it still leaves open the nature and timing of the ultimate abandonment of the proposed ecclesiastical establishment. The building of St Mary's and the concentration of settlement around the eastern edge of the town from the late eleventh/twelfth century provides a *terminus ante quem* for the emptying of the rest of the walled area (cf. evidence for occupation from the eleventh/twelfth century at the amphitheatre (Fulford 1989, 193–5) and south towards the south-east gate (Hinton 1984)). However, the absence of Roman monumental masonry in St Mary's or in any neighbouring church suggested to us that the destruction of Roman public buildings had taken place before the eleventh century (Fulford and Timby 2000, 581).

This takes us to an alternative and simpler scenario which constructs *Calleva* as the location of one of the martyrs' cults suppressed by the Anglo-Saxons. Augustine of Canterbury suppressed the cult of Sixtus, for example, who was venerated at an unknown location in Southern Britain (Sharpe 2002). More generally Sharpe (2002) paints a persuasive picture for the continuity of the British church in the fifth to sixth centuries prior to the Anglo-Saxon supremacy, here the kingdom of Wessex. In this context we could see a simultaneous suppression of town and church, *martyrium* or not, at *Calleva* in the period between the late sixth and mid-seventh century.

CONCLUSION: DEVELOPING THE LATE ROMAN URBAN PROFILE

The second half of the third century saw a major re-organisation of Insula IX, which culminated in the development of three properties within the area of our excavation and the construction of our Buildings 1 and 5 within one of them around the beginning of the fourth century. The remainder of the north–south street frontage was fully occupied, while the rest of the excavation area consisted of the backyard of another building in the north-west corner of the insula, beyond the excavation area. What we can see locally in Insula IX in the late third/earliest fourth century can be set against a wider, contemporary context of change at *Calleva*, of which the construction of the town walls in stone (Fulford 1984) and the dedication of the forum-basilica to metalworking are well attested (Fulford and Timby 2000). It is still too early to characterise the nature of the change from the second- and third-century occupation. This will be the subject of our next report. It is probably premature to lay too much emphasis on the artisanal character of the fourth-century evidence, as opposed to a perceived residential character of the early Roman occupation (cf. Clarke and Fulford 2002). Metalworking, for example, is clearly attested in the insula in the second century and earlier (Cook *et al.* 2005).

Occupation of our three properties continues through the fourth and, we suggest, the fifth/sixth centuries. There is evidence for significant repair or rebuilding of Buildings 1 and 8 in the late fourth century. Iron-working, animal husbandry, and bone-processing are attested throughout the later life of the insula, including in the latest deposits. This compares well with the evidence for metalworking from the latest contexts in the forum-basilica. In this latest period, perhaps in the late fifth/sixth century, there is evidence for occupation impinging on the east–west street and at its intersection with the north–south street. We would also argue that buildings stood within the insula until the end of the occupation. On the evidence for the nature of the filling of the wells we would propose that occupation was brought to an end deliberately in the sixth/seventh century.

While the incidence of finds other than ceramics suggests relatively poor households, with a decreasing level of material affluence along the main street north of Building 1, the remains of animals, birds, fish, and plant foods, particularly, but not exclusively, from Building 1, present a somewhat contradictory picture. The assemblage finds parallels with other deposits in the town with higher-status associations. Like the evidence of the material culture, the variety of food remains also declines northwards from Building 1 along the north–south street. If the imported amphorae from our latest deposits are contemporary with them we would argue that there is a high-status inflection to our latest occupation.

Our story is not just one of subsistence and trades. The evidence from some of our pits is not consistent with the regular deposition of household waste. We have argued from the character of the finds, whether the nature of the animal bone assemblage, or the incidence of finds like pottery drinking vessels, that some of the pits commemorate events of particular significance, perhaps associated with rites of passage, or events that resonated beyond the immediate households.

One of the key strategies of the Silchester Town Life project has been to set buildings and structures in the context of their larger, associated properties and the activities associated with them. If we had concentrated on the evidence of the structures upon which much of the history of the town in Roman Britain has been founded, the conclusions would have been very different. With almost no internal evidence for its occupational history, Building 5's abandonment could be placed firmly within the fourth century. If, with Building 1 we were to play devil's advocate and set aside the two very late pits, 1354 and 2634, as possibly post-dating its occupation, we would be left with a few internal contexts later than a coin of Valentinian and a case for abandonment before A.D. 400. Yet the evidence of well 1170 and other contexts external to the building supports the interpretation we offer here. Without the contextual evidence, it would have been hard either to construct a profile of the life and occupations of the households or to have developed the argument for a chronology for the insula which goes beyond A.D. 400. The contextual approach has also informed us about the changing character of finds' assemblages into the fifth century and we have noted that some of our latest pits contain residual assemblages of artefacts alongside examples of the latest coins. In the light of this, it is unwise to place reliance on the date of material dumped into late Roman buildings as evidence for the date of their abandonment. Unless contextual evidence is available and supportive of fourth-century abandonment, we should set aside that based solely on internal evidence. On this basis, it is certainly not safe to suppose abandonment of *any* late Roman town-house in Verulamium, for example, before the fifth century (Frere 1983) or to construct urban profiles of occupation and late Roman abandonment (Faulkner 1996; 1998).

Our approach has sought to characterise the nature of urban life in fourth-century Silchester in order to bring some substance to a debate which has been pre-occupied with the themes of 'decline' and 'continuity'. If we are going to attempt a benchmarking of urbanisation in Britain in the late Roman period on the basis of this case study of Insula IX, it is important for us to be able to identify parallels elsewhere. Earlier in our discussion we noted that there were aspects of the archaeology of the insula which others had already noted had an exclusively urban character.

Mark Robinson has observed (above, p. 217) that calcium phosphate mineralisation occurs at Pompeii and elsewhere in Roman Italy. It is commonly found in rural and urban contexts in medieval Britain. As yet it is rarely documented in Roman Britain, but there are incidences from the first century A.D. onwards at Colchester, London, and Dorchester, Dorset. Silchester now provides a fourth-century context. The one rural location, where hay was mineralised, is in association with a temple deposit at Uley. What leads to mineralisation is not entirely clear, but it is related to high levels of phosphate and calcium in the associated contexts. The differential pattern of presence/absence adduced at Silchester (and elsewhere) may relate to the intensity with which latrines and cess-pits were being used.

A second urban indicator has been introduced by Claire Ingrem (above, pp. 180–1, 188) in relation to the animal bone assemblage whose taphonomy shares characteristics with assemblages which Mark Maltby has reported from several Romano-British towns, notably Cirencester, Dorchester, Gloucester, and Winchester (Maltby 1993b; 1998). The intensive chopping and splitting of long bones and other parts of the animal skeleton to extract marrow and grease may have served several purposes, such as servicing urban crafts, providing tallow for lighting, making soap, or supplementing a subsistence diet. There are other aspects of the faunal assemblage, such as the maturity of cattle at death, which also have particular urban associations.

To these urban indicators we can add others, some of which, on an individual basis, are not exclusive to the 'larger' towns like Silchester, but collectively, as an assemblage or basket of indicators, have no comparator outside them. Not all can yet be paralleled in a specifically late context. So, in relation to food remains, the sheer variety of animals, birds, and fish as well as plant remains, including exotics such as figs, finds parallels in York, including a late Roman context, and in London. Mark Robinson has commented on the absence of evidence from the cereal remains for their drying and processing into flour from Insula IX and this is certainly supported by the scarcity of finds of querns. However, we have argued that the presence of neonates among the major domesticates supports the case for local animal husbandry, for which we find a parallel from the rubbish- and cess-pits from the Greyhound Yard excavations at Dorchester, Dorset (Woodward *et al.* 1993). Arguably there is also evidence elsewhere at and around Silchester from pollen evidence and the early excavations to support the case for some local growing of cereals. Again there is some, but undated, corroboration from Dorchester, Dorset (Jones and Straker 1993). Neonate cattle and sheep were also present in the later Roman assemblage from the 'small town' at Neatham (Done 1986).

In terms of other occupations, the nature of the archaeological record gives emphasis to metalworking, in our case the making and forging of iron. The volume of evidence is not great, but it represents a strand of activity across our three properties and complements that from the forum-basilica and the ironwork hoards from the neighbouring Insulae I and XXIII. The record from other towns is variable. It is not always clear when slags were retained by the excavators, so an apparently negative record cannot be relied upon. Quantitative data are rare. There is a good record from Southwark which shows a long history, by no means exclusive to the fourth century, of ironworking accompanied by the working of copper alloys. The intensity of the late Roman activity is certainly greater than that so far attested in Insula IX, but parallels more closely the evidence from the forum-basilica. We can find similar evidence of ironworking from Colchester and Dorchester, with the presence of ores attested at the latter (McDonnell 1993). Interestingly, the largest deposits from both these towns and Southwark are attributed to the early Roman period, with 'a high background level' later at Dorchester. Similar evidence, including the presence of hearth bottoms, is reported from the nearby 'small towns' at Wanborough, Wiltshire (Tylecote 2001) and Neatham, Hampshire (Millett and Graham 1986, 157). We argue here that the evidence of the hearth bottoms indicates the small-scale making of iron alongside its forging into artefacts. If we extrapolate this conclusion to towns where similar evidence has been found, we have to acknowledge that this adds a further dimension to urban life which is also neither exclusive to the late period, nor, of course, to towns. Unlike the forum-basilica, Insula IX lacks persuasive evidence for the working of copper alloys and other metals, but this association is well attested at Southwark in the fourth century.

Recognising that the shops and workshops within the excavated area of Insula IX only represent a small fraction of similar buildings elsewhere in the town, notably either side of the main east–west street, and their finds only a small proportion of associated activity, we can also show evidence of antler-working and, perhaps, leather-working. The latter is also attested in a similar context in Southwark, while evidence of late Roman bone-working industries has been reported, as we have noted, from Colchester and, probably, Gloucester. Like iron-making and iron-working, this is not exclusively an urban activity, though the most robust late evidence so far has derived from urban contexts (MacGregor 1985).

With other categories of finds it would be hard to identify characteristics which are specifically urban, although, as we have seen, there is a distinctiveness about the assemblage in terms of the presence/absence of different types and categories of artefact, which serves to help characterise the nature of the occupation in Insula IX. This would encourage us to imagine that it would be possible eventually to work to a fine-grained analysis of status and occupation across a well-preserved town like Silchester. It would not be hard to find rural sites with comparably poor collections of either, for example, late Roman metalwork or late Roman glass, as is the case with our properties in Insula IX. This is perhaps not the case with the pottery assemblage, which Jane Timby shows has affinities with other urban assemblages such as Colchester, London, or Wroxeter. This is expressed not only by the relative proportion of the major categories of pottery represented, but also by the greater diversity of wares and vessel forms compared with smaller towns, such as Neatham, or rural sites. Indeed, that diversity is probably the best material expression of the complexity of the trading networks with which the community was connected in the late Roman period. Along with the exotic plant remains, the small quantity of imported ceramics gives an indication of the more distant links with which a community like Silchester might be associated in the late period.

On the basis of the evidence from Insula IX and from parallels drawn from elsewhere (including Silchester), we can begin to develop our understanding of the nature of the late Roman town in Southern Britain, building on the framework offered by Esmonde Cleary (1989, 64–85). We have noted that there are some aspects of our finds' assemblages which are distinctly 'urban' in character. These would include the calcium phosphate mineralisation of plant remains and the treatment of animal bone to extract marrow fat and grease. In addition, there is the evidence for diversity, not only within different assemblages of material, notably the ceramics and the food remains – plant, animal, bird and fish, but also in the range of activities indicated. We have pointed to the widespread evidence for low-intensity iron-making and iron-working, for intensive bone-processing, and for animal husbandry, but there is also the evidence for the working of non-ferrous metals, for antler/bone-working and leather-working. Esmonde Cleary's estimate of the area of the town devoted to these activities at about 20 per cent of the walled area is almost certainly an under-estimate (1989, 78). Although not certainly associated with Insula IX, we suggest there was some local crop-growing, while other plants and fruits were also likely to have come, in part at least, from within the town or the immediate extramural territory.

Collectively, these attributes begin to define a late Roman community, occupations and experience at Silchester and elsewhere among the 'large' towns of Southern Britain which are distinct from those of other settlements. It seems appropriate to describe these as urban. While, as we have seen above, there are some parallels, it remains to be seen whether all such urban attributes to be found among the 'larger' towns are also shared among the 'small towns'. A new generation of excavation is required to address these questions, for, while, on the face of it, a comparable range of evidence is lacking from the 'small towns', this is perhaps more a function of the excavation and finds' recovery strategies of the time and the nature of the evidence currently available (cf. Burnham and Wacher 1990).

Within this longer-duration, late Roman period which embraces the fifth and, arguably the sixth century, all is not the same. While we have set out the case for Insula IX being as fully occupied at the end of the fourth and, perhaps, the fifth century, as it was at the end of the third, there is apparent variation in the *intensity* of occupation. The most visible (archaeologically) activities persist into the fifth century, when it could be argued on the basis of the digging and filling of pits that there was less intensive occupation after *c.* A.D. 350/75, but an unknown amount of stratigraphy has been destroyed by late cultivation. If we are right to draw a chronological distinction between the latest pits with contemporary coins and frequent occurrences of the latest ceramics and those with residual, fourth-century assemblages, a further decline in intensity of occupation might be hazarded after *c.* A.D. 425/50. Within each of these phases, however, the character of the occupation of Insula IX remains distinctive. Even the combination of attributes associated with the very latest assemblages would be hard to match elsewhere. Combined with the latest evidence from the forum-basilica an even stronger identity for fifth-century *Calleva* emerges.

There is insufficient evidence to assert differences in the substance of daily life and occupations, rather than, perhaps, in the record of public building, between an early and a late Roman *Calleva*, or between the early and late town of Roman Britain. On the contrary the late evidence is probably rather fuller than is currently known for the first and second centuries, which, except, perhaps, in Colchester and London, still remain relatively obscure from an urban perspective. With indisputable evidence for a break in occupation between the fifth/sixth and the tenth/eleventh centuries, establishing the nature of continuity into the Middle Ages *per se* is not an issue for *Calleva*. However, even if the date of the *caesura* is difficult to determine, we can see no evidence for a premature abandonment of, or emigration from the town. Indeed Tebicatos is fifth-century evidence to the contrary and there is further, positive evidence from both the forum-basilica and Insula IX for continuing activity and occupation.

THE APPENDICES

APPENDIX 1

THE SCHEDULE OF COINS

By Edward Besly

SILCHESTER INSULA IX: CONSOLIDATED SUMMARY LIST OF COINS POST-A.D. 250

(u = uncertain mint)

Period 13: A.D. 260–75 (75)

Central Empire, A.D. 260–70 (29)

All mint of Rome: Gallienus (10); Salonina (1); Claudius II (9); Quintillus (1); Divus Claudius (8)

Gallic Empire, A.D. 260–74 (46)

Postumus, mint I (3), irregular (1); Victorinus, mint I (4), mint II (2); Tetricus I, mint I (12), mint II (2), u (7); Tetricus II, mint I (1), mint II (4); u (10)

Period 14: A.D. 275–96 (67)

Central Empire (1)

Maximian, Lyon (1)

Irregular radiates (47)

'Victorinus' (3); 'Tetricus' (21); uncertain prototype (23)

British Empire (19)

Carausius, unmarked (10), London (5), S C // (2)

Allectus radiate, S P // C: FELIC PVBL, 4.19g; *RIC* -, Burnett – (1); //QC (1)

Period 15: A.D. 296–317 (5)

SOLI INVICTO COMITI	Constantine I, London (4), Arles (1)

Period 16: A.D. 317–30 (15)

VICTORIAE LAETAE PRINC PERP	Constantine I, London (2); Licinius I?, Trier? (1)
BEATA TRANQVILLITAS	Constantine I, Trier (1); Constantine II, Trier (1); uncertain, u (1)
VOT XX/ DN CONSTANTINI MAX AVG	Constantine I, Arles (1)
VOT X/ CAESARVM NOSTRORVM	Crispus, Trier (1)
VOT XX / wreath, irregular	'Constantine II', 'Arles' (1)
SARMATIA DEVICTA	Constantine I, London (1), Trier (1), u (2)
PROVIDENTIAE AVGG	Constantine I, Trier (1)
PROVIDENTIAE CAESS	Constantine II, Trier (1)

Period 17: A.D. 330–48 (99)

GLORIA EXERCITVS, 2 stds	Constantine I, Trier (2), Thessalonica (1); Constantine II, Trier (1), Arles (2); Constantius II, Arles (1); uncertain, Trier (1), Arles (1), u (1); irregular (3)
Wolf and twins/VRBS ROMA	irregular (7)
Victory/CONSTANTINOPOLIS	Trier (4), Lyon (1), Arles (1), u (2); irregular (10)

GLORIA EXERCITVS, 1 std	(335–7) Constantine II, u (2); uncertain, Trier (1); uncertain, u (2) (335–40) uncertain, Lyon (1); uncertain, u (5); irregular (12) (337–40) Constans, Arles (1), Cyzicus (1), u (1); Constantius II, Arles (1), u (1)
VIRTVS AVGG NN	Constantius II, Trier (1); Constans/Constantius II, Trier (1)
PAX PVBLICA	Helena, Trier (1); irregular (1)
PIETAS ROMANA	Theodora, Trier (7)
Quadriga/Divus Constantine I	Trier (1)
VICTORIAE DD AVGG Q NN	Constans, Trier (9); Constantius II, Arles (1), Lyon (1); uncertain, u (1); irregular (9)

Period 18: A.D. 348–64 (55)

FEL TEMP REPARATIO galley	'Constans/Constantius II', irregular (1)
FEL TEMP REPARATIO hut	Constantius II, u (1)
FEL TEMP REPARATIO phoenix/pyre	Constans, Trier (3)
FELICITAS REIPVBLICE	Magnentius, u (1)
GLORIA ROMANORVM	'Magnentius', irregular (1)
VICTORIAE DD NN AVG ET CAE	'Magnentius', irregular (4)
SALVS AVG NOSTRI	Constantius II, Trier (1)
FEL TEMP REPARATIO horseman	Constantius II, Lyon (1), Arles (1), u (1) Irregular (40)

Period 19: A.D. 364–78 (85)

GLORIA ROMANORVM	Valentinian I, Arles (1), Aquileia (1); Valens, Lyon (1), Arles (3), Aquileia (2), u (6); Gratian, Lyon (1); uncertain, u (13)
SECVRITAS REIPVBLICAE	Valentinian I, Arles (1), u (3); Valens, Lyon (7), Arles (4), Rome (1), Siscia (2), u (7); uncertain, Lyon (3), Arles (1), Aquileia (1), u (11)
GLORIA NOVI SAECVLI	Gratian, Arles (15)
Uncertain	(Valentinian I), u (1)

Period 21: A.D. 388–402 (32)

VICTORIA AVGGG	Valentinian II, Lyon (1), Arles (1); Theodosius I, u (1); Arcadius, u (4); Honorius, u (1); uncertain, Trier (1), Lyon (1), u (10)
SALVS REIPVBLICAE	Valentinian II, Rome (1), u (2); Theodosius I, u (1); Honorius, Rome (1); uncertain, Aquileia (1), u (5)
Uncertain	Theodosius I, u (1)

Uncertain coins (41)

Third–fourth centuries (20)
Fourth century (15)
Fourth century, irregular (6)

APPENDIX 2

THE POTTERY

By Jane Timby

CATALOGUE OF ILLUSTRATED SHERDS (FIGS 60, 63 and 68)

Object 115 (FIG. 60)

1. Complete small, necked jar with a spalled hole on one side. Fabric: ALH RE. Pit 1246, (1075). SF 195.
2. Complete handled flask with a burnished exterior. Very slightly micaceous greyware fabric probably ALH RE, although identical forms were made in NFO RE. Pit 1463 (1347). SF 755.
3. Complete indented beaker, Fulford (1975) type F33. Fabric: NFO CC. Thin black slip on pale orange fabric. Pit 1463 (1347). SF 800.
4. Flanged hemispherical bowl. A finely micaceous, orange, fine sandy ware with a grey inner core. Slightly burnt. Pit 1463 (1347).
5. Flanged bowl with a dark grey slip on the rim. Fabric: ALH RE. Pit 1463 (1347).
6. Necked jar, with a red-brown to grey sandy fabric. Fabric: ALH RE. Pit 1463 (1347).
7. Broken beaker base on which part of a graffito survives. Fabric: OXF RS. Pit 1463 (1596). SF 887.

Object 116 (FIG. 60)

8. Storage jar. Fabric: ALH RE. Pit 2900 (2497).
9. Conical flanged bowl. Fabric: ALH RE. Pit 2900 (2479).
10. Globular beaker with sharply everted rim. Hard fine grey fabric with an external black slip and decorated with grey barbotine circles. Pit 2900 (2479).
11. Large wide-mouthed, everted rim jar decorated with a burnished line lattice. The interior surface is pitted and eroded through use. Fabric: ALH RE. Pit 3235 (3224).
12. Sherd from the shoulder of a jar with incised graffito. Fabric: DOR BB1. Pit 3251 (3226).
13. Body of a large jar decorated with a burnished line lattice. Fabric: ALH RE. Pit 3235 (2920/2924). SF 2894.
14. Complete rim of a Gallic amphora. Pit 3235 (2920/2924), SF 2893.
15. Almost complete small DOR BB1 jar. Pit 3235 (2920/2924). SF 2890.
16. Almost complete DOR BB1 jar. Pit 3235 (2920/2924). SF 289.
17. Complete DOR BB1 jar. Pit 3251 (3227).

Object 117 (FIG. 63)

18. Complete jar. Black with a grey inner core and red-brown margins. Fabric: ALH RE (GREY 3). Pit 2087 (1392).
19. Sherd of Dressel 20 amphora with graffito PRIVATI. Pit 1702 (2741). SF 1867.
20. Alice Holt storage jar with a greyish-white slip over the rim. Fabric ALH RE. Pit 1707 (1571).
21. Oxfordshire white ware mortarium with impressed decoration. Slightly burnt. Fabric: OXF WH. Pit 1707 (1511).
22. Small lid. Fabric: OXF WH. Pit 1537 (1736).

Object 118 (FIG. 63)

23. Necked jar with a slightly thickened rim. Fabric: ROB SH. Pit 1019 (1315).

24. Flanged bowl. Fabric: ALH RE. Pit 1019 (1315).
25. Grog-tempered storage jar with a burnished inner rim face. Fabric: GROG. Pit 1459 (1479).
26. Handmade flanged bowl decorated with diagonal burnished lines. Fabric: HAM GT. Pit 1459 (1479).
27. Flat rim jar. Fabric: ALH RE. Pit 1459 (1479).
28. Upper part of a flat rim jar with two girth grooves as Lyne and Jefferies (1979), form 3B.11. Burnished exterior. Heavily sooted on the upper half of the interior. Fabric: ALH RE. Pit 1480 (1408). SF 808.
29. Complete flask. Clumsily finished with concentric wire-cut marks on base. Burnished upper body. Fabric: ALH RE. Pit 1576 (1288). SF 916.
30. Body of a flask, missing the upper neck and rim. White slip on the upper body. Fabric: ALH RE. Lyne and Jefferies 1979, type 1B. Pit 1634 (1327). SF 737.
31. Upper half of flask with a decorated cordon around the neck. Slipped burnished exterior. Fabric: ALH RE (GREY 2). Pit 1634 (1327).
32. Small amphora lid. Off-white surfaces with a pink core. Pit 1459 (1479).

Object 120 (FIG. 63)

33. Handmade, grog-tempered storage jar. Pit 2528 (2522).
34. Small samian bodysherd with part of an incised graffito . . . CTO. Fabric: Central Gaulish samian. Pit 2537 (2536). SF 1727.
35. Beaker with rouletted decoration. Light grey, sandy ware with a brown core. Source unknown. Pit 2587 (2654).
36. Light grey coarseware beaker. Possibly an import. Pit 2587 (2654).
37. Handmade bowl with one extant applied boss. Fabric: HAM GT. Pit 2813 (2748).

Object 122 (FIGS 63, 68)

38. Indented beaker with black colour-coated finish. Fabric: NFO CC. Pit 2596 (2947). SF 2889.
39. Small complete jar with an uneven worn rim and worn exterior base angle. The body has an elongate hole. Fabric: DOR BB1. Pit 2596 (2898). SF 1922.
40. Plain-rimmed dish. Fabric: DOR BB1. Pit 2596 (2558).
41. Large jar. Fabric: DOR BB1. Pit 2596 (2558).
42. Everted rim grey ware jar with a band of white slip in the rim. Fabric ALH RE. Pit 2596 (2558).
43. Wide-mouthed jar or bowl. Fabric: GREY 4. Pit 2596 (2558).
44. Small beaker, matt black colour-coat on a light orange fabric. Fabric: NFO CC. Pit 1513 (1522).
45. Flanged bowl. Fabric: ALH RE, imitating Dorset black burnished ware. Pit 1513 (1522).
46. Flanged bowl with a roughly burnished exterior. Fabric: HAM GT. Pit 1897 (1817).
47. Black burnished ware jar. Fabric: DOR BB1. Pit 1992 (1904).
48. Lid. Fabric: OXID 4. Late pit 1992 (1904).
49. Lid with lightly-tooled wavy line decoration. Fabric GREY 4. Pit 1992 (1904).
50. Lid. Fabric: GREY 4. Pit 1992 (1904).
51. Flat rim jar decorated with uneven slashes on the cordon. Fabric: GREY 4. Pit 2240 (2065).

Object 121 – wells (FIG. 68)

52. Bodysherd with part of an incised graffito. Fabric: ALH RE. Well 1300 (1301). SF 867.
53. Bowl in a fine white sandy ware. Well 2554 (2551).
54. Cup imitating Dragendorff form 27. Dark orange, sandy ware with a mid-grey inner core. Olive green, slightly metallic, glaze. Fabric: SOB GL. Well 1300 (1325).
55. Collared rim flagon. Dark orange fabric, with a thick creamy white slip. Fabric: WSLIP. Well 1300 (1325).
56. Flagon with a missing rim. Two holes in the mid-body. Fabric: WSLIP, possibly Staines. Well 1300 (1621). SF 936.

TABLE 14: Summary of all pottery from the late Roman pits and wells studied

	WARE	Name	No	%	Wt	%	Eve	%
Imports	ARG CC	Argonne colour-coated ware	17	*	49	*	13	*
	CNG BS	Central Gaulish colour-coated ware	29	*	78	*	19	*
	CNG CC2	Central Gaulish colour-coated ware	5	*	12	*	0	0.0
	CNG TN	Central Gaulish terra nigra	2	*	17	*	0	0.0
	CNG WS	Central Gaulish white slipped	1	*	10	*	0	0.0
	KOL CC	Cologne colour-coated ware	38	*	174	*	56	*
	GAB CB	Gallo-Belgic craquelée bleutée	1	*	3	*	0	0.0
	GAB TN	Gallo-Belgic terra nigra	6	*	62	*	4	*
	GAB TR	Gallo-Belgic terra rubra	4	*	17	*	2	*
	LYO CC	Lyon colour-coated ware	3	*	7	*	0	0.0
	MOS BS	Moselkeramik	22	*	54	*	0	0.0
	SAM	samian – South/Central/East	373	4.1	4183	3.2	817	7.2
	ARR	Arretine	1	*	8	*	9	*
	CW IMP	coarseware import	1	*	10	*	12	*
	IMP WW	imported whiteware	19	*	62	*	36	*
	ITA WH	Italian white ware mortaria	1	*	302	*	0	0.0
	NOG WH	North Gaulish mortaria	2	*	194	*	15	*
	SOL WH	Soller whiteware mortaria	1	*	158	*	0	0.0
	CAD AM	Cadiz amphora	3	*	238	*	10	*
	GAL AM	Gauloise amphora	71	*	1434	1.1	115	1.0
	BATAM	Dressel 20 amphora	112	1.2	11588	9.0	75	*
	NAF AM	North African amphora	3	*	255	*	0	0.0
	AMP UC	unclassified amphora	13	*	421	*	17	*
Regional	DOR BB1	Dorset black burnished ware	933	10.3	11462	8.9	1836	16.3
	HAD OX	Hadham oxidised ware	3	*	41	*	0	0.0
	HGW REC	Highgate Wood C reduced ware	1	*	3	*	0	0.0
	LON FR	London fine reduced ware	49	*	425	*	115	1.0
	LNV CC	Lower Nene Valley colour-coat	48	*	427	*	105	1.0
	LNV WHM	Lower Nene Valley whiteware	3	*	119	*	15	*
	MAH WH	Mancetter-Hartshill mortaria	2	*	96	*	0	0.0
	NFO CC/RS	New Forest colour-coated ware	162	1.8	1431	1.1	438	3.9
	NFO PA	New Forest parchment ware	7	*	67	*	14	*
	NFO RE	New Forest grey ware	12	*	119	*	27	*
	NFO WH	New Forest whiteware	14	*	194	*	7	*
	OXF OX	Oxfordshire oxidised ware	2	*	7	*	0	0.0
	OXF RS	Oxfordshire red-slipped ware	176	1.9	1431	1.1	135	1.2
	OXF RSM	Oxfordshire red-slipped mortaria	9	*	200	*	25	*
	OXF PA	Oxfordshire parchment ware	1	*	20	*	0	0.0
	OXF WH	Oxfordshire whiteware	134	*	1153	1.0	108	1.0
	OXF WHM	Oxfordshire whiteware mortaria	66	*	2857	2.2	133	1.2
	OXF WSM	Oxfordshire white-slipped mortaria	7	*	219	*	28	*
	ROB SH	late Roman shelly ware	5	*	51	*	15	*
	SOW BB1	South-west black burnished ware	1	*	9	*	0	0.0
	VER OX	Verulamium oxidised ware	8	*	244	*	5	*
	VER WH	Verulamium white ware	29	*	452	*	15	*
	VER WHM	Verulamium whiteware mortaria	1	*	15	*	0	0.0
	WIG WH	Wiggonholt white ware	1	*	29	*	0	0.0
Local	ALH RE	Alice Holt wares	4410	48.8	52817	41.0	5528	49.0
	SILCH F1	Silchester flint-tempered	306	3.4	5391	4.2	129	1.1
	FLINT	misc. flint-tempered	73	*	888	*	83	*
	GROG	grog-tempered	513	5.7	21562	16.7	266	2.4
	GROG1	1st century grog-tempered wares	44	*	312	*	49	*
	HAM GT	Hampshire grog-tempered	81	1.0	804	*	70	*
	HAM WH	Hampshire white ware	2	*	148	*	12	*
	OVW WH	Tilford ware	49	*	420	*	41	*
Unknown	SOB GL	British glazed ware	1	*	10	*	7	*
	MICA	mica-slipped wares	8	*	48	*	7	*
	MORT	unknown mortaria	3	*	186	*	0	0.0
	OXID	miscellaneous oxidised wares	228	2.5	1757	1.4	184	1.6
	WHITE	miscellaneous white wares	24	*	230	*	113	*
	WSLIP	white slipped wares	118	1.3	674	0.5	127	1.1
	GREY	miscellaneous grey wares	476	5.3	2164	1.7	252	2.2
	GREYF	misc. fine grey wares	116	1.3	549	*	105	1.0
	CC	misc. colour coated ware	20	*	120	*	15	*
	MISC	miscellaneous	167	1.8	412	*	68	*
	Prehistoric	Iron Age wares	2	*	20	*	0	0.0
TOTAL			9043	100.0	128919	100.0	11277	100.0

* = LESS THAN 1%

TABLE 15: Summary of fabrics from Object 115 pits

PIT		1246						1384						1463						1571						3357					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**0%**	**Wt**	**0%**	**Eve**	**0%**
Imports	SAM	1	3	8	1	0	0	0	0	0	0	0	0	2	2	10	0.5	19	5.2	5	4.3	17	0.8	5	4.75	19	5.9	33	1.4	14	13
	MOS BS	1	3	3	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.8	1	0.05	0	0	0	0	0	0	0	0
	BATAM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	57	2.75	0	0	4	3.4	1112	52.2	0	0	1	*	96	4.1	0	0
	CAD AM	0	0	0	0	0	0	1	1.75	6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GAL AM	0	0	0	0	0	0	1	1.75	10	1	0	0	0	0	0	0	0	0	12	10.3	26	1.2	0	0	1	*	6	*	0	0
	NAF AM2	0	0	0	0	0	0	1	1.75	25	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SOL WH	0	0	0	0	0	0	0	0	0	0	0	0	1	0	158	7.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	2	5.5	7	1	0	0	5	8.75	163	17	30	14.5	16	14.8	149	7	15	4	8	6.8	103	4.8	13	12.4	0	0	0	0	0	0
	OXF RS	0	0	0	0	0	0	10	17.5	121	12.7	22	10.6	1	1	47	2.3	0	0	4	3.4	30	1.4	6	5.7	0	0	0	0	0	0
	OXF WH	2	5.5	45	6.5	0	0	1	1.75	19	2	0	0	0	0	0	0	0	0	1	0.8	37	1.7	0	0	0	0	0	0	0	0
	OXF OX	0	0	0	0	0	0	1	1.75	3	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LNV CC	0	0	0	0	0	0	1	1.75	2	0.2	0	0	2	2	15	0.7	0	0	1	0.8	6	0.3	0	0	0	0	0	0	0	0
	LON FR	0	0	0	0	0	0	0	0	0	0	0	0	3	2.75	12	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VER WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1.5	27	1.2	0	0
Local	ALH RE	23	66	532	75.5	131	88.5	32	56	578	60.5	141	68	65	60.2	1137	54.7	207	57	64	55	454	21.3	56	53.3	206	64	1402	60	84	77.8
	SILCH F1	2	5.5	36	5	0	0	1	1.75	20	2	5	2.5	1	1	16	0.75	3	0.8	3	2.5	54	2.5	0	0	33	10	357	15.3	7	6.5
	HAM GT	1	3	4	0.5	5	3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO CC	0	0	0	0	0	0	2	3.5	5	0.5	9	4	3	2.75	188	9	100	27.5	8	6.8	155	7.3	13	12.4	0	0	0	0	0	0
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	2	2	28	1.5	0	0	1	0.8	52	2.4	12	11.5	10	3	54	2.3	0	0
	GROG	0	0	0	0	0	0	0	0	0	0	0	0	7	6.5	186	9	0	0	3	2.5	76	3.5	0	0	11	3.4	199	8.5	0	0
Unknown	OXIDF	2	5.5	19	2.5	12	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	0	0	0	0	0	0	1	1.75	4	0.5	0	0	2	2	68	3.3	20	5.5	0	0	0	0	0	0	18	5.6	100	4.3	0	0
	WSLIP	1	3	50	7	0	0	0	0	0	0	0	0	1	1	3	0.2	0	0	0	0	0	0	0	0	1	0	9	0	0	0
	GREY	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	0.2	0	0	1	0.8	2	0.1	0	0	9	3	3	1.5	3	2.8
	WHITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.8	6	0.3	0	0	8	2.5	28	1.2	0	0
TOTAL		35	100	704	99.5	148	100	57	99.75	956	99.9	207	99.6	108	100	2078	100.1	364	100	117	99.8	2131	99.85	105	100.05	322	100	2347	99.8	108	100
	average	20						16.8						19						18						7.3					

TABLE 16: Proportions of forms (% by eve) for pits (Objects 115–118)

	Obj 115				Obj 116					Obj 117				Obj 118			
	1384	1463	1571	3357	2900	2904	3235	2914	3251	1021	1666	1707	2087	1019	1459	1576	1634
Form	EVE %																
jar	39.5	20.9	42	56	53	45	61	13	74.4	50.2	55	58.8	36.9	60	28.4	59.5	39
storage jar	3.4	0	0	0	4.3	0	1.5	3	0	2.4	0	3.5	0	0	10.6	0	0
dog-dish	7.3	4	10.5	4.5	1	25.5	12.5	3	1.8	2.4	13.5	13.5	19	17.5	4.2	2	13.8
bowl/dish	10	14.8	19	16.3	18.6	0	14	13	16.3	21.3	10.5	10	16.8	7.1	9.7	2.6	1.1
lid	4.3	0	0	6.5	1.4	0	1.5	2.5	0	0	0	0	2	2.5	4.7	1.2	4.6
mortaria	8.2	0	0	0	0	0	4.5	9	0	0	3	6.4	0	2.5	0	4.7	0
amphorae	0	0	0	0	0	0	0	0	0	0	0	0	4.4	0	3.6	0	0
fw cup	0	1.9	0	6.5	*	10.5	1	6	7.5	0	5	*	2	*	2.8	0	0
fw beaker	4.3	54.9	18	2.7	18.6	6.5	0	39	0	13.3	6.4	5	13.6	0	10	2.3	3
fw dish/bowl	2.4	3.3	10.5	6.5	2.4	5.5	3.5	11	0	3.3	6.4	2.5	5	4.6	11.4	0	0
tankard	20.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
box	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.8	0	0
flask	0	0	0	0	0	7	0	0	0	7	0	0	0	0	11.7	17.6	38.3
flagon	0	0	0	0	0	0	0	0	0	0	0	0	0	5.4	0	10	0
Total	99.7	99.8	100	99	99.3	100	99.5	99.5	100	99.9	99.8	99.7	99.7	99.6	99.9	99.9	99.8

TABLE 17: Summary of fabrics from Object 116 pits

PIT		2900						2904						2914					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	2	1.5	7	*	1	0.5	11	5.53	111	4	37	18	14	12.5	256	9.5	40	19
	CNG BS	4	2	3	*	0	0	0	0	0	0	0	0	1	*	1	*	0	0
	GAB TN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	3	1.5	6	*	0	0	1	*	2	*	0	0	0	0	0	0	0	0
	MOS BS	2	1	2	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IMP WW	0	0	0	0	0	0	1	*	14	*	0	0	0	0	0	0	0	0
	ITA WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NOG WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BAT AM	1	*	94	5.5	0	0	6	3.02	343	12.5	0	0	1	*	90	3.5	0	0
	GAL AM	0	0	0	0	0	0	0	0	0	0	0	0	19	17	597	22.5	0	0
	AMP UC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	11	5	94	5.5	5	2.5	30	15	303	19	19	9	10	9	164	6	37	17.7
	NFO PA	0	0	0	0	0	0	0	0	0	0	0	0	1	*	14	*	0	0
	NFO CC/RS	4	2	15	1	2	1	2	*	4	*	0	0	1	*	32	1	80	38.3
	MORT2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF PA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	8	3.5	29	1.5	18	8.5	11	5.5	133	5	7	3.5	1	*	4	*	0	0
	OXF WH	3	1.5	14	1	0	0	3	1.5	28	1	0	0	2	*	12	*	0	0
	OXF WHM	0	0	0	0	0	0	0	0	0	0	0	0	7	6	296	11	18	8.6
Local	ALH RE	116	54	1179	67	159	76	105	53	1295	54	104	59	43	38.5	930	35	28	13.4
	SILCH F1	5	2	27	1.5	0	0	0	0	0	0	0	0	1	*	6	*	0	0
	HAM GT	3	1.5	34	2	0	0	2	*	34	1	0	0	0	0	0	0	0	0
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GROG	8	3.5	155	9	0	0	8	4	209	7.5	19	9	6	5.5	229	8.5	6	3
	OVW WH	0	0	0	0	0	0	1	*	10	*	0	0	0	0	0	0	0	0
	OXID	0	0	0	0	0	0	2	1	26	1	0	0	1	*	9	*	0	0
	WSLIP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREY	37	17	55	3	0	0	12	9	19	1	0	0	1	*	4	*	0	0
	GREYF	9	4	39	2	24	11.5	4	2	8	*	5	2.5	3	2.5	10	*	0	0
	WHITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		**216**	**100**	**1753**	**99**	**209**	**100**	**199**	**100**	**2539**	**100**	**191**	**100**	**112**	**100**	**2654**	**100**	**209**	**100**
	average	8.1						12.8						24					

TABLE 17: continued

PIT		3235						3251					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	9	1.7	54	*	5	1.0	5	3.5	36	3.0	12	7.5
	CNG BS	2	*	3	0.0	0	0.0	2	1.5	8	*	0	0.0
	GAB TN	0	0.0	0	0.0	0	0.0	1	*	1	*	0	0.0
	GAB TR1A	0	0.0	0	0.0	0	0.0	2	1.5	7	*	0	0.0
	CG WS	0	0.0	0	0.0	0	0.0	1	*	10	*	0	0.0
	MOS BS	1	*	4	*	0	0.0	0	0.0	0	0.0	0	0.0
	IMP WW	1	*	8	*	0	0.0	2	1.5	24	2.0	0	0.0
	NOG WH	1	*	162	2.2	15	3.1	0	0.0	0	0.0	0	0.0
	ITA WH	1	*	302	4.1	0	0.0	0	0.0	0	0.0	0	0.0
	BAT AM	3	*	309	4.2	0	0.0	1	*	27	2.0	0	0.0
	GAL AM	2	*	50	*	0	0.0	0	0.0	0	0.0	0	0.0
	AMP UC	1	*	47	*	0	0.0	1	*	4	*	0	0.0
Regional	DOR BB1	56	10.7	824	11.1	115	23.5	18	13.0	300	25.0	38	24.0
	NFO WH	1	*	6	*	0	0.0	1	*	3	*	0	0.0
	NFO CC/RS	25	4.8	161	2.2	0	0.0	4	3.0	32	2.5	0	0.0
	OXF RS	16	3.1	128	1.7	12	2.4	0	0.0	0	0.0	0	0.0
	OXF PA	1	*	20	*	0	0.0	0	0.0	0	0.0	0	0.0
	OXF WHM	5	1.0	394	5.3	28	5.7	0	0.0	0	0.0	0	0.0
	OXF WH	2	*	23	*	0	0.0	2	1.5	7	*	0	0.0
Local	ALH RE	300	57.6	3757	50.8	290	59.2	90	65.5	656	54.5	103	64.5
	SILCH F1	10	1.9	74	1.0	3	*	1	*	3	*	0	0.0
	OVW WH	1	*	35	*	0	0.0	0	0.0	0	0.0	0	0.0
	HAM GT	7	1.3	74	1.0	0	0.0	0	0.0	0	0.0	0	0.0
	FLINT	4	*	61	1.0	0	0.0	0	0.0	0	0.0	0	0.0
	GROG	21	4.0	686	9.3	5	1.0	5	*	181	4.0	0	0.0
	OXID	4	*	3	0.0	0	0.0	2	1.5	25	2.0	7	4.5
	GREY	34	6.5	72	1.0	17	3.5	0	0.0	0	0.0	0	0.0
	WW	1	*	5	*	0	0.0	0	0.0	0	0.0	0	0.0
	WSLIP	2	*	8	*	0	0.0	0	0.0	0	0.0	0	0.0
	MORT	1	*	86	1.2	0	0.0	0	0.0	0	0.0	0	0.0
	CC	0	0.0	0	0.0	0	0.0	1	*	1	*	0	0.0
	GREYF	8	1.5	32	*	0	0.0	1	*	1	*	0	0.0
	MISC	1	*	5	*	0	0.0	1	*	4	*	0	0.0
TOTAL		**521**	**100.0**	**7393**	**100.0**	**490**	**100.0**	**141**	**100.0**	**1330**	**100.0**	**160**	**100.0**
	average	14.2						9.4					

TABLE 18: Summary of fabrics from Object 117 pits

PIT		1021						1666					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	3	*	45	1.0	3	1.5	8	2.0	42	1.5	22	7.0
	CNG BS	1	*	4	*	0	0.0	4	1.0	6	*	19	6.0
	GAB TN	1	*	6	*	0	0.0	0	0.0	0	0.0	0	0.0
	CNG TN	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	LYO CC	2	*	4	*	0	0.0	0	0.0	0	0.0	0	0.0
	KOL CC	0	0.0	0	0.0	0	0.0	4	1.0	10	*	0	0.0
	MOS BS	3	*	4	*	0	0.0	1	*	1	*	0	0.0
	IMP WW	0	0.0	0	0.0	0	0.0	1	*	3	*	0	0.0
	BAT AM	8	3.0	882	24.0	0	0.0	1	*	47	1.5	0	0.0
	GAL AM	0	0.0	0	0.0	0	0.0	2	*	58	2.0	0	0.0
Regional	DOR BB1	15	6.0	212	6.0	36	15.5	71	19.0	683	22.0	82	27.0
	HAD OX	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	LON FR	0	0.0	0	0.0	0	0.0	1	*	3	*	12	4.0
	NFO CC/RS	3	*	31	*	28	12.0	6	1.5	44	1.5	0	0.0
	NFO PA	0	0.0	0	0.0	0	0.0	1	*	17	*	5	1.5
	NFO RE	1	*	7	*	0	0.0	0	0.0	0	0.0	0	0.0
	NFO WH	1	*	20	*	0	0.0	1	*	17	*	7	2.0
	MAH WH	0	0.0	0	0.0	0	0.0	1	*	5	*	0	0.0
	OXF RS	1	*	10	*	7	3.0	1	*	9	*	0	0.0
	OXF WH	4	1.5	67	*	0	0.0	9	2.5	50	1.5	0	0.0
	OXF WHM	0	0.0	0	0.0	0	0.0	3	*	110	3.5	9	3.0
	OXF WS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	LNV CC	1	*	5	*	0	0.0	0	0.0	0	0.0	0	0.0
	VER WH	0	0.0	0	0.0	0	0.0	1	*	7	*	0	0.0
Local	ALH RE	120	50.0	1471	40.0	109	47.5	165	44.0	1367	44.5	97	32.0
	SILCH F1	7	3.0	217	0.0	5	2.0	7	2.0	78	2.5	5	1.5
	HAM GT	2	*	19	*	0	0.0	0	0.0	0	0.0	0	0.0
	FLINT	3	*	88	2.5	13	5.5	2	*	5	*	0	0.0
	GROG	12	5.0	243	6.5	0	0.0	17	4.5	239	8.0	0	0.0
	OVW WH	1	*	18	*	0	0.0	1	*	3	*	0	0.0
	MICA	2	*	10	*	0	0.0	0	0.0	0	0.0	0	0.0
	OXID	7	3.0	23	*	0	0.0	8	2.0	66	2.0	0	0.0
	WSLIP	6	2.0	62	1.5	15	6.5	2	*	14	*	0	0.0
	GREY	10	4.0	133	3.5	13	5.5	11	3.0	57	2.0	38	12.5
	GREYF	12	5.0	102	3.0	0	0.0	10	2.5	35	1.0	8	2.5
	WHITE	0	0.0	0	0.0	0	0.0	1	*	7	*	0	0.0
	MISC	12	5.0	18	*	0	0.0	35	0.0	78	0.0	0	0.0
	PREH	1	*	9	*	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL		**239**	**100.0**	**3710**	**100.0**	**229**	**100.0**	**375**	**100.0**	**3061**	**100.0**	**304**	**100.0**
	average	15.5						8					

TABLE 18: (continued)

PIT		1702						1707						2087					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	5	3.65	199	6.54	17	13.2	17	3.59	1.63	20	3.23	3	10	3	101	2.75	31	7.58
	CNG BS	6	4.38	8	*	0	0	0	0	0	0	0	0	1	*	4	*	0	0
	IMP WW	0	0	0	0	0	0	2	*	18	*	11	1.77	1	*	3	*	0	0
	GAB CB	0	0	0	0	0	0	1	*	3	*	0	0	0	0	0	0	0	0
	GAB TN	1	*	1	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CNG TN	0	0	0	0	0	0	1	*	9	*	0	0	0	0	0	0	0	0
	ARG CC	1	*	2	*	0	0	0	0	0	0	0	0	1	*	3	*	0	0
	KOL CC	2	1.469	*	0	0	3	*	20	*	0	0	2	1	1	3	*	0	0
	MOS BS	1	*	5	*	0	0	1	*	2	0.03	0	0	0	0	0	0	0	0
	CADAM	0	0	0	0	0	0	0	0	0	0	0	0	1	*	58	1.58	10	2.44
	BAT AM	4	2.92	1472	48.4	0	0	3	*	243	3.470	0	1	*	*	145	3.94	20	4.89
	GALAM	0	0	0	0	0	0	0	0	0	0	0	0	1	*	29	1	15	4.67
Regional	DOR BB1	11	8.03	336	11	66	51.2	81	17.1	818	11.7	139	22.4	29	9	284	7.72	55	13.4
	HAD OX	0	0	0	0	0	0	1	*	18	*	0	0	1	*	10	*	0	0
	LON FR	0	0	0	0	0	0	3	*	29	*	0	0	5	2	112	3.05	10	2.44
	NFO CC/RS	0	0	0	0	0	0	9	1.9	38	*	20	3.23	1	1	41	1.11	15	3.67
	NFO RE	0	0	0	0	0	0	1	*	11	*	0	0	0	0	0	0	0	0
	NFO WH	0	0	0	0	0	0	2	*	9	*	0	0	0	0	0	0	0	0
	HGW RE	0	0	0	0	0	0	0	0	0	0	0	0	1	*	3	*	0	0
	OXF RS	0	0	0	0	0	0	8	1.69	34	*	3	*	2	1	76	2.07	0	0
	OXF WH	3	2.19	21	*	0	0	7	1.48	134	1.91	10	1.61	8	3	25	*	0	0
	OXF WHM	1	*	232	7.63	8	6.2	9	1.9	499	7.12	22	3.55	1	*	108	2.94	0	0
	OXF WS	0	0	0	0	0	0	2	*	42	*	10	1.61	0	0	0	0	0	0
	LNV CC	0	0	0	0	0	0	3	*	19	*	0	0	3	1	53	1.44	20	4.89
	VER WH	0	0	0	0	0	0	2	*	81	1.16	0	0	3	1	67	1.82	0	0
							0												0
Local	ALH RE	37	27	292	9.6	19	14.7	211	44.5	2854	40.7	376	60.6	155	51	1723	46.8	159	38.9
	SILCH F1	17	12.4	170	5.59	0	0	8	1.69	158	2.26	0	0	7	2	98	2.66	12	2.93
	HAM GT	0	0	0	0	0	0	4	1	48	*	2	*	3	1	14	*	0	0
	FLINT	1	*	7	*	2	1.55	2	*	10	*	0	0	6	2	63	1.71	28	6.85
	GROG	4	2.92	83	2.73	5	3.88	45	9.49	1548	22.1	7	1.13	19	6	446	12.1	12	2.93
	MICA	0	0	0	0	0	0	0	0	0	0	0	0	1	*	2	*	0	0
	OXID	5	3.65	23	1	0	0	4	1	29	*	0	0	6	2	54	1.47	7	1.71
	WSLI P	1	*	15	*	0	0	2	*	54	1	0	0	2	1	27	*	0	0
	GREY	24	17.5	57	1.87	2	1.55	38	8.02	144	2.06	0	0	13	4	73	1.98	7	1.71
	GREYF	1	*	5	*	10	7.75	1	*	3	*	0	0	5	2	14	*	8	1.96
	WHITE	3	2.19	87	2.86	0	0	1	*	6	*	0	0	0	0	0	0	0	0
	MISC	9	6.57	18	*	0	0	2	*	9	*	0	0	14	5	28	1	0	0
	PREH	0	0	0	0	0	0	0	0	0	0	0	0	1	*	11	*	0	0
TOTAL		**137**	**100**	**3042**	**100**	**129**	**100**	**474**	**100**	**7004**	**100**	**620**	**100**	**306**	**100**	**3678**	**100**	**409**	**100**
	average	22.2						14.8											

TABLE 19: Summary of fabrics from Object 118

PIT		1019						1020						1459						1480					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	8	4	59	3.5	14	5	2	2	5	*	0	0	13	4	218	1.5	48	13	0	0	0	0	0	0
	IMP WW	0	0	0	0	0	0	1	*	15	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CNG TN	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GAB TR1	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	0	0	0	0	0	0	0	0	0	0	0	0	5	1.5	27	*	10	2.5	0	0	0	0	0	0
	BAT AM	0	0	0	0	0	0	0	0	0	0	0	0	8	2.5	1413	10	13	3.5	1	3	105	14	0	0
	GALAM	1	*	6	*	0	0	0	0	0	0	0	0	1	*	22	*	0	0	1	3	2	*	0	0
	AMP UC	0	0	0	0	0	0	0	0	0	0	0	0	2	*	66	*	17	4.5	0	0	0	0	0	0
Regional	DOR BB1	21	10.5	207	11.5	56	20	4	4	26	3	3	5	38	12	525	3.5	32	8.5	1	3	9	1	0	0
	SOW BB1	1	*	9	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HAD OX	1	*	13	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LON FR	0	0	0	0	0	0	0	0	0	0	0	0	15	5	102	*	30	8	0	0	0	0	0	0
	NFO CC/RS	7	3.5	25	1.5	0	0	1	*	9	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RSM	1	*	13	*	1	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	1	*	3	*	0	0	1	*	3	*	0	0	4	1.5	47	*	10	2.5	0	0	0	0	0	0
	OXF WH	1	*	5	*	0	0	1	*	5	*	0	0	6	2	226	1.5	0	0	1	3	24	3	0	0
	OXF WHM	3	1.5	91	5	6	2	0	0	0	0	0	0	2	*	40	*	0	0	0	0	0	0	0	0
	LNV CC	5	2.5	43	2.5	22	8	0	0	0	0	0	0	6	2	115	*	10	2.5	0	0	0	0	0	0
	LNV WHM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	37	5	5	10.5
	ROBSH3	1.5	33	2	15	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VER WH	1	*	10	*	15	5.5	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0
Local	ALH RE	92	47	781	44	129	46	35	33.5	333	37	27	44	71	23	1099	8	106	29	16	48.5	334	45	29	60.5
	SILCH F1	7	3.5	109	6	0	0	19	18	184	20.5	3	5	10	*	37	*	7	2	7	21	90	12	0	0
	HAM GT	6	3	97	5.5	0	0	4	4	37	4	0	0	118	38	10144	71.5	52	14	0	0	0	0	0	0
	FLINT	2	1	70	4	0	0	2	2	9	*	0	0	1	*	8	*	9	2.5	0	0	0	0	0	0
	GROG	10	5	100	5.5	15	5.5	24	23	204	22.5	22	36	2	*	13	*	0	0	2	6	122	16.5	7	14.5
	OVW WH	1	*	10	*	7	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	3	1.5	35	2	0	0	1	1	10	1	0	0	2	*	9	*	0	0	3	9	23	3	7	14.5
	WSLIP	2	1	4	*	0	0	2	2	27	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREY	12	6	27	1.5	0	0	0	0	0	0	0	0	13	4	80	*	22	6	0	0	0	0	0	0
	GREYF	6	3	26	1.5	0	0	3	3	19	2	6	10	0	0	0	0	0	0	0	0	0	0	0	0
	WHITE	0	0	0	0	0	0	0	0	0	0	0	0	1	*	5	*	0	0	0	0	0	0	0	0
	MISC	0	0	0	0	0	0	3	3	5	*	0	0	1	*	15	*	0	0	0	0	0	0	0	0
TOTAL		**195**	**100**	**1776**	**100**	**280**	**100**	**105**	**100**	**907**	**100**	**61**	**100**	**311**	**100**	**14219**	**100**	**366**	**100**	**33**	**100**	**746**	**100**	**48**	**100**
	average	**9.1**						**8.6**						**45.7**						**22.6**					

TABLE 19: continued

PIT		1576						1634						1680						2335					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	4	3.5	37	2	0	0	3	2	25	1	0	0	4	10	6	2	2	6.5	1	3	2	1	0	0
	ARR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	8	2	9	24
	GAB TR	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	1	0	0
	CNG BS	1	1	3	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IMP WW	1	1	19	1	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ARG CC	1	1	2	*	0	0	1	*	3	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	0	0	0	0	0	0	1	*	4	*	0	0	2	4	4	1.5	0	0	0	0	0	0	0	0
	BAT AM	2	2	45	2.5	0	0	2	1	53	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GALAM	1	1	3	*	0	0	1	*	23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	13	12	165	8.5	18	3	17	10	160	6	39	15	9	23	58	18.5	8	26	0	0	0	0	0	0
	LON FR	2	2	13	*	0	0	1	*	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO CC/RS	1	1	1	*	0	0	2	1	34	1.5	0	0	2	5	3	*	4	13	3	8	31	9	0	0
	NFO PA	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RSM	0	0	0	0	0	0	1	*	11	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	1	1	3	*	0	0	4	2.5	17	*	1	*	0	0	0	0	0	0	1	3	3	1	0	0
	OXF WH	0	0	0	0	0	0	0	0	0	0	0	0	2	5	6	2	0	0	0	0	0	0	0	0
	OXF WHM	5	4.5	120	6.5	15	3	1	*	30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LNV CC	1	1	7	*	10	2	3	2	9	*	7	2.5	0	0	0	0	0	0	0	0	0	0	0	0
	VER WH	0	0	0	0	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	0	0	0
	VER OX	0	0	0	0	0	0	1	*	34	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local	ALH RE	53	49.5	1272	67	462	86	107	64	1669	65.5	203	78	13	33.5	118	38	17	54.5	15	41	189	52	28	76
	SILCH F1	5	4.5	30	1.5	0	0	4	2.5	210	8	0	0	1	2.5	28	9	0	0	3	8	25	7	0	0
	FLINT	3	3	31	1.5	0	0	1	*	10	*	0	0	3	7.5	49	16	0	0	0	0	0	0	0	0
	GROG	1	1	5	*	7	1	6	3.5	128	5	6	2.5	20	5	35	11.5	0	0	4	11	23	6	0	0
	HAM WH	1	1	110	6	12	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OVW WH	0	0	0	0	0	0	1	*	10	*	0	0	00	0	0	0	0	0	0	0	0	0	0	0
	MICA	0	0	0	0	0	0	1	*	3	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	2	2	9	*	0	0	7	4	95	3.5	0	0	0	0	0	0	0	0	4	11	22	6	0	0
	WSLIP	1	1	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREY	7	6.5	13	*	3	1	0	0	0	0	0	0	1	2.5	3	*	0	0	2	5	50	14	0	0
	GREYF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	1	0	0
	MISC	1	1	3	*	0	0	1	*	5	*	5	2	0	0	0	0	0	0	1	3	3	1	0	0
TOTAL		**107**	**100**	**1895**	**100**	**537**	**100**	**167**	**100**	**2545**	**100**	**261**	**100**	**39**	**100**	**310**	**100**	**31**	**100**	**37**	**100**	**361**	**100**	**37**	**100**
	average	**17.7**						**15.2**						**8**						**9.8**					

TABLE 20: Summary of fabrics from Object 119 pits

PIT		1292						1293						1438					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	3	3	20	1.5	19	42	13	9	98	6	43	24	2	5	14	3.5	5	11.5
	CNG BS	0	0	0	0	0	0	1	*	2	*	0	0	0	0	0	0	0	0
	ARG CC	0	0	0	0	0	0	1	*	1	*	0	0	0	0	0	0	0	0
	CNG CC	2	0	0	0	0	0	0	0	0	0	0	0	0	7	6	1.5	0	0
	BATAM	4	3.5	182	12	0	0	3	2	170	10	0	0	0	0	0	0	0	0
	GALAM	5	4.5	30	2	0	0	11	7.5	110	6.5	0	0	0	0	0	0	0	0
	AMP UC	1	1	14	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	0	0	0	0	0	0	14	10	137	8	5	3	3	7	24	6	0	0
	NFO CC/RS	0	0	0	0	0	0	1	*	2	*	0	0	0	0	0	0	0	0
	NFO WH	0	0	0	0	0	0	1	*	26	1.5	0	0	0	0	0	0	0	0
	OXF RSM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	0	0	0	0	0	0	3	2	18	1	5	3	0	0	0	0	0	0
	OXF WH	2	2	9	*	0	0	3	2	6	*	0	0	1	2.5	6	1.5	0	0
	OXF WHM	2	2	30	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LNV CC	1	1	15	1	0	0	1	*	9	*	0	0	0	0	0	0	0	0
	LNV WHM	0	0	0	0	0	0	1	*	42	2.5	10	6	0	0	0	0	0	0
Local	ALH RE	71	66.5	1083	70.5	13	29	57	40	514	31	75	42	23	56	191	49	26	60.5
	SILCH F1	0	0	0	0	0	0	4	3	70	4	0	0	2	5	79	10.5	0	0
	GROG	3	3	64	4	0	0	9	6	312	18.5	7	4	4	10	49	12.5	12	28
	HAM GT	0	0	0	0	0	0	3	2	32	2	8	5	0	0	0	0	0	0
	OVY WH	1	1	3	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MICA	1	1	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	4	3.5	36	2.5	13	29	3	2	29	1.5	7	4	0	0	0	0	0	0
	WSLIP	0	0	0	0	0	0	5	3.5	48	3	0	0	0	0	0	0	0	0
	GREY	8	7.5	37	2.5	0	0	2	1.5	13	*	17	10	3	7	20	5	0	0
	WHITE	1	1	5	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MORT	0	0	0	0	0	0	1	*	19	1	0	0	0	0	0	0	0	0
	MISC	0	0	0	0	0	0	6	4	13	*	0	0	0	0	0	0	0	0
TOTAL		**107**	**100**	**1536**	**100**	**45**	**100**	**143**	**100**	**1671**	**100**	**177**	**100**	**41**	**100**	**389**	**100**	**43**	**100**
Average		14.4						11.7						9.7					

TABLE 21: Summary of forms from selected pits (Objects 119, 120, 122)

OBJECT	**119 1293**	**119 1611**	**120 2380**	**120 2381**	**120 2517/35**	**120 2810**	**120 2813**	**120 2550**	**122 1354**	**122 1513**	**122 1897**	**122 1992**	**122 1993**	**122 2596**
Form	EVE %													
jar	46.8	41.5	47	20.8	45.5	64.4	46.7	48.1	71.8	55	62	46	45.3	47.8
storage jar	4	0	9	0	0.0	8.2	0	1.7	0	0	0	0	5	1.3
dog-dish	8.5	8.5	9	0	8.5	6.7	7.4	6.7	0	7.7	7.8	6.2	10.8	19.4
bowl/dish	2.8	8.5	9	1.7	10.7	3.4	23	16.5	6.9	6.2	10.7	10.7	16.5	4.8
lid	4	3.5	0	5.8	2.2	2.9	0	0	0	0	0	11.2	5.8	0
mortaria	5.6	0	14.5	0	0.0	0	0	0	14.4	0	0	2.9	0	1.3
amphorae	0	0	0	0	0.0	0	0	0	0	0	0	0	0	5
fw cup	9.6	4	0	12.5	2.2	4.8	5.2	2.2	0	3.6	0	14.6	0	3.5
fw beaker	0	14.5	0	23.3	5.4	0	11.8	14.8	0	20.6	19.4	8.4	14.4	15
fw dish/bowl	14.7	10	11.5	1.7	9.8	9.6	5.9	3.7	0	6.7	0	0	2.2	1.7
flask	0	9	0	0	0.0	0	0	6.2	0	0	0	0	0	0
flagon	4	0	0	34.2	15.6	0	0	0	6.9	0	0	0	0	0
Total	**100**	**99.5**	**100**	**100**	**100**	**100**	**100**	**99.9**	**100**	**99.8**	**99.9**	**100**	**100**	**99.8**

TABLE 22: Summary of fabrics from Object 120 pits (with in excess of 50 sherds)

PIT		**2325**						**2380**						**2381**						**2517/2535/2537**					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	4	6.5	82	25	3	16	8	7	81	5	13	10	4	2.5	30	2.5	17	14	16	7	144	8	22	9
	ARG CC	0	0	0	0	0	0	1	*	2	*	0	0	3	2	6	*	0	0	1	*	2	0	2	1
	CNG BS	0	0	0	0	0	0	1	*	5	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	0	0	0	0	0	0	1	*	7	*	0	0	2	1	8	*	13	11	1	*	5	0	10	4
	BATAM	0	0	0	0	0	0	3	2.5	83	5	0	0	0	0	0	0	0	0	2	1	42	2	0	0
	GALAM	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	8	13.5	38	11.5	0	0	9	8	85	5	25	19.5	4	2.5	59	5	1	*	23	11	208	12	49	21
	NFO CC/RS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	14	1	0	0
	NFO PA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	2	*	0	0
	NFO RE	0	0	0	0	0	0	1	*	13	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	2	3.5	15	4.5	0	0	2	1.5	17	1	0	0	2	1	6	*	0	0	10	5	53	3	5	2
	OXF WH	2	3.5	6	2	0	0	1	*	3	*	0	0	12	7	58	5	41	34	6	3	37	2	35	15
	OXF WHM	0	0	0	0	0	0	4	3.5	368	22	16	12.5	0	0	0	0	0	0	1	*	3	*	0	0
	LNV CC	0	0	0	0	0	0	0	0	0	0	0	0	3	2	8	*	0	0	0	0	0	0	0	0
Local	ALH RE	33	55	148	45	12	63	57	49	619	37	53	41.5	73	43	649	57.5	33	27.5	125	58	1055	58	102	43
	SILCH F1	0	0	0	0	0	0	2	1.5	18	1	0	0	4	2.5	104	9	0	0	4	2	40	2	0	0
	FLINT	1	1.5	6	2	4	21	0	0	0	0	0	0	2	1	6	*	0	0	0	0	0	0	0	0
	GROG	2	3.5	20	6	0	0	7	6	319	19	10	8	8	4.5	71	6	0	0	2	1	35	2	0	0
	OVW WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	13	1	0	0
	MICA	0	0	0	0	0	0	0	0	0	0	0	0	2	1	5	*	0	0	0	0	0	0	0	0
	OXID	4	6.5	6	2	0	0	1	*	5	*	0	0	1	*	3	*	0	0	2	1	32	2	0	0
	WSLIP	0	0	0	0	0	0	0	0	0	0	0	0	1	*	4	*	0	0	0	0	0	0	0	0
	GREY	4	6.5	9	2.5	0	0	1	*	15	*	11	8.5	12	7	34	3	15	12.5	15	7	115	6	14	6
	GREYF	0	0	0	0	0	0	0	0	0	0	0	0	1	*	8	*	0	0	0	0	0	0	0	0
	MISC	0	0	0	0	0	0	16	14	33	2	0	0	361	21	74	6.5	0	0	4	2	7	*	0	0
TOTAL		**60**	**100**	**330**	**100**	**19**	**100**	**116**	**100**	**1681**	**100**	**128**	**100**	**170**	**100**	**1133**	**100**	**120**	**100**	**215**	**100**	**1807**	**100**	**239**	**100**
Average		5.5						14.5						6.7						8.4					

TABLE 22: continued

PIT		2556						2587						2810					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	5	5	34	3.5	8	10.5	6	5	49	5	7	7	15	4	122	3	30	14.5
	ARG CC	2	2	6	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CNG CC2	0	0	0	0	0	0	0	0	0	0	0	0	1	*	3	*	0	0
	CNG BS	1	1	22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CW IMP	0	0	0	0	0	0	1	*	10	*	12	12	0	0	0	0	0	0
	WW IMP	0	0	0	0	0	0	0	0	0	0	0	0	3	*	10	0	0	0
	BATAM	1	1	90	9	0	0	0	0	0	0	0	0	2	*	53	1.5	0	0
Regional	DOR BB1	10	10.5	92	9	17	22	14	11.5	164	16	16	15.5	0	0	0	0	0	0
	NFO CC/RS	8	8	79	8	15	19.5	0	0	0	0	0	0	0	0	0	0	0	0
	NFO PA	1	1	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO RE	1	1	10	1	11	14	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	13	13.5	69	7	0	0	8	6.5	25	2.5	6	6	0	0	0	0	0	0
	OXF WH	0	0	0	0	0	0	4	3.5	14	1.5	0	0	13	3.5	69	2	0	0
	VER WH	0	0	0	0	0	0	0	0	0	0	0	0	9	0	123	3	0	0
	LNV CC	0	0	0	0	0	0	0	0	0	0	0	0	1	*	4	*	0	0
Local	ALH RE	27	28	401	40	21	27	75	61.5	616	59.5	38	37.5	159	41	1757	44	122	58.5
	SILCH F1	0	0	0	0	0	0	0	0	0	0	0	0	47	12	899	22.5	29	14
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	14	3.5	116	3	0	0
	GROG	3	3	113	11	5	6.5	2	1.5	127	12.5	9	9	28	7	493	12.5	20	9.5
	OVW WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MICA	0	0	0	0	0	0	0	0	0	0	0	0	1	*	20	*	7	3.5
	OXID	0	0	0	0	0	0	0	0	0	0	0	0	42	11	95	2.5	0	0
	WSLIP	0	0	0	0	0	0	0	0	0	0	0	0	3	*	42	*	0	0
	GREY	24	24.5	77	7.5	0	0	10	8	12	1	0	0	40	10.5	140	3.5	0	0
	GREYF	0	0	0	0	0	0	2	1.5	15	1.5	13	13	9	2.5	36	*	0	0
	MISC	1	1	1	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		**97**	**100**	**1005**	**100**	**77**	**100**	**122**	**100**	**1032**	**100**	**101**	**100**	**387**	**100**	**3982**	**100**	**208**	**100**
Average		10.4						8.5						10.3					

TABLE 22: continued

PIT		2813						2827						2990						2550					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	11	8.5	115	9.7	15	11	2	1.5	9	*	0	0	1	1.5	3	*	0	0	10	4.5	144	5.7	9	2.5
	MOS BS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1.5	10	*	0	0
	CNG CC2	0	0	0	0	0	0	1	*	3	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	0	0	0	0	0	0	0	0	0	0	0	0	1	1.5	6	*	15	18.5	1	*	4	*	0	0
	CW IMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WW IMP	1	*	1	*	5	3.5	2	1.5	4	*	5	8	0	0	0	0	0	0	0	0	0	0	0	0
	BATAM	0	0	0	0	0	0	0	0	0	0	0	0	1	1.5	10	1.5	0	0	4	1.5	182	7	0	0
	GALAM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0*	20	*	0	0
	AMP UC	0	0	0	0	0	0	1	*	10	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	7	5.5	113	9.5	23	17	2	1.5	27	1.5	14	24	6	9.5	40	6	7	8.5	11	4.5	113	4.5	49	14
	NFO CC/RS	3	2.5	68	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3.5	36	1.5	17	5
	NFO PA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO WH	2	1.5	56	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	0	0	0	0	0	0	0	0	0	0	0	0	4	6.5	24	3.5	0	0	2	0	55	2	0	0
	OXF WH	1	*	5	*	0	0	2	1.5	13	*	0	0	1	1.5	4	*	0	0	0	0	0	0	0	0
	OXF WHM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	16	*	0	0
	VER WH	0	0	0	0	0	0	1	*	1	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LNV CC	0	0	0	0	0	0	0	0	0	0	0	0	16	1.5	4	*	0	0	1	*	16	*	21	6
Local	ALH RE	68	54	504	42.5	66	49	55	37	417	23.5	40	68	35	55.5	317	48.5	39	48	152	65.5	1573	62.5	219	61.5
	SILCH F1	3	2.5	54	4.5	10	7.5	35	23.5	663	37.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	15	*	0	0
	GROG	5	4	93	8	0	0	22	15	559	32	0	0	2	3	118	18	6	7.5	3	1.5	47	2	0	0
	HAM GT	2	1.5	23	2	5	3.5	0	0	0	0	0	0	0	0	0	0	0	0	3	1.5	51	2	0	0
	OVW WH	6	4.5	22	2	0	0	0	0	0	0	0	0	1	1.5	3	*	0	0	4	1.5	22	*	0	0
	MORT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	29	1	0	0
	OXID	2	1.5	20	1.5	0	0	1	*	2	*	0	0	2	3	11	1.5	0	0	16	7	92	3.5	5	1.5
	WSLIP	1	*	6	*	0	0	2	1.5	28	1.5	0	0	0	0	0	0	0	0	1	*	6	*	0	0
	GREY	3	2.5	6	*	0	0	15	10	20	1	0	0	1	1.5	102	15.5	14	17.5	1	*	13	*	0	0
	GREYF	11	8.5	98	8.5	11	8	5	3.5	10	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WHITE	0	0	0	0	0	0	2	1.5	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MISC	0	0	0	0	0	0	0	0	0	0	0	0	7	11	14	2	0	0	8	3.5	70	3	35	10
TOTAL		**126**	**100**	**1184**	**100**	**135**	**100**	**148**	**100**	**1770**	**100**	**59**	**100**	**63**	**100**	**656**	**100**	**81**	**100**	**233**	**100**	**2514**	**100**	**355**	**100**
Average		9.4						12						10.4						10.8					

TABLE 23: Summary of fabrics from late pits (Object 122) (in excess of 60 sherds only)

Pits		1354						1897						1916						1992						1993					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	0	0	0	0	0	0	0	0	0	0	0	0	4	32	97	6	17	16.5	8	7.5	157	8.5	26	15	1	1.5	11	1.5	3	2
	MOS BS	0	0	0	0	0	0	0	0	0	0	0	0	2	1.50	4	*	0	0	3	3	16	*	0	0	0	0	0	0	0	0
	CNG BS	0	0	0	0	0	0	0	0	0	0	0	0	1	*	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	KOL CC	2	1	5	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.5	3	*	0	0
	CW IMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WW IMP	0	0	0	0	0	0	1	1	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BATAM	0	0	0	0	0	0	1	1	78	9	0	0	1	*	31	2	0	0	1	1	399	22	0	0	0	0	0	0	0	0
	GALAM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NAF AM	0	0	0	0	0	0	1	1	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	9	4.5	90	4	16	9	9	11.5	54	6	6	6	19	14	228	14.5	41	40	23	21.5	286	15.5	54	31	9	12.5	110	16	21	15.5
	LNV WHM	0	0	0	0	0	0	0	0	0	0	0	0	1	*	40	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LNV CC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	16	*	15	8.5	2	3	5	*	0	0
	NFO CC/RS	7	3.5	77	3.5	0	0	0	0	0	0	0	0	0	0	1	0	7	7	0	0	0	0	0	0	1	1.5	11	1.5	20	15
	NFO PA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO WH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	1	*	10	*	0	0	5	6	20	2	0	0	17	12.5	106	6.5	3	3	1	1	6	*	0	0	4	5.5	10	1.5	0	0
	OXF RSM	2	1	77	3.5	7	4	0	0	0	0	0	0	1	*	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF WH	0	0	0	0	0	0	0	0	0	0	0	0	1	*	13	*	0	0	4	4	44	2.5	13	7.5	1	1.5	11	1.5	0	0
	OXF WHM	1	*	90	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	39	2	5	3	0	0	0	0	0	0
	OXF WSM	5	2.5	177	8.5	18	10.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ROB SH	0	0	0	0	0	0	1	1	4	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local	ALH RE	111	57.5	1106	52.5	79	45.5	44	55	368	42	47	48.5	55	41	654	41.5	35	34	58	54.5	550	30	57	32.5	44	61	444	64	86	64
	SILCH F1	0	0	0	0	0	0	1	1	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	FLINT	3	1.5	28	1.5	0	0	2	2.5	79	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GROG	4	2	65	3	12	7	2	2.5	59	7	0	0	12	9	327	21	0	0	2	2	293	16	0	0	1	1.5	28	4	0	0
	HAM GT	28	14.5	155	7.5	0	0	4	5	94	11	21	21.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HAM WH	0	0	0	0	0	0	1	1	38	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OVW WH	15	8	180	8.5	23	13	1	1	9	1	11	11.5	6	4.5	28	2	0	0	1	1	4	*	0	0	0	0	0	0	0	0
Unknown	MORT	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	1	*	7	*	12	7	3	3.5	11	1	0	0	4	3	16	1	0	0	1	1	10	*	5	3	1	1.5	11	1.5	0	0
	WSLIP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREY	4	2	42	2	7	4	1	1	11	1	0	0	9	6.5	16	1	0	0	0	0	0	0	0	0	7	9.7	51	7.3	5	4
	MISC	0	0	0	0	0	0	3	3.5	10	1	12	12.5	1	*	2	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		**193**	**100**	**2109**	**100**	**174**	**100**	**80**	**100**	**871**	**100**	**97**	**100**	**134**	**100**	**1571**	**100**	**103**	**100**	**106**	**100**	**1820**	**100**	**175**	**100**	**72**	**100**	**695**	**100**	**135**	**100**
Average		10.9						10.9						11.7						17.2						9.6					

TABLE 23: continued

PIT		1513						1603						2596					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	10	11	80	7.5	12	6.5	4	9	97	8.5	5	7	9	4.5	76	1.5	14	3.5
	CNG CC2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LYO CC	0	0	0	0	0	0	0	0	0	0	0	0	1	*	3	*	0	0
	IMP WW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ARG CC	0	0	0	0	0	0	1	2	4	*	0	0	0	0	0	0	0	0
	KOL CC	0	0	0	0	0	0	1	2	40	3.4	0	0	0	0	0	0	0	0
	GALAM	0	0	0	0	0	0	0	0	0	0	0	0	1	*	5	*	0	0
	BAT AM	0	0	0	0	0	0	0	0	0	0	0	0	7	3.5	1056	22.5	10	5
	NAF AM?	0	0	0	0	0	0	0	0	0	0	0	0	2	1	44	1	0	0
	CAD AM	0	0	0	0	0	0	1	2	174	15	0	0	0	0	0	0	0	0
Regional	DOR BB1	13	14	191	17.5	47	25.5	2	4.5	57	4.9	15	21.5	42	20	1062	23	202	51
	LON FR	0	0	0	0	0	0	5	11	42	3.5	30	43	0	0	0	0	0	0
	NFO CC/RS	0	0	0	0	0	0	1	2	3	*	0	0	2	10.5	118	2.5	60	15
	NFO WH	10	11	85	8	40	21.7	0	0	0	0	0	0	0	0	0	0	0	0
	OXF RS	2	2	22	2	8	4.5	4	9	50	4.5	0	0	6	3	35	*	7	2
	OXF RSM	1	1	40	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF WH	0	0	0	0	0	0	1	2	15	1	0	0	5	2.5	28	*	0	0
	OXF WHM	1	1	10	1	0	0	0	0	0	0	0	0	1	*	17	*	5	1
	LNV CC	1	1	4	*	0	0	2	4.5	54	4.5	0	0	1	*	1	*	0	0
	VER WH	0	0	0	0	0	0	0	0	0	0	0	0	1	*	15	*	0	0
Local	ALH RE	41	45	530	49	52	24.5	18	39	330	28.5	12	17	88	42	1677	36	83	21
	SILCH F1	3	3	63	6	5	2.5	0	0	0	0	0	0	1	*	29	*	0	0
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GROG	2	2	12	1	3	1.5	4	8.5	292	25	8	11.5	1	5	396	8.5	5	1
	OVW WH	0	0	0	0	0	0	0	0	0	0	0	0	2	1	9	*	0	0
																			0
	OXID	2	1	18	1.5	5	3	0	0	0	0	0	0	0	0	0	0	0	0
	WSLIP	1	1	5	*	12	6.5	0	0	0	0	0	0	3	1.5	14	*	0	0
	GREY	4	4.5	21	2	0	0	2	4.5	5	*	0	0	5	2.5	7	*	0	0
	GREYF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WHITE	0	0	0	0	0	0	0	0	0	0	0	0	1	*	6	*	0	0
	MORT	0	0	0	0	0	0	0	0	0	0	0	0	1	*	81	2	0	0
TOTAL		**91**	**100**	**1081**	**100**	**184**	**100**	**46**	**100**	**1163**	**100**	**70**	**100**	**209**	**100**	**4679**	**100**	**396**	**100**
Average		11.9						25.3						22.4					

TABLE 24: Summary of fabrics from wells (Object 121)

WELLS		1044						1300						2554					
	WARE	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**	**No**	**%**	**Wt**	**%**	**Eve**	**%**
Imports	SAM	8	5.5	63	2	25	11	25	5	314	3.5	75	8.5	13	5	131	3.5	22	7
	ARG CC	1	*	1	*	0	0	2	*	15	*	11	1	1	*	2	*	0	0
	CNG BS	0	0	0	0	0	0	1	*	1	*	0	0	1	*	2	*	0	0
	KOL CC	1	*	1	*	0	0	1	*	1	*	0	0	1	*	2	*	0	0
	GAB TN	0	0	0	0	0	0	1	*	10	*	0	0	0	0	0	0	0	0
	MOS BS	0	0	0	0	0	0	0	0	0	0	0	0	1	*	3	*	0	0
	GAL AM	0	0	0	0	0	0	3	*	58	*	0	0	3	1	85	2.5	0	0
	BATAM	1	*	21	*	0	0	16	3.5	1225	13	22	2.5	1	*	215	6	0	0
	NAF AM	1	*	212	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AMP UC	4	3	138	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional	DOR BB1	12	8	150	4.5	0	0	17	3.5	252	2.5	37	4	21	8	225	6.5	41	13
	LON FR	9	6	41	1	13	5.5	5	1	67	*	20	2.5	0	0	0	0	0	0
	LNV CC	3	2	14	*	0	0	1	*	2	*	0	0	0	0	0	0	0	0
	MAH WH	0	0	0	0	0	0	1	*	91	1	0	0	0	0	0	0	0	0
	NFO CC/RS	2	1.5	18	*	0	0	1	*	9	*	0	0	1	*	1	*	0	0
	NFO PA	0	0	0	0	0	0	1	*	8	*	9	*	0	0	0	0	0	0
	NFO RE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NFO WH	1	*	15	*	0	0	0	0	0	0	0	0	2	*	31	*	0	0
	OXF RS	4	3	65	2	9	4	0	0	0	0	0	0	1	*	14	*	8	*
	OXF RSM	1	*	10	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXF WH	1	*	4	*	0	0	10	2	86	1	0	0	4	1.5	36	1	0	0
	OXF WHM	0	0	0	0	0	0	1	*	32	*	0	0	3	1	68	2	5	*
	VER WH	0	0	0	0	0	0	11	2.5	310	3	5	*	0	0	0	0	0	0
	VER WHM	0	0	0	0	0	0	1	*	15	*	0	0	0	0	0	0	0	0
Local	ALH RE	73	50	2394	69	165	72	202	42.5	3295	35	470	53.5	134	50	1712	48	134	43
	SILCH F1	2	1.5	30	*	0	0	24	5	699	7	30	3.5	7	2.5	108	3	0	0
	FLINT	0	0	0	0	0	0	0	0	0	0	0	0	1	*	16	*	0	0
	GROG	5	3.5	93	2.5	10	4.5	29	6	824	9	12	1.5	13	5	396	11	5	*
	HAM GT	1	*	8	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OVW WH	1	*	10	*	0	0	0	0	0	0	0	0	1	*	8	*	0	0
Unknown	GLAZE	0	0	0	0	0	0	1	*	10	*	7	*	0	0	0	0	0	0
	MORT	1	*	98	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXID	5	3.5	74	2	7	3	15	3	162	2	31	3.5	13	5	269	7.5	39	12
	WHITE	1	*	2	*	1	*	0	0	0	0	0	0	2	*	52	1.5	38	12
	WSLIP	0	0	0	0	0	0	69	14.5	1572	16.5	100	11.5	2	*	23	*	0	0
	GREY	0	0	0	0	0	0	34	7	387	4	28	3	39	14.5	147	4	19	6
	GREYF	0	0	0	0	0	0	2	*	12	*	20	2.5	2	*	4	*	0	0
	MISC	8	5.5	15	*	0	0	3	*	6	*	0	0	0	0	0	0	0	0
TOTAL		**146**	**100**	**3477**	**100**	**230**	**100**	**477**	**100**	**9463**	**100**	**877**	**100**	**267**	**100**	**3550**	**100**	**311**	**100**
Average		23.8						19.8						13.3					

TABLE 25: Summary of pottery forms from the wells

Wells		**1044**		**1300**		**2380**		**2554**	
	Forms	**eves**	**%**	**eve**	**%**	**eve**	**%**	**eve**	**%**
domestic	jar	112	49	690	61	64	50	138	45.5
	storage jar	62	27	16	1.5	10	8	5	1.5
	bowl/dish	28	12	80	7	15	11.5	63	21
	dog bowl	5	2	26	2.5	10	8	12	4
	mortaria	0	0	0	0	16	12.5	5	1.5
	lid	0	0	13	1	0	0	8	2.5
tablewares	cup	1	*	23	2	0	0	7	2.5
	bowl/dish	22	9.5	59	5	13	10	19	6
	beaker	0	0	36	3	0	0	0	0
	tazze	0	0	30	2.5	0	0	0	0
	flagon	0	0	125	11	0	0	46	15
	flask	0	0	0	0	0	0	0	0
	jug	0	0	9	*	0	0	0	0
transport	amphora	0	0	22	2	0	0	0	0
TOTAL		**230**	**100**	**1129**	**100**	**128**	**100**	**303**	**100**

TABLE 26: Summary of main ware groups from selected contexts (Objects 31017/31023 and 31024/31030) by sherd count

EARLY											
Context	**Group**	**AMP**	**IMP FW**	**SAM**	**OXF**	**NFO**	**BB1**	**OVW**	**GREY**	**OTHER**	**TOT No**
1454	31017	1	0	1	4	1	20	0	11	12	50
1852	31017	0	3	7	4	2	6	5	65	16	108
2449	31017	0	4	0	0	11	3	0	9	0	27
2604	31017	2	0	0	1	10	17	0	39	2	71
2621	31017	0	0	0	0	2	3	0	2	0	7
2637	31017	1	2	0	0	4	30	0	0	0	37
2639	31017	0	1	1	0	0	9	0	8	1	20
2757	31017	0	1	3	12	1	22	2	8	4	53
2782	31017	1	0	0	0	2	5	0	4	5	17
3134	31017	1	0	4	3	3	14	2	67	4	98
1761	31023	5	3	10	17	4	11	1	143	31	225
1807	31023	5	2	17	11	1	9	0	101	29	175
1962	31023	8	4	7	8	8	9	2	86	31	162
2625	31023	0	0	1	4	0	2	0	26	4	37
2631	31023	5	3	9	0	0	5	1	58	51	132
3215	31023	2	1	12	3	3	9	0	75	33	138
TOTAL		**31**	**24**	**72**	**67**	**52**	**174**	**13**	**702**	**223**	**1357**
LATER											
1321	31024	1	3	2	9	12	4	8	75	16	134
1323	31024	6	2	3	2	1	5	1	50	11	81
1996	31024	7	3	37	25	5	47	0	165	30	319
3195	31024	4	4	15	13	18	18	3	259	57	386
1080	31030	3	3	0	4	2	3	1	72	16	104
1263	31030	10	8	20	11	15	34	3	268	64	431
1271	31030	0	1	2	0	3	3	2	35	8	54
1279	31030	0	2	1	13	8	4	1	22	20	71
1280	31030	0	0	2	2	1	0	1	10	2	18
1316	31030	6	5	31	9	3	17	3	144	57	275
1361	31030	0	0	1	0	1	0	1	8	3	14
1752	31030	1	2	4	6	0	4	3	60	12	92
1839	31030	2	1	1	0	4	3	1	20	3	35
1980	31030	4	7	18	9	11	44	4	298	57	452
1989	31030	7	3	10	8	2	24	0	111	20	187
2484	31030	1	5	14	1	1	8	1	199	76	306
2486	31030	10	15	29	5	0	28	0	108	68	263
TOTAL		**62**	**64**	**190**	**117**	**87**	**246**	**33**	**1904**	**520**	**3222**

TABLE 27: Summary of main ware groups from selected contexts (Objects 31017/31023 and 31024/31030) by weight

Context	Group	AMP	IMP FW	SAM	OXF	NFO	LNV	BB1	OVW	GREY	OTHER	TOT Wt
EARLY												
1454	31017	3	0	5	269	3	0	125	0	66	235	706
1852	31017	0	9	47	29	48	4	50	42	860	134	1223
2449	31017	0	10	0	0	19	0	52	0	84	0	165
2604	31017	1811	0	0	7	47	0	182	0	192	18	2257
2621	31017	0	0	0	0	6	0	14	0	3	0	23
2637	31017	3	3	0	0	7	0	295	0	0	0	308
2639	31017	0	2	7	0	0	0	200	0	43	45	297
2757	31017	0	1	7	46	1	0	101	10	49	36	251
2782	31017	9	0	0	0	11	0	30	0	23	50	123
3134	31017	20	0	53	27	28	0	215	17	820	130	1310
1761	31023	205	10	79	193	35	0	201	4	1068	453	2248
1807	31023	83	6	138	96	10	0	109	0	855	414	1711
1962	31023	51	9	76	177	47	0	62	51	599	603	1675
2625	31023	0	0	4	21	0	0	33	0	397	139	594
2631	31023	62	5	89	0	0	0	94	3	358	1898	2509
3215	31023	232	4	67	164	36	0	103	0	1122	310	2038
TOTAL		**2479**	**59**	**572**	**1029**	**298**	**4**	**1866**	**127**	**6539**	**4465**	**17438**
LATER												
1321	31024	30	12	46	284	56	9	64	89	862	241	1693
1323	31024	27	14	14	11	2	0	99	3	292	62	524
1996	31024	1215	6	271	225	14	73	492	0	1995	892	5183
3195	31024	69	10	144	259	171	14	235	18	1506	353	2779
1080	31030	50	6	0	11	5	0	20	3	543	180	818
1263	31030	210	17	138	77	102	20	503	52	2928	1100	5147
1271	31030	0	3	10	0	35	0	49	17	642	92	848
1279	31030	0	7	9	114	28	43	50	5	230	124	610
1280	31030	0	0	10	7	11	0	0	23	33	25	109
1316	31030	329	8	257	109	17	5	236	18	1351	854	3184
1361	31030	0	0	11	0	7	0	0	6	130	31	185
1752	31030	36	7	23	100	0	0	80	32	945	108	1331
1839	31030	130	4	1	0	13	0	28	14	171	8	369
1980	31030	183	25	221	141	45	66	370	15	1701	709	3476
1989	31030	302	16	43	109	6	0	354	0	1184	99	2113
2484	31030	16	8	61	20	6	0	220	4	1779	677	2791
2486	31030	188	34	313	161	0	0	238	0	710	668	2312
TOTAL		**2785**	**177**	**1572**	**1628**	**518**	**230**	**3038**	**299**	**17002**	**6223**	**33472**

TABLE 28: Traded wares from selected early and late contexts by shered count

Context	Group	sam	kolcc	mosbs	cngbs	argcc	oxfrs/wh	lnvcc	nfo	cc	oxf mo	galam	batam	amp	TOT	% TOT	Other types/forms
EARLY																	
1454	31017	1	0	0	0	0	0/1	0	1	0	3	0	1	0	7	**14**	
1852	31017	7	2	1	0	0	3/0	1	2	3	1	0	0	0	20	**18.5**	robsh
2449	31017	0	0	4	0	0	0	0	11	0	0	0	0	0	15	**55.5**	F27
2604	31017	0	0	0	0	0	1/0	0	10	0	0	0	2	0	13	**18.3**	C75
2621	31017	0	0	0	0	0	0	0	2	0	0	0	0	0	2	**28.5**	
2637	31017	0	0	2	0	0	0	0	4	0	0	0	0	1	7	**18.9**	
2639	31017	1	0	0	1	0	0	0	0	0	0	0	0	0	2	**5**	
2757	31017	3	0	1	0	0	0/11	0	1	0	1	0	0	0	17	**32**	
2782	31017	0	0	0	0	0	0	0	2	1	0	0	1	0	4	**23.5**	
3134	31017	4	0	0	0	0	1/1	0	3	0	1	0	1	0	11	**72.7**	
1761	31023	10	3	0	0	0	0/12	0	4	1	5	0	5	0	40	**17.8**	M14
1807	31023	17	1	0	0	0	0/8	0	1	0	3	0	4	1	35	**20**	
1962	31023	7	0	3	0	0	2/4	0	8	0	2	6	2	0	34	**21**	
2625	31023	1	0	0	0	0	2/0	0	0	0	2	0	0	0	5	**13.5**	
2631	31023	9	0	1	0	2	0	0	0	0	0	5	0	0	17	**12.9**	
3215	31023	12	0	0	0	1	0/1	0	3	0	2	0	0	2	21	**15.2**	Ha70, C186
TOTAL		**72**	**6**	**12**	**1**	**3**	**9/26**	**1**	**52**	**5**	**20**	**11**	**16**	**4**	**250**	**18.3**	
LATER																**20.9**	M22, C75, C50
1321	31024	2	1	0	0	0	9/0	1	12	0	2	0	1	0	28	**11.1**	C68, LRIVamp
1323	31024	3	0	1	0	1	1/0	0	1	0	1	1	0	0	9	**28.2**	M14, robsh
1996	31024	37	0	3	0	0	2/21	13	5	0	2	2	5	0	90	**15.5**	
3195	31024	15	1	0	1	2	6/0	2	18	2	13	2	2	0	64	**11.5**	
1080	31030	0	2	0	0	1	1/0	0	2	0	3	1	1	1	12	**17.2**	C68, F27
1263	31030	20	0	7	0	1	9/0	5	15	5	2	0	10	0	74	**11.1**	
1271	31030	2	0	1	0	0	0	0	3	0	0	0	0	0	6	**42.2**	C51
1279	31030	1	2	0	0	0	2/10	6	8	0	1	0	0	0	30	**27.8**	
1280	31030	2	0	0	0	0	2/0	0	1	0	0	0	0	0	5	**20**	robsh, nafam?
1316	31030	31	1	2	0	1	1/5	2	3	0	3	0	4	2	55	**14.3**	
1361	31030	1	0	0	0	0	0	0	1	0	0	0	0	0	2	**14.1**	M22
1752	31030	4	2	0	0	0	1/4	0	0	0	1	0	1	0	13	**22.9**	
1839	31030	1	0	1	0	0	0	0	4	0	0	0	2	0	8	**12.8**	Mayen, M22
1980	31030	18	0	4	2	1	7/0	9	11	2	2	1	2	1	60	**18.2**	
1989	31030	10	1	0	1	1	1/6	0	2	0	1	4	3	0	30	**7.5**	
2484	31030	14	1	1	0	3	0	0	1	1	1	0	0	1	23	**23.6**	
2486	31030	29	2	0	0	13	4/3	0	0	0	1	0	10	0	62	**17.7**	
TOTAL	**Total**	**190**	**13**	**20**	**4**	**24**	**46/49**	**38**	**87**	**10**	**33**	**11**	**41**	**5**	**571**		

TABLE 30: Comparative data from late Roman assemblages

	Silchester Insula IX layers	Silchester Insula IX pits	Portchester	Neatham	Alchester Per 9	Asthall Area A	London Billingsgate Bath Ho	London Dowgate Hill	London general	Wroxeter	Colchester
Ware	% wt	% wt	% wt	% wt	% wt	% wt	% wt	% wt	% wt	% wt	% wt
Amphorae	10.34	9.7	0	*	11.4	1.1	3.9	21.2	22.9	ni	26.5
imp fw	0.46	0.4	0	*	*	0.1	0.1	0.1	0.3	0	0.2
samian	4.21	3.5	0	0.4	1.2	3.3	0.3	3.1	3.8	5.31	6.5
Oxford wares	5.22	4.5	2.9	1.9	14.3	3.9	10.7	4.5	3.8	3.71	0.2
New Forest wares	1.60	1.3	14.3	1.7	*	*	0.5	0	0.1	0	0
Nene Valley	0.46	0.4	0	0.1	0.5	*	6.4	7.7	3.4	5.28	1.5
DOR BB1	9.63	8.5	21.4	*	4.1	13.7	2.9	4.6	4.1	21.8	2.1
OVW WH	0.84	0.3	0.7	ni	0	0	1.6	0.1	0.4	0	0
GREY/Alice Holt	46.24	40.9	31.8	94.6	28.9	58	30.5	39.3	16	9.95	0
OTHER	20.99	30.5	28.9	1.3	39.6	19.9	43.1	19.4	45.2	53.95	63
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

TABLE 29: Comparison of ware groups from pits, south and north layers by sherd count

Fabric group	**Pits**		**N Layers**		**S Layers**		
	No	**% No**	**No**	**% No**	**No**	**% No**	
amphorae		202	2.21	138	1.89	448	2.78
imported finewares	134	1.46	449	6.15	357	2.21	
samian	407	4.45	159	2.18	980	6.08	
Oxford wares	280	3.06	52	0.71	465	2.88	
New Forest wares	192	2.10	99	1.36	194	1.20	
Dorset black burnished ware	931	10.17	394	5.39	1089	6.76	
grey wares		4515	49.34	4488	61.44	9725	60.34
other	3513	38.39	1526	20.89	2860	17.74	
TOTAL		**9150**	**100.00**	**7305**	**100.00**	**16118**	**100.00**

APPENDIX 3

THE CATALOGUE OF THE GLASS

By Denise Allen

LATE ROMAN GLASS FROM NON-PIT CONTEXTS (FIG. 74)

Cups/bowls

Assemblages of late Roman glass would usually be expected to contain lots of fairly rough, cracked-off rims of conical beakers and bowls, usually of yellow-green glass, with lots of pinhead bubbles and streaks within. There are two examples here which are probably from late Roman cups or beakers.

1. Context 1356 (A1998.12): disuse Building 5
Two joining rim fragments of a cup of greenish-colourless glass; pinhead bubbles and streaks. Rim outflared, cracked off and only roughly finished, a few faint horizontal wheel-incised lines beneath. Diam. of rim *c.* 100mm (FIG. 74, No. 1).

2. Context 1003 (A1998.12): Victorian
Rim fragment of a cup of pale yellow-green glass. Rim slightly outflared and cracked off flat, one horizontal wheel-incised line beneath. Diam. of rim indeterminable.

Bottles/jugs/flasks

Typical later Roman glass containers include cylindrical bottles of colourless glass, often decorated with bands of horizontal wheel-cut lines, with flat, angular, multi-ribbed handles and a funnel mouth with thick, self-coloured trail beneath. These were quite common during the later third and fourth centuries (Price and Cottam 1998, 204–5, fig. 93). Included here are seven body fragments from the same vessel (No. 3), two small joining fragments of a colourless handle of this type (No. 4), and a rim fragment of yellow-green glass, of the type described above. However, colourless bottles with multi-ribbed handles do appear as early as the late second century (Price and Cottam, 1998, 202–4, fig. 92). The rim type was also used on handleless flasks (Price and Cottam 1998, 184–5) and biconical jugs (Price and Cottam 1998, 163–5), both of which groups are also late third–fourth century in date.

3. Context 2916 (A2001.10): gravelly spread associated with Building 1
Seven fragments from the body of a cylindrical bottle or flask of colourless glass. At least one horizontal band of wheel-cut lines extant around body. Diam. of body *c.* 120mm.

4. Context 1281 (A1999.30): possible floor in N-W corner (Object 41041)
Two small joining fragments of a flat, multi-ribbed handle of colourless glass.

5. Context 2351 (A2000.20): disuse S of E–W street
Rim fragment of a flask, bottle or jug of yellow-green glass, much damaged and distorted by fire. Rim outflared and fire-rounded, with thick, self-coloured horizontal trail added beneath. Diam. of rim indeterminable (FIG. 74, No. 2).

In addition there are two fragments of a decorative type which was popular from the late second century and especially in the third century, which may therefore represent finds from after A.D. 250. One is a body fragment which has had the surface of the glass pinched out whilst still warm to form small points. This was used on a number of forms, but most commonly on a type of convex cup which was popular during the third century (Price and Cottam 1998, 112–13, fig. 45; Cool 1990, 170–1). The other may be a fragment of a chain handle, formed from two strands nipped together at intervals to resemble a chain, which was used for several jug forms especially during the third century (Price and Cottam 1998, 159–63, fig. 71).

6. Context 1446 (A1998.12): fill of roadside ditch along E–W street (Object 41042)
Small body fragment of colourless glass, outer surface decorated with two small pinched-out points (FIG. 74, No. 3).

7. Context 1000 (A2000.20): cleaning
Fragment of a handle of pale green glass; narrow, rounded cross-section, curvature might suggest that it was part of a 'chain' handle.

GLASS FROM THE LATE ROMAN PITS AND WELLS (BY OBJECT) (FIG. 74)

Object 115

Total 5 vessels: 1 ?cup, 1 ?jug/jar, 3 indeterminate; 1 window fragment.

Pit 1463

8. Context 1347 (A1998.12)
Small indeterminate body fragment of yellow-green glass.

Pit 3357

9. Context 3352 (A2001.10)
Body fragment of pale olive-green glass; fairly thick-walled, no bubbles. The profile suggests that it comes from a slightly conical cup, with two horizontal wheel-incised lines on the outer surface. Diam. of vessel *c.* 90mm.

10. Context 3352 (A2001.10)
Fragment probably from the lower side of a large rounded vessel of yellow-green glass, curving down towards a base-ring. Lower part of one optic-blown rib extant. This is probably from a jug or jar — the quality of the glass suggests a later first/earlier second-century date, for example a convex jug with long neck (Price and Cottam 1998, 150–2) or a convex jar with collar rim (ibid., 137–8), but this is not certain.

11. Context 3352 (A2001.10)
Small indeterminate fragment of blue-green glass.

12. Context 3352 (A2001.10)
Small indeterminate fragment of colourless glass.

Pit 1571

13. Context 1348 (A1998.12)
Small fragment of blue-green matt-glossy window-glass.

Pits 1246 and 1384: no glass

Object 116

Total max. 30 Roman vessels: 8 bottles, 6 flasks/jugs/bottles, (including 1 substantial spouted jug of second/third-century type), 1 or possibly 2 cups, remainder indeterminate. Also one probable post-Roman fragment.

There were two certain and one possible instances of fragments from two different contexts representing the same vessel (in the two certain instances the fragments joined): 2495 and 2479 (possible), 2908 and 2924 (joining).

Pit 3250

14. Context 3233 (A2001.10)
Two tiny indeterminate chips of colourless glass.

Pit 2900

15. Context 2479 (A2000.20)
Small indeterminate body fragment of streaky colourless glass.

16. Context 2479 (A2000.20)
Body fragment of blue-green glass; the flat surface and curving edge strongly suggest that it is from a prismatic bottle, probably square, of first- to second-century date.

17. Context 2659 (A2000.20)
Rim fragment of a flask or jug of blue-green glass; rim folded outward, inward, and downward, diam. *c.* 40mm.

18. Context 2691 (A2000.20)
Small indeterminate fragment of colourless glass.

Pit 2921

19. Context 2481 (A2000.20)
Small indeterminate fragment of thin-walled blue-green glass.

20. Context 2487 (A2000.20)
Flat, thick-walled fragment of blue-green glass, probably from a bottle base, first to second century.

21. Context 2909 (A2000.20)
Base fragment of a prismatic bottle of blue-green glass. Blown into a body mould; design on underside of base with part of five concentric circles extant. Various numbers of concentric circles are amongst the commonest designs occurring on the bases of square and hexagonal bottles (Price and Cottam 1998, 194–200, figs 89a, 89d, 90). First to second century.

Pit 3251

22. Context 3208 (A2001.10)
Rim fragment of a flask or jug of pale blue-green glass. Vertical rim, fire-rounded, and thickened, diam. *c.* 50mm.

23. Context 3217 (A2001.10)
Tiny indeterminate chip of colourless glass.

24. Context 3217 (A2001.10)
Indeterminate fragment of blue-green glass.

25. Context 3227 (A2001.10)
Shoulder fragment of a prismatic bottle of blue-green glass. First to second century.

Pit 3235

26. Context 2482 (A2000.20)
Small indeterminate fragment of colourless glass.

27. Context 2482 (A2000.20)
Fragment of thick-walled blue-green glass, almost certainly from the shoulder of a bottle. First to second century.

28. Context 2495 (A2000.20)
Rim fragments of a cup of greenish-colourless glass; surfaces dulled. Rim outflared very slightly and cracked off flat, diam. *c.* 100mm. This type of rim was used for much of the Roman period, and cannot be closely dated. Its unpolished state might suggest a later Roman date.

29. Context 2495 (A2000.20)
Two rim fragments and one small body fragment, possibly from the same cup of colourless glass. Vertical rim, polished smooth, with horizontal wheel-abraded band beneath, and other lines further down side. Diam. of rim indeterminable.

30. Context 2495 (A2000.20)
Small indeterminate fragment of blue-green glass.

31. Context 2663 (A2000.20)
Small indeterminate fragment of greenish-colourless glass.

32. Context 2679 (A2000.20)
Indeterminate fragment of green glass; heavy flaking iridescence on the surfaces. This may be post-Roman in date.

33. Context 2686 (A2000.20)
Fragment of a curved, three-ribbed handle of blue-green glass. Width 18mm. This is from some form of jug or flask whose form cannot be closely identified or dated.

34. Context 2908 (A2000.20)
Nine body fragments of thin-walled blue-green glass, from a vessel with a flat discoid body, max. diam. *c.* 100mm. These fragments join with others from Context 2924 to form the complete profile of a discoid jug of second- or third-century type (Price and Cottam 1998, 159–60, fig. 70). These were made with spouted rims, sometimes with the spout opposite the handle, sometimes, as in this case, at 90 degrees to it. (For other fragments from this vessel from Context 2924, see Nos 36, 42–3.) (FIG. 74, No. 4)

35. Context 2908 (A2000.20)
Fragment from the corner of a square bottle. First to second century.

36. Context 2908 (A2000.20)
Base fragment of a vessel of blue-green glass. Pushed-in solid base-ring, with pontil mark on underside. Diam. of base-ring *c.* 45mm. (Same vessel as No. 34, and No. 43 from Context 2924 joins onto this.)

37. Context 2913 (A2000.20)
Small indeterminate fragment of colourless glass.

38. Context 2913 (A2000.20)
Tiny fragment of a multi-ribbed bottle handle of blue-green glass. First to second century.

39. Context 2924 (A2000.20)
Small fragment of thick-walled blue-green glass, probably from a bottle.

40. Context 2924 (A2000.20)
Fragment from the base of the neck of a jug, flask, or bottle of blue-green glass.

41. Context 2924 (A2000.20)
Fragment from the base of the neck of a jug, flask, or bottle of blue-green glass (different profile from fragment above).

42. Context 2924 (A2000.20)
Base, body and rim, neck and handle fragment of a discoid jug – (same vessel as No. 34; body fragment from Context 2908 joins the base fragment). In this case the spout has been pulled up away from the rim, at 90 degrees to the handle. The rim is fire-rounded, the neck is cylindrical, curving smoothly into the discoid body. Pushed-in tubular base-ring, with domed centre within, and pontil mark on underside. The handle has been given two decorative pinches at the rim, and is flat-sectioned and angular. Rim 52 by 32mm; diam. base-ring 35mm.

43. Context 2924 (A2000.20)
Fragment of a base-ring of blue-green glass. (Same vessel as No. 34; fragment No. 36 from context 2908 joins onto this.) Pushed-in solid base-ring, with pontil mark on underside. Diam. of base-ring *c.* 45mm.

44. Context 3209 (A2001.10)
Indeterminate body fragment of colourless glass.

Pit 2914

45. Context 2902 (A2000.20)
Indeterminate fragment of fairly thick-walled yellow-green glass.

Pit/Accumulation 3101

46. Context 3101(A2001.10)
Eight indeterminate body fragments of colourless glass; surfaces streaky and iridescent.

Object 117

Total 22 Roman vessels: 3 bottles, 2 jugs/flasks/bottles, 1 late second/early third-century cup, remainder indeterminate.
1 window fragment, 2 post-medieval fragments.

Pit 1702

47. Context 2339 (A2000.20)
Indeterminate chip of blue-green glass.

48. Context 2705 (A2000.20)
Four fragments from the inner base-ring of a cylindrical cup of colourless glass. Diam. of base-ring *c.* 35mm. Colourless cylindrical cups with fire-rounded rims and two concentric base-rings were the commonest glass drinking-vessel of the period *c.* A.D. 160–250 (Price and Cottam 1998, 99–101).

49. Context 2705 (A2000.20)
Indeterminate fragment of blue-green glass.

50. Context 2707 (A2000.20)
Indeterminate fragment of blue-green glass. May be part of a swirled rib extant on outer surface.

51. Context 2743 (A2000.20)
Indeterminate chip of blue-green glass.

Pit 1021

52. Context 1251 (A1998.12)
Small fragment of colourless glass, fairly thick-walled. Evidence of facet-cutting on outer surface

(possibly post-medieval). Although the fragment is tiny, and the Romans did have facet-cut glass, the colour of the glass and the tiny bit of cutting which survives look more Victorian than Roman.

53. Context 1251 (A1998.12)
Base fragment from a post-medieval bottle, dark green glass.

54. Context 1332 (A1988.12)
Indeterminate fragment of blue-green glass.

55. Context 1339 (A1998.12)
Indeterminate fragment of blue-green glass.

Pit 1707

56. Context 1220 (A1998.12)
Fragment from the base of a prismatic bottle, blue-green glass; slightly distorted by fire. Part of two moulded concentric circles extant on underside, surrounded by a ?square.

57. Context 1511 (A1999.30)
Indeterminate fragment of blue-green glass.

58. Context 1511 (A1999.30)
Edge fragment of a piece of pale green matt-glossy window-glass.

Pit 1295 (Re-cut of 2087)

59. Context 1296 (A1998.12)
Fragment from the neck of a bottle, jug, or flask; blue-green glass.

60.Context 1351 (A1998.12)
Indeterminate fragment of blue-green glass.

61. Context 1362 (A1998.12)
Indeterminate fragment of blue-green glass.

62. Context 1684 (A1999.30)
Small corner from a handle of blue-green glass.

63. Context 1684 (A1999.30)
Indeterminate fragment of blue-green glass.

64. Context 1816 (A1999.30)
Indeterminate fragment of blue-green glass.

Pit 1537

65. Context 1512 (A1998.12)
Flat fragment of blue-green glass, almost certainly from the body of a prismatic bottle.

Pit 1666

66. Context 1665 (A1998.12; A1999.30)
Tiny fragment, possibly from the folded rim of a bottle, blue-green glass.

67. Context 1665 (A1998.12; A1999.30)
Fragment of the base-ring of a vessel, blue-green glass. Pushed-in solid base-ring, folded from the vessel wall, diam. *c.* 50mm.

68. Context 1853 (1999.30)
Flat fragment of blue-green glass, almost certainly from the body of a prismatic bottle.

69. Context 1853 (1999.30)
Indeterminate fragment of blue-green glass.

70. Context 1931 (A1999.30)
Indeterminate fragment of blue-green glass.

Pit 1326

71. Context 1307
Fragment of blue-green bottle shoulder.

72. Context 1307
Body fragment of prismatic bottle.

73. Context 1307
Indeterminate fragment of blue-green glass.

Object 118

Total 9 vessels: 3 bottles, 1 jug, 2 jugs/flasks/bottles, 1 bowl, remainder indeterminate.
5 window-glass fragments.

Pit 1480

74. Context 1408 (A1998.12)
Four fragments of matt-glossy blue-green window-glass.

75. Context 1408 (A1998.12)
Lower part of a flat-sectioned handle of blue-green glass. Width of handle 13mm.

76. Context 1408 (A1998.12)
Rim fragment of a bowl of blue-green glass. Rim folded outward and downward, forming hollow tube, and then turned slightly inward; diam. *c.* 160mm.

77. Context 1408 (A1998.12)
Tiny indeterminate chip of colourless glass.

Pit 1634

78. Context 1327 (A1998.12)
Five fragments of a bulbous-bodied vessel of pale yellow-green glass. One fragment has part of a pinched self-coloured trail still adhering, possibly the trail from beneath a handle.

Pit 1576

79. Context 1288 (A1998.12)
Fragment almost certainly from the shoulder of a cylindrical bottle of blue-green glass. Diam. of body *c.* 140mm.

Pit 1020

80. Context 1309 (A1999.30)
Flat fragment of blue-green glass, almost certainly from the body of a prismatic bottle.

Pit 1680

81. Context 1618 (A1998.12)
Two thin-walled indeterminate fragments of blue-green glass.

82. Context 1618 (A1998.12)
Flat fragment of blue-green glass, probably from the body of a prismatic bottle.

83. Context 1697 (A1998.12)
Indeterminate fragment of colourless glass.

Pit 1459

84. Context 1479 (A1998.12)
Fragment of blue-green matt-glossy window-glass.

Pits 2335 and 1019: no glass.

Object 119

Total 5 vessels: 2 bottles, 3 indeterminate.

Pit 1292

85. Context 1298 (A1998.12)
Flat fragment of blue-green glass, almost certainly from the side of a prismatic bottle, first to second century.

Pit 1293

86. Context 1293 (A1998.12)
Indeterminate fragment of blue-green glass.

Pit 1438

87. Context 1567 (A1998.12)
Two small indeterminate fragments of blue-green glass.

Pit 1611

88. Context 1612 (A1999.30)
Small indeterminate fragment of blue-green glass.

89. Context 2079 (A1999.30)
Fragment from the cylindrical neck of a bottle, flask, or jug of blue-green glass. Diam. of neck 25mm.

Object 120

Total maximum 29 Roman vessels: 1 jug, late first to second century; 1 ribbed bowl, first century; 2 or 3 cups (1 may be a jar or flask); 4 or possibly 5 bottles (1 may be a jug); 1 amber unguent bottle, first century.

Pit 2827

90. Context 2826 (A2000.20)
Lower neck fragment of a bottle, jug, or flask of blue-green glass. Diam. of neck *c.* 30mm.

91. Context 2725 (A2000.20)
Five indeterminate fragments of blue-green glass, probably from the same vessel.

92. Context 2725 (A2000.20)
Indeterminate fragment of colourless glass.

93. Context 3000 (A2000.20)
Fragment from the base of a vessel, probably an unguent bottle or small flask, of amber glass. Slightly concave base, diam. *c.* 60mm.

94. Context 2343 (A2000.20)
Four indeterminate fragments of blue-green glass, probably from the same vessel.

95. Context 2343 (A2000.20)
Indeterminate fragment of blue-green glass.

96. Context 1506 (A1998.12)
Upper body fragment of a conical ribbed jug of blue-green glass. Part of two apparently vertical ribs extant. Large, long-necked, conical ribbed jugs were common during the later first and earlier second centuries (Price and Cottam 1998, 152–7, figs 67–8). Until recently it was believed that the ribs were formed by optic-blowing (i.e. blowing into a ribbed mould, then inflating and shaping the vessel further by free-blowing). However, there is now a suggestion that the ribs were in fact tooled, or pinched from the vessel surface at an early stage of inflation (Taylor and Hill 2003 for production of ribbed bowls – they believe that this method was also used on blown vessels).

97. Context 1506 (A1998.12)
Indeterminate fragment of blue-green glass.

Pit 2528

98. Context 2337 (A2000.20)
Indeterminate fragment of blue-green glass

Pit 2517

99. Context 2342 (A2000.20)
Rim fragment of a cup of colourless glass. Rim outflared and broken off flat, ground smooth; horizontal wheel-incised line beneath rim, two more further down side. Diam. of rim indeterminable. (FIG. 74, No. 5)

100. Context 2342 (A2000.20)
Body fragment of a square bottle of blue-green glass.

101. Context 2342 (A2000.20)
Indeterminate fragment of blue-green glass.

102. Context 2342 (A2000.20)
Indeterminate fragment of blue-green glass.

103. Context 2342 (A2000.20)
Indeterminate fragment of blue-green glass.

Pit 2550

104. Context 2352 (A2000.20)
Fragment of the body of a square bottle of dark blue-green glass. One edge may have been deliberately retouched, or grozed, for some sort of re-use.

It was not uncommon for broken vessel fragments to be re-used, either as smaller vessels of some sort (e.g. vessel bases being made into lids), gaming pieces or counters (base-rings of vessels were particularly good for this), or as rudimentary tools (Allen 1989, 120–1, nos 15–20, fig. 55). (FIG. 74, No. 6)

105. Context 2352 (A2000.20)
Indeterminate fragment of blue-green glass.

Pit 2380

106. Context 2353 (A2000.20)
Fragment comprising one rib of a 'pillar-moulded bowl' of blue-green glass. Ribbed bowls, which were made by some form of casting method (i.e. not blown) were very common during the first century A.D., up until some time in the Flavian period. They continue to appear in early second-century contexts, suggesting prolonged use of this robust form (Price and Cottam 1998, 44–6, fig. 7). The method by which they were made has long been a puzzle, and many suggestions have been made. Most recently, though, Mark Taylor and David Hill have made very convincing replicas by a method described by them in Taylor and Hill 2003. This involves pinching the ribs from a flat disc of glass, and sagging this over a former to produce the bowl shape. The vessel would then be finished by grinding the rim and inner surface.

107. Context 2353 (A2000.20)
Fragment, probably from the lower body or base, of blue-green glass. Part of a self-coloured trail extant, which may have formed the base-ring.

Pit 2381

108. Context 2357 (A2000.20)
Rim fragment of a bowl or cup of blue-green glass. Rim outflared, edge missing; diam. indeterminable.

109. Context 2357 (A2000.20)
Body fragment of a prismatic bottle of blue-green glass.

110. Context 2357 (A2000.20)
Indeterminate fragment of colourless glass.

111. Context 2357 (A2000.20)
Edge fragment of a handle of blue-green glass — shape indeterminate.

112. Context 2357 (A2000.20)
Eleven tiny chips of blue-green glass — not necessarily from the same vessel.

Pit 2550

113. Context 2366 (A2000.20)
Indeterminate fragment of colourless glass.

114. Context 2377 (A2000.20)
Indeterminate fragment of blue-green glass.

Pit 2991

115. Context 2385 (A 2000.20)
Fragment of the base-ring of a vessel of blue-green glass; pushed-in tubular base-ring, diam. *c.* 80mm.

116. Context 2385 (A2000.20)
Rim fragment of a jar, beaker cup, or flask of blue-green glass. Rim folded outward, upward, and inward, diam. *c.* 100mm.

Pit 2556

117. Context 2398 (A2000.20)
Indeterminate fragment of colourless glass.

118. Context 2398 (A2000.20)
Indeterminate fragment of colourless glass.

Object 121

Total maximum 15 Roman vessels: 1 ribbed bowl, first century; 1 amber jug, first to second century; further 3 blue-green handle fragments from jugs, bottles, or flasks; 2 bottles; 1 bowl or cup; 1 indented vessel.

Well 1044

119. Context 1521 (A1999.30)
Fragment of thin-walled colourless glass; curvature suggests that it comes from an indented vessel, probably a beaker. Indented beakers were made over a long period of time, from the first to the fourth century, as were other vessel forms, such as flasks, with the same decoration. This fragment cannot be assigned with certainty to any period, although the good-quality colourless glass might suggest a later first- or second-century date.

120. Context 2389 (A2000.20)
Indeterminate fragment of blue-green glass.

121. Context 1534 (A1998.12)
Three small indeterminate fragments of blue-green glass, probably from the same vessel.

Well 1300

122. Context 1301 (A1998.12)
Eight fragments of the same ‘pillar-moulded bowl’ of blue-green glass. The bowl appears to be a relatively small one, with fairly fine, closely-spaced ribs. See above for date and manufacture technique.

123. Context 1301 (A1998.12)
Fragment of a handle of amber glass; flat-sectioned with central rib, width 25mm. This is most likely to represent a long-necked jug of the type which was very popular during the later first and second centuries (Price and Cottam 1998, 150–7, figs 66–8).

124. Context 1301 (A1998.12)
Body fragment of a square bottle of blue-green glass.

125. Context 1301 (A1998.12)
Body fragment of a prismatic bottle of blue-green glass.

126. Context 1301 (A1998.12)
Fragment from the edge of a handle of blue-green glass.

127. Context 1301 (A1998.12)
Indeterminate fragment of blue-green glass.

128. Context 1301 (A1998.12)
Indeterminate fragment of blue-green glass.

129. Context 1301 (A1998.12)
Indeterminate fragment of blue-green glass.

130. Context 1301 (A1998.12)
Indeterminate fragment of colourless glass.

131. Context 1319 (A1998.12)
Fragment from the upper part of a handle of blue-green glass. Flat-sectioned handle, folded part from attachment probably beneath vessel rim.

Well 2554

132. Context 2395 (A2000.20)
Small rim fragment of a bowl or cup of blue-green glass. Rim fire-rounded and thickened, diam. indeterminable.

133. Context 2395 (A2000.20)
Lower part of a handle of blue-green glass; part of the extended 'claw' attached to the vessel wall extant.

Object 122

Total 21 Roman vessels: 1 cup (first-century type); 1 bowl; 1 cup or jar; 5 or possibly 8 bottles (3 may be jugs or flasks); 10 indeterminate, of which 2 are probably late Roman; 1 window-glass fragment.

Pit 1603/1513

Total 5 vessels: 1 bottle, 1 first-century cup, 3 indeterminate.

134. Context 1250 (A1998.12)
Small indeterminate body fragment of clear pale blue-green glass.

135. Context 1522 (A1998.12)
Indeterminate body fragment of thin-walled, bubbly, blue-green glass; faint horizontal wheel-abraded lines visible on outer surface.

136. Context 1604 (A1998.12)
Fragment from the shoulder of a prismatic bottle, probably square, of blue-green glass. First- to second-century type.

137. Context 1604 (A1998.12)
Tiny body fragment of green glass with part of a very fine self-coloured trail visible on outer surface.

138. Context 1604 (A1998.12)
Body fragment probably from the lower side of a mould-blown cup with vertical ribs, clear greenish-colourless glass. The lower ends of some ribs are extant, and the point at which the angle changes to turn into a base-ring. Diam. of vessel *c.* 80mm. This is almost certainly a fragment of a late first-century type described by Price and Cottam as a mould-blown ovoid cup (1998, 61–2, fig. 15b). Their illustrated example is a blue-green vessel from Caerleon, Gwent, which is very similar in size and apparent design to this one (FIG. 74, No. 7).

Pit 2596

Total 4 vessels: 2 bottles, possibly another 2 bottles (or jugs/flasks); 1 window fragment.

139. Context 3055 (A2001.10)
Rim fragment of blue-green glass; rim folded outward, upward, and inward and flattened on top, diam. *c.* 40mm; part of narrow cylindrical neck extant. This is probably from a bottle of common first- to second-century type, but could conceivably be from a long-necked jug or even a bath-flask, also of the first to second centuries.

140. Context 3055 (A2001.10)
Small indeterminate fragment of thick-walled blue-green glass – probably from a bottle.

141. Context 2865 (A2000.20)
Body fragment of blue-green glass; the flat surface and curving edge strongly suggest that is it from a prismatic bottle, probably a square, of first- to second-century date.

142. Context 2579 (A2000.20)
Fragment of matt-glossy window-glass, with part of the rounded 'thumb' edge extant. For probable method of manufacture see Allen 2002; this type of window-glass was commonly used until about A.D. 300.

143. Context 2579 (A2000.20)
Corner fragment from a square bottle of blue-green glass. First to second century.

Pit 1916

Total 3 vessels: 1 bowl, 2 indeterminate, of which 1 may be late Roman.

144. Context 1822 (A1999.30)
Small rim fragment of a bowl or plate of blue-green glass. Rim folded outward, downward, and inward to form tube; diameter of rim difficult to determine exactly, but probably between 100 and 180mm. Bowls and plates with folded, usually tubular, rims were made in a variety of forms from the first to the fourth centuries (Price and Cottam 1998, 77–80, 110–11, 131–3). The clear blue-green colour of this one suggests an earlier rather than a later Roman date for it, but it is impossible to be certain.

145. Context 1822 (A1999.30)
Small, indeterminate body fragment of clear blue-green glass.

146. Context 1822 (A1999.30)
Tiny indeterminate fragment of pale yellow-green glass – may be late Roman.

Pit 1901

Total 1 vessel (indeterminate)

147. Context 1838 (A1999.30)
Small, thin-walled, completely indeterminate fragment of greenish-colourless glass. No identification or date possible.

Pit 2240/2263

Total 1 vessel: probably 1 bottle.

148. Context 2065 (A1999.30)
Small, flat fragment of blue-green glass, probably from the body of a square bottle, later first to second century.

Pit 2224

Total 1 vessel: ?jug or bottle.

149. Context 1858 (A1999.30)
Three joining fragments of clear blue-green glass. The very slight curvature formed by these pieces, and faint pitting on the concave, outer surface suggests that these are from the slightly concave base of a relatively large vessel such as a jug or cylindrical bottle. They are more likely to be of later first- or second-century date than later, but this cannot be certain.

Pit 1354

Total 2 vessels: 1 bottle, 1 indeterminate, probably late.

150. Context 1391 (A1998.12)
Fragment from the shoulder of a bottle, probably a square, of blue-green glass. Part of constriction at base of neck extant, and neck sags slightly into body, which would have been blown into a square-sectioned body mould. Common later first- to second-century container, with vessels occasionally surviving into the early third century (Price and Cottam 1998, 194–8, fig. 89).

151. Context 1391 (A1998.12)
Small fragment of pale yellow-green glass, with a few pinhead bubbles within the glass, and a band of faint, horizontal wheel-incised lines on the outer surface. Glass of this colour and quality is typical of the late Roman period, but the form cannot be determined.

Pit 2634

Total 3 vessels: 1 cup or jar, 2 indeterminate.

152. Context 1321 (A1999.30)
Two rim fragments of a cup or small jar of blue-green glass. Rim fire-rounded and thickened and turned outward to form flaring lip, diam. *c.* 100mm. This type of rim was commonly used for a variety of vessel types over a long period of time, and is not sufficiently diagnostic to make a firm identification. The quality and colour of the glass suggests a date in the early to mid rather than the late Roman period, but this is not conclusive. (FIG. 74, No. 8)

153. Context 1321 (A1999.30)
Two very small indeterminate body fragments of yellow-green glass; there seems to be some evidence of optic-blown ribs on outer surface.

154. Context 1321 (A1999.30)
Small indeterminate body fragment of colourless glass.

Pit 1992

Total: 1 indeterminate vessel.

155. Context 1904 (A1999.30)
Two body fragments of thin-walled, clear blue-green glass, possibly from the same vessel. The curvature suggests that they came from a relatively large vessel (jug, bottle, jar or large bowl), but the form cannot be determined.

Pits 1866, 1897, 1993, 1387, 1363, 1779 and 1994: no glass.

APPENDIX 4

SUMMARY OF SMALL FINDS CATALOGUE, LISTED BY OBJECT, CUT AND FILL

By Nina Crummy

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
115	pit [1246]	–	664	iron	awl	small, square-section, Manning 1985, Type 4	L 47.5	10
115	pit [1384]	1051	245	cu-al	shaft	narrow and straight, ?brooch pin	L 41	(1)
"	"	"	663	iron	nail shaft	part of head remains	L 53	11
115	pit [1571]	1348	720	glass	bead	tiny, dark green, biconical	D 3.5, L 1.5	1
"	"	"	760	cu-al	shaft	short point; possibly a toilet instrument handle	L 54	(2)
115	pit [3357]	3338	2162	antler	disc	?inlay; small, thin, slightly convex, edge rough (as SF 1854)	D 14.5, T 2	(4)
116	pit [2900]	2479	1610	cu-al	armlet fragment	multiple-motifs; hook from hook-and-eye fastening	internal D *c.* 60, H 6, T 2	1
"	"	"	1622	bone	pin shaft	slightly swollen, shallow groove passes part way round just below break	L 58	18
"	"	"	1836	iron	cleat	oval body with long tangs folded in to form loop; from footwear	W 23, L (folded) 17	1
"	"	2493	1651	bone	pin shaft	swollen, broken just below head	L 78	1
"	"	"	1683	cu-al	furniture nail	pyramidal head	L 33, head D 7	11
"	"	2654	1782	iron	awl	Manning Type 1, with thin tang and marked shoulders; the tip is missing; there appear to be mouldings at intervals on the upper part of the stem	L 58	10
"	"	2691	1851	iron	spatula-spoon	flat oval terminal, slightly dished at one end, the other damaged; as Manning 1985, L2	L 97	2

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
"	”	"	1868	iron	tapering strip	bent; no features	L 93, W 10–16	18
"	"	"	1873	iron	stylus	Manning Type 3, with concave sides to eraser; point damaged	L 119	7
			1945	iron	wire fragment	fine	L (bent) 16	18
116	pit [2921]	2487	1619	cu-al	sheet off	cut very narrow, tapering, bent	L 18 (bent)	15
"	"	"	1789	cu-al	finger-ring	transverse grooves or mouldings (very corroded)	internal D 17.5, H 2.5, T 1	1
"	"	2909	1903	bone	hairpin	top has groove below broken baluster moulding; shaft straight	L 63	1
116	pit [3235]	2482	1607	cu-al	finger-ring	octagonal, surface plain	internal D 16, H 4, T 2	1
"	"	"	1869	iron	wire	narrow, straight ?brooch pin	L 33	18
"	"	"	1827	stone	pebble (?counter)	discoid, both faces flattened, edge rounded, polished	D 15	(5)
"	"	2663	1855	antler	inlay triangle	central pair of grooves, notching on sides	L 21, W at base 20	4
"	"	2679	1861	cu-al	sheet fragment	folded	33 x 23	18
"	"	2685	1798	iron	stylus	Manning Type 1, eraser worn	L 120	7
"	"	2924	1944	cu-al	fragment	thick	20 x 10, T 4	18
"	"	3209	2048	iron	2 sheet fragments	thin	49 x 35, 24 x 25	18
"	"	3224	2092	iron	strip fragment, ?reinforcement	with two holes for attachment	L 81, W 11	11
116	pit [2914]	2902	1881	bone	hairpin	Type 3, globular head, tip missing	L 44	1
116	pit [3251]	2674	1857	cu-al	armlet fragment	zigzag design	bent, L 48, H 4, T 1	1
"	"		1864	iron	double-hooked fastener/staple	long straight body with short tangs, too short to be a joiner’s dog	L 81, W 7.5, L 12	11
"	"	3217	2043	glass	bead	tiny, blue, globular	D 2.5, L 2	1

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
"	"	3226	2103	bone	hairpin	3 grooves below reel, bead and small cone; variant of Crummy 1983, Type 2	L 48	1
"	"	3227	2124	lead	refrozen puddle	–	21 by 28	(15)
"	"	3228	2117	iron	right-angled shank fragment	probably a clenched nail shank	L (bent) 88	11
"	"	"	2119	antler	offcut	from manufacture of narrow strip	24 by 19 by 19	16
"	"	"	2129	antler	offcut		29 by 29 by 15	16
"	"	"	2174	jet	hairpin	globular-headed	L 82	1
"	"	"	2192	iron	hobnails	3, corroded onto tile fragment	–	1
117	pit [1021]	1299	775	iron	ring	–	D 47, T 4	18
"	"	1339	1294	cu-al	tweezers	plain, part of one blade missing	L 54	2
"	"	"	1295	cu-al	toilet spoon	sides feathered on front and back; grooves below suspension loop, which has worn through, scoop small and dished	L 53.5, scoop D 5	2
117	pit [1666]	1665	977	iron	cleat	oval body, one tang bent sharply outwards	W (without bent tang) 31, L 2	1
"	"	"	986	iron	joiner’s dog	–	W 50, L 48	11
"	"	"	1070	cu-al	sheet frags + soil	–	tiny	18
"	"	"	1084	glass	bead	hexagonal cylinder, opaque green	L 5, D 4	1
"	"	"	1072	cu-al	sheet fragment	–	L 15	18
"	"	"	1095	bone	die	tiny double ring-and-dot motifs, blundered on 5 side, with one motif set too far in from corner, left unfinished, replaced with one in correct position	10 x 9 x 9	5
"	"	1709	996	iron	sheet fragment	shallow U-shape, but one side incomplete	89 x 47	18
		1853	1098	iron	sheet fragment	thick, dense, possibly smith’s offcut	43 x 30, T > 8	(15)

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
"	"	"	1165	cu-al	curved wire fragments	?earring	D 9, max T 1	(1)
"	"	"	1206	bone	shaft fragment	from hairpin, needle or spoon, etc.	L 23	18
"	"	"	1213	cu-al	stud	low convex head, shank flattened beneath head	D 13	11
"	"	"	1096	bone	hairpin fragment	Type 2-3 variant, one groove, head worked to knob	L 62	1
"	"	1918	1216	iron	ring-fitting	ring fitted with either double-spiked loop or pin	D 37, T 5	11
117	pit [1702]	2830	1824	iron	?handle fragment	narrow curved strip with one end hooked, the other broken, possibly from bucket	L 82, W 8	11
"	"	"	1884	iron	strip fragment, reinforcement?	with nail for attachment	L 44, W 17	11
117	pit [1707]	1220	571	cu-al	stud fragment	low convex head, riveted shank	D 16, L 8	11
"	"	1238	984	iron	collar	penannular, made from thick sheet	D 33, L 23	11
"	"	1478	829	bone	shaft fragment with tip	from hairpin, needle or spoon (does not fit SF 864 below)	L 50	18
"	"	"	864	bone	needle fragment, tip missing	thin rectangular eye	L 58	3
"	"	1511	866	iron	sheet fragment	triangular, possibly an offcut	75 x 59	18 (15?)
"	"	"	944	glass	bead	kidney-shaped, opaque green	W 7, L 6	1
117	pit [2087]	1296	651	cu-al	2 sheet fragments	–	17 x 12, 18 x 12	18
"	"	"	674	iron	ring/washer	tiny	D 8.5	18
"	"	1351	683	bone	needle	complete, rectangular eye	L 108	3
"	"	"	702	lead	sheet fragment	–	62 x 41	18
"	"	2010	1177	iron	nail	clenched just below head	L (bent) 44	11
"	"	"	1277	iron	ox-goad	two spirals	D 13, L 30	12
118	pit [1634]	1327	635	iron	L-shaped fitting	long arm flat and pierced for attachment, end broken, short arm square in section, end rounded and with long ‘eye’	L 70	11

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
"	"	"	680	iron	shank fragment	probably from nail	L (bent) 54	11
"	"	"	712	iron	strap fragment	slightly tapering, tongue-ended	L 48, W 19–22	18
"	"	"	713	cu-al	sheet fragment + stud	from box; stud is composite, with lead beneath cu-alloy cap; see SFs 714, 804, 816	stud D 11.5, H 11; sheet 16 by 16.5	4
"	"	"	714	cu-al	sheet and stud fragments	from box as SF 713, 804, 816; very fragmentary, traces of iron shanks from studs	largest = 28 x 20	4
"	"	"	725	cu-al	stud fragment	convex, from box as SF 713, 714, 804, 816	D 12, H 6	4
"	"	"	804	cu-al	sheet fragments	with concentric mouldings; from box as SF 713, 714, 725, 816	largest = 617 x 58	4
"	"	"	809	iron	ring	small, possibly from box lock mechanism or key	D 17	18
"	"	"	816	cu-al	sheet and stud fragments	from box as SF 713, 714, 804	largest 38 x 19	4
"	"	"	819	shale	armlet fragment	in 2 pieces; plain, sub-rectangular section	internal D 36, H 5, T7	1
118	pit [1019]	1308	621	iron	nail	in pieces; expanding triangular flat head no wider than shank, related to Manning Type 3	L 65 approx	11
"	"	"	846	iron	strap fragment	nail-hole for attachment; from hinge or reinforcement	L 44, W 24	18
"	"	1315	626	iron	shank fragment	narrow, round section; perhaps from awl or needle	L 33	11
"	"	1019	2384	iron	strap fragment	slightly tapering, with one nail-hole for attachment; probably from hinge	L 66, W 17–21	11
118	pit [1480]	1408	754	iron	3 hobnails, + 2 shanks from slightly larger nails or studs	–	L 14	1/11
118	pit [1459]	1458	973	glass	bead	segmented cylinder, opaque green	D tapering from 4 to 3, L 14	1
"	"	1473	797	iron	fragment	angular, one surviving pointed end; possibly the tang and a short part of the blade of a reaping hook	66 x 33	18 (12)

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
118	pit [1680]	1618	957	iron	nail + mineralised wood	small flat head	L 30	18
119	pit [1293]	1293	656	amber	pendant, fly	head damaged	L 11, W 10	1/14
119	pit [1611]	1612	1288	iron	strip fragment	–	L 51, W 8	18
"	"	"	1289	iron	tumbler-lock slide key	plain rectangular solid handle, perforated at the top; bit damaged	L 71	11
"	"	"	1419	iron	strip fragment	U-shaped, narrow	L (bent) 32	18
"	"	"	1423	iron	nail head	round, flat	D 24	11
"	"	1624	942	iron	strap fragment	in 3 pieces; gently tapering, tongue-ended, and with at least 3 nails/nail-holes for attachment; probably from hinge as SF 954 below	L 255, W 18–31	11
"	"	"	950	antler	worked	shed antler from red deer, brow tine intact, trez tine chopped off close to beam, which is broken just above it	L 272	16
"	"	2079	1301	cu-al	shaft fragment	?from, e.g., hairpin or spoon handle	L 32	18
"	"	2171	1420	cu-al	sheet fragment	–	13 x 8	18
120	pit [2550]	2352	1551	iron	joiner's dog	–	L 36.5, W 28	11
"	"	"	1668	cu-al	brooch	disc brooch, enamelled (blue set with tiny millefiori flowers), six lugs on rim	D 27	1
"	"	"	1750	iron	ploughshare tip	upper end missing, sides flanged	L 115, W 45	12
"	"	2376	1579	cu-al	sheet fragment	semi-oval, notch on broken edge (?escutcheon)	L 20, W 17	18
120	2556	2398	1854	antler	inlay?	edge fairly rough and core visible in places (as SF 2162)	D 15, T 6	(4)
120	pit [2587]	2580	1756	cu-al	boss + lead infill	flanged; no sign of shank beneath	D 11, H 6	11
120	pit [2725]	–	1728	cu-al	enamelled fitting	square central element with missing inset, four semicircular lobes with round lug terminals and lugs at junctions (one missing); cuff-link type rear attachment	30 x 30	4

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
120	pit [2827]	1506	832	cu-al	plate brooch, hare	ears and tip of nose missing; enamel blue and green; pin sprung between two lugs	L 29, H 12	1
"	"	"	839	cu-al	stud shaft + tiny frag. of head	–	L 11	11
"	"	2826	1882	cu-al	bow brooch	small Colchester type, spring damaged; forward hook, pin, one side-wing and catchplate missing	L 30	1
120	pit [2813]	2748	1847	iron	curved strip, ?collar	one thickened edge	L 61, W 18	18
120	pit [2991]	2385	1745	iron	cleat	slightly oval body, one tang bent outwards, the other broken	W 23 (excluding bent tang), L 11 (bent)	1
121	well [1044]	1045	1065	cu-al	?brooch bow fragment	plain, tapering, damaged at back near foot	L 42.5	(1)
"	"	1610	1100	iron	joiner's dog	–	W 28, L 44	11
"	"	"	1203	iron	shank or bar fragment	–	L (bent) 37	18
"	"	"	1227	iron	awl	Manning Type 4, with square-section tang and short circular-section point	L 84	10
121	well [1300]	1301	847	cu-al	toilet spoon	tip of shaft missing, bent; scoop flat and round	L 108, scoop D 5.5	2
"	"	"	848	cu-al	toilet spoon	complete, bent; scoop flat and round	L 105, scoop D 5	2
"	"	"	869	1) lead 2) iron	sheet fragment strip fragment	– –	36 x 32 L 32, W 19	18
"	"	1319	849	cu-al	wire fragment	thick	L (bent) 63	18
"	"	"	910	cu-al	toilet instrument handle, both ends missing, bent	spool and baluster mouldings towards one end	L 124	2
"	"	1357	634	lead	refrozen puddle	amorphous outline, with flat base and irregularly convex upper side	53 x 39	15/18
"	"	"	636	lead	weight	biconical, fitted with iron shank for suspension	L 57, max D 40, weight 257 g	6

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
121	well [2554]	2551	1664	iron	cleat	?oval body	W 33, L 21	11
122	pit [1603]	1604	943	cu-al	nail	flat head, distorted, square-section shank	L 46	11
122	pit [1387]	1388	868	iron	strip fragment	tapers, wide end bifurcated; ?bolt-plate as Manning R4	L 76, W 11–17 (below fork)	11
122	pit [1992]	1904	1209	iron	tapering spike	square-section, both ends broken, one tapers towards a point	L 205	18
"	"	"	1222	iron	concave vessel with thin handle fragment	unstable, so not a lamp	D 83, L with stem 112	18
"	"	"	1223	cu-al	pendant	moulded, with end in form of pine-cone	L 33.5, D 7.5	(14)
122	pit [1354]	1353	761	cu-al	4 sheet fragments	–	largest = 20 x 18, 16 x 14	18
"	"	"	769	iron	cleat	large sub-oval body, one tang clenched at the tip, the other bent up right against the body	W 31, L (bent) 16	1
"	"	1391	773	cu-al	?brooch bow fragment	probably from a Nauheim derivative	L 32	1
"	"	"	779	cu-al	sheet fragment	–	17 x 7	18
"	"	"	780	cu-al	nail	small domed head	L 14	11
"	"	"	857	lead	vessel base sherd	probably from a platter with low footring	27 x 18	4
122	pit [1993]	1803	1218	iron	fitting	flat, splayed U-shape, both ends broken	max W 64, L 44	18
"	"	"	1219	iron	chain link fragment	most of an elongated figure-of-eight shape, circular section wire	L 42	18
"	"	"	1229	iron	sheet fragment?	disc, slightly concave	34 x 26	18
122	pit [1897]	1897	1211	shale	fragment	thick, one original concave edge; one straight edge on the opposite side; possibly veneer?	73 x 47	9
122	pit [1866]	1841	1097	cu-al	strip, ?offcut	both ends broken or cut, one twisted	L 20, W 3, T 0.5	18
"	"	1865	1207	glass	bead fragment	annular, translucent cobalt blue matrix with white wavy trail	D 16, L 8	1

Object	Feature type & cut	Fill	SF	Material	Item type	Detail	Dimensions (mm)	Functional Category
122	pit [2224]	1858	1215	cu-al	fragment	thick, semicircular	34 x 18	18
122	pit [2596/3068]	2558	1673	cu-al	armlet fragment	crenellated with toothing between crenellations	D approx 65, H 3, T 3	1
"	"	"	1722	cu-al	D-shaped loop with fragment of sheet adhering; superficial appearance of a buckle and belt-plate	loop has wire ends twisted around to complete D; sheet tapers to a strip which is wrapped around straight bar of D	combined L 29.5, W 26	18
"	"	"	1731	iron	spade shoe fragment	Manning Type 1	max H 206	12
"	"	"	1838	iron	nail and fragments + mineralised wood	Manning Type 1b	L 70 (tip missing)	11
"	"	"	1848	iron	shank or bar fragment	–	L 55	18
"	"	2588	1899	iron	strip fragments	one has nail or stud for attachment	27 x 25, 27 x 32	18
		2854	1817	iron	cleat	semicircular body, short tangs	W 40, L 15	1

APPENDIX 5

WORKED STONE

By Ruth Shaffrey

TABLE 31: The worked stone from late Roman Insula IX

SF & Context No.	Type of Object	More stone info.	Context	Object	N/S half	Phase/Date
C 1353	Upper rotary quern fragment	ORS. Approx. 500mm diameter	Pit 1354	122	S	Phase 6: the latest pits
C 2104	Two adjoining lower rotary quern fragments	Lodsworth	Post-hole 2100	41039	N	Phase 2: late 3rd C
C 2482 SF 1859	Upper rotary quern fragment	Lodsworth. Projecting hopper type with circular feed pipe	Pit 3235	116	S	Phase 2–4
C 2482	rotary quern fragments	Lava	Pit 3235	116	S	Phase 2–4
C 3092	Upper rotary quern fragment	Lodsworth. Tapered to centre	Pit 3080	41071	N	Phase 2: late 3rd C
C 3195	Upper rotary quern fragment	ORS, quartz conglomerate.	Late layer on Bldg 1	31024	S	Phase 4 Coin=A.D. 388+
C 1271	Roofing	ORS	Disuse of Bldg 1	31030	S	Phase 5
C 1406	Roofing	ORS	Bldg 8 N wall	41048	N	Phase 3 (but in Victorian cut)
C 1446	Roofing	ORS	Roadside ditch N of Bldg 8	41042	N	Phase 4
C 1511	Roofing	Limestone	Pit 1707	117	S	Phase 2–4
C 2077	Roofing	ORS and limestone	Yard S of Bldg 8	41046	N	Phase 4
C 2297	Roofing	Limestone	Interior Bldg 8	41048	N	Phase 3
C 2339	Roofing	Pennant sandstone	Pit 1702	117	S	Phase 2–4
C 2353	Roofing	Lower Greensand	Pit 2380	120	N	Phase 2–4
C 2357	Roofing	ORS	Pit 2381	120	N	2 late 3rd C coins
C 2482	Roofing	ORS	Pit 2353	116	S	Phase 2–4
C 1612	Flooring	Limestone and Pennant sandstone	Pit 1611	119	N	Coin A.D. 350s
C 2353	Flooring	Lower Greensand	Pit 2380	120	N	Phase 2–4

SF & Context No.	Type of Object	More stone info.	Context	Object	N/S half	Phase/Date
C 2362	Flooring	Pennant sandstone	Pit 2991	120	N	Phase 2–4
C 2551	Flooring	Pennant sandstone	Well 2554	121	N	Coin A.D. 205+
C 2696	Flooring		Pit 2914	116	S	Phase 2–4
C 1427	Shaped building material	Tufa	Wall of Bldg 5	31020	S	Phase 2: late 3rd C
C 3180	Shaped building material	Tufa socket	Post-hole 2092 (Bldg 1)	31021	S	Phase 2: late 3rd C
C 1612	Shaped building material	Lower Greensand	Pit 1611	119	N	Coin A.D. 350s
C 2077	Worked building material	ORS	Yard S of Bldg 8	41046	N	Phase 4
C 2579	Worked building material	Tufa	Pit 2596	122	N	Phase 6: latest pits
C 2663	Worked building material	Fine-grained limestone	Pit 3235	116	S	Phase 2–4
C 2467	Worked building material	Purbeck Marble	Make-up for Bldg 1	31019	S	Phase 1: late 3rd C
C 2946	Roof-tile reused as whetstone	ORS	Interior Bldg 8	41048	N	Phase 3: mid 4th C
C 3103 SF 2352	Roof-tile reused as whetstone	ORS	Bldg 1 dump	41081	S	Phase 1(–2): into later 3rd C
C 1898	Whetstone	Sarsen	Pit 1897	122	N	Phase 2–4

APPENDIX 6

THE ANIMAL BONE

By Claire Ingrem

TABLE 32a: Species representation in hand-collected material (NISP) including skeletons and articulations

	Object									
	115	**116**	**117**	**118**	**119**	**120**	**121**	**122**	**Total**	**%**
Cattle	98	618	361	127	20	38	38	170	1470	57
Sheep		11	4	1			1	2	19	1
Sheep/goat	19	136	92	24	23	7	4	50	355	14
Pig	11	130	81	25	4	1		22	274	11
Horse	15	5	1	1		1	1	2	26	1
Pine martin (*Martes martes*)			1						1	<1
Carnivore	1								1	<1
Cat (*Felis spp*)		124							124	5
Roe deer (*Capreolus capreolus*)		3	4	1					8	<1
Red deer (*Cervus elaphus*)	2	5	3						10	<1
Hare (*Lepus europaeus*)		3	2	1					6	<1
Rodent		113							113	4
Amphibian			1						1	<1
Goose		1	7						8	<1
Duck (*Anas/Aythya sp.*)		3	2						5	<1
Galliform		52	8		1		1	3	65	3
Woodcock (*Scolapax rusticola*)			3						3	<1
cf. Rock dove (*Columba livia*)			1						1	<1
Jackdaw (*Corvus monedula*)		24							24	1
Raven (*Corvus corax*)		3							3	<1
cf. Turdus spp.			4						4	<1
Bird	1	29	28					3	61	2
Pike (*Esox luscius*)		1							1	<1
Large mammal	183	1079	643	239	24	261	46	255	2730	
Medium mammal	13	142	118	11	2	3		19	308	
Small mammal		41	10	1			2	21	75	
Unidentifiable	199	1105	546	246	59	109	89	287	2640	
Total	* 542	* 3632	* 1921	677	133	420	182	834	8336	
Identifiable	147	1262	603	180	48	56	45	252	2593	
% identifiable	27	35	31	27	36	13	25	30	31	

* includes fragments belonging to skeletons and skulls (see Table 32b)

TABLE 32b: Fragments belonging to skulls, partial skeletons and articulations (NISP)

	Object		
	115	**116**	**117**
Cattle		116	
Sheep/goat		1	
Pig		10	11
Horse	13		
Cat		116	
Rodent		13	
Galliform		30	
Raven (*Corvus corax*)		3	
Jackdaw (*corvus monedula*)		20	
Large mammal		7	
Small mammal		17	
Total	13	289	11

TABLE 32c: Species representation in sieved samples (NISP)

	Object							**Total**
	115	**116**	**117**	**118**	**120**	**121**	**122**	
Cattle		27	6			4	3	40
Sheep/goat		31	3			4	2	40
Pig		33	7			3	1	44
Horse						1		1
Dog		1						1
Cat		15						15
Roe deer (*Capreolus capreolus*)		1						1
Red deer (*Cervus elaphus*)		1						1
Hare (*Lepus timidus*)		1						1
Weasel (*Mustela nivalis*)		1						1
Rodent		8						8
Frog (*Rana sp.*)		1						1
Large mammal		58	27	2		11	9	107
Medium mammal		71	8			3	2	84
Small mammal		50	2					52
Duck (*Anas/Aythya sp.*)		1						1
Galliform		1						1
Woodcock (*Scolopax rusticola*)		2						2
Raven (*Corvus corax*)		2						2
Jackdaw (*Corvus monedula*)		2						2
Blackbird? (*cf. Turdus merula*)		2						2
Passerine		1					2	3
Bird	1	79	11			3	1	95
Clupeid		6						6
Salmonid		5						5
?Smelt (*cf. Osmerus eperlanus*)		1						1
Pike (*Esox lucius*)		1						1
Cyprinid		11						11
?Cyprinid		5						5
Eel (*Anguilla anguilla*)		82						82
Scad (*Trachurus trachurus*)		1						1
Flatfish		1						1
Fish		11						11
Unidentifiable	47	5450	583	36	29	315	134	6594
Total	48	5963	647	38	29	344	154	7223
%	1	83	9	1		5	2	100
% identifiable	2	9	10	5	0	8	13	9

TABLE 33: Major domesticates: minimum number of elements and individuals

a) cattle

	MNE	MNI
Mandible	29	15
Axis	8	8
Atlas	9	9
Scapula	47	26
Humerus	25	13
Radius	34	17
Pelvis	39	23
Femur	22	11
Tibia	26	14
Metacarpal	9	9
Metatarsal	27	17
Astragalus	30	18
Calcaneus	29	17
1st phalanx	45	
2nd phalanx	19	
3rd phalanx	8	
Total	406	26

b) sheep

	MNE	MNI
Mandible	0	11
Axis		
Atlas		
Scapula	7	5
Humerus	14	9
Radius	15	8
Pelvis	7	4
Femur	9	5
Tibia	13	7
Metacarpal	8	5
Metatarsal	15	10
Astragalus	1	1
Calcaneus	4	3
1st phalanx	11	
2nd phalanx	2	
3rd phalanx		
Total	126	11

c) pig

	MNE	MNI
Mandible	13	9
Atlas		
Axis		
Scapula	7	5
Humerus	12	6
Radius	8	5
Pelvis	7	4
Femur	3	2
Tibia	12	7
Astragalus	2	1
Calcaneus	13	9
Metapodial	20	
1st phalanx	4	
2nd phalanx	2	
3rd phalanx	2	
Total	103	9

TABLE 34a (i): Anatomical representation of mammals in hand-collected material (NISP)

	Cattle	**Sheep**	**Pig**	**Horse**	**Cat**	**Roe deer**	**Red deer**	**Hare**	**Pine martin**
Horn core	19	2							
Antler							2		
Zygomatic	17	1	2						
Frontal	27	5	3						
Nasal	7								
Occipital condyle	8	1							
Premaxilla	1								
Maxilla	40	8	21						
Mandible	109	46	31		1	2			
Incisor	21	2	17	3					
Upper canine			6						
Upper molar	90	32	4	7			1		
Upper premolar	33	5	1	4					
Lower canine			10						
Lower molar	46	36	5	1					
Lower premolar	18	6	7	1		2			
Hyoid	1	2							
Atlas	8				1				
Axis	9				1				
Scapula	151	8	8		2	1	2		
Humerus	55	19	15	1	8				
Radius	88	25	11	1	6	1		3	
Ulna	39	5	4		6				
Radius & ulna	3	1							
Pelvis	100	14	10		2			1	
Femur	48	17	9		4	1	1		
Tibia	55	39	28	1	3		2	1	1
Fibula			7		1				
Astragalus	33	1	2	2					
Calcaneus	35	6	11	1					
Navicular cuboid	13								
Cuboid			1						
Carpal	10	1		1	4				
Metacarpal	46	19							
Metatarsal	57	29							
Metapodial	23	12	22		14			1	
Lateral metapodial	1		19						
1st phalanx	65	7	3	2	4	1	1		
2nd phalanx	24				1				
3rd phalanx	11		2				1		
Lateral phalanx			1						

	Cattle	Sheep	Pig	Horse	Cat	Roe deer	Red deer	Hare	Pine martin
Sacrum	2				1				
Skull frag.	43		3		1				
Tooth frag.	53	24	10	1					
Limb bone frag.	42								
Total	1451	373	273	26	60	8	10	6	1
%	65	17	12	1	3	<1	<1	<1	<1

TABLE 34a (ii): Anatomical representation in material assigned to size classes from hand collection (NISP)

	Large	Medium	Small	Total
Maxilla	1			1
Mandible	23	1		24
Atlas	1			1
Scapula	8			8
Humerus	67	2	2	72
Radius	8			8
Ulna	2			2
Pelvis	5			5
Femur	19	6	2	28
Tibia	30	3	2	36
Lateral malleolus	1			1
Carpal	2			2
Metatarsal	1			1
Metapodial			3	3
Cervical vert.	10	1	1	12
Thoracic vert.	22		1	23
Lumbar vert.	9	9	1	20
Sacrum	1			1
Caudal vert.	2		1	3
Rib	22	31	14	67
Skull frag.	284	3		289
Tooth frag.	7	1		8
Limb bone frag.	242	74	24	349
Rib Frag.	281	152	19	458
Vert.frag.	213	22	1	232
Unidentifiable	1469	3	4	1489
Total	2730	308	75	3143
%	87	10	2	100

TABLE 34b: Anatomical representation of bird in hand-collected material (NISP)

	Goose	Duck	Domestic fowl	Woodcock	Pigeon/dove	Jackdaw	Raven	Turdus	Bird
Maxilla						1			
Mandible						1			
Sternum			2						1
Scapula			3			2			
Humerus	1		3			3			6
Radius						2			11
Ulna	2		7			2	1		6
Radius & ulna						1			
Coracoid	1		5			3			1
Furcula			3			1			
Pelvis			1						1
Femur	1		9						2
Tibiotarsus		2	10			4	1	1	7
Fibula		1							
Carpometacarpus	2	1	3	1		2			1

	Goose	Duck	Domestic fowl	Woodcock	Pigeon/dove	Jackdaw	Raven	Turdus	Bird
Tarsometatarsus		1	10	3			1	3	2
1st phalanx	1					1			
Lateral phalanx									1
Synsacrum						1			
Skull frag.			1						
Limb bone frag.									7
Total	8	5	57	3	1	24	3	4	46

TABLE 34c: Anatomical representation of major domesticates in sieved samples (NISP)

	Cattle	Sheep/goat	Pig
Horn core	1		
Upper molar	2	4	1
Upper premolar	3	2	1
Mandible		2	2
Lower canine			1
Lower molar		1	3
Lower premolar	2		2
Incisor	8	3	3
Hyoid		2	
Scapula	2		1
Humerus	1		
Radius		3	
Ulna	1		
Pelvis	1		
Femur		2	
Tibia	3	3	1
Astragalus	1		
Calcaneus	1		1
Navicular cuboid	2		
Lateral malleolus	1		
Carpal		3	
Metacarpal	1	2	
Metatarsal	1	1	
Metapodial			3
Medial metapodial			1
Lateral metapodial			1
1st phalanx	3	6	3
2nd phalanx		2	3
3rd phalanx		1	1
Lateral phalanx			13
Skull frag.	1		
Tooth frag.	2	3	2
Sesamoid	2		
Unidentifiable	1		1
	40	40	44

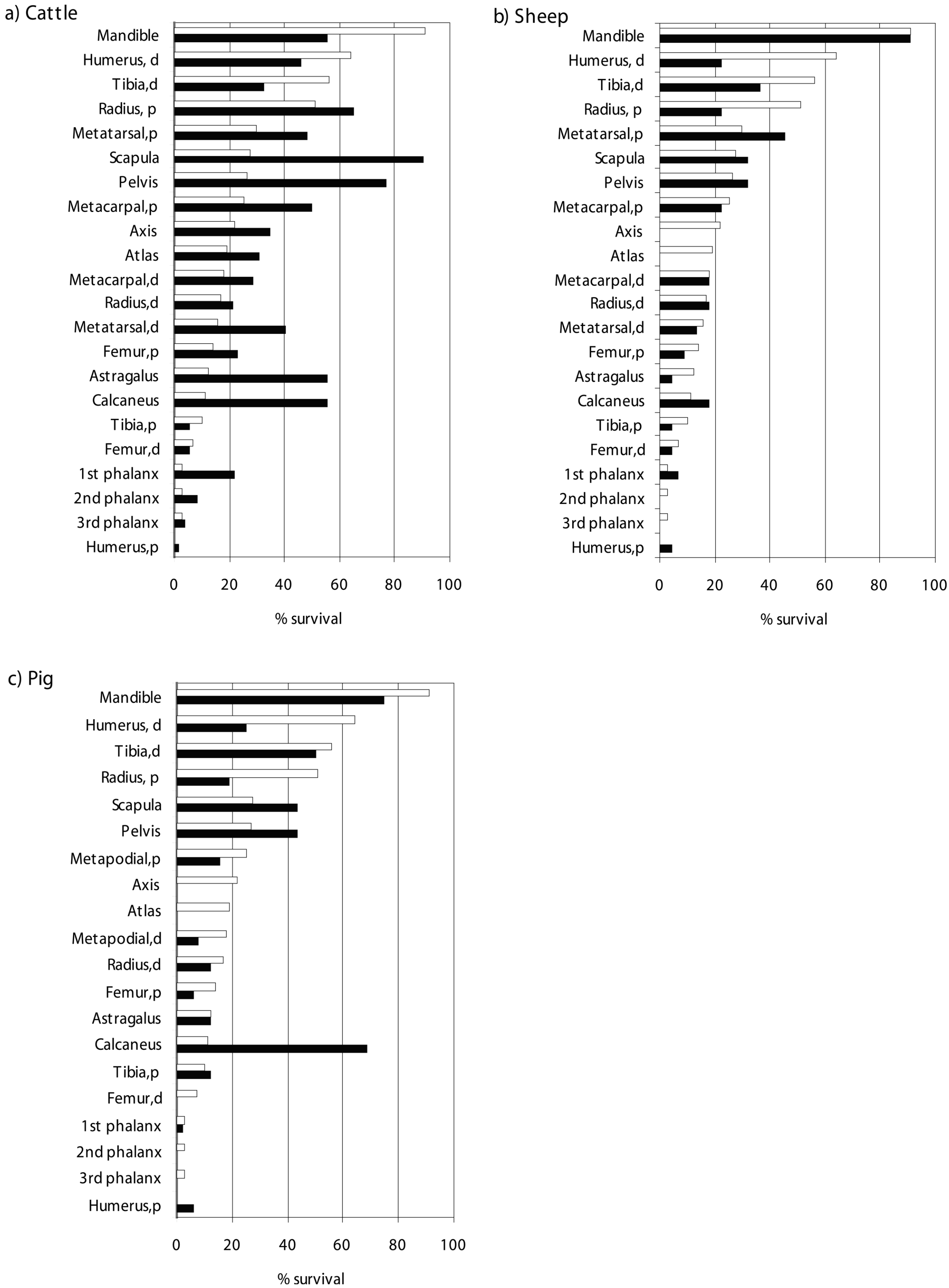

FIG. 120. Percentage survival of anatomical elements: (a) cattle, (b) sheep, (c) pig (grey = Insula IX; white = Brain (1969))

TABLE 34d: Anatomical representation of fish in sieved samples (NISP)

	Clupeid	**Salmonid**	**?Smelt**	**Pike**	**Cyprinid**	**?Cyprinid**	**Eel**	**Scad**	**Flatfish**	**Fish**
Dentary					1		1			
Ceratohyale							2			
Opercular							2			
Cleithra				1						
AAV					2					
PAV	1				4		20			
CV	1	3			4		54		1	
Vert.frag.	4	2	1			5	3	1		2
Scale										4
Unidentifiable										5
Total	6	5	1	1	11	5	82	1	1	11

AAV=anterior abdominal vertebra
PAV=posterior abdominal vertebra
CV=caudal vertebra

TABLE 35: Age estimates based on tooth eruption and wear

a) Cattle

P4	**M1**	**M2**	**M3**	**Estimated age**	**%**
(b)				0-3 months	4
(c)				1-3 months	
(j)	g	d		15-26 months	6
(k)	g			15-26 months	
(m)	h	g	E	15-26 months	
			a	26-36 months	35
			a	26-36 months	
			a	26-36 months	
			b	26-36 months	
		g	c	26-36 months	
			c	26-36 months	
			e	26-36 months	
			e	26-36 months	
			e	26-36 months	
			e	26-36 months	
			e	26-36 months	
			e	26-36 months	
			f	26-36 months	
			f	26-36 months	
E	g	f		26-36 months	
E	h	g		26-36 months	
e	m	g	g	3-6 years	19
g		h	g	3-6 years	
		j	g	3-6 years	
f	l	k	g	3-6 years	
e		k		3-6 years	
c	k			3-6 years	
d	k			3-6 years	
e	k			3-6 years	
e	k			3-6 years	
			g	3-8 years	11
			g	3-8 years	
			g	3-8 years	
			g	3-8 years	
			g	3-8 years	
g	k	j	g	6-8 years	24
g	l	k	g	6-8 years	
	l	k	g	6-8 years	
			h	6-8 years	
			j	6-8 years	
			j	6-8 years	
h	m	l	k	6-8 years	
	m	l	k	6-8 years	
		l	k	6-8 years	
	n	m	k	6-8 years	
			k	6-8 years	

b) Sheep

P4	**M1**	**M2**	**M3**	**Estimated age**	**%**
(a)				<2 months	3
(c)				2-6 months	3
(h)	f			6-12 months	3
	e	d		12-24 months	7
(l)	g	d		12-24 months	
			a	2-3 years	31
			a	2-3 years	
	f	e	c	2-3 years	
	g	f	c	2-3 years	
		g	c	2-3 years	
			c	2-3 years	
			c	2-3 years	
			c	2-3 years	
			c	2-3 years	
f				3-4 years	34
f	g	f	d	3-4 years	
f	g	f	e	3-4 years	
h	g	f	e	3-4 years	
g	g	g	e	3-4 years	
			e	3-4 years	
			e	3-4 years	
			e	3-4 years	
g	g	g	f	3-4 years	
			f	3-4 years	
h	k	g	g	4-6 years	14
j	l	g	g	4-6 years	
j	j	g	g	4-6 years	
			g	4-6 years	
h	l			8-10 years	3

c) Pig

P4	**M1**	**M2**	**M3**	**Estimated Age**
(a)	V			juvenile
(e)	b			immature
(g)	b			immature
	f	c	E	subadult
	h	c		subadult
		d	E	subadult
f	k	g	c	adult
			c	adult
			c	adult

TABLE 36: Estimated age based on epiphyseal fusion

a) Cattle

		Fused	Unfused	% unfused
7-10 months	Scapula	24		
	Pelvis	18	2	
Subtotal <1 yr		**42**	**2**	**5**
12-15 months	Radius,p	40		
15-18 months	Phalanx II	24		
15-20 months	Humerus,d	25	1	
20-24 months	Phalanx I	57	1	
Subtotal <2 yrs		**146**		**0**
24-30 months	Tibia,d	18	4	
	Metacarpal	14	2	
	Metatarsal	20	3	
Subtotal <3 yrs		**52**	**9**	**15**
36 months	Calcaneus	3	3	
36-42 months	Femur,p	4	8	
42-48 months	Humerus,p			
	Radius,d	5	8	
	Ulna,p	1	1	
	Femur,d	5	2	
	Tibia,p		4	
Subtotal <4 yrs		**18**	**26**	**59**

c) Pig

		Fused	Unfused	% unfused
12 months	Scapula	4	2	
	Humerus,d	1	1	
	Radius,p	3	1	
	Pelvis	3	1	
	Phalanx II		3	
Subtotal <1 yr		**11**	**8**	**42**
24 months	Tibia,d	3	5	
	Metapodial	1	13	
	Phalanx I		6	
Subtotal <2 yrs		**4**	**24**	**86**
24-30 months	Calcaneus	1	10	
Subtotal <3 yrs		**1**	**10**	**91**
36-42 months	Ulna,p	2		
	Femur,p		3	
42 months	Humerus,p		1	
	Radius,d		2	
	Femur,d			
	Tibia,p		2	
Subtotal <3.5 yrs		**2**	**8**	**80**

b) Sheep

		Fused	Unfused	% unfused
3-4 months	Humerus,d	2	2	
	Radius,p	7	1	
5 months	Scapula		1	
	Pelvis	6	1	
5-7 months	Phalanx II	2		
7-10 months	Phalanx I	7	3	
Subtotal <1 yr		**24**	**8**	**25**
15-20 months	Tibia,d	7		
20-24 months	Metacarpal	2	3	
	Metatarsal	1	2	
Subtotal <2 yrs		**10**	**5**	**33**
36 months	Calcaneus	2		
Subtotal <3 yrs		**1**		**0**
36-42 months	Femur,p		3	
42 months	Humerus,p		1	
	Radius,d		3	
	Ulna,p		2	
	Femur,d		1	
	Tibia,p		4	
Subtotal <3.5 yrs		**0**	**14**	**100**

d) Horse

		Fused	Unfused	% unfused
9-12 months	Scapula			
10-12 months	Pelvis			
10-12 months	Phalanx II			
Subtotal <1 yr				
12-15 months	Phalanx I	2		
15 months	Metacarpal			
15 months	Metatarsal			
15-18 months	Humerus,d	1		
15-18 months	Radius, p	1		
24 months	Tibia,d	1		
Subtotal <2 yrs		**5**	**0**	**0**
36 months	Calcaneus			
Subtotal <3 yrs				
36-42 months	Femur,p			
42 months	Humerus,p			
"	Radius,d			
"	Ulna,p			
"	Femur,d			
"	Tibia,p			
Subtotal <4 yrs				

TABLE 37: Butchery evidence

a) Frequency of butchery according to species

	Cut		Chop		Sawn		Cut/chop	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Cattle	61	4	272	18			46	3
Sheep	3	1	26	6				
Pig	3	1	25	8			5	2
Horse	1	4	1	4				
Roe deer			1	11				
Red deer			3	27			1	9
Hare							1	14
Large mammal	57	2	140	5	1	<1	4	<1
Medium mammal	4	1	8	2				
Small mammal			1	1				
Goose	1	13	2	25				
Bird			1	1				
Total	130		480		1		57	

b) Frequency of butchery according to Object group

Object	**Cut**		**Chop**		**Sawn**		**Cut/chop**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
115 (Shallow rubbish pits)	8	1	30	5			4	1
116 (Cess-pits)	67	11	214	36			29	5
117 (Southern pit alignment)	40	7	137	23	1		13	2
118 (Northern pit alignment)	5	1	43	7			4	1
119 (Cut features)	8	1					2	<1
120 (Shallow scoops)		5	1					
121 (Wells)	3	1	9	2				
122 (Late pits)	7	1	34	6			5	1
Total	130		480		1		57	

TABLE 38: Incidence of gnawing (NISP and % for canid)

a) according to species

	Canid		**Rodent**		**Human**
	n	**%**	**n**	**%**	**n**
Cattle	105	7	2	<1	
Sheep	24	6	1	<1	
Pig	23	7	1	<1	
Horse	1	4			
Red deer	1	9			
Large mammal	50	2	2	<1	
Medium mammal	5	1			
Bird					1
Total	209	4	6	<1	1

b) according to Object group

Object	**Canid**		**Rodent**		**Human**
	n	**%**	**n**	**%**	**n**
115 (Shallow rubbish pits)	4	1			
116 (Cess-pits)	108	4	2	<1	1
117 (Southern pit alignment)	63	4	3	<1	
118 (Northern pit alignment)	16	4			
119 (Cut features)	3	4			
120 (Shallow scoops)	1				
121 (Wells)	5	4			
122 (Late pits)	9	2	1	<1	
Total	209	4	6	<1	1

TABLE 39: Incidence of burning (NISP)

a) according to species

	Burnt	White	White/ black	Black	Black/ brown	Brown	Part burnt	Total	%
Cattle				1	20	8	1	30	2
Sheep/goat		10	1		3	1	1	16	4
Pig					1			1	<1
Large mammal	1	3	4	5	60		2	75	3
Medium mammal		5	3	1	3			12	3
Small mammal		20			1			21	17
Bird					1			1	1
Total	1	38	8	7	89	9	4	156	3

b) according to Object group

Object	**Burnt**	**White**	**White/ black**	**Black**	**Black/ brown**	**Brown**	**Part burnt**	**Total**	**%**
116 (Cess-pits)		1	1	4	1	1	1	9	<1
117 (Southern pit alignment)	1	2	2	1	1	1		8	1
118 (Northern pit alignment)				1	1			2	<1
120 (Shallow scoops)			3	1	14		2	20	6
121 (Wells)					60			60	49
122 (Late pits)		35	2		12	7	1	57	10
Total	1	38	8	7	89	9	4	156	2

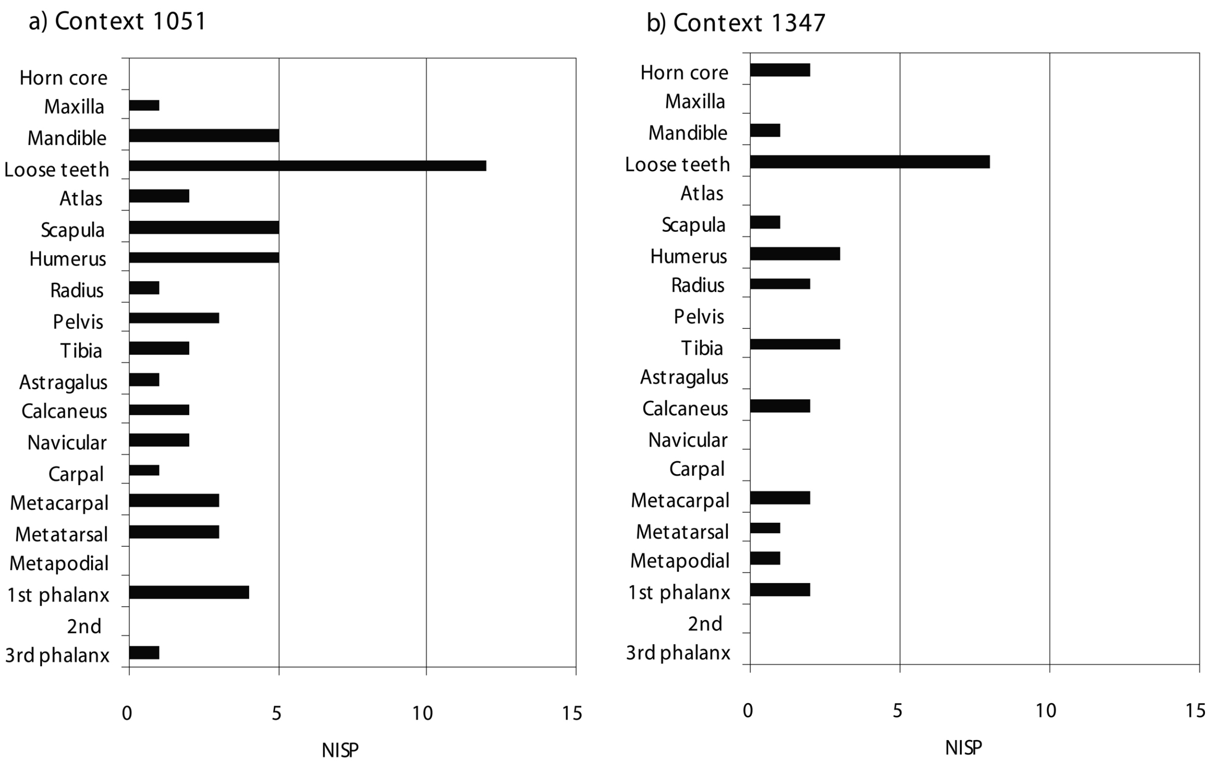

FIG. 121. Anatomical representation of cattle in Object 115

TABLE 40a: Spatial distribution of minor species from hand collection (NISP)

Object	Pit	Context	Horse	Cat	Roe deer	Red deer	Hare	Pine martin	Goose	Duck	Woodcock	Pigeon	Jackdaw	Raven	Turdus	Pike
115	1384	1051	15			1										
	3357	3352				1										
Subtotal			**15**			**2**										
116	2900	2479	1													
		2493			1					1						
		2654					2									
		2659		72			1									
		2691		3												
	2914	2696	1													
		2902			1											
	3235	2482		1		1			1							
		2495	1													1
		2663								2						
		2679	1			1										
		2686			1	1										
	3251	2674		8									4	2		
		3208												1		
		3217		1												
		3226	1													
		3227		2												
		3228		37		2							9			
		3229											11			
Subtotal			**5**	**124**	**3**	**5**	**3**		**1**	**3**			**24**	**3**		**1**
117	1666	1665								2					4	
		1853			1				2			1				
		1918					1									
		1931					1									
		1974			3											
	1702	2819	1													
	1707	1238				1										
		1290				1										
		1478						1								
		1511				1			5		1					
		1662									2					
Subtotal			**1**		**4**	**3**	**2**	**1**	**7**	**2**	**3**	**1**			**4**	
118	1459	1479			1											
	1680	1618	1				1									
Subtotal			**1**		**1**		**1**									
120	2380	2353	1													
Subtotal			**1**													
121	2554	2551	1													
Subtotal			**1**													
122	1603	1628	1													
	1992	1904	1													
Subtotal			**2**													

TABLE 40b: Distribution of fish in cess-pits – Object 116 (NISP)

Pit	**Context**	**Clupeid**	**Salmonid**	**?Smelt**	**Pike**	**Cyprinid**	**?Cyprinid**	**Scad**	**Eel**	**Flatfish**	**Total**
2914	2696							1			1
Subtotal								**1**			**1**
2921	2481								1		1
Subtotal									**1**		**1**
3235	2495				1						1
	2663								1		1
	2913				1				1		2
	3224					7			10		17
Subtotal					**2**	**7**			**12**		**21**
3251	3226		2	1		2	5		12		22
	3227	2	1			2			15	1	21
	3228	2							9		11
	3229	2	2						33		37
Subtotal		**6**	**5**	**1**		**4**	**5**		**69**	**1**	**91**
Total		**6**	**5**	**1**	**2**	**11**	**5**	**1**	**82**	**1**	**114**

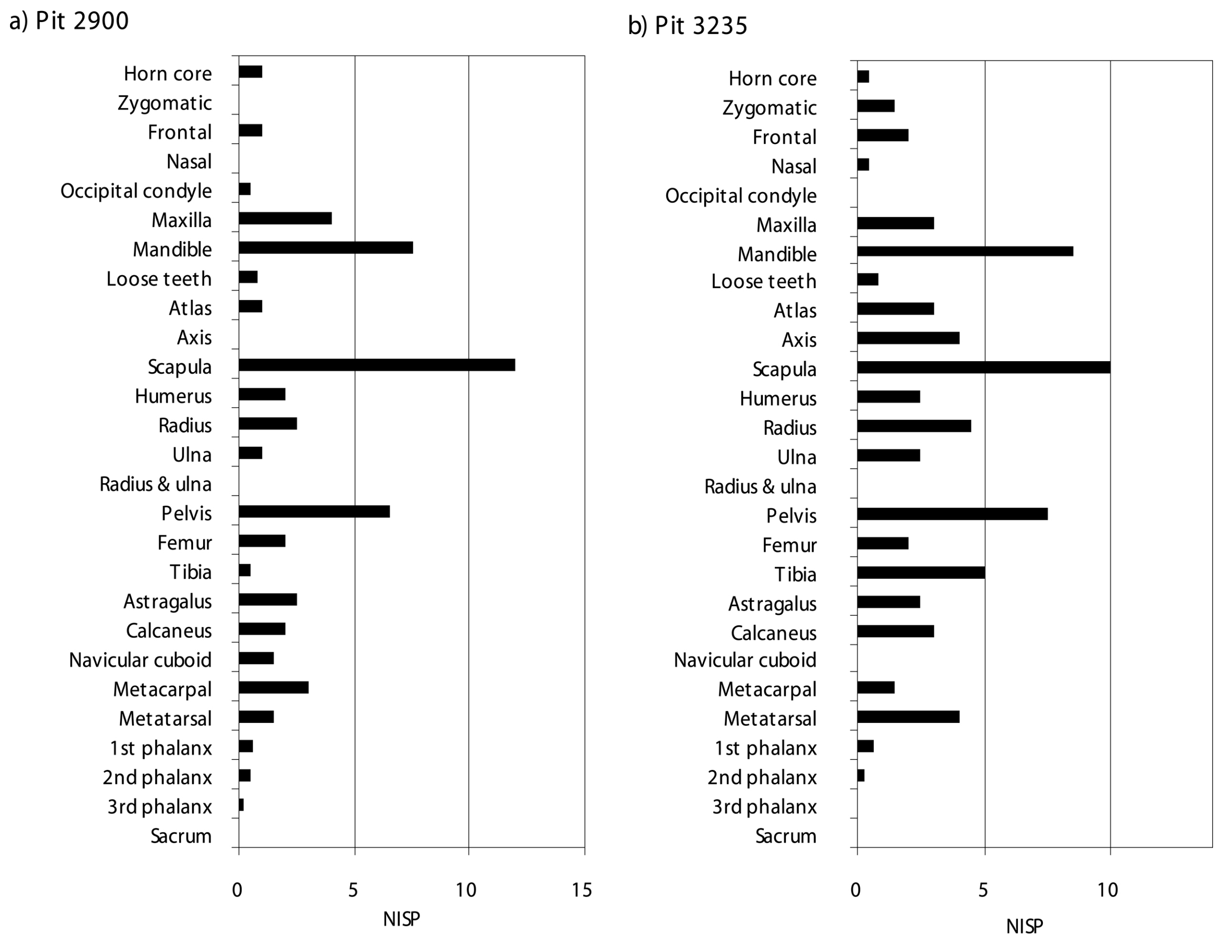

FIG. 122. Anatomical representation of cattle in Object 116

TABLE 41a: Metrical data: mammals

i) Cattle

	GLP	BG	LG	SLC		
Scapula			63.8	60.7		
Scapula				50.1		
Scapula	52.4	40				
	SD	BD	BT	HT	HTC	
Humerus			80.4	45.9	34.9	
Humerus			65.8	37.3	28.4	
Humerus				38	29.5	
Humerus				42.6	31.9	
Humerus	28.2	70.6	68.1	41.1	30.1	
Humerus				42.2	31.4	
Humerus				39.6	28.9	
Humerus				38.5	31	
Humerus	32.4					
	Bp	Dp	SD			
Radius	74.5	71.7	38.3			
	LA					
Pelvis	64.7					
Pelvis	56.9					
Pelvis	62.8					
	Bp	Dp	SD	Bd	Dd	
Tibia				57.3	42.6	
Tibia	59.1	44.7				
Tibia				58.6	44.2	
Tibia			36.2			
Tibia				57.6	43.2	
Tibia				66.2	47.6	
	Gl	Bp	Dp	SD	Bd	Bef
Metacarpal		51.8	30.4			
Metacarpal				36.6	65	59.6
Metacarpal		48.3				
Metacarpal		55.8	32.7			
Metacarpal					55.4	50.7
Metacarpal					50.1	46.7
Metacarpal		19.3	13.4			
Metacarpal					52.5	48.7
Metacarpal		50.2				
Metacarpal					53.7	
Metacarpal		52.8	34.3			
Metacarpal					54.7	50.5
Metacarpal		48.8	44.8			
Metacarpal	180	49	31.9	29.9	52.3	47.9
Metacarpal	220	63.6	37	34.5	65.4	58.5
Metatarsal		43.2	45.5			
Metatarsal					47.6	43.6
Metatarsal					62.5	59.2
Metatarsal						30.4
Metatarsal		43	42.9			
Metatarsal					53.3	47.3
Metatarsal		45.7				
Metatarsal		45.3	41.8			
Metatarsal					45.5	42.2
Metatarsal				24.3		
Metatarsal					49.6	45.3
Metatarsal					51.1	49
Metatarsal		49.7	48			
Metatarsal					51.1	48.7
Metatarsal					46	43.5
Metatarsal					50.2	45.2
Metatarsal					44.9	41.2
Metatarsal					52.3	50.5
Metatarsal					52.3	46.3
Metatarsal		49.6	41.5			
Metatarsal		44.7	45.3			
Metatarsal		39.8	37.9			
Metatarsal					9.1	10.2
Metatarsal					49.5	47.6
Metatarsal		40.1	40.8			
Metatarsal	219.5	45.2	41	22.2	50.4	46.2
Metatarsal	220	50.5	48.2	29	59.6	51.9

	Gll	Glm	
Astragalus	59.6	54.9	
Astragalus		57	
Astragalus		62.2	
Astragalus		55.8	
Astragalus	58.5	54.3	
Astragalus	59.2	54.4	
Astragalus	61.5	57.7	
Astragalus	62	57	
Astragalus	62.8		
Astragalus	63.9		
Astragalus	64.5		
Astragalus	62.8	58.1	
	GL	Max	Min
Horn core		48.5	37.8
Horn core		44.7	28.7
Horn core		44.4	38.4
Horn core		49.5	41.1
Horn core	107		47.3
Horn core	158		

ii) Sheep/goat

	SD	BD	BT	HT	HTC	
Humerus	13.2					
Humerus		30.7	29.5	18.8	15.3	
Humerus		28	27	18.4	13.6	
	Bp	Dp	SD			
Radius			15.9			
Radius			14.7			
Radius	32.5	29.2				
Radius	30	26.7				
Radius	29.5	27.7				
	LA					
Pelvis	26.8					
	Bd					
Femur	11.6					
	Bp	Dp	Bd	Dd		
Tibia			26.1	20.7		
Tibia			25.9	19.1		
Tibia			25.8			
Tibia		26.4	19.6			
Tibia	25.7	19.5				
	GL	Bp	Dp	SD	Bd	Bef
Metacarpal		21.8	16.4			
Metacarpal	22.3					
Metatarsal			21.5			
Metatarsal				11.2	21.3	21.2
Metatarsal				14.4		
Metatarsal		18.9	18			
Metatarsal				12.6		
Metatarsal				11.9		
Metatarsal		19.5	19.9			
	Gll	Glm				
Astragalus	26	24.5				

iii) Pig

	SLC			
Scapula	25.2			
Scapula	26.4			
	Bd	BT	HT	HTC
Humerus	38.8	30.8	28.4	18.4
	Bp			
Radius	30.1			
Radius	27.3			
	LA			
Pelvis	31.1			
	Bd	Dd		
Tibia	28.8	24.7		
Tibia	28.8	25.1		

	GL	Bp
Metapodial	0	18.9
Metapodial	79.2	
	Gll	Glm
Astragalus	35.6	33.5
	Gl	
Calcaneus	120.1	

iv) Horse

	HT	HTC
Humerus	48.7	36.5
	Bp	Dp
Radius	74.5	69.4
	GL	
Calcaneus	75.5	

TABLE 41b: Metrical data: birds

i) Goose

		Bp					
Goose	Humerus	33.5					
		Bp	Dip	Did			
	Ulna	16.1	18.8				
	Ulna	14.5		13.3			
		GL	L	Bp	Did		
	Carpometacarpus	86.2	85.8	21.1	11.3		
		GL	Bp	Dp	SC	Bd	Dd
	Femur	81.8	21		8.7	20.8	16.4
		Dic					

ii) Domestic fowl

Scapula	12.2					
	GL	Lm	Bf	Bb		
Coracoid	47.7	43.4	14.1	10.9		
Coracoid	51.7	49.3	14.8	12.6		
	GL	Bp	Dip	SC	Did	
Ulna	60	7.1	10.6	4.1	8.7	
Ulna		8.8	13.2			
Ulna	62.2	7.6	10.4	3.7	7.2	
Ulna	61.9	7.9	11.2	4	7.5	
Ulna					8.9	
	GL	L	Bp	Did		
Carpometacarpus	33	30.5	10.3	9.1		
Carpometacarpus	33.5	30.5	11.3	7.2		
	GL	Bp	Dp	SC	Bd	Dd
Femur	80	16	12.6	7.1	16.1	12.7
Femur	75.2	15.4	10.2	7.6	15	11.3
Femur	68.9	13	9.2	5.8	12.8	10.7
Femur	68.9	13.2	9.3	5.6	12.9	10.2
	La	Dip	SC	Dd		
Tibiotarsus				10.8		
Tibiotarsus	98.4	17.9	5.2	10.3		
Tibiotarsus			9.1	10.2		
Tibiotarsus						
	GL	SC	Bd	Spur		
Tarsometatarsus	64.1	13	6	11.7		
Tarsometatarsus			11			
Tarsometatarsus		13.2	7.1			

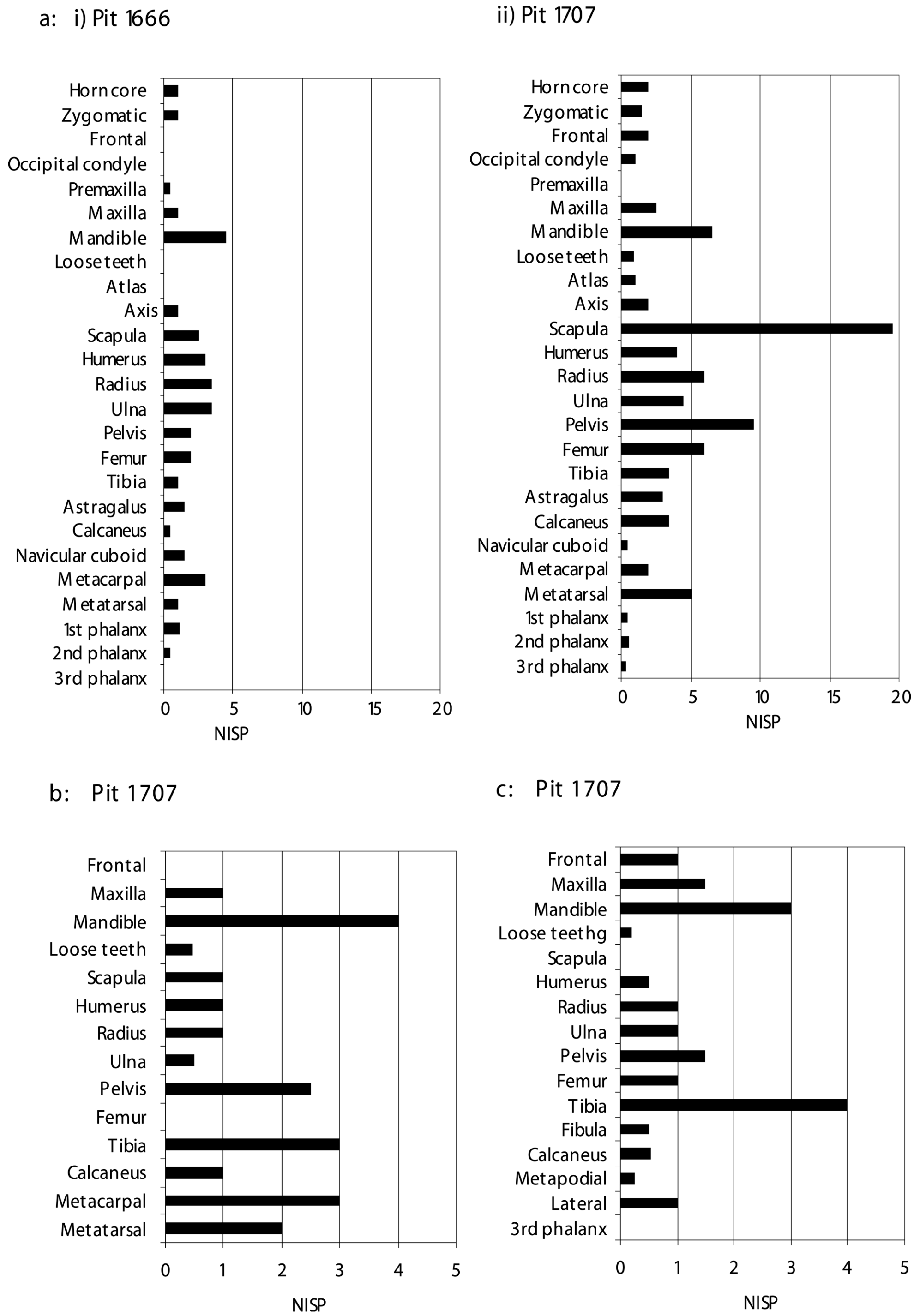

FIG. 123. Anatomical representation of (a) cattle, (b) sheep and (c) pig in Object 117

TABLE 42: Distribution of major domestics (NISP)

Object	**Pit**	**Context**	**Cattle**	**Sheep**	**Pig**	**Horse**	**L. mammal**	**M. mammal**	**Total**
115	1246	1075					5		5
	1246 Total						5		5
	1384	1051	60	5	2	15	80	4	166
		1377					6		6
	1384 Total		60	5	2	15	86	4	172
	1463	1347	30	5	3		60	1	99
	1463 Total		30	5	3		60	1	99
	3357	3338	3	1	1		11		16
		3352	5	8	5		21	8	47
	3357 Total		8	9	6		32	8	63
115 Total			98	19	11	15	183	13	339
116	2900	2479	41	5	8	1	70	13	138
		2493	50	6	4		80	7	147
		2654	30	9	7		38	10	94
		2659	10	5	4		16	9	44
		2691	28	8	11		48	9	104
		2699	1		1		6	3	11
	2900 Total		160	33	35	1	258	51	538
	2904	2901	2		1		33		36
	2904 Total		2		1		33		36
	2914	2696	26	18	17	1	71	16	149
		2902	5	3	4		9	7	28
	2914 Total		31	21	21	1	80	2 3	177
	2921	2481			2		1		3
		2487	24	6	5		98		133
		2694	2	2	2		2		8
		2909			2		2		4
	2921 Total		26	8	11		103		148
	3235	2482	53	21	9		90	14	187
		2495	36	11	5	1	54	10	117
		2663	14	1	3		17	3	38
		2679	1		1	1	7		10
		2685	9	2			4		15
		2686	44	5	8		40	12	109
		2696	1						1
		2908	6	1	2		6	2	17
		2913	1	2	1		3	5	12
		2924					3	1	4
		3207					2	4	6
		3209	3	3	4		6	5	21
		3224	21	19	13		39	9	101
	3235 Total		189	65	46	2	271	65	638
	3251	2674	151	18	7		197	16	389
		2679	1						1
		3208	38	10	7		90	8	153
		3217	15	6	4		28	12	65
		3226	16	6	3	1	33	1	60
		3227	12	2	8		20	8	50
		3228	2	6	18		14	4	44
		3229	1	1	2		2	25	31
		3249	1	2			8		11
	3251 Total		237	51	49	1	392	74	804
116 Total			645	178	163	5	1137	213	2341
117	1021	1299	2	1			8		11
		1332	3				1		4
		1339		2			1	1	4
		1382			1			2	3
	1021 Total		5	3	1		10	3	22
	1537	1512	4	1			4		9
	1537 Total		4	1			4		9
	1666	1665	34	5	8		83	21	151
		1853	39	7	10		56	19	131
		1860					2		2
		1918	2	1			1		4
		1931	7	1	1		10	3	22
		1974	4	3	2		28	3	40
	1666 Total		86	17	21		180	46	350
	1702	2339	11		1		2		14
		2532					1		1

Object	Pit	Context	Cattle	Sheep	Pig	Horse	L. mammal	M. mammal	Total
		2705	2	1			15		18
		2743	1		2				3
		2805	1						1
		2814					1		1
		2819				1			1
		2825	2	1	2		2		7
		2830	1		2		3	2	8
	1702 Total		18	2	7	1	24	2	54
	1707	1220	5	2	2		18	1	28
		1238	15	5	2		36	3	61
		1290	6	2	3		25		36
		1330	1				1		2
		1478	58	12	3		67	9	149
		1511	137	39	36		224	42	478
		1602	2	1				1	4
		1662	1		2		3		6
		1710	1				1		2
		2153	1		1		2	4	8
	1707 Total		227	61	49		377	60	774
	2087	1296	6	3			14		23
		1351	4	1	1		23	2	31
		1362	2	4	3		15	2	26
		1392	2	1			1		4
		1465		1			1		2
		1684	3	1	3		2	4	13
		1799	1		1		1	3	6
		1815	1	1	1		1		4
		1816	1	1			8		10
		2010	5	2	1		8	3	19
		2013	2				1	1	4
	2087 Total		27	15	10		75	15	142
117 Total			367	99	88	1	670	126	1351
118	1019	1308	1						1
		1315	5		1		7	2	15
		1346					3		3
	1019 Total		6		1		10	2	19
	1020	1309	2		1		7		10
		1314	1						1
		1805		5			1		6
	1020 Total		3	5	1		8		17
	1459	1458	7	2			21		30
		1473	8	2	2		23	3	38
		1479	42	4	8		41	2	97
		1539	47	10	6		99	1	163
	1459 Total		104	18	16		184	6	328
	1480	1408	2	1			13		16
	1480 Total		2	1			13		16
	1680	1618	9	2	7	1	24	3	46
	1680 Total		9	2	7	1	24	3	46
	2335	2334	3				2		5
	2335 Total		3				2		5
118 Total			127	26	25	1	241	11	431
119	1438	1644		1				8	9
	1438 Total			1				8	9
	1611	1612	16	15	4		16	1	52
		1624	3	7			5	1	16
		2078	1				3		4
	1611 Total		20	22	4		24	2	72
119 Total			20	23	4		24	10	81
120	2325	2315	3	1			44		48
	2325 Total		3	1			44		48
	2380	2353	3	1		1			5
	2380 Total		3	1		1			5
	2381	2337						1	1
		2357		1					1
	2381 Total			1				1	2
	2515	2516	3						3
	2515 Total		3						3
	2517	2342	2	1					3
	2517 Total		2	1					3

Object	Pit	Context	Cattle	Sheep	Pig	Horse	L. mammal	M. mammal	Total
	2537	2346	1				2		3
		2536		1					1
	2537 Total		1	1			2		4
	2550	2352	6	1	1		11		19
		2366	1				5	2	8
	2550 Total		7	1	1		16	2	27
	2556	2398	2				42		44
	2556 Total		2				42		44
	2587	2580	5						5
	2587 Total		5						5
	2813	2748	1				2		3
	2813 Total		1				2		3
	2827	1506	1						1
		2343	6				128		134
		2826	1	1			4		6
	2827 Total		8	1			132		141
	2991	2362	2				3		5
		2576	1				20		21
	2991 Total		3				23		26
120 Total			38	7	1	1	261	3	311
121	1044	1045				1			1
		1521	6				6		12
		1610	6	2			1		9
		2383	25	4	3		36	1	69
		2389	1						1
	1044 Total		38	6	3	1	43	1	92
	1778	1778					1		1
	1778 Total						1		1
	2379	2379	1				2		3
	2379 Total		1				2		3
	2554	2378					6		6
		2395	2				3		5
		2551	1	3		1	2	2	9
	2554 Total		3	3		1	11	2	20
121 Total			42	9	3	2	57	3	116
122	1354	1353	17	1			20		38
		1391	32	4	5		39	4	84
	1354 Total		49	5	5		59	4	122
	1387	1388	7				10		17
	1387 Total		7				10		17
	1603	1284	1				1		2
		1522	2	4					6
		1604	27	26	5		53	9	120
		1628	4	4		1	3		12
		1653	2	1			3	1	7
	1603 Total		36	35	5	1	60	10	147
	1866	1841	8						8
		1865					2		2
	1866 Total		8				2		10
	1897	1817	8				7		15
		1899	2						2
	1897 Total		10				7		17
	1901	1838	2		1				3
	1901 Total		2		1				3
	1916	1822	15				12		27
	1916 Total		15				12		27
	1992	1904	13	6	5	1	41		66
	1992 Total		13	6	5	1	41		66
	1993	1803	3		1		4	1	9
	1993 Total		3		1		4	1	9
	2596	2558	17	5	2		30	2	56
		2579	2		2		5	1	10
		2588	5	1			10		16
		2853	1				1		2
		2854	1	1			2		4
		2855	1				8		9
		2865	1				10		11
		2898					1		1
		2947	1		1		1		3

Object	**Pit**	**Context**	**Cattle**	**Sheep**	**Pig**	**Horse**	**L. mammal**	**M. mammal**	**Total**
		3055	1						1
		3058		1	1		1	1	4
	2596 Total		30	8	6		69	4	117
	2697	2692						2	2
	2697 Total							2	2
122 Total			173	54	23	2	264	21	537
Grand Total			1510	415	318	27	2837	400	5507

TABLE 43: Incidence of butchery according to Object group, pit and context (cattle, sheep, pig, horse, large and medium mammals only)

Object	**Pit**	**Context**	**Cut**	**Chop**	**Sawn**	**Cut/chop**	**%**
115	1246	1075		1			20
	1246 Total			1			20
	1384	1051	4	19		2	15
	1384 Total		4	19		2	15
	1463	1347	3	4			7
	1463 Total		3	4			7
	3357	3338		1			6
		3352	1	5		1	15
	3357 Total		1	6		1	13
115 Total			8	30		3	12
116	2900	2479	5	16			15
		2493	4	4		1	6
		2654	3	9		1	14
		2659		3			7
		2691	4	9		1	13
	2900 Total		16	41		3	11
	2904	2901	1				3
	2904 Total		1				3
	2914	2696	4	8			8
		2902		1		2	11
	2914 Total		4	9		2	8
	2921	2481		1			33
		2487	1	13		3	13
		2694		1		1	25
	2921 Total		1	15		4	14
	3235	2482	3	18		3	13
		2495	6	10		1	15
		2663	1	6			18
		2679	1	2			30
		2685	1	3		1	33
		2686	1	11		2	13
		2696	1				100
		2908				2	12
		2913	1				8
		3224	5	21			26
	3235 Total		20	71		9	16
	3251	2674	23	28		6	15
		3208		22		3	16
		3217	1	13			22
		3226		4			7
		3227	1	6			14
		3228		1		1	5
		3229		1			3
	3251 Total		25	75		10	14
116 Total			67	211		28	13
117	1021	1299	1	3			36
	1021 Total		1	3			18
	1537	1512		1			11
	1537 Total			1			11
	1666	1665	6	16			15
		1853	2	26		3	24
		1860	1				50
		1918		2			50
		1931		2			9
		1974		4	1		13

Object	**Pit**	**Context**	**Cut**	**Chop**	**Sawn**	**Cut/chop**	**%**
	1666 Total		9	50	1	3	18
	1702	2339		1			7
		2705		1			6
		2825	1				14
	1702 Total		1	2			6
	1707	1220		4			14
		1238	5	10		2	28
		1290	1	4			14
		1478	3	14			11
		1511	16	38		7	13
		1602		1			25
		1710		1			50
	1707 Total		25	72		9	14
	2087	1296		1			4
		1351	1				3
		1362	1				4
		1392				1	25
		1684	1	1			15
		1816		1			10
		2010		2			11
		2013		1			25
	2087 Total		3	6		1	7
117 Total			39	134	1	13	14
118	1019	1308		1			100
	1019 Total			1			5
		1805		1			17
	1020 Total			1			6
		1473		2			5
		1479	5	16		4	26
		1539		14			9
	1459 Total		5	32		4	13
	1480	1408		2			13
	1480 Total			2			13
	1680	1618		6			13
	1680 Total			6			13
118 Total			5	42		4	12
119	1611	1612		6		2	15
		1624		2			13
	1611 Total			8		2	14
119 Total				8		2	14
	2537	2346		1			33
	2537 Total			1			25
	2556	2398		1			2
	2556 Total			1			2
		2343		1			1
		2826		1			17
	2827 Total			2			1
		2576		1			5
	2991 Total			1			4
120 Total				5			2
		1610		1			11
		2383	2	6			12
	1044 Total		2	7			10
	2379	2379		1			33
	2379 Total			1			33
		2551	1				11
	2554 Total		1				5
121 Total			3	8			9
122	1354	1353		1			3
		1391	2	3		4	11
	1354 Total		2	4		4	8
	1603	1284		1			50
		1604		3			3
		1628	1				8
	1603 Total		1	4			3
	1866	1841		1			13
	1866 Total			1			10
	1916	1822		1			4
	1916 Total			1			4
	1992	1904	1	12			20
	1992 Total		1	12			20

Object	Pit	Context	Cut	Chop	Sawn	Cut/chop	%
	1993	1803		2			22
	1993 Total			2			22
	2596	2558	3	2		1	11
		2579		1			10
		2588		2			13
		2854		2			50
		2855		1			11
		2865		1			9
		3055		1			100
	2596 Total		3	10		1	12
122 Total			7	34		5	9
Grand Total			129	472	1	55	12

TABLE 44a: Condition of the bone from the southern half (number of bags)

Condition	**Phase**						**Total**
	2	**3**	**4**	**5**	**2/3**	**3/5**	
2	6	10	2	5			23
3	24	24	9	20		1	78
4	10	12	8	14	1		45
5	1	1		5			7
Total	41	47	19	44	1	1	153

TABLE 44b: Condition of the bone from the northern half (number of bags)

Condition	**Phase**			**Total**
	3	**4**	**5**	
1				
2	5			5
3	30	5	1	36
4	34	13		47
5	15	4		19
Total	84	22	1	107

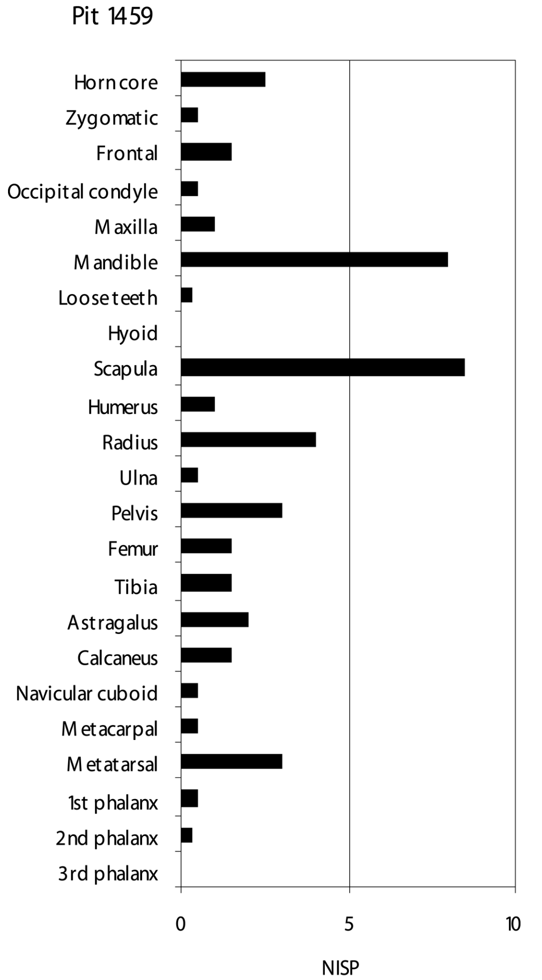

FIG. 124. Anatomical representation of cattle in pit 1459 (Object 118)

TABLE 45: Species representation in layers in the southern area according to Phase and Object group

a) NISP

	Phase 2			**Phase 3**					**Phase 4**	**Phase 5**	**Unphased**	**Total**
	Object		**Total**	**Object**				**Total**	**Object**	**Object**		
	31020	**31021**		**31017**	**31018**	**31023**	**31028**		**31024**	**31030**		
Cattle	13	58	71	103	1	101		205	82	445	4	807
Sheep/goat	2	24	26	58	1	30	7	96	30	137		289
Pig	2	14	16	57		18		75	29	75		195
Horse	1		1	1		2		3	1	5		10
Dog		2	2	5		4		9	1	18		30
Red deer				1		1		2		4		6
Hare				3		1		4		3		7
Galliform		1	1	9				9	1	5		16
Other bird		10	10	41		5		46	11	15		82
Sm.mammal		1	1	1				1	1	1		4
Other		1	1	1				1				2
Unidentifiable	51	383	434	881	11	918	3	1813	646	4166	22	7081
Total	69	494	563	1161	13	1080	10	2264	802	4874	26	8529
Total identifiable	18	111	129	280	2	162	7	451	156	708	4	1448
% identifiable	26	22	23	24	15	15	70	20	19	15	15	17

b) Percentage NISP

	Phase 2			**Phase 3**					**Phase 4**	**Phase 5**	**Unphased**	**Total**
	Object		**Total**	**Object**				**Total**	**Object**	**Object**		
	31020	**31021**		**31017**	**31018**	**31023**	**31028**		**31024**	**31030**		
Cattle	19	12	13	9	8	9		9	10	9	15	9
Sheep/goat	3	5	5	5	8	3	70	4	4	3		3
Pig	3	3	3	5		2		3	4	2		2
Horse	1		0	<1		0		0	0	0		0
Dog		0	0	0		0		0	0	0		0
Red deer				<1		0		<1		0		<1
Hare				0		0		0				<1
Galliform		0	0	1				0	0	0		0
Other bird		2	2	4		0		2	1	0		1
Sm.mammal		0	0	<1				<1	0	<1		<1
Other		0	0	<1				<1		<1		<1
Total	26	22	23	100	15	15	70	100	19	100	15	100

TABLE 46: Availability of metrical, ageing and sexing information

	Phase				**Total**
	2	**3**	**4**	**5**	
Measurable					
Cattle	5	23	7	19	54
Sheep/goat	3	7	3	6	19
Pig	1	6	2	3	12
Horse					
Total	9	36	12	28	85
Ageable					
Cattle	2	7	1	11	22
Sheep/goat	1	10	3	13	27
Pig		1		2	3
Horse				1	1
Total	3	18	4	27	53
Sexable					
Pig		4	1	3	7

TABLE 47: Species representation according to phase (NISP)

	Phase			**Total**	
	3	**4**	**5**	**n**	**%**
Cattle	122	75	8	205	55
Sheep/goat	48	31		79	21
Pig	28	7	2	37	10
Horse	3	20		23	6
Dog	2			2	1
Red deer	1			1	<1
Roe deer	2			2	1
Hare	2			2	1
Galliform	2			2	1
Other bird	15	1		16	4
Fish	1			1	<1
Unidentified	1100	686	5	1791	
Total	1326	820	15	2161	
% identifiable	17	16	67	17	

TABLE 48: Number of bones able to provide metrical and ageing data

		Phase			Total
		3	4	5	
Measurable	Cattle	12	2	1	15
	Sheep/goat	3			3
	Pig				
	Horse				
Total measurable		15	2	1	18
Ageable	Cattle	4			4
	Sheep/goat	5	4		9
	Pig			1	1
	Horse		2		2
Total ageable		9	6	1	16

TABLE 49: Species representation according to Object group

a) Phase 3

	Object Group								**Total**	
	3301	**41043**	**41044**	**41046**	**41048**	**41052**	**41053**	**41073**	**n**	**%**
Cattle	25	9		5	66	9	5	3	122	54
Sheep/goat	13			1	29	4	1		48	21
Pig	5	1			17	5			28	12
Horse					3				3	1
Dog					2				2	1
Red deer					1				1	<1
Roe deer					2				2	1
Hare					2				2	1
Domestic fowl					2				2	1
Other bird		1			11	3			15	7
Fish						1			1	<1
Unidentifiable	218	89	12		604	146	25	6	1100	
Total	261	100	12	6	739	168	31	9	1326	
Total identifiable	43	11	0	6	135	22	6	3	226	

b) Phase 4

	Object Group							**Total**
	41042	**41045**	**41046**	**41047**	**41049**	**41076**	**n**	**%**
Cattle	18	21	18		10	8	75	56
Sheep/goat	8	8	2	1	2	10	31	23
Pig	1	5				1	7	5
Horse	2				18		20	15
Other bird						1	1	1
Unidentifiable	208	157	105	1	138	77	686	
Total	237	191	125	2	168	97	820	
Total identifiable	29	34	20	1	30	20	134	

c) Phase 5

	Object Group
	41051
Cattle	8
Pig	2
Unidentifiable	5
Total	15
Total identifiable	10

APPENDIX 7

THE DOG BONE

By Kate Clark

TABLE 50: Dog measurements: axial and appendicular
Object 115

Context	Element	Measurement	mm
1051	Axis	Length arch	36.6
		Breadth cranial face	25.6
		Breadth caudal face	13.5
	Ulna	Depth across anconael process	17.3
		Smallest depth olecranon	13.7
	Scapula	Length glenoid process	19.7
		Breadth glenoid	10.6
3352	Ulna	Depth across anconael process	22.1
		Smallest depth olecranon	18.2
	Femur	Shaft diameter	11.5
		Distal breadth	27.9

TABLE 51: Dog measurements: axial and appendicular
Object 116

Context	Element	Measurement	mm
2685	Atlas	Greatest breadth	66.9
		Length dorsal arch	11.2
		Breadth cranial face	34.9
		Breadth caudal face	25
2481	Tibia	Shaft diameter	12
		Distal breadth	22.4
2679	Metacarpal III	Greatest length	75.8
2908	Metacarpal III	Greatest length	32
2495	Radius	Proximal breadth	28.6
		Shaft diameter	14.9
	Tibia	Proximal breadth	28.6
	Metacarpal III	Greatest length	52.4
2686	Ulna	Greatest length	85
		Depth across anconael process	15.3
		Smallest depth olecranon	11.7
	Metacarpal II	Greatest length	45.8

Context	Element	Measurement	mm
	Metacarpal IV	Greatest length	60.5
2482	Femur	Greatest length	134.1
		Depth caput	15.2
		Shaft diameter	9.8
		Distal breadth	25.6
	Metacarpal III	Greatest length	54.7
	Metacarpal III	Greatest length	45.1
3209	Atlas	Breadth cranial face	36.4
	Humerus	Greatest length	146.2
		Proximal depth	33.9
		Shaft diameter	11.7
		Distal breadth	27.4
	Radius	Greatest length	149.4
		Proximal breadth	15.3
		Shaft diameter	10.9
		Distal breadth	20.1
	Ulna	Depth across anconael process	23.2
		Smallest depth olecranon	18.6
	Femur	Greatest length	160
		Depth caput	15.1
		Shaft diameter	11.2
		Distal breadth	27
	Femur	Depth caput	13.5
		Shaft diameter	11.2
	Tibia	Greatest length	83
		Shaft diameter	8.4
		Distal breadth	14.1
	Tibia	Greatest length	168.2
		Proximal breadth	28.9
		Shaft diameter	11.3
		Distal breadth	19.7
	Metacarpal II	Greatest length	55.2
	Metacarpal II	Greatest length	36.3
	Metacarpal III	Greatest length	61.5
	Metacarpal IV	Greatest length	60.8
	Metacarpal IV	Greatest length	41
	Metacarpal V	Greatest length	52.2
	Metacarpal V	Greatest length	34.6
	Metatarsal II	Greatest length	61.8
	Metatarsal II	Greatest length	32.2
	Metatarsal III	Greatest length	68
	Metatarsal III	Greatest length	35.6
	Metatarsal IV	Greatest length	69.1
	Metatarsal IV	Greatest length	37.1
	Metatarsal V	Greatest length	61.4

Context	Element	Measurement	mm
	Scapula	Length glenoid process	24.6
		Breadth glenoid	15.2
	Pelvis	Length acetabulum	19.2
		Smallest height ilium shaft	15.6
		Smallest breadth ilium shaft	7.1
2674	Atlas	Greatest breadth	71.4
		Length dorsal arch	13.6
		Height	25.4
	Axis	Length body inc dens	45.4
		Length arch	44.8
		Breadth cranial face	29
		Breadth caudal face	17
	Humerus	Greatest length	152.4
		Shaft diameter	11
		Distal breadth	31.3
	Radius	Greatest length	149.6
		Proximal breadth	17.2
		Shaft diameter	11.3
		Distal breadth	22.6
	Ulna	Smallest depth olecranon	20.4
	Tibia	Shaft diameter	10.2
		Distal breadth	16.5
		Distal depth	11.6
	Metacarpal II	Greatest length	51.7
	Metacarpal III	Greatest length	59.6
	Metacarpal IV	Greatest length	58.3
	Metacarpal V	Greatest length	49.3
	Scapula	Length glenoid process	28.8
		Breadth glenoid	16.6
		Length neck	23.3
3224	Femur	Depth caput	15.4
	Radius	Distal breadth	20.4
	Scapula	Length glenoid process	15

TABLE 52: Dog measurements: axial and appendicular
Object 117

Context	Element	Measurement	mm
1511	Atlas	Length dorsal arch	15.9
		Height	27.1
	Axis	Length body inc dens	46.3
		Length arch	49.5
		Breadth cranial face	28.9
		Breadth caudal face	16.2
	Humerus	Greatest length	89
		Shaft diameter	8.2
		Distal breadth	22.3
	Scapula	Length glenoid process	20.4

Context	Element	Measurement	mm
		Breadth glenoid	11.1
		Length neck	16.2
	Tibia	Distal breadth	23.4
	Tibia	Greatest length	87.2
		Proximal breadth	24
		Shaft diameter	7
		Distal breadth	17
	Tibia	Proximal breadth	23.6
	Metatarsal IV	Greatest length	67.3
	Metatarsal IV	Greatest length	39.2
	Pelvis	Length acetabulum	15.8
1665	Radius	Shaft diameter	12
1478	Humerus	Greatest length	78.8
		Shaft diameter	8.3
		Distal breadth	23.4
	Radius	Greatest length	78.5
		Proximal breadth	12.1
		Shaft diameter	8.4
		Distal breadth	14.2
	Femur	Greatest length	89.7
		Depth caput	13
		Shaft diameter	9
		Distal breadth	22.4
	Pelvis	Length acetabulum	16.2
1662*	Atlas	Greatest breadth	66.5
		Greatest length	39.9
		Breadth cranial face	37.5
	Axis	Length body inc dens	48.1
		Breadth cranial face	26.1
		Breadth caudal face	17.3
	Sacrum	Greatest breadth	43
		Physiological length	33.6
		Breadth cranial face	21.2
		Height cranial face	11.8
	Humerus	Greatest length	160.3
		Greatest length to caput	157.5
		Proximal depth	37.6
		Shaft diameter	12.2
		Distal breadth	29.9
	Radius	Greatest length	160.2
		Proximal breadth	16.6
		Shaft diameter	12.3
		Distal breadth	22.3
	Ulna	Greatest length	185.2
		Depth across Processus anconaeus	22.7
		Minimum depth olecranon	19.8
		Breadth at coronoid process	16.9
	Metacarpal II	Greatest length	53
	Metacarpal III	Greatest length	61
	Metacarpal IV	Greatest length	60.5

Context	**Element**	**Measurement**	**mm**
	Scapula	Length glenoid process	26.7
		Breadth glenoid	16.6
		Length neck	22
	Femur	Greatest length	173.4
		Depth caput	17.4
		Shaft diameter	12.2
		Distal breadth	29.9
	Tibia	Greatest length	178.6
		Proximal breadth	31.8
		Shaft diameter	11.1
		Distal breadth	21.8
	Calcaneum	Greatest length	41.5
	Astragalus	Greatest length	27
	Metatarsal III	Greatest length	69.1
	Metatarsal V	Greatest length	63
	Pelvis	Length acetabulum	20.8
		Minimum height ilium shaft	17.3
		Minimum breadth ilium shaft	8.2

* Complete skeleton

TABLE 53: Dog measurements: skull
Object 116

von den Driesch	**Measurement**	**2674 mm**	**2679 mm**	**2924 mm**	**3217 mm**	**3224 mm**
1	Akrokranion-Prosthion	174.3		144.7		
2	Condylobasal length	161.2		134.7		
7	Akrokranion-frontal midpoint	83.4		65.9		
8	Nasion-prosthion	81.1	80.3	73		
9	Frontal midpoint-prosthion	93.2		87		
12	Snout length	71.3	69.8	62.6		
15	Length cheektooth row	62.7	60.1	49.3		
16	Length molar row	17	17.2	14.5		
17	Length premolar row	47.8	45.2	38.2		
19	Length carnassial alveolus	17.7	16.5	14.2		
20	Length M1 (alveolus)	11.7	10.5	8.3		
21	Length M2 (alveolus)	6		4.4		
23	Greatest mastoid breadth	63.5		52	63.4	
25	Greatest breadth occipital condyles	37.1		28.1	37.2	
27	Greatest breadth foramen magnum	19.6		15.2	20.4	
29	Greatest breadth braincase	59.4		51.6	58.6	
30	Zygomatic breadth	98.5		78.8		
31	Breadth at postorbital constriction	35.8		27.6	42.6	33.6
32	Frontal breadth	51.9		32.8		43.8
33	Least breadth between orbits	36.9	33.7	22.8		30.6
34	Greatest palatal breadth	63.6	60.7	47.8		
35	Least palatal breadth	35.9	34.4	25		
36	Breadth at canine alveoli		35.2			
37	Inner height orbit	28.4		23.6		
39	Skull height	55.8		45.8	56.1	
40	Akrokranion-basion	44.9		38	45	

TABLE 54: Dog measurements: skull
Object 117

Context	von den Driesch	Measurement	mm
1151	19	Length carnassial alveolus	15.6
	20	Length M1 (alveolus)	10.9
	30	Zygomatic breadth	89.6
	31	Breadth at postorbital constriction	39.1
	32	Frontal breadth	40.3
	33	Least breadth between orbits	25
	34	Greatest palatal breadth	53.9
	37	Inner height orbit	24.8
1662*	1	Akrokranion to prosthion	178.5
	2	Aboral border occipital condyles to prosthion	171.8
	7	Akrokranion to frontal mid point	88.8
	8	Nasion to prosthion	85.8
	9	Frontal mid point to prosthion	98.8
	12	Oral border orbit to prosthion	75.8 (L)
	15	Cheektooth row	66.3
	16	Molar row	20.2
	17	Premolar row	48.3
	19	Length carnassial alveolus	18.5
	20	Length M1	13.4
	21	Length M2	7.7
	22	Length auditory bulla	29.5
	25	Breadth occipital condyes	35
	27	Breadth foramen magnum	17.3
	28	Height foramen magnum	14.5
	29	Breadth braincase	58.4
	31	Breadth post-orbital constriction	35.8
	32	Breadth at ectorbitales	49.6
	33	Breadth at entorbitales	39.8
	34	Greatest palatal breadth	60.7
	35	Least palatal breadth	34.6
	36	Breadth at canines	36
	37	Inner height orbit	27.5 (L)
	40	Basion to akrokranion	44.6

* Complete skeleton

TABLE 55: Dog measurements: skull
Object 122 Context 2855

von den Driesch	Measurement	mm
31	Breadth at postorbital constriction	28.4
32	Frontal breadth	38
33	Least breadth between orbits	30.9

TABLE 56: Dog measurements: mandible
Object 115 Context 1051

von den Driesch	Measurement	mm
7	Aboral M3-aboral canine alveolus	63
8	Length cheektooth row M3-P1	59.5
10	Length molar row	29.3
11	Length premolar row P1-P4	30.5
14	Length carnassial alveolus	17.4
17	Thickness below M1	8.3
19	Height behind M1	15.8
20	Height between P2 & P3	14.9

TABLE 57: Dog measurements: mandible Object 116

von den Driesch	Measurement	2691 mm	2674 mm	3209 mm	3224 mm
1	Condyle process-infradentale		130.4		
4	Condyle process-aboral canine alveolus		109.9	90.6	
7	Aboral M3-aboral canine alveolus		73.4		
8	Length cheektooth row M3-P1		68.9		
9	Length M3-P2		63.5		
10	Length molar row		35.5		33
11	Length premolar row P1-P4	29.2	36.3	32.6	35.2
12	Length P2-P4	25.6	31.8	27.8	30.9
14	Length carnassial alveolus		20.9	16.3	19.2
15	Length M2 (alveolus)		8.5	6.5	8.9
16	Length M3 (alveolus)		4.1		
17	Thickness below M1		12.1	8.2	11.5
18	Height vertical ramus		49.3	39.1	
19	Height behind M1		21.8	16.6	23.2
20	Height between P2 & P3	13.9	18.3	13.9	18.4

TABLE 58: Dog measurements: mandible Object 117

von den Driesch	Measurement	1478 mm	1511 mm	1511 mm	1853 mm	1662* mm
1	Condylar process to infradentale					130.9
2	Angular process to infradentale					131.6
3	Indent between condyle & angular process to infradentale					125.1
4	Condyle process to aboral border of canine					117.8
5	Angular process to aboral border of canine					119
6	Indent between condyle & angular process to aboral border canine					111.9
7	Aboral M3-aboral canine alveolus	73.4	61.5	56.1		
8	Length cheektooth row M3-P1	70.2	58.1	53.9		
9	Length M3-P2	64.9	54.5			
10	Length molar row	35.3	27.6	28.1		
11	Length premolar row P1-P4	36.7	31.3	27.9		38.2
12	Length P2-P4	32.7	27.2			32.3
14	Length carnassial alveolus	21.6	17.1	17.5		20.6
17	Thickness below M1	11.6	9.2	9	8.9	12.4
18	Height vertical ramus		40.2	38	44.2	48.5
19	Height behind M1	24.5	17.7	16.2	19.3	23.3
20	Height between P2 & P3	19.5	15.1	14.7		18.8

* Complete skeleton

APPENDIX 8

THE HUMAN REMAINS

By Hilary Snelling

TABLE 59: Full inventory of the human bones

Object	Pit	Context	Element	Proximal	Shaft	Distal	Side	Number
116	3235	2482	Femur	Y	Y	Y	L	1
		2482	Femur	Y	N	Y	R	1
		2482	Humerus	N	Y	Y	L	1
		2482	Radius	Y	Y	Y	L	1
		2482	Rib	Y	Y	N	L	1
		2482	Rib	Y	Y	Y	L	2
		2482	Rib	Y	N	N	L	2
		2482	Rib	N	Y	Y	L	1
		2482	Rib	N	Y	N	L?	1
		2482	Rib	N	Y	Y	R	1
		2482	Rib	N	Y	N	R?	1
		2482	Rib	N	Y	Y	R?	1
		2482	Rib	N	Y	N	U	1
		2482	Ulna	Y	Y	N	L	1
		2482	Ulna	Y	Y	N	R	1
		2482	Ulna	Y	N	N	R	1
116	3235	2495	Femur	Y	Y	Y	L	1
116	3251	3208	Femur	Y	Y	Y	L	1
		3208	Femur	Y	Y	Y	R	1
		3208	Fibula	Y	Y	Y	L	1
		3208	Fibula	Y	Y	Y	R	1
		3208	Humerus	Y	Y	Y	R	1
		3208	Ilium				L	1
		3208	Ilium				R	1
		3208	Radius	Y	Y	Y	L	1
		3208	Radius	Y	Y	Y	R	1
		3208	Rib	Y	Y	Y	L	5
		3208	Rib	Y	Y	N	L	1
		3208	Rib	N	Y	N	R	1
		3208	Rib	N	Y	Y	R	2
		3208	Skull				U	1
		3208	Tibia	Y	Y	Y	L	1
		3208	Tibia	Y	Y	Y	R	1
		3208	Ulna	Y	Y	Y	L	1
		3208	Ulna	Y	Y	Y	R	1
116	3251	3217	Clavicle	Y	Y	Y	L	1
		3217	Clavicle	N	N	Y	R	1
		3217	Clavicle	Y	Y	N	R	1
		3217	Humerus	Y	Y	Y	L	1
		3217	Mandible				R	1
		3217	Maxilla				R	1
		3217	Petrous and Mastoid portion of Temporal				L	1
		3217	Rib	Y	Y	N	L	2
		3217	Rib	N	Y	Y	L	1
		3217	Rib	Y	Y	Y	L	2
		3217	Rib	Y	N	N	R	1
		3217	Rib	N	Y	Y	R	1
		3217	Rib	Y	Y	N	R	3

Object	**Pit**	**Context**	**Element**	**Proximal**	**Shaft**	**Distal**	**Side**	**Number**
		3217	Rib	Y	Y	Y	R	4
		3217	Rib – 1st	Y	Y	Y	L	1
		3217	Rib – 1st	Y	Y	Y	R	1
		3217	Scapula	Y	Y	Y	L	1
		3217	Scapula	Y	Y	Y	R	1
		3217	Skull				U	15
		3217	Sphenoid – Body				U	1
		3217	Sphenoid – Greater Wing				R	1
		3217	Tooth – Incisor Crown				R?	1
		3217	Vertebrate – 1st Cervical (Atlas) Neural Arch				L	1
		3217	Vertebrate – 2nd Cervical (Axis) Neural Arch				R	1
		3217	Vertebrate – Cervical Neural Arch				L	1
		3217	Vertebrate – Cervical Neural Arch R5				R	5
		3217	Vertebrate – Thoracic Neural Arch				L	6
		3217	Vertebrate – Thoracic Neural Arch				R	10
117	1707	1238	Humerus	Y	Y	Y	L	1
		1238	Skull				U	2
117	1707	1511	Femur	Y	Y	Y	R	1
		1511	Tibia	Y	Y	N	R	1
119	1611	1642	Tibia	Y	Y	Y	L	1

TABLE 60: Ageing data

Pit	**Context**	**Element**	**Length/ mm**	**Min Age weeks i.u.**	**Max Age weeks i.u.**	**Average ± 2 weeks i.u.**
1611	1642	Tibia	63.7	35.4	40.2	38.0
1707	1238	Humerus	63.2	35.2	40.0	38.0
1707	1511	Femur	58.2	30.7	35.0	33.0
3235	2482	Femur	72.2	35.2	39.5	37.0
	2482	Femur	69.5	34.4	38.6	37.0
	2482	Radius	48.0	33.5	38.0	36.0
	2482	Ulna	50.5	31.2	35.7	33.0
3235	2495	Femur	57.4	30.4	34.7	33.0
3251	3208	Femur	76.0	36.2	40.7	38.0
	3208	Femur	75.8	36.2	40.7	38.0
	3208	Humerus	66.3	36.4	41.4	39.0
	3208	Radius	54.1	36.7	41.7	39.0
	3208	Radius	53.8	36.5	41.5	39.0
	3208	Tibia	67.2	36.8	41.8	39.0
	3208	Tibia	67.2	36.8	41.8	39.0
	3208	Ulna	62.3	36.9	41.6	39.0
	3208	Ulna	62.4	37.0	41.7	39.0
3251	3217	Humerus	66.2	36.4	41.3	39.0

Pit 3235 includes two bones which cannot be measured due to incompleteness. These have been assessed on size to be <32 weeks i.u.

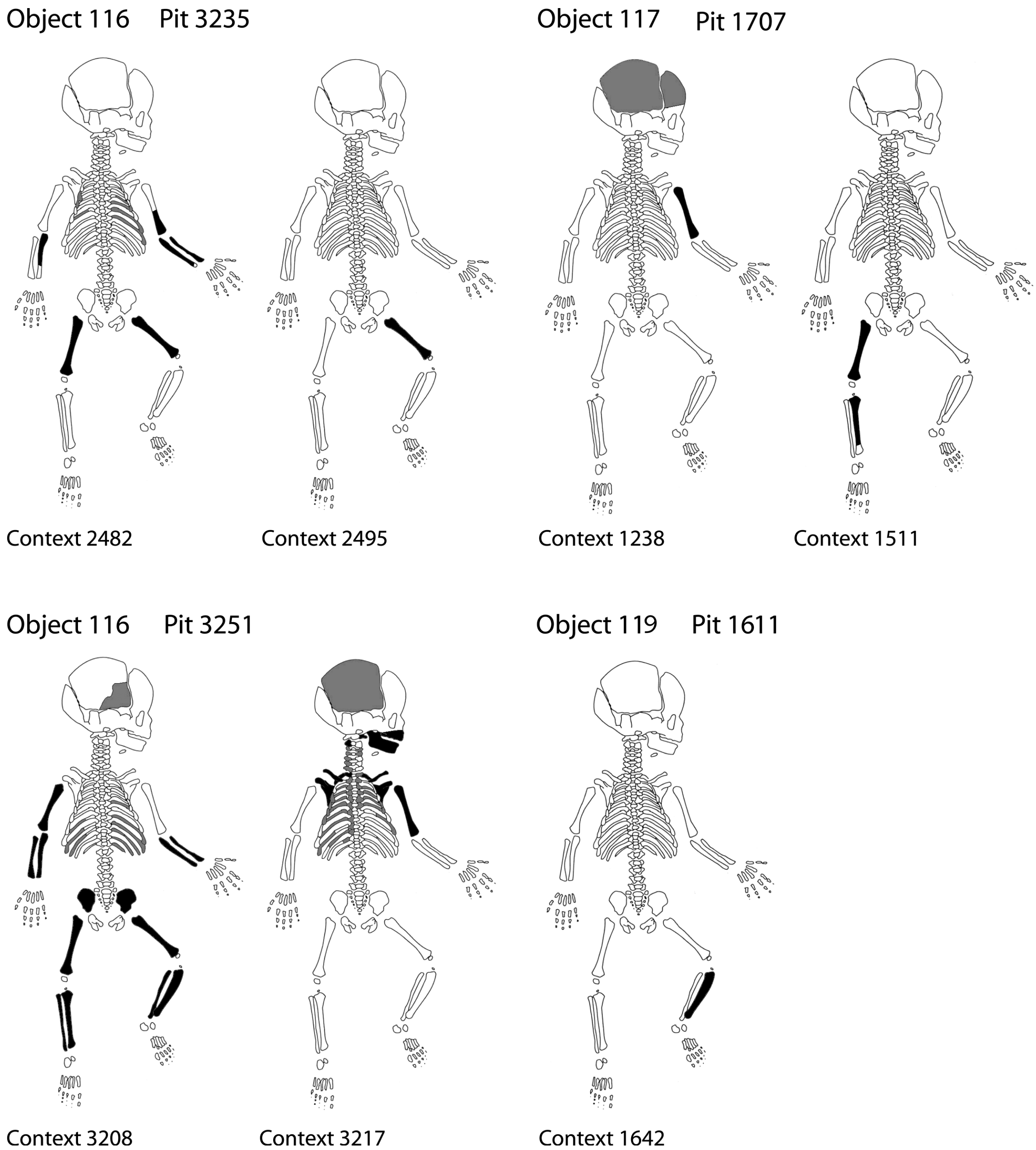

FIG. 125. Infant remains: visual record of major bones (black regions are of definite positioning; grey regions are present but unpositioned)

TABLE 61: Measurements (as per Buikstra and Ubelaker 1994)

Pit	Context	Element	Measurement a (length)	Measurement b (distal width)	Measurement c (diameter)	Estimated
1707	1238	Humerus	63.2	–	5.7	
1707	1511	Femur	58.2	13.5	5.6	
	1511	Tibia	–	5.6	–	
1611	1642	Tibia	63.7	5.7	–	
3235	2482	Femur	72.2	18.3	6.8	
	2482	Femur	69.5	18.3	6.7	
	2482	Humerus	–	11.9	4.4	
	2482	Radius	48.0	4.5	–	
	2482	Ulna	50.5	4.6	–	(a)
	2482	Ulna	–	4.7	–	
3235	2495	Femur	57.4	13.5	5.4	
3251	3208	Femur	76.0	19.6	6.4	
	3208	Femur	75.8	19.7	6.5	
	3208	Fibula	63.2	3.1	–	
	3208	Fibula	63.0	3.2	–	
	3208	Humerus	66.3	16.1	5.3	
	3208	Ilium	28.1	34.4	n/a	
	3208	Ilium	28.5	33.9	n/a	
	3208	Radius	54.1	3.6	–	
	3208	Radius	53.8	3.6	–	
	3208	Tibia	67.2	6.2	–	
	3208	Tibia	67.2	6.2	–	
	3208	Ulna	62.3	4.6	–	
	3208	Ulna	62.4	4.7	–	
3251	3217	Sphenoid – Body	3.9	12.4	n/a	
	3217	Clavicle	45.6	3.5	–	
	3217	Clavicle	44.2	3.4	–	
	3217	Sphenoid – Greater Wing	28.4	18.6	n/a	
	3217	Humerus	66.2	16.4	5.2	
	3217	Mandible	37.0	–	48.9	
	3217	Petrous Mastoid	38.1	16.2	n/a	
	3217	Scapula	34.2	30.0	31.8	
	3217	Scapula	33.4	29.4	31.5	

APPENDIX 9

THE MACROSCOPIC PLANT REMAINS

By Mark Robinson with Nancy Fulford and Klare Tootell

TABLE 62: Plant taxa identified from late Roman Silchester, Insula IX (seeds unless stated)

		Means of preservation
Bryophyta indet. – stem with leaves	moss	m
Bryophyta indet. – fragments	moss	m
Pteridium aquilinum (L.) Kuhn – frond frags	bracken	m
Ranunculus cf. *acris* L.	meadow buttercup	w
R. cf. *repens L.*	creeping buttercup	wm
R. sardous Crantz	hairy buttercup	w
R. S. *Ranunculus* sp.	buttercup	m
R. flammula L.	lesser spearwort	w c
Thalictrum flavum L.	meadow-rue	w
Papaver somniferum L.	opium poppy	m
P. argemone L.	prickly poppy	c
Papaver sp.	poppy	m
Ficus carica L.	fig	w m
Urtica dioica L.	stinging nettle	w c m
U. urens L.	small nettle	w m
Juglans regia L.	walnut	w
Corylus avellana L.	hazel	w c
Chenopodium album L.	fat hen	w m
Atriplex sp.	orache	w c m
Chenopodiaceae indet.	goosefoot etc.	c m
Montia fontana L.	blinks	w
Stellaria media gp.	chickweed	m
Cerastium sp.	mouse-ear chickweed	w
Spergula arvensis L.	corn spurrey	c
Agrostemma githago L.	corn cockle	cm
Persicaria lapathifolia (L.) Gray	pale persicaria	w
cf. *Fallopia convolvulus* (L.) Löv.	black bindweed	m
Polygonum aviculare agg.	knotgrass	w
Rumex S. *Acetosella* sp.	sheep's sorrel	w c
Rumex sp. (not *Acetosella*)	dock	w c
Rumex sp.	dock	m
Malva sp.	mallow	m
Malvaceae indet.	mallow	m
Viola sp.	violet	w
Cucumis sativus L.	cucumber	m
Salix sp. – bud	willow, sallow	w
Brassica rapa L. ssp. *campestris* (L.) Clap.	wild turnip	c
Brassica or *Sinapis* sp.	mustard etc.	c m
Raphanus raphanistrum L.	wild radish	w
Brassiceae indet.		c
Rubus fruticosus agg.	blackberry	w m
Potentilla anserina L.	silverweed	w
P. cf. *erecta* (L.) Raeusch	tormentil	w
P. cf. *reptans* L.	creeping cinquefoil	w
cf. *Fragaria vesca* L.	wild strawberry	m
Aphanes microcarpa Rydb.	slender parsley piert	w
Prunus cf. *spinosa* L.	sloe	w
Prunus domestica L.	plum	m
P. cf. *domestica*	plum	m

		Means of preservation
P. avium L.	cherry	m
P. cf. *avium* L.	cherry	m
Prunus sp.	sloe, plum etc.	w
cf. *Malus* sp. – skin	apple	m
Pyrus or *Malus* sp.	pear or apple	m
cf. *Vicia faba* L.	field or Celtic bean	m
Lens culinaris L.	lentil	m
cf. *Lens culinaris* L.	lentil	m
Vicia or *Lathyrus* sp.	vetch or tare	c
Pisum sativum L.	pea	c
large legume indet.	pea, bean etc.	c m
Medicago lupulina L.	black medick	m
cf. *M. lupulina* L.	black medick	c
cf. *Medicago* sp.	medick	m
cf. *Trifolium* sp.	clover	c
Vitis vinifera L.	grape	c m
Hydrocotyle vulgaris L.	marsh pennywort	w
Coriandrum sativum L.	coriander	m
cf. *C. sativum* L.	coriander	m
cf. *Anethum graveolens* L.	dill	m
Conium maculatum L.	hemlock	w m
Apium graveolens L.	celery	m
cf. *A. graveolens* L.	celery	m
Torilis sp.	hedge parsley	m
Daucus carota L.	(wild) carrot	w
Apiaceae indet.		m
Hyoscyamus niger L.	henbane	w
Lithospermum arvense L.	corn gromwell	m
Ballota nigra L.	black horehound	w
Lamium sp.	dead-nettle	m
Galeopsis tetrahit agg.	hemp-nettle	w
Satureja hortensis L.	summer savory	m
Lycopus europaeus L.	gypsywort	w
Mentha cf. *aquatica* L.	water mint	w
Lamiaceae indet.		m
Plantago media L. or *lanceolata* L.	plantain	c
Odontites verna (Bell) Dum.	red bartsia	m
Galium aparine L.	goosegrass	w m
Galium sp.	goosegrass etc.	c
Sambucus nigra L.	elder	w m
Carduus sp.	thistle	w
Carduus or *Cirsium* sp.	thistle	m
Crepis capillaris (L.) Wal.	smooth hawk's beard	m
Anthemis cotula L.	stinking mayweed	c
Juncus articulatus gp.	rush	w
Luzula sp.	wood-rush	w
Eleocharis palustris (L.) R. & S. or *uniglumis* (Link) Schul.	spike-rush	w c m
Carex sp.	sedge	w c m
Bromus cf. *secalinus* L.	rye brome	c m
cf. *B. secalinus* L.	rye brome	c
Triticum cf. *dicoccum* Schübl. – grain	emmer wheat	m
T. spelta L. – grain	spelt wheat	c
T. spelta L. – single grain spikelet	spelt wheat	m
T. spelta L. – glume	spelt wheat	c m
T. spelta L. – rachis	spelt wheat	c
T. cf. *spelta* L. – grain	spelt wheat	m
T. dicoccum Schübl. or *spelta* L. – grain	emmer or spelt wheat	c
T. dicoccum Schübl. or *spelta* L. – single grain spikelet	emmer or spelt wheat	m
T. dicoccum Schübl. or *spelta* L. – glume	emmer or spelt wheat	c
Triticum sp. – short free-threshing grain	bread or rivet wheat	c
Triticum sp. – grain	wheat	c
Hordeum vulgare L. – hulled lateral grain	six-row hulled barley	c m
Hordeum sp. – hulled median grain	hulled barley	c m
Hordeum sp. – hulled grain	hulled barley	c m
Hordeum sp. – grain	barley	c
Avena sp. – grain	oats	c m
cereal indet. – hulled grain		m
cereal indet. – grain		c
Poaceae indet.grass		c

	Means of preservation
cf. fruit seed indet.	m
weed seed indet.	c m
leaf frag. indet.	m
plant stem indet.	m
wood frag. indet.	w c m

m = mineralised, w = waterlogged, c = charred

TABLE 63: Animal remains (excluding shell and bone) identified from late Roman Silchester, Insula IX

INSECTS – Coleoptera (beetles)			
Aphodius sp.			m
Oxyomus sylvestris (Scop.)			m
cf. *Tipnus unicolor* P. & M.			m
Apion sp.			m
Coleoptera indet.			m
Diptera (flies)			
-*Psychoda* cf. *alternata* Say	– puparium	trickling filter fly	m
Sphaeroceridae indet.	– puparium	sewage fly	m
Fannia sp.	– puparium	latrine fly	m
Diptera indet.	– puparium		m
OTHER ARTHROPODS			
Diplopoda indet.		millepede	m
Isopoda indet.		woodlouse	m
MAMMALS			
cf. *Rattus* sp.	– dropping rat		m
Capra or *Ovis* sp.	– dropping	goat or sheep	m

m = mineralised

TABLE 64: Waterlogged seeds from late Roman Silchester, Insula IX

	Sample	**92**	**90**
	Context	**1621**	**1619**
	Sample volume (litres)	**10**	**10**
Ranunculus cf. *acris* L.	meadow buttercup	–	5
R. cf. *repens* L.	creeping buttercup	3	10
R. sardous Crantz	hairy buttercup	3	2
R. flammula L.	lesser spearwort	7	14
Thalictrum flavum L.	meadow rue	–	1
Ficus carica L.	fig	–	2
Urtica dioica L.	stinging nettle	16	1
U. urens L.	small nettle	5	4
Juglans regia L.	walnut	–	1
Corylus avellana L.	hazel	–	1
Chenopodium album L.	fat hen	2	1
Atriplex sp.	orache	1	–
Montia fontana L.	blinks	–	1
Cerastium sp.	mouse-ear chickweed	2	–
Persicaria lapathifolia (L.) Gray	pale persicaria	–	1
Polygonum aviculare agg.	knotgrass	11	8
Rumex S. *Acetosella* sp.	sheep's sorrel	8	8
Rumex sp. (not *Acetosella*)	dock	1	1
Viola sp.	violet	4	–
Raphanus raphanistrum L.	wild radish	–	2
Rubus fruticosus agg.	blackberry	23	11
Potentilla anserina L.	silverweed	1	1
P. cf. *erecta* (L.) Raeusch	tormentil	2	–
P. cf. *reptans* L.	creeping cinquefoil	1	–

	Sample	92	90
	Context	1621	1619
	Sample volume (litres)	10	10
Aphanes microcarpa Rydb.	slender parsley-piert	3	–
Prunus cf. *spinosa* L.	sloe	1	1
Prunus sp.	sloe, plum	2	1
Hydrocotyle vulgaris L.	marsh pennywort	–	1
Coriandrum sativum L.	coriander	1	–
Conium maculatum L.	hemlock	–	1
Daucus carota L.	(wild) carrot	–	1
Hyoscyamus niger L.	henbane	1	2
Ballota nigra L.	black horehound	–	3
Galeopsis tetrahit agg.	hemp-nettle	–	1
Lycopus europaeus L.	gypsywort	1	–
Mentha cf. *aquatica* L.	water mint	4	–
Galium aparine L.	goosegrass	1	–
Sambucus nigra L.	elder	11	8
Carduus sp.	thistle	1	–
Juncus articulatus gp.	rush	38	17
Luzula sp.	wood-rush	–	1
Eleocharis palustris (L.) R. & S. or *uniglumis* (Link) Schul.	spike-rush	12	25
Carex spp.	sedge	29	43
Total		195	180

Also 1 *Salix* sp. (willow, sallow) bud from Sample 92

TABLE 65: Charred plant remains from late Roman Silchester, Insula IX

	Sample	99	315	374	378	392
	Context	1624	2385	2699	2686	2913
	Sample volume (litres)	33	12	23	25	31
CEREAL GRAIN						
Triticum spelta L.	spelt wheat	1	–	–	2	6
T. dicoccum Schübl. or *spelta* L.	emmer or spelt wheat	–	–	–	1	3
Triticum sp.	wheat	–	–	–	4	16
Hordeum vulgare L. – hulled lateral	six-row hulled barley	–	2	–	–	–
Hordeum sp. – hulled	hulled barley	–	–	–	–	1
Hordeum sp.	barley	–	1	–	–	–
cereal indet.		2	6	–	5	18
Total cereal grain		3	9	0	12	44
CEREAL CHAFF						
Triticum spelta L. – glume	spelt wheat	–	2	–	3	6
T. spelta L. – rachis	spelt wheat	–	–	–	–	1
T. dicoccum Schübl. or *spelta* L. – glumes	emmer or spelt wheat	–	1	–	–	7
Total cereal chaff		0	3	0	3	14
OTHER FOOD PLANTS						
Corylus avellana L. – nut shell frag.	hazel	–	–	–	–	1
Brassica or *Sinapis* sp.	mustard etc.	–	–	16	–	1
Vitis vinifera L.	grape	–	1	–	–	–
Total other food plant remains		0	1	16	0	2
WEED SEEDS						
Ranunculus flammula	lesser spearwort	–	–	–	–	1
Urtica dioica L.	stinging nettle	–	1	–	–	–
Atriplex sp.	orache	–	2	–	–	1
Spergula arvensis L.	corn spurrey	–	81	–	–	–
Agrostemma githago L.	corn cockle	–	1	–	–	–
Rumex S. *Acetosella* sp.	sheep's sorrel	–	1	–	–	–

	Sample	99	315	374	378	392
	Context	1624	2385	2699	2686	2913
	Sample volume (litres)	33	12	23	25	31
Rumex sp. (not *Acetosella*)	dock	–	2	–	–	–
Brassicaceae indet.		–	–	–	–	1
Vicia or *Lathyrus* sp.	vetch or tare	–	–	–	1	–
cf. *Medicago lupulina* L.	black medick	1	1	–	–	–
Galium sp.	goosegrass etc.	–	–	–	–	1
Anthemis cotula L.	stinking mayweed	–	1	–	–	–
Eleocharis palustris (L.) R.&S. or *uniglumis* (Link) Schul.	spike-rush	–	2	–	–	–
Carex sp	sedge	–	–	–	1	–
Bromus cf. *secalinus* L.	rye brome	38	–	–	13	9
cf. *B. secalinus* L.	rye brome	–	–	–	12	22
Poaceae indet.	grass	1	3	–	1	10
Weed seed indet.		1	5	5	3	4
Total weed seeds		41	100	5	31	49
No. of items per litre		1.33	9.42	0.91	1.84	3.52

TABLE 66: Mineralised plant remains from late Roman Silchester, Insula IX (seeds unless stated)

	Sample	466	398	395	392	378
	Context	3229	2924	2920	2913	2686
	Sample size	11 lit.	1 kg	1 kg	31 lit.	25 lit.
Bryophyta indet. – stem with leaves	moss	–	1	–	–	–
Bryophyta indet. – fragments	moss	–	3	–	–	–
Pteridium aquilinum (L.) Kuhn	bracken	–	5	–	–	–
Ranunculus cf. *repens* L.	creeping buttercup	–	1	+	–	–
Ranunculus S. *Ranunculus* sp.	buttercup	–	–	–	2	–
Papaver somniferum L.	opium poppy	–	1	–	–	–
Papaver sp.	poppy	–	2	1	–	–
Ficus carica L.	fig	–	–	2	–	–
Urtica dioica L.	stinging nettle	–	1	+	1	–
U. urens L.	small nettle	–	1	+	1	6
Chenopodium album L.	fat hen	–	–	+	–	–
Atriplex sp.	orache	–	+	–	–	8
Chenopodiaceae indet.	goosefoot etc.	–	–	+	–	–
Stellaria media gp.	chickweed	–	2	+	2	–
Agrostemma githago L.	corn cockle	–	–	1	–	–
cf. *Fallopia convolvulus* (L.) Löv.	black bindweed	–	1	–	–	–
Rumex sp.	dock	–	1	1	–	–
Malva sp.	mallow	–	+	–	–	–
Malvaceae indet.	mallow	1	–	–	–	–
Cucumis sativus L.	cucumber	–	1	–	–	–
Brassica or *Sinapis* sp.	mustard etc.	1	1	–	–	–
Rubus fruticosus agg.	blackberry	–	1	2	1	–
cf. *Fragaria vesca* L.	wild strawberry	–	–	20	–	–
Prunus domestica L.	plum	–	–	–	1	–
Prunus avium (L.) L.	cherry	–	+	–	–	–
cf. *Prunus avium* (L.) L.	cherry	6	1	–	–	–
cf. *Malus* sp. – skin	apple	–	281	162	–	–
Pyrus or *Malus* sp.	pear or apple	8	67	27	1	4
Vicia faba L.	field or Celtic bean	–	1	–	–	–
Lens culinaris L.	lentil	–	7	–	–	–
cf. *L. culinaris* L.	lentil	–	29	4	–	–
large legume indet.	pea, bean etc.	–	2	–	–	–
Medicago lupulina L.	black medick	–	1	+	–	–
cf. *Medicago* sp.	medick	1	–	–	–	–
Vitis vinifera L.	grape	2	–	–	–	–
Coriandrum sativum L.	coriander	–	1	2	–	1
cf. *C. sativum* L.	coriander	1	–	–	–	–
cf. *Anethum graveolens* L.	dill	1	–	–	–	–
Conium maculatum L.	hemlock	–	–	+	12	14
Apium graveolens L.	celery	–	1	–	–	–

	Sample	**466**	**398**	**395**	**392**	**378**
	Context	**3229**	**2924**	**2920**	**2913**	**2686**
	Sample size	**11 lit.**	**1 kg**	**1 kg**	**31 lit.**	**25 lit.**
cf. *A. graveolens* L.	celery	–	3	–	–	–
Torilis sp.	hedge parsley	–	–	1	–	–
Apiaceae indet.		–	–	1	–	–
Lithospermum arvense L.	corn gromwell	–	1	–	–	–
Lamium sp.	dead-nettle	–	1	–	4	–
Satureja hortensis L.	summer savory	–	–	1	–	–
Lamiaceae indet.		–	–	–	1	–
Odontites verna (Bell.) Dum.	red bartsia	–	–	+	–	–
Carduus or *Cirsium* sp.	thistle	–	–	2	–	–
Eleocharis palustris (L.) R.&S. or *uniglumis* (Link) Schul.	spike rush	–	–	+	–	–
Carex sp.	sedge	–	1	+	–	–
Bromus cf. *secalinus* L.	rye brome	–	2	1	–	–
Triticum cf. *dicoccum* Schübl.	emmer wheat	–	1	5	–	–
T. spelta L. – single grain spikelet	spelt wheat	–	6	–	–	–
T. spelta L. – glume	spelt wheat	–	6	–	–	–
T. cf. *spelta* L.	spelt wheat	–	1	8	–	–
T. dicoccum Schübl. or *spelta* L.	emmer or spelt wheat	–	5	6	–	–
T. dicoccum Schübl. or *spelta* L. – single grain spikelet	emmer or spelt wheat	–	2	–	–	–
Hordeum vulgare L. – hulled lateral grain	six-row hulled barley	1	5	–	–	–
Hordeum sp. – hulled median grain	hulled barley	–	3	–	–	–
Hordeum sp. – hulled grain	hulled barley	–	16	–	–	–
Avena sp.	oats	–	2	–	–	–
cereal indet. – hulled		–	167	11		–
Poaceae indet.	grass	–	2	3	1	1
cf. fruit seed indet.		25	5	4	–	–
weed seed indet.		7	25	11	3	6
leaf frag. indet.		–	1	–	–	–
plant stem indet.		–	+	+	–	–
wood frag. indet.		–	+	–	–	–
Total number of quantified items		54	668	276	30	40
No. of items per litre or per kg		4.91	668.00	276.00	0.97	1.60

+ present in bulk sample

TABLE 67: Mineralised insect and other arthropod remains from late Roman Silchester, Insula IX (adult unless stated)

		Minimum No. Indiv.				
	Sample	**466**	**398**	**395**	**392**	**378**
	Context	**3229**	**2924**	**2920**	**2913**	**2686**
	Sample size	**11 lit.**	**1 kg**	**1 kg**	**31 lit.**	**25 lit.**
INSECTS – Coleoptera (beetles)						
Aphodius sp.		–	1	1	–	–
Oxyomus sylvestris (Scop.)		–	1	–	–	–
cf. *Tipnus unicolor* P. & M.		–	–	1	–	–
Apion sp.		–	1	–	–	–
Coleoptera indet.		–	–	1	–	–
– Diptera (flies)						
Psychoda alternata Say – puparium	trickling filter fly	–	226	6	–	–
Sphaeroceridae indet. – puparium	sewage fly	–	3	3	1	1
Fannia sp. – puparium	latrine fly	–	107	128	2	–
Diptera indet.		2	43	17	–	–
OTHER ARTHROPODS						
Diplopoda indet.	millepede	10	8	2	–	–
Isopoda indet.	woodlouse	5	5	1	–	–
Total number of individuals		17	395	160	3	1
No. of indiv. per litre or per kg		1.55	395	160	0.10	0.04

APPENDIX 10

ANALYSIS OF THE PITS

By Hella Eckardt

TABLE 68: Pits: incidence of re-cuts and inter-relationships

Group	**Pit**	**Re-cutting**	**No. of fills**	**Depth**	**Cess**
Object 115	1463	–	3	0.70m	
	1571	–	3	1.20m	
	1384	–	3	0.90m	
	1246	–	1	0.50m	
	3357	–	2	0.35m	
Object 116	3250	–	1	0.15m	
	2900	–	6	1.10m	Yes
	3251	2	8	1.16m	Yes
		(= 2904 & 2921)	2 & 3	0.80m & 0.80m	Yes?
	2697	–	1	0.35m	
	3235	–	15	1.88m	Yes
	2914	–	2	0.20m	
	3101	–	1	0.10m	
Object 117	1702	2	10	0.80m (overall):	
		(= 2727 & 2844)	5 & 3	1.55m)	
	1326	–	1	0.30m & 0.55m	
	1021	–	5	0.20m	
	1537	1	1	1.50m	
		(= 1508)	4	1.20m	
	1666	–	6	1.00m	
	1707	2	3	1.50m	
		(= 1729 & 1320)	7 & 3	1.10m	
	2087	1	2	1.05m & 1.25m	
		(= 2021)	1	1.55m	
	1633	–	2	0.26m	
				0.55m	
Object 118	1480	–	1	0.50m	
	1482	–	1	0.10m	
	2335	–	1	0.34m	
	1634	–	1	1.30m	
	1576	–	2	0.90m	
	1019	–	3	1.30m	
	1020	–	3	0.58m	
	1680	–	2	0.82m	
	1459	–	4	1.12m	
Object 119	1292	–	3	1.20m	
	1293	–	2	0.35m	
	1438	–	3	2.80m	
	1611	cut into earlier well (1682)	4	0.82m	
Object 120	2827	3	1	0.26m	
		(= 2838, 2810 & 1505)	2, 1 & 2	0.20m, 0.25m	
				0.30m	
	2501	–	1	0.20m	
	2528	1	1	0.30m	
		(= 2518)	1	0.30m	

Group	Pit	Re-cutting	No. of fills	Depth	Cess
	2515	–	1	0.15m	
	2813	–	1	0.22m	
	2325	–	1	0.30m	
	2556	–	1	0.58m	
	2517	–	1	0.18m	
	2537	1	1	0.32m	
		(= 2535)	1	0.25m	
	2587	–	1	0.16m	
	2991	1	1	0.10m	
		(= 2990)	3	0.09m	
	2381	–	1	0.20m	
	2380	–	1	0.50m	
	2550	–	4	0.78m	
	2017	–	1	0.10m	
Object 121	1300	–	12	2.55m	
	1170	–	2	2.65m	
	2554	–	4	2.35m	
	1044	–	8	2.72m	
Object 122	1387	–	7	1.45m	
	1603	1	4	1.80m	
		(= 1513)	3	0.60m	
	2596	–	15	1.00m	
	1897	2	8	1.52m	
		(= 2131 & 2119)	1 & 3	0.40m & 0.59m	
	1916	–	2	0.99m	
	1901	–	2	0.52m	
	2055	–	1	0.15m	
	1866	–	3	0.90m	
	2240	–	2	0.26m	
	1363	–	3	0.20m	
	2224	–	1	1.40m	
	1354	–	2	0.53m	
	1992	–	1	0.25m	
	1993	–	1	0.22m	
	1994	–	1 (modern)	1.30m	

TABLE 69: Pits with complete or almost complete pottery vessels

Object	Pit	Context	Description	SF No.	Picture?
115	1246	1075	Alice Holt jar (pierced)	SF 00195	Y
115	1463	1347	Alice Holt flagon/jug	SF 00755	Y
115	1463	1347	New Forest beaker	SF 00800	Y
116	3251	3227	BB1 jar	SF 02097	Y
116	3235	2924	BB1 jar (almost complete)	SF 02890	Y
116	3235	2924	BB1 jar (almost complete)	SF 02891	Y
116	3235	2924	Parts of 2 further vessels &	SF 02892	N
				SF 02894	N
			complete amphora rim	SF 02893	N
117	2087	1392	Jar (reconstructed from fragments)	–	N
118	1576	1288	Jar/Flask	SF 00916	Y
118	1634	1327	Lower parts of 2 flasks	SF 00737	Y
				SF 00719	Y
121	1300	1621	Pierced flagon (but missing rim)	SF 00936	Y
121	1300	1325	Large part of flagon	–	N
122	1513	1522	Almost complete indented beaker	–	N
122	1992	1904	Almost complete BB1 dish	–	N
122	2596	2947	Indented beaker	SF 02889	N
122	2596	2989	Complete BB1 jar (rim ground smooth in antiquity)	SF 01922	Y

TABLE 70: Coins from the late Roman pits and wells

Group	Pit	Fill No.	Fill Location	Date	Phase
Object 115	1571	1348	Primary fill	A.D. 340s	C P17
Object 116	2900	2699	Primary fill	A.D. 270	B P13
	2900	2659	2nd fill	A.D. 287/93	B P14
	2900	2654	4th fill	A.D. 268/70	B P13
	3251	3208	7th fill (before re-cut)	A.D. 269/71	B P13
	3235	2663	13th fill	A.D. 273+	B P13/14
	3235	2495	14th fill	A.D. 270/85 & A.D. 330/5+	C P17
	3235	2482	15th/top fill	A.D. 323	C P16
Object 117	1537	1736	4th fill	Vespasian	–
	1537	1487	5th fill	A.D. (?mid) 4th C	C/D
	1666	1665	6th/top fill	A.D. 141/161 & illegible	A P7 –
	1707	1478	3rd fill (before re-cut)	A.D. 271/80	D P13/14
	1707	1238	11th fill (2nd after re-cut 1320)	3rd/4th C	B/D
	2087	1296	11th/top fill	A.D. 271/85+ & A.D. 322/3+	B P13/14 C P16
	1633	1692	Primary fill	A.D. 315 +/–	C P15
Object 118	1634	1327	Primary & top fill	A.D. 348/50	D P18
	1482	1456	Primary & top fill	A.D. 364/75	D P19
Object 119	1292	1298	3rd/top fill	Worn 1st C	A
	1438	1567	3rd/top fill	A.D. 337+	C P17
	1611	1612	5th/top fill	A.D. 350s	C P18
	1682	1693	Fill of underlying well	A.D. 350s	C P18
Object 120 (shallow scoops)	2827	2343	4th fill	A.D. 286/7–293	B P14
	2813	2748	Primary & top fill	A.D. 388/92	B P21
	2517	2342	Primary & top fill	A.D. 159/60 & A.D. 271/4 & A.D. 350s A.D. 364/7	A P7 B P13 C P18 D P19
	2537	2536	Primary fill	A.D. 364/78	D P19
	2587	2580	Primary & top fill	A.D. 270/85 & A.D. 350s	B P13/14 C P18
	2991	2575	2nd fill	A.D. 270+	B P13
	2991	2385	4th/top fill	A.D. 265/74 & A.D. 353/5	B P13 C P18
	2381	2357	Primary & top fill	A.D. 273/85 & A.D. 270/85	B P13/14 B P13/14

Group	Pit	Fill No.	Fill Location	Date	Phase
	2550	2352	4th/top fill	A.D. 287/93 &	B P14
				A.D. 388/92	D P21
	2543	2543	Fill of possible pit	A.D. 337–40	C P17
	2017	1944	Primary & top fill	A.D. 287/93	B P14
Object 121	1300	1357	5th fill	A.D. 388/92 &	D P21
(4 wells)				A.D. 388/95	D P21
	1300	1319	11th fill	4th C	C/D
	1300	1301	12th/top fill	A.D. 330/3 &	C P17
				A.D. 337/40	C P17
	1170	1058	top fill (Victorian disturbance)	A.D. 350s	C P18
	2554	2551	2nd fill	A.D. 205+	A P10
	2554	2395	3rd fill	A.D. 273/85	B P13/14
	2554	2378	4th/top fill	A.D. 330+	C P17
	1044	1045	8th/top fill	A.D. 275/85 &	B P13/14
				A.D. 337/40	
Object 122	2596	2558	15th/top fill	A.D. 287/93 x 2	B P14
(the latest pits)				A.D. 335/40 &	C P17
				A.D. 340s	C P17
				A.D. 394/402	D P21
	1916	1822	2nd/top fill	A.D. 388+	D P21
	1901	1838	2nd/top fill	A.D. 330	C P17
				A.D. 350+	C/D
				or 388?	
	1354	1391	Primary fill	A.D. 270/80 &	B P13/14
				A.D. 350s	C P18
	1354	1353	2nd/top fill	A.D. 340s &	C P17
				A.D. 350s	C P 18
				A.D. 364/78	D P19
				A.D. 395/402	D P21
	2634	1321	Upper fill	A.D. 138–61	A P7
				A.D. 260–8	B P13
				A.D. 269–71	B P13
				A.D. 275–85(2)	B P14
				A.D. 350s	C P18
				A.D. 388–92	D P21

TABLE 71: The relationship between chronological grouping of coins and Reece's (1993) coin periods

Phase	**Period (Reece)**	**Date**
A	P 1	To A.D. 41
A	P 2	A.D. 41–54
A	P 3	A.D. 54–69
A	P 4	A.D. 69–96
A	P 5	A.D. 96–117
A	P 6	A.D. 117–138
A	P 7	A.D. 138–161
A	P 8	A.D. 161–180
A	P 9	A.D. 180–192
A	P 10	A.D. 193–222
A	P 11	A.D. 222–238
A	P 12	A.D. 238–260
B	P 13	A.D. 260–275
B	P 14	A.D. 275–296
C	P 15	A.D. 296–317
C	P 16	A.D. 317–330
C	P 17	A.D. 330–348
C	P 18	A.D. 348–364
D	P 19	A.D. 364–378
D	P 20	A.D. 378–388
D	P 21	A.D. 388–402

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