Marton, north Lincolnshire: a Romano-British settlement in its context

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Thesis submitted for the degree of Master of Arts

University of Durham

Department of Archaeology

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ABSTRACT

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This thesis seeks to reconstruct and interpret the form and extent of the Romano-British settlement at Marton, North Lincolnshire. The site at Marton has previously been the subject of no formal programme of archaeological research. However it offers a rich potential for applying non-intrusive archaeological survey, and this study is based on the results obtained from a combination of different survey techniques. Although the site has received very little formal archaeological attention in the past, uncontrolled metal-detection has been intensive over recent years. The unrecorded leaching of material, coupled with the diverse range of artefacts known to have been retrieved in detection has been one of the principal catalysts behind the adoption of this survey.

The data was collected both from previous aerial photographic surveys and metal detectorists with whom a working relationship had been established, and in geophysical survey and field walking undertaken by the author. Survey methodology and the results of the different components of the survey are presented in chapters 2 to 6. Initial interpretations of the features identified from the aerial photographic and geophysical survey are proposed and the main chronological and spatial trends in the distribution of pottery, coins and other small finds are summarised.

Chapter 7 compares the results obtained from the different classes of evidence and refines the interpretations offered for the development of the site through time and space. Specific issues considered are the origins of the settlement, its internal organisation and extent and its relationship with nearby Littleborough. The final chapter compares Marton with other sites in the region and sites of a similar type in Roman Britain. A series of hypotheses are then proposed concerning the nature of the site and its function and evolution in its local landscape.

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Chapter 1 INTRODUCTION

This thesis investigates the form and extent of the Romano-British settlement complex at Marton in North-West Lincolnshire. This site is situated approximately 1000m east and on the opposing side of the river Trent to the Romano-British 'small town' at Littleborough *(Segelocum)*. Prior to this survey no archaeological investigation has been undertaken at Marton, although metal-detection has been extensive since the mid 1980s. In contrast, Littleborough has attracted considerable antiquarian and archaeological interest (Camden 1607, Stukeley 1776; Riley et al. 1995).

Isolated finds of Roman material at Marton and the discovery of the cropmarks showing a small fort and other features in the mid 1970s were the first indication of the potential archaeological wealth present. This thesis represents the first attempt to assess and explore that wealth. To this end a series of non-intrusive surface survey techniques have been undertaken, although no excavation has taken place. These include controlled programmes of fieldwalking, metal-detection and geophysical survey of selected areas of the site. All the finds recovered derive from ploughsoil contexts and are unstratified. The intention of this thesis is to present and integrate the results of this work.

The aim of this survey is to move beyond the use of material culture primarily as a chronological tool and also to assess the spatial relationship of finds with features identified in the air photographic and geophysical survey and thus discuss the form, extent and organisation of the site. Such an approach takes advantage of the varied material culture assemblage collected from this site. Whilst this approach is not a substitute for excavation, it permits the survey of a very wide area and, most significantly, makes use of the ploughsoil context which, though unstratified may contain a wealth of relevant information concerning the economy, form and function of the site.

Reasons for the Survey

Other than the lack of previous work, the survey has focussed upon the settlement complex at Marton for several specific reasons. Firstly, other than very limited antiquarian interest, the only 'archaeological' investigation at the site has involved metal-detection. This activity has been undertaken by a number of individuals and on one occasion a metal-detecting club. The coverage of the site has been continual, intensive and frequently illicit. It has been very difficult to curb all illicit detection without continual surveillance of the site as individuals either do not ask permission to detect or, more frequently, detect at night.

Fortunately, however this system has now changed. Since 1994, metal-detection has been limited to two responsible detectorists who have recorded the position of all finds made. Collaboration with a detectorist has revealed the wide range and quantity of finds recovered from the site. The opportunity to examine a large coinage and small finds assemblage in conjunction with the lack of control and recording of finds at the site has been one of the major incentives for this study.

The second 'opportunistic' factor behind this survey, and one which should not be understated, involves the ease of access to the site, apart from Field B (fig. 1.2). At times this cooperation has extended to the reorganisation of the crop rota in order to facilitate aspects of the survey such as the programme of fieldwalking.

The final reason for this survey lies in the relative neglect of not only Marton but also North Lincolnshire as a whole. Later prehistoric and Romano-British settlement patterns in north Lincolnshire have been little investigated and are consequently little understood. In recent years an increasing body of archaeological data has become available from sites in the area, but there has been an absence of an examination of general patterns of Romano-British settlement in the region. This recent work suggests that the apparent deficit of sites is more likely to reflect the dearth of field-work in this area (Jones 1988). This thesis will therefore not only present the results of the survey undertaken at Marton but will also discuss the role of this settlement in connection with other sites in the local Romano-British landscape.

Background

Marton is a Trent-side parish situated approximately 14 miles from Lincoln, 6 miles from Gainsborough and 18 miles from Doncaster (fig. 1.1). The village is intersected east-west by Tillbridge Lane, the Roman Road from Lincoln via Ermine Street to Doncaster, which becomes known as Littleborough Lane as it approaches the Trent crossing opposite Littleborough. The modern village of Marton spans two well-defined west-facing escarpments, each giving a sharp rise of 10m or so. The first one is of Keuper Marl and lies about 600m east of the Trent bank and overlooks riverside marshes at 3-4m above OD. The second is of Rhaetic Beds a further 900m east and overlooks Blown Cover Sands at 7-15m above OD (Everson 1991, 3).

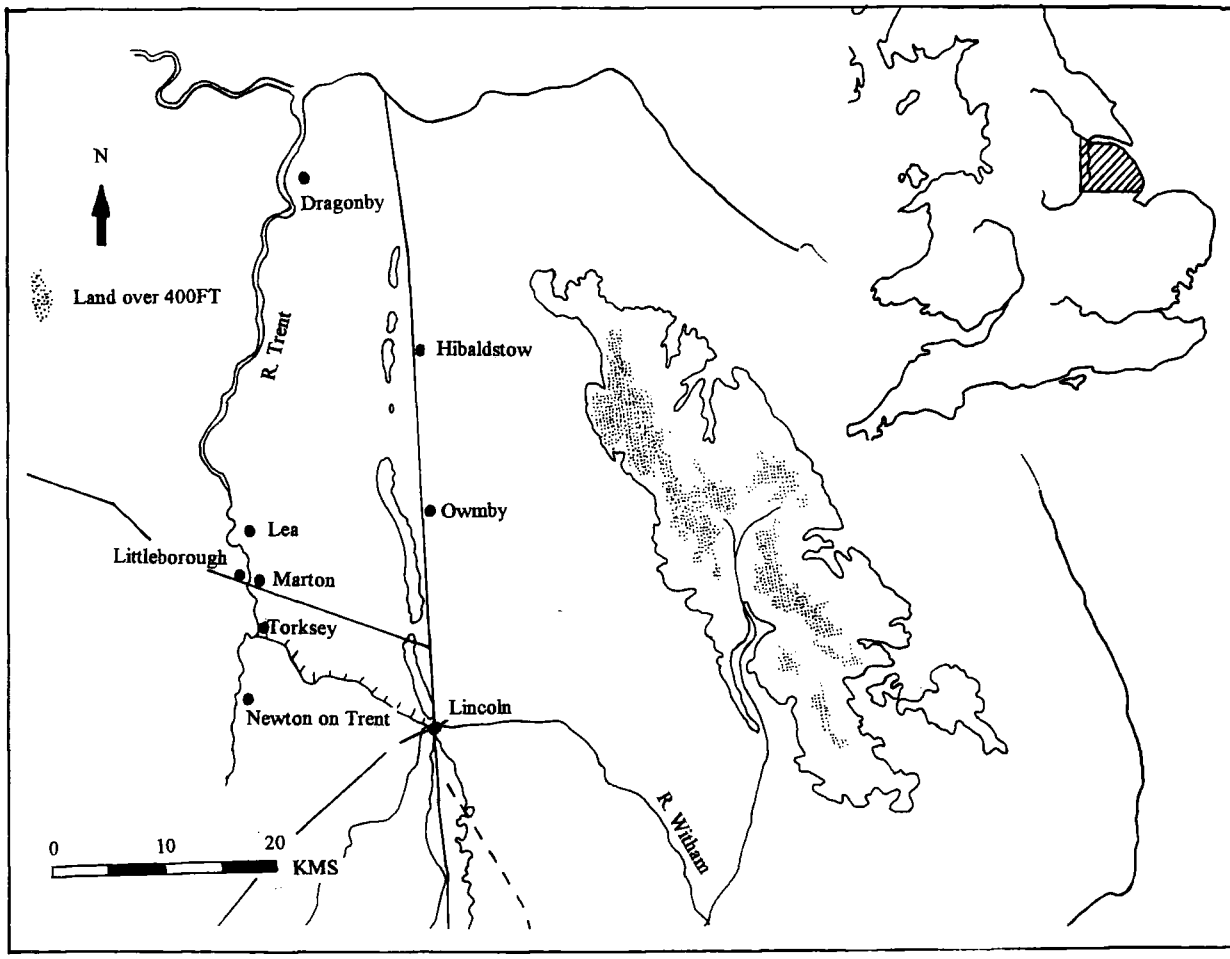

Fig. 1.1 Location map showing Marton and other sites in North Lincolnshire

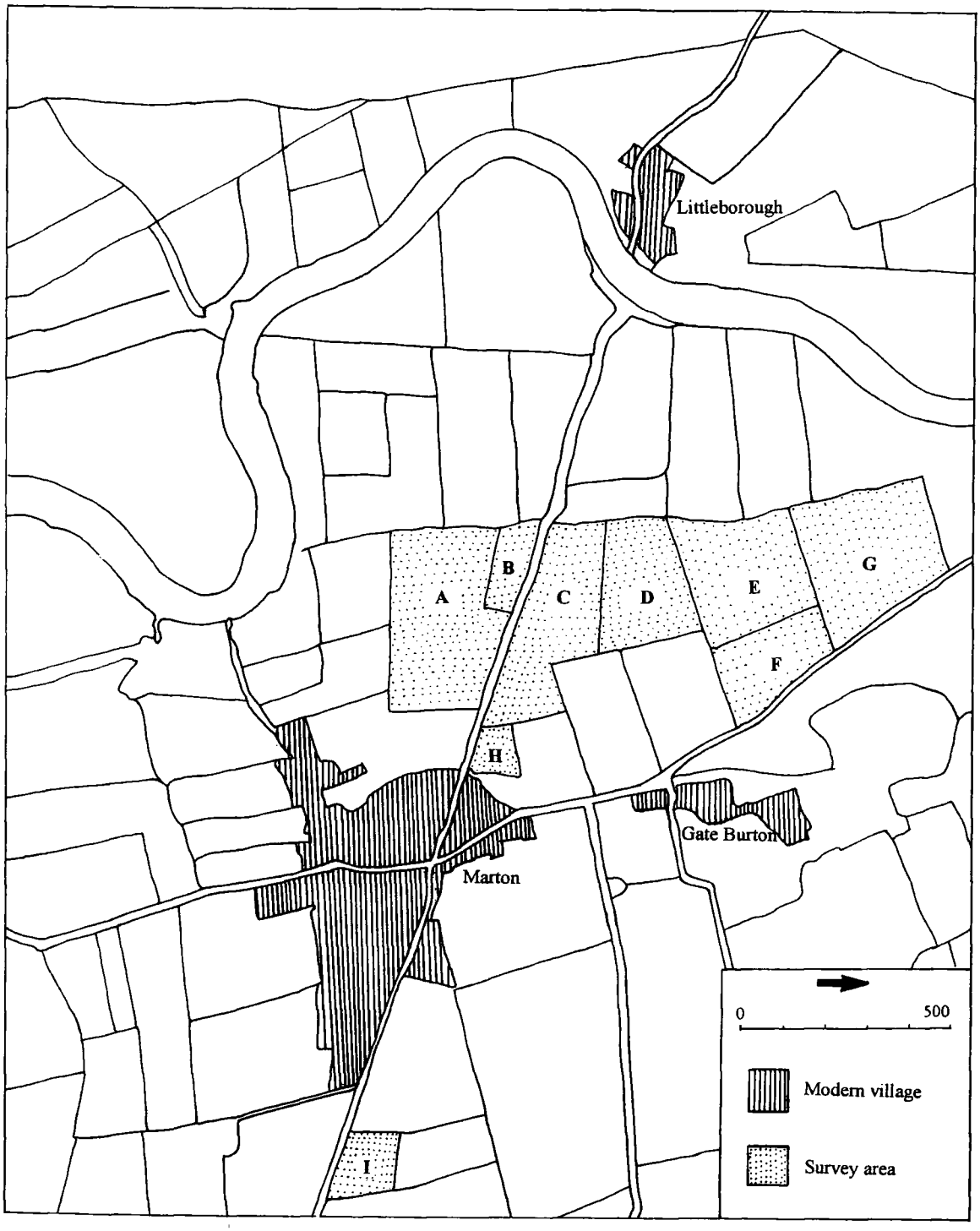

Fig. 1.2 Marton; location map of survey area indicating the fields surveyed

The core of the survey area at Marton (fig.1.2) lies along either side of the Roman road on the platform of Blown Cover Sands situated between the two escarpments. The survey area extends to the modern village boundary in the east and to the scarp

edge above the water meadows in the west. The soil over the majority of this area is very light, well-drained and is susceptible to wind-erosion, although there is a band of green clay running along the scarp edge in the west of Fields C and D. The area is under intensive arable cultivation, although some fields were given over to set-aside throughout much of the survey. West of the survey area, below the scarp edge, is an area of water meadows, which in the Roman period and before the construction of the river embankments would have been very susceptible to flooding. Excavations at Littleborough have revealed evidence for extensive flooding which probably led to the settlement shift to higher ground north of the line of the Roman road (Riley et al. 1995, 256).

Although the survey is concentrated in the area to the west of the modern village, cropmarks have also been recorded in out-lying areas such as Field I, situated on the Upper and Middle Lias Clay land beyond the second scarp, approximately 1300m east of the main survey area. The field units referred to in the text are highlighted in fig. 1.2.

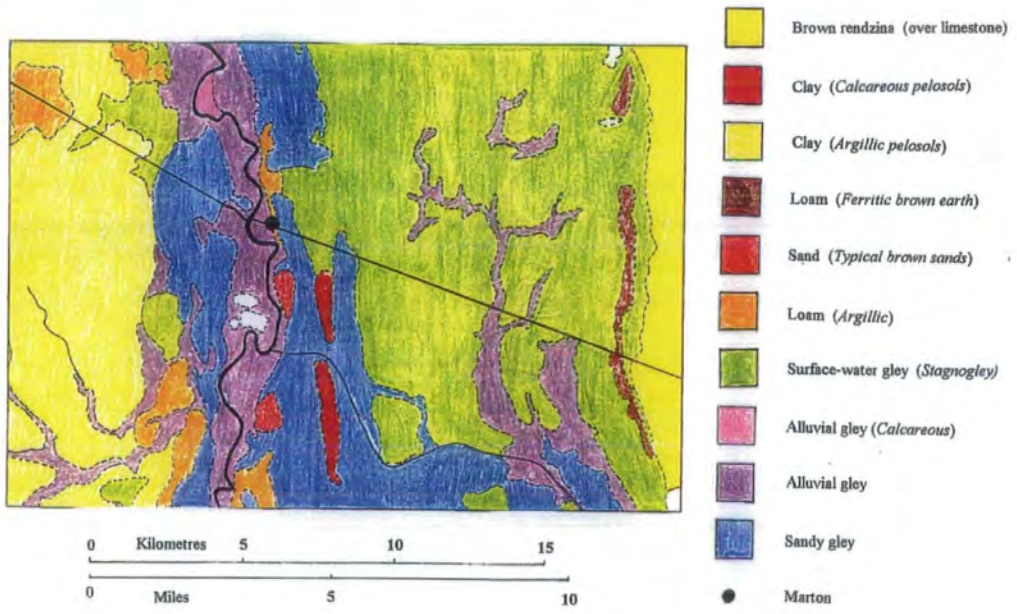

Fig. 1.3 Map of soils in survey area

Antiquarian Interest in the Area

Much antiquarian interest in the Marton area has focussed upon the nearby settlement at Littleborough, identified with the *Segelocum* of the Antonine Itinerary (Iter v: *Segeloci*; Iter viii; *Ageloco*). The derivation of Segelocum suggests 'violent pool' and this could refer to a pool on the Trent with a rapid current (Rivet & Smith 1979, 453; Jackson 1970, 79). A milestone found at Lincoln in 1879 consolidates the identification of Littleborough as *Segelocum* as it reads,

> 'For the Emperor Caesar Marcus Piavonius Victorinus Pius Felix Invictus Augustus, pontifex maximus, with tribunican power, father of his country from Lindum to Segelocum 14 miles' (RIB I, 2241).

The earliest antiquarian report comes from William Camden who describes Littleborough in his 1607 edition of *Britannia.*

> 'Littleborough, a small town strictly answering to its name; where as the most usual ferry is at present, so it was formerly that famous station or mansion mentioned more than once by Antoninus, and called in different copies AGELOCUM and SEGELOCUM. This I have before sought for in this neigbourhood without success, but am now clear I have found it, both by its situation on the military way, and because an adjoining field shows evident traces of walls, and daily in ploughing yields innumerable coins of Roman Emperors, which often being turned up by the hogs (quos quia porci eruncando saepius detegunt), are called Swines Pennies (porcorum denarios) by the country people.'

Stukeley, Gale and Camden also refer to the various artefacts found at Littleborough , including '

> 'About forty years ago, when the inclosures between the town and bridge were ploughed up, abundance of these coins were found, many intaglios of agate, cornelian, the finest coral-coloured urns and patera's, some wrought in *basso relievo*, the workman's name generally impressed on the inside of the bottom; a *discus* with an emperor's head embossed.' (Stukeley 1776, 94).

The various antiquarians make very little reference to the site at Marton, although Gale and Horsley suggest that there was a Roman camp on the east of the river where coins were frequently found (V.C.H. Notts 1910, 21). Mr.Ella, the vicar of Rampton describing the antiquities of Littleborough in a letter to William Stukeley in 1723 commented that by that time, no remains of the camp at Marton were visible (Stukeley 1776, 86).

Archaeological Interest in the Area

Since the antiquarian interest of the 17th and 18th centuries until the mid-20th century, there has been an absence of a recorded local tradition of archaeological fieldwork in this area of north Lincolnshire. Excavations have been undertaken on a small-scale from the late 1930s, including those at Littleborough (Riley et al 1995) and at a number of kiln sites such as at Torksey (Oswald 1937), Lea (Petch 1958), Newton on Trent (Field & Palmer-Brown 1991) and Whitwell (unpublished). However, there have been no extensive investigations of settlement patterns and the Romano-British landscape as a whole. A detailed large-scale examination of the regional settlement patterns would be beneficial. However for the purposes of this study, an area of approximately 10km ^{2}, centred on Marton has been selected for examination; an area which envelops a range of settlement forms including a small town, forts, pottery kilns and other structural remains. This area provides an immediate comparison for the site at Marton, although the detailed study area is concentrated at Marton,

Methodology

Archaeogical field survey, using a battery of techniques is no longer viewed merely as a method of reconnaissance used to decide where to excavate, but as an independent means of data-collection. This is especially relevant in an environment where large-scale excavation, especially of rural sites not under direct threat from development is becoming less likely.

The primary data-collection survey has been undertaken intermittently over several years. The metal-detected finds made both before and after 1994 (principally by one detectorist) are included in this report. The findspots of those items recovered since 1994 have been recorded. In the past, those areas of the site known to be productive of finds, such as the road frontages, have been targeted by detectorists. For the purposes of this survey, the detectorists have been encouraged to survey areas across the whole of the site as well as the road frontage areas. Two seasons of fieldwalking have been undertaken in Field C. The first season was undertaken solely by the author and the second season involved four walkers. The limitations of time and the agricultural regime restricted the field-walking programme to the same field on both occasions. All finds have been processed by the author. The geophysical survey using a fluxgate magnetometer has been undertaken by the author over selected areas of the site on five occasions from October 1995-November 1996. These areas were selected to complement information gained from the study of the cropmarks and the distribution of material derived from field-walking and metal-detection or in areas where it was not possible to conduct ant other form of survey. The aerial photographs were selected from the libraries of the Cambridge University Committee for Aerial Photography and the Air Photography Unit of the RCHME.

Pre-Roman and post-Roman finds were also recovered during this survey but are not discussed in any detail as the focus of this study concentrates on the Roman settlement.

The thesis is structured as follows. Chapter 2 discusses the methodology and presents the results of the air photographic and geophysical survey. The field-walking and metal-detection survey methodology are considered in Chapter 3. The results of this part of the survey are discussed in Chapters 4-6; the Roman pottery and glass in Chapter 4 and Appendix 2, the Roman coins in Chapter 5 and Appendix 3 and the Roman small-finds in Chapter 6. Chapter 7 integrates and interprets the results of all the elements of this survey and the final chapter discusses the role of the settlement at Marton within its wider regional and provincial context.

Chapter 2 AIR PHOTOGRAPHIC AND GEOPHYSICAL SURVEY

This chapter deals with the aerial photographical and geophysical survey of parts of the study area. Brief introductions to each technique are followed by a discussion of the results, arranged by field. Elements of the morphology of the settlement are addressed, although much of the interpretation must be regarded as provisional and will be discussed further with reference to the finds in Chapter 7.

Aerial Photographical Survey

An intensive agricultural regime throughout Lincolnshire has resulted in poor survival of standing monuments. Perhaps as result of this, and the low susceptibility of large tracts of the local geology for the formation and visibility of crop-marks, Lincolnshire has not had a particularly strong record of aerial photography in the past. However, the pioneering work of J.K. St. Joseph and Derrick Riley, and later the Cambridge Committee for Aerial Photography (CUCAP) and the Air Photography Unit of RCHME has revealed the potential wealth of crop-mark features identifiable by aerial photography in the county.

Sporadic aerial reconnaissance in the Trent Valley has taken place over a number of years and a variety of sites have now been discovered, although little analysis or excavation has taken place as a result of these findings. The most intensive aerial survey undertaken in north Lincolnshire is the programme organised by the RCHME and Nottingham University which involved the sample survey of a trial transect of 335km^2 (Jones 1988). Unfortunately, this survey was outside the bounds of the present study, extending from the river Trent north of Gainsborough in the west to the east coast, and revealed a large variety of archaeological features dating from the Neolithic to post-Medieval times. However, the nature of late Iron Age and Romano-British rural settlement in the region under study and in North Lincolnshire generally, is still little understood, due principally to the general lack of field-walking, geophysical survey and excavation.

The formation of crop-marks relies on a number of factors, and consequently the absence of crop-marks does not necessarily reflect the absence of archaeological features. Factors such as the local geology, the type of crop and the state of its maturity at the time of photography all have a direct effect on the degree of visibility of the feature (Wilson 1982, 190-1). For example, it was only after 20 years of aerial reconnaissance at the site at Littleborough, Nottinghamshire, that the crop-mark features were detected. Clearly, aerial photography over a particular site should take place over consecutive years, and excessive emphasis should not be placed upon one season's work, especially if the results are not favourable.

The geology of the area under study, consisting largely of light, well-drained soils, is generally conducive to the formation of crop-marks. The gravel terraces to the east of the River Trent were laid down by an earlier course of the river and are now covered by more recent deposits of Cover Sands (Jones 1988, 2). East of the area of Cover Sands, the heavy clays of the Trent Valley, which are poorly drained are generally unresponsive to crop-mark formation, although under some conditions features have been identified.

The interpretation of cropmark features is impeded by the impossibility of constructing a definitive morphological encyclopedia. This is due to the overlap of feature types between periods, and perhaps more importantly because of differences observed between regions and the site-specificity of many features. Only in a minority of cases, for example Roman forts, is the feature distinct enough to classify with any certainty. Problems of interpretation also arise as a result of the temptation to regard all crop-mark features as contemporary, rather than the palimpsest of features and archaeological periods that is more probable. Even when a feature is identified as 'Roman', for example there is still a possible time-span of approximately 350 years for dating. Clearly aerial photography is unsophisticated as a chronological tool, especially when there is continuity of occupation at a site between periods. It is only when aerial photographs are used in association with the finds made over the site, the local topography and other archaeological features, that greater definition can be achieved. However, since crop-marks relate to layers that are still intact, the plough-

soil finds may not accurately reflect the feature below. In the same way, an absence of plough-soil finds may mean that the archaeological levels are largely undisturbed.

Geophysical Survey

The aim of the geophysical survey was to investigate the ability of the technique to identify archaeological activity on the site. Since no geophysical work had taken place in the area before, it was unknown whether the local geology would be susceptible to such investigation. It was hoped that the geophysical survey would both clarify the aerial photographic evidence which identifies a range of potential archaeological features, and would also assist the interpretation of the field-walked and metal-detected artefact distributions. Areas were selected for geophysical survey principally on the basis of information gained from field-walking and aerial photography, or as in the case of Geophysics Area 7, where very little or no archaeological information already existed.

A magnetometer survey, using a FM18 fluxgate gradiometer was considered to be the most appropriate method of survey due to the relative speed of ground survey and the range of archaeological features often detectable by this method. The aerial photographs have revealed cropmarks of low resistance features such as pits and ditches, that should be more susceptible to a magnetometer, rather than a resistivity survey. The features most readily detectable by magnetometry are silted-up ditches, pits and deposits of burnt material. Intense burning or industrial processes accelerate the magnetic enhancement of archaeological sediments (Tite & Mullins 1971) and the fermentation of organic matter (eg. rubbish pits, wooden structural remains) also produces features with contrasting magnetic properties (Fabinder 1994; Linford 1994). Thermoremanent features occur when an accumulation of an iron rich material is heated beyond its Curie point and the individual magnetic domains are then able to align themselves with the prevailing magnetic field at that time. The magnetic domains are 'frozen' into a common magnetic alignment producing a substantial permanent magnetic field. Archaeological features such as pottery kilns, ovens or hearths often produce distinctive magnetic anomalies through a combination of this process and the

rich concentration of iron minerals found in the clay used in their construction (Scollar et al. 1990).

However, whilst magnetometer surveys can detect stone buildings as negative anomalies, resistivity as a geophysical technique, is considered to be more suitable for detecting wall foundations. Ideally, the area would be surveyed using both techniques, although time limitations have prevented this for the purposes of this project.

Six phases of geophysical survey were undertaken throughout one year, in a wide variety of weather and temperature conditions.

Method

A total of ninety-one 20m squares, covering an area of almost four hectares have been surveyed. For each of the six areas surveyed, a grid of 20m squares was set-up on a roughly north-south alignment, located by measurement to the field boundaries. Non-magnetic markers were used to establish the grid, and ropes marked at 0.5m intervals were used as guide-lines during the survey. Measurements were recorded at 0.5m intervals along successive south-north traverses, spaced 1m apart. The data was periodically down-loaded in the field into the Geoplot 1 programme, where it was possible to crudely assess the results. The secondary phase of data processing using Geoplot 2, a more sophisticated processing programme, could not be undertaken until each phase of the survey was complete.

In the following plots, the positive values which represent increased magnetic intensity are displayed as denser shades of grey towards black and the decreased values as lighter shades. The data are presented in the form of greyscale clip shade and relief shade plots. The 'striping' effect between adjacent traverses has been removed and the data has been 'despiked' to remove small-scale modern ferrous interference.

A number of magnetic features detected have been identified as pipeline interference. Ferrous pipelines are highly distinctive with contrasting positive/negative responses. Such intense readings have the effect of masking other readings in the area, however strong the particular archaeological anomaly. Pipelines are clearly seen running along the same axis in Areas 4 and 5, both situated in Field C.

Results

The results of the aerial photographic and geophysical survey have been amalgamated in order to avoid repetition and to provide collaborative information.

The aerial photographs of Marton are plotted, using the paper-strip method, on Figure 2.1, and are discussed in conjunction with the results of the geophysical survey. The photographs used are listed in Appendix 1. Fig. 2.2 shows the annotated plot of the geophysical survey. The following discussion, which is organised by field, presents the results of specific areas.

Fields A and B (Fig. 2.3)

The Roman Fort (Geophysics Area 1)

The crop-marks showing a small Roman fort situated in Field A approximately 150m south of the Roman Road at the scarp edge above the water meadows (SK 832821) were discovered in 1974 by Professor J.K. St. Joseph (fig. 2.3). The aerial photographs show two parallel ditches defining the whole of the east side and most of the northern and southern sides with the characteristic rounded corners, enclosing an area of approximately 0.7 hectares. The entrance on the eastern side is visible and those on the northern and southern sides are fairly clear (St. Joseph 1977, Fig. 3). The western ditch has not been identified and St. Joseph suggests that "the crop marks disappear, as the scarp is approached, no doubt because of a fall in the water-table,

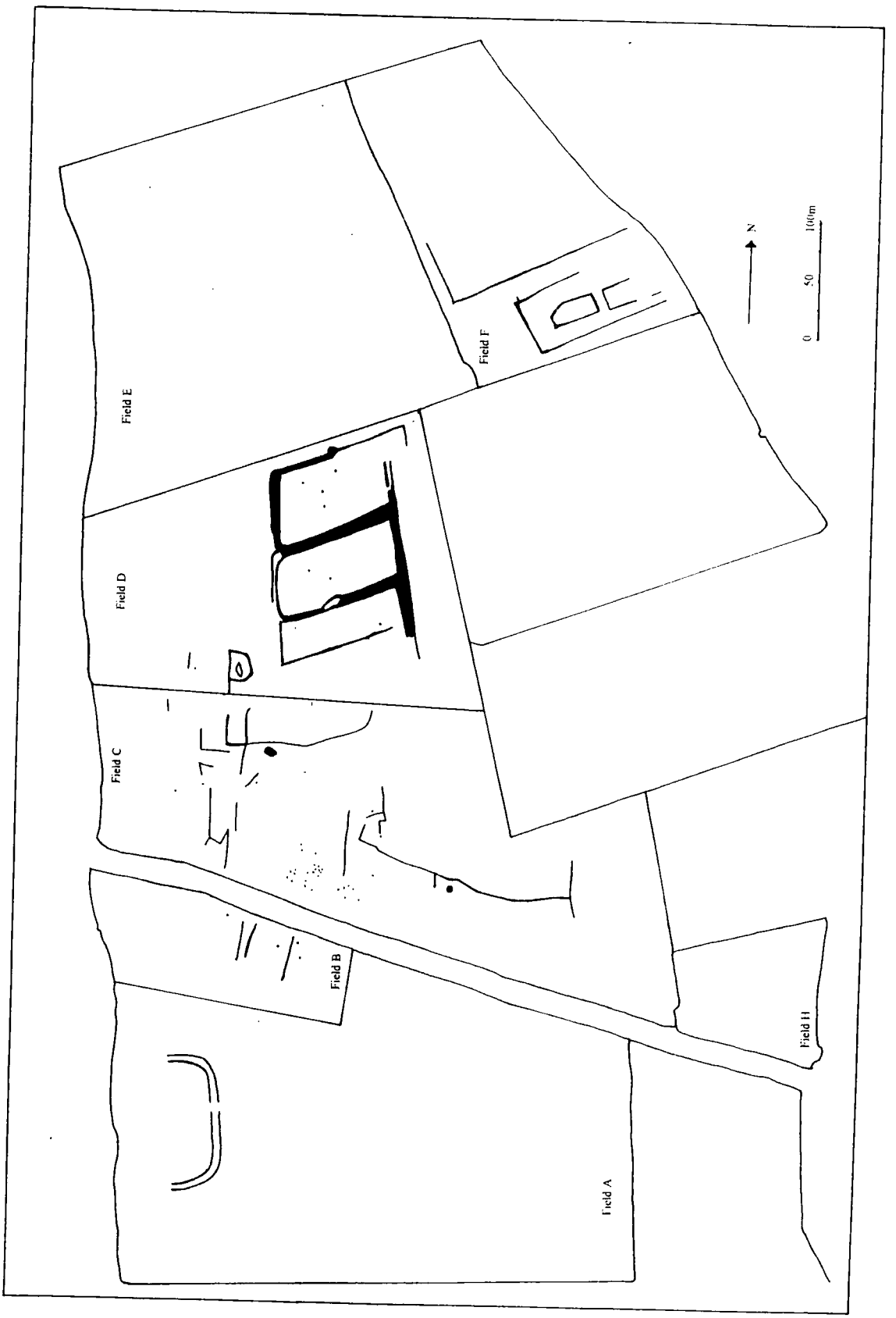

Fig. 2.1 **Map of survey area showing the distribution of cropmarks**

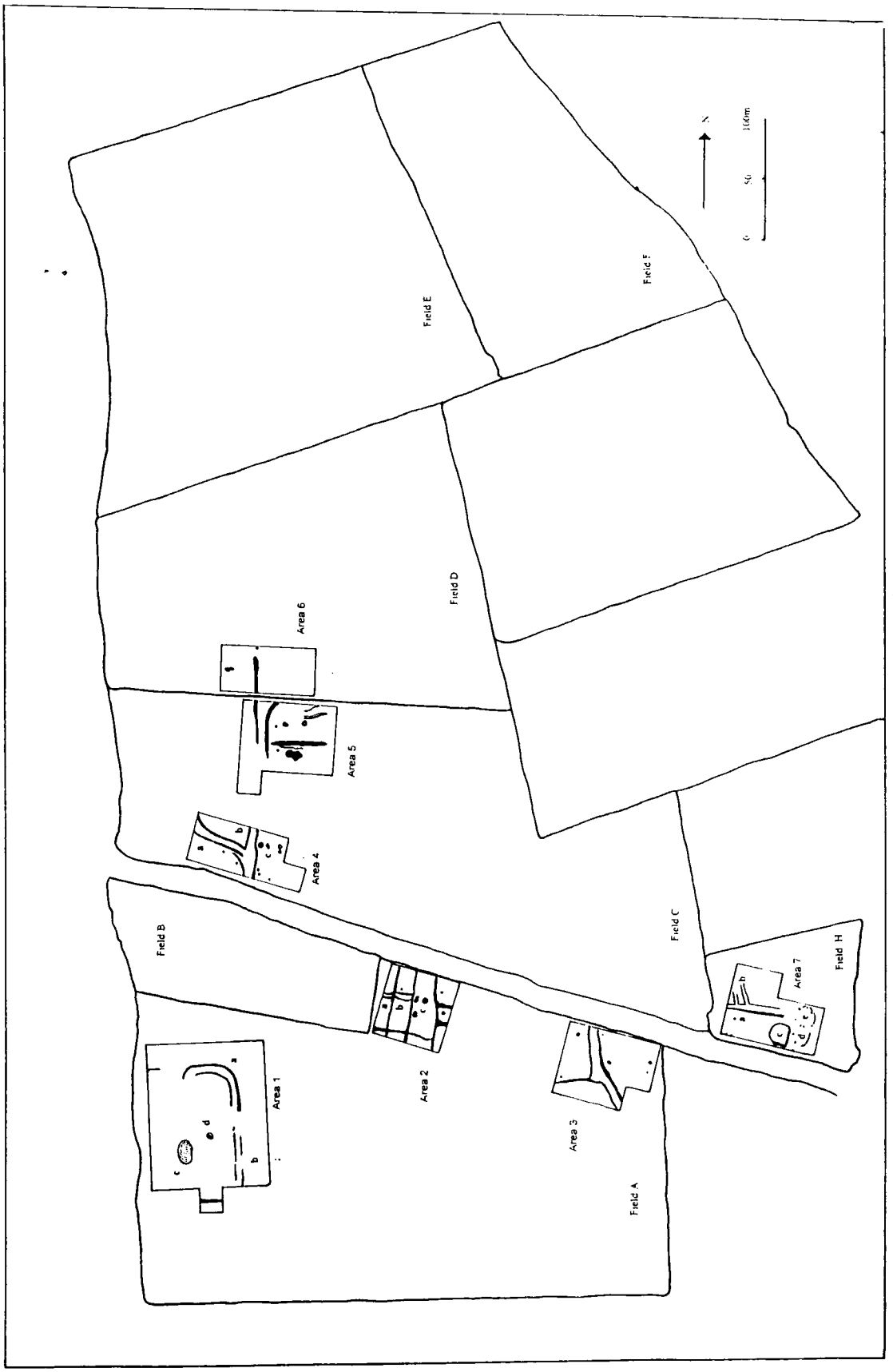

Fig. 2.2 Map of survey area showing annotated plan of geophysical survey

above a steep 25ft (7.5m) drop" (St. Joseph 1977, 129). No crop-mark features are discernible in the fort interior, nor in the area close to the fort.

Fig. 2.3 Aerial photograph of cropmarks of Roman fort in Field A, Marton; looking east.

Photograph: University of Cambridge, copyright reserved

Geophysics Area 1 (figs. 2.4-2.5)

The aim of the geophysical survey of this area was to examine the interior of the fort for possible structures and also to establish the limits of the ditches on the western side. It was also the intention to assess the relationship between the Roman fort and

its immediate environs and to identify possible areas of continuity of use between the military to civilian phases.

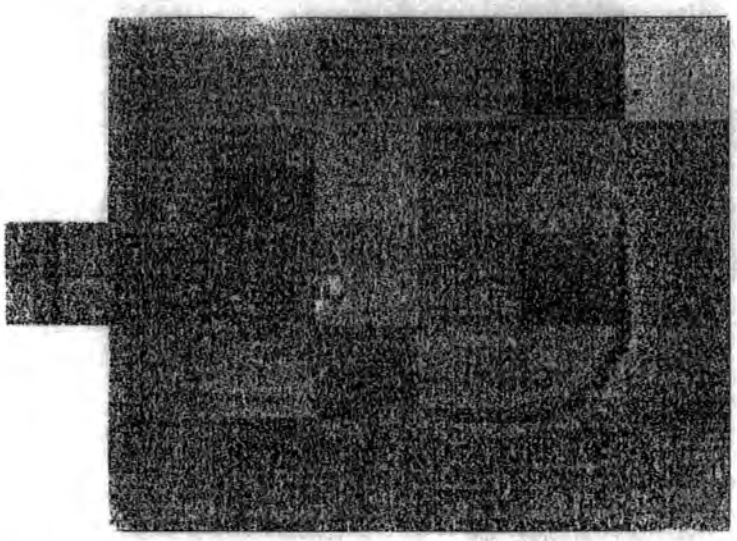

Fig. 2.4 Clip plot of magnetometer survey of Roman fort, Area 1, Field A

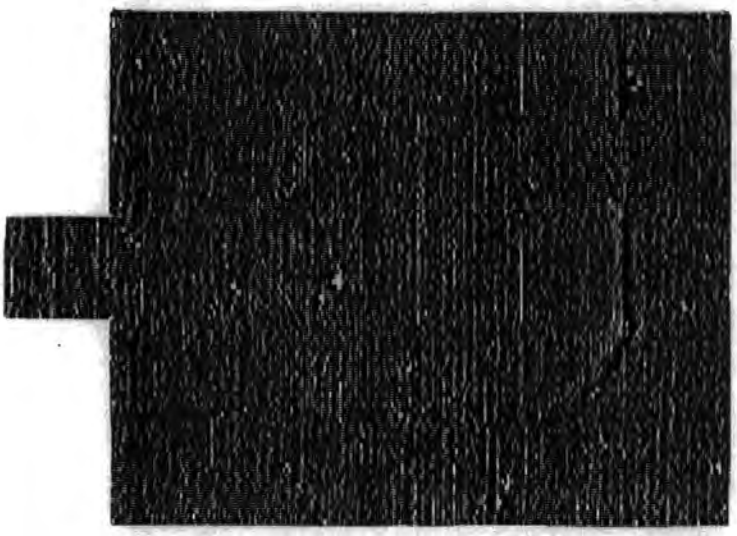

Fig. 2.5 Relief plot of magnetometer survey of Roman fort, Area 1, Field A

A total of thirty-one 20m squares over this area were surveyed. The magnetic response was generally very quiet with the majority of readings within a 1nT range which is close to the maximum sensitivity of the instrument. The most distinctive

features identified are the curvilinear anomalies representing the corners of the ditched enclosures. These are represented by a pair of ditches separated by a central negative anomaly, visible on the north, east and south sides. The gateways are clearly visible in the northern (a) and eastern (b) ditches. No clearly defined internal features have been identified, although a relatively strong positive anomaly on the south-west side (c), may represent a feature, perhaps a building. A strong roughly circular negative anomaly is present in the east of the centre of the fort (d). The interpretation of this feature is uncertain. A very noticeable dearth of pottery was noted both within the area of the fort and close by it, and this would be consistent with the absence of pit-like features identifiable from the geophysical survey (see Chapter 7).

No high resistance features indicative of stone foundations have been revealed during the survey, although this could also reflect the inabilities of the local geology to enhance high resistance readings using a magnetometer. It is probable, however, considering the small size of the fort that it was only occupied for a short time, and there may be an absence of formal internal buildings. A resistivity survey over this area may elucidate the situation.

Unfortunately, time and access restraints did not permit a wider survey of the area around the fort extending towards the road. However, the aerial photographical and geophysical evidence as well as the dearth of field-walked material noted during the geophysical survey, suggest that the fort was not re-used at a later date and that the focus of settlement shifted towards the roadside areas, unlike the fort and settlement complex at Kirmington on the Lincolnshire Wolds, for example, which shows clear continuity of occupation between phases (Jones & Whitwell 1991). An alternative hypothesis is that the fort at Marton may have been located to one side of an already existing settlement.

Geophysics Area 2 (Figs. 2.6)

No controlled programme of field-walking has taken place in Field A, but metal-detection has revealed a concentration of metal-work, especially pre-4th century

coinage in the area parallel to the Roman road (Chapter 5, fig.5.20). A concentration of pottery in the same area was also noted during the geophysical survey. A block of land encompassing nine 20m grids (60m x 60m) was surveyed before freezing conditions made further survey impossible.

Fig. 2.6 Clip plot of magnetometer survey of rectilinear enclosures; Area 2, Field A

Although the magnetic response in this area was quite subtle, a rectilinear pattern of enclosures have been clearly identified. The geophysical results show three parallel ditch-lines, approximately 50m in length running on a north-south alignment, extending up to the road frontage, and continuing to the south, out of the bounds of the survey. The two enclosures whose width can be measured are c. 15m and 20m respectively There are also less clearly defined ditch-lines running east-west, sub-dividing the larger enclosures, possibly representing path-ways (a & b). There are a number of features within the enclosures, with a high magnetic response and an average diameter of 3-4m, that are identifiable as pits or possibly wells (c). These are aligned approximately in the cenre of the enclosures.The enclosures appear to continue beyond the extent of the survey to the west, east and south. The continuation of the enclosures beyond the back ditch may represent agricultural or horticultural plots.

Land enclosures are common features on a variety of settlement sites and serve to both demarcate property and to contain animals and holdings (Smith 1987, 22). The presence of pits and domestic rubbish within these ditched enclosures suggests that these areas represent settlement enclosures or house-plots. Similar linear ditch-like features running at approximate right-angles to the Roman road and on roughly the same alignment to the more clearly-defined features in Field A, also in association

with a series of pit-like features have been identified as crop-marks in the aerial photographs of Field B. Unfortunately, it was not possible to conduct a magnetometer survey in this area. Also identified in Field B is a double-ditched feature running at right-angles to the Roman road, and extending on the same alignment into Field C, and possibly also into Field D.

Rectangular enclosures have been noted from aerial photographs, excavation and geophysical survey at a number of sites in the East Midlands, such as Hibaldstow (Smith 1987, 25-29, figs.2-3) and Dragonby (May 1996, 604). Groups of rectangular enclosures of proven Roman date have been excavated at Brancaster, Norfolk (Edward & Green 1977, pls. I-VI; Hinchcliffe 1985, fig.2). Nearby at Littleborough, Nottinghamshire the rectangular enclosures forming a regular ladder-type settlement have been identified on aerial photographs (figs. 2.7). The crop-marks at Littleborough define a street aligned on a NW-SE line, parallel to the long axis of the enclosure and ditches and branch roads running at right angles to the main road. These define roughly rectangular plots with pits also visible inside the enclosures, although no buildings have been identified from the air (St. Joseph 1977, 157).

Fig. 2.7 Aerial photograph of enclosures at Littleborough; looking north

A clearly defined ladder of enclosures with associated Romano-British material has been identified at Priory Farm, Stainton le Vale in the Lincolnshire Wolds (Jones 1988, 26 fig.18) and at Fen Farm, Pinchbeck, Lincolnshire, a geophysical survey mapped a rectilinear pattern of enclosures, presumed to be an extensive field-system with track-ways, although the absence of pits and domestic debris suggests that these features are unlikely to have been house-plots (Cole 1996a).

Geophysics Area 3 (Figs. 2.8-2.9)

The survey of Area 3 was undertaken to establish the level of extension along the Roman road of the rectangular enclosures identified in the survey of Area 2. This survey began in the eastern corner of Field A and shifted westwards in the direction of the previous survey. Eleven 20m squares were surveyed, although it was not possible to extend this survey to join the earlier one, leaving an area approximately 95m wide unsurveyed.

Fig. 2.8 Clip plot of magnetometer survey of ditched droveway; Area 3, Field A

Fig. 2.9 Relief plot of magenetometer survey of ditched droveway; Area 3, Field A

A curving, double-ditched feature, probably a drove-way, is clearly visible through the centre of the survey approximately 45m from the road frontage, which continues up to the hedge, adjacent to the road. Its maximum width, at the junction of the linear ditch is approximately 15m. A further positive anomaly, probably a ditch, branches off

from the drove-way in a westerly direction and may possibly join the enclosure ditches of Area B, also in Field A. This may have served as a property boundary.

Field C (Fig. 2.10-2.11)

Fig. 2.10 Aerial photograph of cropmarks primarily in Field C, Marton; looking south-east

Photograph: University of Cambridge, copyright reserved

The most complex system of crop-mark features at the site has been revealed in Field C. There are a series of ditch-like features running parallel and at right angles to the line of the Roman road, as well as others disregarding this alignment. The most clearly defined features can be seen in the northern half of the field. A ditch running across the field on the same alignment as the double-ditched crop-mark feature in Field B, curves at the northern boundary of the field. A number of other linear features are visible, branching off this feature. A very large pit-like feature, measuring

approximately 10-12m in diameter is situated 3m south of one of these branch features. Whilst a number of crop-marks have been identified in this field, there is little clarity of detail. However, a large number of small, positive anomalies, probably associated with pits have been identified in the south of the field, close to the road and to a distance of 50m into the field.

Fig. 2.11 Aerial photograph of cropmarks in Field C, Marton; looking east

Photograph: University of Cambridge, copyright reserved

Geophysics Area 4 (Fig.2.12)

This area of Field C was selected for a three main reasons; the field-walking had identified a high concentration of Romano-British pottery and coinage, the close proximity to the road was considered to have potential significance, and a number of small, pit-like features were identified as crop-marks in this area.

Nine 20m grids were surveyed. The pipeline in the top left to left centre of the survey area is clearly visible and fortunately does not interfere too greatly with the archaeological anomalies identified. The plot shows two joining double-ditch features (a & b), probably representing a drove-way, running adjacent to and perpendicular to the road. This feature curves at the top and continues beyond the limits of the survey. In the eastern sector, the parallel ditches join with a similar feature running at right-angles to the road.

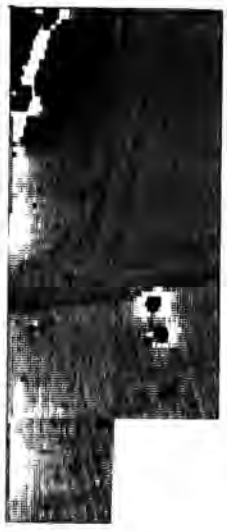

Fig. 2.12 Clip plot of magnetometer survey of Area 4, Field C

The most distinctive and interesting geophysical features identified in this area are the two magnetic anomalies, which are separate, but closely associated (c). They are situated side-by-side, below the lower ditch feature, close to the junction of the two double-ditched features and approximately 30m from the hedge. These anomalies consist of a positive annulus approximately 3m and 2m in diameter respectively, surrounded by a negative halo. It is difficult to precisely interpret these features, although the strength of the reading and the appearance suggest a thermoremanent origin, for example a kiln, furnace or hearth. Similar features identified as pottery kilns have been discovered at Lower Farm, Nuneham Courtenay, Oxon (Cole 1996b).

Naturally occurring processes such as iron-panning produce very intense and localised magnetic responses, not unlike that of a kiln or a hearth. However, there is a lack of similar features across the site at Marton which might be expected if the anomalies were the result of a natural phenomenon, and therefore this explanation is probably unlikely. Alternatively, these features may result from buried metallic objects, although this possibility is implausible due to the size and appearance of the anomalies.

These distinctive anomalies may represent two closely-associated kiln structures, or alternatively perhaps the oven and stoke-hole of a single kiln. The siting of two or more kilns in close proximity is not unusual in this area of northern Linconshire. Excavations at Newton-on-Trent, approximately 5 miles south of Marton, discovered two adjacent kilns which had been dug into the subsoil of wind-blown sand and lined with clay (Field & Palmer-Brown 1991, 48) and at Little London, Torksey three closely associated kilns were discovered (Oswald 1937). Excavations at Grange Farm, Lea discovered ten kilns in 1957 (Petch 1958, 107).

It is only through excavation that the function of these features can be confirmed, although it is possible to infer that these anomalies are likely to represent an industrial activity of some form on the site. Although no finds indicative of such activity such as kiln wasters or a concentration of metal-working debris were discovered during the field-walking, it is plausible that these features are Roman in date. The location of these features close to the road and at the intersection of two drove-ways may also have significance.

Geophysics Area 5 (Figs. 2.13-2.14)

It was hoped that a geophysical survey of the area close to the boundary between Fields C and D might give some definition to the crop-mark features, especially since the field-walking of this area had produced very few finds. A total of thirteen 20m squares encompassing the major crop-mark features were surveyed over this area. The positive magnetic anomalies identified, accurately mirror the crop-mark features

visible on the aerial photographs. The geophysical results also show a continuation of the major drove-way feature across the modern field boundary and into Field D. The line of the curving ditch is halted by the modern field boundary.

Fig. 2.13 Clip plot of magnetometer survey of Area 5 and 6, Fields C and D

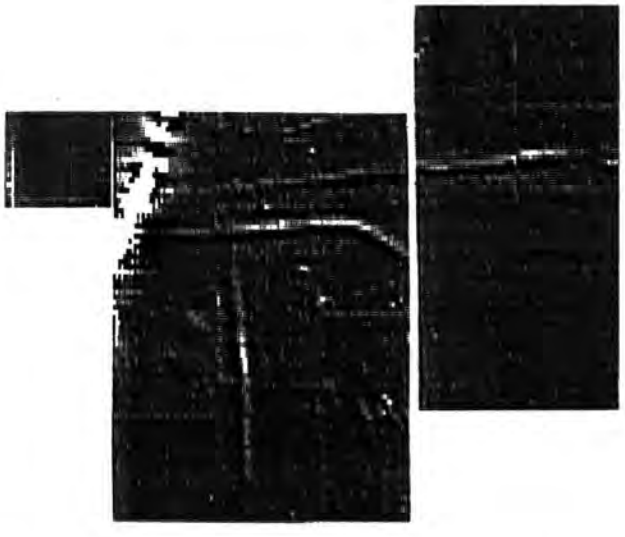

Fig. 2.14 Relief plot of magnetometer survey of Area 5 and 6, Fields C and D

Field D (Figs. 2.11 & 2.15)

Fig. 2.15 Aerial photograph of survey area;looking west. Cropmarks are visible in Fields D and F. Littleborough can be seen on the eastern bank of the river Trent Photograph: University of Cambridge, copyright reserved

Immediately north of the modern field boundary between Fields C and D a distinctive crop-mark has been identified over a number of years. This is a sub-circular enclosure measuring approximately 25m in diameter, with a circular or oval central feature. This feature lies on the same alignment as the ditch running across Field C and into Field B. Any attempt at interpretation of this crop-mark feature is based on morphological parallels, although excessive emphasis should not be placed upon this.

Geophysics Area 6 (Figs. 2.13-2.14)

The results of this survey are plotted with the survey of Geophysics Area 5 due to the proximity of the two areas.

Eight 20m squares were surveyed in this area, divided from the survey of Area 5 by the modern field boundary. The main intention of this survey was to give further

definition to the sub-circular or square crop-mark feature, if possible. However, there was little evidence to suggest the presence of this feature from the geophysical results. Instead, the lower ditch of the double-ditched feature seen running from Field B and across Field C in the aerial photographs, is seen traced into Field D; a feature which must have effectively linked these areas of the site.

The other crop-marks in Field D (fig. 2.1; 2.15) are equally difficult to interpret. Photographs taken in 1964 reveal two or possibly three, roughly square double-ditched enclosures, on the same alignment. There are a number of positive pit-like anomalies, situated within the enclosures. The enclosure features were initially identified as a possible Roman fort and surface 'perambulation' of the site, also in 1964 discovered finds of Roman pottery, including samian, glass, brick and roofing tile (SMR Report, Lincs PRN 50596). In 1959 a copper alloy Head-stud brooch, dating to the late 2nd century A.D was found in the vicinity of the crop-mark site.

These enclosures may not be contemporaneous, but all follow the same alignment and do not overlap the boundaries of the others, so it is probable that they were established at roughly the same time, or at least relate to the same phase of activity at the site

Without more certain evidence, the previous identification of this feature as a fort seems highly improbable. Double-ditched enclosures with rounded corners are indicative of, but are not exclusive to Roman forts. For example, unusual crop-mark features at Poplar Tree Farm, Blyton (SK 842941), situated approximately 10 miles north of Marton, showing three double-ditched enclosures, associated with small groups of fields or paddocks (Jones 1988, 21). There is at least one round-house type structure of Late Iron Age or Romano-British date, adjacent to the main enclosure and access to the enclosure is gained via a broad drove-way on the north. The main enclosure covers an area of 0.22ha and the smaller ones are 0.05ha each. The width of the interval between the ditches ranges from between approximately 5m and 10m for the larger enclosure and 2.5m in the smaller examples. The rectangular enclosures at Marton cover a total area of approximately 2ha. The greatest width of the ditches is

approximately 15m, although the very oblique nature of the aerial photograph may have skewed this figure slightly. It is most likely that these features may represent an enclosure with associated fields or paddocks, or alternatively that the enclosures represent a series of field-systems.

Large double-ditched enclosures with widely-spaced ditches have been identified at other sites in the East Midlands in later prehistoric and Romano-British contexts (Jones 1988, 22). At Tattershall Thorpe a curvilinear stock enclosure dating to the late Iron Age has been identified and a similar feature encloses the villas at Lockington, Leicestershire and Cromwell, Nottinghamshire (Frere & St. Joseph 1983, 198-200, pl. 120-1).

Clearly, the interpretation of this series of features is tentative without further survey or excavation.

Geophysics Area 7 (Figs. 2.16-2.17)

The final phase of the magnetometer survey was conducted within a block of pasture, Field H, also adjacent to the Roman Road. No field-walking, metal-detecting or aerial photography had taken place in this field, and therefore this survey was very much an exporatory one. This area was considered to be of significant potential interest because of the earth-work survival in the field, especially a bank approximately 20m from the hedge running parallel to the road, the location of the field adjacent to the Roman road and also the proximity to an area of Field C with a concentration of Romano-British material. It is known that Roman artefacts have been found along the Roman road within the village and Field H was chosen for survey also because of its close proximity to the village.

A total of ten 20m squares were surveyed in this area. A ferrous pipeline is visible on the southern limit of the survey. The bank visible as an earthwork in the field is replicated on the geophysical plot (a). The function of this feature is unknown, although it may represent a Medieval headland as there is evidence from the

geophysical plot, for probable ridge and furrow ploughing extending up to, but not beyond the bank (b). However, the possible ridge and furrow ploughing does not continue eastwards along the field.

Close to the road, a curving, semi-circular feature is identifiable (c), but is masked by the pipeline on its western side. The eastern side of this feature is linear, rather than circular. To the east of this feature, two circular features have been identified as faint positive anomalies (d & e). The larger of the two features, has a circular pattern of probable post-holes, out-lining the feature and curving ditches are also visible. There are also strong metallic readings associated with the high positive magnetic readings of the probable post-holes, which may suggest the deposition of metal in the ditch foundations, although this hypothesis is tentative. These features may represent one possible and two probable round houses, which may date to the Late Iron Age, but more probably to the Romano-British period. Unfortunately, there are no finds from this area to elucidate this possible interpretation.

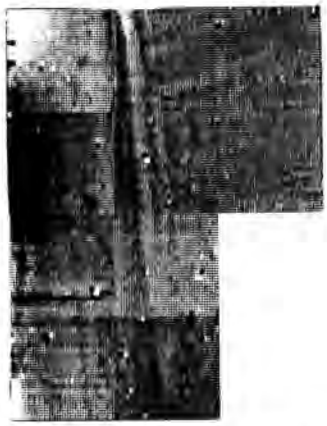

Fig. 2.16 Clip plot of magnetometer survey of Area 7, Field H

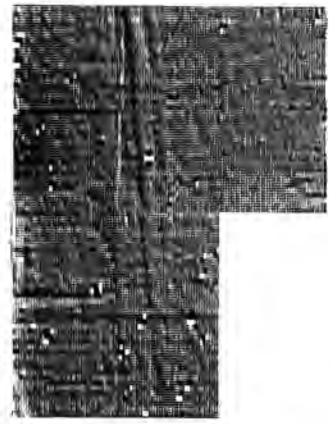

Fig. 2.17 Relief plot of magnetometer survey of Area 7, Field H

Field F (fig. 2.15)

A clearly defined feature was identified in Field F (fig. 2.15). This shows a double-ditched enclosure with right-angled corners. Parallel to this is a linear ditch feature running east-west with another ditch branching off at 90° from the western end. No

finds have been made in this area, and therefore any chronological or functional interpretation is impossible.

Further east along the Roman road, outside the boundaries of Marton, approximately 1300m from the 'focus' of the settlement, a series of crop-marks have been identified in Field I, adjacent to the Roman Road (figs. 1.2, 2.18). The geology in this area is Upper and Middle Lias Clay, and so the identification of crop-marks is more unusual than on the Cover Sands. The crop-mark features consist of a network of linear ditches and a small number of pits, set on a different alignment to the Roman road. The morphology of these features is not identifiable. However, sporadic and limited field-walking of this area has revealed a small quantity of Roman roof tiles, but no pottery. Further investigation of this area, including a geophysical survey would be advantageous in the future.

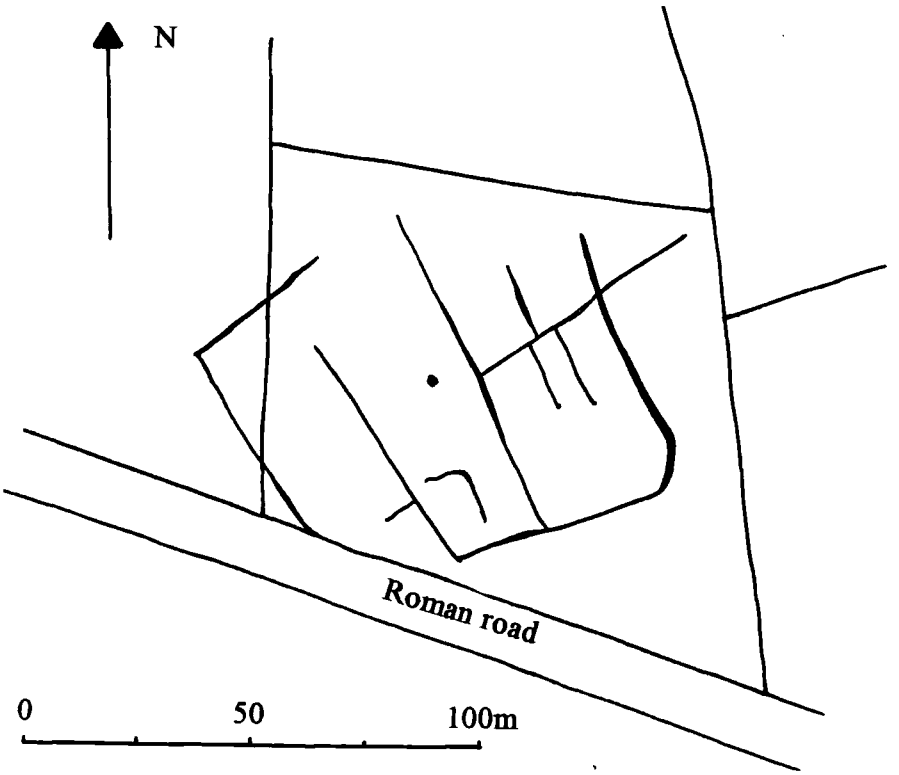

Fig. 2.18 Map of cropmarks in Field I

Conclusion

This survey has revealed the compatability of aerial photography and geophysical survey when used together over areas of this site. One of the principal aims of the geophysics was to reveal the level of survival of the crop-mark features identified, in

some cases 20-30 years ago. The almost exact mirroring of the crop-mark features in the geophysical survey suggests that the archaeological levels have not been obliterated by the intensive cultivation that the area has undergone, although the true extent of the plough-damage is unknown. Where both techniques have been used over the same area, very few 'new' features have been identified, although this is a reflection of the similarity of the features detectable by both techniques. A resistivity survey of selected areas might provide different results.

The geophysical survey has been extremely useful at identifying features not detected through aerial photography. This may be due either to the nature of the anomaly or perhaps because the crop marks at these areas of the site had not developed at the time of photography. It must be stressed that the morphological interpretations of the features identified are tentative. Nevertheless, the features identified represent the palimpsest of a possible late Iron Age and definite Romano-British landscape. Whilst much of this evidence is focussed upon the road frontages, there is considerable evidence for activity situated away from the road, although the level of contemporaneity between these features is imprecisely known.

In Field A, a small Roman fort has been identified through both air photographical and geophysical survey. Other features in this field include the network of rectangular enclosures with internal pit-like features and the double-ditched droveway; both of which are situated adjacent to the road frontage. The cropmark features identified in Field B include a number of linear ditches, a double-ditched feature and associated pits. Further survey in this area has not been possible. A complex pattern of cropmark features has been identified in Field C. Several small pits have been identified close to the road frontage and a series of linear ditches are visible running through the field. Perhaps the most prominent cropmark feature is the curving ditch situated in the north of Field C and running parallel to the boundary with Field D. Associated with this feature are a number of pit-like features, including a very large feature with a diameter of c.10-12m; perhaps representing a well or water-hole. The geophysical survey of Area 4 in Field C has revealed two joining double-ditched features, perhaps representing droveways or other access routes. Two very strong magnetic anomalies,

perhaps representing kilns or furnaces have been identified to the east of this feature. These features will be further discussed with reference to the associated finds in Chapter 7. The crop-mark features visible in Field D appear to represent a series of large rectangular enclosures, also with associated pits, indicates occupation situated away from the road frontage. The chronology of these features is unknown, although the artefact assemblage from this area would suggest a mid-late Roman date (see Chapter 7). The function and date of the feature represented by the crop-marks of a large double-ditched enclosure in Field F are unknown.

These features will be further discussed with reference to the associated finds in Chapter 7.

Chapter 3 Field-walking and metal-detection methodology

One of the principal aims of this survey was to obtain information concerning the spatial distribution of various classes of material in the plough-soil using systematic field-walking and metal-detection, and to relate this information to results derived from geophysical and aerial prospection. These data will provide an approximate date for the site and its extent, but the surface finds may further be used to ascertain the function of features identified by geophysical or aerial photographical means. By examining the results of such an investigation carried out over consecutive years it may also be possible to assess any anomalies with regard to biasing factors. In particular these include differential methods of data-collection and field conditions at the time of survey.

Field-walking

The potential for using field-walking as an archaeological survey tool has been expounded in a number of surveys and syntheses and is now an accepted and wide-spread means of site reconnaisance and exploration (Cherry and Shennan 1978; Haselgrove et al 1985). The importance of probabilistic systematic regional survey for the study of the interrelationship of sites within the landscape has been examined in a number of surveys of variable scale in Britain including 'The East Hampshire Survey' (Shennan 1985), The Maddle Farm Project (Gaffney and Tingle 1989) and The Vale of the White Horse Survey (Tingle, 1991). There is a dearth of similarly collected material in the area under study.

In this survey, field-walking has been used as a 'within-site'tool, rather than employed to discover a 'site' per se, and the sampling procedure undertaken has been non-random and essentially judgement-based. Field-walking has been used primarily as a means of discovering the extent of the known settlement and in order to assess artifact distributions and patterning with regard to any differences in settlement form and function. Restrictions on time for the collection and processing of field-walked material, on the land available and its uneven state of weathering directed the selection

of the survey area towards that which would be, in probability, the area most likely to address the questions outlined in the initial research objective. At a more practical level, it was considered appropriate to exploit, where possible, those areas with a considerable pre-existing database, and to examine the differences in the material collected over a number of years. The intention was to give some definition to the extent of the 'core' of the site, although a more extensive survey area might have been desirable. Cherry and Shennan (1978, 35) note that "...the use of a single landblock, plus the non-random manner of its selection means that the results cannot be generalised to apply outside that landblock without some risk of substantial error." Small-scale, micro-regional surveys cannot be used to generalise about the nature of the settlement patterns in a given region, and that is not the intention here, but they can provide a starting-block from which to address questions relating to broader, regional and even macro-regional issues (Gaffney and Tingle 1989).

The choice of the area to be surveyed has depended ultimately on the nature of the technique used. A uniform field procedure has not been adopted, but the techniques have been adapted to circumstance. Field-walking and geophysics can only satisfactorily take place when the land is not in cultivation, whereas metal-detection is not so constrained, although the soil conditions affect the recovery of atefacts. In some areas individual techniques have unavoidably been used in isolation.

The area under survey has undergone continual arable cultivation for many years, although it is in the last thirty years or so that the damage has become acute. The use of mould-board ploughs, sub-soilers and the effects of wind erosion of light soil in large open fields has presumably had a ruinous effect on much of the archaeology, although the real extent of this damage is impossible to establish without excavation. Part of the survey area is scheduled, but it has not been taken out of cultivation and is therefore highly susceptible to erosion accentuated by cultivation. Although maximum plough-depth regulations are enforced for scheduled sites, it is highly unlikely that they have always been adhered to, and consequently, scheduling a site without taking it out of cultivation is probably of negligible significance.

In the last two years the survey area has been used for carrot cultivation and this has led to a rather different preparation of the land. Field C was ploughed to the usual depth of 9 inches, although Fields A, D and E were deep-ploughed to a depth of 12 inches. A de-stoning machine was used over the whole area. This machine effectively sieves the soil, removing large clods of earth, stones and probably pottery from the cultivation furrow and deposits this material in the area between the furrows. Athough the actual distance that the archaeological material moves in any one season may not be substantial, the cumulative effect through repetition, along with the further abrasion caused by heavy mechanical processes is likely to be significant. No field-walking has been undertaken since this process occurred, and so anomalies in terms of the distributional patterns of field-walked material must be taken into account in any future programme of field-walking.

Field C was selected as the primary area for field-walking in both 1993 and 1995, for three principal reasons:

i. sporadic field-walking and metal-detection in the past had identified this field as an area comparatively 'rich' in Romano-British material, especially the area running along the length of the Roman Road and parallel to it for approximately 40m
ii. unlike the adjoining fields at the time of survey, Field C was not 'set-aside' and was thus available for field-walking without constraints
iii. a preliminary study of the aerial photographic evidence identified this area as worthy of further investigation because several extensive cropmark features were visible.

The study area has been determined by modern field boundaries and obviously this bears no reflection on any ancient boundaries that may have existed.

Field Methodology

Two seasons of field-walking have been undertaken. The first season took place over 4 days in October 1993 and was undertaken by the author. The methodology

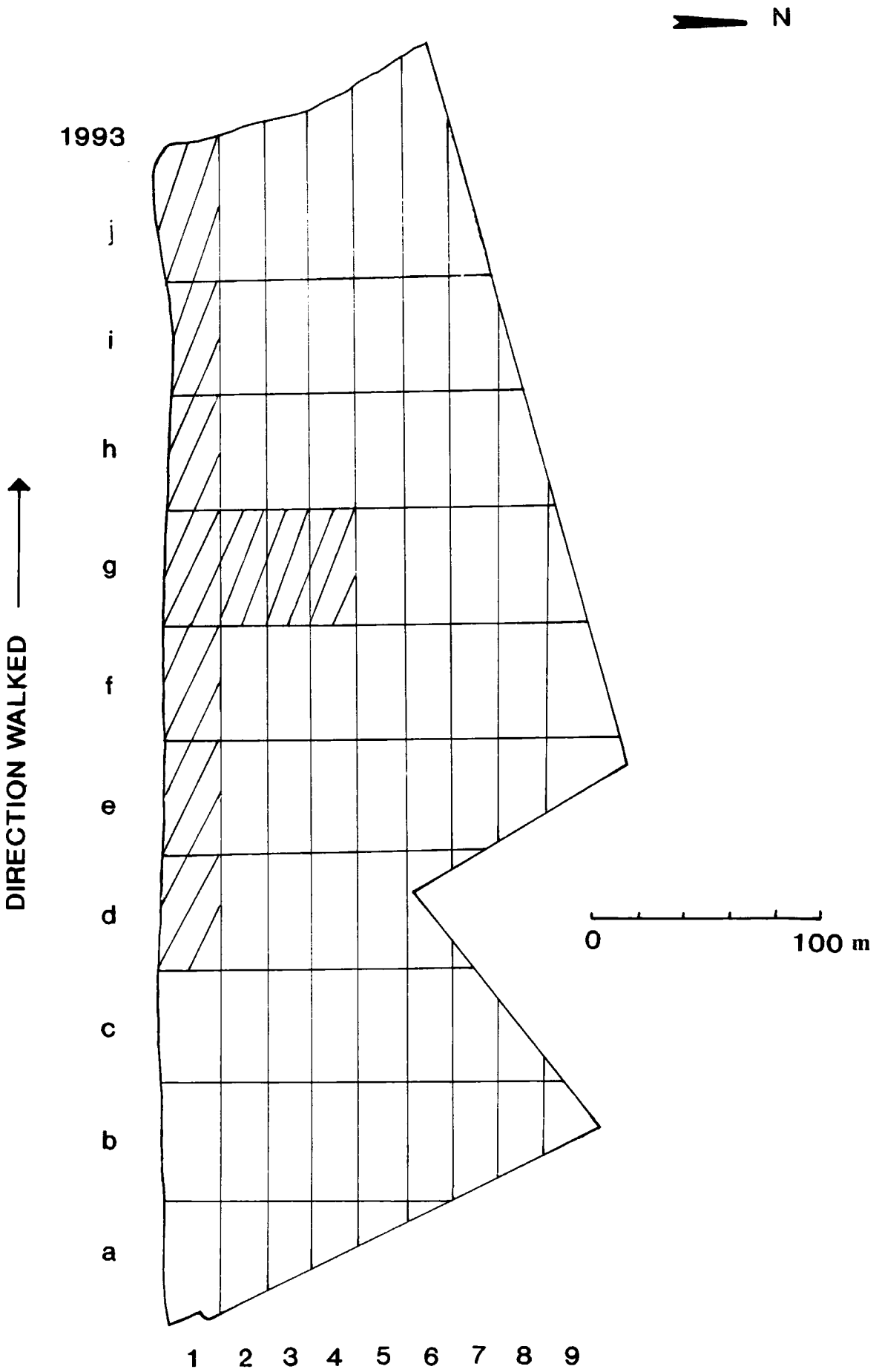

Fig. 3.1 1993; plan of field-walking of Field C. Areas of total collection are highlighted

employed in this survey was largely experimental and the results have proved very useful when establishing the field methodology for the following season. No other field walkers were involved and therefore experiments to assess the potential bias introduced by walker variants was not possible.

The field had been ploughed approximately 6 weeks prior to the field-walking and the ploughsoil had weathered to conditions of optimum visibility. Throughout the survey the weather was dull and rainy. The field-walking lines were set out at 20m intervals parallel to the line of the Roman Road (running east-west), and markers were placed in the ground. Each collection unit was 50m long and was numbered by line number, 1-11 and by division a-i (fig. 3.1). If the field of vision is estimated at 2-2.5m on each line, a 10-15% coverage of the area was made. It was neither possible in the time available, nor considered necessary to set out a grid in the field. Although this caused some problems in maintaining the position of the lines in such a large field, the margin of error was negligible. A secondary phase involved total collection from ten 20m x 20m squares, which were selected according to the high density of artifacts noted during the initial line-walking. No finds processing had taken place at this stage, so the selection of squares was largely judgement-based.

The field-walking of the same area in 1995, took place from 10-13th February and was undertaken by four individuals. The field been ploughed one month earlier, and although the field was well weathered, the area was not weathered to the same degree as in the previous season. During the survey, the weather was dull and over-cast with intermittent rain. Again, total coverage was considered neither possible in the available time, nor desirable. However, since the purpose of the survey was to closely assess potential differential artefact patterning within this land-block rather than simply identifying artefact concentrations, it was decided to use a relatively intensive ground coverage. The establishment of regular collection units would allow computer aided analysis of the data, both on an individual walker basis and in cumulative 20m squares.

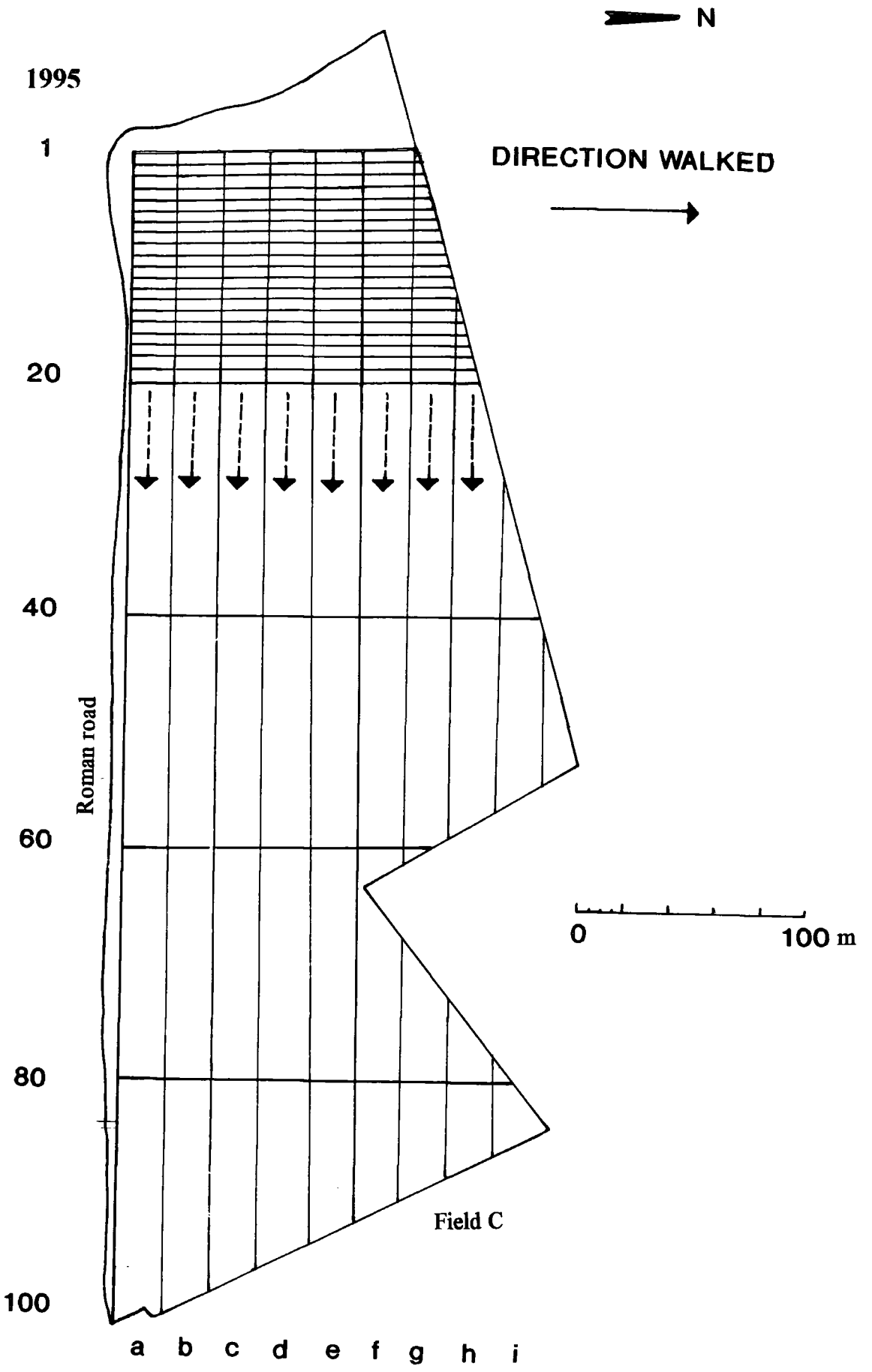

Fig. 3.2 1995; plan of field-walking of Field C

Field C was surveyed into hectare grids using an Electronic Distance Meter, with the baseline running parallel to Littleborough Lane. Each hectare grid was divided at 5m intervals aligned from South to North, along the baseline and markers indicated the lines to be walked (see fig. 3.2). Each lane was divided into collection units 20m long and a marker was placed in a position visible to all walkers. If the field of vision is estimated at 2-2.5m on every line, the result is a 40-50% coverage of the area. The lane number along the baseline and the letter perpendicular to the base line was recorded on the collection bag, such that the first line of hectare one would be recorded as 1a-e and so on. Since the setting-out of the grids was a time-consuming task and the adjoining grids would not be complete hectares, at the end of each lane, the collection carried on into the next hectare until the field boundary was reached. A section of the field at the north-western end was not walked as it was very wet and deeply rutted by machinery and a brief observation of the area had revealed very few surface finds. At the end of each collection unit the bags were secured and a new bag with a new number was used. Where collection units produced no finds a note of the unit number was made in order to avoid complications that might arise during the processing if a unit was unaccounted for.

In order to assess walker-based biases introduced into the collection, the ordering of the walkers in each new line was kept constant. One of the individuals had no field-walking experience and the other walkers had varying levels of experience. Visible knowledge of the locally-produced Romano-British pottery was limited to one walker, although it was not anticipated that this deficit would create excessive biases in the collection. Consequently, the procedure adopted in the field was such that all material of 'apparent' archaeological interest was collected, with material such as modern brick and tile discarded at the processing level. If modern material was positively identified as such in the field, it was not collected. Although the bulk of the finds analysis was to be concentrated on the Romano-British material, Medieval and post-Medieval material was also collected. This procedure was undertaken because the south-east corner of the field, which was a separate field until recently, used to be the village allotment block. It was considered that this area might provide interesting comparative results for the back-ground distributional pattern of post-Medieval

material, which might be interpreted as manuring-spread in the rest of the field. It is probable that whilst this area of the field was being walked, greater attention was paid to the collection of post-Medieval material, although this is difficult to assess. Similarly, it is very likely that where the onus was placed upon the collection of the Romano-British material in the rest of the field, much of the obviously post-Medieval material was probably overlooked.

The results of the field-walking are presented in Chapter 4 and Appendix 2 below.

Metal-detection

Metal-detection as a data-collection tool has played a very significant role in this survey. Despite wide-spread opposition to this technique as a means of collecting archaeological material, it is hoped that this survey will demonstrate that when the technique is used in a controlled manner and in conjunction with other survey techniques, important information which might otherwise be lost, can be collated and used to address specific questions.

From a practical stand-point, metal-detection is quick, cost-effective, highly mobile and it can leave little trace of its use, and when associated with increasing technological advances and experience of use, it can result in a highly successful recovery of artefacts over large areas. The question of control over who detects, what is found and where the finds are subsequently deposited is one of the major concerns surrounding the use of metal-detectors. Consequently, archaeologists witness, but are unable to control the disappearance of a huge, varied and valuable database. This situation is not improving.

In the recent 'English Heritage and CBA survey of Metal Detecting and Archaeology in England' (Dobinson and Denison, 1995), the total number of detectorists practising in England was estimated to be 30,000, of which 20,000 are 'serious' users and the rest 'occasional' users. Although this figure represents a considerable decrease from the number of detectorists operating in the early 1980s when the hobby was at its

peak, it is suggested that the detectorists practising currently are generally more 'dedicated' and detect more regularly. Of the estimated 30,000 detectorists, about 12,000 belong to the clubs affiliated to the National Council for Metal Detecting and a further 3,000 are members of the Federation of Independent Detectorists. The remainder do not belong to any organisation and are consequently extremely difficult to quantify (Dobinson & Denison 1995, 6).

The debate surrounding the use of metal detectors is long-standing. From its advent as a hobby in the mid-1970s, metal-detection has aroused justifiable concern and blatant animosity within archaeological and other circles. In the majority of cases it is not difficult to see why. Archaeological sites have been discovered and robbed and little or no information has been recorded for future use. For example, at the Roman temple at Wanborough, Surrey, it is estimated that over 9000 coins and many bronze objects were taken by treasure hunters and much of the site was greatly damaged in the process (O'Connell & Bird 1994). However, the question of whether to use a detector on an archaeological site is no longer perhaps as clear cut as it once was, and increasing numbers of detectors are employed by archaeologists on excavations and surveys. Inevitably, mutual antagonism between archaeologists and detectorists still prevails. Despite this, a number of ententes have been successfully established between professional archaeologists and detectorists, and these have demonstrated the integral role that metal-detectors can and should play in archaeological survey and excavation (Gregory and Rogerson 1984; Brown 1986). These surveys have also served to realign, if not replace, the generally wide-spread perceptions held concerning detectorists and their motives. Paramount to this has been the realisation that it is essentially the detectorist, rather than the detector that should be guarded against (Gregory & Rogerson, 1984, 179).

The Code of Conduct of the Federation of Independent Detectorists states rather ambiguously that all unusual historical finds should be reported to the landowner and clearly relies on the integrity of the individual detectorist and the interest of the landowner in the objects found. There is no legal requirement or obligation at present to report finds to the County SMR Office or museum, other than those produced in

precious metals. Consequently, the bulk of the finds, which are produced in base metals are never reported. Although some detectorists volunteer information regarding the nature and provenance of their finds, many more do not. As a result, any attempt at future research and synthesis is inevitably biased from the onset.

The question of scheduling sites and removing them from cultivation in order to control problems arising from erosion and plough damage has already been addressed in relation to field-walking. In terms of metal-detection, the scheduling of sites of special archaeological importance goes only part way to preventing the activity of detectorists. Although it is illegal to use a metal-detector on a scheduled site, the scheduling of the site, in itself attracts unwarranted attention. Although there have been successful prosecutions against illicit detection on some sites, for the majority of sites scheduling does not also invoke a greater level of surveillance. It remains very difficult and sometimes dangerous to monitor the activities of the more persistent detectorists or 'night-hawkers'. This problem is exacerbated by the rural and/or remote location of many sites.

Landowners have the power to stop some, if not all individuals from detecting on their land. However, individuals often assume that they have permission or do not ask because they know permission will be refused and hope that they are not noticed; others continue to detect when they have been refused permission and some landowners /farmers are apathetic towards archaeology and show little more than bemused indifference towards metal-detection. Although some landowners are very interested in the objects recovered, many would cite the act of trespass rather than the removal of antiquities from their land as the major grievance in cases of illicit metal-detection.

Whilst archaeologists are inherently aware of the potential and real damage caused to the archaeological record by detectorists they are frequently sceptical of finds recovered by metal-detection. In turn, a form of inverted snobbery develops on the side of the detectorists, who become more reluctant to pass information to

archaeologists about the nature and provenance of the finds they have made. Some archaeologists may see an understanding between the two groups as a distasteful condoning of metal-detection, but in many cases it may be the only available means of preserving and consequently using a metalwork database. It is argued here that it is more advantageous to work with the detectorists, since detection is going to happen anyway, and to attempt to influence their methods of collection and to use the information that they have collected, rather than simply to condemn the activity as unethical. The alternative would allow metal-detection and the expansion of private collections to continue at the expense of archaeological research. The advantages of this method are significant - '..those museums and SMRs that make positive efforts at liason invariably see an appreciable rise in the number of finds referred' (Dobinson & Denison 1995, 8). Although the recording of the provenance of finds is of paramount importance if future analysis of a particular site is to be undertaken, it is better to record some contextual information about finds, rather than to simply disdain them. Without interaction, it would be quite possible for new sites to be discovered and left unreported to SMR Offices or local museums, unless some extraordinary finds are made.

Some archaeologists have been visionary in recognising that since metal-detection is going to continue unabated, it is largely through co-operation with detectorists that a valuable 'resource' can be manipulated and used in an archaeological analysis. The result of such an 'understanding' is best seen through the quantities of metal-detected material referred to local museums by detectorists. Significant variability has been noted; almost 100% of the objects seen were found by metal detectorists at some museums, while at others the figure was 1-5% (Dobinson and Denison 1995, 11). Gregory and Rogerson (1984, 182) suggest that the usefulness of metal detection can only really be judged from the data actually recovered in proportion to what would have been recovered without it, and this is demonstrated by their experiment at Thetford, Norfolk. Organised metal-detection at this site both before and during excavation discovered a total of 126 objects. One hundred and four of these objects were found in the top-soil and would probably not have been recovered without a metal-detector.

Most of the artefacts that are recoverable by a metal-detector have been displaced from their original archaeological contexts and are now situated in the top-soil. However, it is also clear that quite a proportion of finds were originally deposited on the surface, rather than in features and have therefore moved around in the topsoil but have not be displaced as such. In excavations, this material is frequently machine-stripped and unless this spoil is detected much valuable archaeological material is lost. Surface surveys in conjunction with excavations of the same area have demonstrated that although finds in the topsoil have been lifted by the plough from their depositonal context, it is not widely spread. Therefore, such assemblages still have great potential beyond indicating the presence or absence of artefact types and should not be overlooked in any archaeological investigation (Brown 1986; Gregory and Rogerson 1984; Gingell and Schadla-Hall 1980, 11; Clark and Schofield 1991).

Because of the vast quantities of corroding iron objects found in the ploughsoil, the detectors in this survey were set to discriminate against ferrous signals. This is a very common practise adopted by detectorists and saves much time and effort, but consequently biases the metal-work assemblage against iron objects, which are generally well-represented in excavated assemblages. If the detectors were set to retrieve all metals, there would follow problems of identification of the artefacts by period, due to the corroded, often fragmentary and therefore worthless (to the detectorists) nature of the finds.

The level of corrosion due to mechanical and chemical factors is very difficult to quantify as the deterioration of objects can also be due to factors such as the soil type and the quality of the object at deposition. Chemical fertilisers and farm slurry corrode metal and the process of ploughing itself increases the level of oxygen in the soil which in turn causes the iron sulphides in the soil to slowly oxidise producing water soluble ferrous sulphide and sulphuric acid (Thorburn and Trafford 1976, 4). Many finds specialists have reported that many finds are generally in a worse condition than those detected several years ago (Dobinson and Denison 1995,52). In this sense metal-detection is a form of rescue archaeology, especially on sites that are unlikely to

be excavated, and also because metal-detection covers a far wider area than most other survey techniques (Brown 1986, Dobinson and Denison 1995).

Certain classes of artefacts, such as lead, are frequently missed primarily due to their colour during excavation and field-walking, but are found using detectors.

Methodology

Marton has long attracted the attention of metal-detectorists. This is probably a result of the Ordnance Survey maps advertising the fact that a Roman brooch had been found in the area, but also its situation on a Roman road and close to an apparent Roman 'small town,' must have influenced the choice of site by detectorists. It is impossible to estimate the quantities and nature of the finds made, although if one judges from the number of objects collected since the metal detection has been controlled, despite the conditions being different and the outings more regular, the quantity removed in the past must be very substantial.

Until the late 1980s a number of 'sporadic' detectorists and on one occasion a Detecting Club were permitted access. Many more detectorists, especially the more persistent individuals were refused access, although this has not necessarily stopped them from detecting illicitly and passing information to other detectorists. Foot prints and holes in the site, often in specific areas are evidence that certain parts of the site have been scanned from time to time, probably at night. Where illicit detectorists have been noticed, they have been asked to leave, although they have not always done so quietly. If no surveillance took place, especially in the period immediately after harvesting, on some occasions there could have been up to five individuals detecting at the same time and probably more at the week-ends. Consequently, in any one day, depending on the soil conditions and the experience of the detectorist, an average of between 5-40 archaeological objects could be found. Since 1994 approximately 450 objects have been found by one detectorist, who has been working relatively intensively, when the area has not been in cultivation.

The metal-detection for this survey from 1992-6 has been undertaken exclusively by two individuals and their co-operation in recording all metal finds has been of tremendous value. Initially, the methods employed were essentially subjective. Areas relatively 'rich' in material culture were identified, specifically Field C, and these areas were subsequently focussed upon at the expense of the much larger remaining area. The provenance of this material was not specifically recorded, although general distributional patterns statements can be drawn.

From 1994, a more systematic approach was adopted which aimed at plotting all find-spots, over a wider area, rather than concentrating on specific areas. A much broader coverage of Field A was possible because Field C, which was identified as having the most dense distribution, was under cultivation and impossible to survey for a substantial time.

The material collected in the metal-detecting survey is presented in Chapter 5 (Roman coins) and Chapter 6 (Roman 'small finds').

Chapter 4 THE ROMAN POTTERY AND GLASS

The aim of this chapter is to present the results of the field-walking programme of Field C (fig.1.2, 3.1-2). The emphasis will not be placed upon a typology of the forms represented in this assemblage, although questions concerning the chronology and supply of the pottery will be addressed. One of the major objectives of this survey was to enhance the existing knowledge of the site and to possibly define its extent, rather than to discover the site per se, as is the case in many, although certainly not all field-walking exercises. Consequently, the field-walking methodology has been adapted to take advantage of the existing distributional information. The distributional patterning of specific ceramic types will form a major component of this study. The final section will deal more specifically with the results of the experiment to assess possible collection-induced biases. Details are also given of an isolated pottery scatter found near the boundary of Fields C and D and of the Roman glass found during the field-walking of Field C.

Two of the primary aims of pottery research are to establish a chronological framework for the site and also to add other information to help its interpretation (Darling 1994, 12). Although pottery cannot offer precise dates in the way that coins can, it is traditionally viewed as one of the key dating tools available to archaeologists. The so-called shelf-life of a ceramic vessel is generally very much shorter than the circulation of coin issues which could continue many years after minting; pottery may therefore be the more sensitive source of dating.

It is generally considered that field-walked ceramic assemblages, removed from archaeological contexts and often highly abraded, can offer less refined-dating than can be determined from excavated assemblages. However, in stratified pit and ditch contexts, for example, a high proportion of the material is often residual due to the potentially slow build-up of these deposits. To denigrate plough-soil assemblages as of little archaeological and specifically dating use is to disregard the potential

importance of the ploughsoil as an archaeological context ; indeed in this case, it is the only context available for study (Haselgrove, Millett & Smith 1985).

Site Visibility

The identification of a site by field walking depends largely upon the level of agricultural damage but also on the nature of the site and the intensity of its occupation. The area under survey has been in constant cultivation, probably since Medieval times. No signs of Medieval ridge and furrow survive. Deep-ploughing and harrowing have taken place in recent years, although the plough-depth in Field C was decreased on request. As farming increases in intensity, new methods of land preparation are employed. One such method is the use of de-stoning machine used during the preparation of the land before the cultivation of carrots in the survey area (see Chapter 3 for details). This machine effectively sieves the soil and then places the stones, pottery, large clods of earth etc. in the next furrow. Future field-walking and the interpretation of artefact distributions must take such processes into account, especially if they are repeated on a regular basis.

The level of damage to archaeological deposits can vary both from site to site and also within the same site. In some cases it is probable that agricultural techniques have eradicated most, if not all deposits, whereas in others ploughing may have damaged the upper levels but not the negatively-cut features. Where new deposits of material are being brought to the surface, it is probable that disturbed contexts still exist beneath the ploughsoil. Only the excavation of selected areas could clarify this. The question of whether the pottery recovered from a field survey is wholly representative of the pottery in use at the site can also only be resolved by a comparative study of the surface and sub-surface deposits (cf. Gaffney, Gaffney & Tingle 1985, 98). Such a study here is beyond the scope of this thesis.

Methodology

The methodology involved in the fieldwalking of Field C has been discussed in detail in Chapter 3. Two seasons of field-walking have taken place, although the methodology employed has varied. In both cases, the field had been ploughed and allowed to weather for at least two months before walking. The repeated coverage of the same area has enabled a number of issues to be addressed. These include the ability to assess the degree of replication of the distributional patterning recognised after the first season and also to assess any variations as a possible result of collection biases. It is unfortunate that time and access restraints have prevented similar surveys of the surrounding fields.

Quantification

A total of 74.8kg of material from Field C have been recovered; 2340 items weighing 19.8kg in 1993 and 3924 items weighing 55kg in 1995. Table 1 shows the proportions of pottery, slag and brick/tile recovered by sherd number and weight. The pottery category includes the Medieval and post-Medieval as well as all Roman fabrics.

	Pottery sherd. no	Pottery weight (kg)	Slag no.	Slag weight (kg)	Brick/tile no.	Brick/tile weight (kg)
1993	2247	16.9	0	0	98	2.9
1995	3420	30.6	139	4.2	365	20.2
Total	5667	47.5	139	4.2	457	23.1

Table 1. Quantities of field-walked material from Field C

Composition of the assemblage

The pottery has been divided into fabric groups and the sherd numbers and weights have been recorded. The categories are based primarily on fabric groups but also on vessel form, where this is immediately apparent, such as the mortarium and amphora categories. Ten basic categories have been identified:

1) Amphora; Dressel 20 (Remesal 1986)

2) Mortaria; products from Lincoln, Mancetter/Hartshill, Doncaster and other sources (Hartley 1973).

3) Samian ware, of which both South Gaulish and Central Gaulish wares are represented (Webster 1996; De la Bédoyère 1988)

4) Miscellaneous 'cream' fabrics, which are probably the products of the Lincoln kilns, especially South Carlton (Webster 1944)

5) Colour-coated wares, mainly products from the Nene Valley and also probably Swanpool kiln, Lincoln. Also products from Cranbeck and the Oxfordshire kilns (Howe et al 1980; Young 1977; Darling 1984).

6) Black-burnished ware copies, which are products of kilns in South Yorkshire especially Rossington Bridge (Buckland et al, 1980).

7) Shell-tempered wares, which are likely to be primarily the lid-seated jars of the 3rd-4th century and produced at sites throughout the Midlands, including Knaith, Lincs (Swan 1984, 124)

8) Greywares; divisions have been recognised between grey fabrics. There is a very fine grey fabric, with a different coloured cortex which is often red-brown, giving it a sandwiched effect. The exterior surface is usually highly polished. Some of this pottery is very similar to Parisian ware. Other grey ware fabrics are generally more coarse, with a higher proportion of inclusions and little surface decoration (Todd 1968; Field and Palmer-Brown 1991)

9) Miscellaneous oxidised wares; coarse fabrics

10) Brick/tile

11) Post-Roman material, the majority of this is post-Medieval including a high incidence of clay-pipe fragments

Figs. 4.1-4.2 illustrate the proportions of fabric-groups of Roman pottery identified in this assemblage.

It has not been possible to establish the percentages of fabrics according to the chronology of the fabrics or vessel forms. This is due to the unrefined dating of some of the fabrics and because these undated wares form such a significant proportion of the assemblage.

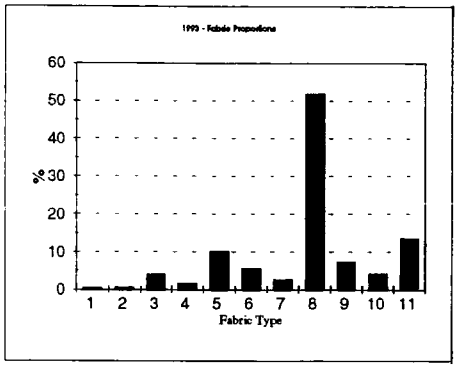

Fig. 4.1 1993 assemblage: proportions of fabric groups

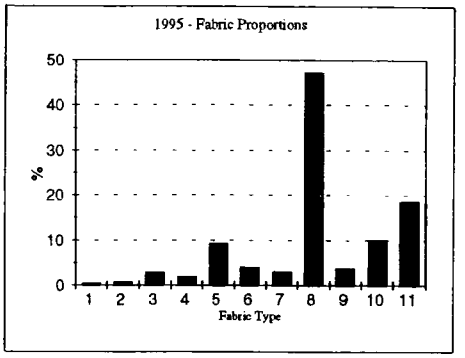

Fig. 4.2 1995 assemblage: proportions of fabric groups

Pottery supply and manufacture

This section briefly deals with the major fabric groups identified in this assemblage, taking into account the range of forms available and the chronology of the products.

Amphora

Nineteen sherds of amphorae have been recovered; 6 from the 1993 fieldwalking and 13 from 1995. All fragments have been identified as Dressel 20 amphorae. All are body fragments apart from one rim fragment. Dressel 20 amphorae were made in the southern Spanish province of Baetica, along the River Guadalquivir (Ponsich 1974; 1979). They were globular in shape and were in use from the 1st-3rd century, principally to hold olive oil. It has been suggested that such products may have been part of a long distance trade to provide supplies to the army and administrative staff stationed in Britain (Remesal 1986, Carreras 1991). Dressel 20 amphorae are common finds on sites in the north-west provinces and imports ceased after the 3rd century.

Samian

A total of 189 sherds of samian have been discovered, including one complete stamp of *CAPILLIANI* (fig. 4.3), a potter working at Lezoux and noted also at Corbridge, Leicester and York in Antonine contexts (Oswald 1931, 59). South Gaulish samian ware of the 1st century has been identified within the assemblage, although Central Gaulish products are more common.

Fig. 4.3 Stamp of Capilliani of Lezoux

The samian identified at nearby Littleborough (Hartley & Dickinson 1996) suggests occupation at that site in the 50s AD and the use of samian continued until Central Gaulish imports ceased in the late second century. An interesting feature of the Littleborough samian assemblage is that unlike most other British sites, there appears to be no drop in the supply between A.D. 100 and 125. A possible explanation given for this feature is that samian was shipped from London, where the supply was upheld, to the Humber and thence into the Trent (Hartley & Dickinson 1996, 267). Although one can not automatically assume that all pottery forms reaching Littleborough were reaching Marton in similar quantities, due to its proximity to that site it is highly probable that this is at least partly the case.

Willis (1997a) has shown that a comparison of the proportion of decorated against plain samian, predominantly 1st century South Gaulish products, may permit an assessment of the type of site in question. The general pattern emerging is that the proportion of decorated vessels is greater than that of plain ones at indigenous sites, but the converse is true at military sites. A possible explanation given for this pattern,

is that the form of the vessel rather than the decoration was considered to be more important. Such analysis has not been possible in this assemblage, although during the processing of the pottery only small quantities of decorated fragments were noted. This may reflect a genuine shortage of decorated forms as is to be expected in the 2nd century Central Gaulish products, or alternatively this feature may result of the very small and worn nature of many of the samian fragments. It is very possible that a small undecorated fragment may represent the plain zone of a decorated vessel, and this would obviously be a distorting factor. The pattern of a higher proportion of undecorated samian noted at military sites may be appropriate in the case of Marton which has no evidence of an Iron Age precursor, starting as a military site, although it was probably only relatively short-lived as such (see Chapter 8).

Colour-coated wares

The colour-coated fabrics are highly distinctive and one would expect a reasonably high level of recovery, regardless of sherd size. A total of 566 fragments have been collected throughout the survey; 233 in 1993 and 333 in 1995. The source for the majority of this pottery are the Nene Valley kilns, which are centred around Water Newton and spread westwards into Northamptonshire. The earliest known kilns are of late 2nd/early 3rd century date but the start of this industry is probably c. A.D. 130-40 (Howe et al 1980). Production continued into the 5th century. It is probable that the early production was the work of immigrant potters, possibly from the Lower Rhineland as the earliest beakers are very similar to Cologne/Rhineland prototypes in form, fabric, decoration and finish (Swan 1984, 95).

As at many sites in the East Midlands, the well-made Nene Valley colour-coated fabrics are the most commonly occurring fine wares in this assemblage and are very much more common than samian vessels, which were probably always regarded as superior, at the majority of sites. The most common forms of colour coated vessels are beakers, shallow bowls and dishes. Of the diagnostic sherds recovered at this site, a majority of drinking vessels have been noted, identified mainly from the small pedestal bases. The predominance of beakers is a common feature of supply to sites in

Humberside and the North and suggests differentiation of supply of this form as opposed to bowls and jars (J. Taylor, pers comm). The core colours of fabrics produced in the Nene Valley range from white, buff or pink to pale orange and the colour coats vary from dark grey to brown to reddish-brown, with a matt or slightly metallic finish. A range of decorative finishes have been identified on fragments in this assemblage, including barbotine, applied scale, indented and painted.

There are difficulties in distinguishing the Nene Valley products from material produced at the Swanpool kilns, Lincoln, which copied the Nene valley types to the extent that macroscopically they are identical. The parallels between the Nene Valley and Swanpool products may result from an increased homogeneity in pottery production in the 4th century, or alternatively that a Nene Valley potter established a workshop at Lincoln (Darling 1977, 26). Production of these vessels at Lincoln was probably undertaken on a very much smaller scale than at the Nene Valley industry. Despite the proximity of Lincoln to Marton, it is probable that the majority of colour-coated wares were produced in the Nene Valley which had intensive production and a wide market.

A total of five sherds have been identified as products of the Oxfordshire kilns. These are red colour-coated finewares, which closely imitated the late plain samian forms. Production of this type began in the late 3rd century and reached the height of its distribution in the 4th century. Red colour-coated wares, especially bowls, have a much wider distribution, extending into Northamptonshire and Lincolnshire, including rural sites, than other products of the Oxford kilns (J. Taylor, pers.comm). At Lincoln, finds of red colour-coated Oxfordshire wares are rare, partly because it lies outside the main trading area for these products but also because of the proximity of the colour-coated industry in the Nene Valley which dominated the east Midlands (Darling 1977, 25).

Probable Parisian ware

Twenty fragments of Parisian ware have been identified. This pottery was produced from the late 1st-early 3rd century at kilns in Lincolnshire and South Humberside. A number of forms including cordoned beakers, bowls and flasks were manufactured in a fine dark-grey fabric with a light-grey outer layer and finely polished blue-black surfaces and impressed stamp decoration. Production sites have been identified at Rossington Bridge, Doncaster and Market Rasen (Swan 1984, 39), although it is likely that a number of other production centres are yet to be discovered. No stamped or diagnostic fragments have been identified in this assemblage.

The Coarse wares

This category constitutes almost 50% of the assemblage in both seasons of field walking. Grey ware and other similiar coarse ware vessels are ubiquitous on sites throughout Roman Britain. In the East Midlands these products have been classified as Trent Valley ware (Todd 1968). Todd described this fabric as ' a distinctive, rough, porous, dark-grey fabric with a rather spongy, bubbly surface, with a few shell-grits frequently incorporated in the paste', although more recent evidence has suggested variations in the fabrics produced.

These vessels represent the unpretentious, everyday, household pottery used in the preperation, cooking, serving and storage of foodstuffs. The relative 'life' of a coarseware pot was probably much shorter than that of a fineware vessel due to the processes they underwent, especially heating, and the probability that they soured quickly as a result of inadequate cleansing. Apicius's cookery book starts with the instruction to begin with a new cooking pot, although whether this happened in Italy or if this information filtered through the provinces and was acted upon is unknown. It is possible that vessels were discarded before breakage, although the availability of replacements must have played a major role in this choice. Whatever the reason for final disposal, it is likely that coarse wares would not have had an extensive life and that unlike tablewares which were treated with care and were often repaired with metal rivets and plugs, they were more readily discarded when faulty.

Coarse ware pottery was produced by all the major pottery industries in the East Midlands (fig.4.4). The majority of the coarse pottery found at Marton would have been produced locally, either by kilns working in isolation or in industries of variable size. As often large and bulky utilitarian vessels it is unlikely that they would have been transported over long distances due to the costs incurred. The range of coarse ware forms present in this assemblage is extensive, although it is probable that function rather than fashion determines the form (Darling 1977, 4). However, imitation as an expression of fashion should not be disregarded.

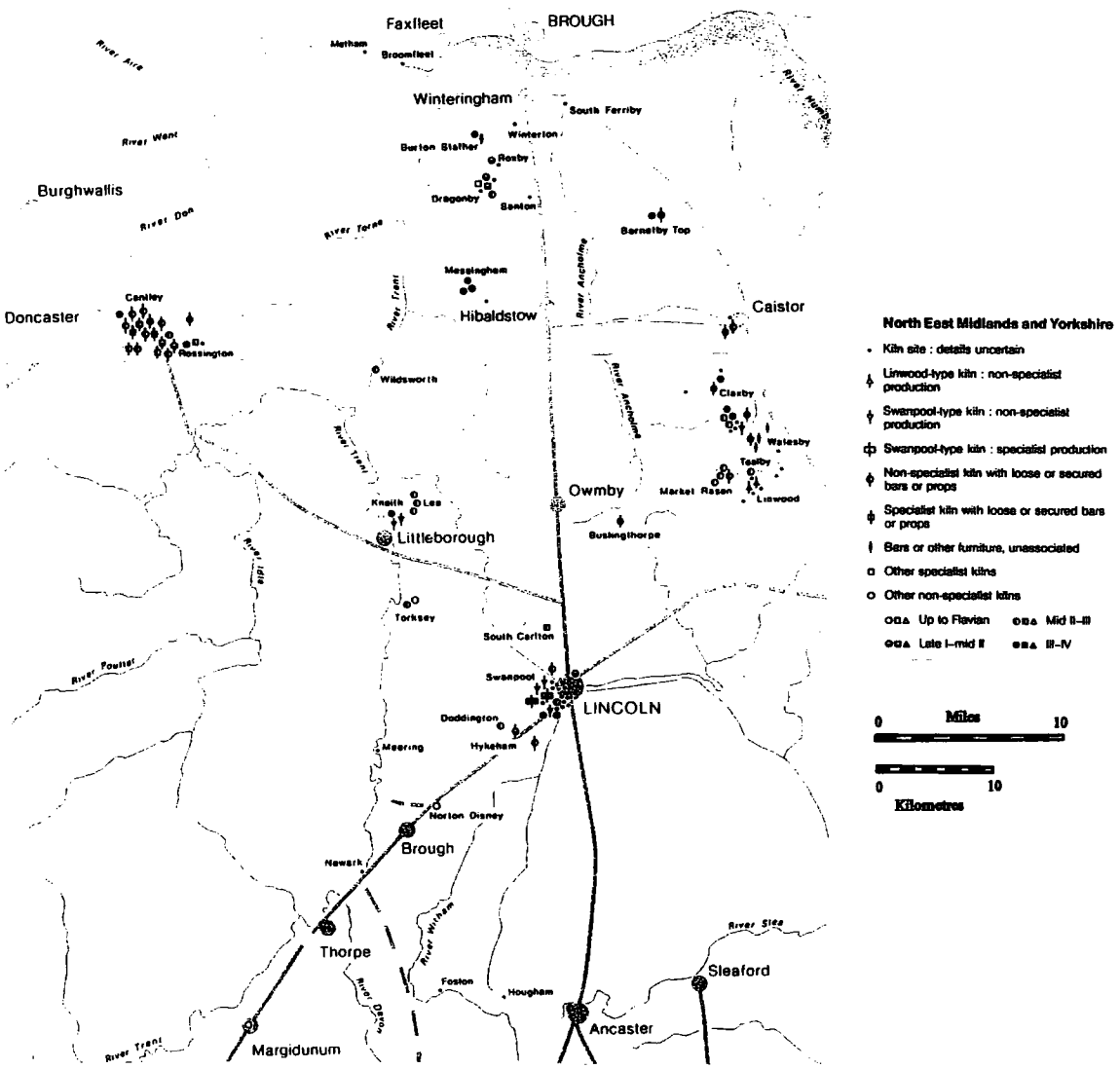

Fig. 4.4 Pottery kilns of the North East Midlands and South Yorkshire (from Swan 1984, Map 13)

The localised arrangement of kilns producing kitchen-wares throughout Roman Britain was extensive, but is little understood in areas where extensive and large-scale industry has not been identified and excavated. The suggestion that potters could have been attached to a settlement or group of settlements, rather than working in industrial complexes is entirely feasible (Swan 1984, 3).

A network of kilns operating at Little London, Torksey (Oswald 1937), Lea (Field & Palmer-Brown 1991), Newton on Trent (Field & Palmer-Brown 1991) and Knaith (unpublished), are situated within a 5 miles radius of Marton. A kiln is also suggested at Littleborough, based on the evidence of mortarium and coarse ware wasters (K. Hartley 1996, 271), although no kiln feature has yet been located. The possibility of the feature identified during the magnetometer survey at Marton as a possible kiln should also be mentioned, although there has been no evidence of kiln wasters or other debris. The siting of these kilns in relatively close association is strategically placed to take advantage of raw material supplies and the road and river network which facilitated the effective transport of goods (see fig. 4.4). This evidence suggests a relatively intensive, though not a major industry, whose products were probably intended for local supply, although the proximity to river transport may suggest that the products were intended for circulation on a slightly wider scale. Few kiln sites are known on the western bank of the Trent in this area. This may reflect a genuine absence or perhaps a lack of fieldwork, but it either case it is very probable that the Lincolnshire kilns supplied sites on both sides of the river.

There is much homogeneity in the products produced from these kilns, although the Torksey kilns may have been in production at an earlier date than the general 2nd-3rd century date attributed to these kilns. At Green Lane, Lea fourteen vessel types were identified in the kiln. The most common form was the medium-sized jar followed by the wide-mouthed bowls and various forms of lipped dish. Many vessels carried lattice decoration and rustication was also quite common (Field & Palmer-Brown 1991, 54). Other pottery excavated from a ditch close to the kiln included amphora, samian, mortaria, colour coated wares, red sandy wares, Dales ware and Swanpool products (Field & Palmer-Brown 1991, 46). Ten other Roman kilns were found at Grange

Farm, Lea, 270m to the south-east of the Green Lane kiln. Seven of these kilns were excavated and the products were found to be similar to those from the Green Lane kiln (Petch 1958, 107). Three kilns were excavated at Knaith, although this was a sample of the larger group plotted in the gradiometer survey (Whitwell & Wilson 1969, 102). These kilns were identified as Swanpool-type kilns with D-shaped pedestels, tentatively dated to the late 3rd to mid-4th century by the excavator, B. Whitwell (Swan 1984, 123). The products of Swanpool-like kilns are normally grey with areas of burnishing and often burnished-line decoration, which is suggests some regional homogeneity in both technique and vessel form (Swan 1984, 124). Darling notes that the normal grey ware jars produced at the Swanpool kilns do not show signs of having been used as cooking vessels, and their fine, burnished appearance may suggest that they were intended for tablewares rather than for cooking pots and the coarser grey and shell-tempered vessels would be used for cooking and storage (Darling 1977, 23).

It is probable that tile manufacture was also taking place at Knaith as tile wasters were found in the filling of one of the excavated pottery kilns (Whitwell 1982, 139). The proximity of these kilns to the river would facilitate the transport of tiles over a relativiely wide area.

The products of the three kilns at Little London, Torksey include carinated jars, flagons, jars, cups, platters and colanders or cheese-presses. The types of decoration employed include lattice, and burnishing with wavy decoration. Oswald notes the prevalence of Torksey products at sites in the Trent Valley such as Norton Disney, *Margidunum* and *Ad Pontem* and further afield as Templeborough and Doncaster (Oswald 1937, 13).

The two kilns at Newton-on-Trent produced material of a similar style to that found at Lea, Knaith and Torksey and again suggests a date in the second half of the 2nd century (Field 1984, 102). Of the nine forms identified at this kiln, the most common vessel types were medium sized jars and wide-mouthed bowls. Rustication was the only decorative technique identified. Mortaria were produced at Newton from iron-

free clay which must have been brought to the site specifically for mortaria production and may be connected with the mortaria production at South Carlton, Lincoln (Webster 1944).

As suggested above, variations in the fabric of the general greyware category have been identified. In the products from Lea and Newton on Trent, three main variations in fabric were noted (Field & Palmer-Brown 1991, 49). These are categorised as i) plain grey; ii) a dark grey, soft fabric with burnt out inclusions and iii) a grey fabric with a coarse, uneven texture. It is probable that these variations are related to the differing preparation of the clay rather than to the use of other clay sources and seem related to vessel type. One of the principal tendencies is for the smaller vessels to be produced in the finer fabric, and conversely the larger vessels were generally produced in the coarser fabric. At the Little London kiln, Torksey (Oswald 1937, 18), the two variations in fabric are suggested to have chronological significance, with the finer fabric dated to Period 1 (c. A. D. 150-80) and the 'softer bake of similar colour with a rough gritty surface' dated to c.A.D 230-50. Oswald notes that the pottery of Period II is characteristic of the 3rd century being hard, varying in colour from light to blue grey , with white grit (presumably shell-gritted) and burnished bands on the body and rim. A 'black, polished ware with a red core' is a product of these kilns. However, Todd suggests that all products of this kiln should be assigned to the mid-3rd century (Todd 1968, 206).

South Yorkshire Products

A considerable amount of pottery in this assemblage (269 sherds) is identified as products of the kilns concentrated just south and east of Doncaster, centred around Cantley, Auckley and Rossington. It is probable that production began in this area in the Flavian period, probably due to the siting of the fort at Doncaster, although no kilns of this date have yet been discovered (Swan 1984, 105). The industry expanded greatly in the early Antonine period, and the production of black-burnished ware copies, although after the late 2nd century the range of forms changed as military supply decreased. It is likely that production continued into the 4th century, although

by that stage the level of production had decreased significantly. Most of the vessels are produced in a hard, dark grey fabric with a variable amount of small quartz grit, and is indistinguishable macroscopically from the Black Burnished wares of Dorset. Many of the vessels were burnished, and other decoration includes lattice on jars, bowls and dishes, especially at Rossington Bridge, shallow arcading and wavy lines on some shouldered bowls and linear to subdued rustication is found on cavetto-rimmed jars from Cantley and Rossington Bridge (Buckland et al 1980, 152). Other vessels produced at these kilns includes mortaria in an orange-red oxidised fabric with an off-white slip, shallow dishes, lipped dishes/bowls, beakers, jars, flagons, larger bowls and colanders. Examples of shallow dishes, jars and lipped bowls have been identified in the Marton assemblage.

Dales Ware/ Shell-gritted/calcite gritted fabrics

Shell-gritted wares constitute c.2.5% of the total assemblage. Dales ware is known in South Humberside from the late 2nd century onwards and occurs in Lincolnshire and Yorkshire in the early 3rd century (Swan 1988, 35). This fabric was primarily used for the production of cooking vessels and the most distinctive form is a jar with an S-shaped profile and a wheel-turned rim. This form was exported to northern Britain where it is dated to A.D. 280-340 (Gillam Type 157). The relatively small amount of this fabric recovered may result from its high level of abrasion in the ploughsoil due to the soft, 'soapy' fabric. The late 4th century successors to Dales ware are calcite-gritted fabrics which are known to have been produced at Swanpool, Lincoln.

What does the assemblage mean?

Pottery dating from the mid 1st to the late 4th century has been identified in this assemblage, and there is a complete absence of pre-Roman material. This may be a result of the greater friability of Iron Age fabrics in the plough-soil, but is more likely to relate to the probability that the Roman military activity was not superimposed upon a pre-existing settlement pattern. Little Iron Age material has been discovered in the region, although a late Iron Age and Romano-British settlement has been

excavated at Rampton, Notts, 3 miles south of Littleborough. Three main fabric divisions were noted amongst the late Iron Age pottery assemblage. These range from a smooth, medium hard fabric to a very coarse fabric containing vegetable matter and large grits and all fabrics had limestone inclusions. These fabrics are difficult to distinguish from early Roman wares (Turner 1992, 109).

It is difficult to assess the intensity of occupation at Marton throughout the Roman period because of the predominance of the greywares whose dating is imprecise and is generally given as the 2nd-3rd centuries. The ubiquity of these vessels does not reflect a sudden upsurge in activity, but rather the range of these vessels in everyday use and also the proximity of the kilns producing them. The latest pottery present at the site are the shell-tempered and calcite-gritted wares which occur in relatively small proportions. However, further excavation and analysis may extend the dating of the localised production of greywares into the later Roman period.

It is probable that the vast majority of the pottery in this assemblage, perhaps as much as 65% was produced within a 20 mile radius of the site. Products from slightly further afield, but within easy reach of Marton by the road and river network, include those from the Nene Valley and Oxford kilns. The samian and amphorae represent long distance trade but are not exceptional at all.

The predominance of the coarseware utilitarian vessels is clear. As inexpensive, locally produced vessels in everyday use for the storage, preperation, cooking and serving of foods and liquids, this is to be expected. However, calculations based on sherd count and weight, rather than minimum vessels estimates, must take into account the fact that as larger, heavier vessels, there would be a higher number of fragments from these broken vessels. It is also probable that as softer fabrics these vessels abraded at a greater rate after deposition than the fine tablewares.

The assemblage is composed of an extensive range of vessel forms; large bowls, storage and smaller jars, flagons, colanders/cheese presses were produced in coarse wares and vessels associated primarily with serving at the table include the colour-

coated fabrics, the most common forms of which are beakers, cups, small bowls and larger serving bowls. There are no suprising additions or deficiencies in the assemblage. Whilst a considerable dichotomy in the quality and appearance of the vessels is clearly visible, we should not assume an exclusivity of use between the two groups. The colour-coated tablewares are more suggestive of a 'Romanised' lifestyle, but the distinction between coarse and fine was perhaps not so readily adopted at the Roman table. This is partly witnessed by the distinctions visible in the grey fabric category - some vessels are produced in a markedly better quality of pottery, often with bands of burnishing and other surface decoration, but not coloured . This may be the response of the local potters to produce an intermediate standard of pottery for everyday use, or alternatively may relate to the specific function of these vessels.

Distributional analysis

1993 survey

The 1993 field-walking survey was essentially a pilot survey. It was conducted by line-walking Field C in 20m transects, with collection units 50m long, walking from east to west along the line of the road. Areas of the field with a high density of finds also underwent subsequent 100% coverage. A transect running along much of the length of the field, adjacent to the Roman road was selected for 100% coverage, and one of the collection areas was also extended into the field for a distance of 80m. Distribution maps for this part of the survey have not been included because the methodology employed does not enable the graphical representation of the distributions in a comparable manner to the results of the 1995 survey below. Consequently, comparisons between the two surveys on the basis of the visual interpretation of the distribution plots would be misleading. Instead, the results of the 1993 survey are presented as a series of histograms illustrating the percentage of fabrics present per collection unit (fig.4.5). Only the collection units where 100% collection (Chapter 3, fig. 3.1) were employed are included, as the quantities of pottery collected from the line-walking units are not great enough. This system avoids

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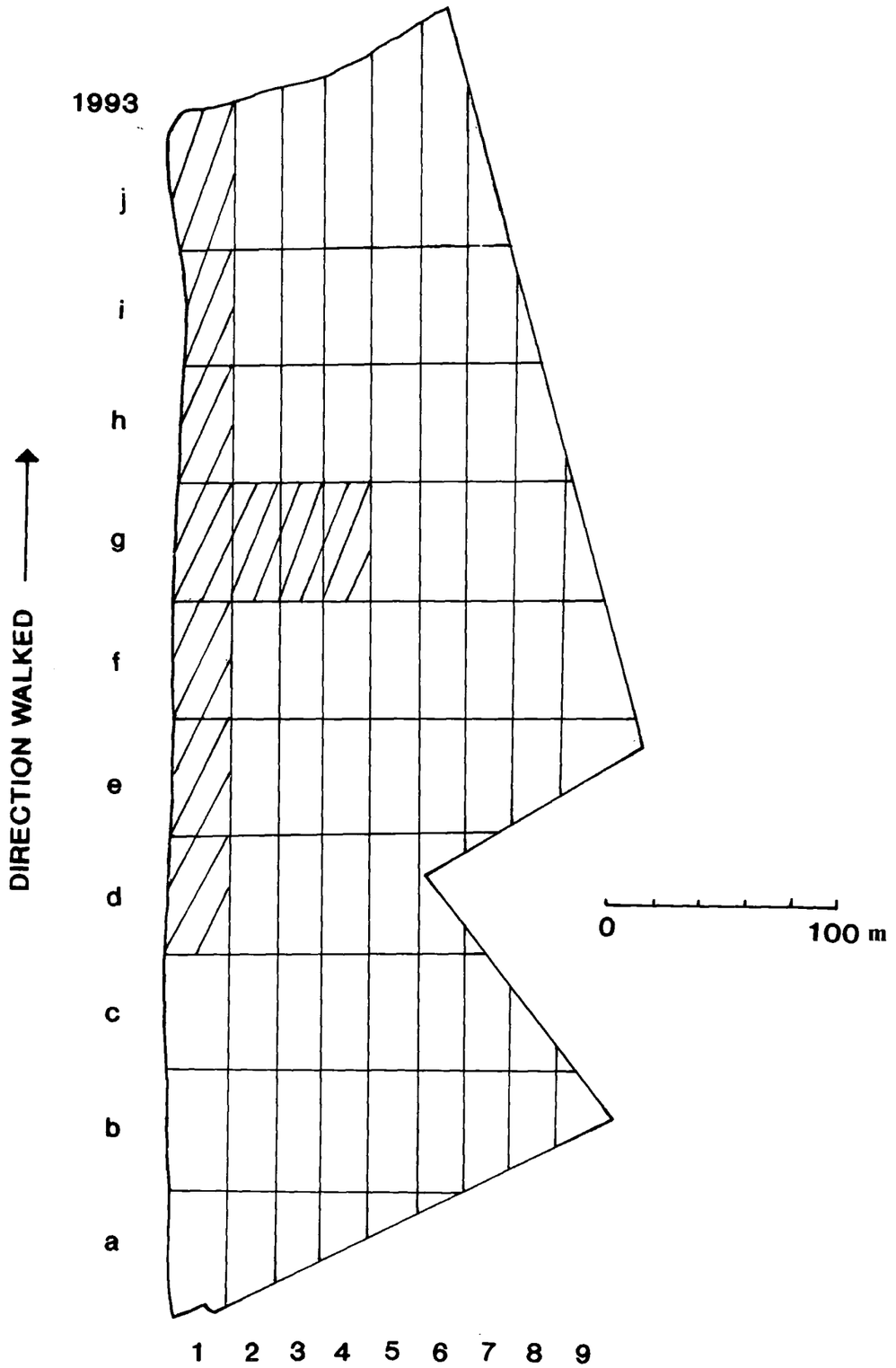

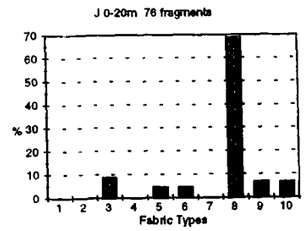

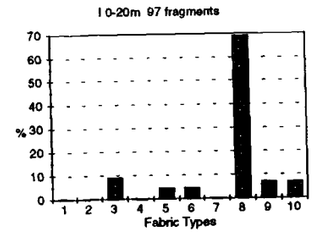

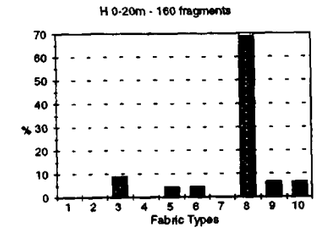

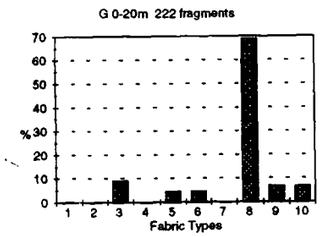

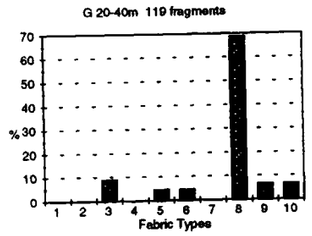

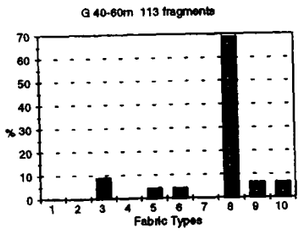

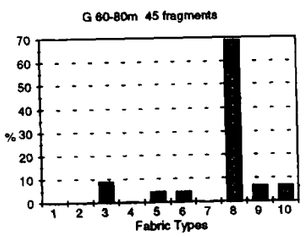

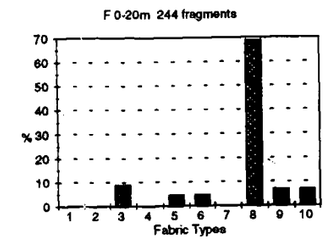

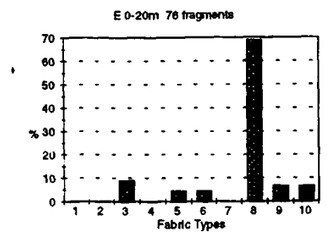

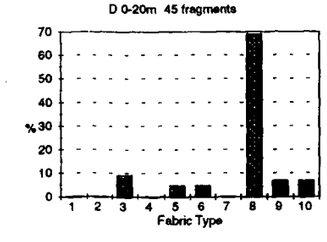

Fig. 4.5 1993 survey: Proportions of Roman fabrics from 100% collection units

The field-walking was undertaken solely by the author, thereby eliminating possible walker-based distortion in the collecxtion.

There is very little variation in the proportions of fabricsrepresented in the histograms. In all collection units, greywares represent at least 50% and in most cases over 60% of the pottery. There appear to be no differentiation in the deposition of fine and coarse wares across this area of the survey.

1995 survey

The main distributional studies are based upon the results from the 1995 survey. This survey was undertaken in a highly controlled manner and the grid system established facilitates a more accurate presentation of the results. Whilst surveys should be directed to the specific objectives and area in question, the disparity in the methodology between the 1993 and 1995 surveys, suggests that a higher level of uniformity in methodology should be adopted at site-level, if the results are to be compared at more than a general level.

Since the collection lines for each square were all 20m long and each line was 5m distance from the previous line, each run encompassing all four walkers represents a 20m x 20m square (400m sq.). The baseline was placed parallel to the hedge adjacent to the Roman road, and the collection began in the south-west corner of the field. A total of 212 collection units covering approximately 7 hectares were walked.

All distribution maps are produced using the Transform programme, which employs an Excel database. The raw data is presented as a grid of absolute values, but all the plots show interpolated values, principally because this is a more visually effective means of displaying the data. The minimum scaling number is one, in order to distinguish the minimum values from zero readings. Variations in the colour scheme used have been adopted, especially on plots with very few readings.

Fig. 4.7 represents the average sherd number of Roman pottery recovered per 20m square and therefore includes one collection unit for each walker. The average sherd number was chosen as a distributional category to give a representative figure which should alleviate the possible walker-induced biases. This potential source of bias will be discussed further below.

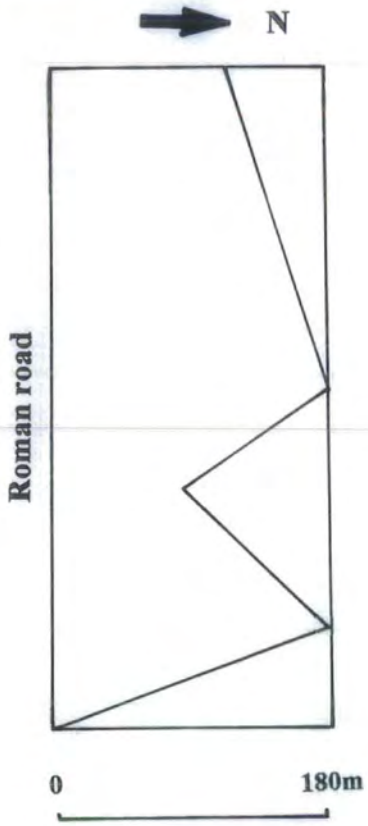

Fig. 4.6 Position of field boundaries in relation to distribution plots

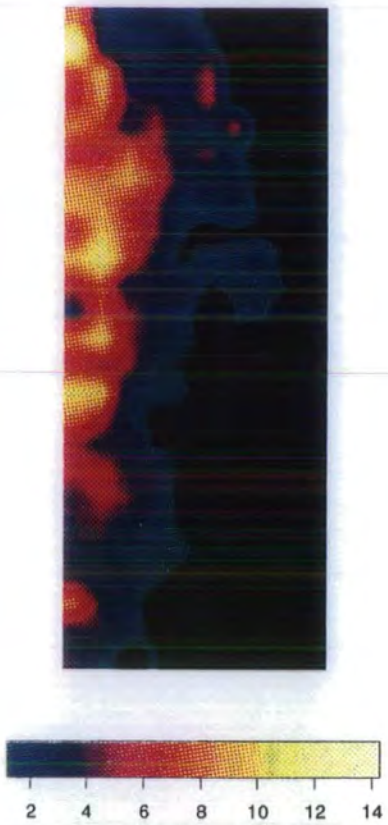

Fig. 4.7 Average sherd number per 20m square

The main concentration of finds occurs along much of the length of the field close to the road, and declines in quantity from approximately the middle of the field northwards. The concentration is stronger towards the western and central areas of the field. This pattern is very similar to that recognised in the 1993 survey. Distribution replication is probably due to the large quantities of material available for collection and also because this area of the settlement is distinct from the 'background' scatter of artefacts (Clark & Schofield 1991, 94).

In order to assess possible differences in both the deposition and retrieval of varying classes of material, the distribution by both sherd number and weight has been calculated for coarse wares (figs. 4.8-4.9) and finewares (figs. 4.10-4.11), calculated per 20m square collection unit.. The coarseware category includes all grey fabrics, BB1 copies, miscellaneous oxidised fabrics and shell-tempered ware, and the fineware category incorporates samian ware, colour-coated fabrics and the miscellaneous cream fabric. Amphorae, mortarium and brick/tile have been excluded from this part of the analysis, although it is possible that undiagnostic body sherds of mortarium may have been included in either category, but only in very small numbers. The use of either sherd numbers or weight as a means of expressing distribution has limitations in both cases. The use of sherd number can be biased towards the more common, larger and coarser fragments which are generally softer and more susceptible to fragmentation than the harder fine-wares. The use of sherd weight is automatically biased in favour of the thicker walled vessels, which are generally the coarse wares. This potential source of bias is removed, to an extent by the differentiation between coarse and fine wares

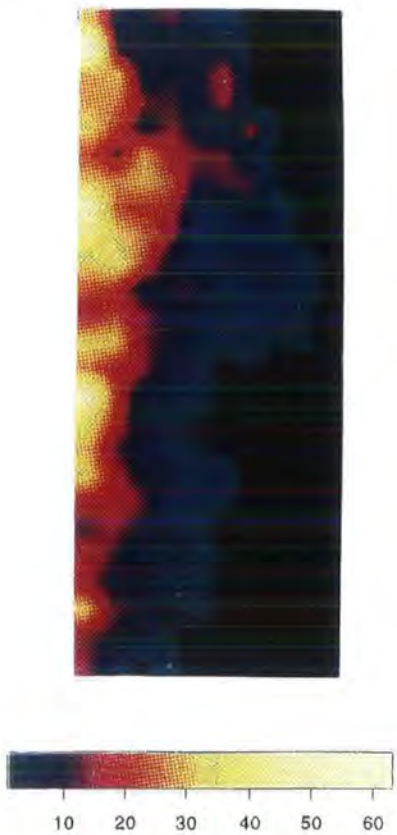

Fig. 4.8 Coarsewares; sherd numbers

Fig. 4.9 Coarsewares; sherd weight (g)

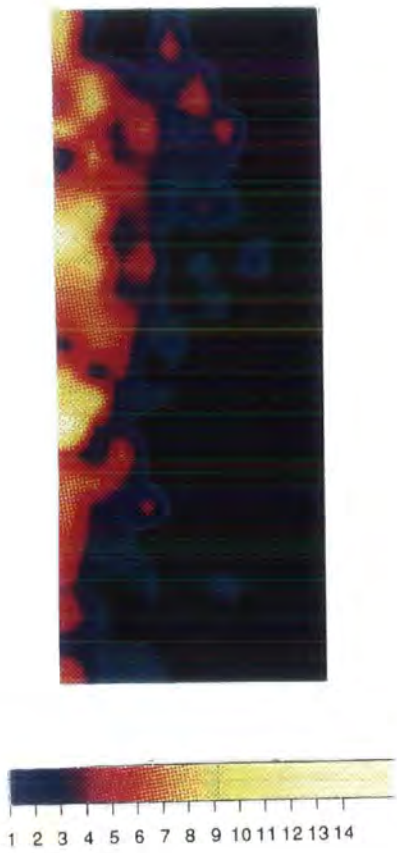

Fig. 4.10 Finewares; sherd numbers

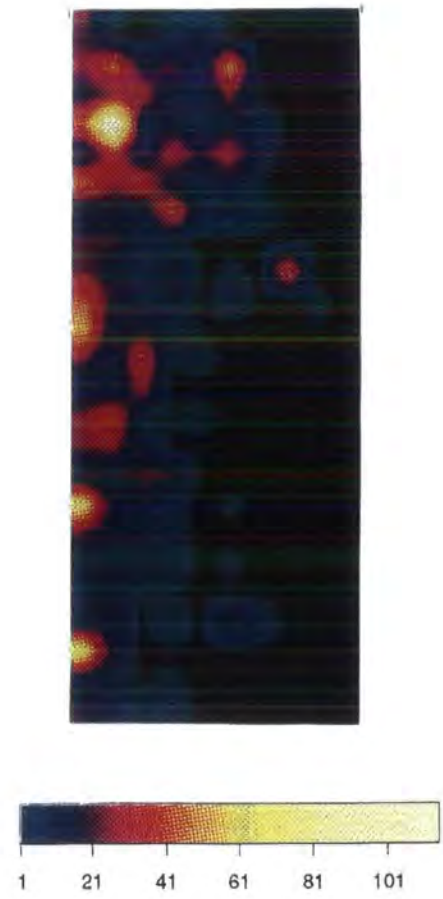

Fig. 4.11 Finewares; sherd weight (g)

The results reveal a very similar general distribution pattern in both coarse ware and fine ware categories, with peaks in the distribution along the roadside. There is little differentiation in the areas of high concentration of both coarse and fine wares However, the fineware plot is more confined with a 'crisper' appearance and more abrupt cut-off point in the distribution. The distribution of the coarsewares has a more extensive 'halo' of low readings surrounding the high concentration and extending northwards to the boundary with Field D. This is probably a reflection of the long-term stability of highly abraded coarseware sherds in the ploughsoil (J. Taylor, pers. comm).

The average sherd size statistics have also been calculated for both coarse and fine fabrics (figs. 4.12-4.13). Divisions between coarse and fine wares have been maintained due to the potentially different post-depositional processes involved between different fabrics indicated above. The average sherd size is calculated by

dividing sherd weight by sherd number per 20m square unit. The aim is to identify possible differential sherd size between areas where the material in the ploughsoil has only recently been released and those areas where the material has been in circulation for a longer period and the sherds show more signs of abrasion and fragmentation. The concentrations of large coarse sherd size reveal a slightly different pattern to the total coarseware weight plot (fig. 4.9). Instead of the greatest distribution being situated close to the roadside, the higher average size values have shifted further into the field, with concentrations north of the centre of the field and also in the eastern corner of the field. This is largely paralleled with the average fineware sherd size plot, although this reveals more 'discrete' areas of larger average sherd size.

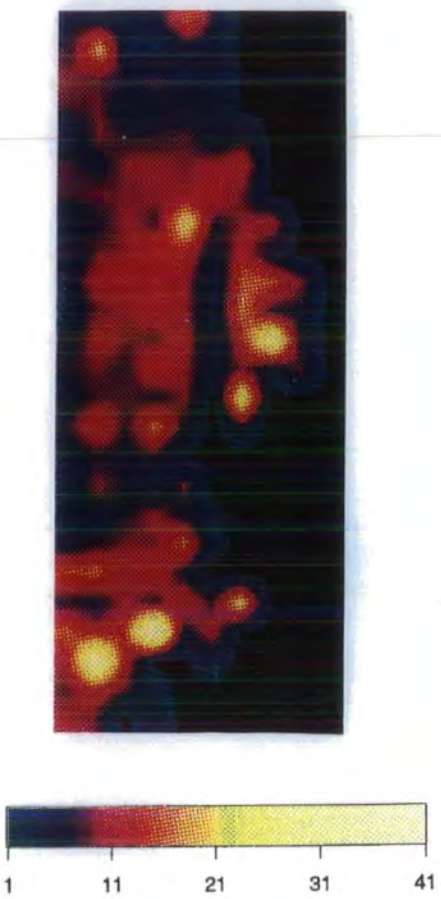

Fig. 4.12 Average sherd size of coarsewares

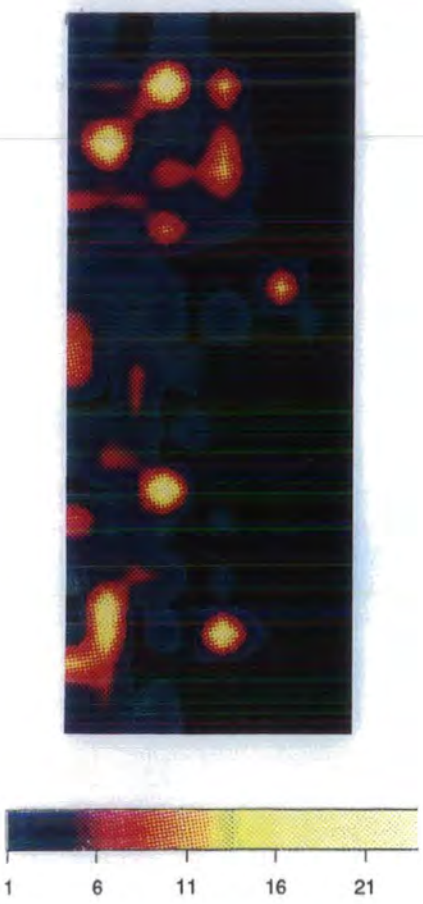

Fig. 4.13 Average sherd size of finewares

The distributions representing the sherd number of samian, amphora, mortarium and slag are also included, essentially to provide a contrast to the general distribution patterns of all Roman pottery. The quantity of amphora recovered is very small and

Fig. 4.14 Amphora sherd numbers

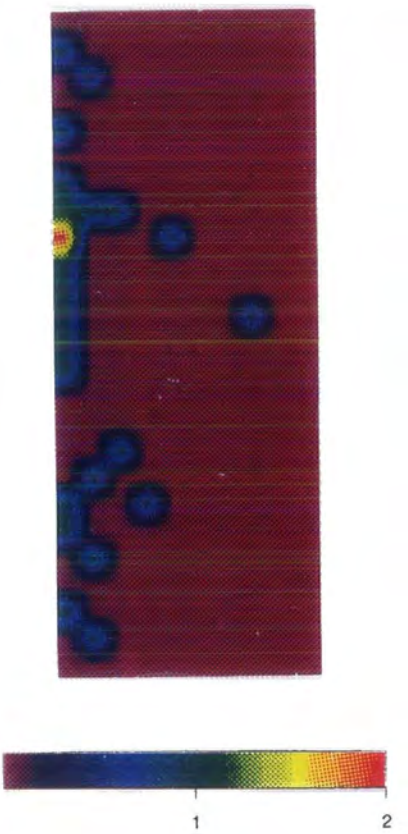

Fig. 4.15 Mortaria sherd numbers

Fig. 4.16 Samian ware sherd numbers

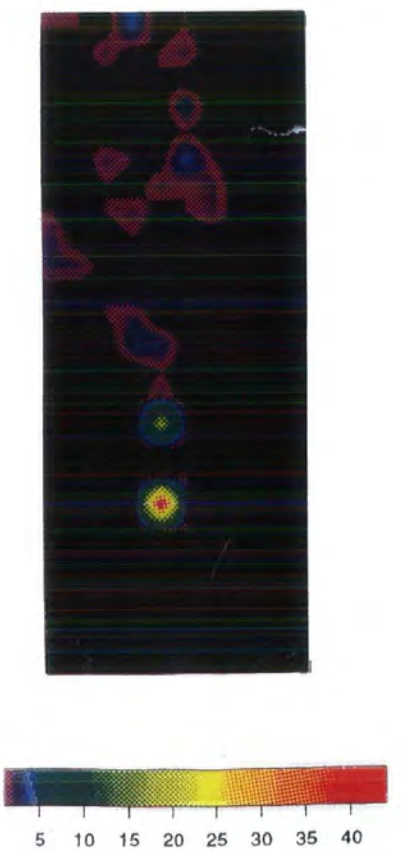

Fig. 4.17 Slag; by fragment numbers

no significant comments can be derived from this evidence, other than that the distribution is generally close to the road (fig. 4.14). Fragments of mortaria were generally found singly, but a distribution close to the road can also be identified (fig. 4.15). The distribution map of the samian ware (fig. 4.16) reveals a definite concentration in the west of the field and close to the road. A focal area of distribution has been identified, although the quantity of material used in this plot is very small and therefore interpretation based upon 104 fragments must be cautious. A total of 139 fragments of slag were found (fig. 4.17). The background distribution occurs through the centre of the western part of the field, largely away from the road and at the edge of the main pottery distribution. There are two major concentrations occurring close to one another, consisting of 19 and 39 fragments respectively which are isolated from the main pottery distributions. This may reflect a differential distribution of activity away from the roadside.

The distribution of the post-Roman material (fig. 4.18) is more dispersed throughout the field, and this most probably reflects manuring. Random distributions of post-Medieval material as a result of manuring are a common pattern, as at Maxey, Cambridgeshire (Crowther & Pryor 1985, 53). However, in this survey concentrations of material occur in the extreme east and west of the field, close to the road. The eastern sector of the field was previously an allotment area until the mid-20th century, and the discovery of a large amount of material, especially fragments of clay pipe is not unexpected. It is more difficult to explain the high concentration of post-Roman material at the western end of the field. It may result from the fact that the Roman road was used for transporting goods to and from the river Trent until the mid-20th century and therefore the presence of material close to the road may be expected, although the concentration at the western end is difficult to explain. A further possibility, which is more probable is that some areas were better searched than others. Since the survey began in the western end of the field, this high concentration may reflect an increased recovery level of the highly visible post-Medieval material in the early stages of the survey.

Fig. 4.18 Post-Roman pottery sherd numbers

Distribution interpretation

The immediate reaction to any distribution map is to assume that those areas with the highest density of finds automatically equate with those areas or 'sites' of high occupational density. In many cases this is true, but to accept it unequivocably would be to disregard a whole series of processes involved both in the deposition of the material and the post-depositional processes (Haselgrove 1985, Schofield 1991). Clark and Schofield (1991) highlight the suggestions put forward by Binford (1978) and Behm (1983) that the discard patterns will not always correspond with the activity areas which generated them (see also Haselgrove 1985, 9). However, experiments have shown that the distribution of surface plough-soil pottery distributions are very often directly related to the sub-surface features,

'artefact distributions, although removed totally from their original cultural deposits by modern ploughing, still retained a spatial relationship to sub-surface archaeological features through the distributions of topsoil and surface material' (Bowden et al 1991, 111).

Experiments at Maddle Farm, Berkshire (Gaffney, Gaffney & Tingle, 1985) have compared the composition of topsoil and stratified deposits (see also Clark & Schofield 1991). The results show that the density of pottery is greater in the stratified deposits than in the topsoil, whereas the opposite was true for the tile assemblage which peaked within the topsoil. This anomaly is considered to be related to the fact that tiles and bricks were rarely incorporated with domestic rubbish into pits, middens and other negative features and are more often incorporated into deposits caused by the collapse of a building. This suggests that it is likely that a distribution of brick and tile would be closer to its original place of use than a similar distribution of pottery.

Fig. 4.19 Brick/tile fragment numbers

Fig. 4.20 Brick/tile fragment weight (g)

A further consideration is that unlike brick and tile, pottery vessels undergo a wider range of secondary deposition, as in burials and other intentional deposition and also rubbish deposition away from the activity area, for example. However, a dump of tiles, not obviously associated with a tile kiln, was found during the excavation of a kiln at Green Lane, Lea, 3 miles north of Marton, which might suggest a possible alternative explanation for such deposits (Field & Palmer-Brown 1991, 46). The distribution of brick/tile at Marton is illustrated according to both the number of fragments and the weight in figs. 4.19-4.20. Fig. 4.19 shows a clear roadside distribution of tile in the western corner of Field C, with a low background scatter along much of the length of the road. The distribution of brick/tile by weight shows a more clearly defined concentration in the western end of Field C.

Clearly the interpretation of any pottery or other artefact scatter has to take a number of elements into consideration. An assessment of the level of agricultural damage to the site must be a primary consideration, in conjunction with other post-depositional factors such the level of erosion. Sites of broadly similar size may have widely varying distributions of materials because one site has been more extensively plough-damaged, wheras only the uppermost levels of the other site may have been destroyed. A feature rarely considered is that the dislocation of material from its context may not entirely be the result of modern plough damage, and that activity in Roman times would also have de-homogenised deposits (Crowther 1985, 50). It is impossible to suggest the affect of this phenomenon at Marton.

A further consideration when defining artefact distribution is the type of site being surveyed and the fact that differential methods of artefact deposition may be involved must have an effect on the interpretation of artefact scatters.

Recovery bias?

One the secondary aims of the 1995 field-walking exercise was to assess the possibility that distortions in artefact collection were introduced by walker-induced bias. This factor can result from the variability of visibility which may be due to sherd

fabric, soil colour, the degree of weathering, the angle of the light at the time of survey or the skill of the field walkers (Haselgrove 1985, 11; 21). Experiments in the Aisne Valley, Northern France have revealed the disparity existing between individual walkers in relation to the sherd numbers and the size of the sherds recovered (Haselgrove 1985, 23). Whilst differential levels of expertise may not have a totally distorting influence on the general distribution of finds, the affect on the patterning of different artefact types can be considerable.

This survey, involving four individuals with variable levels of field-walking experience was undertaken as a closely-controlled experiment. The collection units ran perpendicular to the road in order that walkers would have as even a coverage as possible of the areas of high density ceramic distribution close to the road. As much homogeneity as possible was applied to the artefact collection. The same arrangement of walkers was maintained in the field, all lines were walked at the same speed, no lines were walked by more than one individual and no walker had excessively more responsibility than any other. In order to reduce errors in the field and also to decrease the time taken in deciding whether to include objects or not, the policy taken initially was to collect all objects of apparent archaeological interest. As familiarity with the material grew, an increased level of discrimation in the field was possible, although the more dubious sherds were still included in the collection, and were later discarded at the primary processing stage. Similar weather conditions, overcast and rainy, persisted throughout the whole programme. Consequently, where variables might have existed, they applied equally to all walkers.

Figs. 4.21-4.24 represent the distribution of Roman pottery, excluding brick/tile, per 20 square for each of the four walkers. Distributions are based on sherd number in this instance.

A clear homogeneity in the distribution pattern is visible between all walkers. The areas of the field where no Roman pottery was found also coincide. Slight variations are noticeable however, for example Walker C's plot suggests a wider area of low intensity pottery distribution.

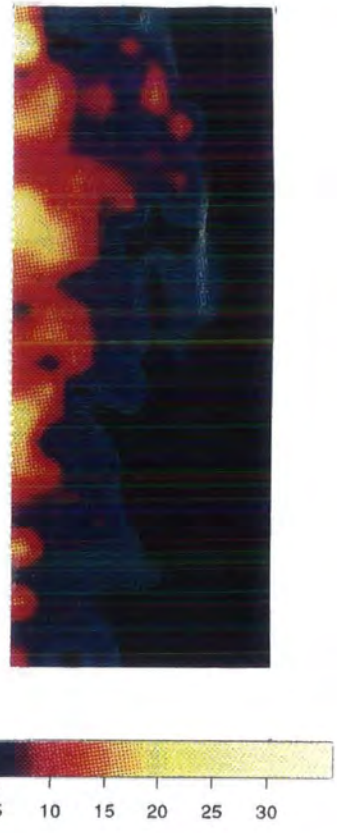

Fig. 4.21 Walker A; sherd total of Roman pottery

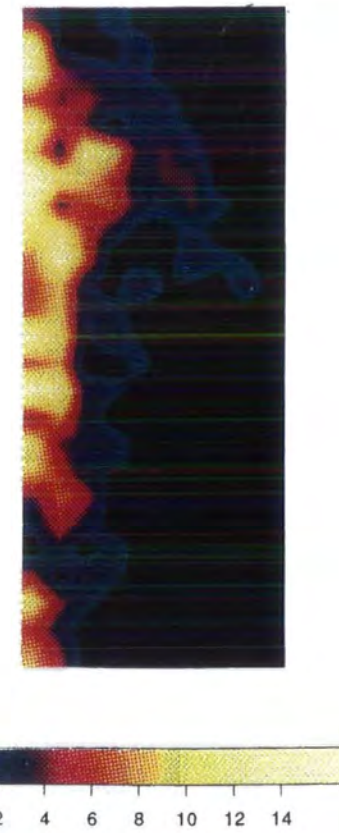

Fig. 4.22 Walker B; sherd total of Roman pottery

Fig. 4.23 Walker C; sherd total of Roman pottery

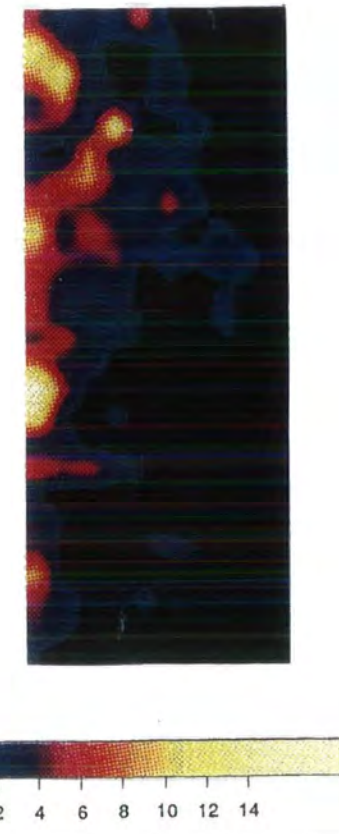

Fig. 4.24 Walker D; sherd total of Roman pottery

One of the principal features noticeable between the plots is the variation in scale and the number of sherds recovered. The maximum sherd count per 20m line for Walkers B and D is 14, it is 20 sherds for Walker C and 30 sherds for Walker A. The distribution maps smooth this variation in scale and the distribution patterns appear to be very similar in all cases. However, if the same parameters of scale were applied to all four plots, the resulting distributions would be quite different. Since it is the overall distribution of finds that we are dealing with here, the number of sherds collected is of less importance, although significant anomalies have been noticed in the quantities collected. This feature is assessed by examining the average sherd count per 20m square. It was discovered that 73% of Walker A's collections contained above the average Roman sherd count, compared to 37% of Walker B's, 47% of Walker C's and only 28% of Walker D's. It is very unlikely that this is a reflection of the actual number of sherds available for collection since there is a consistently noticeable difference occuring between collection lines only 5m apart, for example. On a site with less surface pottery available, such as a prehistoric site where one might expect the anomalies to be generally more subtle, the results of this consistent discrepancy might have a more severe impact and features might easily be overlooked.

One of the most plausible explanations for this quantative variation in collection is the poor visibility of particular fabrics, such as the grey fabrics in comparison to the colour-coated fabrics. The recognition of the fabric colour is likely to over-ride the size of the sherd as a collection-factor since very small sherds of coloured fabrics have been recovered, but comparable sized grey fabrics have not.

In order to analyse this disparity, the results of Walkers A and D, as the individuals recovering the most and the least fragments, were assessed in terms of the numbers of Roman sherds recovered. Categories were based on coarsewares and finewares in order to assess anomalies relating to the visiblity of certain fabrics. Figs. 4.25-4.26 are the coarseware and figs. 4.27-4.28 the fineware distributions for Walkers A and D respectively. The coarseware plots display a generally similar trend, although Walker A's distribution covers a greater area and has far fewer gaps with no finds in the plot.

Fig. 4.25 Walker A; coarsewares sherd total

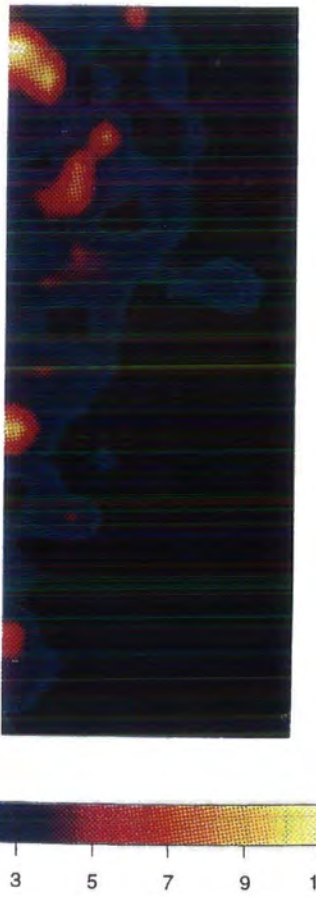

Fig. 4.26 Walker D; coarsewares sherd total

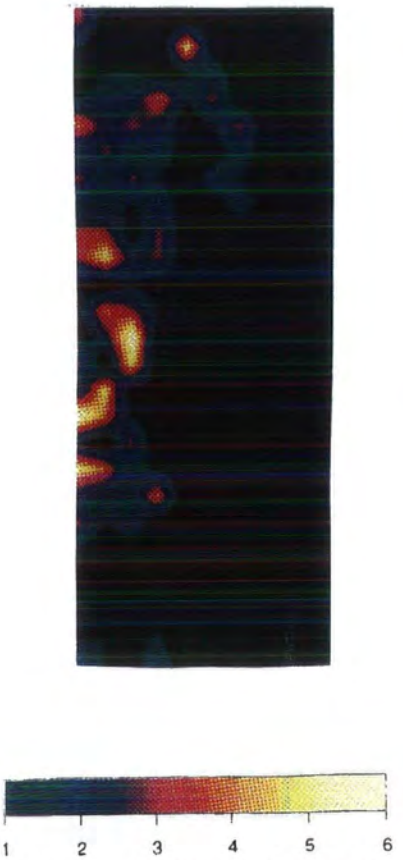

Fig. 4.27 Walker A; finewares sherd total

Fig. 4.28 Walker D; finewares sherd total

The concentrations of material in Walker D's plot are mirrored in Walker A's, although they are larger and more intense in the latter. The fineware plots show greater disparity, which is perhaps surprising considering the greater visibility of most colour-coated fragments. Again, the highest concentrations of material recovered by Walker D are mirrored by Walker A , but Walker A's plot is very much more extensive and there are more areas where a higher number of fragments were collected. Some caution must be applied to the interpretation of these plots, since the quantities involved are small but nevertheless the discrepancies illustrate well the potential distortion introduced by walker bias.

Pottery Scatter in Field D

During the field-walking of Field C in 1995, 42 sherds weighing 910g were discovered close to the field boundary between Fields C and D. This group appears to be isolated as no other sherds were recovered within a 20m radius. It is likely that this assemblage represents a recently disturbed group, since the fragments are very large and unabraded; the largest fragment with dimensions of 11 x 10cm.

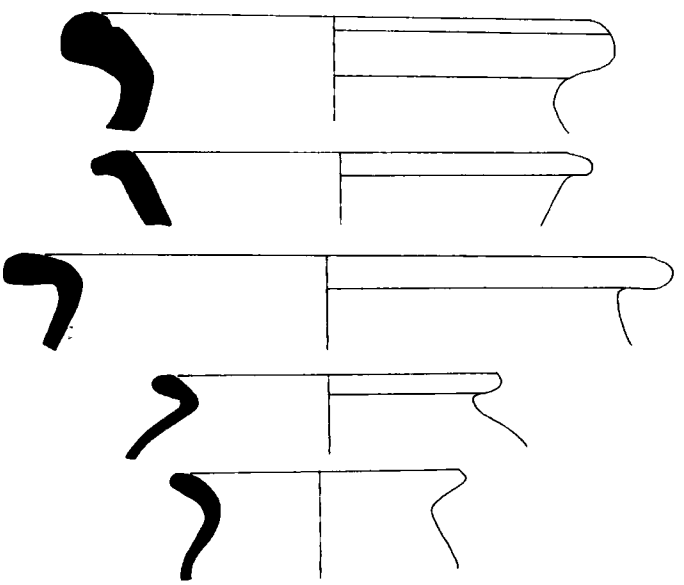

Fig. 4.29 Coarseware pottery scatter from Field D

All fabrics are coarse, although three distinct fabrics have been identified. There are two grey fabrics; fabric 1 is hard and the other is much finer and some of these fragments are rusticated. Fabric 2 is represented by fragments of a BB1 copy jar with lattice decoration (fig. 4.29, no.1). A limited number of forms are represented. These include a minimum of one large bowl, one beaker, one large storage jar and four other jars, one of which is represented by three joining rim and one body fragment (fig.4.29). The remaining body fragments suggest at least two other vessels.

A fragment of human skull c.10m west of this scatter was found at a later date. This will be discussed further in Chapters 7 and 8.

Roman Glass from Field-walking

Two fragments of Roman glass were found in Field C. One is a fragment from a blue/green prismatic bottle, in use in Roman Britain from the 1st-late 2nd century although examples in later contexts are also known. Prismatic and cylindrical bottles are very common finds on sites of this period, often constituting over 60% of the vessel glass assemblage. These vessels were used primarily as containers for a variety of solid and semi-solid foods, and the larger examples were often re-used as cinerary urns. This fragment has the characteristic vertical scratch marks indicating where it was placed into a container, perhaps made of wood. The other fragment is a blue/green tubular base-ring fragment, from a beaker or cup. A 1st-3rd century date can also be assigned to this fragment on the basis of its colour.

Conclusion

The pottery recovered during the field-walking of Field C ranges in date from the 1st-4th century. The greywares, produced at the network of kilns within a 5 mile radius of Marton dominate the assemblage. Although the dating of these products lacks precision, a general 2nd-3rd century date is attributed to this pottery. Products from slightly further afield include those produced from in and around Lincoln, near

Doncaster, in the Nene Valley and Oxfordshire and imports include the samian ware from Gaul and the amphora from Spain.

The pottery distribution is concentrated along much of the length of the road, especially on the western end of the field and spreads northwards into the field for c.150m. A series of small pits identified on the aerial photographs may explain the presence of much of this material (see fig.2.1). The distribution of brick/tile shows a more refined concentration also in the western end of the field. It is highly probable that this distribution is directly related to the position of collapsed or abandoned buildings. The distribution of slag reveals a very different pattern. Two very distinct scatters have been identified and are located north of the road and apart from the main pottery concentration.

The assessment of potential walker-based distortions in the collection suggests that although the general pottery distribution pattern for each walker is similar, discrepancies have been identified. The major discrepancy concerns the quantity of material recovered and anomalies also arise when the distributions of different fabrics, such as coarse and fine are plotted. The results of this analysis are not overwhelming; probably because the surface pottery available for collection was comparatively dense and therefore the possibility of recognising discrete pattering is minimal. However, it is hoped that this experiment has proved the very real distortions that can be introduced by individuals with varying levels of expertise. Such a feature might be especially apparent on a site with a less dense and less visible database.

Chapter 5 THE ROMAN COINS

> '....great numbers of coins have been taken up in ploughing and digging: they called them swine-pennies, because those creatures sometimes root them up, and the inhabitants take little care to save them....Many very little coins are found here, like flatted pease; they call them mites....' (Stukeley 1776, 93-4).

This observation refers to the Roman coins found at Littleborough. Coins have been found at Littleborough/Marton, apparently in some quantity for several centuries. The following report discusses only the coins discovered between 1992-6.

Five-hundred and ninety-two coins were available for examination; five-hundred and forty-five of which have been positively identified, the remainder being either too worn or corroded for classification (see Appendix 3 for catalogue). Apart from three coins found during field-walking, all of the coins have been metal-detected, predominantly by one detectorist over a period of four years.

A total of two hundred and thirty-five coins was found in the period 1992-4 before this survey was formulated and it is possible that this collection of coins may not represent all the coins found in that period. No information concerning the provenance of these coins has been recorded, although it is likely that the majority was found in Field C, especially in the area adjacent to the Roman road. A small group of 8 coins (Cat. nos.2, 4-5, 7-11) were discovered by a detectorist in the late 1980s. These coins, along with others were found in Field C, and have therefore been included in this discussion (on loan from Mr. I. Kitchinson). The remaining three hundred and fifty-seven coins were found between 1994-6, two-hundred and ninety-six of which have been positively identified. This group of material can be considered to comprise all coins recovered as all objects were handed over for identification soon after their discovery.

The coins have been catalogued using Roman Imperial Coinage, cited as RIC (Mattingly & Sydenham 1923-67) and Late Roman Bronze Coinage, cited as LRBC 1-2 (Carson et al. 1960).

The following discussion is divided into three sections. The first section deals with the general composition of this assemblage. This is followed by an analysis of the assemblage in relation to assemblages from sites of known form and function in an attempt to define the nature of the site at Marton from the numismatic evidence. The final section examines the spatial distribution of coins across the site.

The coins

The earliest Roman coin found at Marton is a Republican denarius issued in the consulship of Carisius (cat.no.1). There is a dearth of Claudian issues, but from the Flavian period the coin sequence continues, largely uninterrupted, to the issues of Arcadius and Honorius which were the last Roman coins brought into Britain in the early 5th century AD.

The use of coinage as a tool for dating is unquestioned, but when used as an isolated artefact type and especially when removed from any archaeological context, little specific information, beyond that of the general dating of the site can be gained. For example, the presence of one Republican coin is ineffective for aiding the general dating of the site and certainly does not provide a starting date for the site, since Republican coins were in circulation until 110 A.D, when they were withdrawn by Trajan. It is suggested that by A.D.100, at least one out of three coins lost ought to have been well over 100 years old (Reece 1987, 15), so clearly it is dangerous to attach too much importance to 1st century B.C and 1st century A.D coinage when dating a site.

The first post-Claudian issues in this assemblage are Vespasianic. The small total of sixteen coins dating from the 1st-mid 3rd centuries A.D is not altogether surprising and may reflect a number of factors. These include the probably slow initial development of the site and the use of money as a means of exchange the small pool of coinage in circulation at that time and the larger size of the coins. The greater intrinsic value of these coins would have made them more likely to have been

searched for when lost, and finally large amounts of this coinage would have been collected in for melting down in order to produce subsequent issues.

The group of five denarii, one each of Vespasian, Trajan, Hadrian and two coins of Antoninus Pius (Plate I, nos.1-5) were found in the mid-1980s in the eastern part of Field C over an area of approximately 20m close to the Roman Road. These coins appear to represent part of a dispersed hoard. It is thought that approximately 25 denarii were found in total, although no further information is available concerning the nature of these coins (pers.comm. Mr.I.Kitchinson). The earliest known coin from this group is Vespasianic and shows signs of heavy wear, although the other coins, especially the Trajanic denarius are in a very good condition. It is not unusual to find 1st century denarii on Flavian military sites since high-value coinage would have circulated more readily in the army, although the presence of such coins were not as common on contemporary civil sites.

This group of denarii, along with the denarius of Septimius Severus and the sestertii of Antoninus Pius and Caracalla were found by the same detectorist, and lead to a disproportionately high number of early silver coins, as opposed to bronze coins in this assemblage. As a group, these coins represent over 50% of the 1st-2nd century coinage. Clearly, if these coins are excluded from consideration, we see a more clearly defined bias against the earlier coinage. Of the coins recovered between 1994-6, there is only one coin dating to the 1st century and one coin of the 2nd century.

One of the major problems when attempting to use the numismatic record to assess a potential starting point for any settlement, is the fact that all coinage minted between A.D. 70-193 could have been in use at the same time. An examination of the degree of wear on coins may help to establish the time elapsed between issue and deposition. It is unlikely that a coin found in almost mint condition, would have been in circulation for a long period before its loss, although this is a subjective method and the results of such analysis will vary between analysts. In particular, the large sestertii are often very worn as they were in circulation until around 260 when they were re-struck as double sestertii by Postumus (Casey 1984, 53). In this assemblage the

sestertii and asses of Vespasian (Plate I no.6), Domitian (Plate I, no.7), Nerva (Plate I, no. 8) and Caracalla (Plate I, no.10) are all very heavily worn and therefore suggest a general trend of extended use.

The first major peak in the coin loss at the site, in common with all sites in Roman Britain, occurs in the third quarter of the 3rd century and is represented by the radiate antoniniani of the Gallic and Central Empire and the subsequent copies (260-c.286). The intrinsic value of this coinage was much lower than that of the preceding coinage, and consequently many more coins were in use and lost at this period. It is probable that this lower value coinage provided the necessary small-change for common day-to-day transactions (Reece 1987, 37). The percentage of these issues in assemblages varies from site to site, although at most sites 20-30% of the coins are identified as radiate issues. In this assemblage a total of 106 radiate coins have been identified, of which 59 have been classified as copies on the basis of the style and quality of engraving and the flan sizes. Although some copies were well produced, there is generally a clear dichotomy between the official coins and the copies. It is likely that the copies moved further in style and size from the originals over time. Some coins are identified as borderline cases on the basis of the quality of the engraving, but are closer to the counterfeit issues in terms of flan diameter and weight. Several of the poorer quality copies are far removed from their prototypes and the radiate crown is often the only identifiable feature. Some coins appear to have been cut from fractions of other coins (Plate IV, no.11) and others are known to be cut from metal rods of sheet metal (Davies 1987, 45).

The diameter measurements of the radiate coins range from 9-22mm. The smaller, less regular copies show the greatest variety of shape and lower standards of engraving, and the design on several coins represents only a part of that on the official coin. For example, nos.36-7 (Plate IV, nos.5-6) are copies of the Claudius II, Consecratio eagle type, but the reverse of the coins only portrays the legs of the eagle. Despite that fact that little attempt appears to have been made to duplicate the official coinage accurately, it is probable that both the official coins and the copies were in contemporaneous circulation and that the copies were accepted by the state. The

radiate copies may have continued in circulation in very small numbers, into the mid-4th century, when they were replaced by coins of an equally low value (Davies & Gregory 1991, 67).

One of the most unusual coins in this assemblage is the plated coin of Postumus (Cat.no.20; Plate II, no.3), which has the obverse design mirror-imprinted onto the reverse of the coin. However, this coin is not a brockage; the result of a technical mishap during minting, but is instead one half of a counterfeit plated coin. It has a slight rim, and is produced in very thin metal weighing only 0.9g, where official coins of this flan size in this assemblage, weigh over 2g. Copper alloy coins were often plated with silver shells, rather like the wrapping on a chocolate penny, although this coin is also made of copper alloy, and therefore represents the expenditure of a large amount of effort in order to produce a relatively low-value coin. This coin is quite unworn and it is unlikely that it was ever used to encase a coin, although it is probable that it was circulated with other radiate copies.

The dearth of Diocletianic coinage in this assemblage is unsurprising, and is a feature of most Romano-British sites. The pre-330 Constantinian coinage is reasonably well represented by twenty-eight coins with a wide range of reverse types. However, as these coins were both larger and intrinsically more valuable than the later issues, they are never found in great numbers on Romano-British sites. This coinage is dramatically overshadowed, at least in terms of the number of coins found, by issues post-dating 330.

No.142 (Plate V, no.8), a Constantinian coin with the reverse of [VOT IS] BEATA TRANQUILLITAS (A.D. 321-4) deserves further comment. The obverse surface of this coin has been totally defaced by the scratching out of most of the legend and bust of Constantine I. This is frequently recorded on the coins of Commodus whose memory was damned, but is not a common feature of Constantinian coins. The most likely explanation is that the surface of this coin was perhaps being prepared to be overstruck. The scoring of coins is also occasionally found on Roman coins from Anglo-Saxon sites such as West Stow, Suffolk (Curnow 1985, 77).

In common with many other Romano-British sites, the highest peak in coin loss in this assemblage occurs with the 190 coins datable to the period A.D. 330-48. It is likely that there was no regular mechanism for the removal of obsolete billon coinage and this, along with the circulation of large amounts of this low-value coinage, explains why such large numbers of these coins are found on many sites. Table 5.1 lists the coins of this period by type, subdivided into regular and irregular issues.

	Total	Regular	Irregular	Irregular as %
Constantinopolis	33	5 (3)	25	75
Urbs Roma	20	5	15	75
Gloria Exercitvs - 2 standards	35	14 (2)	19	54
Gloria Exercitvs - 1 standard	45	19 (1)	25	55.5
Helena/Theodora	12	8	3 (1)	25 (33.3)
2 Victories	36	18	13 (5)	36 (50)
Other	3	3	-	-

Table 5.1. Constantinian coins: totals by coin type. Figures in brackets show the number of borderline examples.

The official issues of Gloria Exercitus (two standards), Urbs Roma and Constantinopolis were issued from 330-5 and in this assemblage these types have a weight range of approximately 1.3-2.9g and a diameter range of approximately 15-19mm. The Gloria Exercitus (one standard) coinage minted from 335-41, and the issues for Helena and Theodora (337-41) have a weight range 0.9-1.9g and a diameter range of 14-16mm. A shortage in the supply of the official issues occurred when all the western mints stopped striking copper coins. It was remedied by the large-scale copying of this coinage between c. 341 and 346. Unlike the earlier radiate copies and the Fel Temp Reparatio copies of c.354-64, it is often difficult to distinguish these copies from the official issues and several coins are borderline cases. Other coins of the period are the Two Victories issues from 341-6, which also have a weight range of 1-1.6g and a diameter range of 13-17mm. This issue was also copied from 346-8.

Table 5.2 illustrates the distinctions between the measurements of regular and irregular issues. Official coins rarely occur in the lowest measurement range, although copies may be found in the ranges expected of regular coinage, and have been consequently identified on the basis of their style and the quality of the engraving.

	Diam (mm)	Reg.	Irreg.	Weight (gm)	Reg.	Irreg.
Constantinopolis	20-17	*6 (1)*	*3*	2.9-2.2	*1*	*1*
	16-15	*(1)*	*5*	2.1-1.7	*3 (2)*	-
	14-13	-	*10*	1.6-1.2	*2*	*9*
	12-7	-	*5*	1.1-0.4	-	*13*
Urbs Roma	19-18	-	-	2.7-2.4	-	*3*
	17-16	*5*	*3*	2.3-1.8	*2*	*1*
	15	-	*2*	1.7-1.1	*2*	*3*
	14-9	-	*9*	1.0-0.3	-	*5*
G. Exercitus - 2 standards	19-18	*1*	*1*	3.0-2.6	*1*	-
	17-16	*12 (1)*	*4*	2.5-2.1	*4 (1)*	*2*
	15	*(1)*	*4*	2.0-1.8	*3*	*1*
	14-8	-	*10*	1.7-1.4	*3 (1)*	*4*
				1.3-0.3	*1*	*12*
G.Exercitus - 1 standard	17-16	*4*	-	2.0-1.7	*3 (1)*	*3*
	15-14	*14 (1)*	*11*	1.6-1.3	*6*	*9*
	13-8	*1*	*13*	1.2-1.0	*8*	*4*
				0.9-0.7	*1*	*7*
Helena/ Theodora	17-16	*3*	-	2.0-1.7	*1*	-
	15	*2*	*2*	1.6-1.2	*7*	*1*
	14-13	*3*	*2*	1.1-0.8	-	*3*
2 Victories	17-16	*4*	*1*	1.9-1.6	*3*	*3*
	15	*10*	*6*	1.5-1.2	*12*	*3*
	14-13	*4*	*8*	1.1-1.0	*2*	*8*
				0.9-0.3	*1*	*1*

Table 5.2. Summary details of the Constantinian coins by diameter and weight. Figures in brackets show the number of borderline examples.

Fel Temp Reparatio coinage is the dominant type of the period 348-64. Issues show either the hut/barbarian, falling horseman or the emperor/galley/phoenix types. The official coins, minted from 348-353, had a much higher value than the preceding coinage and are thus comparatively rare as site finds. Five official coins have been identified in this assemblage, including two hut/barbarian issues (Cat. no.343-4; Plate VIII, nos.11-12) and one example of the phoenix type (Cat.no.345; Plate VIII, no.13). Once again, the failure on the part of the state to produce smaller denominations for everyday use led to a widespread defecit in the coinage supply which was corrected by large-scale counterfeiting, predominantly of the falling horseman series from c. 354-64. These copies demonstrate a wide variety of engraving standards and generally have a smaller diameter, weigh less and are clearly distinguishable from the official coinage. One example (Cat.no 360; Plate IX, no.3) is identified as a copy, probably of Magnentius, on the basis of the style of the engraving, although it is executed in a very competent manner.

The final major peak of coin loss occurs with the coinage of the House of Valentinian and the issues of Valentinian, Valens and Gratian (364-78) represented by 126 coins. This period saw a great homogeneity in coin types and their supply and use. Two coins of this period (Plate IX, no.11; Plate X, no.1) are fractions of coins, which probably circulated with the official coins. The most common obverse types were Securitas Reipublicae and Gloria Romanorum, and there appears to be very little variation between mints. The Gloria Novi Saeculi issues of Gratian minted exclusively at Arles between 367-75 are also well-represented in this assemblage.

It has been recognised that a number of Romano-British temple sites have been distinguished by a peak in the period 364-78 which is higher than that in the period 330-48 (Davies & Gregory 1991, 75). At Marton, the 330-48 peak is larger than that of 364-78, although the difference between the two is not especially great.

The final two periods of coin use in Roman Britain from 378-402 are represented by the coins of Valentininan II, Theodosius and Arcadius; all of which are smaller, lighter

coins than the earlier Valentinianic coinage. The most common reverses in this assemblage are the Victoria Augg and Salus Reipublicae types.

The coins have been subdivided into the following periods (adapted from Casey 1980).

Period 1	Claudian	43-54
Period 2	Neronian	54-68
Period 3	Flavian I	68-81
Period 4	Flavian II	81-96
Period 5	Trajanic	96-117
Period 6	Hadrianic	117-38
Period 7	Antonine I	138-61
Period 8	Antonine II	161-80
Period 9	Antonine III	180-92
Period 10	Severan I	193-217
Period 11-17	Severan II	217-60
Period 18	Gallic Empire/Aurelianic	260-86
Period 19	Carausian	286-96
Period 20	Diocletianic	296-317
Period 21	Constantinian I	317-30
Period 22	Constantinian II	330-48
Period 23	Constantinian III	348-64
Period 24	Valentinianic	364-78
Period 25	Theodosian I	378-88
Period 26	Theodosian II	388-402

All identifiable coins, including copies have been included. The radiate copies of 275 onwards have been included with the official issues in Period 18. The same period divisions have been applied to the data from all sites used for comparative purposes.

The formula below is used to construct the average coin loss histograms. This gets rid of the bias introduced from the different lengths of reigns and the results are expressed as a proportion of a notional 1000 coins.

$$\frac{\text{coins per period}}{\text{length of period}} \times \frac{1{,}000}{\text{total for site}}$$

Despite clearly defined variations between military, urban and rural sites, the general composition of any coin assemblage in Britain is at least partially predictable due to the identifiable background population of coin issues (Ravetz 1963; Reece 1972; 1981). Whilst any one assemblage has its particularities, a number of over-riding patterns of coin use and loss have been established throughout the province and these include a peak in coin loss with the radiate issues (259-86), the coins of 330-48 and finally those of 364-75. Sites whose numismatic record is largely derived from hoards, do not follow the basic trends and this factor must be considered when comparing the histograms from various sites. The coin loss histogram for the coins from Doncaster (fig. 5.9; Buckland and Magilton 1986) is derived largely from hoard evidence and consequently detracts significantly from the recognised pattern.

Two histograms have been constructed using this formula for the coins from Marton. Fig. 5.1 is based upon the total 545 identified coins available for examination. Fig.5.2 is based upon the coins recovered between 1992-4; 296 of which have been positively identified.

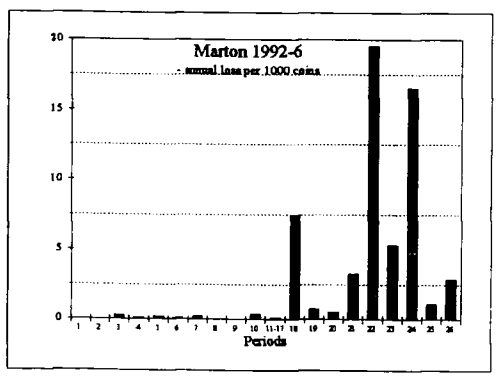

Fig. 5.1 Coin losses: Marton 1992-6

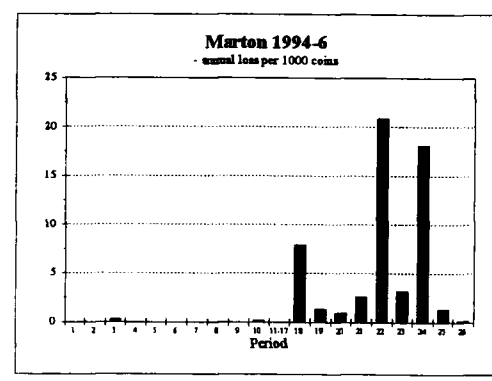

Fig. 5.2 Coin losses: Marton 1994-6

Despite variations in the early periods between the two histograms, the same general pattern is clearly visible. The coin loss is very slight until the mid-3rd century and peaks in periods 18, 22 and 24.

Figs. 5.3-5.9 are histograms calculated on the same basis from a range of urban, villa, small town and other rural sites which exhibit a variety of coin loss patterns. The data required derives from published excavation reports. The selection of these sites as comparanda for the Marton assemblage was based upon geographical proximity and similarities between the assumed status of the site. Winterton (Stead 1976), Dalton Parlours (Wrathmell & Nicholson 1990), Gorhambury (Neal 1990) and Gestingthorpe (Draper 1995) are identified as villas, Old Winteringham is a roadside settlement (Stead 1976), and Baldock (Stead & Rigby 1986) and Doncaster (Buckland & Magilton) are Small Towns.

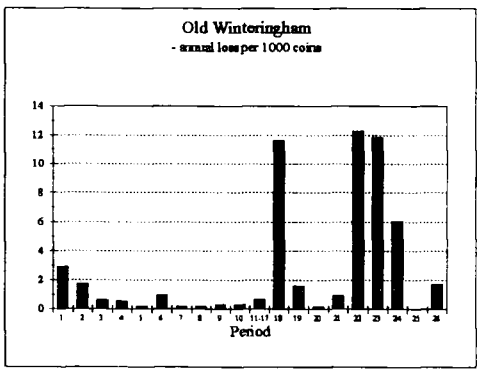

Fig. 5.3 Coin losses: Old Winteringham

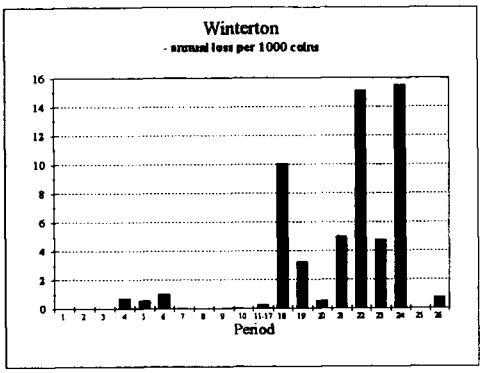

Fig. 5.4 Coin losses: Winterton

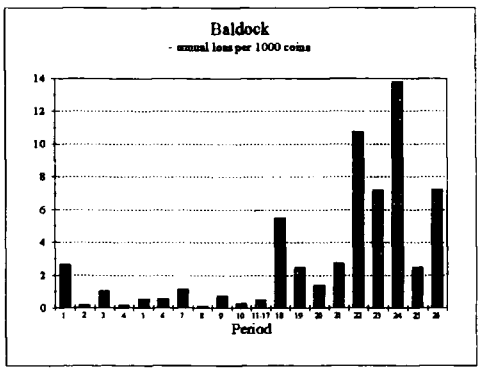

Fig. 5.5 Coin losses: Baldock

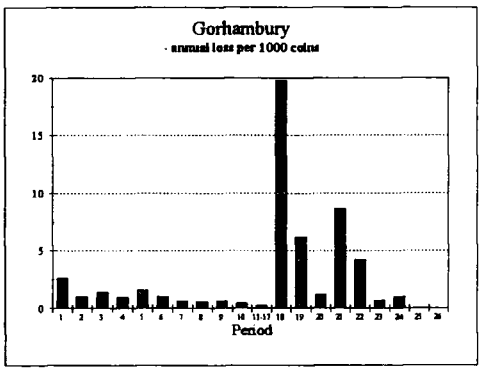

Fig. 5.6 Coin losses: Gorhambury

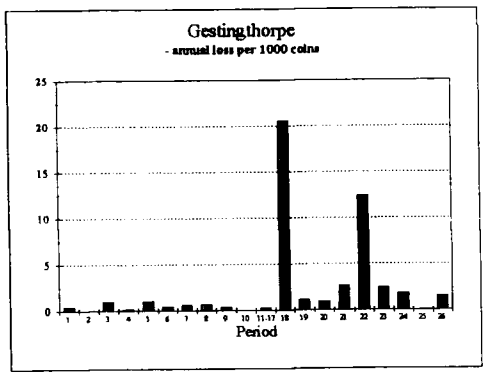

Fig. 5.7 Coin losses: Gestingthorpe

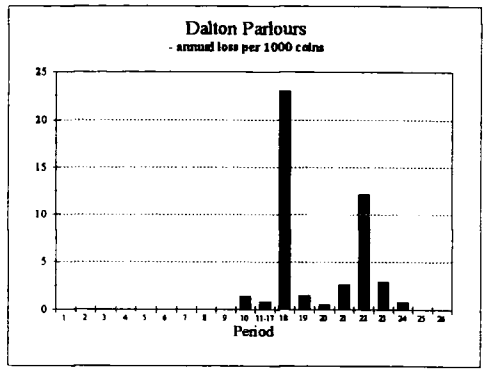

Fig. 5.8 Coin losses: Dalton Parlours

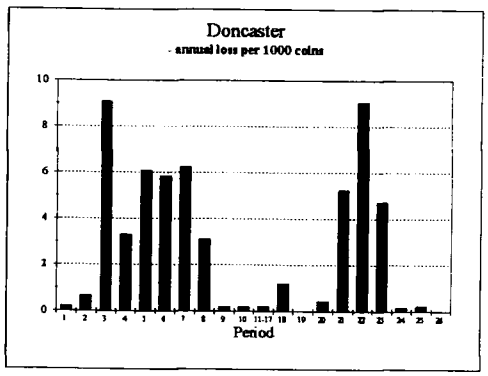

Fig. 5.9 Coin losses: Doncaster

Despite exceptions such as Doncaster, there is little variability in the general patterning visible. The coin loss pattern at Winterton, a villa site in North Lincolnshire is perhaps the most similar to the Marton (1992-6) pattern.

Marton has been seen to follow the same key trends of coin loss as many other sites in Roman Britain, but can the coins suggest anything about the possible function and status of the site?

Reece has demonstrated that by dividing the coinage of sites into four chronological periods; phase A (to A.D.259), B (259-94), C (294-330) and D (330-402), and by plotting the values for phase B against phase D, urban and rural sites can be differentiated (Reece 1987, 90). The urban sites tend to have values above the mean, with more coins in phase B than in phase D, wheras the rural sites are generally

situated below the mean with quantities of coins in phase D outnumbering those in phase B. Exceptions are known to occur geographically between sites in the east and the west and also amongst sites with apparently similar functions and status. In general, the pattern of coin loss at western small settlements, temples and villas starts low and remains low until the radiate period (260-86), wheras eastern small settlements increase in coin use from Trajan to Commodus but then fall into a decline which continues almost to the end of the 4th century (Reece 1991,12; Davies & Gregory 1991, 76). For the coinage from Marton, 109 coins have been identified as phase B and 392 coins as phase D, classifying the site as rural in its pattern of coin loss and identifying it more closely with a western small settlement, temple or villa than with an eastern small settlement, a contrast which might have been expected.

This method is effective but lacks specificity and as sites can only be loosely grouped, clear distinctions between the functions of different sites is more difficult to recognise.

A more sophisticated analytical technique has been put forward by Reece (1995). Initially, the coins are divided into the 21 period groups listed below, and the coins are expressed as a percentage per 1000 coins from each site. A mean British value per thousand coins for each period group has been established and a comparison of the British mean value and the percentage of the Marton coins, added cumulatively is shown in fig. 5.10. The starting and finishing points are equal for both sets of figures, being 0 and 1000 respectively. The British mean plot shows a steady increase until Period 12 (238-60), followed by a sudden rise in the radiate periods (260-96), a slackening followed by a rise after period 16 which ends in 330. The Marton coins are well below the British mean at the start, accumulating at a very steady rate until after Period 12 when there is a dramatic rise. From Periods 14-16 the pattern is consistent with the British mean, although the Marton figures are much lower. After Period 16, there is a very sharp rise with the Marton coins and again after Period 19 (ends 378), at which point it overtakes the British value, though only just and then finishes at an equal rate.

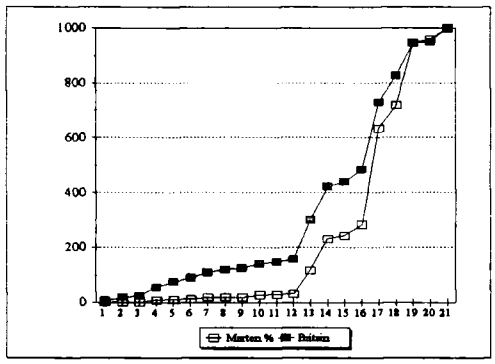

Fig. 5.10 British mean value per 1000 coins and Marton value per 1000 coins added cumulatively

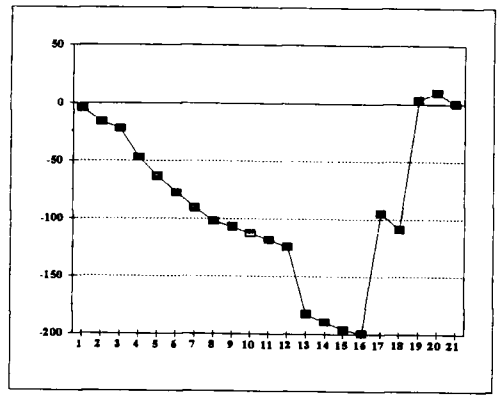

Fig. 5.11 Marton value minus the British mean value added cumulatively

The distance between the two values is more clearly demonstrated on a graph which shows the values after subtracting the British mean from the Marton values. Once again this is added cumulatively and the British mean is represented by the horizontal line at zero (fig. 5.11). This shows a clear fall-off in the Marton values away from the mean, especially between Periods 12-14, followed by a rapid increase until the Marton values move ahead of the mean in Periods 19-20, before finishing level in the final period. This a more visually effective means of displaying the data, especially when several sites are to be displayed on the same graph.

This method has been applied to the data collected from 140 sites in Roman Britain (Reece 1991) and the results have been grouped by similarities in the patterns achieved (Reece 1995). Despite inevitable exceptions, partly caused by the variations in the scales used, the data undeniably fall into a series of well-defined, discrete patterns, which correlate in the majority of cases with the function and status of the sites that has been assumed on the basis of other evidence. However, it is dangerous to employ any single artefact group when attempting to define a site's function (Reece 1987, 80). Although this method does not take into account the differing lengths of each period, and the British mean value may not be representative of all Romano-British sites, it is consistent in that the same formula involving the same British mean is used for all sites.

Period	Date	British mean	British mean cumulative	Marton coins/ 1000	Marton coins/1000 cumulative	Marton minus British mean	Marton minus British mean cumulative
1	to A.D.41	6.47	6.47	1.84	1.84	-4.63	-4.63
2	41-54	11.73	18.20	0	1.84	-11.73	-16.36
3	54-69	5.90	24.10	0	1.84	-5.90	-22.26
4	69-96	30.85	54.95	5.52	7.36	-25.33	-47.59
5	96-117	19.90	74.84	3.68	11.04	-16.22	-63.81
6	117-38	15.79	90.64	1.84	12.88	-13.95	-77.76
7	138-61	18.67	109.30	5.52	18.4	-13.15	-90.91
8	161-80	11.52	120.83	0	18.4	-11.52	-102.43
9	180-92	4.66	125.49	0	18.4	-4.66	-107.09
10	193-222	15.18	140.66	9.21	27.61	-5.97	-113.06
11	222-38	7.29	147.95	1.84	29.45	-5.45	-118.51
12	238-60	8.08	156.03	1.84	31.29	-6.24	-124.75
13	260-75	144.30	300.33	86.56	117.85	-57.74	-182.49
14	275-96	121.24	421.57	114.18	232.03	-7.06	-189.55
15	296-317	17.49	439.06	11.05	243.08	-6.44	-195.99
16	317-30	44.13	483.19	40.52	283.6	-3.61	-199.6
17	330-48	245.54	728.73	349.91	633.51	104.37	-95.23
18	348-64	98.22	826.95	84.71	718.22	-13.51	-108.74
19	364-78	118.00	944.95	230.20	948.42	112.2	3.46
20	378-88	4.80	949.75	11.05	959.47	6.25	9.71
21	388-402	50.25	1000.00	40.52	999.99	-9.73	0.02

Table 5.3 Marton values per 1000 coins in relation to British mean values per 1000 coins.

This analysis was applied to a selection of sites of varying status in North-West Lincolnshire and South Yorkshire (Flaxengate and The Park; Lincoln, Old Winteringham and Winterton) in order to assess any regional tendencies that may occur (fig. 5.12). There are no striking similarities between Marton and these sites, although the most conformity is shown with the coins from Winterton and The Park, Lincoln; whose patterns of coin loss are also predominantly below the British mean until the late 4th century, although not at the same scale as the Marton pattern. Both The Park, Lincoln and Winterton which exhibit 'rural' tendencies in their coin assemblages, with a higher proportion of coins in phase D (330-402) than in phase B (259-94). Fig. 5.13 includes the coins from Doncaster (Esmonde-Cleary 1986), and not only significantly alters the scale but also emphasises the problems of using

evidence largely deriving from hoards and chance finds, which are generally biased to the larger, more attractive and generally earlier issues.

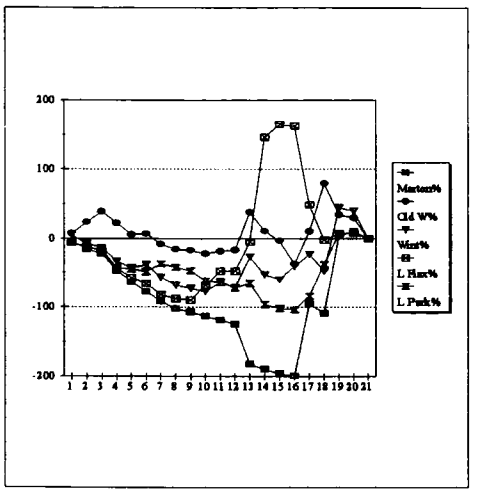

Fig. 5.12 Values after subtracting the British mean from assemblages from Marton, Old Winteringham, Winterton, Lincoln: Flaxengate and Lincoln: The Park.

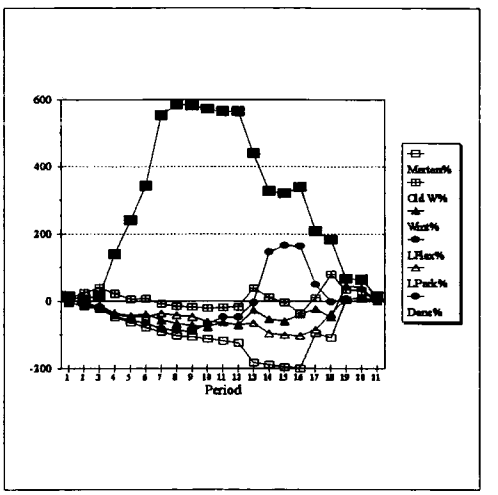

Fig. 5.13 As fig. 5.12, plus Doncaster values

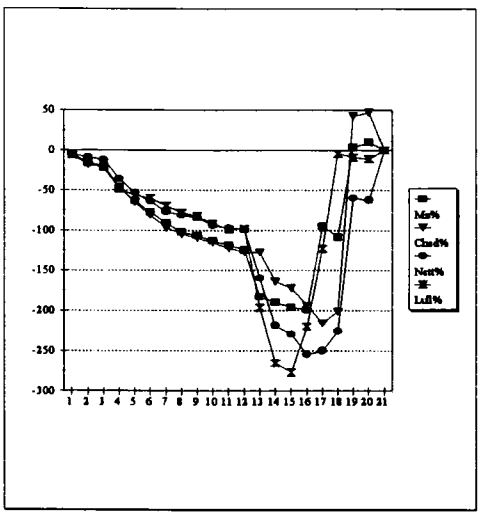

Fig. 5.14 Values after subtracting the British mean from assemblages from Marton, Chedworth, Nettleton and Lullingstone.

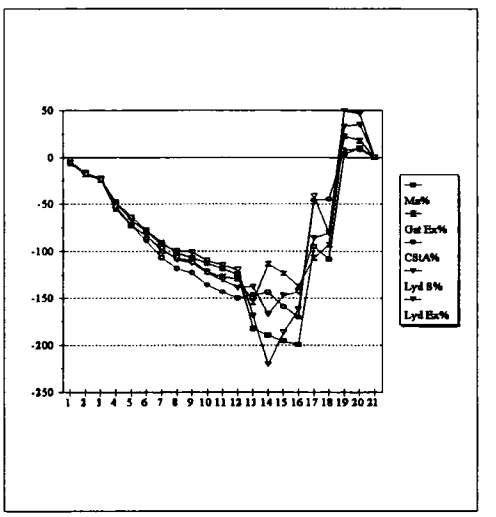

Fig. 5.15 Values after subtracting the British mean from assemblages from Marton, Gatcombe (excavated), Coln St.Aldwyns and Lydney (excavated and field-walked).

Figs. 5.14-5.15 show sites whose pattern of coin-loss sites behave in a similar manner to the coin loss at Marton, with values predominantly below the mean-values and a

small peak in the late 4th century. These sites include Gatcombe (Reece 1967), Lydney (Wheeler & Wheeler 1932), Chedworth (Reece 1959, 1970), Nettleton (Reece 1982), Lullingstone (Reece 1987) and Coln St Aldwyns (Reece 1991) which have been identified as villa and temple sites on the basis of other evidence. Although it is not possible to identify the status of the site at Marton on the grounds of the numismatic assemblage alone, the evidence from this analysis suggests affinities in the pattern of coin loss with both villa and temple sites.

A difference between the chronological patterns of stray finds and excavated assemblages has been noted (Casey 1985). The implication is that excavated coins represent a a more accurate distribution of the coins in use at a site than metal-detected coins or surface finds. This is largely because excavation examines all archaeological levels, rather than the upper levels which are most readily available to metal-detectors (depending on the level of plough-damage). Such differences in the way in which assemblages are collected and identified must be considered when a number of sites are to be compared.

Although it is not a common feature, the coin assemblages from a number of sites are published as both excavated and metal-detected finds and a comparison of the plots from these sites could be a very useful indicator of the validity of detected and surface finds.

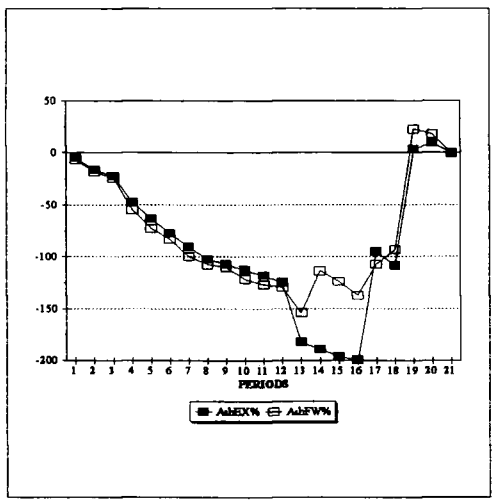

Fig. 5.16 Ashton values minus the British mean for excavated and field-walked assemblages

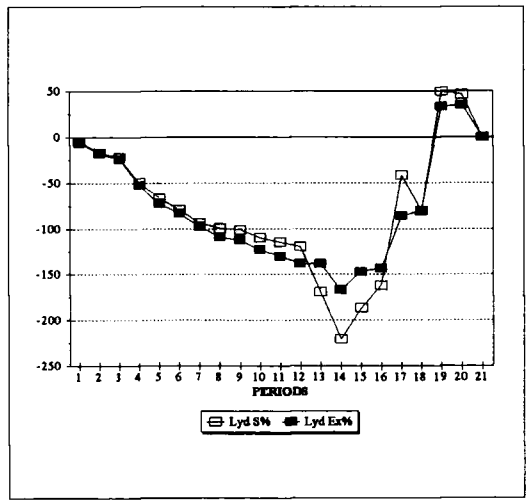

Fig. 5.17 Lydney values minus the British mean for excavated and field-walked assemblages

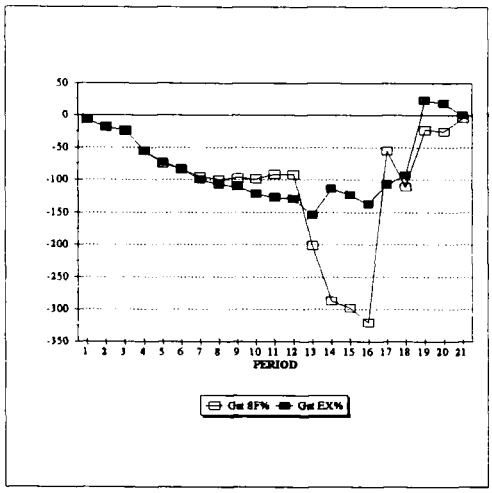

Fig. 5.18 Gatcombe values minus the British mean for excavated and field-walked assemblages

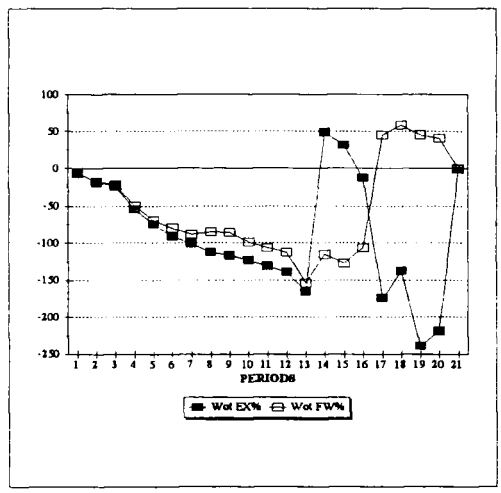

Fig. 5.19 Wotton- at-Stone values minus the British mean for excavated and field-walked assemblages

Figs. 5.16-5.19 distinguish the field-walked/metal-detected and the excavation assemblages from Ashton, Northamptonshire (Reece 1991), Lydney, Gloucestershire (Wheeler & Wheeler, 1932), Gatcombe, Somerset (Reece 1967) and Wotton-at-Stone, Hertfordshire (Reece 1991). Although differences in the general patterns exist between the field-walked and excavated assemblages from Ashton and Lydney (figs. 5.16-5.17), the same basic trend is visible in both and the deviation from the British mean value remains fairly constant. An interesting feature of the Ashton field-walked assemblage is the scarcity of 1st-2nd century coinage in relation to the excavated assemblage where it is well-represented. This may reflect disturbance to the upper archaeological layers only, although proper assessment awaits final publication.

The greatest disparity between the excavated and field-walked patterns is illustrated with the Wotton-at-Stone assemblage (fig. 5.19). There is a very similar rate of loss up to period 13 (260-75), where the patterns diverge with an increase in the radiate period for the excavated material. In period 16 (330-48), there is a major peak in the metal-detected material (40% of total) and an equally significant trough in the excavated material (8.4%). The metal-detected series finishes fairly smoothly after this period, but interestingly there is a very significant peak in the excavated assemblage in period 21 (388-402) when 27% of the total coins are recovered. The pattern emerging from this assemblage suggests that the metal-detected collection peaks at periods when there was a greater circulation of coinage, especially in the mid-4th century.

This probably reflects the greater ability of detectors to recover all material including the smaller issues, typical of the later Roman period, but the high incidence of period 21 coinage in the excavated assemblage does not conform with this pattern and this must relate to some other phenomenon.

Unlike excavated material, the composition of the metal-detected assemblage rarely remains 'static', as areas that have been scanned previously yield new material after each ploughing (although this can also result from differential soil conditions at the time of survey). The Marton assemblage may be biased through the lack of some early coins, although earlier unsupervised metal-detection of the site may have removed this material. It is also possible that some of the earlier levels are undisturbed, but after years of deep-ploughing this is a less likely explanation. Despite potential minor biases, this assemblage reflects the expected pattern of coin loss from a rural site/roadside settlement .

Spatial distribution of coinage

Figs. 5.20-5.22 plot the distribution of coins recovered between 1994-6. Fig. 5.20 represents the coins to A.D.294, fig. 5.21 from A.D. 294-364 and fig. 5.22 from A.D. 364-402. These period groupings roughly follow those established by Reece (1988, 73), but combine Phases A and B and take A.D. 364 as the starting date of the final period rather than A.D 330.

These distribution plots are based on sketch maps drawn in the field at the time the objects were found and therefore excessive weight should not be placed upon minor distributional differences. Of more importance, are the gross distributional patterns visible between areas of the site. The two principal areas that have been detected intensively are Fields A and C, and the coverage in terms of time spent in each field is approximately equal. Inevitably, areas that have been known to produce quantities of coinage in the past have perhaps received more attention from the detectorists than other areas, but an effort was made in the detection from 1994-6 to expand the

coverage area. Despite these limiting factors, distinctions in the distribution of coins from different phases are apparent.

	Field A	Field C	Field D
to A.D 296	36 (61%)	20 (33.9%)	3 (5.1%)
A.D 296-364	50 (36.5%)	81 (59.1%)	6 (4.4%)
A.D 364-402	14 (20.3%)	46 (66.7%)	9 (13%)

Table 5.4. Distribution of coins found 1994-6 between fields over time

In the phase prior to A.D 296, the coins in Field A demonstrate a clustering along the Roman road, whereas those in Fields C and D show no discernible pattern. As Table 1 shows, the majority of coins were found in Field A.

The distribution of the coins dating from 294-330 exhibits a different pattern. The pattern in Field A is similar to that of the earlier period, and continues to cluster along the road. In Field C the pattern of loss diverges significantly from the previous period. Coins in this field are now also concentrated along the road, through most of the length of the field. There is also a slight increase in numbers of coins in Field D in this period, but no significant patterning is apparent. In terms of the overall proportion of coins found, the balance has now shifted to Field C (see Table 5.4).

The final phase of coin loss (364-402) demonstrates a further change in possible emphasis between areas of the site. The shift from Field A to Field C becomes more apparent and within Field C, the coin loss along the road frontage concentrates in the western area. This period sees a higher incidence of coin loss in Field D, and this distribution appears to be an extension of the concentration in Field C. These results will be incorporated with those derived from other sources of evidence in Chapter 7.

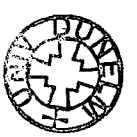

Fig. 5.20 Distribution of coins dating to A.D. 294

Fig. 5.21 Distribution of coins dating A.D. 294-364

Fig. 5.22 Distribution of coins dating A.D. 364-402

Key to Plates

Plate I
1... Cat. no. 2, **2...**Cat. no. 5, **3...**Cat. no. 7, **4...**Cat. no. 8, **5...**Cat. no. 9, **6...**Cat.no.3, **7...**Cat. no.4, **8...**Cat. no.6, **9...**Cat. no.10, **10...**Cat. no.13, **11...**Cat. no.11, **12...**Cat. no. 12, **13...**Cat. no.14, **14...**Cat. no. 15.

Plate II
1... Cat. no. 16, **2...** Cat. no. 17, **3...** Cat. no.20, **4...** Cat. no.21, **5...** Cat. no. 22, **6...** Cat. no. 23, **7...** Cat. no. 25, **8...** Cat. no. 24, **9...** Cat. no. 26, **10...** Cat. no. 27, **11...** Cat. no. 31, **12...**Cat. no. 32, **13...** Cat. no. 29, **14...** Cat. no. 34.

Plate III
1... Cat. no. 53, **2...** Cat. no. 45, **3...** Cat. no. 48, **4...** Cat. no. 49, **5...** Cat. no. 54, **6...** Cat. no. 63, **7...** Cat. no. 59, **8...** Cat. no. 75, **9...** Cat. no. 76, **10...** Cat. no. 51, **11...** Cat. no. 81, **12...** Cat. no.90, **13...** Cat. no. 82, **14...** Cat. no. 77.

Plate IV
1... Cat. no. 89, **2...** Cat. no. 39, **3...** Cat.no. 40, **4...** Cat. no. 35, **5...** Cat. no. 36, **6...** Cat. no. 37, **7...** Cat. no. 84, **8...** Cat. no. 73, **9...** Cat. no. 64, **10...** Cat. no. 68, **11...** Cat. no. 65, **12...** Cat. no.96, **13...** Cat. no.69, **14...** Cat. no. 97, **15...** Cat. no. 124, **16...** Cat. no. 125, **17...** Cat. no. 126.

Plate V
1... Cat. no. 128, **2...**Cat.no. 129, **3...**Cat. no. 131, **4...**Cat. no. 137, **5...**Cat. no. 139, **6...** Cat. no. 140, **7...** Cat. no. 143, **8...** Cat. no. 141, **9...**Cat. no. 144, **10...** Cat. no. 152, **11...** Cat. no. 149, **12...**Cat. no. 153, **13...**Cat. no. 154.

Plate VI
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Plate VII
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Plate VIII
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Plate IX

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Plate X

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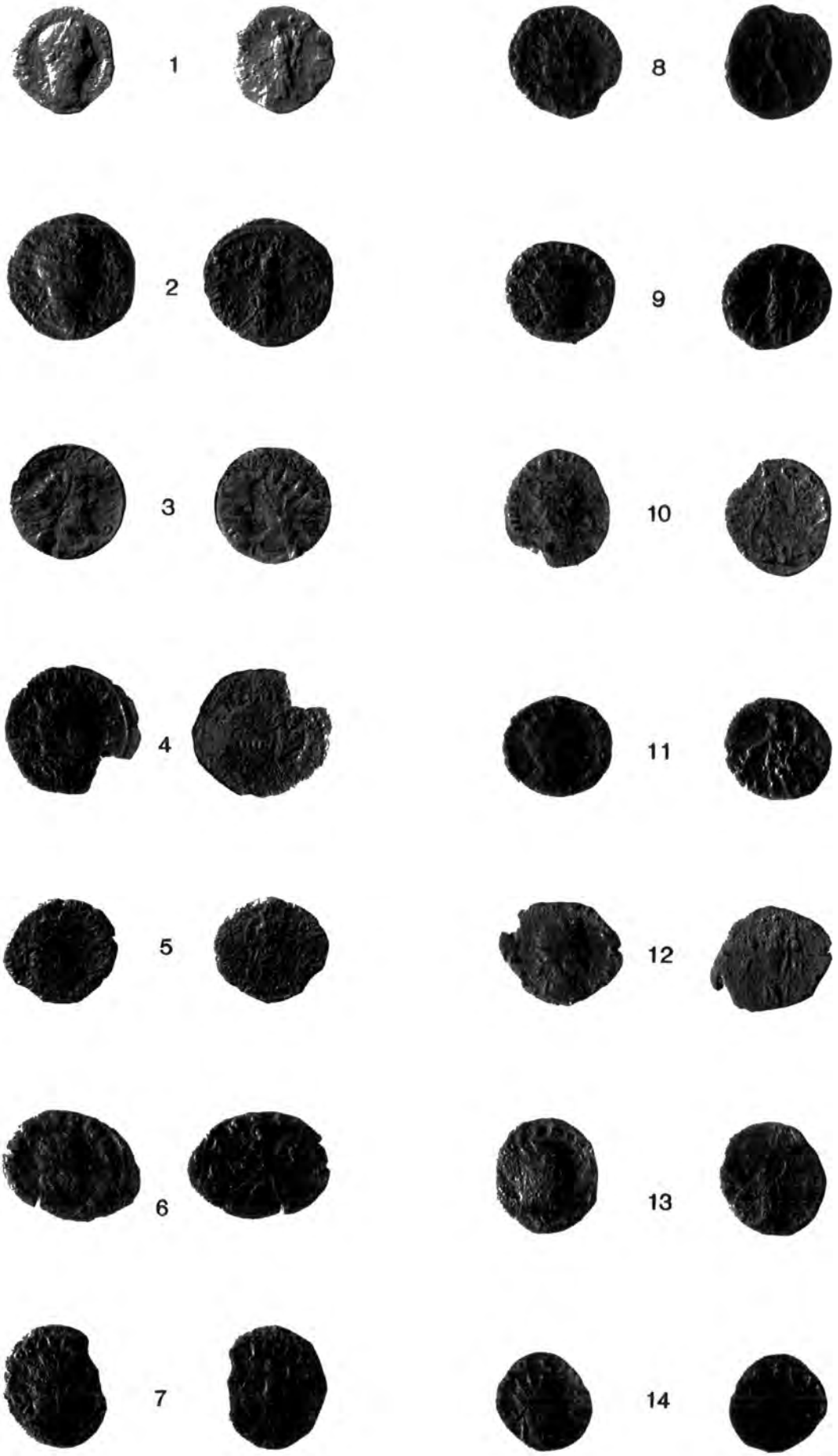

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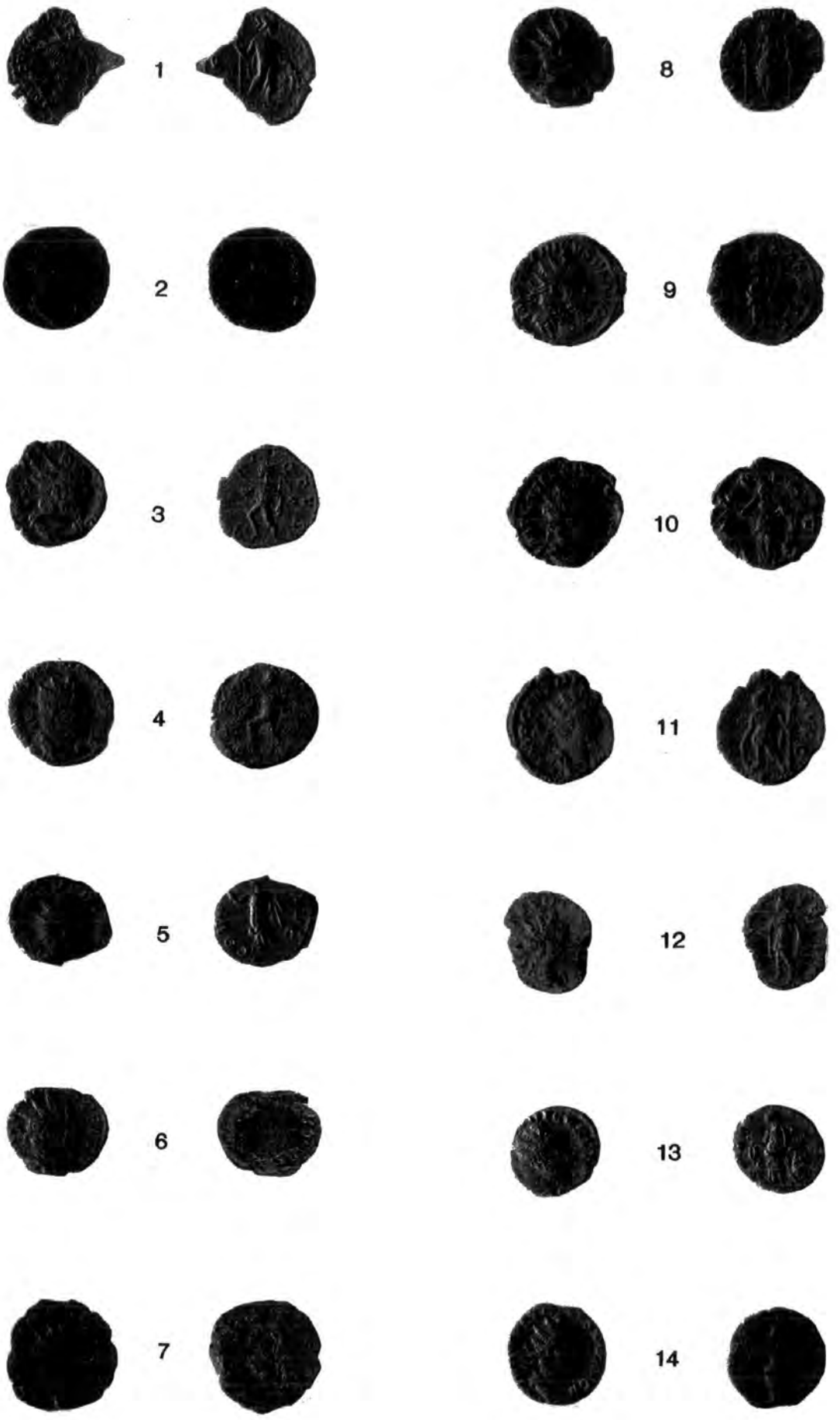

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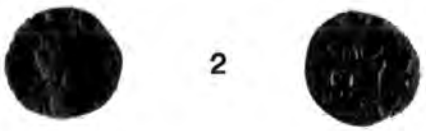
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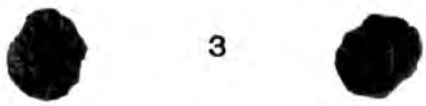
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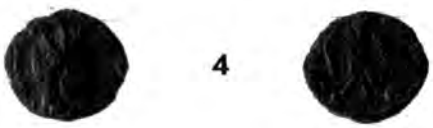
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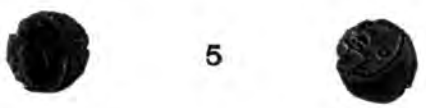
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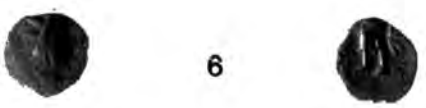
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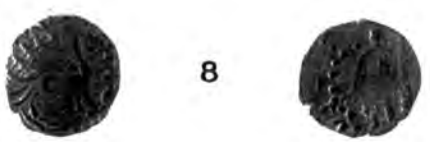
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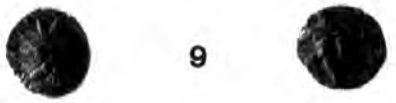
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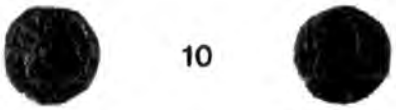
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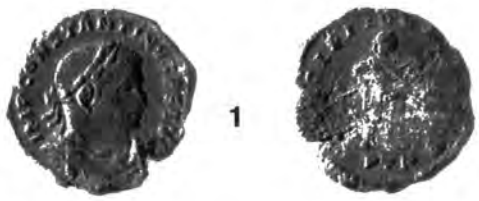

Plate V


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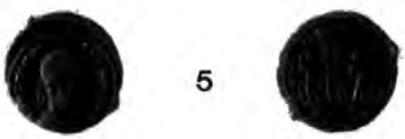
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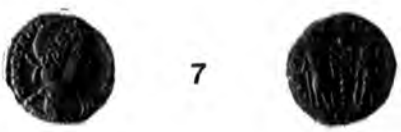
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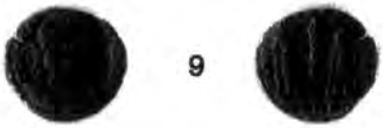
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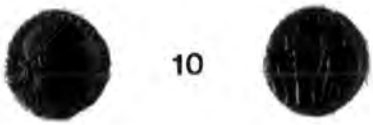
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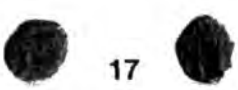
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Plate VI


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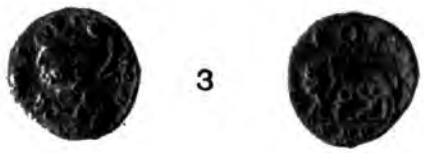
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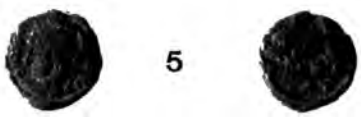
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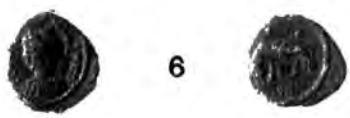
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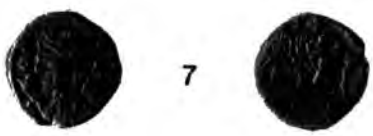
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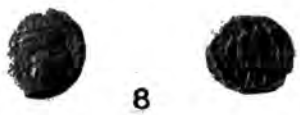
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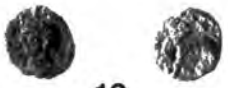
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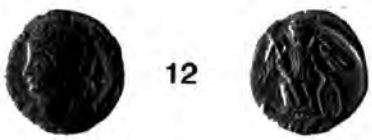
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Plate VII


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Plate VIII


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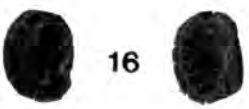
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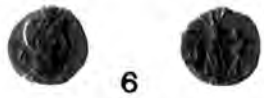

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Plate X

Chapter 6 THE ROMAN SMALL FINDS

The term 'small finds' refers here to those finds that are neither ceramic vessel, glass vessel, coins or structural artefacts. The assemblage is composed of a wide range of artefact types including objects of personal adornment such as brooches, rings and bracelets, military equipment, domestic items such as vessels and spoons, surgical equipment, furniture fittings and objects associated with recreation, building, weighing and the manufacture of textiles, as well as a category of material whose function is unknown.

In an assemblage that derives almost exclusively from metal-detection, the deficit of objects of bone, iron, glass, shale and stone, and the more perishable items produced in wood, textile and leather which might all have been in use at the site, is immediately apparent. However, despite the bias to metallic objects, a wide range of functions and activities may be attributed to the objects available; a topic which will be explored further in the chapter integrating all finds (Chapter 7).

Traditionally, small finds have been largely disregarded as being of little use in terms of the chronological and socio-economic setting of the site (Cool 1990, 148). Classification according to a terminology based on the material from which the objects were produced rather than by any functional distinction, insubstantial descriptions of the artefacts, and little interpretation and integration, has unsurprisingly, encouraged many to overlook small finds as a potentially valuable data-set capable of addressing specfic issues. This includes factors such as the supply and manufacture of objects, the economic level and possible status of the site in social terms and also the relationship of the distribution of material to the organisation of the settlement. The intention here is to make use of this class of material as one of the most important data-sets available to contribute to these issues.

There are three major hurdles in any attempt to analyse the composition of a small finds assemblage en bloc. Firstly the overall interpretation of an assemblage is impeded by the lack of homogeneity of a group of objects with a very diverse range of

functions. Secondly, the dating of many artefact forms, especially the less distinctive items such as, for example, lead weights is imprecise. Finally, it is difficult to assess how 'typical' the composition of a particular assemblage actually is, since there are no clearly-defined characteristics of the small finds assemblages of urban or rural sites, for example, other than perhaps the quantities of material recovered. This is in contrast to distinctions visible in coin loss patterns.

One hundred and eighteen small finds from Marton have been catalogued and discussed. Inevitably, as on most settlement sites, there are a number of miscellaneous objects, of unknown form and function. The dating of these objects is suggested as being probably Roman, based largely upon the appearance of the objects and the material from which they are produced. In due course greater definition may be given to this category of finds. Parallels for these miscellaneous objects are often very difficult to identify which may perhaps mean that they are unique to the site. This is consistent with the probability that many of the everyday, house-hold objects would have been manufactured and repaired locally, although this is impossible to establish without the discovery of furnaces, crucibles, moulds and waste material associated with manufacture.

Crummy's functional division of artefacts in the Colchester Roman Small Finds volume (1983) has established a methodology for the classification of small finds based upon functional categories rather than material of composition. This scheme is largely followed in the following catalogue and discussion. Where possible, for example in the discussion of brooch forms, the ordering is then chronologically-based. Where an object has been positively identified, a series of parallels are cited. The list of parallels is not intended as exhaustive, and examples have been selected, where possible from either sites in the proximity of Marton, or from sites which are apparently similar in form and nature. Distributions of the finds according to functional category are included, where the provenance details have been recorded.

All illustrations are represented at a 1:1 scale, unless otherwise stated.

Abbreviations

Ht: Height
W: Width
L: Length
Th: Thickness
Dims: Dimensions
Diam: Diameter

All measurements are in millimetres.

Objects of Personal Adornment

This category includes brooches, rings and bracelets worn both by men and women.

The brooch assemblage is divided into bow and plate forms, with chronologically-based sub-divisions, where possible, within each section. The majority of the brooches were discovered before the programme of recording all find-spots had been established. However, the detectorist has plotted the approximate find-spots in fig. 6.1.

The brooches in this assemblage are all reasonably small examples of their type, especially the composite plate brooch (no. 24), whose size makes any practical use unlikely. There is little general evidence of extensive wear and there is no indication on any of the brooches for repair undertaken in antiquity. All brooches are of copper alloy unless otherwise stated.

Bow Brooches

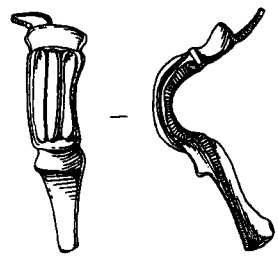
Hod Hill derivatives

1
MA94 235 H8 Field A

Fragment of small Hod Hill type brooch of Collingwood Group P. High central ridge down the upper body, flanked by broad flanges. A grooved transverse moulding seperates the bow from the plain flat leg, which narrows to missing foot knob.
L: 31

This type is dated generally to c. AD 40-60.

Similar examples have been noted at Gestingthorpe (Butcher 1985, 27 no. 5 fig. 8), Verulamium (Waugh & Goodburn 1972, fig. 30, 13), Camulodunum (Hawkes & Hull 1947, pl. XCVII, 142), Greyhound Yard, Dorchester (Henig 1993, 123 no.38 fig.62) and Stonea, Cambridgeshire (Mackreth 1996, 318 no.58 fig. 97)

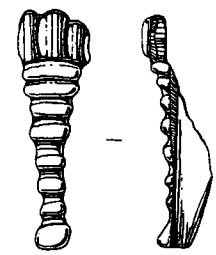


2

Fragment of Hod Hill type 62 brooch. Only bow surviving. The upper panel has three vertical mouldings. The lower bow has seven cross-mouldings above the foot-knob. Damaged catchplate extending up most of lower bow.
L: 31mm

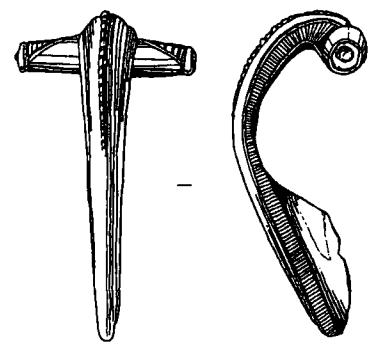
This brooch is an unusual variant of the Hod Hill type. Similar examples were found at Richborough, Kent (Henderson 1949, 111 no. 19 Plate XXVI), Verulamium, Hertfordshire (Waugh & Goodburn 1972, 116 no. 16 fig. 30), Gorhambury, Hertfordshire (Butcher 1990, 118 nos. 21-22, fig. 121), Hod Hill, Dorset (Brailsford 1962, fig. 9 C76), Colchester, Essex (Sheepen, Niblett 1985, fig. 75, no.33) in a context dating A.D. 54-7, Stonea, Cambridgeshire (Mackreth 1996, 319 nos. 65-6 fig. 98; 327 nos. 102-6 fig. 101), Chichester, West Sussex (Mackreth 1989, 189 no. 73 fig. 26.2) and Kirmington, Lincolnshire (Whitwell 1966, 43 fig.3a nos. 5-6)

Hod Hill brooches were introduced at the time of the Conquest and went out of use by the 70s AD.



Dolphin (Collingwood Group H)

3.
Long cylindrical wings with short notched ornament incised diagonally across. Bow decorated with horizontal notched decoration and has a ridge along both edges running mid-way down the bow. Hinged pin missing. Incomplete catch-plate, running half-way up bow. Foot missing.
L: 43.5mm



Dolphin brooches have been dated from Neronian times until the middle of the second century (Collingwood 1969, 295). These brooches, so-called because of the shape of the bow, are widespread throughout Britain and there is great variety in the manner of decoration. Parallels for this brooch have been found at

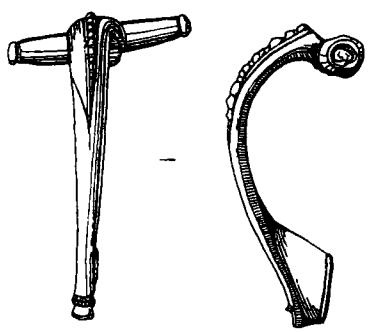
Winterton villa, Lincolnshire (Stead 1976, 198 nos. 14-15 fig. 99).

Colchester Derivative

4

Long cylindrical wings with vertical moulding at the end. The bow has a broad top of D-shaped section which is stepped away from the wings and tapers to a simple foot-knob. There is a beaded ridge running half-way down the bow. Complete catch-plate. Hinged pin missing. Corroded area at the top of the head.
L: 38.5

This brooch shares many characteristics with examples found at Stonea, Cambridgeshire (Mackreth 1996, 301 nos. 9-11 fig. 93). The basic form has wide wings, the bow stepped away from the wings often with a triangular boss or beaded ridge, and a simple foot-knob. Mackreth suggests the distribution lies between Leicester and the adjacent parts of Warwickshire, and East Anglia, and from Lincolnshire down into Hertfordshire, with a date-range from the late first century to the later second (1996, 301). Other examples have been noted at Weekley, Northamptonshire (Jackson & Dix 1987, M76, Fig.323, 15), Leicester (Kenyon 1948, 249 fig.80, 10) and Caerleon (Brewer 1986, 170 no.5 fig.54).



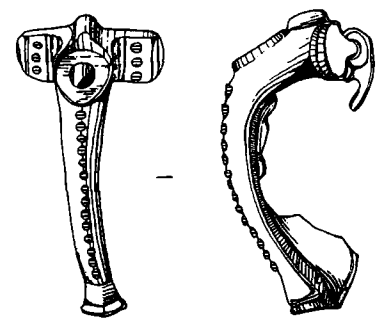
Headstuds and derivatives (Collingwood Group Q)

5

Axis bar housed in full cylinder running behind wings. Hinged pin. No chain-loop. Head-stud and foot-stud missing. Non-functional crest above head-stud. Vertical line moulded on edges of wings. Hole pierced through catch-plate to attach foot-stud. Three circles of blue enamel running vertically down each wing and fourteen circles of blue enamel running down bow.
L: 39mm

A similar example has been noted at Winterton, although this example has a head-loop (Stead 1976, 201 no.27 fig.101) and an unenamelled brooch of unknown provenance is discussed by Hattatt (1985, 102 no.424 fig. 43).

Headstud brooches were, like Dolphin brooches derived from the Colchester type brooch. They began around the mid 1st century and continued almost until the end of the 2nd century, but were never very common. Based on the dating of an example from Stanwix to soon after A.D. 134 (Collingwood 1931, 72 no.2), the example from Marton with its hinged pin, loose head-loop and non-functional crest is probably Flavian in date (Painter & Sax 1970, 173). Many decorative variations are known, including enamelling, relief decoration and silver wire.



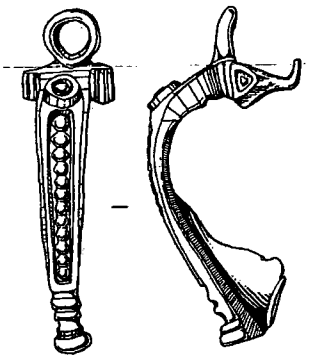
6 Found in 1959 in Field D
(not illustrated)

Headstud brooch of Collingwood'sgroup Q. Hinged pin and cast head loop. Enamelled decoration in blue and yellow.

7

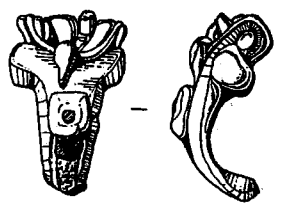
The head loop and stud are cast in one piece. The short wings are vertically grooved. The central stud, probably once had a disc of enamel within an outer rim of bronze, with central bronze dot. The bow has a median line of small lozenge mouldings which are not clearly defined. The forward flat foot knob has a groove and two small lateral ribs above it. The catch-plate extends to about half of the bow length and is unperforated. The pin which is hinged to an axial bar is damaged. No sign of enamelling survives.
L: 44mm

This type was probably developed in the later 1st century (Snape 1993, 15 Table 2) and is common throughout Roman Britain. Whilst enamelling is a common feature of this type, there is no indication of enamelling on this brooch. The example from Marton is almost identical to a brooch from Gadebridge Park villa, Hemel Hempstead (Butcher 1974, 126 no.20 fig. 54), although the decoration down the bow differs slightly. An example from Aldborough does not appear to be as well made as the Marton brooch (Bishop 1996, 53 no. 319 fig.31). Other examples have been noted at Owmby, Lincolnshire (Whitwell 1966, 44-5 fig. 4b no.9), Kirmington, Lincolnshire (Whitwell 1967, 38 fig.II no. 2b), Langton villa, near Malton (Corder & Kirk 1932, 69 no.1, fig. 18) and at Nettleton shrine, Wiltshire a brooch of this type was found in a 1st century enclosure ditch (Wedlake 1982, 128 no. 61 fig. 53).



8

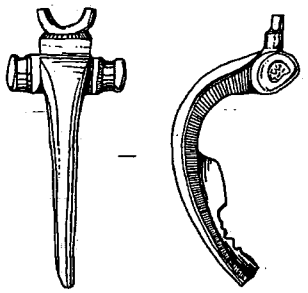
Distorted headstud brooch. Short wings. Curved bow with traces of enamelling. Head-loop bent over head and corroded. Spring mechanism.
L: 25



Thealby Mine (Collingwood Group Q)

9

Fixed head-loop, damaged. Short cylindrical wings with bead and reel decoration. Rounded bow with rectangular section tapering to missing foot knob. Hinged pin, missing. Incomplete catch-plate extending to over half of bow.
L: 36.5mm

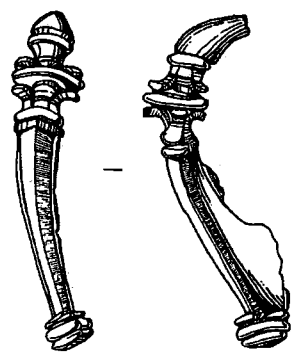


Thealby Mine brooches have much in common with headstud brooches, from which they probably developed, although they lack the stud (Snape 1993, 16). They have hinged pins and fixed headloops and are generally dated to the 2nd century. Examples are known from Thealby Mine (Dudley 1949, 20), Richborough (Henderson 1949, 114 no.37 Plate XXVIII), Aldborough (Bishop 1996, 52 no. 305 fig. 30) and South Shields (Allason-Jones & Miket 1984, 104 nos. 3.69-71).

Trumpet and derivatives

10 (Collingwood Riib)

Trumpet head and pin missing. Central moulding of full acanthus extending to rear, with four leaves above and below the flange-like button, set between two small cross-mouldings. The upper bow is of round section. The lower bow has a groove down each side, and tapers to a foot-knob consisting of three mouldings which is triangular in section and is flat at the rear. The catchplate extends up to the central moulding.
L: 44

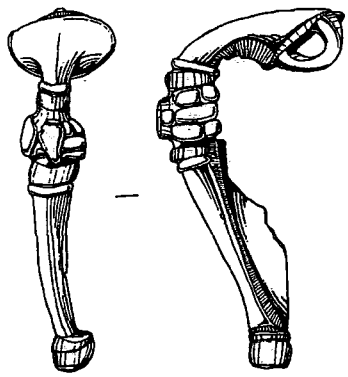


Similar examples with continuous acanthus decoration and a 'graceful' profile have been found at Corbridge (Snape 1993, 40-1 nos. 22-30 figs. 6-7), Old Penrith (Butcher 1991, 181 no. 617-20 fig. 88), Aldborough (Bishop 1996, 55 no. 324 fig. 31) and Brancaster, Norfolk (Mackreth 1985, 42 no. 4 fig. 28)

11 (Collingwood Ri)

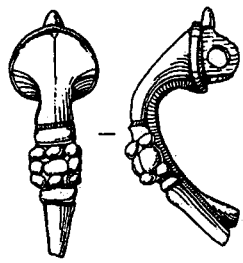
Slightly bent trumpet brooch. Trumpet head slightly chipped. Lug above head broken.
Loose moulded decoration extending around the centre of bow. The bow is narrow and oval in section but becomes triangular in section at the incomplete catch-plate. The foot is cylindrical with a poorly defined raised horizontal edge.
L: 46.5mm W.across head: 14mm W. across foot: 6mm

This brooch was cast in a poorly-made mould. The decoration is 'loose' and lacks definition.



12 (Collingwood Riii)

Headloop, pin, spring and foot missing. Vertical lug above head. Large perforation in spring lug. Groove above and below prominent, discontinuous waist-mouldings. 'Stumpy' profile.
L: 32.5



13 MA96 21/7 476D Field A

(not illustrated)

Fragment, part of trumpet head surviving.
L: 16

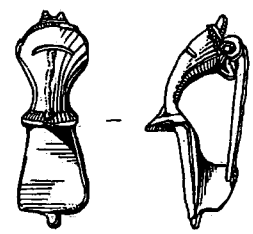
Trumpet brooches are now considered to have been fully developed before the last quarter of the 1st century A.D and are thought to have originated in the Midlands (Mackreth 1985, 42). They continued in use until the late 2nd century. The Roman fort at the Lunt, Baginton, Warwicks. has produced two brooches which demonstrate the early development of this type (Hobley 1967, 110 fig. 19.9). Collingwood's classification of trumpet brooches is based on the form of the waist decoration and depends upon plain moulding or acanthus mouldings which can be continuous or not.

Alcester type (Collingwood Group Si)

14

Trumpet-head with small, broken head-loop and two incised lines on head. Prominent mid-bow flange. Complete spring-pin, set between two lugs. Vertical lug at bottom centre of fan-tail.
L: 27

This form is a trumpet derivative but has a very distinctive bow construction with a trumpet head and fantail. Brooches of this type are generally very small. A range of enamelled decoration is known, although the example from Marton is plain excapt for the two incised lines on the head. The main distribution is in the south but there are a few known from military sites in the north.wstead (Hattatt 1989, 98). An almost exact parallel was found in Norfolk (Hattatt 1985, 113 no. 448 fig. 47)



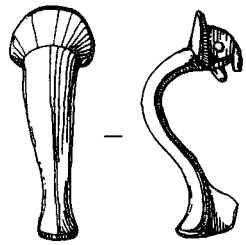
Knee brooches and derivatives

15

Small, knee brooch. Crescentic head; two closed end lugs holding axis bar and spring of four turns. Pin missing. Baluster-shaped bow with elegant curved profile with forward-splayed triangular foot. Short catchplate; complete.

L: 29.5 W. of head: 10.5 W. of foot: 4.5 L. of catchplate: 7.5

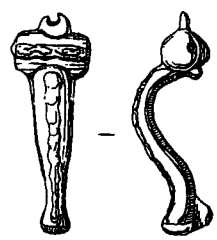
This is a neat well-made example, and is similar to an example with a headloop found at Fishbourne (Hull 1971, 104 no.38 fig.39) and to examples from near Bradwell, Norfolk (Hattatt 1985, no.1664), Jewry Wall, Leicester (Kenyon 1948, 251 no. 3 fig. 81), Aldborough (Bishop 1996, 52 no. 310 fig. 30), Roman Gates, Caerleon (Webster 1992, 111 no. 13) and South Shields (Allason-Jones & Miket 1984, 98 no. 3.23-4).



16

Small knee brooch. Cylindrical head surmounted by a small loop which is broken. Cylindrical spring-case. Closed ends holding axis bar; spring of three turns; pin missing. Curved bow. Short catchplate; damaged, behind a slightly flared, triangular foot. Strip across head and median strip down bow raised. This may be solder to hold silver foil in position as on a similar brooch from Corbridge (Allason-Jones 1988a, 165 no.27 fig.77).
L: 29, W. of head: 10, W. of foot: 3.5, L. of catchplate: 5.5

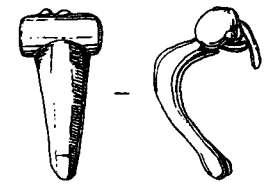
Parallels for this brooch have been noted at Aldborough, North Yorkshire (Bishop 1996, 52 no. 308 fig. 30) and Baldock, Hertfordshire (Stead & Rigby 1986, fig. 46, 103)



17

Small knee brooch. Short cylindrical wings. Rectangular head. End plates housing spring with five turns. Head loop and internal chord broken. Bow strongly angled; D-shaped section tapering in. Foot and most of catchplate missing.
L: 22 W. of head: 10

Similar examples have been noted at Old Penrith (Butcher 1991, 183 no. 625 fig. 89) and South Shields (Allason-Jones & Miket 1984, 98 no. 3.22)

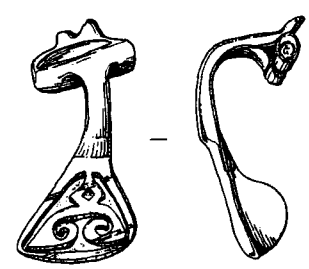


Knee brooches were imported into Britain in the mid 2nd century and continued in circulation in large numbers into the third century (Collingwood 1969, 298). The examples from Marton are all very small, which is not unusual for knee brooches. There are slight variations in the form; the profile being either angular or rounded, and the head is either a cylindrical springcase or a flat, usually semi-circular head (Snape 1993, 17). These variations are all represented in the brooches from Marton.

Bow and fantail

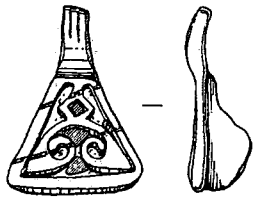
18 Hull's Celtic Type 36

Two-piece brooch. Solid cast chain-loop; broken. Hinge in cylindrical housing; pin missing. Short rounded plain wings. Narrow square-sectioned curved bow, which splays slightly to join a flat triangular fan-tailed foot. The foot is decorated with a formalised Celtic broken-back scroll pattern, with a lozenge above. Traces of decayed green enamel. Catchplate to full leg height.
L: 32



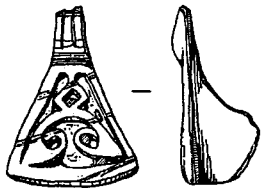
19

Fragment, as above. Broken mid-bow. Bow fluted. Fantail pattern, as above. Traces of red enamel in fantail. Surfaces pitted.
L: 23



20

Fragment, as above. Broken mid-bow. Shallow fluting on bow. Traces of red enamel.
L: 23.5



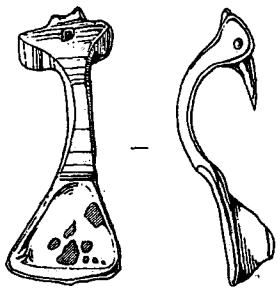
Exact parallels for this type of brooch are few, but have been noted at Corbridge (Collingwood & Richmond 1969, no.96 fig. 105), Old Penrith which has traces of blue enamel in the field surrounding the leaves (Butcher 1991, 181 no. 616 fig. 88), Thistleton, Leicestershire (Butcher 1977, 64 no.29 fig. 10) and Richborough (Bushe-Fox 1926, 43 Pl.XII). Therefore the presence of three identically decorated brooches from Marton is extraordinary and may tentatively point to local production of the type.

A sprung fan-tail brooch was found at Maxey, Norfolk (Crummy 1985, 164-5, no.2 fig.111), although the decoration on this example consists of an inner triangle of irregular punched dots. The design on the Maxey brooch along with the spring-mechanism may suggest a transitional phase before the development of the hinged-pin form (Mackreth 1996, 314). Examples from Lullingstone villa, Kent (Meates 1987, 63 no.56 fig.24) and Gorhambury (Butcher 1990, 117 no.16 fig.121) are virtually identical to the example from Maxey. An example from Harlow temple, Essex (Gobel 1985, 76 no. 18 fig. 39) A plain bow-and -fantail brooch was found at Old Winteringham (Stead 1976, 198 no.10 fig.99) and a similar brooch with irregular enamelled decoration was found at Kirmington (Whitwell 1967, 38 no.2b fig. 11) and Aldborough (Bishop 1996, 52 no.312 fig. 30) which has two raised leaves below a semi-circle decorating the fan-tail in red enamel.

The enamelled series would follow the tinned or silvered ones in the later first century, and the end-date is likely to be no later than A.D. 150/75.

21

Short, rounded semi-circular wings. Broken head loop. Perforation through centre of wings below head loop. Crude hinge pin; broken. Very narrow, rectangular-sectioned bow, expanding at the head. Slightly irregular triangular fantail, poorly moulded. Traces of red enamel in irregular pattern on fantail. Shiny patina.
L: 35.5



This is a very crudely made brooch. The narrow bow would have made use over a long period unlikely. It may represent a poor copy of a form of enamelled bow-and-fantail brooches. An alternative explanation is that some brooches were made specifically for deposition at religious sites and were never worn at all (Snape 1993, 6), although obviously this interpretation is purely tentative.

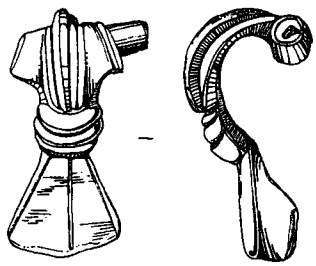
There is no solid dating evidence available for this type of bow-and-fantail, except that the enamelled examples probably belong to the second century.

Unclassified fantailed

22

One-piece brooch. Wide cylindrical wings, one of which is broken, housing hinged-pin which is also missing. Slightly distorted bow. The bow

has a prominent median rib with two grooves on either side and an irregular 'knurled' ridge at edge of bow. Central moulding consisting of three roughly crescentic ridges above fantail. Triangular fantail has vertical groove dividing area into two triangles and grooves along diagonal edges. Catchplate to full length of fantail.
L: 32



No exact parallels for this brooch have been identified, although an example noted by Hattatt is quite similar (1985, no.1481). The fantail element on the Marton brooch suggests a late 1st-2nd century development, although the central moulding is vaguely similar to that on an Aesica or Rosette brooch.

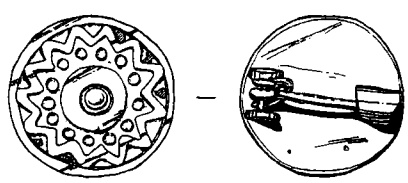
It is possible that this brooch may be a product of a workshop in the East Midlands, although withiut further evidence this is impossible to substantiate.

Plate Brooches

Star and dot plate

23

Complete, small, flat, circular brooch. Circular recess with ridge at edge. Within the recess, there is a chevron pattern of thirteen points with a spot in the base of each and a central annulus. Traces of red enamel outside star and decayed, possibly ?green enamel inside star. Spring mounted on a single pierced lug
Diameter: 21



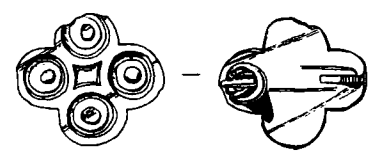
This is a Romanised version of the Celtic sun-burst pattern. The design on the brooch and the spring-fixing arrangement suggests that this is British in manufacture (Mackreth 1985, 204 no. 14 fig. 86). Similar examples, although with ten points rather than thirteen have been found at Vindolanda (Bidwell 1985, 117 no.3 fig.39) and at Nor'Nour (Hull 1968, 52 nos.191-92, fig.21). Other examples have been noted at Richborough (Henderson 1949, 116 no.45 Plate XXIX), Brancaster (Mackreth 1985, 203 no.14, fig.86), Stonea, Cambridgeshire (Mackreth 1996, 320 no. 70 fig.98) and Wroxeter (Atkinson 1942, 207 no. H.85 Fig. 36).

Plate brooches are generally dated to the late 1st and early 2nd centuries.

Composite plate

24
MA95 3/3 345A Field D

Comprises four conjoined discs with central area left plain. Circular raised dots in the centre of each disc. No enamel surviving. Surfaces pitted. Pin missing; spring with three turns.
Diam: 19



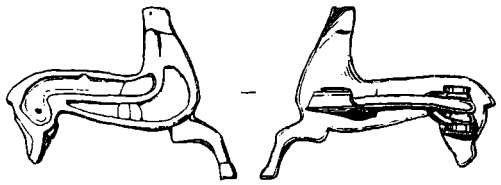
Brooches of this type are uncommon. Their dating cannot be refined beyond the 2nd century, based upon the fact that they are enamelled. A very similar brooch was found at Nor'Nour, Isles of Scilly, although this example has a hollow central area (Hull 1968, 56 no.208 fig. 22). Others have been found at Lydney (Wheeler 1932, fig. 16.45), Colchester (Hull 1958, Pl. S. 752, 3615), in Norfolk (Hattatt 1985, 166 no.598 fig.68), from East Yorkshire (Hattatt 1989, 156 no. 1615 fig.73) and the Rhineland (Exner 1939, Taf.15.6). The size of these brooches is extremely small and this factor must negate their practical function for fastening garments.

Zoomorphic

25

Fragment of a stag brooch? Head and half of hind leg missing. The body is divided into two cells with signs of decayed enamel of unknown colour. The neck is slender and the tail is docked.

There is a spring mechanism of two coils and a complete pin and catchplate.
L: 25



The identification of this brooch as a stag is probable, although the absence of the head makes any identification indefinite. However, the shape of the body, neck and tail is almost identical to a stag brooch with the body cells decorated in red and green enamel from Corbridge (Snape 1993, 64 no. 127 fig. 13). It is possible that the example from Marton represents a horse, although this is less likely since the neck is very slender and there is no sign of a mane. The docked tail is suggestive of a stag, although some horse brooches also have similar shortened tails. A less well-modelled brooch in the shape of a stag was found at Coventina's Well, although the form of decoration of the body enamelling is different to the Marton example (Allason-Jones and McKay 1985, 23 no.40). A stag brooch of a different form was found at Wroxter (Atkinson 1942, 208 no. H. 26 fig. 36). This brooch depicts the stag running to the right with the antlers joined above to form a chain-ring, and is decorated with green and blue enamel. Other examples of stag broches have been noted in Pannonia (Patek 1942, pl.XXI.12) and Augst (Riha 1979, Taf 67.1735-6).

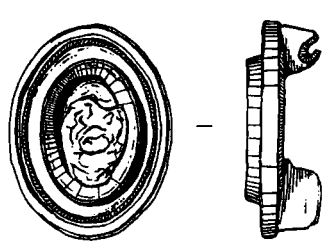
Enamelled zoomorphic brooches are known to represent horse and rider, dog, hare, stag, hind, boar, birds, including chickens, ducks and eagles, fish and insects and were common throughout Britain, the Rhineland and Pannonia, from the second century. Three-dimensional examples are also known, although these are less common. The most commonly found zoomorphic brooch type in Britain depicts a horse and rider.

The incidence of zoomorphic brooches, specifically the horse and rider type on temple sites has led to the suggestion that these may be associated with a religious cult. At Nettleton shrine, Wiltshire, horse and rider as well as dog and duck brooches were found (Wedlake 1982, 130, 132, 135, nos. 72-3 & 110, figs. 54 & 56), and at Hockwold-cum-Wilton, Norfolk (Mackreth 1986, nos. 17-23 fig. 41) and Woodcock Hall, Norfolk (Brown 1986, nos. 177-8fig. 25) examples have also been noted.

Objects depicting stags are not common in Roman Britain. Stags are attributes of the Roman Silvanus and the Celtic Cernunnos (Green 1978, 25). Stag figurines are recorded from Chesters, Richborough and at Colchester a votive bronze stag figurine was found in a pit close to the temple ditch, and a second example was also found at Colchester (Hull 1958, 93 & 239, Pl. XXXVII). Other stag figurines have been found at Gateholm and from the possible Romano-Celtic temple at Kenchester and a bronze stag's head came from the villa at Boxmoor, Hertfordshire (Evans 1853, 56-9). At Chedworth shrine there is a relief of a hunter-god with hare, stag and hound (Toynbee 1962, 78) and the bronze sceptre binding from the temple at Farley Heath depicts a raven, dog and stag (Goodchild 1947, 83). At Woodcock Hall, Norfolk, miniature deer figurines of probable late Iron Age date were found (Brown 1986, 39 no.191 fig. 26). It is suggested that these objects may have been a decorative object or toy or that they may have had some secular or religious significance. Deer and other wild animals are represented in domestic faunal assemblages but always in small quantities (Grant 1981), and deer bones have been identified in the 'ritual' pit at Wellingborough (Ross 1968, 273)

Gilded disc and gem
26

Oval disc brooch, incomplete. Missing sprung pin on a single lug. Around the central zone, the upper face is bordered with rope-work beading, of sloping SSSs, standing proud on outer edge of face. Raised central area; central ornament now missing. The back of the brooch was tinned or silvered and the front gilded.
L: 27.5 W: 21.5



The central ornament is likely to have been a conical glass or paste gem, which are usually dark in colour. Brooches of this type are found

throughout Britain and are likely to be of British origin, identified by the single pierced lug and the scarcity of the type on the continent (Mackreth 1986, 64; 1996, 321). Mackreth (1996, 321) suggests that most of this type date to after AD.150, and that the main period of deposition was between 225/50 and 300, rather the specifically 4th century date that was previously assumed on the grounds of the gilding which was previously considered to be late (Clarke 1979, 263).

This brooch type has been found in the Midlands and the south and east, but few have been recorded in the north. Similar examples, though with a different outer punched decoration, have been found at Fishbourne, in a late 3rd-early 4th century robber trench (Hull 1971, 106, figs.40-3), at Nor'Nour (Hull 1968, 60 no.237 fig.24), Nettleton shrine, Wiltshire (Wedlake 1982, 148 no.5 fig. 63) and at a number of sites in East Anglia including Brancaster (Mackreth 1985, 44 no.5 fig.28), Maxey (Crummy 1985, 164 no.6 fig.111) and Leylands Farm, Hockwold cum Wilton (Mackreth 1986, 64 no.9 fig.40). On the Continent, one example comes from Zugmantel, two from Saalburg were lost before c. AD.260 (Bohme 1972, 9-10, 43, 110, nos.1132-4, Taf. 29) and one from Augst was found with 3rd century pottery (Riha 1979, 88 Taf.13, 309).

Unidentified brooch forms

27
MA95 8/11 411D Field C

Fragment, lower bow, unidentified brooch form. Surfaces tinned.
L: 12

28
MA94 25/10 213H Field C

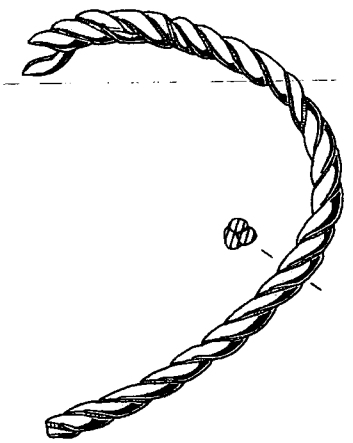
Fragment. Curving bow, expanding out at lower bow.
L: 15 W: 6-8 Th: 1.

Bracelets

29
MA95 9/2 69B Field C

Copper alloy bracelet of Allason-Jones Type 12 consisting of three twisted cables. Terminals missing.
Th: 3.5

This form of bracelet is known from a variety of sites including South Shields (Allason-Jones & Miket 1984, 134 no. 3.264), Gestingthorpe, Essex (Henig 1985, 29 nos. 26-9 fig.9), Roman Gates, Caerleon (Webster 1992, 144 nos. 267-8). The excavations at Lankhills, Winchester produced twenty-one three-strand cable bracelets within a date range of AD 310-70, fifteen of which came from post AD 350 contexts (Clarke 1979, 303).



30
MA95 24/2 336 F Field D

Copper alloy bracelet. Very thin. Rectangular-sectioned, slightly tapering ends. Upper surface decorated with two parallel lines at one end and irregularly-spaced punched ring decoration.
L: 23 W: 6-8 Th: 0.5

Bracelets of this type have been noted at a number of sites including Verulamium, Hertfordshire (Waugh & Goodburn 1972, 120 nos. 32-4 fig. 32). A number of bracelets with a variety of designs including circle and dot, notched, ovolo and ribbed decoration were found at Nettleton shrine, Wiltshire (Wedlake 1982,

212 nos. 29, 31, 33 fig. 91), Richborough, Kent (Henderson 1949) and Gadebridge Park villa, Hemel Hempstead (Neal & Butcher 1974, 137 no. 155 fig. 60, 147 no. 244 fig. 65). Eleven examples with a variety of decorative motifs were found at Lankhills cemetery, Winchester (Clarke 1979, 307-9 fig. 37). These bracelets generally have a hook-and-eye fastening, although this rarely survives. Most bracelets of this type have been found in 4th century contexts.

Finger Rings

31
MA94 14/10 170E Field C

Fragment, copper alloy finger ring. Slight carination at the shoulder. Much of the ring, including part of the bezel and hoop is missing. The setting is lost.
L: 11 Th: 2

This is a Henig type II/III ring, which is generally dated to the 2nd-3rd century and is common throughout Roman Britain. The intaglio, as in this case, is very often missing. Similar brooches were found at Lullingstone (Meates 1987, 69 no.118 fig. 28), Gestingthorpe, Essex (Henig 1985, 33 no. 59 fig. 11), Stonea, Cambridgeshire (Johns 1996, 329 nos. 11-13, fig. 103)

32
MA 94 15/10 172 B Field C

Fragment, copper alloy finger ring. Tapering. Median groove running along length.
L: 11 W: 6-8.5

Military equipment

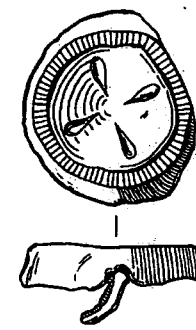
Military equipment dating from the 1st-3rd centuries has been identified in this assemblage. The number of objects is, not unexpectedly small. Only two objects, nos. 33-4, can be identified as belonging specifically to the 1st century. The other objects, nos.35-45, are more usually dated to the 2nd-3rd centuries. There is some ambiguity concerning the identification of some of these items as being purely military in nature.

Athough it is likely that there was equipment manufacture by state authorities across the Empire in the 1st century (Oldenstein 1985, 82), there is also evidence for metal-working in many forts and vici which suggests the repair, if not the production of items on a localised level. By the 2nd and 3rd centuries, a provincial divergence in the forms of military objects is witnessed, although particular classes of material continue to be found throughout the Empire (Bishop & Coulston 1993). Clearly, it is impossible to infer whether this category of material represent casual losses, the collection of scrap for re-use or other depositional mechanisms, as all are unstratified finds.

Equine Equipment

33
MA 95 1/2 304G Field C

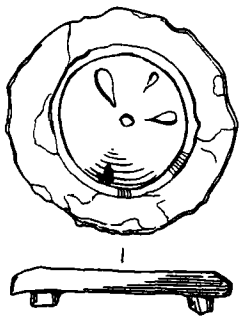
Copper alloy harness stud with a convex upper face and a circular-sectioned shank projecting from the reverse, which is now broken. The upper face has a central circular sunken area which is tinned and a stylised four-petalled design impressed into the central circular area. The petal cavities are now empty, but they probably would have held niello.
Diam: 25 H: 11 Diam. of shaft: 1.5



34
MA96 13/8 534 Field A

Copper alloy circular plate, harness fitting. Small, central perforation. Circular-sectioned rivets pierced through at both ends. Slightly sunken central area with stylised petalled design impressed. Upper surface silvered; patches worn

away. Signs of niello decoration in impressed areas.
Diam.: 30mm, Ht: 5mm



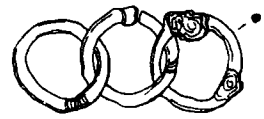
Harness studs with similar decorative motifs to nos. 31-2 have been found at South Shields (Allason-Jones & Miket 1984, 3.804), Chelmsford, Essex (Wickenden 1988, 236 fig. 3.6), Camerton, Avon (Jackson 1990, 37 nos. 70-3 Plate 7), Chichester, Sussex (Down 1989, 202 no.87, fig. 27.6) and Risstissen, Germany (Bishop & Coulston 1993, 106 no.1 fig. 65)

No. 34 is silvered. Jackson (1990, 79) suggests that the form of plating; either silvering or tinning, was governed by the objects' function as a military or domestic item. It is suggested that silvering occurs only on military items whereas tinning is found on both military and domestic objects. The process of silvering copper alloy objects involved the beating out of silver foil and attachment to the object with a lead/tin solder. This is a well-known method of decorating Roman horse-trappings (Craddock et al, 1973). Tinning as a plating technique was probably achieved by wiping or rubbing molten tin on the surface rather than dipping object into molten tin (Meeks 1986) The two techniques are often difficult to distinguish, although in the case of no.32, the silver foil is clearly apparent. It is likely that both studs were also decorated with niello, the black, metal sulphide material used as an inlay, although there is only a slight trace of this on no.32. Niello is most frequently on white-metalled objects as a strongly contrasting decorative element.

Chain-mail

35
MA 96 /4 436 Field C

Short length of copper alloy chain comprising three, thin pennanular rings with a D-shaped section, welded together.
Internal Diam.: 9mm Th. of each link: 2



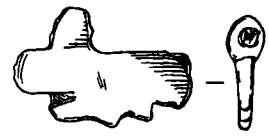
The diameter of the rings and the method of manufacture suggests that this is a fragment of copper alloy chain-mail. Less common than iron chain, it is likely that the copper alloy chain was used around the edges and on the seams of iron chain armour, perhaps to prevent chafing (S. James, pers.comm).

Other examples have been noted at Caerleon Gates (Webster 1992, 55 no.351-2), Camerton (Wedlake 1958, 256 no.26 fig.58), Colchester (Crummy 1983 ,161 no.4424 fig. 198) and the Cattlemarket site, Chichester (Down 1989, 196 fig. 27.3 no.49)

Baldrics

36
MA96 /4 438 Field C

Fragment of copper alloy, hinged terminal baldric pendant. Plain border, traces ofopen-work design. The iron spindle is still present in the suspension loop.
L: 22 W:14 Th: 1.5-2 Hinge Th: 5



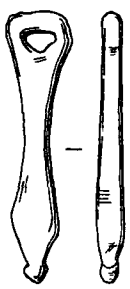
In the later 2nd and 3rd centuries the form of sword used changed to the *spathae* which was worn on the left and attached by a slide to a baldric, from which pendants hung (Bishop & Coulston 1993, 130). The Lyon burial, with a terminus post quem of AD 194, includes all the fittings for a sword, scabbard, baldric and waist-belt (Wuilleumier 1950, fig.1). Baldric terminals were generally heart-shaped or rectangular openwork plates which were hinged across the top and often bore inscriptions, although openwork and plain plates without inscriptions are also known (Bishop & Coulston 1993, 135). An important collection of baldric pendants of the 'Numerum Omnium' type have been discovered at Aldborough, North Yorkshire (Bishop 1996, 67-8 nos. 422-428 fig. 37) and

others have been recorded at Vindolanda (Bidwell 1985, 119 no.16 fig.40) and Brancaster, Norfolk (Hinchcliffe 1985, 209 no. 30 fig. 88). Oldenstein also discusses the use of baldric terminals (1976, Taf. 31, 217-220)

Belt fittings

37
MA 95 2/2 310 F Field C

Lanceolate strap-end of hemispherical section with a terminal knob. The head is spatulate and pierced with a wide U-shaped eye, flat across the top. Narrow waist. The back of the fitting is flat, the front is slightly raised with chamfered edges.
L: 35 Maximum W: 9

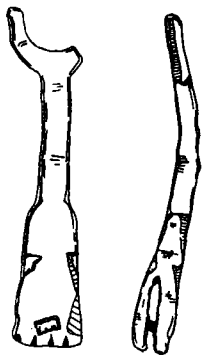


A variety of uses have been ascribed to these strap-ends (Oldenstein 1976, 142ff + taf.36 290-304, 305-24), but it is likely that their main function was as strap-terminals tied to the ends of belts of infantry equipment. The main period of use was in the second century continuing into the third century with occasional later survivals (Oldenstein 1976, 144). Webster discusses the means by which these strap-ends were attached; the most likely method being one whereby a bronze tab consisting of a rectangular piece of sheet bronze passed through the eye of the strap end and folded back on itself with the leather strap which was secured with a rivet in an ornamental stud (Webster 1992, 125) This method of attachment is illustrated by a find from the Appletree turret, Hadrian's Wall (Allason-Jones 1988b, 213 no.2 fig.4)

Similar strap-terminals have been found at a range of sites including Aldborough, North Yorkshire (Bishop 1996, 73, no.448 fig. 39), Blackfriar's Street, Carlisle (Padley 1990, 126, no.65 fig. 112), Stanwix (Collingwood 1931, 73 no.9, fig.1), Newstead (Curle 1911, 301), Chichester, West Sussex (Down 1978, fig. 10.38 no.110), Greyhound Yard, Dorchester (Henig 1993, 123, no.54 fig.63), South Shields (Allason-Jones and Miket 1984, 189-91 no.3.597-603), Caerleon Roman Gates (Webster 1992, 125 nos.99-102), Caerleon Fortress Baths (Brewer 1986, 177 nos. 49-52 fig.57). and Richborough (Cunliffe 1968, pl.37 nos.120-21).

38
MA 95 1/2 303F Field D

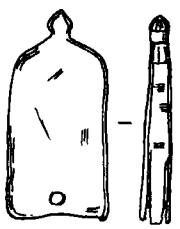
Copper alloy strap-end. Broken ring loop and a rectangular-sectioned splayed shank which is cleft at one end and pierced by a central circular-sectioned rivet.
L: 44 Th: 2-5



This form of strap terminal is also a late 2nd-3rd century type. Examples have been noted at the forts at South Shields (Allason-Jones & Miket 1984, 188 no.3.595), Bewcastle (Austen 1991, 34 no. 161 fig. 17) and Saalburg (Oldenstein 1976, Taf.37 no.338).

39

Copper alloy strap-terminal, formed from three plates rivetted with circular-sectioned rod. Rectangular with rounded corners and terminal knob. The innerplate only extends from the knob up to the lower rivet hole, all three plates having been shaped to form the knob.
L: 27 Maximum W: 13

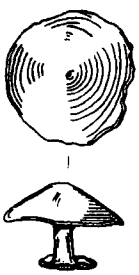


Strap-ends of this type are most frequently formed from a single sheet doubled over, although other examples are produced by rivetting two plates together, or as in the case of the Marton example by rivetting three plates together. An example from Aldborough (Bishop 1996, 74 no. 453 fig. 39) is very similar to the Marton strap-end, having pieces sandwiched

between the outer plates, although only extending from the knob up to the lower rivet hole. Another example is known from the villa at Langton, near Malton in East Yorkshire (Corder & Kirk 1932, 71 no. 21 fig. 18). Similar strap-ends are discussed by Oldenstein (1976, no.322).

There is also the possibility that the strap-end from Marton is post-Roman. A similar strap-end was found in the excavation adjacent to Close Gate, Newcastle, which has been dated to the second half of the 14th century (Maxwell 1994, 128 no.155 fig. 25).

40
MA 94 27/8 16 A Field C



Circular, copper alloy conical-headed, fungiform stud, possibly a belt fastening. The shaft is hammered at the end to form a small, flat circular stud at the rear. Slightly chipped upper surface.
Ht: 10.5 Diam. of head: 17

Oldenstein suggests that these studs may have served as fastners for the leather straps of the ring-buckle belt or of horse harness (Oldenstein 1976, 167-9). They are dated to the 2nd/3rd centuries, and have a similar fastening to a cuff-link. Examples have been noted at many sites in Roman Britain including Caerleon Roman Gates (Webster 1992, 129 no.120), Aldborough, North Yorkshire (Bishop 1996, 74, no.453 fig. 39), Woodcock Hall, Norfolk (Brown 1986, fig. 30.216), Brancaster, Norfolk (Hinchcliffe 1985, 211 no.45 fig.89) and Verulamium, Hertfordshire (Waugh & Goodburn 1972, 126 no.103 fig. 38). They are also noted on the German frontier, at sites such as Feldberg and Saalburg (Oldenstein 1976, taf.47 nos.490-1 170). Their interpretation as being of purely military nature is perhaps dubious.

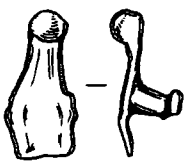
41
MA 95 11/3 358C Field D

Fragment of decorative mount, pierced possibly for stud attachment. Cleft at one end with three incised lines.
L: 16mm W: 8mm Th: 1mm.

Similar examples have been found at the Baths at Caerleon (Brewer 1986, 178, 69 fig. 58), Blackfriars Street, Carlisle (McCarthy 1990, no. 151 fig. 122) and examples are known from the Upper German-Raetian Limes (Oldenstein 1976, taf. 67 nos. 873-8)

42
MA94 9/10 147B Field A

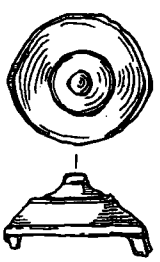
Copper alloy stud with short shaft terminating in a flat stud at rear.
Dims.: 19 x 19



This object is similar to two fittings found in contexts dated AD. 105-30 and AD. 155/60 respectively at Verulamium, Hertfordshire (Waugh & Goodburn 1972, 120 nos. 44-5, fig. 33).

43
MA94 7/10 131 C Field A

Circular copper alloy stud with a concentrically stepped head and raised point at apex. Remains of two circular-sectioned shanks with no trace of disc-heads.
Diam:18 Ht: 10.

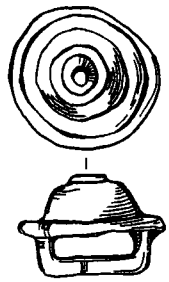


Similar examples have been noted at South Shields (Allason-Jones & Miket 1984, 236 no. 3.864), Saalburg (Oldenstein 1976, Taf. 48 nos. 528-30)

44

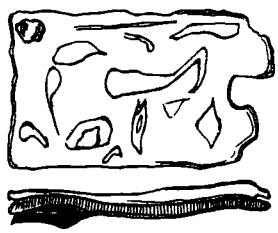
Circular stud; harness decoration? Flanged, hollow domed upper surface with central boss and hole at apex. Rectangular loop projecting from the back.
Ht: 13 Diam: 19

It is likely that this object is a *phalerae* or harness junction, which was both functional and decorative. Studs with this form of rectangular loop have been found at Gestingthorpe, Essex (Henig 1985, 36 nos. 102-3 fig. 14).



45
MA94 27/9 89 H Field A

Fragment of copper alloy rectangular belt-buckle? Upper section of buckle. Distorted. One circular-sectioned shaft hammered through top left corner of plate. Irregular, crudely incised design on upper surface.
L: 34 W: 20 Th: 1.5

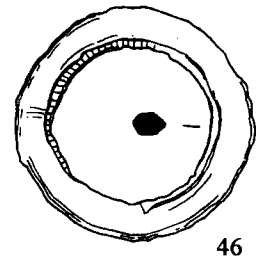


The incised decoration may, which is almost like grafitti, may represent a very stylised bird, although this interpretation is very hypothetical. Not surprisingly, no parallels have been found for this object. The incised decoration may be the work of the wearer, as its unrefined appearance does not suggest manufacture by a skilled artisan. Two buckles with a rectangular plate were found at Lankhills, Winchester (Clarke 1979, 272 nos. 126, Grave 106 & 279 Grave 234, fig. 34). These examples have D-shaped and rectangular loops, although oval loops are also known, especially on Continental examples. The evidence suggests that buckles with rectangular plates became increasingly common towards the end of the 4th century (Clarke 1979, 272) and similar late Roman belt buckles and strap-ends have been found on a variety of sites including Saxon-Shore forts, towns and rural settlements. It is possible, though certainly not definite that this belt buckle has a military origin.

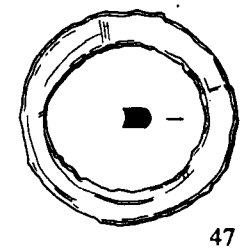
Functional Rings

46-7
MA94 8/10 141B Field A

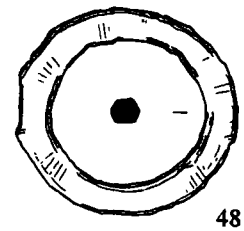
Two copper alloy rings, one hexagonal-sectioned, the other square-sectioned. Evidence for filing down of casting flashes.
External Diam: 30 and 27.5



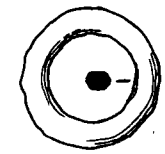
46



47



48



49

48
MA96 28/2 428 Field D

Copper alloy ring. Flat surfaces. Evidence for filing down of casting flashes. Hexagonal-sectioned.
External Diam: 28

49
MA95 11/3 359D Field D

Small, well-made copper alloy ring: hexagonal-sectioned.
External Diam: 18

Copper alloy rings are very frequently found on Roman sites, but their exact function is elusive. In military contexts, small rings were used as a means of fastening on items ranging from

helmets (Robinson 1975, 38.41 fig.50 pl.88) to scabbards (Robinson 1975, colour.pl.1) and they were also used as similar fastenings on horse armour (Robinson 1975, 192-3 pl. 523, 527). The majority of the 37 rings found at Roman Gates, Caerleon were found in barrack block contexts and Webster suggests that they were likely to have been used to secure items of armour (Webster 1992, 141) and at South Shields over 160 rings were found (Allason-Jones & Miket 1984, 254-62, nos. 3.1094-3.1257). At Lankhills cemetery, Winchester, Grave 443, dated to A.D.350-70, contained four copper alloy buckles lying around a knife and buckle which suggests they were belt-fittings (Clarke 1979, 285 nos. 604-7 fig. 100).

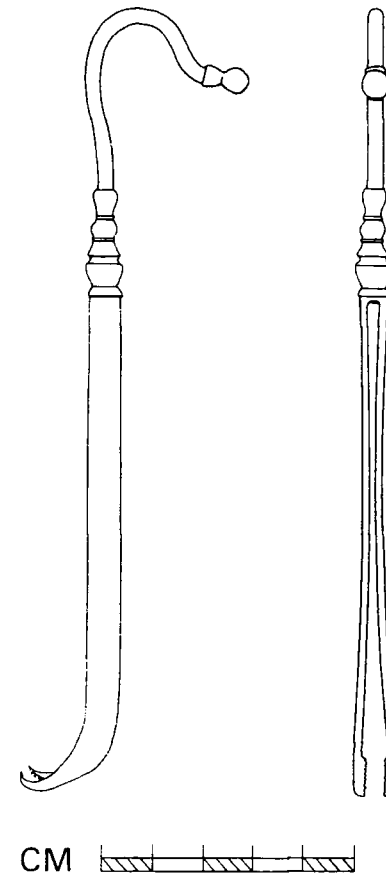
Examples have also been noted on domestic sites such as at Gadebridge villa, Hemel Hempstead (Neal & Butcher 1974, 137 nos. 121-8 fig. 60), and also at sites with a religious significance. Twelve bronze rings were found in Coventina's Well (Allason-Jones & McKay 1985, 32 nos. 86-92, 94-98) and over 50 rings of variable cross-section were excavated at the Uley shrine, Gloucestershire (Bayley & Woodward 1993, 135-40, fig. 115). It is suggested that these rings were used as tokens in some sort of ritual context (ibid, 140). Several of the rings from Uley are poorly finished and lack attention to detail, not unlike nos. 46-8 from Marton.

Objects associated with medicine / surgery

50

Field A? Found in 1989. This description is based upon the published account (Jackson & Leahy 1990)

Copper alloy surgical forceps of coudée type. Cast in one piece. Consisting of forcep arms and a recurved crook-shaped hook, linked by a baluster moulding. The jaws of the forceps are 17mm wide and set at an angle of 65° to the length of the instrument. The jaws are formed by inturning a 2mm wide strip at the end of the arms and their edges meet when the forceps are closed. On each of the edges are cut 17 interlocking teeth, which are bevelled to improve the grip on tissue. The crook-shaped hook terminates in a decorative finial which is corroded. The terminal is egg-shaped and is attached to the hook by a truncated cone.
L: 155mm With of forcep arms: 6.5mm Th. of forcep arms: 1mm Diam. of hook: 3



(Drawn by K. Leahy)

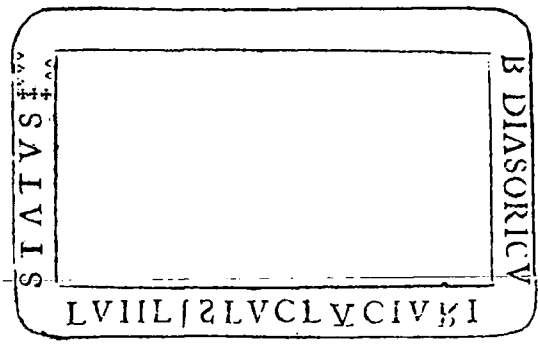
This is a remarkably intact example of a Roman coudée-type sprung fixation forceps and represents only the second coudée forceps to be found in Britain; the first being discovered at Silchester. Other examples are known from Paris (2 examples), Milos, Ohrid (Yugoslavia), Pompeii, Naples, the Rhine province, Asia Minor and Trier. Four of these examples come from contexts dating from the 1st-3rd centuries. The Trier example is the closest parallel to the Marton example. It is likely that the serpentine hook on the example from Trier is replicated on the Marton example, although the corrosion covers this area.

Serpentine symbolism is commonly related to healing, although it is also possible that the snake terminal of the Trier and Marton forceps is functional as well as decorative, perhaps serving as a blunt hook as well as a fingergrip.

Milne suggested that the toothed coudée-type forceps was probably the instrument Paul of Aegina recommended for the removal of surplus skin of the eye-lid in the operation for abnormal ingrowing eyelashes. Other interpretations of this type are as artery forceps (Boon 1974, 137) or as instruments for the extraction of varicose veins (Christiensen 1938, 129-30), although it is likely

that this type of forceps was used for a variety of purposes.

In 1772, a collyrium stamp (occulist's stamp) was 'found lately by casting up the ground in the neighbourhood of Littleborough' (Gentleman's Magazine 1772). The two collyria specified are DIASORICV (DIAPSORICUM) and STATUS, STACT (STACTUM), apparently 'for clearing the sight' = AT CLARI (AD CLARITATEM), DIAPSORI(CUM) AD CLAR(ITATEM). This is not a specifically military type (Jackson & Leahy 1990, 274).



(From Gentleman's Magazine 1772)

These objects suggest a high level of medical treatment and may represent either military doctors, or doctors discharged from the army who set up practise in civilian settlements.

Toilet instruments

51
MA95 11/3 350A Field D

Copper alloy probe? Possibly an ear-cleaner. Slightly thickened rounded end, tapering to narrow rounded slightly bent end.
L: 38 Diam: 1.5-3.5

No exact parallels have been found for this object, although a probe, also with a rounded end was found in a pit in the southern end of an enclosure at Gussage All Saints, Dorset (Wainwright 1979, 112 fig. 87 no. 3004). There is no means of attachment to a toilet set on the Marton example, which would have increased the chances of loss.

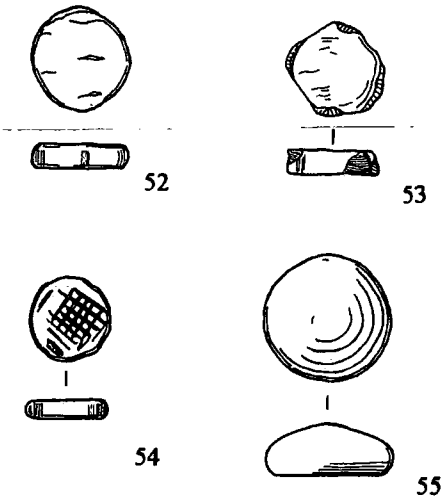
Objects associated with recreation

52
G 20-40m Field C

Circular ceramic gaming-piece/counter. Re-worked colour-coated fabric with rouletted decoration.
Diam: 13 Th: 3

53
Field C

Roughly circular ceramic gaming counter, re-worked from a colour-coated sherd.
Diam: 13 Ht: 3x



54

Small copper alloy disc. Upper and lower surfaces incised with lattice pattern decoration.
Diam: 10 Ht: 2.5

55

MA 95 Field A

Plano-convex glass gaming piece. 'Dark' appearing black. Slightly pitted under surface. Scratched upper-surface.
Ht: 6.5 Diam: 15.5

Counters or gaming pieces produced from glass, copper alloy, lead, stone, re-worked ceramic and bone are commonly found. Ceramic counters have been noted at Stonea Grange, Cambridgeshire (Jackson 1996, 488 nos. 1-10 fig. 178), Usk, Gwent (Manning 1995, 128-9 fig. 40 nos. 1-6) and and Old Winteringham, Lincolnshire (Stead 1976, 225 no. 198 fig. 121).

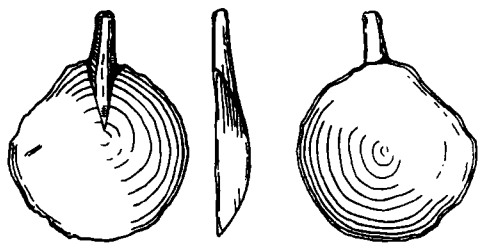
Plano-convex glass counters first occur in Claudian and Neronian contexts such as thirty-nine counters from pre-Flavian contexts at Usk (Price 1995, 129-134, pl.X). Monochrome examples are most commonly found on 1st-2nd century sites, especially military sites. Counters were usually produced either in very dark glass, appearing grey or black, or in opaque white glass, although other colours such as dark green, yellow, purple, blue and polychrome are also known.

These objects are most frequently found singly or in pairs although groups of white and dark blue monochrome counters and folding games-boards have come from rich Claudian/ early neronian burials at Stanway, Essex (Crummy 1992-3, 2-4, nos.15-6,and unpublished), and a set of decorated counters was found with a games-board in the 4th century mausoleum at Lullingtone villa, Kent (Cool and Price 1987, 139-141 no.391 fig.57).

Household utensils and furniture

Spoons

56
MA 96 28/2 422 B Field D



Cochleare-type spoon fragment with small round bowl and part of thin handle of circular cross-section. The line of the handle is carried part way down the back of the spoon.
Diam. of head: 22.5 L: 29

This type of spoon was common in the 1st and 2nd century AD. Martial describes these spoons as used to eat eggs, with the pointed handle serving to extract shellfish or snails from their shells (Epigrams 16, 121)

Similar examples have been noted on sites throughout Roman Britain, such as Caerleon Roman Gates (Webster 1992, 151 no.321-26), Colchester, Essex (Crummy 1993, no.2008 fig.73), Nettleton shrine, Wiltshire (Sherlock 1982, 201 nos.1-2 fig. 83), Jewry Wall, Leicester (Kenyon 1948, 259 no.3 fig. 87), Stonea Grange, Cambridgeshire (Jackson 1996, 353 no. 105 fig. 13) and Thorplands, Northamptonshire (Hunter & Mynard 1977, 136 no. 270 fig. 19)

Copper alloy vessels
(illustrated at 1:2 scale)

57
MA94 17/11 250D Field C

Rim fragment, wide bowl. Everted rim. Upper body tapering in.
RD: 240 Th: 1.5-3

58
MA96 26/7 500G Field A

Rim fragment, wide bowl. Thin-walled. Rim edge folded over. Shallow horizontal ridge decoration below rim.
RD: 230 Th: .5

cf. South Shields (Allason-Jones & Miket 1984, 152 no. 3.368)

59
Field C

Rim fragment, cauldron. One circular rivet (which is hollow on the inside) below rim. Possibly post-Roman.
RD: 250 Th: 4

60
MA96 26/2 418E Field C

Rim fragment, bowl. Everted rim with rim edge slightly rolled-up. Upper body tapering in.
RD: 130 Th: 1-2

Also 2 body fragments, copper alloy vessels (not illustrated)

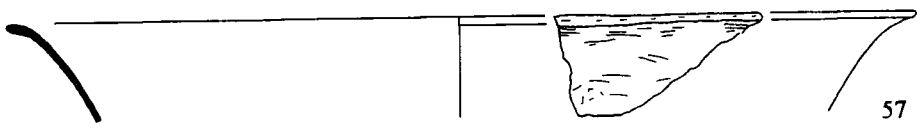
60a
MA95 9/2 326C Field C

60b
MA95 9/2 324A Field C

61
MA94 22/9 61A Field C

Handle fragment.
L: 31 Th: 2-4

62
MA94 17/11 251E Field C



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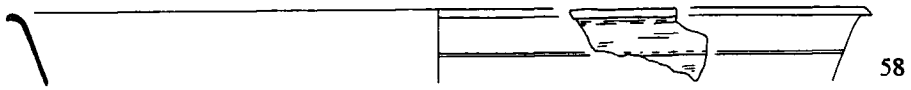

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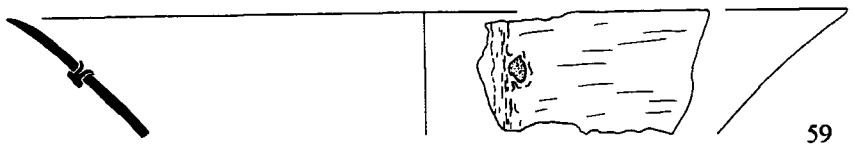
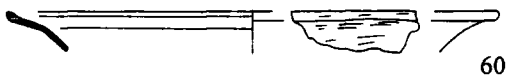
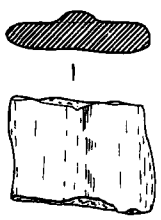


59



60

61



62

Handle fragment. Raised central ridge.
L: 26 W: 37.5 Th: 6-10

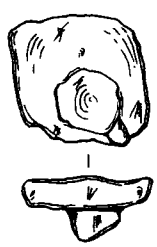
Vessel rivets

63
MA95 7/2

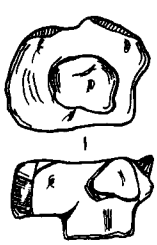
Lead vessel plug with protrusion at rear. Roughly square.
Dims: 16 x 16

64
MA94 3/9 30

Lead vessel plug.
Dims: 20 x 14 Ht: 10



63



64

65
MA96 8/8 526E Field A

Lead vessel plug.
Diam: 18

Lead plugs or rivets, used to repair ceramic vessels have been found at a number of sites. At Camerton, Somerset numerous pottery sherds including Samian, coarse ware, black ware and amphorae, were found with lead rivets or small clamps which were used to preprare the broken vessels (Wedlake 1958, 95). Similar lead repairs were discovered in pottery at Wavendon Gate, Milton Keynes (Hylton 1996, 128 nos. 101-2 fig. 74) and at the villa at Rudston, East Yorkshire (Stead & Pacitto 1980, 107 fig.70) and Stonea, Cambridgeshire (Jackson 1996, 378 nos. 67-9

fig. 123), though these examples were not associated with pottery when discovered.

Furniture Fittings

66

Heavy brass rivet. Circular, slightly domed head. Circular-sectioned shank leading to rectangular terminal.
L: 37 Diam. of head: 29 Diam. of shank: 10.5

The precise function of this object is unknown. It is probable that it is a box fitting

67
MA95 11/3 Field D

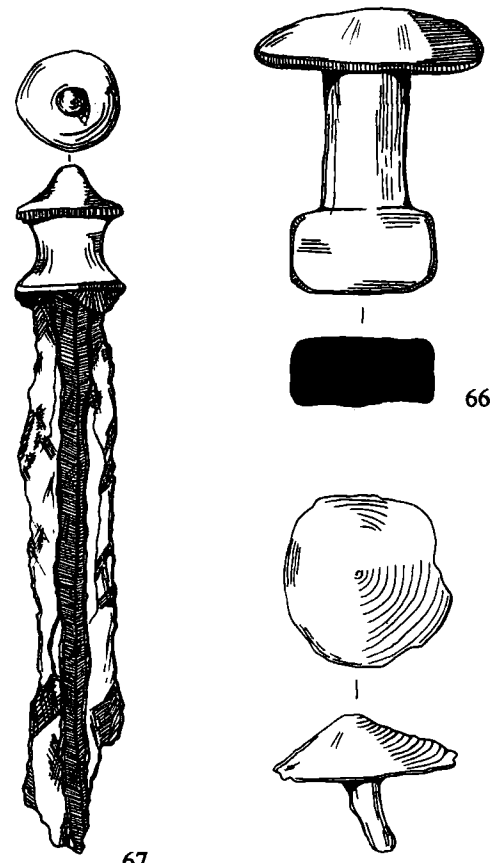
Copper alloy terminal with heavily corroded square-sectioned iron shank, furniture fitting. Edge of upper moulding has vertical incised decoration. Raised central point.
Diam. of terminal: 14 L. 90 L: of shank: 74

Copper alloy studs are found on a number of civilian and military sites in Roman Britain. The exact function of these objects is unknown, but it is likely that they were used as box or furniture fittings and driven into wood. The iron shaft on this stud is long, which suggests that it was probably used as a furniture fitting. The terminal head is small and relatively ornate. No exact parallels have been found, as there appears to be an extensive range of such studs. Allason-Jones has discussed bell-shaped studs (in Bishop 1985, 95-108). Examples have been noted at Aldborough, North Yorkshire (Bishop 1996, 78 no.462 fig. 41), Roman Gates, Caerleon (Webster 1992, 136 nos. 139-42), Winterton villa, Lincolnshire (Stead 1976, 214 nos. 128-30 fig. 113), Corbridge (Allason-Jones 1988a, 168 nos. 71-2 fig.79), Blackfriar's Street, Carlisle (McCarthy 1990, 128 nos. 70-1 fig.113) and Gadebridge villa, Hemel Hempstead (Neal & Butcher 1974, 130 no. 56 fig. 56), possibly from a furniture fitting

68
MA95 8/11 409 D Field C

Copper alloy, conical stud. Hollow inside with broken circular-sectioned shaft.
L: 18 Diam: 22.5

The form of this stud is reminiscent of the conical-headed, fungiform studs identified as belt fittings or harness equipment. However, this example is considerably larger and the length of the shank suggests that it may have been attached to a wooden object, perhaps a box or item of furniture.



Nails and other fittings

69

Complete globular-headed copper alloy nail. Polygonal-sectioned shaft.
L: 32 Diam. of head: 9

70

As above (no.69). Complete. Copper alloy.
L: 27 Diam. of head: 7

Neither of these nails show evidence of wear.

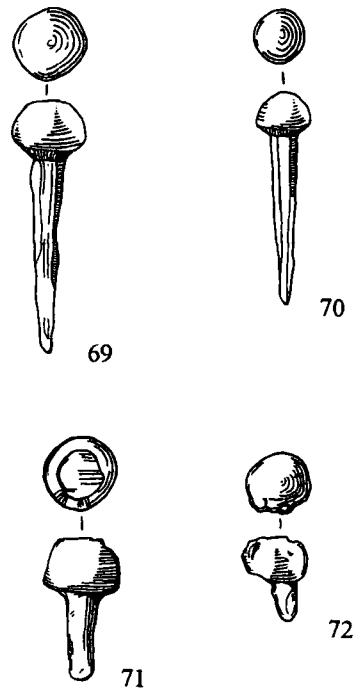
71

Fragment, dome-headed nail. Copper alloy. Flat top. Circular-sectioned shaft.
L: 18 Diam. of head: 10

72

72

Fragment, crude dome-headed nail or pin. Copper alloy.
L: 11 Diam. of head: 8.5



Dome-headed copper alloy nails are very common site finds and must have served a decorative as well as a practical function. Nos. 67-8 are well-made examples. Similar nails have been noted at Caerleon Gates (Webster 1992, 149 297-317), Jewry Wall, Leicester (Kenyon 1948, 261 nos. 9-11 fig. 88) and Gadebridge villa, Hemel Hempstead (Neal & Butcher 1974, 132 nos. 64-67 fig. 57)

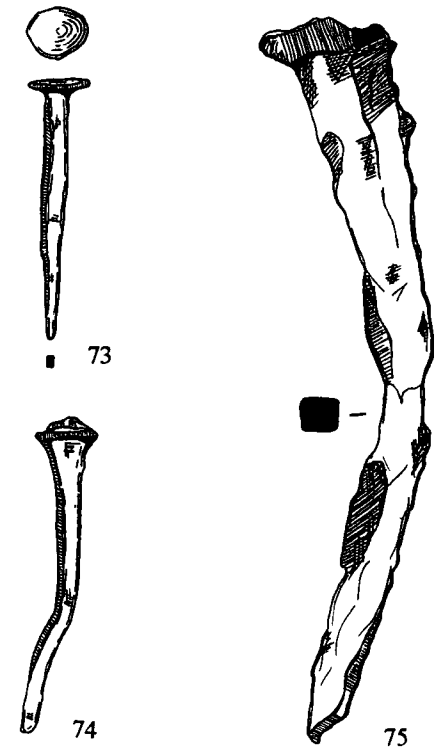
73
MA96 28/2 432 D
Complete copper alloy flat-headed nail with square-sectioned shaft.
L: 33 Diam. of head: 8

74

As above (no. 71). Traces of mortar attached to underside of head. Head distorted.
L: 39 Diam. of head: 8.5

75
MA96 28/2 427 Field D

Iron nail. Flat-headed. Square-sectioned shank. Heavily corroded.
L: 41 Diam. of head: 15



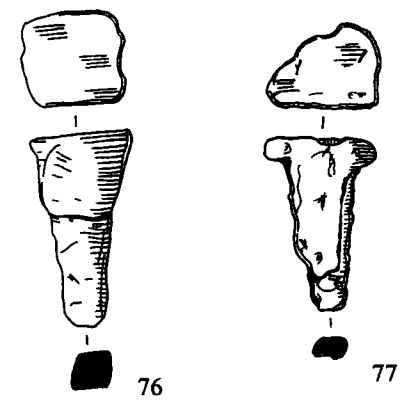
Lead 'rivets'

76
MA95 6/2 312B Field D

Lead rivet-shaped object. Square-sectioned shaft expanding to head with flat surface.
L: 25

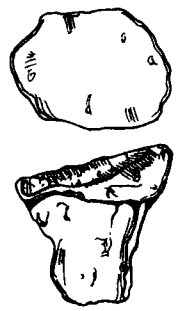
77
MA95 11/3 357B Field D

As above, but more crude. Roughly rectangular-sectioned shaft, expanding into conical head. Uneven surfaces.
L: 19



78
MA94 27/9 Field A

Lead 'rivet'. Thick, square-sectioned shank, tapering. Flat, irregular-shaped head.
L: 21.5

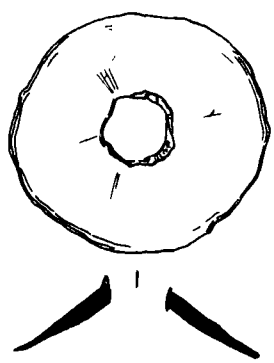


The function of these objects is unknown. They would appear to be too large to act as rivets to repair vessels and their function as nails or studs would be unlikely as they are produced in lead. No.76 is a well-made example which combines a flat head and tapering shank. A crude bolt-like lead object was found at Verulamium, Hertfordshire and was presumed to be used in building construction and dated to A.D. 130-50 (Waugh & Goodburn 1972, 146 no. 178 fig. 52)

Washers

79

Copper alloy washer, slightly domed. Rough perforation.
Diam: 32 Ht: 7.5 Diam. of perforation: 9



Objects associated with building

80

Lead plumb-bob. Circular-sectioned. Constriction below head to attach suspension thread. There is a shallow hole drilled in the centre of the head. Cylindrical body tapers to a point at the foot.
L: 40 Diam: 11

Objects employed in weighing

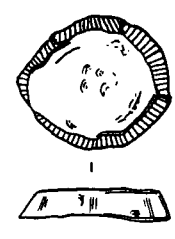
81
MA94 4/9 32 B Field D

Slightly irregular circular lead weight. Flat lower surface; upper edges clipped.
Diam: 19 Th: 4

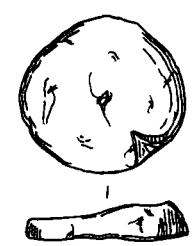
82
MA94 24/9 74 E Field A

Circular lead weight; slightly irregular. Flat surfaces.
Diam: 20 Th: 6

It is possible that nos. 81-82 are lead counters, similar to an object found at Stonea Grange, Cambridgeshire (Jackson 1996, 378 no.70 fig.123), although their interpretation as weights is perhaps more likely.



81



82

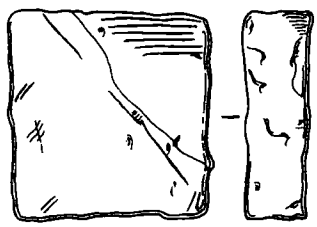
83
MA96 /4 467 Field C

Lead weight? Square, with line incised across one diagonal.
L: 27 Ht: 7

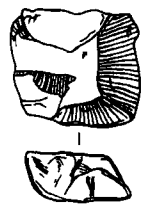
Very similar square lead objects have been found at Brancaster, Norfolk (Hinchcliffe 1985, 215 nos. 73-5 fig. 92), although these are decorated with circular impressions.

84
MA94 27/8 22 G Field C

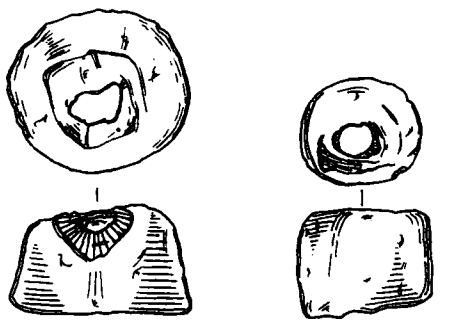
Lead fragment, irregular-shaped; sides chiselled.
Dims: 15 x 14 Ht: 6



83



84



85 86

85
MA96 8/8 522A Field A

Lead weight? Conical. Flat lower surface. Central perforation.
Ht: 14 Diam. of perforation: 6-11

86
MA96 8/8 523B Field A

Lead weight or possibly loom weight? Cylindrical, but slightly tapering. Off-centre vertical perforation.
Diam: 15 Ht: 17

Lead weights in a number of weights and sizes are common on Romano-British sites. They have been noted at Strageath (Grew & Frere 1989, 157 nos. 107-9 fig. 80), Stonea, Cambridgeshire (Jackson 1996, 376 no57 fig. 122)) and Camerton (Jackson 1990, 52-3 nos. 183-7 Plate 17)

Objects associated with the manufacture of textiles

Spindle whorls / loom weights

87
MA 95 7/2 321 E Field F

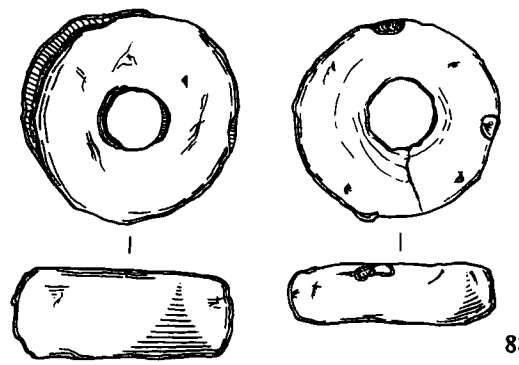
A finely made lead spindle whorl? Slight depression on upper surface. Vertical circular perforation.
Diam.: 29.5 Ht: 11 Diam. of perforation: 9

88
MA96 3/8 512A Field A

Well-made lead spindle whorl. Large central vertical perforation.
Diam: 27 Ht: 7 Diam. of perforation: 9 .

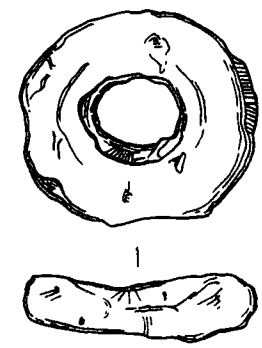
89

Crudely made lead sub-circular spindle whorl, bent. Large central perforation, tapering slightly.
Diam: 30 Ht: 6 Diam. of perforation: 9-11



88

87



89

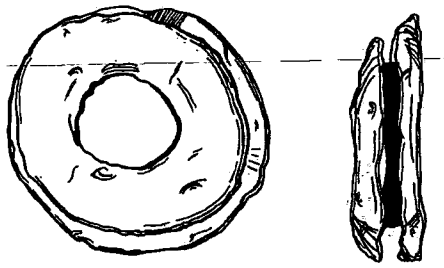
Spindle whorls were produced in a variety of materials such as stone, jet, shale, lead, bone and most commonly in re-worked pottery. They are generally less than 5cm in diameter (Wild 1970, 33). Lead spindle whorls are not especially

common but have been found at Whitton, South Glamorgan (Webster 1981, 201 nos. 3-7 fig. 78), Aldborough, North Yorkshire (Bishop 1996, 32 nos. 171-2, fig.18), Wavendon Gate, Milton Keynes (Hylton 1996, 128 nos. 95-6 Fig. 74) and Stonea Grange, Cambridgeshire (Jackson 1996, 378 nos. 63-6 fig. 122).

90
MA 95 22/1 300 C Field C

Circular lead 'bobbin'. Very large central vertical perforation.
Max Diam.: 34 Ht: 10 Diam. of perforation: 13.5

The exact function of this object is unknown and no parallels have been found. It is probable that it was involved in textile manufacture, although if its main function was as an object for winding thread around, the large central perforation would not be necessary.



Fishing Tools

91
MA 94 25/9 77 B Field A

Lead fishing weight? Central pierced hole with diagonal incision above. Domed foot tapering to a raised point.
L: 19

91

92

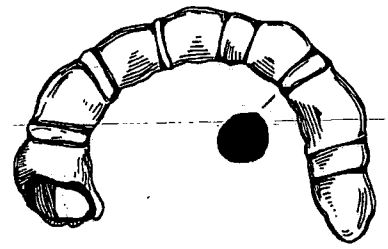
92
MA96 23/7 486G Field A

Crudely made lead object, possibly a net weight. Cigar-shaped, formed from rolled lead. Narrow perforation running through the centre.
L: 42.5 Diam: 9-1

Objects of uncertain function of probable Roman date

93
Field A

Fragment, semi-circular copper alloy object, possibly a terret or strap-ring? Round-section, with mouldings in low relief all around circumference. Hollow area at both ends where broken, which could have held the mounting bar.
Diam: 47.5 Th:7.5-10

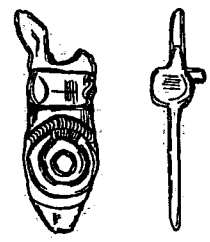


The identification of this object as a terret is tentative. A number of terrets from post-conquest contexts in North Lincolnshire have recently been discussed by Leahy (1995, 7-11). Terrets are found in a range of sizes; some are ornately decorated and lipped whilst others are plain. No exact parallels have been found for this object, although on the basis of its size it is comparable to an example found at Barrow-on-Humber, South Humberside (Leahy 1995, 7 no.2 fig. 1).
An alternative possible explanation is that object is a bridle bit piece.

94

MA94 27/9 82A Field A
Fragment of copper alloy object, possibly a strap loop or harness clip. Pierced for rivet attachment. The top plate is marked by two concentric grooves.

L: 29 Th: 1.5 Diam. of perforation: 2.5



95

Fragment of copper alloy open-work object.
L:31mm Th: 2mm.

Strap-ends, belt-plates , mounts , knives and other objects were produced with open-work designs. Such finds are reasonably common but are difficult to parallel as the clay moulds used in their production would have been broken during manufacture.

96
MA95 22/1 301 D Field C

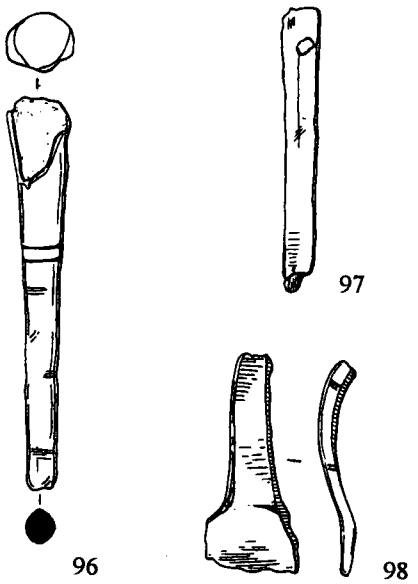
Fragment of copper alloy circular-sectioned shaft, possibly a stylus. This expands at the top where there is a piece of iron slotted into the shaft. Two horizonatal lines incised around rod.
L: 51 Diam: 4-9

97

Fragment, copper alloy rod. Circular-sectioned, becoming rectangular-sectioned at opposing end.
L: 37 Diam: 4-5

98
MA 94 30/12 290 G Field C

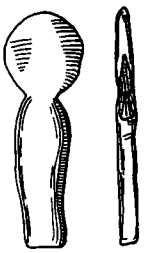
Fragment of copper alloy object. Rectangular-sectioned, narrow bow expanding to flattened foot.
L: 27.5 Th: 3



99

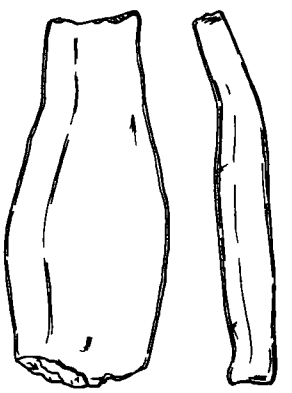
Fragment, copper alloy object. Flat surfaces, rounded end, expanding out at junction, then tapering in. Rectangular-sectioned. No evidence for a pivot.
L: 31.5 Th: 2.5

The function of this object is unknown. In form it is quite similar to the upper part of a pair of simple nail-cleaners, although there is no means of attachment to a cosmetic set and the functional end is broken.



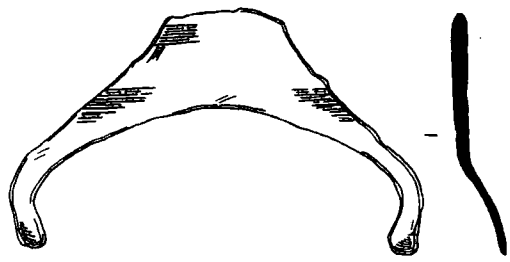
100

Copper alloy fragment. Well-made with a very smooth finish. Possibly a good quality handle fragment or other vessel part. Flat lower surface, slightly rounded upper surface, curving up at the ends.
L: 49 Th: 4-7



101
MA95 6-12/4 376H Field C

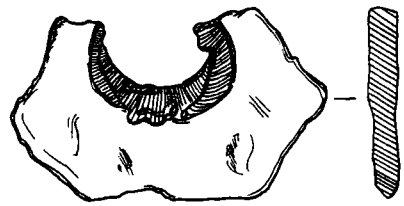
Fragment, copper alloy. Flat surfaces with rectangular section. Rectangular centre expanding out to narrow'arms' with rounded ends. Unknown function.
Th: 2



102

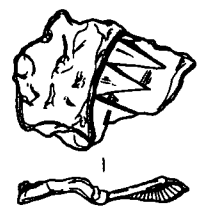
MA94 9/10 155J Field A

Fragment copper alloy object. Poorly cast. Roughly trapezoidal. Circular recess in centre with semi-circle perforation in upper edge.
Ht: 23.5 W: 42 Th: 4

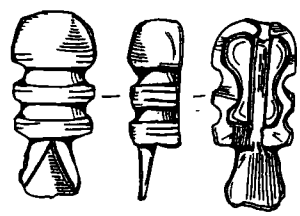


103
MA94 15/10 173C Field C

Fragment, copper alloy. Crudely moulded with three triangles and a curving line impressed. Flat lower surface, uneven upper surface.
Dims.: 23 x 17 Th: 1.5



104



Copper alloy fragment. Mount-arm, cruciform brooch? Two transverse grooves across convex face ending in bulbous terminal and triangular foot. Incised lines on grooves. On the reverse there is a central gully and a circular hole piercing the top of the terminal for attachment.
L: 24 W: 5-10 Th: 1-6

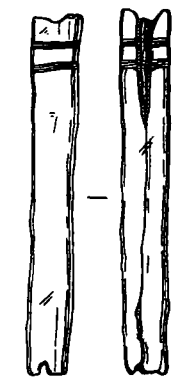
105
MA96 /4 469 Field C

Fragment of copper alloy binding. Distorted.
L: 43 Th: 0.3

106
MA96 28/2 433 Field D

Hollow, thin-walled copper alloy tube with two bands of faintly incised lines.
L: 47 Diam: 6.5 Th: 0.3

105



106

107

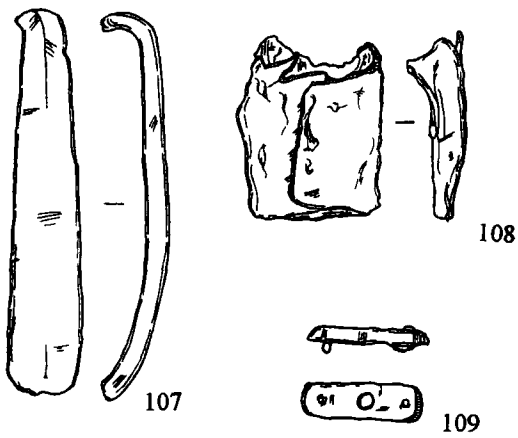
Copper alloy fragment. Bent. Curving and tapering with D-shaped section. Possibly a plain bracelet?
L: 51 W: 6-10 Th: 3

108
MA96 28/2 424D Field D

Copper alloy object, possibly a chape? Formed from sheet metal folded over and pressed together at the base. Crude.
L: 24 W: 18 Th: 2-8

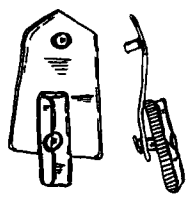
109
MA96 13/8 534 Field A

Small, rectangular fastener. Copper alloy. Central hole pierced for attachment, also two short, circular-sectioned rivets pierced through at either side of central perforation.
L: 16 Ht: 3.5 W: 5



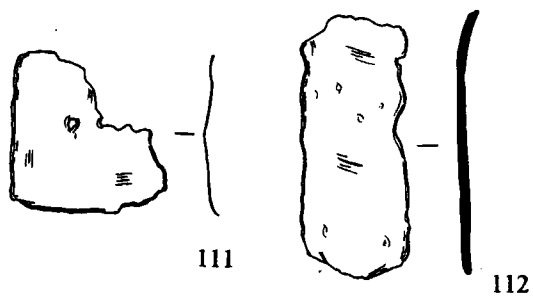
110
MA96 /4 471 Field C

Two-piece, copper alloy object. Lower plate pierced by two circular-sectioned shanks. At the wider end of the lower plate, the shank is loosely attached to a small C-sectioned plate. The ends of the shank are hammered flat for attachment.
L: 22 Th: 0.5



111

Fragment of flat, copper alloy plate with two central, circular perforations.
Dims: 20 x 21 Th: 0.3



112
MA94 22/12 266D Field C

Fragment of flat, copper alloy plate. Curving at one end.
L: 35 W: 14 Th: 1

Waste objects associated with manufacture (not illustrated)

113
MA94 26/8 9A Field C

Fragment of copper alloy slag.

113a
MA95 13/2 329A Field D

Fragment of copper alloy slag.

113b
MA96 8/8 524C Field A

Fragment of copper alloy slag.

113c
MA94 27/9 Field C

Fragment of copper alloy slag.

113d
MA96 13/8 531D Field A

Fragment of smelting slag.

113e
MA96 5/8 516B Field A

Fragment of smelting slag.

Comments on the Assemblage and its Distribution

Despite the omissions and limitations introduced by its manner of collection, the evidence derived from this assemblage suggests that a variety of activities is represented at the site. However, the poorly-defined chronological span of many of these objects results in difficulties when attempting to date these activities.

It is impossible to infer what form of artefacts might be expected had the site been excavated rather than metal-detected. It is likely, however that there would be a very much greater range of iron objects, especially tools, which are totally absent from this assemblage. However, one of the benefits of the manner of collection employed in this survey and the extensive areas covered, is the vast array of copper alloy and lead objects discovered, the smaller objects of which may not have been recovered by excavation.

The 1st century military harness studs (nos. 33-4) are consistent with the siting of a fort at Marton. The presence of the 2nd-3rd century military equipment, such as the chain-mail (no. 35), the baldric pendant (no. 36), the strap-ends (nos. 37-8) and the studs (nos. 40, 42-4) as 'background' finds is not unusual on civil sites and probably relates to the sites' location on a major communication network (c.f. Aldborough; Bishop 1996). The baldric fitting (no. 36), despite being very fragmentary is a rare find. The pair of medical forceps (no. 50) considered to be associated specifically with eye surgery are exceptional, both because of their rarity and also their state of preservation. In conjunction with the discovery of the occulist stamp close by at Littleborough these finds suggest a sophisticated level of medical treatment in the area in Roman times. Although the find spot of the forceps is unknown, it is possible, considering their excellent condition that they came from a burial context. Graves with medical instruments, presumed to be those of surgeons are known in France and the Rhineland (Künzl 1982) but in Britain the only definite example so far known is a mid-1st century burial with a set of surgical equipment, recently excavated at Stanway, Essex (The Guardian; Thursday 10th July 1997, 5).

One of the most striking features of this assemblage is the large number and variety of forms of the brooches. This is in direct contrast to the comparative dearth of other 'personal' objects, especially toilet instruments found at the site. This feature may be a result of collection bias, although this seems unlikely considering the large number of brooches found. It is very difficult to assess whether such a pattern is specifically 'regional' as there are few local sites investigated in a similar manner with which to compare these results. Similar variations have been noted, although in different classes of material at other sites, such as the relative absence of domestic artefacts noted in the metal-detected assemblage from Billingford, Norfolk (Gurney 1995, 61).

This high number of brooches from Marton may be the product of deliberate deposition. The primary evidence for this is perhaps the distribution pattern (fig. 6.1) and the occurrence of three very similar brooches as well as one poorly made example may support this interpretation. The ritual deposition of brooches on both temple and settlement sites is sufficiently well-established to need no further elaboration here. The study of deposition of brooch assemblages, using an approach originally developed for the study of coinage (Creighton 1990; Haselgrove 1997), rather than the typological details of individual examples has been shown to have considerable potential for addressing inter-site differences in chronology and status. However, the sample from Marton and neighbouring sites is too small at present to make such an approach valid.

The distribution of the 'small finds'

This section assesses the spatial patterning of those objects recovered primarily after 1994 when the programme of recording the location of finds was introduced. Although the majority of the brooches were found before this time, their approximate locations were recorded.

The spatial distribution of the brooches in Fields A, C and D reveals a very interesting pattern (fig. 6.1), which contrasts strongly with the distribution patterns of the pottery (see fig. 4.7) and coins (see fig. 5.20-2); both of which were densest close to the road

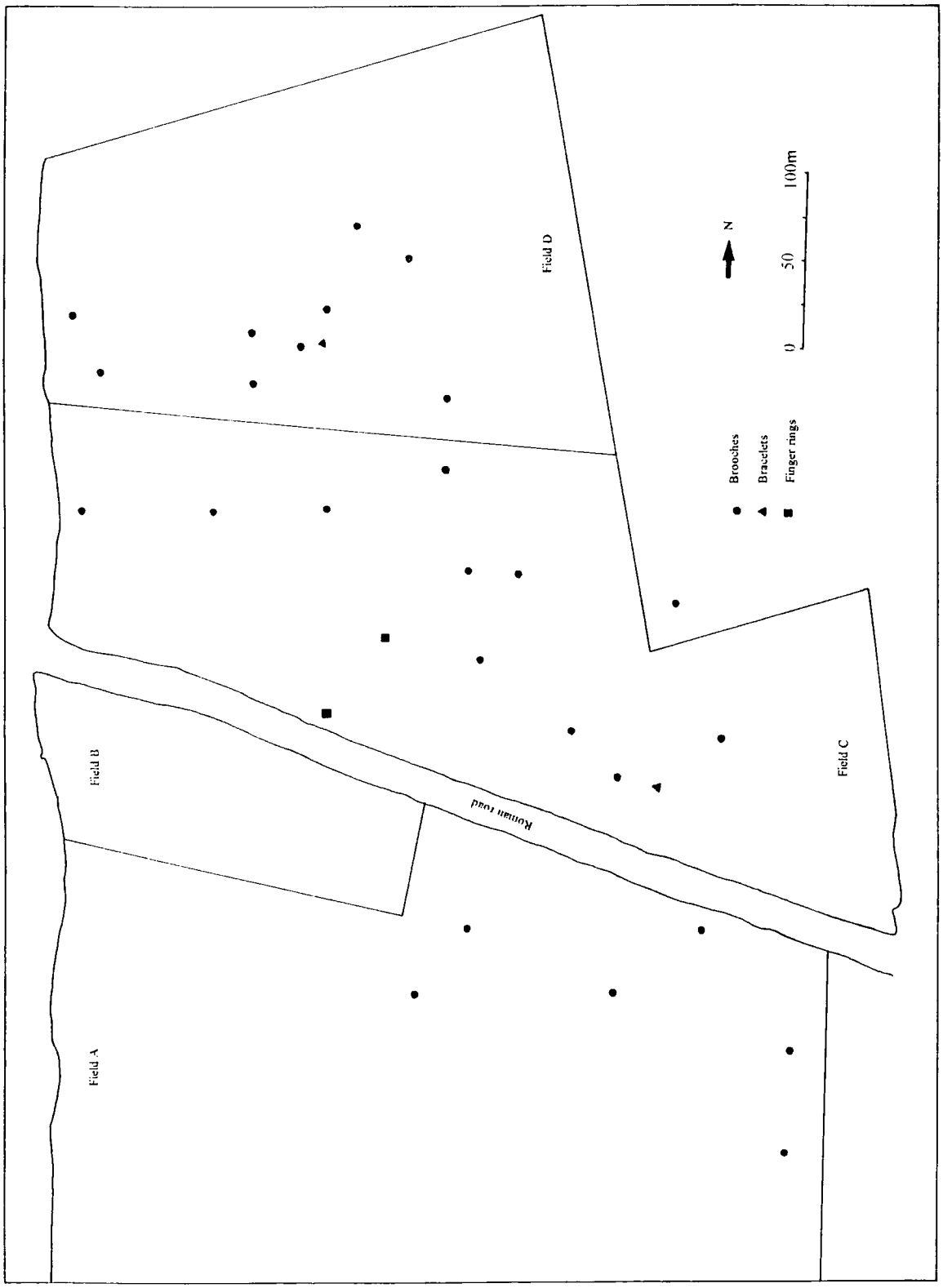


Fig. 6.1 Distribution of brooches, rings and bracelets in Fields A, C and D

in both Fields A and C. The six brooches found in Field A were generally located within c.60m of the road frontage but only one example was discovered very close to the road. Of the ten brooches found in Field C only two examples were noted within 50m of the road frontage. The other examples were found in the northern half of the field, almost exactly outlining the distribution of the pottery and coins. This distribution may be a result of the intensive scanning of roadside areas by detectorists in the past, although such a factor does not appear to have affected the recovery of coins in this area. Nine examples, constituting 37% of the brooch assemblage were found in Field D. This proportion is significant considering the low proportion (6.8%) of the coins from this area. The distribution of these brooches is concentrated in the southern half of the field and does not extend beyond the centre of the field. It would appear that a mechanism other than accidental loss, for example the deliberate 'structured' deposition of brooches in ditches and boundary features (Hill 1995, 66) should be sought in order to interpret this pattern. This will be addressed in greater detail with reference to the other finds and the features identified in the air photographic and geophysical survey in Chapter 7.

The distribution of the various categories of small finds other than objects of personal adornment is shown on fig. 6.2. The almost conspicuous absence of finds from the road frontage area in Fields A and C and the high proportion of objects found in Field D are the most striking features of this distribution.

The 1st century military objects, which might be expected to have been found in Field A were both found in Field D along with the earliest brooches. The other objects of military equipment were principally found in the northern sector of Field C.

The domestic objects; the copper alloy spoon and vessels were principally found in the northern half of Field C and in Field D. This reveals a very different pattern to the pottery distribution in Field C, which was very low in the northern half of the field (see fig. 4.7). All of the objects classified as fittings were found in Field D. The hypothesis of 'structured' deposition may also perhaps be extended to these

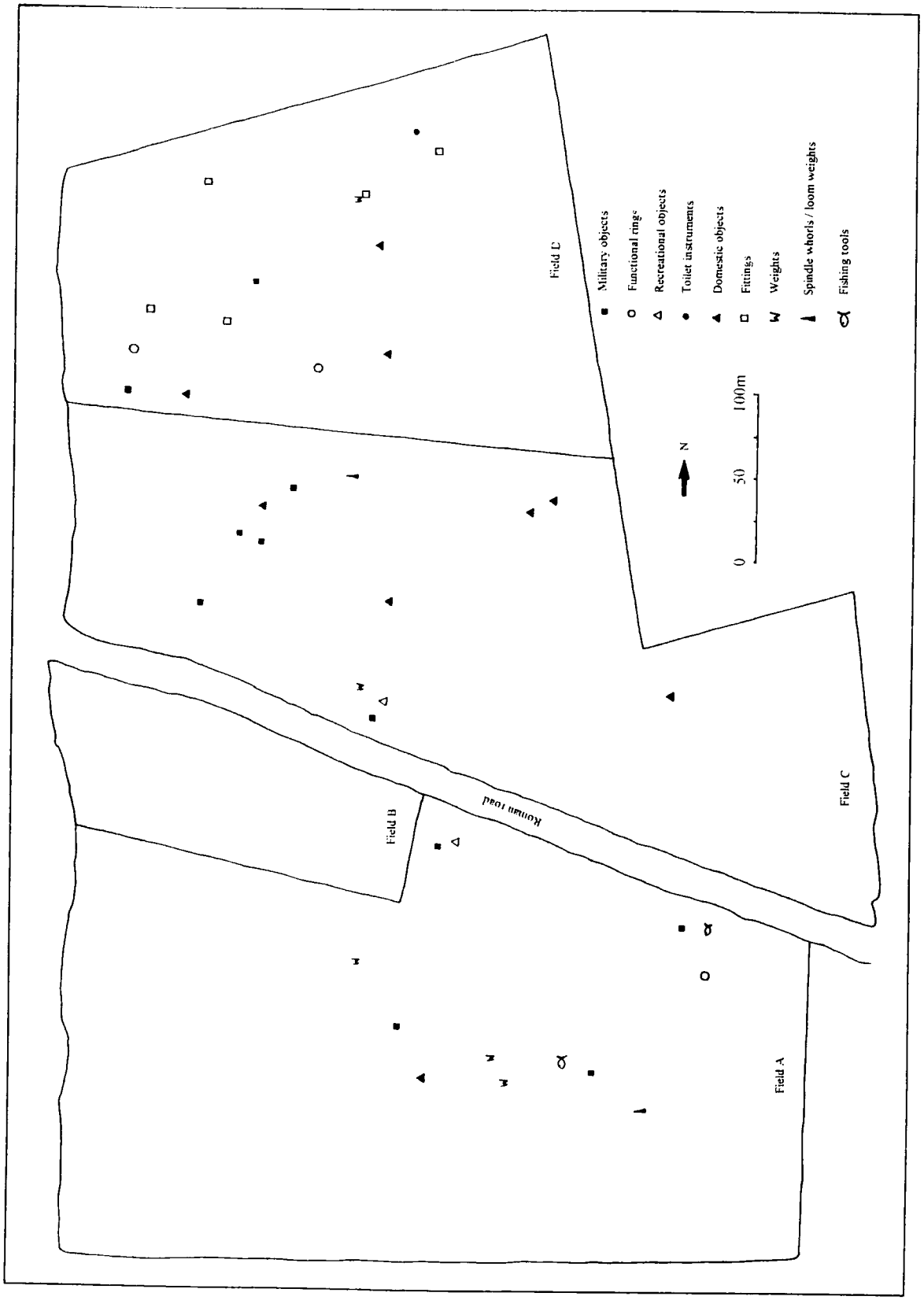


Fig. 6.2 Distribution of small finds, excluding objects of personal adornment in Fields A, C and D

categories of finds and it is interesting to note that copper alloy vessels and fittings are frequently recorded in votive contexts (Woodward and Leach 1993, 327).

A high proportion of the objects produced in lead including the weights (nos. 82, 85-6), spindle whorls (nos. 88) and fishing tools (nos. 91-2) were found in Field A. The distribution of these objects generally occurs over 125m from the road frontage.

The small finds assemblage has consistently demonstrated a variable distribution pattern to both the coin and pottery assemblages - predominantly concentrating away from the road frontages. The pattern in Field D is especially marked considering the low numbers of coins found in that area. These patterns will be discussed further with reference to other artefactual, geophysical and cropmark evidence in the following chapter.

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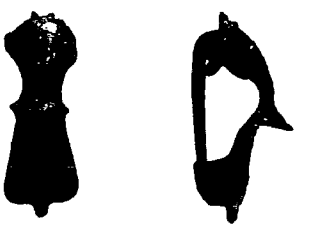

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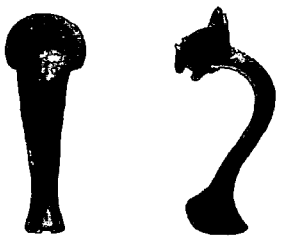
Plate XI



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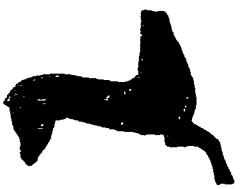

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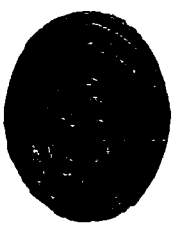

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Plate XII

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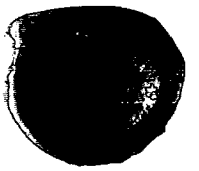

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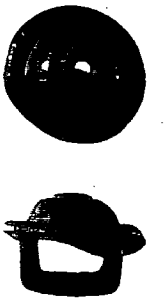

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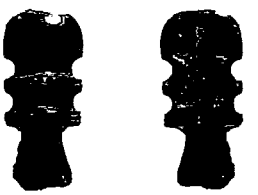

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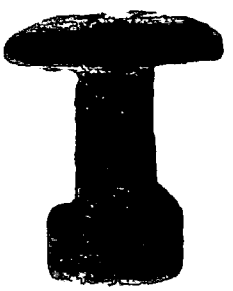

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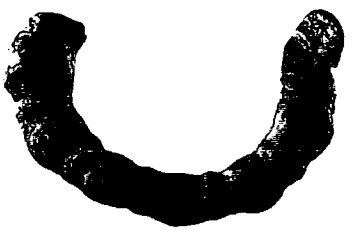

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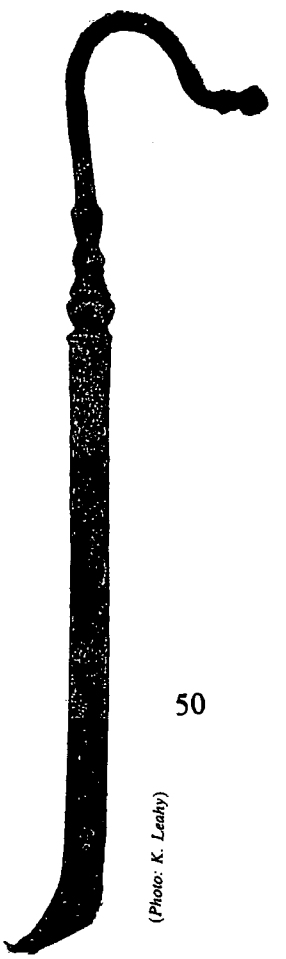

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(Photo: K. Leaky)

cm

Plate XIII

Chapter 7 Integration and Interpretation

The preceding chapters have dealt with specific categories of material recovered from the site at Marton. These divisions have followed an established pattern, whereby the coinage, small finds and pottery are discussed separately. Each of these chapters comments upon the spatial patterning of the material and where possible, chronological and functional differentiations have also been indicated. This chapter aims to integrate and discuss the interrelationship of these various strands of evidence - artefactual with geophysical and air photographic, and to assess the status and form of the site on the basis of this evidence. The feasibility of using unstratified, field-walked assemblages to define the nature and function of the site is addressed by comparison with excavated assemblages from sites of known form and function.

Background

A major criticism of many excavation reports is the dislocation of artefactual reports from general discussions concerning the role and form of the site. Instead, emphasis is focussed upon the details of the excavation and the stratigraphical and structural remains. Such information is very necessary but the result has been a lack of finds integration and thus of interpretation at an intra-site level. Considerable attention and importance are justifiably attached to those artefact categories with specific dating capacities, such as the pottery and numismatic assemblages. However, the small finds are too frequently derogated to archive lists, or catalogues lacking interpretation. There is often no analysis of the spatial patterning of the finds and the information frequently becomes little more than a source of descriptive comparanda for other sites. Although the majority of small finds can not generally be used as an accurate chronological tool, the potential diversity in range and form can contribute insights into the social and economic status of the settlement as well as addressing other issues such as trade and manufacture (cf Crowther 1985, 195).

Exceptions to this general pattern do exist although they are still not common. Interpretative approaches based on the distribution of specific classes of material in

relation to excavated structures include the work undertaken at the Uley shrine, Gloucestershire (Woodward & Leach 1993, 327-331) and at Maxey, Norfolk (Crowther 1985, 81) where functional classes of artefacts are plotted through the different phases of the site. The work undertaken at Woodcock Hall, Saham Toney, Norfolk is especially relevant to this survey as all finds plotted were made during systematic field-walking. However, recent work concerning the deposition and distribution of specific classes of Iron Age artefacts is yet to be mirrored in Romano-British studies (Hill 1995; Haselgrove 1997; Gwilt 1997).

This survey is based upon field-walking, geophysical and aerial photographic techniques. No excavation has taken place and therefore there is no control with which to compare the fieldwalked assemblages (cf. Maddle Farm Survey; Gaffney, Gaffney & Tingle 1989, also work at Shiptonthorpe, East Yorkshire; Millett 1992; Taylor 1995). The absence of excavated features and their associated finds at the site also means that the function and form of features identified both from the air and through geophysical methods often remains subjective and elusive. All artefacts recovered have been removed from their archaeological context and since 1994 the findspots have been recorded, albeit in an imprecise manner. The nature of the recording of findspots impedes precise spatial patterning analysis. However, if this obvious limitation is recognised from the outset and we do not place too much emphasis on the discrete patterning of such material, it is still possible to detect artefactual patterning which may offer information concerning the organisation of the settlement as well as patterns of deposition across the site.

A further bias of the artefactual assemblage relates to the material in which the artefacts are produced, their archaeological survival and retrieval. There is no faunal and environmental assemblage and wooden, leather, textile, bone and stone artefacts are all absent. Organic materials may survive in stratified deposits under certain conditions but there is very little chance of their recovery as surface finds. Their absence from this assemblage is a very noticeable limitation and consequently some aspects of the site's economy can not be discussed.

The intention here is to integrate all available information according to the area in which the material was found, and consequently the following discussion adopts a field-based division. Comments will be made concerning the overall composition of the assemblage and the relationship of artefacts to cropmark and geophysical features. Insights into the form and function of the site will be addressed where possible and also in the following chapter.

Field A (Fig. 7.1)

Although no controlled programme of field-walking has been undertaken in Field A, the metal-detection of this area has been extensive. Whilst the coverage has extended into much of the field, the areas close to the road have generally been targetted due to the productivity of finds in this area. A very noticeable cut off point in the distribution of finds occurs c.80m into the field. The area around the fort (although not within it for the purposes of this survey) has been detected although very few finds have been recovered.

Aerial photographs and geophysical survey have clearly revealed the plan of a small fort covering an area of approximately 0.7 heactares, situated about 150m south of the Roman Road. The principal objective of the magnetometer survey was to investigate the area within and around the fort for internal structures or other features. The magnetic response was very low in this area and although the geophysical survey extended the length of the northern ditch up to the scarp edge on the western side, no clear evidence for internal structures have been identified. A faint positive anomaly in the south-west corner of the fort may represent a feature, but the anomaly is certainly not striking and its function is unknown. There are no pit-like features visible inside the fort, nor within a 20m radius of the external ditches and this would explain the almost complete sterility of finds noted during the geophysical survey. Interestingly, more pieces of worked flint were recovered than fragments of Roman pottery during the geophysical survey. The field had weathered for approximately 3 months after ploughing and therefore the paucity of finds is unlikely to be related to visibility bias in the field. Alternatively, the very low density of finds may suggest that the fort was

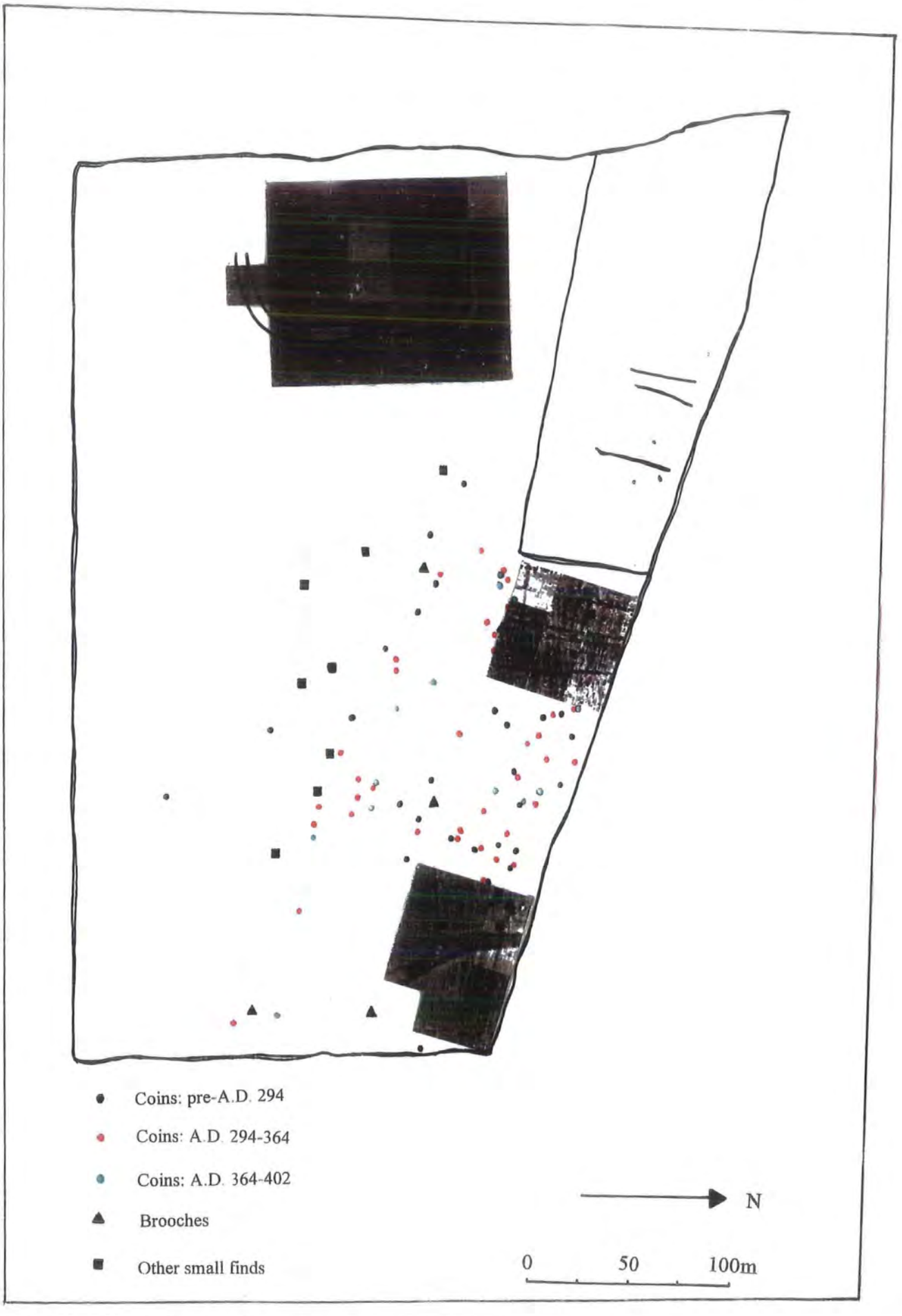

Fig. 7.1 **Distribution of coins and small finds in relation to cropmark and geophysical features in Fields A and B.**

occupied for a very short time or perhaps that the areas of rubbish disposal were in areas not located during the survey.

Few items relating to the early military presence at Marton have been identified and without the cropmarks of the fort it is unlikely that the artefactual assemblage alone would have suggested the presence of the fort in Field A. The sample of two items of 1st century military equipment is too small to define specific spatial patterning. One object (no.34) was found in Field A, but not in the vicinity of the fort. The earliest brooches (nos. 1-4) were all found in Field D, primarily in the centre of the field. The two examples of Hod Hill brooches, dating to before A.D.70 are probably associated with the military, although examples are also noted on non-military sites. The dearth of Claudian issues and the small quantity of 1st century coinage are notable, although too great an emphasis should not be placed upon the presence or absence of 1st century coinage as an over-riding precedent for the level of occupation at this time.

The remaining datable items of military equipment - the chainmail, the baldric pendant, the strap-ends and the studs (nos. 33-43), are more generally attributed to the 2nd-3rd centuries. These objects are evenly spread between Fields A, C and D. It would appear that these artefacts clearly relate to a subsequent and probably transitory military presence rather than to a static military occupation of the site. Military equipment dating to this period is frequently noted on civilian sites, such as Aldborough, North Yorkshire (Bishop 1996) and is therefore not a diagnostic feature of military occupation at the site. The location of the site on a major communication network which would have incurred the continual transportation of goods and the movement of people through the settlement is likely to explain the presence of some of these objects.

A concentration of coinage and pottery finds and a small quantity of Roman roofing tiles along the road frontage in Field A had been noted during the surveillance of the area, although the density of pottery in this area is very much less dense than that in Field C. The magnetometer survey of the area south of Field B (Area 2) and close to the road frontage in Field A, revealed a clearly-defined sytem of rectangular ditched

enclosures with associated pits, probably representing houseplots. The regular size of these enclosures suggests a degree of organisation in their layout. The widths of the plots, at between 15-20m and their length of c.55m to the rear suggests a rather congested arrangement along the road frontage. The possible explanation for this feature will be discussed in the following chapter.

The magnetometer survey of Area 3 in Field A was undertaken in order to assess the western extent of the rectilinear enclosures identified in Area 2. An area approximately 90m wide was left unsurveyed between Areas 2 and 3. No direct evidence for the continuation of the enclosures was identified; instead a clearly defined, curving double-ditched feature branching south of the Roman road was revealed. This feature, identified as a probable drove-way or track and a linear ditch branched off from the drove-way in a westerly direction approximately 45m from the road frontage and followed the same alignment as the rear ditch of the enclosure in Area 2. It is possible that this ditch represents a property boundary. Several small pit-like features are also visible, primarily within a 20m range of the road frontage and also quite close to the ditched features.

The coinage distribution exhibits an interesting pattern in Field A. Of the coins found since 1994, approximately 37% were found in Field A. 61% of the coins dated before A.D.294 were found in this area. Only a small number of these coins were found close to the enclosure area (Area 2), although there is a clustering along the road frontage immediately to the east. Coins dated from A.D.294-364 are more abundant than those of the earlier period, although only 36.5% of these were found in Field A. The distribution of these coins spreads along much of the length of the road including the area occupied by the enclosure features. The coins dating to the final period, A.D.364-402 are generally scarce in Field A (20.3% of total from this period) but tend to be located in the west of the field within 90m of the frontage and also inside the enclosure area. There is little evidence for specific clustering close to the double-ditched 'droveway' feature for any of the coin periods.

The pattern of coin loss displays little overlap with the spatial distribution of other artefacts recovered in Field A. Within the area occupied by the enclosures, only a glass gaming counter (no. 54) and a copper alloy stud (no.42) were discovered. Little can be concluded concerning the distribution of the six brooches (c.22%) found in Field A, all of which can be dated to the 2nd century, apart from the fact that none were found close to the road frontage. A notable feature is that beyond the roadside areas which exhibit the highest concentration of coinage and pottery, a number of metallic, primarily lead objects have been found. These include lead weights (no.81, 83-4), a spindle whorl (no.86) and two objects assumed to be fishing tools (nos. 90-1). The lead weights were found in relatively close proximity to each other, approximately 125m from the road. This might suggest that activities generally considered to take place in the houses and workshops situated close to the road frontage were also taking place well away fom the road or alternatively that these objects were deposited some distance from the areas in which they were used.

Field B (Fig. 7.1)

It has not been possible to conduct any survey of Field B and the level of metal-detection in this area in the past is unknown. Cropmark features suggest probable continuity of the rectilinear enclosures in an easterly direction along the road frontage. A series of pits are also visible, as well as a double-ditched feature which runs perpendicular to the road and appears to extend into Fields C and D. A geophysical survey of this area would be highly advantageous in the future due to the location of the field in the area between the fort and the road.

Field C (Fig. 7.2)

A concentration of artefacts and a complex pattern of crop mark features noted in Field C, identifies this as a major area of activity within the settlement. Many of the crop mark features are difficult to interpret morphologically, consisting of a number of linear and curving features. There is a clustering of small pits close to the roadside and a number of larger pit-like structures, specifically the example situated close to a

Fig 7.2 Distribution of coins and small finds in relation to cropmark and geophysical features in Field C

curving ditch feature close to the boundary of Fields C and D. With a diameter of approximately 10-12m, it is probable that this feature represents a well or water-hole. It is impossible to assess the level of contemporaneity and interrelationship of these crop-mark features without excavation.

Area 4 in Field C was selected for geophysical survey primarily because field-walking had revealed high concentrations of material in this area and the aerial photographs had not produced extensive or defined cropmarks. The magnetometer survey reveals two joining double-ditch features running adjacent to and perpendicular to the Roman road. This may represent a lane branching off from the main road or perhaps a droveway. Many of the larger-scale settlements have lanes branching off main roads to connect to other parts of the site, although it is more unusual for such features to run parallel to the road. It is possible that this feature predates the construction of the Roman road on its present alignment, although this is also difficult to ascertain without excavation. Below the lower ditch feature and close to the junction of the two double ditches, two distinctive magnetic anomalies have been identified about 30m from the Roman road. These features are approximately 3m and 2m in diameter respectively and their appearance suggests a thermoremanent origin, probably a kiln, furnace or hearth. No kiln wasters or concentrations of slag have been found in this area, although there are a number of pit-like structures to the east of these features.

The distributions of both pottery and coins have been found to be most intense along the length of the road and extending into the field for approximately 90m. The density of all categories of Roman pottery is highest towards the west and east of the field, and little differentiation is observed when the distributions of fine and coarse wares are plotted seperately (see figs. 4.8-4.11). The distributions of the samian ware, amphora and mortarium, although small in quantity, also clearly define the general roadside concentrations. The highest concentration of brick/tile occurs close to the roadside in the western half of the field. It is suggested that this distribution is more likely to reflect accurately the position of collapsed or abandoned buildings than pottery as brick/tile was less susceptible to secondary deposition. Close to the boundary with Field D, the distribution of pottery is generally very low in comparison

with areas close to the road. It is noteworthy that the six fragments of copper alloy vessel found in Field C were all found away from the main concentration of pottery and close to the boundary of Fields C and D.

The pattern of coin loss in this area essentially mirrors that of the pottery (see fig. 4.7), with a concentration of finds running along the length of the field and extending into it for approximately 90m. More than 55% of the coinage was found in Field C. Of the coinage dating to before A.D. 294, 33.9% was found in Field C. No particular concentration of this material is visible in any area of the field. 59.1% of the coinage dating to A.D. 294-364 was found in this field and there is a very clear concentration of finds towards the roadside, especially in the western side of the field. The distribution of the coinage from the final period, A.D. 364-402, is once again concentrated in this area (66.7%) although the extent of the distribution is noticeably constricted to the western half of the field.

Ten brooches, constituting approximately 37% of the total assemblage were found in Field C. Their distribution demonstrates a strikingly different pattern to that of the coinage and pottery. There is a very clear absence of brooches in the area close to the road; the areas in which the coin and pottery distributions were found to be so marked. In contrast, the brooch distribution almost exactly mimics the outline of the pottery distribution and only penetrates into this area in a small number of cases. However, the other objects of personal adornment; such as the two bracelet and two ring fragments were all found in areas close to the road frontage of Field C. A possible explanation for the scarcity of brooches close to the road is that the roadside areas have been focussed upon by the detectorists and that as comparatively large targets, brooches may have been detected in the years prior to this survey. However, this possibility seems unlikely considering the number of brooches found subsequently and the very high incidence of coins in this area. However, even if the roadside areas have been more intensively scanned than the rest of the site, the distribution of the coinage appears to be unaffected by this differential levels of attention. It is interesting that since 1994, only four brooches, including two small fragments of unidentifiable

form have been recovered from the site. This is likely to be an indication of the decreased availability of brooches in the ploughsoil.

A similar dearth of other metal-work within c.40m of the road frontage has also been identified. Instead, there is a general increase in the occurrence of metallic 'small finds', predominantly brooches and military equipment, from the middle of the field northwards.

Two fragments of copper alloy slag were found. Fragments of iron slag were found in small quantities throughout the field. However, during the field-walking programme, two concentrations consisting of 19 and 39 fragments respectively were found. These were situated away from the road frontage, c.75m north of the road (see fig. 4.17). This distribution would suggest that industrial activities were taking place behind the road frontage, although the evidence is too scant to hypothesize whether this represents industrial zoning or small-scale production. However, the fact that the scatters of slag occur in areas isolated from the principal pottery distributions might suggest a degree of careful planning in the location of workshops or that the disposal of pottery was centralised but that iron working related to individual households.

Field D (Fig. 7.3)

Although no formal programme of field-walking has been undertaken in Field D, metal detection has taken place throughout this area. Unfortunately, time limitations have prevented the geophysical survey of all but a very small area of this field, although the cropmark evidence is relatively extensive.

The sub-circular feature identified as a positive cropmark close to the boundary of Fields C and D on a number of different occasions, is an enclosure measuring c.25m in diameter with a circular or oval central feature. This feature is located on the same alignment as the ditch running across Fields B and C. The exact function of this feature remains unknown and the magnetometer survey did not replicate the cropmark evidence, although there is an distinct area of positive readings which may relate to

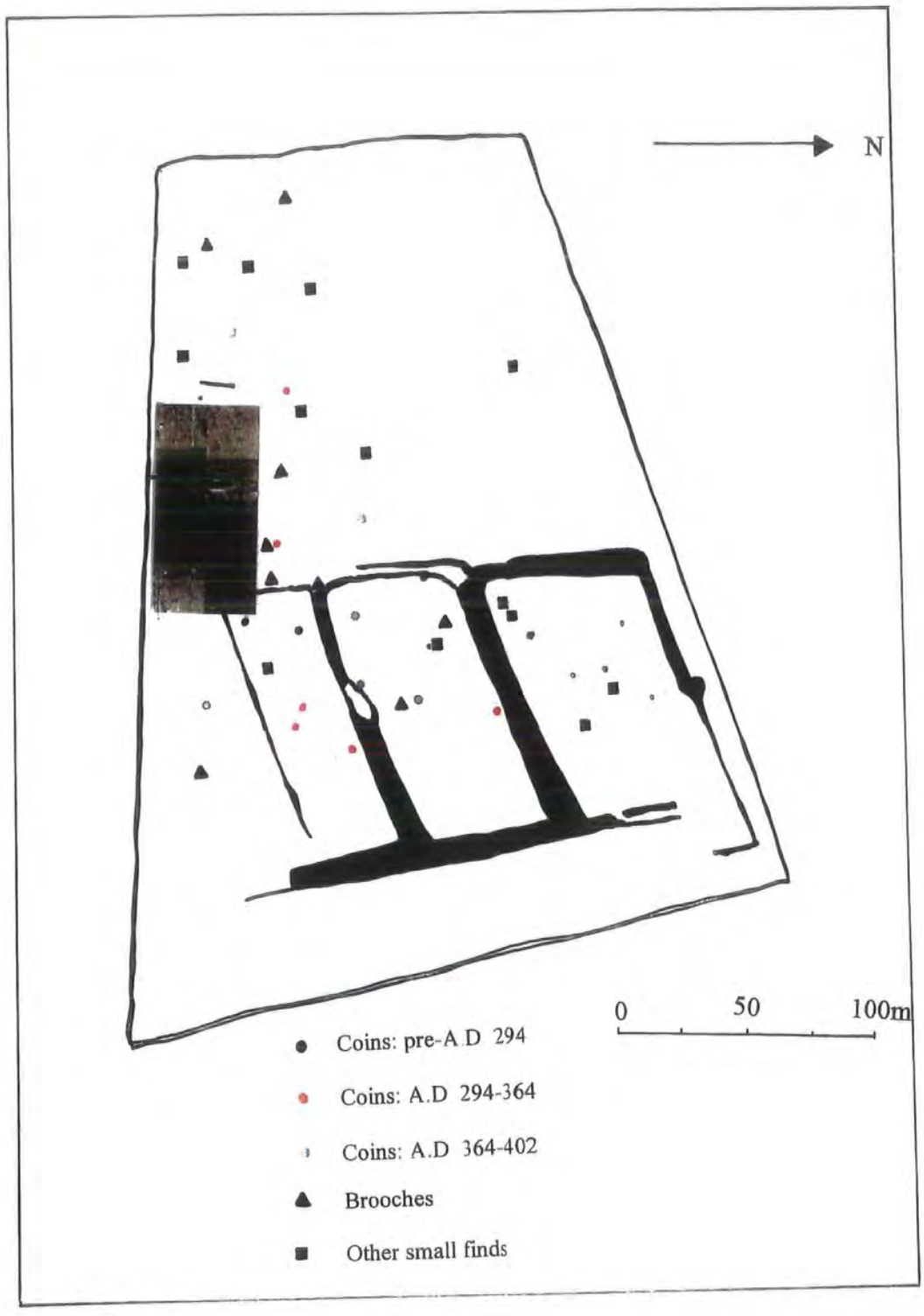

Fig. 7.3 Distribution of coins and small finds in relation to cropmark and geophysical features in Field D

this feature. The pottery scatter discussed above (pg. 79) and the fragment of human skull were discovered close to this feature. The fragment of skull may relate to the deposition of human remains within the settlement, rather than in a cemetery. This may derive from a burial that lies on a boundary as at a number of roadside settlements such as Hibaldstow, Lincolnshire (Smith 1987). This feature will be explored further in the following chapter.

Other cropmark features visible in this field are represented by the cropmarks of the network of enclosures. The largest central and northern most enclosure are of a similar size with an internal area of approximately 0.5ha. The smaller enclosure to the south covers about 0.35ha. Several small pits identified within the enclosures suggest that these areas were probably occupied. However, a generally low background density of pottery finds has been noted during the metal detection and general reconnaissance of this area.

The metal-detection survey of Field D has been very productive. Unfortunately, it is suspected that illicit detection has taken place in this area on a regular basis, especially towards the western end of the field. The pattern of coin loss in Field D is generally consistent with that in Field C, although very much smaller quantities of coins have been recovered. The coinage pre-dating A.D. 294 and that from A.D 294-364 represent 5.1% and 4.4% of the coins from these periods respectively. In the later period, A.D. 364-402, the proportion from Field D more than doubles to 13%. No significant clustering of the coins from any period is visible, although the distribution pattern tends to follow that established in Field C with the majority of the coins found in the middle section of the field.

A very large proportion of the metalwork (c.40%), excluding coins found since 1994 comes from this area. No clearly-defined concentration of finds is visible, although over 35% of these finds come from within the enclosure complex. A relatively high concentration of finds is noted in the western end of this field, primarily within 60m of the boundary with Field C. 37% of the brooches were found in Field D, compared to 6.8% of the coins. This anomaly is significant, especially as coins are generally very

much more common than brooches. However, this figure is somewhat misleading as the proportion of coins represents those coins found since 1994 whereas the brooch figure represents the brooches found from 1992-7 by the two detectorists. The spatial patterning of these two classes of artefacts suggests that different activities and depositional mechanisms were employed within this area.

The distribution of the brooches in Field D continues the pattern visible in Field C with a concentration in the southern half of the field and not extending beyond the centre of the field.

Of the other metallic finds, two of the four copper alloy rings were found in Field D. A multitude of functions have been attributed to these objects including their role as tokens in ritual contexts to suspension loops for military equipment (Bayley & Woodward 1993, 140; Robinson 1975, 192-3; Webster 1992, 141). Other objects found in Field D include the copper alloy probe (no.51), tentatively identified as a toilet instrument, found close to the copper alloy funiture fitting (no. 67), the copper alloy spoon (no. 56) and the lead rivets (nos. 76-7).

Artefact Deposition and Distribution across the site

There are three principal means by which objects enter the archaeological record. i) accidental loss, ii) rubbish disposal and iii) other forms of intentional deposition. All categories are susceptible to similar post-depositional processes (Haselgrove 1985). It is frequently difficult to identify the specific means of deposition of an excavated sample, but it is virtually impossible to attest this from a field-walked assemblage, beyond suggesting the probability that all methods of deposition would have occurred at the majority of sites. It is the intention of this section to address the issue of artefact deposition by analysing differential spatial patterning of specific classes of material found at Marton .

Accidental loss as a category is self-explanatory and probably accounts for a significant proportion of archaeological finds. However, this category may also relate

to the value of the object, such that varying degrees of effort will be expended in attempting to recover a valuable item, and vice-versa for low-value objects. This may, in part, explain the large quantities of small, low value 4th century coinage recovered on many sites compared to silver coins of the earlier periods or of the same period, although other mechanisms such as the fact that these coins were produced in very large numbers and had little intrinsic value when no longer extant, also explains their predominance as site-finds. The second category, rubbish disposal was probably the main means by which material entered the archaeological record. Pottery is an accurate reflection of rubbish deposition since once broken it has no further use, unlike glass or metals which could be recycled. The third category, intentional deposition that is not rubbish disposal, hints at, although is not exclusively determined by 'ritual' or symbolic activity. This includes the deposition of coins, pottery and small finds in hoards, burials, ditches, wells and rivers, for example. It is probable that many of these 'offerings' were produced in organic materials which have left minimal archaeolgical trace. The evidence for deposition on the surface of features and directly into the ploughsoil is also increasing. (Crowther & Pryor 1985, 50). Intentional discard, as opposed to deposition should also be taken into account. This may have occurred when objects such as low-value coins became obsolete since the quantities recovered from sites may suggest mechanisms other than accidental loss.

A reasonably high proportion of the coins in this assemblage will derive from accidental loss. If this is the case, one might assume that since most coins were probably lost where they were used and that they were in use regularly, concentrations of coinage might represent a use in a market area or in the shops/workshops generally located along the road frontage. The strip-buildings lining the road frontages in many roadside settlements most frequently combined domestic and industrial/workshop areas, and therefore it is difficult to differentiate between domestic or economic coin loss.

At some sites the general distribution of coinage has been found to relate to the position of buildings as at Dragonby, South Humberside (May 1996, 603). In contrast, at Shepton Mallet, Somerset, large amounts of coinage were found in the

hollow-way of a track and this has been interpreted as a pattern of discard rather than of use (Esmonde-Cleary, 1995). It is possible that coinage when no longer in use, was also deposited directly into the ploughsoil, although it is unclear whether this simply reflects disposal or whether the procedure is imbued with some symbolic meaning. This raises the question of the fate of objects when no longer in use, especially the abundant 4th century coins and also urges caution when attempting to interpret specific concentrations of material.

The spatial patterning of coins at Marton (figs. 5.20-5.22) has been show to vary according to the chronological period involved. The distribution suggests a shift of coin loss through time, with a higher proportion of coin loss in Field A in the earlier period (pre A.D. 294) which moves to Fields C and D in the later phases (A.D. 294-364 and A.D. 364-402). This suggests that the emphasis of activity moved into Fields C and D; a hypothesis substantiated by the ceramic and other small finds evidence.

The overall coin assemblage from Marton demonstrates 'rural' tendencies (relating to small town, villa and temple sites), in that there is a higher proportion of coins dating to phase D (A.D.330-402) than in phase B (A.D. 259-94). Further analysis of the assemblage using Reece's technique (1995) suggests that the pattern of coin loss at Marton has affinities with assemblages from both villa and temple sites such as Gatcombe, Chedworth, and Lydney, all in Gloucestershire and Nettleton, Wiltshire.

It is more difficult to define the nature of the settlement on the basis of the pottery assemblage since the dating is less refined than that of the coinage and only Field C has been fieldwalked. The analysis of the assemblage revealed that grey fabrics constituted a very large proportion of the assemblage (60%), although little can be hypothesised from this as a similar pattern is noticed on sites of varied status and form. In the case of this assemblage, this factor may also relate to the several kilns producing coarse wares in close proximity to Marton.

The distributions of the pottery and coinage in Field C display very similar patterns, although it should be considered that the depositional mechanisms may be widely

different. The principal means by which pottery enters the archaeological record is as fragments disposed into middens and pits. These disposal areas may be located close to the structures in which they were used but it should not automatically be assumed that concentrations of pottery equate with the positioning of structures (Taylor 1995, 48; see also Crowther & Pryor 1985, 47). Work at Shiptonthorpe, East Yorkshire using fieldwalking, phosphate and magnetic susceptibility testing and excavation suggests that peaks in the distribution of pottery relate to the positioning of middens rather than to specific habitation areas (Taylor 1995, 48). The distribution of roofing tile is considered to be a more acurate reflection of the position of buildings since tiles were less frequently disposed of in pits or middens. At Marton, the highest density of roof tiles corresponds with a peak in the pottery and coin distributions in the western end of the field close to the road frontage, which perhaps suggests that the middens in which broken pottery was deposited were close to habitation structures.

The distribution of the 'small finds' assemblage has been seen to follow a very different pattern to that of the ceramic and numismatic assemblages. The brooch distribution ignores the roadside areas of Fields A and C almost completely, concentrating in the northern sector of Field C and extending into Field D (fig. 7.4). As suggested above, this may be a reflection of extensive coverage of this area in the past, although alternative hypotheses, such as the structured deposition of brooches in ditches and boundary features should perhaps be sought for this unusual patterning by comparison with assemblages from other sites (Hill 1995, 66).

The spatial analysis of the material recovered from Maxey, Cambridgeshire suggests that personal artefacts were most likely to occur around structures, gullies and access points, but that not all structures produced such material (Crowther 1985, 195). At Dragonby, South Humberside, artefacts including brooches and other personal objects were found in and around nearly all of the buildings (May 1996, 633). At religious sites such as the Uley shrine, Gloucestershire, most of the brooches were clustered in and around the temple building (Woodward & Leach 1993, 331 fig. 226). However, field-walking at Woodcock Hall, Saham Toney, Norfolk (Brown 1986, 12-13) reveals distinctive clusters of both early Roman coins and bow brooches close to the two

Fig. 7.4 **Distribution map of coins by period and brooches**

stream-crossings on the site. This suggests that at that site at least, coins are deposited in a similar way to brooches, although this pattern may not have remained constant throughout the Roman period. Such analysis suggests that there is no standardised depositional trend and that the differences observed may relate both to the form of the site, the chronological period, the type and value of the object or perhaps to specific regional practises.

Without the control of an excavation with which to relate objects to structures and also considering the inaccuracy of the distribution plots, it is difficult to comment on the position of finds in relation to archaeological features. However, if the form of the settlement at Marton is analogous to that at most other roadside settlements/small towns, the principal areas of occupation will have been situated along the road frontages. At many sites, evidence for activity does not extend beyond 80m from the road frontage (Smith 1987). There are therefore a number of possible explanations for the distribution of brooches and other small finds at Marton. Firstly, if as at several other sites (Dragonby; May 1996), brooches were deposited in and around buildings, the pattern noted at Marton would suggest that buildings extended away from the road frontages into Field C and Field D. The hypothesis that brooches had been recovered by earlier metal-detection concentrating on the road frontage has already been considered and dismissed as unlikely.

A more probable explanation is that the spatial patterning of objects recovered at Marton relates to intentional deposition away from occupation areas, rather than to accidental loss. It is possible that brooches were deposited in the boundary ditches at the rear of house-plots positioned on the road frontage or close to access routes and ditches visible in Fields C and D. Within Field C, several brooches were found close to the linear ditches running east-west through the centre of the field and also the feature in the northern sector of the field close to the boundary with Field D. Four brooches were discovered within 50m of the sub-circular cropmark feature; two of which follow the alignment of the linear ditch which extends into Field C. It is possible to formulate a hypothesis that these brooches relate to burials within or along side ditches and boundary features; both cremations and inhumations from the early

Roman period are known in this position on a wide variety of sites (Philpott & Reece 1993). Burials with brooches are relatively rare and Philpott (1991, 136-8) identifies that there is a thin scatter of inhumation burials with brooches in the 1st-3rd century and that cremation burials with brooches are predominantly found in south-east Britain (1991, 129). However, the possibility that these brooches derive from burial contexts should not be dismissed as the current available information concerning Roman rural burial practise in the East Midlands is poorly known.

The distribution of the other small finds is also anomalous in comparison with the distribution of the coins and pottery. This pattern is especially clear in Field A. In this area more than 50% of the small finds including brooches were found more than 80m from the road frontage, which is somewhat surprising as the majority of the coins were found within 60m of the road. In Field C there is also a tendency for the small finds to be located away from the main concentration of pottery and coinage.

Any attempt to define the form of the site on the basis of the small finds evidence is impeded by the difficulties present in the definition of an assemblage 'typical' of a particular type of site. This is due primarily to the great divergence of artefact types and functions encountered within the general small finds category and also because of the difficulties of characterisation. Should the calculations be based upon the quantification of the objects, their form, the material in which they are produced or some other characteristic? The classification of 'Romanised' or 'native' is not wholly satisfactory as artefacts traditionally viewed as 'Romanised', at least in the early years after the conquest, such as decorated samian vessels are commonly found on indigenous sites in Britain (Willis 1997a). Apparent differentiations may be a result of specific regional trends which could affect both the type of objects in use and the manner in which they are deposited, since the possession of an object may mean different things to individuals at different times. An alternative explanation for the presence of particular items may simply relate to its proximity to the area of manufacture, which would reflect the process in which the objects were used and not the manipulation of the small finds themselves.

Interpretation

The whole finds assemblage reflects a number of everyday functions undertaken at the settlement. The pottery and glass artefacts were used for the storage, preparation, cooking and serving of foodstuffs and objects of recreation were also produced from reworked pottery fragments. The coinage relates primarily to economic transactions, although exchange mechanisms employing other media and the ritual deposition of coinage should not be excluded. The wide variety of functions attributed to objects within the small finds category includes military equipment, personal adornment, surgical/medical equipment, toilet instruments, recreational objects, household utensils and furniture, fittings, objects employed in weighing, building, textile manufacture and fishing as well as a variety of miscellaneous uses. Whilst some objects offer a clear insight into the form of the site, such as the items of military equipment, other artefacts such as the lead spindle whorls, for example, are less easily distinguishable and could have been in use at any time during the Roman occupation of Marton. Of particular importance within this category is the discovery of the pair of coudée-type, forceps, possibly with a serpentine hook and commonly associated with eye-surgery (no.50). This find is exceptional both for its rarity and state of preservation but it indicates a high level of medical treatment available at the site. The recent find from Field D of a fragment of a copper alloy bangle with a terminal in the form of a stylised snake's head and the forceps with serpentine hook at the same site may not be purely fortuitous.

All objects had a function, whether practical, symbolic or aesthetic. However, the function of an object can change through time such that the final use of the object before its incorporation into the archaeological record, may not relate to the function for which it was initially intended. This distinction is obviously very important, but its identification is rarely clear, especially when dealing with unstratified material. Further difficulties arise when attempting to demonstrate the relationship of unstratified, fieldwalked material to features identified through aerial and geophysical survey, especially when the function of these features is unknown. However, an analysis of the spatial association of the finds is possible, although whether artefacts can be used

to define the function of the site rather than the site defining the type of artefacts likely to be found is questionable.

In a small number of cases, non-structural artefacts can be used to classify a site's nature and function, although such analysis generally relies on there being significant quantities of diagnostic material available. At religious centres and complexes, a number of classes of artefact are consistently found during excavation and have been interpreted as characteristic of such sites. These include votive objects such as altars, figurines, miniature vessels and tools/weapons, 'rings', leaves and plaques, jewellery such as brooches (especially those depicting a horse and rider), bracelets, pins and finger rings, fittings such as terminals, metal vessels and candlesticks and personal items such as spoons, toilet articles and counters (Woodward & Leach 1993, 332). Those offerings produced in organic materials less frequently survive, although their role should not be dismissed as subsidiary.

There are no objects found at Marton which can be classified as intrinsically 'votive' in nature, although there are a number of objects which may have assumed a secondary, ritual function such as the copper alloy rings (nos. 46-9), brooches (nos. 1-26) and other personal objects (nos. 29-32), copper alloy vessels (57-62) and fittings (66-68).

> '...Objects can be items of daily use or - by virtue of their abandonment or means of deposition - *may* have been dedicated to the gods.' (Henig 1984, 128)

The distribution of this material is not emphasised in any particular area of the site although a higher concentration of all of the above categories has been noted in Field D.

Within the brooch category it is interesting that there are three almost identical examples of enamelled bow and fantail type (nos. 18-20); a form not commonly encountered in Roman Britain. This may be a reflection of the localised production of the type, or alternatively the presence of several very similar examples may suggest selection for a specific purpose, such as ritual deposition, for example. The selection

of a number of the same brooch form is a phenomenon noted at a number of religious sites such as the horse and rider brooches at Hockwold-cum-Wilton, Norfolk and Lamyatt Beacon, Somerset and a group of c.100 bow brooches mortared together found at Bregenz, Austria (Konrad 1994). The three brooches from Marton, complete with pin (nos. 14, 23 & 25) tentatively suggest a depositional mechanism other than accidental loss. This hypothesis is difficult to test, especially as at some sites poorly-made brooches were selected for deposition (Snape 1993, 6).

Conclusion

Field A

The earliest occupation in Field A is represented by the fort. The dearth of artefacts from the area close to the fort is interesting. The reason for this is unknown, although it may relate to the short-lived nature of the military presence at the site. All other activity in this field focusses upon the roadside. A series of rectangular enclosures and a double-ditched droveway feature both situated adjacent to the road have been identified through geophysical survey. The metal-detector survey of this area has revealed a high concentration of coinage, especially that pre-dating A.D. 294 situated along the road frontage, although other small finds, especially a number of lead weights were found at a distance of approximately 125m from the road.

Field C

Fieldwalking and metal-detection have revealed this area as a major focus of occupation. A series of ditches and a droveway running parallel to and perpendicular to the road frontage suggests that the settlement in this area was extensive and dispersed away from the roadside areas. A series of small pits close to the road and a very large pit or watering-hole situated close to the boundary with Field D have been identified from the cropmark evidence. Two anomalies identified in the magnetometer survey have the appearance of thermoremanent features and have been identified as kilns or furnaces.

The coin and pottery distributions are most dense along the roadside, especially in the western end of the field. The coin evidence suggests a shift in emphasis from Field A to Field C in the later coin periods (A.D. 294-364 and A.D. 364-402). The brooch and other small finds demonstrate a very different pattern, concentrating in the northern end of the field and close to several ditch features. it is difficult to assess the level of contemporaneity of the cropmark and geophysical features.

Field D

The predominant features identified from cropmarks in Field D are the network of three enclosures and the sub-circular feature situated close to the boundary with Field C. The numismatic evidence suggests a shift in emphasis into this area, especially in the late Roman period, although most of the earliest brooches from the 1st century were also found in this field. A large proportion of brooches and other small finds were recovered in Field D, and it is considered that this relates to a phenomenon other than accidental loss. A large proportion of these objects were found in or close to these enclosures, which may suggests that they were occupied.

The implications of this evidence for the layout and function of the site will be discussed with reference to evidence from other sites in the following chapter.

Chapter 8 Conclusion: Marton in its Regional Context

The previous chapters have examined the archaeological evidence specific to the site at Marton. This chapter assesses the origins and development of the settlement throughout the Roman period, and examines its morphology and possible functions within its regional and provincial context. The current available evidence suggests that the site was first occupied by the military in the early years after the Conquest and later flourished as a roadside settlement/small town of considerable size in close association, or conjunction with the settlement at nearby Littleborough.

Background

Traditionally, Lincolnshire has not been an area renowned for its rich database of Iron Age and Romano-British material. There are several possible explanations for this, i) as a predominantly arable county, there is a a poor level of monument survival, ii) the antiquarian interest in the area has not been extensive, iii) there have been few 'outstanding' discoveries either of sites in general or of finds in recent years, for example to compare with the string of highly publicised metal-detector finds in East Anglia, iv) there have been comparatively few large scale excavations and surveys. However, as a result of several extensive programmes of aerial photography throughout the area, this picture is gradually changing (Riley 1980; Jones 1987). Aerial survey has revealed the diverse range of settlement types, especially in rural areas present throughout the county.

Of importance now will be a large-scale landscape approach in which new aerial photographs and fieldwork are related to previous excavation.

Pre-Roman activity in the Area

The evidence for late Iron Age sites in the Trent Valley is poor, despite the light and easily tilled soils in this area which might be expected to attract settlement. Further limiting factors concern the chronology of some of the pottery series, the lack of

datable metalwork from sites, the small quantity of radio-carbon dates and poorly stratified deposits (Willis 1997b, 209).

However, recent investigation suggests that this apparent deficiency may be a reflection of the lack of previous large-scale fieldwork in this area. The programme of aerial prospection of a transect 3 miles wide and stretching from the Trent, 10 miles north of Marton in the west to the coast in the east, revealed approximately 5 hitherto unknown late Iron Age settlements (Jones 1988).

The East Midlands shows little affinity with areas to the south in terms of the settlement forms encountered. Most striking is the comparative absence of hill forts of the type encountered in the south, with only Honington Camp, south of Ancaster, Round Hills, Ingoldsby south of Grantham and Careby Camp, south-west of Bourne possibly falling into this category (May 1976, 141-3; O'Brien 1979; Jones 1988, 20). Consequently, the settlement sites are not immediately visible. However, a series of large nucleated settlements scattered in the south of the county as at Old Sleaford, Ancaster and Tallington and in the north at South Ferriby, Kirmington, and Dragonby are cited as the equivalent site-type, although demonstrating a very different morphology. These sites are frequently located on low-lying ground and lack sophisticated defensive systems. Many of the large settlements are closely associated with rivers such as Ludford, Owmby and Thistleton and at river crossings such as Saltersford and Leicester, and also South Ferriby and Old Winteringham . It is suggested that these may have been very deliberate locations based upon some ideological and cosmological significance of the place (Willis 1997b, 210-11).

The evidence for small-scale settlements in North Lincolnshire, which must have housed the majority of the population, is minimal and elusive. Only two settlements have been identified within a 10 mile radius of Marton. Three circular structures and a further three or four wattle and daub buildings have been excavated at the late Iron Age and Romano-British settlement at Rampton, Nottinghamshire, 3 miles south of Littleborough (Ponsford 1992). At Blyton, Lincolnshire, 10 miles north of Marton a

complex of cropmark features have been identified. This feature consists of a network of three enclosures, but no datable finds were recovered (Jones 1988, 21).

A site type recognised relatively frequently in the Trent Valley consists of enclosure complexes and is generally dated as late Iron Age or Roman in date, although very few have undergone detailed investigation. The Iron Age enclosures are rectangular and occur singly or in scattered groups of four or five, and are considered to be distinguished from the Romano-British examples which are often larger and exhibit a more complex ground plan (Challis & Harding 1975, 130; Smith 1977; O'Brien 1979, 301). The enclosure complex at Blyton, (see above) is an example of this form. Similar examples have been noted at Cromwell, Notts (Frere & St. Joseph 1983, 199-200 pl. 121) and an Iron Age farm east of the Roman fortress at Longthorpe, Cambs was made up of two conjoined sub-rectangular enclosures (Dannell & Wild 1987, 27-34, fig.4).

At Marton, the cropmark and geophysical features which may hint at similar activity have failed to produce corroborative artefactual material and therefore their dating on morphological grounds is unfeasible. To judge from the artefactual record the main phase of activity at Marton was mid-late Roman. However, an earlier precedent should not be excluded. The features identified as possible roundhouses in the geophysical survey of Field H could relate to late Iron Age or Romano-British activity, although there are no datable finds as the area is under pasture.

It is entirely plausible that the Trent crossing at Littleborough was also used in pre-Roman times. However, no features or artefacts from either Marton or Littleborough have been identified as definitive evidence for Iron Age activity. The earliest evidence for occupation at Littleborough is suggested to date to the late 50s A.D, although very little of the site has been excavated (Riley et al. 1995). The positioning of the early Roman settlement on low-lying ground close to the river and susceptible to flooding is enigmatic. Indeed, during excavations the earliest Roman layers were found to be covered with alluvium deposits up to 1.5m thick (Riley et al. 1995).

The Military Presence

There is a lack of contemporary sources detailing the events of the Roman occupation of Lincolnshire, although the available evidence does not suggest that the Corieltauvi put up excessive resistance to the military presence. By c.A.D.47 the Roman army had extended its control over the Corieltauvian territory (Creighton 1990, 182) and by c.A.D.50 the Ninth Legion were based at Lincoln, although the legionary fortress was not established there until A.D.71 (M.Jones 1988). A series of forts positioned along the Fosse Way at Osmanthorpe, Thorpe by Newark, *Margidunum*, Newton-on-Trent and Marton served to guard that communication line. On the Roman road from Lincoln to Doncaster, forts have been identified at Scaftworth, Rossington Bridge and Doncaster (Bartlett & Riley 1958; Whitwell 1982).

The so-called vexillation fort at Newton-on-Trent, ten miles west of Lincoln and four miles south of Marton, along with that at Longthorpe, Cambridgeshire probably represent the campaign head-quarters of a legion, preceding the establishment of the legionary fortress at Lincoln. The fort at Newton enclosed an area of at least 12 ha (30 acres) and had a defensive outwork which may have acted as a temporary defence during the fortress's construction (Wilson 1984, 58, 60 group 3). Aerial photography has also identified two possible temporary camps at Newton situated approximately 213m south of the fort (St Joseph 1965, 74-5; 1969, 104; 1977, 128; Bishop & Freeman 1993, 187-9; Welfare & Swan 1995, 67 fig. 57).

The small-scale of the fort at Marton covering an area of only 0.7ha, its location at a major river crossing and its close proximity to the vexillation fort at Newton, suggest that the military presence at Marton may have owed more to tactics than strategy. The location of the fort on the scarp edge approximately 800m from the river and with extensive views along the Trent Valley to the north, south and west would be ideally suited to police traffic and to guard the important river crossing. The estimation that about 1ha (2.5acres) was the minimum area in which a full cohort could be housed (Jones 1975, 54), enforces the suggestion that this fort was positioned primarily as a control-mechanism.

The current artefactual and air photographical evidence suggests that the military presence at Marton did not occupy a pre-existing settlement, although this lack of evidence is not necessarily evidence of absence. This appears to be a relatively common feature of military sites in the East Midlands occurring at other sites such as *Vernemetum*, *Margidunum*, *Ad Pontem* and *Crococalana*; all of which later developed into extensive settlements (O'Brien 1979, 303).

It is possible that the settlement at Littleborough, considered by the excavators to have been established by the late 50s A.D, developed as a result of the fort constructed at Marton although a direct relationship between the two sites can not automatically be assumed. The development of a vicus approximately 700m to the west, on the opposing side of the river and also on low-lying land susceptible to flooding is rather unusual. An alternative interpretation is that the settlement at Littleborough represents the development of a military vicus of an as yet undiscovered fort on the west bank of the river (Sommer 1984, 89). However, if one of the primary roles of the fort at Marton was to police the river crossing, it seems somewhat unlikely that there would also be a fort on the west bank. It may be that the settlement was established at Littleborough in order to control both the east and west sides of the river and to take direct advantage of the traffic passing through. This may have taken place shortly before or after the fort at Marton was abandoned. An alternative, but tentative suggestion is that Littleborough may have occupied a site already in existence at the time of the conquest. This hypothesis can only be tested in the future through further excavation and fieldwork.

It is difficult to estimate the length of occupation of the fort at Marton although by c.A.D. 71 Legio IX had moved north to York and Legio II Adiutrix moved to Chester in c.A.D. 77. This possibly points to the major removal of the military presence from the area at this time. The very small number of finds dated to the Claudio-Neronian and early Flavian periods found at Marton suggests that the military presence was probably short-lived. The extent and nature of the *vicus* at this period is unknown. It is unlikely that a large civilian population would have initially been attracted to the site due to the small-scale of the military presence. The apparent absence of buildings in

and around the fort area is interesting, although this may be a result of the failure of aerial photography and geophysical survey to detect such anomalies. However, fieldwalking has identified an almost complete dearth of artefacts in the west of Field A close to the area occupied by the fort. This might suggest that after the withdrawal of the military presence, the area directly around the fort was not developed and that the settlement shifted to the road, c.150m to the north; the date of which is unknown. Alternatively, the settlement may have developed close to the road at a slightly later date and independent of the fort.

Unfortunately, the area between the fort and the road, Field B, was unavailable for survey. Cropmarks of this area reveal a number of pits and linear ditches as well as a double-ditched feature seen running parallel to the road and apparently extending into Fields C and D, although there is no dating evidence available for these features.

The withdrawal of the military from Lincolnshire after c.A.D. 71 is likely to have had a significant, although not necessarily a radical effect upon the existing settlement pattern. Black (1995, 30) suggests that the traders and other civilians initially attracted to settlements because of the military presence, are unlikely to have stayed behind when the garrison moved on. This may be true in part, although it is also probable that by the late 1st century many settlements would have become rooted and their position on the major communication network was probably the key to their survival and development.

Development in the late 1st-3rd centuries

Marton/Littleborough as a Small Town

The extended debate concerning the classification of 'small towns' will not be reiterated in detail here (Todd 1970; Rodwell & Rowley 1975; Burnham 1987; Burnham & Wacher 1990; Millett 1990; Brown 1995). Sites that have been labelled as small towns range from agricultural settlements to industrial centres to semi-urban centres, many of which acted as nodes for marketing and production (Millett 1990,

144). The range of sizes of these settlements and the variety of functions attributed to them is probably too diverse to be encapsulated under a single classification, although this is also one of their defining features. A uniting characteristic is that although some reflect a degree of planning in their layout, there is generally a lack of public facilities and an organised street grid (Smith 1987).

Relationship of Marton and Littleborough

Any attempt to classify the settlement at Marton must take into close consideration the role of the contemporary site at Littleborough. Although the initial development at both sites is difficult to interpret, the evidence suggests that by the 2nd century, if not before, occupation was thriving on both sides of the river.

In present times, the river Trent acts as a physical boundary between the counties of Lincolnshire and Nottinghamshire. Whilst there is no available evidence to suggest that occupation was continuous along the Roman road in the area between the survey area and the river, it is likely that the settlements, situated only 800m apart functioned as a single settlement, *Segelocum* (Rivet & Smith 1979, 453; Jackson 1970, 79). Whilst the area of water meadows would have served as good pasture for the summer months, before the embankment of the river in the 19th century it would have been very wet and marshy in the winter. However, the possibility that this area was occupied should not be disregarded, as the evidence from Littleborough reveals that low-lying areas close to the river and therefore susceptible to flooding were occcupied, at least in the early Roman period (Riley et al. 1995, 263).

The two areas of settlement foci identified at Littleborough and Marton, physically separated by the river were linked by a causeway across the river. When the river was cleared for navigation in 1820 a ford was removed from the bed and described as being;

> 'paved with rough square stones, and on each side of this road piles 10 or 12 ft. long were driven into the bed of the river, and pieces of timber from one to the other,

> giving support to the whole. The timber was all black oak....but soon rotted away when exposed to the air'(Frank Lambert in V.C.H.Notts. 1910, 20).

The site was visited by Dr Trollope in 1868, who suggested that the causeway might be Hadrianic in date and also recorded that a large bronze coin of Hadrian was found in a crevice of one of the piles (Trollope 1872; V.C.H. Notts 1910, 20).

In the following discussion the two sites will be considered together but the differences between them will also be explained as part of the general examination of the settlement layout.

Communications

After the military advance to York the major route north would have followed Ermine Street from Lincoln to its junction with Tillbridge Lane, and then through Marton and across the Trent to Doncaster via the forts at Scaftworth and Rossington Bridge. This route would have avoided the potentially difficult crossing of the Humber. The 3rd century milestone found at the Bailgate, Lincoln (RIB 2241) ending in A LS/MP XIIII which has been taken to stand as A L (indo) S (egelocum) /M (ilia) P (assum) XIIII, ' from Lincoln to Littleborough 14 miles...' suggests that by the 3rd century and probably before this time, this was the major route to the north (RIB I 2241; Whitwell 1982, 65), as Stukeley observed

> '.....but when Agricola, in his conquests northward, had discovered that mistake, and that the passage of the Humber was very incommodius for the march of soldiers, he struck out this new road, as another branch of the Hermen-street, by way of Doncaster, from thence observing its natural direction northward.' (Stukeley 1776, 93)

The settlement at Marton was situated in a position to take advantage of the passing road trade and communications. People travelling through the settlement would require food, the change of horses, other goods and accomodation. Whilst there is no direct evidence at either Marton or Littleborough, the location of a mansio at either of these sites would not be implausible considering the distance from Lincoln and the

reference to Littleborough in the Antonine Itinerary. Mansiones are frequently positioned away from the road frontage as at Wall, Lower Wanborough, Godmanchester and East Bridgeford (Black 1995, 89). The proximity to the river would also have facilitated trade and the hypothesis of Littleborough as an entrepot is plausible, with goods shipped from the south of England up to the Humber estuary and then to sites along the Trent, a suggestion proposed by Hartley and Dickinson (1995, 267) for the supply of samian to this site between A.D. 100-125.

There is no evidence for the access to the site at Marton from the north and south. However, it is likely that a track, probably avoiding the low-lying marshy land below the escarpment west of Marton, would have linked the settlements at Lea and Knaith in the north, and Torksey and Newton on Trent in the south. Pottery produced at these sites for localised distribution may have been transported by road rather than river, and therefore an access route would be required. The available evidence suggests reasonably extensive activity with associated settlements parallel to the line of the river on the east side of the river. It is highly likely that these sites would have been linked by a road or track although positive evidence for this awaits discovery. The trackway running at right-angles to the Roman road and visible from the air photographs and geophysical survey in Fields B, C and D (fig. 2.1-2.2) at Marton may represent such an access route, although this suggestion is purely hypothetical.

The extent of the Settlement

The full extent of the settlement at Marton/Littleborough is unclear. Only a very small area of the settlement at Littleborough has been excavated and this investigation has centred upon areas within the modern village and close to the Roman road. The area of higher ground to the west which has revealed a complex network of cropmarks probably dating to the late Roman period, has not been investigated. Antiquarian accounts suggest that the occupied area at Littleborough probably extended close to the river,

> 'The Trent has washed away part of the eastern side of the town. Foundations and pavements are visible in the bank...' (Stukeley 1776, 93).

At Marton, the most centralised evidence for occupation is apparent in Field C, over an area of approximately 7ha, and extending into Fields A, B and D. There is also evidence that occupation extended at least 350m east of Field C, as Roman coins, pottery and building material were noted during construction work in the 1960s. Isolated finds, primarily coins and pottery have been found in the modern village (Mr T. Douce, pers.comm). Approximately 1200m east of the survey area, on the clay soils beyond the second scarp, cropmarks have been identified close to the Roman road (see fig.1.2). Although these features are morphologically unidentifiable, it is plausible that they relate to Roman activity. The discovery of a small quantity of Roman roof tiles in this area supports this hypothesis.

If these various areas at Littleborough and Marton are considered as a single site, the evidence suggests a pattern of ribbon development on both sides of the road and extending, although probably not continuously, over approximately 2.5km. Settlements demonstrating extensive ribbon development have been noted along 800m of Ermine Street at Hibaldstow, South Humberside (Smith 1987, 189) and at Wall, Staffordshire, occupation debris extends for up to a mile along Watling Street, but rarely extends more than 100m from the road frontages (Gould 1972). A similar pattern has been noted at *Margidunum* situated on the Fosse Way south of Newark, Nottinghamshire where buildings were found to be straggling along both sides of the road, predominantly on the frontages for more than half a mile (Todd 1975, 211). Occupation at Water Newton, Cambridgeshire extends for 3km along Ermine Street and has a very large suburb to the north in Normangate Field. Water Newton, like Littleborough is situated at a river crossing and the settlement also extended to both sides of the river (Mackreth 1995).

Internal Development and Morphology

This section examines the evidence for the internal settlement morphology at both Littleborough and Marton using the aerial photographical, excavated and geophysical information.

There is no current evidence to suggest that the settlement at Marton was enclosed, although there is evidence for the enclosure of part of the site at Littleborough. Stukeley notes that '...it seems only to have been environed with a ditch, and of a square form and the water runs quite round it' (1776, 88), whereas Camden reports that

> 'the marks of an old wall are still discernable in a neighbouring field, where many coins of the Roman Emperours are daily found by the plow-men....the country people...imagine, according to their poor sense of things, that their forefathers enclos'd this field with a stone-wall, to keep the water from overflowing it in the winter' (Camden 1594).

The most striking feature and also the determining feature of the organisation of the site is the Roman road passing through the settlement at Marton, which after following a slight deviation to the south on the west bank of the river at Littleborough, resumes a similar alignment. High artefact densities, primarily in the areas close to the roadside at Marton, suggest that occupation was concentrated close to the frontages; a pattern entirely consistent with evidence from many other small towns and roadside settlements (Burnham & Wacher 1990; Brown 1995). At Littleborough, negative cropmarks have identified two further stretches of metalled roads. One of these areas has been excavated and a road c.7m wide, made of cobbles set in grey clay resting directly on the natural sand was found (Riley et al. 1995, 256 fig.2). Positive cropmarks also at Littleborough suggest an organised street plan on an area of high ground on a different alignment to the Roman road. The streets are aligned approximately at right angles to each other and there are subdivisions into holdings within each block (Riley et al. 1995, 255).

The evidence for planning is less clearly defined at Marton. The cropmarks and geophysical results do not reveal clear evidence for a street grid, but identify a series of linear ditches and droveways. The droveways in Fields A and C, may have served as access ways as well as funnelling stock. The dating of these features is ambiguous although it is considered that they are likely to be Roman in date, though not

necessarily contemporaneous as they are closely juxtaposed with other features considered to be Roman in date, such as the rectangular enclosures in Field A and the strong magnetic anomalies in Field C. The double-ditched feature running through Field B, possibly towards the fort may represent an access route connecting the fort with the main road. A ditch running on the same alignment in Field C suggests that this feature extends across much of the north-south extent of the site.

Structures

A recurring morphological feature noted at roadside settlements is the lining of the road frontages with structures, principally identified as strip-buildings which were commonly located within rectangular enclosures (Smith 1987, 22). The exact organisation of these structures remains unclear and differentiations in form and size have been identified which probably relates to their function.

The survey at Marton did not detect the buildings themselves, although the enclosure ditches have been well-defined (fig. 2.6). The rectangular enclosures revealed during the magnetometer survey of Area 2 in Field A are similar in form to those discovered at a number of sites including Water Newton, Cambridgeshire (Mackreth 1995). Two complete rectilinear enclosures and traces of two others were identified at Marton. The regular size of the enclosures may suggest a greater degree of organisation than at Shiptonthorpe, for example, where the uneven size of the enclosures suggests organic growth (Taylor 1995, 47). The two complete examples at Marton measure less than 20m wide and are approximately 50m in length, and therefore have little property to the rear. This congested arrangement is paralleled by the enclosures at Water Newton, Cambridgeshire, which display a need to position a large number of properties along the frontages. This may suggest that the occupants were craft-specialists and not primarily reliant on agricultural means. In contrast, the larger plots at Dragonby, South Humberside, measuring c.32m (May 1996, 604) and those at Braintree, Essex (Drury 1976, 92 & 124; Burnham & Wacher 1990, 291) suggest a agricultural or horticultural emphasis, representing the domestic accomodation of a

predominantly rural population. However, the finds from the enclosures at Marton do not allow further refinement of the activities taking place within them.

Excavations at Littleborough of an area on the road frontage close to the river-crossing revealed two timber buildings which were later replaced in stone and continued to be occupied until the late Roman period. Several hearths and ovens were found within these structures, although the lack of associated slag or other manufacturing debris suggests that these features served a domestic rather than an industrial purpose. These buildings were represented by wall trenches in which vertical timbers had been set, although the interpretation of these structures as being military in nature is perhaps unlikely (cf Riley et al. 1995, 262).

Activity in the enclosure complex in Field D, at Marton may have differed from those in Field A. Pits located within these enclosures suggest that these areas were occupied rather than used as field-plots. The distribution of artefacts in and around these features has been commented upon in the previous chapter. Morphologically, they appear to be similar to the enclosures identified at Littleborough which are assumed to be late Roman in date.

There is no other cropmark or geophysical evidence for structures, although the presence of concentrations of roof tile in Field C suggest the presence of substantial buildings. There is no evidence for tesselated floors from either Marton or Littleborough.

Craft / industrial activity and economy

Manufacture of goods

A number of objects found at Marton are associated with the small-scale domestic manufacture of goods, including the pottery cheese presses and spindle whorls. It is conceivable that products in perishable materials, such as wood, wool and leather, would have been manufactured in many settlements, but are visible only in a minority

of cases (Smith 1987, 68). For example, at the small town site of Alchester, leather off-cuts were found in several pits (Wilson 1965, 209; Osborne 1971, 164).

The discovery of iron and copper slag at Marton suggests that smithing and copper-working was taking place at the site, although no moulds or half-finished products have been identified. Evidence from East Bridgeford, Notts suggests that iron-working was taking place away from the roadside and may have been part of a complex of two or more buildings (Todd 1969, fig.6). The location of the concentrations of slag in Field C may suggest a similar pattern at Marton, although it is impossible to infer the scale of this production from the available evidence.

The organisation of metal-working at roadside settlements and small towns is unclear. It is probable that the majority of bronze smiths were dependent on scrap metal or metals prepared at source (Manning 1976, 39-40) and that the majority of small-scale production took place in the strip-buildings on the road frontages. However, industrial zoning is also attested at sites such as Godmanchester, Cambridgeshire where iron and bronze working were taking place in the same buildings (Wilson 1973, 289).

Without excavation, it is unclear whether the thermo-remanent features located close to the double-ditched drove-way identified in the geophysical survey of Area 3 in Field C represent kilns or furnaces. Whatever the interpretation, it is highly probable that these features represent industrial activity. At Littleborough a kiln has also been proposed, although structural evidence for this remains to be discovered.

Agriculture

As at the majority of small town / roadside settlements it is likely that agriculture and food production was one of, if not the primary occupations at Marton / Littleborough. At Marton, there is evidence for land division and demarcation in Fields A and D and the droveways in Fields A and C perhaps chanelled stock, as well as provided access routes across the site. The large rectangular enclosures identified at Littleborough are likely to have served an agricultural function, perhaps as horticultural plots or small-

holdings. The absence of environmental samples from this assemblage also prevents insights into animal husbandry and crop production and since there has been no excavation there is no tool assemblage or structures such as corn driers.

A close association has been noted between the positions of small towns and villas in the East Midlands and other areas of Roman Britain (Todd 1970). In north Lincolnshire a sporadic distribution of villas has been noted. In part, this may reflect a lack of fieldwork or site recognition in this area, although a real dearth is not improbable. Close to Lincoln, only the villas at Greetwell and Scampton have been identified, although in the north of the county villas are generally more abundant. Three villas are known to the east and north-east of the roadside settlement at Hibaldstow, as well as a winged-corridor building at the site itself (Smith 1987, 192-4; Burnham & Wacher 1990, 300). North of Hibaldstow, there are villas at Winterton, 4km north east of Dragonby and at Roxby, 3.5km north east of Dragonby as well as a settlement at Thealby, 4km north of Dragonby and less than 1km west of Winterton (Dudley 1931, 43-7; 1949, 193-220). At Sapperton, Lincolnshire, two villas have been identified within 3 miles of the small town (Simmons 1995, fig. 14.2). Villas have also been noted close to some small town sites situated along the Fosse Way; three examples are noted within 3km of *Margidunum* and an example is proposed at Sibthorpe, 5km south-east of *Ad Pontem* (Todd 1970, 124-78).

No villa-like structures or structural artefacts usually associated with villa buildings, such as tesserae have been identified at or within the immediate vicinity of the settlements at Marton/Littleborough. Stukelely comments on 'great foundations of buildings visible' (Stukely 1776, 94) and excavations revealed that the walls of various buildings were plastered although no definite villa structure has been identified (Riley et al 1995, 260). A marble bust of a male, possibly representing Balbinus and found at Clarborough, about 4 miles west of Littleborough may have originated at Littleborough or a villa nearby, although the contextual evidence for this find is very poor (fig. 8.1; Thoroton Soc. Trans iii, 51, no. 354; V.C.H. Notts. 1910, 24 fig. 7). Roman roof tiles discovered at Marton indicate the presence of substantial buildings, but this need not imply a villa building. However, at Torksey, 2 miles south of Marton

Fig. 8.1 Marble bust found at Clarborough, Notts.

signs of a Roman building were recorded in the 1960s through surface finds, although a resistivity survey and two seasons of excavations in 1960-2 resulted in no Roman finds (Lincs. SMR PRN 50570). However, there are Roman tiles built into the walls of Torksey Castle where a range of Roman coins have also been found and there are also records of '....Roman pavements of an ornamental character having been dug up here since 1878' although the whereabouts of this is now unknown (Lincs. SMR PRN 50570). Further possible evidence of a villa structure was discovered at Westwoods, approximately 4 miles east of Marton along Tillbridge Lane in 1928. A small pavement of blue and white chequer design about 4' square is reported as having been moved to Lincoln Museum. Roman pottery, coins and small finds have been and continue to be recovered from the area by a metal-detectorist although no information concerning the finds is available.

A probable villa complex has been identified by aerial photography at Newville Farm, East Stockwith; a Trent-side parish approximately 7 miles north of Marton (Everson & Hayes 1984, 37 fig. 8; Jones 1988, 23 fig.8 SK 813938). Part of an extensive complex of rectilinear cropmarks of regular plan form a possible villa enclosure with associated fields. The principal villa building is not visible within the enclosure, although a circular ancillary building is visible to the north. Fieldwalking in this area produced no surface finds of Roman date. A possible explanation for this feature is that the archaeological levels may have been protected by the deposition of river warp material (Jones 1988, 23).

Parallels with other small towns in the East Midlands suggest the probability, rather than the predictability that villa structures were located in the vicinity of the settlement at Marton / Littleborough. Distinctive regional variations in the distribution of villas have been noted (Miles 1987) which suggests that alternative settlement patterns may have existed or that the expenditure of excess wealth was chanelled into less archaeologically visible features (Hingley 1989, 159). Only future fieldwork can consolidate this.

Religious activity

There is little evidence for formal rural shrines or temples in Lincolnshire. It is probable that many more religious centres existed in both the East Midlands and elsewhere in Roman Britain. In Gallia Belgica and Lower Germany the occurrence of cult places in nearly every rural centre may suggest a density of distribution that we might ultimately hope to recover (Hiddink 1991, 218 in Millett 1995).

There is no obvious evidence for religious activity, such as structural remains of temples or shrines, inscriptions, sculpture or cult objects at Marton. The difficulties of interpreting cropmark features of ambiguous form in association with destratified artefacts have been discussed in the previous chapter. The sub-circular cropmark feature with central circular feature identified in Field D may represent a shrine. although the geophysical survey has failed to clarify this hypotheseis. Circular shrines

have been noted at other sites in the East Midlands such as Colley Weston (Knocker 1965, 52-72, fig. 35b) and Brigstock (Greenfield 1963, figs. 2 & 3).

It is possible that much ritual activity, especially in rural areas was focussed upon shrines or totems which may have been constructed in organic materials and are therefore less likely to leave extensive archaeological trace. Wells and waterholes with structured artefactual deposition as the example at Shiptonthorpe, East Yorkshire which contained a number of infant and animal burials and other carefully placed objects, are further evidence for ritual activity which does not require a formal temple structure (Millett 1995, 36; Millett 1996, 113-14 fig. 69; Taylor 1995, 45). As such deposits are often found in association with 'normal' settlement features, it is virtually impossible to detect them from survey evidence alone. The large pit-like feature with a diameter of 10-12m identified on both the air photographic and geophysical surveys of Area 5 Field C may relate to a similar feature, although without excavation this is impossible to interpret.

The spatial distribution of certain artefactual classes such as the brooches from Marton, suggest that a depositional mechanism other than accidental loss was in play, this could be surface deposition or deposition into features. Other factors such as the presence of the three almost identical brooches of an uncommon type from a relatively small assemblage may point to selection for ritual purposes (Chapter 7,nos. 18-20).

At Littleborough, more formal evidence for religious activity was discovered in 1718 when two stones, one of which was an altar were dug from a sand-pit close to the river (fig. 8.2)

> '...two altars, handsomely moulded, are set as piers in a wall on the side of the steps that lead from the water-side to the inn; on one is the remnant of an inscription LIS ARAM DD' (Stukeley 1776, 94).

Identification of this altar by Professor Haverfield concluded that the lettering LIPAR appeared to have been scratched onto the surface (Arch. J. xlix, 232; RIB I 277). Its find spot, close to the banks of the Trent may have some religious significance.

Fig. 8.2 Altar found at Littleborough (RIB I 277)

Stukeley also noted that 'coins are found too at the lowest edge of the water, when the tide is gone off, and in dry seasons' (Stukeley 1776, 94). This may simply relate to the siting of the settlement close to the river, although intentional deposition as a mechanism is feasible (Fitzpatrick 1984). The position of the causeway may also have encouraged 'offerings' to be made by those passing over it.

The ritual deposition of objects into rivers and other wet places is a well known feature of the Roman as well as the preceding period. At Woodcock Hall, Saham Toney, Norfolk 1st century coins and brooches were deposited close to the two stream crossings at the site (Brown 1986, 12-13) and coins were deposited in the river at Verulamium (Frere 1983, 280-1).

The well-known bronze figurine of Mars dedicated by the Colasuni brothers and produced by the bronze-smith Celatus found in the Foss Dyke at Torksey, about 2 miles south of Marton may have been deliberately deposited in a similar context

Fig. 8.3 Mars figurine found in the Fosse Dyke, Torksey (RIB I 274)

(fig.8.3; RIB 274; Toynbee 1962, 131 no.16 plate 19; Henig 1984, 51 plate 15; Alcock 1989, 59-60). The discovery of several other artefacts dedicated to Mars from sites in North Lincolnshire including the inscription to Mars Rigonometis and the Emperor's Numen considered to be part of the arch of a temple discovered at Nettleham, approximately 15 miles east of Marton (Lewis 1966, 121; Green 1976, 203) and the Mars Gradivus and Mars Ultor figurines from Dragonby (Alcock 1996, 264-8, fig. 11.15 nos. 1-2) may relate to a regional cult of this god.

Evidence for the Dead

The discovery of burials using non-intrusive survey techniques is extremely uncommon. It is plausible that some of the artefacts found during fieldwalking ultimately derived from burials although this is impossible to substantiate.

The single fragment of human skull found in Field D at Marton is the only certain evidence for the dead, although its Roman date is by no means certain. If accepted as Roman, there are several possible contexts from which it may have derived including a formal cemetery area, boundary burials and other settlement areas or burials close to temples. Although large cemeteries are known from late Roman Britain, organised cemeteries as areas in which to dispose of the dead or their remains were almost certainly not the norm in the early-mid Roman period. It is quite possible that human remains were interspersed within the settlement or by some other means which has left little archaeological trace (cf. Shiptonthorpe; Taylor 1995). Human remains, including both infants and adults, which may represent a family unit, were commonly placed in ditches, and at the boundaries of and within house plots. At Hibaldstow, 5 adult inhumations were found near to the rear boundary of a roadside enclosure (Smith 1987, 115) and others have been noted at Ilchester (Leach 1982, 11, 62, fig. 35) and Braintree, for example (Drury 1976, figs. 2-3). Such burials are rarely accompanied by grave-goods (J.Pearce, pers.comm)

At Littleborough, finds by antiquarians in the 18th century included a 'samian urn' containing burnt bones and a coin of Domitian, discovered by Roger Gale from the foundations and pavements seen in the river bank in 1701 (Gale 1709, 96). The excavations at Littleborough by W.B.Clark in 1954-6 were designed specifically to locate burials adjacent to the Roman Road, but located only one a large pit containing two disturbed cremation deposits and a number of pots (Riley et al. 1995, 262).

The function of Marton / Littleborough in its landscape

Many of the functions necessary for the day-to-day running of the settlement would have taken place within or close the settlement, although without the excavation of stratified contexts, it is impossible to discuss factors such as the scale and organisation of manufacture. It is difficult to establish the degree of self-sufficiency at the settlement, although it can be assumed that a range of utilitarian goods were produced locally, either in domestic or industrial contexts, perhaps even by peripatetic workers. This would include the growing of crops, the rearing of stock and the repair, if not

necessarily the manufacture of a range of metal, leather, wood, glass, bone and textile items, although specialised production should not be excluded.

There is evidence for long-distance trade of goods to the settlement, such as samian ware and amphora, but it can be assumed that the majority of utilitarian, low-value commodities, by their very nature were not transported over long distances. The excavation of a number of pottery kilns close to Marton, suggets that the majority of pottery in use at the site on an everyday basis was manufactured within 5 miles of the site. It would appear that this small-scale pottery industry was not centred at a particular settlement, but extends along the river for approximately 8 miles at a number of sites. The organisational logistics behind this industry are unknown and it is unclear whether these kilns formed part of a network or were essentially independent of one another.

So far, this discussion has referred to the functions undertaken at Marton / Littleborough from an internal perspective. The external role of the settlement to those living in the area and outsiders travelling through is even more difficult to attribute, essentially because there is such a noticeable dearth in our understanding of rural settlement patterns in this area.

It has been argued that the location of Marton / Littleborough on a major Roman road and at a river crossing was the key to its development throughout the Roman period. Situated 14 miles from Lincoln, on the Roman road heading north, the settlement at Marton / Littleborough would probably be required to provide accomodation for official and other travellers passing through. It is possible that there was a mansio or inn, which could have been situated at either Marton or Littleborough, although this is yet to be identified. The range of services available to official visitors and travellers is unknown, although it is probable that horses could be changed here and that food could be aquired, goods purchased and repairs to equipment made. It is also feasible that this site was a centre for the collection of the *annona* in the 3rd century; a form of tax in kind which replaced tax in cash (Hingley 1989, 26). The discovery of the pair of forceps at Marton and the occulist stamp found at Littleborough, may suggest that

specialised medical treatment was also available at this site. However, it is also possible that this find represents the fact that a non-resident doctor died at this settlement and that his surgical equipment was buried with him.

The location of this settlement, equidistant from the kiln sites to the north and south may suggest that its role was as a local market centre at which both locally-produced and long-distance trade goods could be distributed (Hingley 1989, 25). It is interesting that all of the excavated kilns are located on the east side of the river; a factor likely to relate to the position of the settlement at Marton. Whilst there has been a relatively extensive investigation of these pottery kilns (see Chapter 4), their associated settlements have escaped both recognition and examination. Consequently it is unknown whether there were small settlements close to the kilns in which to house the pottery workers, or whether there was a series of substantial independent settlements.

The role of this site as a local religious centre is also possible. Whilst the evidence for religious activity at Marton is ambiguous, the sandstone altar found at Littleborough suggests more structured and formal religious activity. The siting of a religious centre on a major river crossing would not be unexpected.

The settlement at the end of the Roman period

The level of activity and change at the settlement in the later Roman period is very difficult to assess as the features detected in the air photographic and geophysical survey are morphologically undatable and many of the small finds are chronologically undiagnostic. However, the numismatic evidence suggests that the settlement continued, at least until the latest issues of Honorius and Arcadius were brought into Roman Britian in the early 5th century AD. The peaks in the coinage dating from A.D. 330-48 (190 coins) and A.D 364-78 (126 coins) is consistent with the pattern noted at many small town and temple sites in Roman Britain. The spatial distribution of these coins suggests a concentration of coin loss into Fields C and D. The end-date

for the production of pottery in this region is not sufficiently refined to indicate whether the industry continued into the last years of Roman Britain.

There is no evidence for Anglo-Saxon occupation at the site at Marton, although 4 sherds of Anglo-Saxon pottery were recovered during the excavations at Littleborough (Kinsley 1995, 283-4 fig.14). A discussion of the Medieval settlement at Marton is beyond the scope of this thesis. However, a number of relatively high-quality metal-detected Medieval finds, ncluding several brooches and a seal matrix found over the survey area suggest that the extent of the Medieval settlement may have extended beyond the bounds of the modern village.

Postscript

The primary objective of this study has been to explore the form and function of the Roman settlement complex at Marton. This study has demonstrated the value of integrating the sorts of data that are frequently considered in isolation. The geophysical and air photographic surveys have complemented each other in defining features such as enclosures, drove-ways and ditches. The surface-collected material has been shown not to be a random scatter across the site. Although, they are in broad agreement, there are interesting differentiations in the distribution of certain artefact categories, for example the contrasting distribution of small finds and coinage. This survey has also provided a good example of the benefits of cooperation between archaeologists and detectorists. Even on a site detected over many years, a large and varied database has still been recovered within a relatively short period of time. A more nuanced impression of the settlement has been achieved through this analysis, but this impression should perhaps be summarised as a series of hypotheses.

i) *Chronology.* The lack of Iron Age material in this area indicates that the site developed *de novo* in the Roman period. The enclosures in Field D were originally thought to be of Iron Age date, but the artefact assemblage instead suggests a Roman date. The Iron Age must be looked for elsewhere in this area, perhaps in the environs of Littleborough. Within the Marton site, the most interesting question relates to the

development of the settlement throughout the Roman period. The distribution of coinage suggests shifts of occupational emphasis over time; the excavation of enclosure features would further define this chronology.

ii) *Settlement form and function.* The two major questions concern the extent and density of occupation and the internal organisation of the settlement. The evidence suggests a pattern of ribbon development along the Roman road for 2.5km, with particular concentrations of occupation at Littleborough and in Field C, Marton. The internal organisation of the settlement is largely determined by the road, as the artefact densities and the geophysical / cropmark evidence indicated. There are also subsidiary droveways running at right angles to the road, one of which may have linked Marton with settlements to the north and south along the scarp edge. Occupation extended along this access route to the north. However, the series of enclosures situated in Field D suggest that the main road was not the only determining feature in the location of structures.

The presence of a fort is undoubted; what is less clear is its date, its relationship to the road and whether any civilian occupation of the site was contemporary with it. In relationship to settlement from the later 1st century onwards, there may have been a mansio or equivalent on the site, the evidence for which is its distance from Lincoln and its location on a major road as well as the reference to Littleborough in the Antonine Itinerary. Although the normal range of agricultural and artisan activity is likely to have been carried out on the site, there is some evidence for the concentration of particular activities to certain areas, suggested by the slag distribution and the density of possible strip-buildings in Field A. A cropmark structure, perhaps a shrine lies in Field D.

iii) *Marton in the landscape.* Marton, like many other similar-sized settlements probably acted as a local market centre, perhaps with the role of intermediary for the local pottery industry, and as a local religious focus. The Littleborough site might have had a wider religious importance due to its position at the boundary which the Trent undoubtedly formed. A villa in close proximity to the site is not a necessity, but there are several local candidates which would repay further consideration.

Inevitably, this investigation has provoked a series of questions that have not been answered by the present survey. In the future, further geophysical survey and fieldwalking as well as geochemical survey (cf. Taylor 1995) may elucidate these factors, although in some instances, excavation would be necessary.

This survey has provided a provocative glimpse into the history of the Roman settlement at Marton and Littleborough. The results and hypotheses arrived at concerning the function of the site are based upon current information but are open to future reinterpretation; inconclusiveness is an endearing feature of archaeological investigation.

Appendix 1

List of aerial photographs used

All photographs used are University of Cambridge, copyright reserved

Fig. 2.3	BUM 014
Fig. 2.7	BUM 026
Fig. 2.10	BQV 020
Fig. 2.11	BQV 003
Fig. 2.15	BQQ 084

APPENDIX 2

1993 Pottery Database

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
1A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	7	152	0	0	8	86	1	34
1B	0	0	1	32	0	0	0	0	1	2	3	20	0	0	6	66	2	24	13	138	1	40
1C	0	0	0	0	0	0	0	0	2	12	0	0	0	0	10	108	0	0	9	78	2	34
1D	0	0	1	8	0	0	0	0	3	46	4	42	0	0	27	264	0	0	3	8	0	0
1E	0	0	0	0	0	0	1	8	8	26	0	0	2	20	24	220	2	6	4	36	3	124
1F	0	0	0	0	0	0	0	0	1	2	1	6	0	0	13	150	0	0	3	36	1	114
1G	0	0	0	0	3	4	1	2	5	34	4	22	1	4	14	166	1	2	0	0	0	0
1H	0	0	1	6	1	1	0	0	3	8	3	58	1	4	8	64	1	4	3	20	1	42
1I	0	0	0	0	0	0	1	6	2	4	2	6	2	6	7	62	1	6	1	4	0	0
1J	0	0	0	0	0	0	0	0	1	8	0	0	0	0	2	78	1	2	2	20	2	48
TOTAL	0	0	3	46	5	6	3	16	26	142	17	154	6	34	118	1330	8	44	46	426	11	436
2A	0	0	0	0	0	0	0	0	0	0	1	10	0	0	5	56	0	0	5	38	0	0
2B	0	0	0	0	0	0	0	0	0	0	1	6	0	0	12	230	0	0	4	38	1	36
2C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	54	0	0
2D	0	0	0	0	0	0	0	0	0	0	2	24	2	38	9	82	1	6	1	1	0	0
2E	0	0	0	0	0	0	2	144	1	1	3	12	0	0	11	146	0	0	1	6	0	0
2F	0	0	0	0	1	2	0	0	0	0	1	6	0	0	6	46	1	2	1	4	0	0
2G	0	0	0	0	1	4	0	0	1	1	1	4	0	0	17	132	0	0	3	27	0	0
2H	0	0	0	0	0	0	0	0	2	16	5	26	0	0	20	142	0	0	2	36	0	0
2I	0	0	0	0	0	0	0	0	1	1	1	4	1	2	9	38	0	0	8	66	0	0
2J	0	0	0	0	1	1	0	0	1	0.5	3	26	0	0	15	140	1	14	1	1	0	0
TOTAL	0	0	0	0	3	6	2	144	6	19.5	18	118	3	40	104	1012	3	22	31	271	1	36
3A	0	0	0	0	0	0	0	0	0	0	1	12	0	0	6	84	1	15	3	19	4	56
3B	1	22	0	0	0	0	0	0	1	6	0	0	0	0	6	188	5	96	8	78	2	58
3C	0	0	0	0	0	0	0	0	0	0	0	0	1	4	4	58	0	0	3	76	1	140
3D	2	78	0	0	0	0	0	0	0	0	0	0	0	0	6	42	0	0	0	0	1	6
3E	0	0	0	0	0	0	0	0	1	8	2	18	0	0	10	92	0	0	0	0	4	22

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
3F	0	0	0	0	0	0	1	24	4	36	1	6	0	0	4	58	0	0	0	0	2	160
3G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3H	0	0	1	18	1	10	0	0	0	0	1	8	0	0	8	118	0	0	2	8	3	120
3I	0	0	0	0	2	1	1	12	2	10	1	2	0	0	9	98	5	26	1	36	1	68
3J	0	0	1	26	0	0	0	0	0	0	1	12	0	0	0	0	2	14	2	18	0	0
TOTAL	3	100	2	44	3	11	2	36	8	60	7	58	1	4	53	738	13	151	19	235	18	630
4A	0	0	0	0	1	8	1	2	1	1	0	0	0	0	3	66	0	0	16	154	2	48
4B	0	0	0	0	0	0	0	0	2	18	0	0	0	0	10	150	0	0	24	338	3	84
4C	1	22	1	32	0	0	0	0	0	0	0	0	0	0	12	162	0	0	6	92	0	0
4D	0	0	1	42	0	0	1	4	2	8	0	0	0	0	7	58	0	0	2	2	2	108
4E	0	0	0	0	1	1	0	0	1	1	0	0	1	4	20	130	0	0	2	16	0	0
4F	0	0	0	0	2	1	0	0	3	12	4	34	0	0	13	182	0	0	3	90	0	0
4G	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	2	38	0	0
4H	0	0	0	0	1	0.5	0	0	0	0	1	10	0	0	11	132	1	10	0	0	2	42
4I	0	0	0	0	0	0	0	0	0	0	2	48	0	0	3	44	1	4	3	48	0	0
4J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	2	26	0	0
TOTAL	1	22	2	74	6	14.5	2	6	9	40	7	92	1	4	82	927	2	14	60	804	9	282
5A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	58	4	28	11	188	0	0
5B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	27	5	30	2	8	1	170
5C	0	0	0	0	1	1	0	0	2	4	0	0	0	0	11	162	0	0	3	8	0	0
5D	0	0	1	16	1	1	0	0	3	20	1	10	0	0	2	30	1	4	0	0	1	62
5E	0	0	0	0	3	6	0	0	8	30	2	14	0	0	4	52	0	0	1	14	0	0
5F	0	0	0	0	0	0	0	0	0	0	1	1	0	0	11	108	0	0	1	12	1	60
5G	0	0	0	0	1	1	0	0	0	0	1	8	2	16	6	44	0	0	0	0	1	32
5H	0	0	0	0	0	0	0	0	1	4	3	6	0	0	7	120	0	0	1	12	2	210
5I	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	340	3	86	1	4	0	0
5J	0	0	0	0	1	1	0	0	0	0	0	0	0	0	5	54	0	0	7	62	0	0

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
TOTAL	0	0	1	16	8	11	0	0	14	58	8	39	2	16	56	995	13	148	27	308	6	534
6A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	4	40	0	0
6B	0	0	0	0	0	0	0	0	1	10	0	0	0	0	6	54	0	0	0	0	0	0
6C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	17	1	4	0	0	0	0
6D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	1	18	0	0
6E	0	0	0	0	0	0	0	0	0		0	0	0	0	8	76	0	0	1	6	0	0
6F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	0	0	0	0	2	48
6G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	1	2	0	0
6H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	2	6	1	4	0	0
6I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	28	0	0	1	8	0	0
6J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	74	0	0
TOTAL	0	0	0	0	0	0	0	0	1	10	0	0	0	0	32	232	6	34	12	152		
7A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	12	0	0	3	10	0	0
7C	0	0	0	0	1	1	0	0	1	6	0	0	0	0	1	26	0	0	2	22	0	0
7D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	30	1	1	0	0	0	0
7E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	24	3	4	1	2	0	0
7F	0	0	0	0	0	0	0	0	1	1	1	2	0	0	3	18	2	4	2	10	0	0
7G	0	0	0	0	1	10	0	0	1	1	2	20	0	0	5	34	1	8	3	120	0	0
7H	0	0	0	0	3	6	0	0	1	4	0	0	0	0	6	36	3	20	3	82	0	0
7I	0	0	0	0	0	0	0	0	0	0	1	8	0	0	5	48	5	28	3	104	0	0
7J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	28	0	0	2	20	2	10
TOTAL	0	0	0	0	5	17	0	0	5	13	4	30	0	0	33	256	15	65	19	370	2	10
8A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
8D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0
9E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	0	0	3	20	0	0
9F	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	4	3	20	1	2	0	0
9G	0	0	0	0	0	0	0	0	2	6	0	0	0	0	5	76	0	0	0	0	1	16
9H	0	0	0	0	0	0	0	0	1	1	1	8	0	0	2	8	0	0	2	24	0	0
9I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0	0
TOTAL	0	0	0	0	0	0	0	0	5	8	1	8	0	0	14	113	3	20	7	48	1	16
10A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	12	0	0	1	2	1	16
10F	0	0	0	0	1	1	0	0	1	20	0	0	0	0	0	0	0	0	1	80	0	0
10G	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	1	4	0	0
TOTAL	0	0	0	0	2	2	0	0	2	21	0	0	0	0	4	13	0	0	3	86	1	16
11A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11E	0	0	0	0	0	0	0	0	1	6	0	0	0	0	5	42	0	0	2	16	0	0

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
11F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	24	2	4	1	4	0	0
TOTAL	0	0	0	0	0	0	0	0	1	6	0	0	0	0	9	66	2	4	3	20	0	0

Areas of total collection

UNIT	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)
D (0-20m)	2	24	0	0	3	2	0	0	5	12	5	30	2	12	27	232	1	2	3	28	0	0
E (0-20m)	0	0	0	0	6	26	1	20	9	26	7	84	2	18	46	456	6	62	4	42	3	166
F (0-20m)	0	0	2	38	14	24	6	18	41	152	7	48	10	46	124	987	19	66	11	48	21	226
G (0-20m)	0	0	0	0	8	14	5	26	23	114	2	18	8	84	149	1100	23	116	9	70	9	120
G (20-40m)	0	0	0	0	8	24	4	34	14	53	8	38	7	96	68	814	7	82	8	78	2	140
G (40-60m)	0	0	0	0	4	18	2	12	19	116	8	68	4	90	64	584	9	58	12	198	3	100
G (60-80m)	0	0	0	0	4	6	0	0	2	18	2	18	0	0	31	278	3	8	10	88	3	66
H (0-20m)	0	0	0	0	6	15	7	23	23	98	8	120	7	40	85	898	16	50	9	48	4	65
I (0-20m)	0	0	0	0	5	12	2	32	10	40	8	98	3	16	58	540	12	56	2	48	1	16
J (0-20m)	0	0	1	10	1	8	0	0	10	88	5	24	3	26	50	844	6	42	16	132	1	30
TOTAL	2	24	3	48	59	149	27	165	156	717	60	546	46	428	702	6733	102	542	84	780	47	929

APPENDIX 2 (cont)

1995 Pottery Database

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
1S	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0	0	0	0
1A	0	0	0	0	1	1	1	1	1	12	0	0	1	4	11	66	0	0	0	0	1	16	0	0
1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	108
1C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	10	0	0	0	0	0	0
1D	0	0	0	0	0	0	0	0	1	2	0	0	0	0	6	28	0	0	2	26	1	20	0	0
1E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1F	0	0	0	0	0	0	0	0	0	0	1	12	0	0	1	1	0	0	1	10	0	0	0	0
TOTAL	0	0	0	0	1	1	1	1	2	14	1	12	2	6	20	97	3	11	4	38	2	36	1	108
2S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	16	0	0	0	0	0	0	0	0
2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	1	1	1	34	0	0
2C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	1	148	0	0
2D	0	0	0	0	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	1	412
2E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	308	0	0
2F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	52	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	1	2	1	12	0	0	6	56	0	0	2	53	5	490	1	412
3S	0	0	0	0	0	0	0	0	0	0	1	8	1	8	2	6	1	4	0	0	2	74	0	0
3A	0	0	0	0	0	0	1	2	2	8	0	0	1	20	5	74	0	0	2	2	2	160	1	10
3B	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	5	12	0	0	0	0
3C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	26	0	0	3	14	0	0	0	0
3D	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	8	0	0	1	1	3	64	3	214
3E	0	0	0	0	0	0	1	1	1	4	1	10	0	0	0	0	0	0	4	18	2	56	0	0
3F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	22	4	150	1	74
TOTAL	0	0	0	0	0	0	3	4	3	12	3	22	2	28	13	115	1	4	18	69	13	504	5	298
4S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4A	0	0	0	0	0	0	0	0	1	1	1	4	0	0	3	10	1	2	5	20	0	0	0	0
4B	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	54	1	68	0	0
4C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	12	0	0	1	12	2	38	0	0
4D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	1	1	1	1	0	0	0	0
4E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	82	0	0	0	0	1	38	0	0
4F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	5	554	0	0
TOTAL	0	0	0	0	0	0	1	2	1	11	1	4	0	0	14	124	2	3	11	87	9	698	0	0
5S	0	0	0	0	0	0	0	0	0	0	0	0	1	38	9	68	0	0	2	2	0	0	0	0
5A	0	0	1	42	0	0	0	0	1	4	3	32	1	22	20	194	0	0	3	16	2	94	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
5B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20	0	0	2	36
5D	0	0	0	0	0	0	0	0	0	0	0	0	1	10	3	6	2	2	2	2	0	0	0	0
5E	0	0	0	0	0	0	1	2	4	10	0	0	0	0	6	24	0	0	1	10	0	0	1	10
5F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	0	0	1	16	2	170	1	144
TOTAL	0	0	1	42	0	0	1	2	5	14	3	32	3	70	41	300	2	2	11	66	4	264	4	190
6S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	23	0	0	1	1	0	0	0	0
6A	0	0	0	0	0	0	0	0	0	0	3	40	0	0	5	38	1	8	3	18	2	124	0	0
6B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	0	0	5	22	0	0	0	0
6B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	2	20	0	0	0	0
6C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	14	0	0	0	0	1	166	0	0
6F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	52	0	0
TOTAL	0	0	0	0	0	0	0	0	1	1	3	40	0	0	13	111	1	8	12	62	5	342	0	0
7S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	82	0	0
7A	0	0	0	0	1	2	0	0	4	12	0	0	0	0	4	72	0	0	6	40	3	158	0	0
7B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	56	0	0	5	34	2	104	0	0
7C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	2	1	0	0	0	0
7D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	2	8	2	10	0	0	0	0
7E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	1	406	0	0
7F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	1	14
TOTAL	0	0	0	0	1	2	0	0	5	13	0	0	0	0	13	165	4	9	15	85	8	750	1	14
8S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8A	0	0	0	0	1	3	0	0	0	0	3	8	2	38	6	125	1	1	7	94	2	22	0	0
8B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16	3	32	3	32	1	58	0	0
8C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	98	0	0
8D	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	44	0	0
8F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	3	0	0	1	6	3	8	2	38	12	161	4	33	11	134	6	222	0	0
9S	0	0	0	0	0	0	0	0	1	1	0	0	1	10	3	34	0	0	1	2	1	12	0	0
9A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	26	1	8	0	0	0	0	0	0
9B	0	0	1	10	0	0	0	0	0	0	0	0	0	0	9	78	2	4	3	6	3	82	1	4
9C	0	0	0	0	0	0	0	0	1	1	1	4	0	0	4	38	0	0	4	24	1	34	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
9D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	50	0	0	0	0	0	0	0	0
9E	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	18	1	6	1	2
9F	0	0	0	0	0	0	1	1	1	1	2	8	0	0	6	46	1	1	2	2	2	62	0	0
TOTAL	0	0	1	10	1	1	1	1	3	3	3	12	1	10	29	272	4	13	12	52	8	196	2	6
10S	0	0	0	0	0	0	0	0	0	0	0	0	1	12	1	4	1	12	0	0	1	20	0	0
10A	0	0	0	0	0	0	0	0	2	8	0	0	0	0	8	134	0	0	0	0	1	196	0	0
10B	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	12	1	22	1	24	0	0	0	0
10C	0	0	0	0	1	2	0	0	1	2	0	0	0	0	1	4	0	0	1	8	1	58	0	0
10D	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	0	0	0	0	0	0	0	0
10E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	2	0	0	5	36	0	0	1	12	16	196	2	34	2	32	3	274	0	0
11S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	74	0	0	3	30	1	106	0	0
11A	0	0	0	0	1	1	0	0	1	6	0	0	1	20	2	6	1	4	3	4	1	22	0	0
11B	0	0	0	0	0	0	0	0	2	32	0	0	0	0	4	52	0	0	4	26	2	154	0	0
11C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	1	1	0	0	0	0
11E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	32	0	0	0	0	1	22	0	0
11E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
11F	0	0	0	0	0	0	1	38	2	14	1	2	0	0	3	18	0	0	7	76	2	26	0	0
TOTAL	0	0	0	0	1	1	1	38	5	52	1	2	1	20	20	192	1	4	18	137	7	330	0	0
12S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12A	1	36	0	0	0	0	0	0	1	12	0	0	0	0	6	68	0	0	1	1	1	8	0	0
12B	0	0	0	0	2	2	0	0	1	10	0	0	0	0	10	112	1	10	0	0	0	0	0	0
12C	0	0	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	1	8	0	0	0	0
12D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	1	10	2	1	0	0	0	0
12E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	0	0	0	0
12F	0	0	0	0	0	0	0	0	0	0	1	14	0	0	3	46	0	0	1	24	1	112	0	0
TOTAL	1	36	0	0	2	2	0	0	3	34	1	14	0	0	20	232	2	20	6	52	2	120	0	0
13S	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	6	0	0	1	4	0	0	0	0
13A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	9	172	0	0	1	10	1	16	0	0
13B	0	0	1	30	1	2	1	2	0	0	1	32	0	0	12	110	2	18	2	38	2	98	0	0
13C	0	0	0	0	0	0	0	0	1	1	0	0	0	0	6	32	0	0	3	18	0	0	0	0
13D	0	0	0	0	0	0	0	0	3	6	0	0	0	0	7	48	1	6	0	0	0	0	0	0
13E	0	0	0	0	1	2	0	0	0	0	1	1	0	0	1	2	2	12	1	16	0	0	0	0
13F	0	0	0	0	3	4	0	0	0	0	1	2	0	0	10	38	2	18	1	34	3	72	2	38

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
TOTAL	0	0	1	30	6	9	1	2	4	7	4	36	0	0	47	408	7	54	9	120	6	186	2	38
14S	0	0	0	0	0	0	0	0	1	4	1	12	0	0	0	0	0	0	0	0	0	0	0	0
14A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	22	0	0	0	0	0	0	0	0
14B	0	0	0	0	0	0	0	0	2	14	0	0	0	0	2	6	0	0	3	60	1	218	0	0
14C	0	0	0	0	1	16	0	0	2	16	0	0	0	0	0	0	0	0	1	2	0	0	0	0
14C	0	0	0	0	0	0	0	0	0	0	1	12	0	0	1	4	0	0	1	20	2	46	0	0
14D	0	0	0	0	0	0	0	0	0	0	1	12	0	0	1	1	0	0	0	0	1	12	1	16
14F	0	0	0	0	0	0	0	0	1	2	1	4	0	0	1	16	0	0	2	72	2	54	1	124
14F	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	2	0	0	1	6	1	28	0	0
TOTAL	0	0	0	0	1	16	0	0	7	44	3	28	0	0	9	51	0	0	8	160	7	358	2	140
15S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	50	0	0	0	0	0	0	0	0
15A	0	0	0	0	0	0	0	0	2	8	1	2	0	0	5	38	0	0	2	12	5	84	0	0
15B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	50	0	0	0	0	3	200	0	0
15C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	10	2	8	0	0	1	16	0	0
15D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15E	0	0	0	0	1	1	0	0	1	1	0	0	0	0	2	4	0	0	2	8	0	0	0	0
15F	0	0	0	0	0	0	0	0	1	4	0	0	0	0	1	14	0	0	2	18	3	76	0	0
TOTAL	0	0	0	0	1	1	0	0	4	13	1	2	0	0	21	166	2	8	6	38	12	376	0	0
16S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	4	1	2	4	22	0	0	0	0
16B	0	0	0	0	1	1	0	0	3	6	1	8	0	0	3	26	0	0	2	6	1	26	0	0
16C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	4	2	44	0	0
16D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	0	0	1	20	0	0	0	0
16D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	14	2	24	0	0
16F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	20	0	0
16F	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	1	10	3	150	0	0	0	0
TOTAL	0	0	0	0	1	1	0	0	6	16	1	8	0	0	7	60	2	12	15	216	6	114	0	0
17S	0	0	0	0	1	4	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0
17A	0	0	0	0	0	0	2	16	2	24	3	7	0	0	6	30	2	2	2	6	0	0	0	0
17B	0	0	0	0	1	1	0	0	1	1	1	18	0	0	10	72	0	0	1	1	1	20	1	80
17C	0	0	0	0	2	1	0	0	1	1	0	0	0	0	2	18	0	0	3	24	2	164	0	0
17D	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	12	0	0	1	44	0	0	0	0
17E	0	0	0	0	0	0	0	0	0	0	1	8	0	0	3	22	0	0	0	0	0	0	0	0
17F	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	3	28	3	132	0	0
17G	0	0	0	0	1	2	1	1	1	1	0	0	0	0	11	62	0	0	5	12	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
TOTAL	0	0	0	0	5	8	4	27	6	28	5	33	0	0	38	222	2	2	15	115	6	316	1	80
18S	0	0	0	0	2	2	0	0	1	20	2	18	1	4	7	54	0	0	5	32	0	0	0	0
18A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18B	0	0	0	0	0	0	0	0	1	4	0	0	0	0	4	70	1	10	0	0	0	0	0	0
18C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22	0	0	0	0	1	106	0	0
18D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	20	0	0
18E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20	0	0	0	0	0	0	0	0
18F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
18G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	20	0	0	4	142	0	0	0	0
TOTAL	0	0	0	0	2	2	0	0	2	24	2	18	1	4	20	188	1	10	10	175	2	126	0	0
19S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	0	0	0	0	0	0	0	0
19A	0	0	1	10	0	0	0	0	0	0	0	0	1	2	3	14	0	0	2	1	2	88	0	0
19B	0	0	0	0	0	0	0	0	1	108	0	0	0	0	2	6	0	0	2	32	4	88	0	0
19C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	1	14	0	0
19E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	4	1	16	1	1	0	0	1	60
19F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	30	2	46	1	58
19G	0	0	0	0	1	1	0	0	1	1	0	0	1	4	1	4	0	0	4	50	2	44	0	0
TOTAL	0	0	1	10	1	1	0	0	3	110	0	0	2	6	13	44	1	16	10	114	11	280	2	118
20S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20A	0	0	0	0	0	0	0	0	1	4	0	0	0	0	3	28	1	20	3	56	1	30	0	0
20B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	16	1	22	0	0	1	20	0	0
20C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	142	0	0
20D	0	0	0	0	2	2	0	0	3	10	3	10	0	0	3	74	3	14	0	0	1	50	0	0
20E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	118	0	0
20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	4	0	0	0	0
20G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	10	2	72	1	12	0	0
TOTAL	0	0	0	0	2	2	0	0	5	15	3	10	0	0	10	136	7	70	6	132	6	372	0	0
21S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21A	0	0	0	0	0	0	0	0	1	2	1	2	1	20	6	44	0	0	4	34	0	0	0	0
21B	0	0	0	0	1	1	0	0	2	18	0	0	0	0	6	32	1	16	2	16	1	172	0	0
21C	0	0	0	0	0	0	1	2	0	0	0	0	0	0	4	30	2	10	0	0	2	54	1	48
21D	0	0	0	0	0	0	1	32	1	1	0	0	0	0	3	38	0	0	2	6	0	0	0	0
21E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	60	0	0	0	0	1	48	0	0
21F	0	0	0	0	0	0	0	0	0	0	1	4	0	0	7	126	0	0	1	34	0	0	3	40

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
21G	0	0	0	0	0	0	1	2	1	2	0	0	0	0	3	28	0	0	0	0	0	0	1	10
TOTAL	0	0	0	0	1	1	3	36	5	23	2	6	1	20	34	358	3	26	9	90	4	274	5	98
22S																								
22A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	92	0	0	2	20	0	0	0	0
22B	0	0	0	0	0	0	1	12	0	0	0	0	0	0	1	2	0	0	1	4	1	140	0	0
22C	0	0	0	0	0	0	0	0	1	1	0	0	0	0	11	150	0	0	1	6	0	0	0	0
22D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	108	0	0	0	0	0	0	0	0
22E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	16	0	0	1	8	0	0	0	0
22E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	30	0	0	5	150	1	166	0	0
22F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	0	0
TOTAL																								
23S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
23A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22	0	0	2	20	3	154	0	0
23B	0	0	0	0	1	1	0	0	3	4	0	0	0	0	3	12	0	0	4	30	1	14	0	0
23C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	24	0	0	1	2	4	346	1	2
23D	0	0	0	0	1	1	1	1	0	0	0	0	0	0	2	10	0	0	1	4	4	126	0	0
23E	0	0	0	0	0	0	0	0	1	16	0	0	0	0	1	4	0	0	4	60	3	128	0	0
23F	1	18	0	0	0	0	1	6	2	8	0	0	0	0	3	6	0	0	1	2	2	28	1	2
23G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	30	0	0	1	1	3	230	0	0
TOTAL	1	18	0	0	2	2	2	7	6	28	0	0	0	0	22	108	0	0	15	121	20	1026	2	4
24S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	2	30	1	18	0	0
24B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24C	0	0	0	0	0	0	0	0	1	1	0	0	0	0	8	95	0	0	3	8	0	0	0	0
24D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	1	100
24E	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	20	0	0	0	0	0	0
24F	0	0	0	0	0	0	0	0	1	22	0	0	0	0	1	6	0	0	2	18	0	0	0	0
24G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	1	62	2	28	0	0
TOTAL	0	0	0	0	1	1	0	0	2	23	0	0	0	0	14	130	1	20	8	118	3	46	1	100
25S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	34	0	0	0	0
25A	0	0	0	0	0	0	0	0	3	28	0	0	2	12	4	24	1	2	0	0	2	88	0	0
25B	1	32	0	0	1	1	0	0	0	0	0	0	0	0	7	79	0	0	0	0	2	84	0	0
25C	0	0	0	0	0	0	1	4	2	8	0	0	0	0	10	88	1	4	2	12	0	0	0	0
25D	0	0	0	0	0	0	0	0	1	1	0	0	0	0	10	144	0	0	2	6	0	0	0	0
25E	0	0	0	0	0	0	0	0	0	0	0	0	1	10	6	52	0	0	0	0	2	92	2	90

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
25F	0	0	0	0	2	10	0	0	0	0	0	0	1	2	3	38	0	0	0	0	0	0	1	14
25G	0	0	0	0	1	1	0	0	0	0	0	0	0	0	8	72	0	0	2	18	0	0	2	22
TOTAL	1	32	0	0	4	12	1	4	6	37	0	0	4	24	48	497	2	6	8	70	6	264	5	126
26S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26A	0	0	0	0	1	8	0	0	2	10	0	0	0	0	13	132	1	12	0	0	0	0	0	0
26B	0	0	0	0	0	0	0	0	1	16	0	0	0	0	11	106	0	0	0	0	0	0	0	0
26C	0	0	0	0	0	0	0	0	0	0	3	12	0	0	6	76	0	0	0	0	0	0	0	0
26D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	34	0	0	0	0	1	46	0	0
26E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24	0	0	1	1	1	98	0	0
26F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	84	0	0	0	0	0	0	0	0
26G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	32	0	0	1	8	1	20	0	0
TOTAL	0	0	0	0	1	8	0	0	3	26	3	12	0	0	45	488	1	12	2	9	3	164	0	0
27S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	0	0	0	0	1	8	0	0
27A	0	0	1	24	0	0	0	0	0	0	0	0	0	0	3	28	0	0	2	129	5	138	0	0
27B	0	0	0	0	1	6	0	0	1	1	0	0	0	0	3	18	0	0	1	10	8	262	0	0
27C	0	0	0	0	1	2	1	14	0	0	0	0	0	0	3	18	0	0	1	20	3	132	1	1
27D	0	0	0	0	2	3	0	0	0	0	1	10	0	0	5	56	1	4	3	36	1	34	0	0
27E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	196	0	0
27F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	0	0	1	2	2	62	0	0
27G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	48	2	910	0	0
TOTAL	0	0	1	24	4	11	1	14	1	1	1	10	0	0	19	143	1	4	11	245	25	1742	1	1
28S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
28A	0	0	0	0	0	0	0	0	0	0	1	8	0	0	2	34	0	0	1	78	0	0	0	0
28B	0	0	0	0	1	4	0	0	0	0	1	4	0	0	5	44	0	0	0	0	0	0	0	0
28C	0	0	0	0	1	10	0	0	0	0	0	0	0	0	8	88	0	0	1	8	1	76	0	0
28D	0	0	0	0	0	0	1	4	1	1	0	0	0	0	2	8	0	0	0	0	1	94	0	0
28E	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	14	0	0	2	2	2	118	0	0
28F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	42	0	0	4	6	0	0	0	0
28G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	6	32	1	30	0	0
TOTAL	0	0	0	0	2	14	1	4	2	3	2	12	0	0	23	250	0	0	14	126	5	318	0	0
29S	0	0	0	0	0	0	0	0	1	1	1	2	0	0	5	14	0	0	0	0	0	0	0	0
29A	0	0	1	4	0	0	0	0	1	1	4	20	3	22	10	52	1	1	0	0	1	304	1	10
29B	1	38	0	0	0	0	0	0	1	1	3	14	0	0	7	34	0	0	1	20	1	24	0	0
29C	0	0	1	34	0	0	1	1	0	0	1	2	3	16	4	12	2	20	1	14	2	7	0	0
29D	0	0	0	0	0	0	1	32	1	1	0	0	0	0	5	32	0	0	2	18	0	0	1	14

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
29D	0	0	0	0	0	0	0	0	0	0	0	0	2	20	8	48	0	0	0	0	0	0	1	28
29E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29G	0	0	0	0	1	1	0	0	1	1	0	0	0	0	4	44	0	0	0	0	0	0	1	32
29H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	1	0	0	0	0
TOTAL	1	38	2	38	1	1	2	33	5	5	9	38	8	58	44	238	3	21	5	53	4	335	4	84
30S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	40	0	0	0	0	1	78	0	0
30A	0	0	0	0	0	0	0	0	1	2	1	4	1	6	6	86	1	49	2	12	1	28	0	0
30B	0	0	0	0	0	0	0	0	1	2	1	4	0	0	1	30	0	0	0	0	0	0	0	0
30C	0	0	0	0	0	0	0	0	1	2	1	22	0	0	4	32	0	0	0	0	0	0	0	0
30D	0	0	0	0	0	0	1	4	0	0	0	0	1	8	5	36	0	0	2	20	0	0	0	0
30E	0	0	0	0	0	0	1	4	1	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0
30F	0	0	0	0	0	0	0	0	1	2	1	14	0	0	0	0	0	0	0	0	0	0	0	0
30G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	46	0	0	0	0	0	0	0	0
30H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	42	0	0	1	1	0	0	0	0
TOTAL	0	0	0	0	0	0	2	8	5	9	4	44	2	14	27	314	1	49	5	33	2	106	0	0
31S	1	22	0	0	0	0	0	0	1	2	0	0	1	2	8	40	0	0	0	0	0	0	0	0
31A	0	0	0	0	0	0	0	0	2	4	1	4	0	0	3	24	0	0	1	8	2	846	0	0
31B	0	0	1	24	1	1	0	0	6	8	0	0	0	0	6	58	1	1	1	10	6	212	0	0
31C	0	0	0	0	1	1	1	4	0	0	0	0	1	80	1	12	0	0	2	18	4	190	0	0
31D	0	0	0	0	0	0	0	0	0	0	1	6	0	0	3	70	0	0	0	0	2	40	0	0
31E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	32	0	0	0	0
31F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	12	1	80	0	0
31G	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	298	0	0	0	0
31H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	3	120	0	0
31I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	2	12	0	0
TOTAL	1	22	1	24	2	2	1	4	10	16	2	10	2	82	24	212	1	1	14	394	20	1500	0	0
32S	0	0	0	0	0	0	0	0	1	2	0	0	1	6	3	14	1	6	0	0	1	18	0	0
32A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	4	3	242	0	0
32B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	18	0	0	3	18	4	552	0	0
32C	1	4	0	0	0	0	0	0	0	0	1	6	0	0	2	8	0	0	0	0	0	0	1	1
32D	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	2	74	0	0
32E	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32F	0	0	0	0	1	4	0	0	2	2	0	0	0	0	3	20	0	0	1	1	0	0	1	20
32G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	18	0	0	1	50
32G	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	1	2	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
TOTAL	1	4	0	0	1	4	0	0	7	15	1	6	2	12	14	63	1	6	10	43	10	886	3	71
33S	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0
33A	0	0	0	0	0	0	0	0	3	10	0	0	0	0	11	90	0	0	2	10	0	0	0	0
33B	0	0	0	0	1	1	0	0	2	2	0	0	1	4	15	142	1	2	0	0	0	0	0	0
33C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	148	0	0	0	0	1	38	0	0
33D	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	4	2	8	1	20	0	0	0	0
33E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16	0	0	0	0
33F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33H	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	1	0	0	7	13	3	9	1	4	41	384	3	10	5	46	1	38	0	0
34S	0	0	2	28	0	0	0	0	5	12	0	0	0	0	4	44	0	0	0	0	1	56	0	0
34A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34B	0	0	0	0	0	0	0	0	1	8	2	10	1	8	8	76	0	0	0	0	2	148	0	0
34C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	26	0	0	1	8	0	0	0	0
34D	0	0	0	0	0	0	0	0	0	0	0	0	1	20	2	42	0	0	1	22	0	0	0	0
34E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0	0	0	0	0
TOTAL	0	0	2	28	0	0	0	0	6	20	2	10	2	28	22	198	0	0	2	30	3	204	0	0
35S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	6	24	1	4	1	8	0	0	1	98
35A	0	0	0	0	0	0	1	2	0	0	0	0	1	16	3	16	0	0	2	14	0	0	1	12
35B	0	0	0	0	0	0	1	2	1	6	2	14	0	0	2	24	0	0	2	44	4	196	0	0
35C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	1	18	2	6	1	12	0	0
35D	0	0	0	0	0	0	1	2	0	0	1	2	0	0	4	122	0	0	3	12	0	0	0	0
35E	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
35F	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	3	10	0	0	0	0
35G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28	0	0	6	20	0	0	0	0
35H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35I	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	18	1	1
TOTAL	0	0	1	6	1	1	3	6	2	7	3	16	1	16	17	228	2	22	20	115	6	226	3	111
36S	0	0	0	0	0	0	1	16	0	0	1	1	0	0	5	32	0	0	0	0	1	44	0	0
36A	0	0	0	0	2	8	0	0	1	2	0	0	0	0	1	8	0	0	0	0	0	0	0	0
36B	0	0	0	0	0	0	0	0	1	4	1	14	0	0	0	0	0	0	1	4	2	68	0	0
36C	0	0	0	0	1	6	0	0	1	1	1	14	0	0	4	28	0	0	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
36D	0	0	0	0	0	0	0	0	0	0	0	0	1	8	3	16	0	0	0	0	2	44	1	18
36E	0	0	0	0	0	0	0	0	0	0	1	4	0	0	3	50	0	0	1	1	1	88	0	0
36F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	3	6	0	0	0	0
36G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24	0	0	0	0
36H	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	6	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	3	14	1	16	4	8	4	33	1	8	18	144	0	0	6	35	6	244	1	18
37S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24	0	0
37A	0	0	0	0	0	0	1	6	2	4	0	0	0	0	11	80	0	0	0	0	1	14	0	0
37B	0	0	0	0	1	1	0	0	4	4	0	0	1	4	13	264	0	0	0	0	0	0	2	32
37C	0	0	0	0	0	0	0	0	2	2	0	0	1	26	11	110	0	0	0	0	0	0	0	0
37D	0	0	0	0	2	12	0	0	1	1	0	0	0	0	3	12	0	0	0	0	0	0	1	12
37E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37F	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
37G	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
37H	0	0	0	0	0	0	1	34	0	0	0	0	0	0	1	44	0	0	0	0	1	36	0	0
TOTAL	0	0	0	0	3	13	2	40	10	12	2	3	2	30	39	510	0	0	0	0	3	74	3	44
38S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38A	0	0	0	0	0	0	0	0	1	10	0	0	1	1	5	36	0	0	0	0	0	0	0	0
38B	0	0	0	0	1	1	0	0	0	0	0	0	1	12	13	154	0	0	2	18	0	0	0	0
38C	0	0	0	0	0	0	0	0	1	1	2	30	1	18	3	20	0	0	0	0	0	0	0	0
38D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	0	0	0	0
38E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	44	0	0	1	2	0	0	0	0
38H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	50	0	0	0	0	0	0	0	0
38I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	1	0	0	2	11	2	30	3	31	27	314	0	0	4	32	0	0	0	0
39S	0	0	0	0	0	0	0	0	0	0	1	8	1	8	1	2	0	0	0	0	0	0	0	0
39A	0	0	0	0	0	0	0	0	2	1	2	12	2	6	5	24	0	0	4	30	1	54	1	6
39B	0	0	0	0	2	1	1	8	0	0	2	46	0	0	4	44	1	28	0	0	2	180	0	0
39C	0	0	0	0	1	1	0	0	0	0	1	6	0	0	2	22	0	0	2	26	0	0	0	0
39D	0	0	0	0	0	0	1	4	1	2	0	0	0	0	0	0	0	0	2	6	4	278	0	0
39E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	4	1	78	0	0
39F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	52	0	0	1	2	1	48	0	0
39F	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	14	0	0	0	0	1	40	0	0
39G	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	4	0	0	1	28

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
39H	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	3	2	2	12	4	5	8	76	3	14	19	163	1	28	11	72	10	678	2	34
40S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	1	278
40A	0	0	1	16	0	0	0	0	2	2	1	4	0	0	2	16	0	0	0	0	0	0	0	0
40B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	30	0	0	4	160	3	184	0	0
40C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	24	0	0	2	14	0	0	0	0
40D	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	56	0	0	1	12	1	16	0	0
40E	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	0	0	0	0	0	0	0	0
40F	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
40G	0	0	0	0	0	0	0	0	0	0	1	16	0	0	1	6	0	0	0	0	0	0	0	0
40H	0	0	0	0	0	0	1	4	0	0	0	0	0	0	3	18	0	0	1	56	1	20	0	0
40I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	1	32	0	0
TOTAL	0	0	1	16	2	2	1	4	2	2	2	20	1	22	22	170	1	4	8	242	6	252	1	278
41S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	26	0	0	0	0	0	0	0	0
41A	0	0	1	126	0	0	1	4	0	0	0	0	0	0	6	42	0	0	0	0	2	156	0	0
41B	0	0	0	0	0	0	0	0	1	12	0	0	0	0	8	112	0	0	0	0	0	0	0	0
41C	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	8	0	0	1	2	0	0	1	38
41D	0	0	0	0	0	0	0	0	0	0	0	0	1	18	3	36	0	0	1	2	1	22	0	0
41E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	22	0	0	0	0	0	0	1	20
41F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	130	0	0
41G	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	20	0	0	0	0	0	0	0	0
41H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	14	0	0	0	0	0	0	0	0
TOTAL	0	0	1	126	0	0	1	4	3	15	0	0	1	18	31	280	0	0	3	12	4	308	2	58
42S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24	0	0	0	0	0	0	0	0
42A	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	32	0	0	2	8	0	0	0	0
42B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	7	60	0	0	0	0	1	58	0	0
42C	0	0	0	0	0	0	0	0	0	0	1	12	0	0	1	16	0	0	0	0	0	0	0	0
42D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	54	0	0	1	10	0	0	0	0
42F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	2	0	0	0	0
42G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
42H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42I	0	0	0	0	1	2	0	0	0	0	1	2	0	0	1	10	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	2	4	0	0	1	1	2	14	0	0	20	210	0	0	4	20	1	58	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
43S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	1	18	0	0
43A	0	0	0	0	0	0	1	4	3	26	0	0	0	0	0	0	1	4	0	0	1	32	0	0
43B	0	0	0	0	2	4	0	0	2	1	0	0	0	0	4	14	1	6	1	14	0	0	0	0
43C	0	0	0	0	0	0	0	0	0	0	0	0	2	18	1	4	1	14	0	0	0	0	0	0
43D	0	0	0	0	2	4	0	0	1	8	0	0	0	0	4	30	0	0	2	4	1	28	0	0
43D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	36	0	0	1	12	1	40	0	0
43E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	62	0	0	0	0	0	0	0	0
43F	0	0	0	0	0	0	1	4	1	1	0	0	0	0	0	0	0	0	1	16	2	54	0	0
43G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	42	0	0	1	1	0	0	0	0
43H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	4	8	2	8	7	36	0	0	2	18	21	210	3	24	6	47	6	172	0	0
44S	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0
44A	0	0	0	0	1	4	0	0	0	0	1	2	0	0	2	24	0	0	1	1	0	0	0	0
44B	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	1	0	0	0	0	1	28	0	0
44C	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	1	12	1	38	0	0
44D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	26	1	24	1	6	2	112	0	0
44E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
44G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	60	0	0
44H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	1	28	0	0
44I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	2	12	0	0	0	0
44I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	74	1	54	0	0
TOTAL	0	0	0	0	2	5	0	0	4	4	1	2	0	0	8	58	3	54	6	105	8	320	0	0
45S	0	0	1	56	0	0	0	0	0	0	0	0	0	0	1	26	0	0	0	0	0	0	0	0
45A	0	0	0	0	0	0	0	0	1	14	0	0	0	0	2	30	1	10	0	0	0	0	0	0
45B	0	0	0	0	4	2	0	0	0	0	1	1	1	6	7	140	0	0	1	18	0	0	0	0
45C	0	0	0	0	1	1	0	0	2	6	1	2	0	0	7	88	0	0	1	4	1	140	1	10
45D	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3	22	0	0	1	2	0	0	0	0
45E	0	0	0	0	0	0	0	0	1	1	0	0	1	2	2	44	1	8	0	0	0	0	0	0
45F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45G	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	6	0	0	0	0	0	0	0	0
45H*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	16	0	0	0	0
TOTAL	0	0	1	56	6	4	0	0	4	21	3	5	2	8	24	358	2	18	5	40	1	140	1	10
46S	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	26	0	0	0	0	0	0	0	0
46A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	22	0	0	1	48	0	0	0	0
46B	0	0	0	0	0	0	0	0	1	6	0	0	0	0	8	98	0	0	0	0	1	22	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
46C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	0	0	1	10	1	28	0	0
46D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	22	0	0	0	0	0	0	0	0
46E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	32	0	0	0	0	0	0	0	0
46H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	92	0	0	0	0
TOTAL	0	0	0	0	1	2	0	0	1	6	0	0	0	0	18	214	0	0	3	150	2	50	0	0
47S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
47A	1	22	0	0	0	0	1	2	1	4	0	0	0	0	2	16	0	0	2	48	0	0	0	0
47B	0	0	0	0	0	0	0	0	2	2	0	0	0	0	5	26	0	0	0	0	2	126	0	0
47C	0	0	0	0	1	2	0	0	2	8	0	0	1	4	3	26	0	0	1	2	1	20	0	0
47D	0	0	0	0	1	1	0	0	1	1	0	0	0	0	4	38	0	0	0	0	2	112	0	0
47E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	90	0	0
47F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	2	2	0	0	1	4
47I	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	6	0	0	0	0	2	102	0	0
TOTAL	1	22	0	0	2	3	1	2	7	16	0	0	1	4	17	132	1	2	5	52	8	450	1	4
48S	0	0	0	0	0	0	1	2	1	1	0	0	1	4	3	44	0	0	0	0	0	0	0	0
48A	0	0	0	0	0	0	0	0	1	34	0	0	0	0	0	0	0	0	0	0	1	28	0	0
48B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0
48C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
48D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	8	2	52
48E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	2	18	0	0	0	0
48F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
48G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	122	1*	12
48H	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	1	50	1	18	0	0	0	0
TOTAL	0	0	1	6	0	0	1	2	2	35	0	0	1	4	4	50	5	74	3	36	4	158	2	64
49S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	27	0	0	1	4	0	0	0	0
49A	0	0	0	0	0	0	0	0	0	0	1	1	1	2	8	58	0	0	1	2	4	162	0	0
49B	2	132	0	0	1	0.5	0	0	1	2	1	1	1	12	8	60	2	16	0	0	2	60	0	0
49C	0	0	0	0	0	0	0	0	6	22	0	0	0	0	5	26	1	20	0	0	0	0	0	0
49D	0	0	0	0	0	0	0	0	0	0	1	18	0	0	5	48	0	0	0	0	0	0	0	0
49E	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	26	0	0	1	16	0	0	1	12
49F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
49G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	0	0
TOTAL	2	132	0	0	1	0.5	0	0	8	25	3	20	2	14	34	269	3	36	3	22	6	222	1	12
50S	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	28	1	14	0	0	0	0	0	0
50A	0	0	1	40	0	0	0	0	0	0	0	0	0	0	10	132	0	0	0	0	0	0	0	0
50B	0	0	0	0	0	0	0	0	1	1	0	0	2	28	8	126	0	0	0	0	0	0	0	0
50C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	0
50D	2	12	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	2	112	0	0	0	0
50E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	0	0	1	68	0	0
50F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	0	0	0	0	0	0	0	0
50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	0
TOTAL	2	12	1	40	0	0	0	0	1	1	0	0	3	30	24	346	1	14	2	112	1	68	0	0
51S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51A	0	0	0	0	0	0	1	26	2	1	1	6	0	0	4	26	0	0	1	14	1	60	0	0
51B	0	0	0	0	0	0	0	0	2	2	0	0	0	0	5	20	1	6	0	0	2	36	0	0
51C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	18	0	0	1	1	0	0	0	0
51D	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	74	0	0	0	0	0	0	2	36
51E	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	4	0	0	0	0	0	0	2	24
51F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	14	0	0	0	0
51H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2	42	0	0	0	0
TOTAL	0	0	0	0	0	0	2	28	5	5	1	6	0	0	18	144	2	10	6	71	3	96	4	60
52S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	34	0	0	1	4	1	36	0	0
52B	0	0	0	0	0	0	0	0	1	2	1	2	0	0	3	44	1	16	0	0	1	52	0	0
52C	0	0	0	0	0	0	1	20	0	0	0	0	0	0	1	30	0	0	0	0	1	10	0	0
52D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20	0	0	0	0	0	0	1	10
52E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
52G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52H	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	3	10	0	0	0	0
TOTAL	0	0	0	0	0	0	1	20	2	3	1	2	0	0	12	140	1	16	4	14	3	98	1	10
53S	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	28	0	0	1	4	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
53A	0	0	1	4	1	1	0	0	2	2	0	0	0	0	3	18	0	0	0	0	1	252	0	0
53B	0	0	0	0	0	0	0	0	0	0	0	0	1	6	2	20	1	6	1	6	1	64	0	0
53C	0	0	0	0	0	0	1	2	4	30	0	0	0	0	9	118	0	0	1	12	0	0	0	0
53D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	28	0	0	1	12	0	0	0	0
53E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	1	22
53F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	26	0	0	0	0	0	0	0	0
TOTAL	0	0	1	4	1	1	1	2	7	33	0	0	1	6	24	256	1	6	4	34	2	316	1	22
54S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
54A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	4	16	0	0	0	0	0	0	0	0
54B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	70	1	4	1	1	0	0	0	0
54C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2*	22	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	1	2	0	0	0	0	14	118	1	4	1	1	0	0	0	0
55S	0	0	0	0	0	0	0	0	1	6	0	0	1	2	1	10	0	0	0	0	0	0	0	0
55A	0	0	0	0	0	0	1	1	0	0	0	0	1	32	5	38	0	0	0	0	0	0	0	0
55B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	36	0	0	0	0	0	0	0	0
55C	1	102	0	0	0	0	0	0	0	0	0	0	0	0	5	24	0	0	1	2	0	0	0	0
55D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
55E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24	0	0	0	0
55G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	30	0	0	0	0
TOTAL	1	102	0	0	0	0	1	1	1	6	0	0	2	34	16	112	0	0	4	56	0	0	0	0
56S	0	0	0	0	0	0	0	0	1	8	0	0	0	0	3	34	1	8	0	0	0	0	0	0
56A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	0	0	0	0	1	24	0	0
56B	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	6	0	0	0	0	1	22	0	0
56C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	11	0	0	0	0	2	180	0	0
TOTAL	0	0	0	0	1	1	0	0	1	8	0	0	0	0	10	75	1	8	0	0	4	226	0	0
57S	0	0	0	0	0	0	0	0	0	0	0	0	1	8	3	7	2	4	0	0	0	0	0	0
57A	0	0	0	0	0	0	0	0	1	1	2	42	0	0	3	54	0	0	0	0	1	106	0	0
57B	0	0	0	0	2	2	1	1	2	16	0	0	0	0	12	114	0	0	0	0	0	0	0	0
57C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57D	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	16	0	0	1	6	0	0	0	0
57E	0	0	0	0	0	0	0	0	1	2	1	2	0	0	3	26	0	0	2	30	1	78	2	44

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
TOTAL	0	0	0	0	2	2	1	1	5	20	3	44	1	8	22	217	2	4	3	36	2	184	2	44
58S	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
58A	0	0	0	0	0	0	0	0	1	1	0	0	1	10	11	120	0	0	1	32	0	0	0	0
58B	0	0	0	0	0	0	0	0	0	0	1	4	0	0	12	114	1	40	0	0	0	0	0	0
58C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	0	0	0	0	0	0	0	0
58D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	52	0	0	0	0	0	0	0	0
58E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	2	0	0	1	1	1	4	1	10	30	320	1	40	1	32	0	0	0	0
59S	0	0	0	0	0	0	0	0	1	1	1	8	0	0	9	150	0	0	0	0	0	0	0	0
59A	0	0	0	0	1	2	0	0	1	1	1	4	0	0	6	70	1	1	0	0	0	0	0	0
59B	0	0	0	0	3	4	0	0	0	0	0	0	0	0	3	32	0	0	0	0	1	96	0	0
59C	0	0	0	0	0	0	0	0	1	1	1	6	0	0	2	14	0	0	0	0	1	14	0	0
59D	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	18	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	4	6	0	0	4	4	3	18	0	0	22	284	1	1	0	0	2	110	0	0
60S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	12	1	60	0	0	0	0	1	1
60A	0	0	0	0	2	6	0	0	2	14	4	42	0	0	6	86	0	0	1	6	1	22	0	0
60B	0	0	0	0	1	1	0	0	2	22	0	0	0	0	3	44	0	0	0	0	1	26	0	0
60C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	10	0	0
60D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60E	1	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0
60E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	0	0
TOTAL	1	36	0	0	3	7	0	0	4	36	4	42	0	0	13	142	1	60	3	15	4	76	1	1
61S	0	0	0	0	0	0	0	0	2	22	0	0	0	0	3	30	0	0	0	0	0	0	0	0
61A	0	0	0	0	2	2	1	14	2	8	0	0	1	2	11	62	0	0	0	0	1	26	0	0
61B	0	0	0	0	1	16	0	0	3	12	0	0	0	0	5	54	2	6	0	0	0	0	0	0
61B	0	0	0	0	0	0	0	0	0	0	2	6	0	0	5	34	0	0	0	0	0	0	0	0
61C	0	0	0	0	1	1	1	4	0	0	0	0	0	0	3	20	0	0	0	0	0	0	0	0
61D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61E	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	26
TOTAL	0	0	0	0	4	19	2	18	7	42	3	7	1	2	27	200	2	6	0	0	1	26	1	26
62A	0	0	0	0	0	0	0	0	0	0	1	6	0	0	3	48	0	0	0	0	0	0	0	0
62B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	56	0	0	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
62C	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	2	1	8	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	1	6	1	10	12	106	1	8	0	0	0	0	0	0
63S	0	0	0	0	0	0	0	0	2	2	1	4	0	0	2	1	0	0	0	0	0	0	0	0
63A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	36	0	0	2	4	1	24	0	0
63B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	34	0	0	0	0	0	0	0	0
63C	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0
63F	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	0	1	4
TOTAL	0	0	0	0	0	0	0	0	4	9	1	4	0	0	13	71	0	0	4	12	1	24	1	4
64S	0	0	0	0	2	6	0	0	1	1	0	0	0	0	3	38	2	24	0	0	0	0	0	0
64A	0	0	0	0	1	0.5	0	0	0	0	0	0	0	0	4	24	0	0	0	0	0	0	0	0
64B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
64C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16	0	0	1	2	2	64	0	0
64E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	224
TOTAL	0	0	0	0	3	6.5	0	0	1	1	0	0	0	0	10	80	2	24	1	2	2	64	18	224
65S	0	0	0	0	0	0	0	0	1	2	0	0	1	6	4	22	0	0	0	0	0	0	0	0
65A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	11	77	0	0	0	0	1	22	0	0
65B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65C	0	0	1	4	0	0	1	16	1	4	0	0	0	0	2	32	0	0	0	0	0	0	0	0
65C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	0	0
TOTAL	0	0	1	4	0	0	1	16	3	7	0	0	1	6	19	149	0	0	0	0	1	22	0	0
66S	0	0	0	0	1	4	0	0	1	1	0	0	1	12	3	30	0	0	0	0	0	0	0	0
66A	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	16	0	0	1	1	0	0	0	0
66B	0	0	0	0	0	0	0	0	0	0	1	8	0	0	3	16	0	0	0	0	0	0	0	0
66C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	17	0	0	0	0	0	0	0	0
66D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	23	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	4	0	0	1	1	1	8	2	14	15	102	0	0	1	1	0	0	0	0
67S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	24	1	8	0	0	0	0	0	0
67B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	6	70	0	0	0	0	1	24	0	0
67C	0	0	0	0	0	0	0	0	4	4	0	0	0	0	2	10	0	0	1	2	1	56	0	0
67D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
67E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	1	2	2	14	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	6	7	0	0	0	0	12	120	3	11	3	16	2	80	0	0
68S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0	1	76	0	0
68A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	2	24	1	1	1	20	0	0
68C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	14	1	24	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	26	2	24	3	15	3	120	0	0
69S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0
69A	0	0	0	0	0	0	1	12	4	38	0	0	0	0	8	105	0	0	1	50	0	0	0	0
69B	0	0	1	24	0	0	1	2	2	8	0	0	0	0	8	64	0	0	0	0	0	0	0	0
69C	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	0	0	1	8	0	0	0	0
69D	0	0	0	0	0	0	0	0	1	2	0	0	1	6	3	40	1	6	0	0	0	0	0	0
TOTAL	0	0	1	24	0	0	3	15	8	49	0	0	1	6	22	215	1	6	2	58	0	0	0	0
70S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	28	0	0	0	0	0	0	0	0
70S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	28	0	0	0	0	0	0	0	0
70A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	68	0	0	0	0	0	0	0	0
70B	0	0	0	0	0	0	0	0	0	0	1	4	2	16	3	14	0	0	0	0	0	0	0	0
70C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16	0	0	0	0	0	0	0	0
70D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	26	0	0	0	0	0	0	0	0
70E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
70F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	1	4	2	16	22	196	0	0	0	0	0	0	0	0
71S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	58	0	0	0	0	0	0	0	0
71A	0	0	0	0	0	0	1	14	0	0	0	0	0	0	1	2	0	0	2	68	0	0	0	0
71B	0	0	0	0	0	0	0	0	2	6	0	0	0	0	1	8	0	0	1	6	0	0	0	0
71C	0	0	0	0	0	0	1	4	1	1	0	0	0	0	2	7	0	0	0	0	0	0	0	0
71D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71E	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0
71F	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	0	0	0	0
71F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	50	0	0	1	4	0	0	0	0
TOTAL	0	0	0	0	0	0	2	18	4	9	0	0	1	10	13	125	0	0	5	80	0	0	0	0
72S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	42	0	0	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
72A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	4	32	0	0	0	0
72A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
72B	0	0	0	0	0	0	1	10	0	0	1	10	0	0	1	2	1	8	1	12	0	0	0	0
72B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	0	0	5	40	0	0	0	0
72C	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	36	1	12	2	64	0	0	0	0
72D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	34	0	0	0	0	0	0	0	0
72D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	6	40	0	0	0	0
72E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	2	0	0	0	0
72F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	56	1	314
TOTAL	0	0	0	0	1	1	1	10	0	0	1	10	0	0	17	144	2	20	19	190	1	56	1	314
73S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73A	0	0	0	0	0	0	0	0	2	4	0	0	1	6	6	61	0	0	1	4	0	0	0	0
73B	0	0	0	0	0	0	0	0	1	4	1	6	0	0	3	20	2	10	0	0	0	0	0	0
73C	0	0	0	0	0	0	0	0	1	4	0	0	0	0	6	76	1	2	1	1	1	40	0	0
73D	0	0	0	0	1	1	1	2	1	2	0	0	0	0	0	0	0	0	0	0	1	40	0	0
73E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	1	1	2	5	14	1	6	1	6	16	161	3	12	2	5	2	80	0	0
74S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0
74A	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	44	0	0	3	22	0	0	0	0
74C	0	0	0	0	0	0	0	0	0	0	1	22	0	0	4	38	0	0	2	8	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	2	4	1	22	0	0	13	90	0	0	5	30	0	0	0	0
75S	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	34	0	0	0	0	0	0	0	0
75S	0	0	1	12	0	0	1	4	2	10	0	0	0	0	3	20	0	0	0	0	0	0	0	0
75A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	2	56	0	0	0	0
75B	0	0	0	0	0	0	0	0	2	8	0	0	0	0	6	54	0	0	0	0	0	0	0	0
75C	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	10	0	0	2	50	0	0	0	0
75D	0	0	1	8	0	0	0	0	1	1	0	0	0	0	3	28	0	0	0	0	0	0	0	0
75E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	1	22	11	134
75F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	12	1	38	0	0
TOTAL	0	0	2	20	0	0	1	5	9	25	0	0	0	0	24	176	0	0	5	118	2	60	11	134
76A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
76B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
76D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	44	0	0	1	1	0	0	33	616
76F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	1	28	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	48	0	0	2	13	1	28	33	616
77A	0	0	1	38	0	0	0	0	3	10	0	0	0	0	2	76	0	0	0	0	1	126	0	0
77B	0	0	0	0	0	0	0	0	1	4	0	0	1	2	3	38	0	0	1	4	1	154	0	0
77C	0	0	0	0	0	0	0	0	2	14	0	0	0	0	2	34	0	0	0	0	0	0	0	0
77D	0	0	0	0	0	0	1	6	2	4	0	0	0	0	5	68	0	0	0	0	0	0	0	0
77E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	1	2
TOTAL	0	0	1	38	0	0	1	6	8	32	0	0	1	2	13	226	0	0	1	4	2	280	1	2
78S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	60	0	0	0	0	0	0	0	0
78B	0	0	0	0	0	0	0	0	0	0	1	12	1	16	4	80	0	0	0	0	0	0	0	0
78C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	32	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	1	12	1	16	9	172	0	0	0	0	0	0	0	0
79S	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	2	0	0	1	4	0	0	0	0
79A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	10	3	22	5	80	0	0	0	0
79B	0	0	0	0	0	0	0	0	2	4	0	0	0	0	4	94	0	0	2	34	0	0	1	2
79C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	26	0	0	1	4	0	0	0	0
79D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	24	0	0	0	0
79F	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	2	50	0	0
TOTAL	0	0	0	0	0	0	0	0	6	8	0	0	0	0	12	134	3	22	11	150	2	50	1	2
80S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	0	0	3	10	1	138	0	0
80A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	3	16	0	0	0	0
80B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	0	0	6	32	0	0	0	0
80C	0	0	0	0	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	0	0
80D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	0
80E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
80F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
TOTAL	0	0	0	0	0	0	0	0	0	0	1	12	0	0	7	52	0	0	12	58	1	138	1	8
81S	0	0	0	0	0	0	0	0	3	14	0	0	0	0	2	14	0	0	0	0	1	34	0	0
81A	0	0	0	0	0	0	0	0	1	4	1	4	2	4	6	44	3	32	1	2	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
81B	0	0	0	0	0	0	0	0	0	0	1	6	0	0	5	26	0	0	1	10	0	0	0	0
81C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	32	0	0	1	1	0	0	0	0
81D	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	8	0	0	0	0	0	0	0	0
81E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	30	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	5	19	2	10	2	4	21	154	3	32	3	13	1	34	0	0
82S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	0	0	1	4	0	0	0	0
82C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	22	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	46	0	0	1	4	0	0	0	0
83S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	0	0
83A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	1	22	1	28	0	0	1	18
83B	0	0	1	12	0	0	0	0	1	18	0	0	0	0	4	32	0	0	1	1	0	0	0	0
83C	0	0	0	0	1	2	0	0	0	0	0	0	1	20	1	8	0	0	4	32	0	0	0	0
83D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	26	1	44	0	0
83E	1	58	0	0	0	0	0	0	0	0	0	0	0	0	1	20	0	0	0	0	0	0	1	136
83F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	40	0	0	0	0
TOTAL	1	58	1	12	1	2	0	0	1	18	0	0	1	20	7	78	1	22	9	127	2	62	2	154
84S	0	0	0	0	0	0	0	0	2	8	1	1	0	0	0	0	0	0	1	2	0	0	0	0
84A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
84B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84C	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	4	18	1	20	0	0
84D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84E	0	0	0	0	0	0	0	0	0	0	1	18	0	0	0	0	0	0	3	4	0	0	0	0
84F	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	8	2	2	0	0	0	0
84G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	0	0	3	26	2	52	0	0
TOTAL	0	0	0	0	1	2	0	0	3	9	2	19	0	0	2	20	1	8	13	52	3	72	0	0
85S	0	0	0	0	0	0	0	0	2	8	0	0	0	0	2	6	0	0	0	0	0	0	0	0
85A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	48	0	0	1	1	0	0	0	0
85C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0
85D	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
85E	0	0	0	0	0	0	0	0	0	0	1	4	1	8	0	0	0	0	1	6	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
85F	0	0	0	0	0	0	0	0	1	20	0	1	12	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	1	0	0	3	28	1	5	13	8	8	64	0	0	2	7	0	0	0	0
86S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
86A	0	0	0	0	0	0	0	0	0	0	1	4	0	0	2	16	1	12	1	2	0	0	0	0
86B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	46	0	0	0	0	0	0	0	0
86D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	1	4	0	0	9	78	1	12	1	2	0	0	0	0
87S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	100	0	0	1	14	1	20	0	0
87B	0	0	0	0	0	0	0	0	1	16	2	14	1	4	3	30	0	0	2	34	1	300	0	0
87C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	84	1	26	0	0	0	0	0	0
87D	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	4	118	0	0	0	0	0	0
87E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	104	0	0
87G	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	24	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	4	24	2	14	1	4	11	214	5	144	8	80	3	424	0	0
88S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0
88A	0	0	0	0	0	0	0	0	1	4	0	0	0	0	7	142	0	0	2	4	0	0	0	0
88A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	30	0	0	0	0	1	86	0	0
88B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	24	0	0	0	0
88D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	32	0	0	0	0	0	0	0	0
88E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88G	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	2	6	0	0	0	0
88H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	12	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	2	10	0	0	0	0	11	204	0	0	17	50	1	86	0	0
89S	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0
89A	0	0	0	0	0	0	0	0	1	2	1	2	0	0	10	150	0	0	3	90	0	0	0	0
89B	0	0	0	0	0	0	0	0	0	0	0	0	2	24	2	26	0	0	0	0	0	0	0	0
89C	0	0	0	0	0	0	0	0	0	0	1	4	1	8	4	44	0	0	1	2	0	0	0	0
89D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0
TOTAL	0	0	0	0	0	0	1	1	1	2	2	6	3	32	18	228	0	0	6	94	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
90S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
90A	0	0	0	0	0	0	1	1	0	0	0	0	1	6	7	58	0	0	3	6	0	0	0	0
90B	0	0	0	0	0	0	0	0	1	2	1	50	1	2	2	36	0	0	0	0	0	0	0	0
90C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	14	0	0	0	0
90C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20	0	0	0	0	0	0	0	0
90D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	1	1	1	2	1	50	2	8	13	122	0	0	9	6	0	0	0	0
91S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	50	0	0	1	8	0	0	0	0
91A	0	0	1	12	0	0	0	0	2	20	0	0	0	0	3	30	1	2	5	22	2	244	0	0
91B	0	0	0	0	0	0	0	0	1	14	0	0	1	4	2	340	0	0	3	28	1	62	0	0
91C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	40	1	32	3	20	2	140	0	0
91D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	84	0	0	0	0
91E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	8	2	8	3	82	0	0
91F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	1	28	0	0
TOTAL	0	0	1	12	0	0	0	0	3	34	0	0	1	4	10	462	3	42	21	178	9	556	0	0
92S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	0	0	0	0
92A	0	0	0	0	0	0	0	0	1	48	0	0	1	4	3	92	0	0	4	46	0	0	0	0
92B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	42	0	0	4	40	0	0	0	0
92C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92E	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	1	6	13	34	0	0	0	0
92E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	2	54	0	0	1	4	6	134	1	6	25	144	0	0	0	0
93S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93A	0	0	0	0	0	0	0	0	0	0	0	0	1	12	4	38	0	0	0	0	0	0	0	0
93B	0	0	0	0	0	0	0	0	1	6	2	18	1	6	2	28	0	0	0	0	0	0	0	0
93C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	62	0	0	4	14	0	0	0	0
93D	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	6	0	0	0	0	0	0	0	0
93E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	2	8	2	18	2	18	13	134	0	0	6	22	0	0	0	0
94S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94A	0	0	0	0	0	0	0	0	2	6	0	0	1	10	3	32	0	0	1	12	0	0	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
94B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	26	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	2	6	0	0	1	10	3	35	26	0	1	12	0	0	0	0
95S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	1	18	0	0	0	0
95A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	30	1	22	0	0
95B	0	0	0	0	0	0	0	0	0	0	1	10	1	14	0	0	0	0	0	0	1	14	0	0
95C	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	0	0	5	20	0	0	0	0
95C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
95D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	6	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	1	1	1	10	1	14	3	12	0	0	16	74	2	36	0	0
96S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	32	0	0	5	28	0	0	0	0
96B	0	0	1	16	0	0	0	0	0	0	1	34	0	0	0	0	0	0	6	68	0	0	0	0
96C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
TOTAL	0	0	1	16	0	0	0	0	0	0	1	34	0	0	4	32	0	0	16	96	0	0	0	0
97S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97A	0	0	0	0	0	0	1	1	1	2	0	0	0	0	5	50	0	0	2	6	2	98	0	0
97B	0	0	0	0	0	0	0	0	1	8	0	0	0	0	1	2	0	0	0	0	0	0	0	0
97C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97D	0	0	0	0	1	1	0	0	1	6	0	0	0	0	2	18	1	2	4	10	1	30	0	0
TOTAL	0	0	0	0	1	1	1	1	3	16	0	0	0	0	8	70	1	2	6	16	3	68	0	0
98S	0	0	0	0	0	0	0	0	0	0	0	0	2	24	1	12	0	0	0	0	0	0	0	0
98A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	76	0	0	0	0	0	0	0	0
98B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	28	0	0	2	12	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	1	1	0	0	2	24	10	116	0	0	2	12	0	0	0	0
99S	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	6	0	0	0	0	0	0	0	0
99A	0	0	0	0	0	0	0	0	2	4	0	0	0	0	1	4	0	0	4	54	0	0	0	0
99B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24	0	0	2	16	0	0	0	0
99C	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	54	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	4	8	0	0	0	0	3	34	0	0	9	124	0	0	0	0
100A	0	0	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	5	8	1	24	0	0
100B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0	0	7	12	1	24	0	0

	A(no.)	A(g)	M(no)	M(g)	S(no)	S(g)	C (no)	C (g)	C.C (no)	C.C (g)	B.B (no)	B.B (g)	S.T (no)	S.T (g)	G (no)	G (g)	Ox (no)	Ox (g)	P.R (no)	P.R (g)	B/T (no)	B/T (g)	SLAG(no)	SLAG(g)
101A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	14	4	32	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	1	14	4	32	0	0	0	0

APPENDIX 3 Roman coin catalogue

Cat.no	Obverse	Reverse	Date	Diam.(mm)	Weight (g)	Field	Reference
1	Republican	QUADRIGA				A	
2	Vespasian	JUDAEA	69-71	18	3.1		RIC 15
3	Vespasian	PROVIDENTIA AUG	69-79	27	8.7	D	
4	Domitian	FORTUNAE AUGUSTI SC	86	29	10		RIC 333
5	Trajan	COS VPPSPQR OPTIMO PRINC	101-13	18	3.4		RIC 121
6	Nerva		96-8	27.5	12		
7	Hadrian	PM TRP COS III	119-22	18.5	3.6		RIC 92/94
8	Antoninus Pius	COS IIII VESTA	152-3	17.5	3.2		RIC 219
9	Antoninus Pius	TR POT X - ANNONA	157-8	17	3.2		RIC 275
10	Antoninus Pius			26	11.6		
11	Septimius Severus						
12	Caracalla	SAECULI FELICITAS	196-8	17	2.4	C	RIC 14
13	Caracalla?	SEVERI AUG P II FIL.S.C	196-7		20.8		RIC 400
14	Caracalla			18			
15	Julia Domna	AETERNIT IMPERI	196-211	18	1.7		RIC 540
16	Severus Alexander	TRP.II	223	18	1.6		RIC 30?
17	Gordian III			23	2.7	A	
18	Gallienus	SPES AVG	259-68	19	2.3	A	
19	Gallienus	FELICITAS AUG	258-68	17	1.4		
20	Postumus	n/a	258-68		0.9	C	
21	Postumus	UNID	258-68				
22	Postumus	UNID	258-68	19	2.6		
23	Postumus	VIRTUS AVG	258-68	23	2.1	D	RIC5 (II) 331
24	Postumus	HERCULES	258-68	19			RIC5 (II)67
25	Postumus	PAX AUG	258-68	20	2.1		
26	Claudius II	PROVIDENTIA AVG Xii	268-70	19	2.8	A	RIC 86
27	Claudius II	IOVI VICTORI	268-70	18			
28	Claudius II	IOVI VICTORI	268-70	18	2.8		RIC 54/55
29	Claudius II	AEQUITAS AUG	268-70	19		A	
30	Claudius II	SALUS AUG	275+	17	2.7		as RIC 97
31	Claudius II		268-70	18	1.8	A	
32	Claudius II		268-70	21			
33	Claudius II, divo	CONSECRATIO-eagle	268-70	18	2.7	C	RIC 259/262
34	Claudius II, divo	CONSECRATIO - altar	268-70	16			
35	Claudius II, divo	CONSECRATIO - eagle	275+	16	1.1	A	as RIC 206
36	Claudius II, divo	CONSECRATIO - eagle	273+	11			
37	Claudius II, divo	CONSECRATIO - eagle	275+	12	0.6	D	
38	Claudius II, divo	CONSECRATIO - altar	275+	16	2.4	A	as RIC 259
39	Claudius II, divo	CONSECRATIO- altar	275+	16	1.1	C	as RIC259
40	Claudius II, divo	CONSECRATIO- altar	275+	13	0.5	C	
41	Claudius II, divo	CONSECRATIO - altar	275+	12	0.6	D	
42	Claudius II, divo	CONSECRATIO - altar	275+	14	0.7	C	as RIC 259
43	Victorinus	PAX AUG	268-70	20	2.3		RIC 117
44	Victorinus	PAX AUG	268-73	20	2.1	D	RIC 55
45	Victorinus	PAX AUG	268-70	19		C	
46	Victorinus?	PAX AUG	borderline	18	1.1		RIC 55
47	Victorinus	PAX AVG	268-73	18	1.7		RIC5 (II) 118
48	Victorinus	INVICTUS AUG	270-3	17			
49	Victorinus	INVICTUS AUG	268-70	18	2.7	C	RIC 113
50	Victorinus	INVICTUS AUG	268-70	22	2.6	A	as RIC 114
51	Victorinus	SALUS AVG	268-70	20	1.9	A	RIC 67
52	Victorinus	SALUS AUG	268-70	20	3.4		RIC 71
53	Victorinus	VIRTUS AUG	268-70	18	2.5		RIC 78
54	Victorinus	LAETITIA AVG	275+	17	2.7	C	as RIC5 (II) 51
55	Victorinus	COMES AVG	275+	18	1.9	A	
56	Victorinus?	AEQUITAS AUG	275+	14			as RIC 40
57	Victorinus	UNID	268-73	20	2.1		
58	Victorinus?	UNID	268-73	18	1.6	A	
59	Victorinus, divo	PROVIDENTIA AVG	'268-70	20		A	

Cat.no	Obverse	Reverse	Date	Diam.(mm)	Weight (g)	Field	Reference
60	Victorinus/Tetricus I	UNID	268-73	19	1		
61	Victorinus/Tetricus I	INVICTUS AUG?	268-73	18	1.3	A	
62	Victorinus/Tetricus I	UNID	268-73	17	1.5		
63	Victorinus/Tetricus I	UNID	270-3?	17			
64	Victorinus/Tetricus I	INVICTUS AUG	275+	12	1		as RIC 82
65	Victorinus/Tetricus I	INVICTUS AUG?	275+	11	0.8	C	
66	Victorinus/Tetricus I	UNID	275+	12	0.6	C	
67	Victorinus/Tetricus I	UNID	275+	16	2.5	A	
68	Victorinus/Tetricus I	UNID	275+	13			
69	Victorinus/Tetricus I	UNID	275+	10	0.3		
70	Victorinus/Tetricus I	UNID	275+	18	1.9		
71	Victorinus/Tetricus I	UNID	275+	18	1.8	A	
72	Victorinus/Tetricus I	UNID	275+	15	1.4		
73	Victorinus/Tetricus I	UNID	275+	18			
74	Tetricus I	PM TR PCOS P P	268-	17	1.7	C	RIC 46?
75	Tetricus I	FIDES MILITUM	270-3	18	2.5		RIC 70
76	Tetricus I	HILARITAS AUG	270-3	20			
77	Tetricus I	PAX AUG	270-3	17	2.2	C	RIC 100
78	Tetricus I	PAX AUG	270-3	19	2		RIC 100/101
79	Tetricus I	PAX AUG	270-3?	18	1.4	C	RIC 100-2?
80	Tetricus I	CONSACRATIO	270-3	17	2.2	A	RIC 164
81	Tetricus I	UNID	268-73	20		A	
82	Tetricus I	UNID	270-3	16	2	A	
83	Tetricus I?	UNID	268-73	17	1.7	A	
84	Tetricus I	HILARITAS AUG	275+	16		A	
85	Tetricus I	PAX AUG	275+	15	1.6		as RIC 100
86	Tetricus I	PAX AVG	275?	18	1.6	A	as RIC 100/101/102
87	Tetricus I	FIDES MILLTVM?	275+	17	1.8	C	RIC5 (II) 68-71
88	Tetricus I	SPES AUG	275+	18	2.3		as RIC 130
89	Tetricus II	PROVIDENTIA AUG	270-3	16	1.7		RIC 263
90	Tetricus II	SPES AUG	270-3	19	1.9		RIC 270
91	Tetricus II	PIETAS AUGUSTOR	270-3	18	1.9	A	RIC 254-8, 287
92	Tetricus II	SPES AUG	270-3?	18	2.5	C	
93	Tetricus II	SPES AUG	275+	18			as RIC 270
94	Tetricus II	SPES AUG	275+	14	0.9		as RIC 270-1
95	Tetricus II	SPES AUG	275+	15	1.3		as RIC 270-1
96	Tetricus II	INVICTUS AUG?	275+	13	0.9	A	as RIC 234?
97	Tetricus II?	PIETAS AUGUSTOR	275+	9	0.5	C	
98	Tetricus I/II	PIETAS AUGUSTOR	275+	frag	0.5		as RIC 110-12, 254-8, 287
99	Tetricus II	PIETAS AUGUSTOR	275+	17	1.9		as RIC 254-8, 287
100	Tetricus II?	UNID	275+	17	1.6	C	
101	Tetricus II	UNID	275+	16	1.1		
102	Tetricus I/II	UNID	275+	16	2.2	A	
103	Radiate copy	INVICTUS?	275+	17	3.1	A	
104	Radiate copy	UNID	275+	18	3		
105	Radiate copy	UNID	275+	12	1.1	C	
106	Radiate copy	UNID	275+	15	0.8		
107	Radiate copy	UNID	275+	18	2.1		
108	Radiate copy	UNID	275+	16		C	
109	Radiate copy	UNID	275+	16	0.9	A	
110	Radiate copy	UNID	275+	14	1.1	A	
111	Radiate copy	UNID	275+	18	1.4	A	
112	Radiate copy	UNID	275+	13	1	C	
113	Radiate copy	UNID	275+	13	1.4	A	
114	Radiate copy	UNID	275+	17	1.8	A	
115	Radiate copy	UNID	275+	17	1.9	C	
116	Radiate copy	UNID	275+	13	0.7		
117	Radiate copy	UNID	275+	14	2.3	C	
118	Radiate copy	UNID	275+	12	0.7		

Cat.no	Obverse	Reverse	Date	Diam.(mm)	Weight (g)	Field	Reference
119	Radiate copy?	UNID	275+	14	0.7		
120	Radiate copy	UNID	275+	19	2.1	C	
121	Radiate copy	UNID	275+	frag	0.8	C	
122	Radiate copy	UNID	275+	16		C	
123	Radiate copy	UNID	275+	15	1.6		
124	Carausius	PAX AUGGG	286-93	23	3.5	A	
125	Carausius	PROVIDENTIA AUG SC	286-93	24	3.7	A	RIC 509
126	Carausius	PAX AUG	copy	20		A	
127	Carausius	UNID	286-93	19	2.4		
128	Constantine I	PRINCIPI INVENTUTIS	309	25			RIC6 TR842
129	Constantine I	PRINCIPI INVENTUTIS	309	22		C	RIC6 TR842
130	Constantine I	SOLI INVICTO COMITI	313-4	20	3.2	C	RIC7 PLN8
131	Constantine I	SOLI INVICTO COMITI	313-4	21	3.4	A	RIC7 PLN 9
132	Constantine I?	SOLI INVICTO COMITI	316-7	19	2.6	C	RIC7 PLN89
133	Constantine I	SOLI INVICTO COMITI		18		C	
134	Constantine I	VICT LAETAE PRINC PERP	318-9	17	2.1	D	
135	Constantine I	VICT LAETAE PRINC PERP	319	17	2.2	C	RIC7 TR225
136	Constantine I	VICT LAETAE PRINC PERP	319	18	2.7	C	RIC7 TR225
137	Constantine I	VICT LAETAE PRINC PERP	319	18	3.2		RIC 7TR 223
138	Constantine I	VICT LAETAE PRINC PERP		16	1.7	C	
139	Constantine I	VICT LAETAE PRINC PERP	318-20	16			COPY
140	Constantine II	VIRTUS EXERCIT VOT XX	320-1	19	2.2		RIC7 LN190
141	Constantine I	VOT IS BEATA TRANQ	321-2	19	2.8	D	RIC7 PLN204?
142	Constantine I	VOT IS BEATA TRANQ	321-4	18	1.9		
143	Constantine I	VOT IS BEATA TRANQ	322-3	19	2.3	A	RIC7 LG157
144	Constantine I	SARMATIA DEVICTA	323-4	19	3.2	A	
145	Constantine I	SARMATIA DEVICTA		16	1.8	C	
146	Constantine II, C	CAESARUM NOSTRORUM	323-4	19	2		RIC7 LN292
147	Constantine II, C	PROVIDENTIAE CAESS	324-5	18	1.9		RIC7 LN297
148	Constantius II	PROVIDENTIAE CAESS	326	18	2.3		RIC7 TR480
149	Constantine II	PROVIDENTIAE CAESS	327-8	18	3		RIC7 TR 505
150	Constantine II, C	PROVIDENTIAE CAESS		16	1.4 (frag)	A	
151	Constantine I/II	PROVIDENTIAE CAESS		18	2.6	A	
152	Constantine I	CONSTANTINI MAX AUG	325	19	2.7	C	RIC7 186 TICINIUM
153	Constantine II	CONSTANTINUS CAESAR	326	16		A	RIC7 TR489
154	Constantine I	CONSTANTINUS AUG	326	16	1.7		RIC7 RM281
155	Constantine I	CONSTANTINUS CAESS		16		A	
156	Constantine I	G.EXERCITUS - 2 standards	330-3	17	2.1	C	RIC7 TR 519/526/537
157	Constantine I	G.EXERCITUS - 2 standards	330-5	17	2.2		RIC7 TR 538 (TRS)
158	Constantine II, C	G.EXERCITUS - 2 standards	330-5	17			RIC7 LG 238
159	Constantine II, C	G.EXERCITUS - 2 standards	330-5	17	1.4	C	RIC 7 TR 520
160	Constantius II	G.EXERCITUS - 2 standards	330-5	17	2.5	C	RIC7 TR 539
161	Constantius II	G.EXERCITUS - 2 standards	330-5	19	2.9	C	RIC7 TR 521
162	House of Constantine	G.EXERCITUS - 2 standards	330-5	17	2		
163	Constantine II, C	G.EXERCITUS - 2 standards	330-5	17	1.6	D	RIC7 TR 545
164	Constantius II, C	G.EXERCITUS - 2 standards	330-5	16	2.2		RIC7 TR 540
165	Constantius II, C	G. EXERCITUS - 2 standards	330-5	17	1.8	D	RIC7 LG 240
166	Constantius II?	G.EXERCITUS - 2 standards	330-5	16	1.7	A	
167	House of Constantine	G.EXERCITUS - 2 standards	330-5?	16	1.6	C	
168	Constantius II/Con II	G.EXERCITUS - 2 standards	330-5	16	1.3		RIC7 TR 520/21
169	Constantine II, C	G.EXERCITUS - 2 standards	330-5?	15	2.3	A	
170	Constantius II, C	G.EXERCITUS - 2 standards	330-5	16	1.8		
171	Constantine II, C	G.EXERCITUS - 1 standard	335-7	16	1		RIC 7TR 591
173	Constantine I	G.EXERCITUS - 1 standard	335-7	16	1.9		RIC 7TR 591
174	House of Constantine	G.EXERCITUS - 1 standard	335-7	14	1.2	C/D	
175	Constans	G.EXERCITUS - 1 standard	335-7?	15	1.4	A	as RIC7TR 592
176	Constantius II	G.EXERCITUS - 1 standard	335-7	15	1.7	C	RIC7 TR 592
177	House of Constantine	G.EXERCITUS - 1 standard	335-41	15	1.6		
178	Constantius II/Constans	G.EXERCITUS - 1 standard	335-41	14	1.2		

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
179	Constantius	G.EXERCITUS - 1 standard	337-40	15	1.1	C	RIC8 TR 82?
180	Constantius II	G.EXERCITUS - 1 standard	337-40	15			RIC 82
181	Constantius II	G.EXERCITUS - 1 standard	337-40	15	1.7	A	RIC7 TR 82
182	Constantius II	G.EXERCITUS - 1 standard	337-40	14	1.6		RIC8 TR70
183	Constans	G.EXERCITUS - 1 standard	337-40	14	0.9	D	RIC8 TR 111
184	Constantine II	G.EXERCITUS - 1 standard	337-41	15	1.2	C	RIC7 TR 59
185	Constantius II	G.EXERCITUS - 1 standard	337-40?	14	1.7	C	
186	Constantius II	G.EXERCITUS - 1 standard	337-40	12	1.1	C	RIC7 TR 59?
187	House of Constantine	G.EXERCITUS - 1 standard	335-41	frag	0.8 (frag		
188	Constans	G.EXERCITUS - 1 standard	337-41	14	1.3		
189	Constantius II	G.EXERCITUS - 1 standard	340-1	16	1.3		RIC 8LG 26
190	Constans	G.EXERCITUS - 1 standard	340-1	17	1.6	C	RIC8 TR 111
191	Constans	G.EXERCITUS - 1 standard	340-1	15	1	C	RIC8 TR 106
192	Constantius?	G.EXERCITUS - 1 standard	340-1	15		C	RIC8 TR 102
193	Constans	G.EXERCITUS - 1 standard		14	1.4	C	RIC8 TR 111
194	Constantius II, C?	G.EXERCITUS - 1 standard	340-1	15	1		RIC8 LG 21
195	Constantius II, C	G.EXERCITUS - 2 standards	341-6	13	0.8		as RIC7 LG 238
196	Constantine I	G.EXERCITUS - 2 standards	341-6	16	2.3		as RIC7 TRS 58
197	Constantine II, C	G.EXERCITUS - 2 standards	341-6?	16	1.2	A	
198	Constantine II, C	G.EXERCITUS - 2 standards	341-6	15	1.4	A	
199	Constantius	G.EXERCITUS - 2 standards	341-6	18	1.5	C	as RIC7 LG 240
200	Constantius II, C	G.EXERCITUS - 2 standards	341-6	15	1.5	A	as RIC7 LG 238
201	Constantine II, C	G.EXERCITUS - 2 standards	341-6	13	0.9	C	as RIC7 LG 238
202	Constantine II	G.EXERCITUS - 2 standards	341-6	13	1.3	C	as RIC 336
203	House of Constantine	G.EXERCITUS - 2 standards	341-6	15	1.8	A	
204	Constantine I	G.EXERCITUS - 2 standards	341-6	13	0.8		as RIC7 TR 518
205	House of Constantine	G.EXERCITUS - 2 standards	341-6	14	1.3		as RIC7 TR 520/1
206	Constantius II, C	G.EXERCITUS - 2 standards	341-6	16	1.7	A	
207	House of Constantine	G.EXERCITUS - 2 standards	341-6	12	0.7	A	
208	House of Constantine	G.EXERCITUS - 2 standards	341-6	16	2.3	D	as RIC7 LG 238/40
209	House of Constantine	G.EXERCITUS - 2 standards	341-6	12	0.8	C	
210	House of Constantine	G.EXERCITUS - 2 standards	341-6	15	1.1		
211	House of Constantine	G.EXERCITUS - 2 standards	341-6	13	1.2	D	
212	House of Constantine	G.EXERCITUS - 2 standards	341-6	12	1	C	
213	House of Constantine	G.EXERCITUS - 2 standards	341-6	13	0.9	A	as RIC7 LG 236-40
214	Constantine II	G.EXERCITUS - 1 standard	341-6	13	1.7		as RIC8 TR 106
215	Constantine I	G.EXERCITUS - 1 standard	341-6	10	0.9	C	as RIC 7 LG 271?
216	Constantius II	G.EXERCITUS - 1 standard	341-6	12	1	C	as RIC8 TR 82
217	Constantius II	G.EXERCITUS - 1 standard	341-6	14	1.6	C	as RIC7 TR 592
218	Constans	G.EXERCITUS - 1 standard	341-6	13	0.8	C	as RIC8 TR 117
219	Constantius	G.EXERCITUS - 1 standard	341-6	14	1.4	C	as RIC8 TR 133a
220	Constantius II, C	G.EXERCITUS - 1 standard	341-6	14	1.7		as RIC7 LG271
221	Constantius II	G.EXERCITUS - 1 standard	341-6	15	1.4	C	
222	Constans	G.EXERCITUS - 1 standard	341-6	14		A	
223	H. of Constantine	G.EXERCITUS - 1 standard	341-6	13	1.3		
224	Constantine I/II	G.EXERCITUS - 1 standard	341-6	13	1.7		
225	Constantius II?	G.EXERCITUS - 1 standard	341-6	12	0.9		
226	Constantius II	G.EXERCITUS - 1 standard	341-6	14	1.6	A	
227	House of Constantine	G.EXERCITUS - 1 standard	341-6	13	0.8		
228	House of Constantine	G.EXERCITUS - 1 standard	341-6	11	0.4	A	
229	House of Constantine	G.EXERCITUS - 1 standard	341-6	14	1.4	C	
230	House of Constantine	G.EXERCITUS - 1 standard	341-6	14	0.7	C	
231	House of Constantine	G.EXERCITUS - 1 standard	341-6	14	1.2		
232	House of Constantine	G.EXERCITUS - 1 standard	341-6	11	1	C	
233	House of Constantine	G.EXERCITUS - 1 standard	341-6	15	1.2	C	
234	House of Constantine	G.EXERCITUS - 1 standard	341-6	14	0.6		
235	House of Constantine	G.EXERCITUS - 1 standard	341-6	14	1	C	
236	House of Constantine	G.EXERCITUS - 1standard	341-6	12	1.3		
237	House of Constantine	G.EXERCITUS - 1 standard	341-6	12	0.8		

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
238	House of Constantine	G.EXERCITUS - 1 standard	341-6	9	0.7		
239	House of Constantine	G.EXERCITUS - 1 standard	341-6	12	1.3		
240	Constantine I	URBS ROMA	330-5	17	2.3		RIC7 TR 542
241	Constantine I	URBS ROMA	330-5	16			RIC7 TR 529
242	Constantine I	URBS ROMA	330-5	16	1.7	C	RIC 547
243	Constantine I	URBS ROMA	330-5	16	1.3	A	RIC 242
244	Constantine I	URBS ROMA	330-5	16	2.1		RIC 529
245	Constantine I	URBS ROMA	341-6	13	0.7	C	as RIC 542
246	Constantine I	URBS ROMA	341-6	17	2.5	C	as RIC 522
247	Constantine I	URBS ROMA	341-6	13	0.9		as RIC 242
248	Constantine I	URBS ROMA	341-6	13	0.7	A	as RIC 242
249	Constantine I	URBS ROMA	341-6	12	0.6		as RIC 242
250	Constantine I	URBS ROMA	341-6	13	1.4	C	
251	Constantine I	URBS ROMA	341-6	13		E?	
252	Constantine I	URBS ROMA	341-6	16	2.9		
253	Constantine I	URBS ROMA	341-6	16	1.7	C	
254	Constantine I	URBS ROMA	341-6	15	2.4		
255	Constantine I	URBS ROMA	341-6	14	1.3		
256	Constantine I	URBS ROMA	341-6	12	0.9	C	
257	Constantine I	URBS ROMA	341-6	15	1.8	A	
258	Constantine I	URBS ROMA	341-6	9		C	
259	Constantine I	URBS ROMA	341-6	12	0.8		
260	Constantine I	CONSTANTINOPOLIS	330-1	17	1.4		RIC 523
261	Constantine I	CONSTANTINOPOLIS	330-5?	16	1.9	C	RIC 548
262	Constantine I	CONSTANTINOPOLIS	330-5	17	1.3	A	RIC 548
263	Constantine I	CONSTANTINOPOLIS	330-5	17	2.7		RIC 523
264	Constantine I	CONSTANTINOPOLIS	330-5?	18	1.8	A	RIC 548
265	House of Constantine	CONSTANTINOPOLIS	330-5	17	1.9		
266	Constantine I	CONSTANTINOPOLIS	330-5	17	1.9		
267	Constantine I	CONSTANTINOPOLIS	330-5?	17		A	
268	Constantine I	CONSTANTINOPOLIS	341-6	14	1.1	A	as RIC 543
269	Constantine I	CONSTANTINOPOLIS	341-6	frag	frag	A	as RIC 408
270	Constantine I	CONSTANTINOPOLIS	341-6	14	1.2	C	as RIC 241
271	Constantine I	CONSTANTINOPOLIS	341-6	17			RIC7 TR 543
272	Constantine I	CONSTANTINOPOLIS	341-6	15	1.2	D	as RIC 241
273	Constantine I	CONSTANTINOPOLIS	341-6	16	1.4		as RIC 241
274	Constantine I	CONSTANTINOPOLIS	341-6	14	1.1		as RIC 241
275	Constantine I	CONSTANTINOPOLIS	341-6	17	2.7		as RIC 530
276	Constantine I	CONSTANTINOPOLIS	341-6	14	1.6	C	as RIC 523
277	Constantine I	CONSTANTINOPOLIS	341-6	16	1.5	A	as RIC 224
278	Constantine I	CONSTANTINOPOLIS	341-6	14	0.8	C	as RIC 523
279	Constantine I	CONSTANTINOPOLIS	341-6	13	0.7	C	as RIC 246
280	Constantine I	CONSTANTINOPOLIS	341-6	13	0.7	A	as RIC TR523
281	Constantine I	CONSTANTINOPOLIS	341-6	15			
282	Constantine I	CONSTANTINOPOLIS	341-6	12	1.3		
283	Constantine I	CONSTANTINOPOLIS	341-6	13	0.9		
284	House of Constantine	CONSTANTINOPOLIS	341-6	14	0.8		
285	Constantine I	CONSTANTINOPOLIS	341-6	10	0.4	D	
286	Constantine I	CONSTANTINOPOLIS	341-6	16	1.4		
287	Constantine I	CONSTANTINOPOLIS	341-6	11	0.8	C	
288	Constantine I	CONSTANTINOPOLIS	341-6	12	0.8		
289	Constantine I	CONSTANTINOPOLIS	341-6	15	0.9	C	
290	Constantine I	CONSTANTINOPOLIS	341-6	17	1.3	C	
291	Constantine I	CONSTANTINOPOLIS	341-6	11	1	A	
292	House of Constantine	CONSTANTINOPOLIS	341-6	13	1.1	C	
293	Constantine I	UNID	341-6	15	1.4	A	
294	Constantine I, divo	QUADRIGA	337-40	14	1.1		RIC 106 TRS
295	Constantine I, divo	QUADRIGA	337-40	13	0.7 (frag)		
296	Helena	PAX PUBLICA	337-41	16	1.5	C	RIC8 TR63

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
297	Helena	PAX PUBLICA	337-41	14	1.5	C	
298	Helena	PAX PUBLICA	337-41	14	1.5		
299	Theodora	PIETAS ROMANA	337-41	16	1.9	A	RIC8 TR65
300	Theodora	PIETAS ROMANA	337-41	14	1.3		RIC8 TR65
301	Theodora	PIETAS ROMANA	337-41	15	0.9	A	RIC8 TR65
302	Theodora	PIETAS ROMANA	337-41	15	1.2	C	RIC8 TR43
303	Theodora	PIETAS ROMANA	337-41	16	1.2	C	RIC8 TR43
304	Theodora	PIETAS ROMANA	337-41	15	1.2 (frag)	C	
305	Theodora	PIETAS ROMANA	341-6	14	1.1	C	
306	Theodora	PIETAS ROMANA	337-41	15	1.3		
307	Theodora	PIETAS ROMANA	337-41	13	0.7	C	
308	Constantine I	CONSTANTINOPLE MINT	341-6	14			RIC8 CN22
309	Constantius	VICTORIAE DD...	341-6	15	1.3	A	RIC8 TR 183
310	Constans	VICTORIAE DD...	341-6	16	1.5	C	RIC8TR 185
311	Constantius	VICTORIAE DD..	341-6	17	1.3		RIC8 TR 193
312	Constans	VICTORIAE DD...	341-6	15	1.3	C	RIC8 TR 195
313	Constans	VICTORIAE DD...	341-6	15	1.2	C	RIC8 TR 196
314	Constans	VICTORIAE DD...	341-6	15	1.4		RIC8 TR 196
315	Constans	VICTORIAE DD...	341-6	15	1.8	C	RIC8 TR 199
316	Constans?	VICTORIAE DD..	341-6	14	1.5		RIC8 TR 206
317	Constantius II?	VICTORIAE DD...	341-6	15	1.6	C	RIC8 TR 207
318	Constans	VICTORIAE DD...	341-6	14	1.5	A	RIC8 AR 86/85
319	Constans	VICTORIAE DD...	341-6	14	1		LRBCI 148 TRP
320	Constantius	VICTORIAE DD...	341-6	14	1	C	RIC8 TR 194
321	Constans	VICTORIAE DD....	341-6	16	1.3		RIC8 TR 191
322	Constans	VICTORIAE DD...	341-6	17	1.4	C	RIC8 TR 196
323	Constans	VICTORIAE DD...	341-6	15	0.9	C	RIC8 TR 182
324	Constans	VICTORIAE DD...	341-6	15	1.2	A	RIC8 TR 196
325	Constans	VICTORIAE DD...	341-6	15	1.5	C	RIC8 TR 206
326	Constans	VICTORIAE DD....	341-6	15	1.7	C	RIC8 TR 195
327	Constans	VICTORIAE DD...	346-8	15	1.1	C	as RIC8 TR 182
328	Constantius	VICTORIAE DD...	346-8	15	1.2	C	as RIC8TR 183
329	Constans	VICTORIAE DD...	346-8	15	1.4	C	as RIC8 TR 186
330	Constans/Constantius II	VICTORIAE DD...	346-8	16	1		as RIC8 TR 194
331	Constans	VICTORIAE DD...	346-8	15	1.1	C	as RIC8 TR 192/198
332	Constans	VICTORIAE DD...	346-8	14	1.9		as RIC8 TR 182
333	Constans	VICTORIAE DD...	346-8	15	1.1	C	as RIC8 TR 195/6
334	Constans	VICTORIAE DD...	346-8	14	1.1	C	as RIC8 TR 205/209
335	Unid	VICTORIAE DD...	346-8	16	frag	C	
336	House of Constantine	VICTORIAE DD...	346-8	14	1.7	A	
337	Constans	VICTORIAE DD...	346-8	13	1.8	A	
338	Constans	VICTORIAE DD...	346-8	12		A	
339	Constantius?	VICTORIAE DD...	346-8	15	1.2	C	
340	Constantinus II?	VICTORIAE DD...	346-8	14			
341	House of Constantine	VICTORIAE DD...	346-8	14	1.1	C	
342	Constans?	VICTORIAE DD.....	346-8	14	0.9		
343	Constans?	VICTORIAE DD...	346-8	16	1.6	C	
344	Constans	VICTORIAE DD....	346-8	14	1.1	C	
345	Constans	F.T.R - hut/barbarian	346-50	21	5.5		RIC8 RM 140
346	Constantius II	F.T.R - hut/barbarian	348-50	22	2.8	A	RIC8 TR 220
347	Constans	F.T.R - phoenix	348-50	17	1.7	D	RIC8 TR 234
348	Magnentius	GLORIA ROMANORUM	350-1	22			RIC8 AM 4
349	Helena	FELICITAS		13	1		Magnentius copy
350	Magnentius copy	VICTORIAE LAETAE PP	351-3	13	1		as RIC8 TR 307
351	Magnentius	FTR - falling horseman	354-64	14	0.7	C	
352	Magnentius	FTR - falling horseman	350-3?	12	0.6	C	
353	Magnentius ?	F.T.R. - falling horseman	354-64	11	0.6		
354	Constantius II	FTR - falling horseman	353-4	17	1.7		RIC8 TR 359
355	Constans	FTR - falling horseman	354-64	14	1.6	C	as RIC8 LG 82

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
356	Constantius II	F.T.R. - falling horseman	354-64	16	2.6	A	as RIC8 TR 350
357	Constantius II	FTR - falling horseman	354-64	14	1.1		as RIC8 TR 350?
358	Constantinus II	FTR - falling horseman	354-64				as RIC8 TR 350, 352-4
359	Constantius II	F.T.R. - falling horseman	354-64	16		A	as RIC8 TR 350?
360	Constans	FTR - falling horseman	354-64	frag	0.6	C	as RIC8 SS 211
361	House of Constantine	FTR - falling horseman	354-64	9	0.6 (frag)	A	
362	Magnentius?	F.T.R. - falling horseman	354-64	15	0.9		
363	Constantinus II	FTR - falling horseman	354-64	13	1		
364	Constantinus II	FTR - falling horseman	354-64	12	0.8		
365	Constantinus II	F.T.R. - falling horseman	354-64	12	0.8		
366	Constantinus II	FTR - falling horseman	354-64	frag	0.6 (frag)		
367	Constantinus II	FTR - falling horseman	354-64	16	1.9		
368	Constantinus II	F.T.R. - falling horseman	354-64	14	1.1		
369	Constantinus II	FTR - falling horseman	354-64	14	1.4		
370	Constantius II	F.T.R. - falling horseman	354-64	15	0.9	C	
371	Constantius II	FTR - falling horseman	354-64	13	1.1	C	
372	Constantius II	F.T.R. - falling horseman	354-64	12	1.3	C	
373	Constantius II	FTR - falling horseman	354-64	12	1.1		
374	Constantius II	F.T.R. - falling horseman	354-64	14	1.5		
375	Constantius II	FTR - falling horseman	354-64	15	1		
376	Constantius II	F.T.R. - falling horseman	354-64	12	0.8		
377	Constantius II	FTR - falling horseman	354-64	12	0.9		
378	Constantius II?	F.T.R. - falling horseman	354-64	11	0.5		
379	Constans/Constantius	FTR - falling horseman	354-64	10	0.6	C	
380	Constantius II	F.T.R. - falling horseman	354-64	14	1.5	C	
381	Constans	FTR - falling horseman	354-64	14	1.3	C	
382	Constantius II	F.T.R. - falling horseman	354-64	13	2.6	C	
383	Constantius II	FTR - falling horseman	354-64	15	1.2	C	
384	Unid	F.T.R. - falling horseman	354-64	8		C	
385	House of Constantine	FTR - falling horseman	354-64	14	0.5		
386	House of Constantine	F.T.R. - falling horseman	354-64	11	0.7		
387	House of Constantine	FTR - falling horseman	354-64	13	0.8		
388	House of Constantine	F.T.R. - falling horseman	354-64	14			
389	Constantius II	FTR - falling horseman	354-64	16	1.9	C	
390	House of Constantine	F.T.R. - falling horseman	354-64	12			
391	House of Constantine	UNID		19		C	
392	Constantine I	UNID		17	3.1	C	
393	Constantine I	UNID		15	0.9	C	
394	House of Constantine	UNID		12	1.1	C	
395	Valentinian I	GLORIA ROMANORUM	364-7	17	2.7	C	LRBCII 290
396	Valentinian I	GLORIA ROMANORUM	364-7	18	1.7	C	LRBCII 484
397	Valentinian I	GLORIA ROMANORUM	364-7	17	1.5 (frag)		LRBCII 275?
398	Valentinian I	GLORIA ROMANORUM	364-7	18	1.5 (frag)		LRBCII 487/488
399	Valentinian I	GLORIA ROMANORUM	364-75	18	1.9	C	LRBCII 518 AR
400	Valentinian I	GLORIA ROMANORUM	367-75	18	2.6	C	LRBCII 311?
401	Valentinian I	GLORIA ROMANORUM	367-75	18	1.9	C	LRBCII 311
402	Valens	GLORIA ROMANORUM	364-78	15	1.6	D	LRBCII 123 TR
403	Valens	GLORIA ROMANORUM	364-78	18	2.2	C	LRBCII 93
404	Valens	GLORIA ROMANORUM	367-75	19	1.2	A	LRBCII 507
403	Valens	GLORIA ROMANORUM	367-75	18	1.2	A	LRBCII 1017 AQ
404	Valens	GLORIA ROMANORUM	367-75	17	1.8		LRBCII 499
405	Gratian	GLORIA ROMANORUM	364-78	18	1.9	C	LRBCII 324a
406	House of Valentinian	GLORIA ROMANORUM	365-7	17	2.2	C	LRBCII 79
407	Valentinian I	GLORIA ROMANORUM	364-75	19	1.9	C	
408	Valentinian I	GLORIA ROMANORUM	364-75	19	2.8	D	
409	Valentinian I	GLORIA ROMANORUM	364-75	18	2.3	C	
410	Valentinian I	GLORIA ROMANORUM	364-75	17	1.9	C	
411	Valentinian I	GLORIA ROMANORUM	364-75	15	0.8 (frag)		
412	Valentinian I	GLORIA ROMANORUM	364-75	18	2.4	A	

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
413	Valentinian I	GLORIA ROMANORUM	364-75	18	2.3	C	
414	Valentinian I	GLORIA ROMANORUM	364-75	18	2.4		
415	Valentinian I	GLORIA ROMANORUM	364-75	17	2.2		
416	Valentinian I	GLORIA ROMANORUM	364-75	18	2.4		
417	Valentinian I	GLORIA ROMANORUM	364-75	18	1.5		
418	Valentinian I	GLORIA ROMANORUM	364-75	16	1.8		
419	Valentinian I	GLORIA ROMANORUM	364-75	18	1.6 (frag)	C	
420	Valentinian I	GLORIA ROMANORUM	364-75	18	2.1		
421	Valens	GLORIA ROMANORUM	364-78	frag		C	
422	Valens	GLORIA ROMANORUM	364-78	17	1.9	C	
423	Valens	GLORIA ROMANORUM	364-78	17	2.4	D	SISC
424	Valens	GLORIA ROMANORUM	364-78	16	1.4		
425	Valens	GLORIA ROMANORUM	364-78	16	1.6	C	
426	House of Valentinian	GLORIA ROMANORUM	364-78	16	1.2		
427	House of Valentinian	GLORIA ROMANORUM	364-78	17	1.9	D	
428	House of Valentinian	GLORIA ROMANORUM	364-78	18		C	
429	House of Valentinian	GLORIA ROMANORUM	364-75	16	0.9		
430	House of Valentinian	GLORIA ROMANORUM	364-75	18	2.5	C	
431	House of Valentinian	GLORIA ROMANORUM	364-75	17	1.4	D	
432	House of Valentinian	GLORIA ROMANORUM	364-75	16	2		
433	House of Valentinian	GLORIA ROMANORUM	364-75	frag	1.5 (frag)		
434	House of Valentinian	GLORIA ROMANORUM	364-75	16	1.7		
435	House of Valentinian	GLORIA ROMANORUM	364-75	15	2.1		
436	House of Valentinian	GLORIA ROMANORVM	364-75	frag			
437	House of Valentinian	GLORIA ROMANORVM	364-75	frag			
438	Valentinian I	SECURITAS REIPUBLICAE	364-75	19	2	C	LRBCII 524
439	Valentinian I	SECURITAS REIPUBLICAE	364-75	18	1.5	C	LRBCII 501
440	Valentinian I	SECURITAS REIPUBLICAE	364-75	18	2.1		LRBCII 508/509
441	Valentinian I	SECURITAS REIPUBLICAE	364-75	17	1.9	C	LRBCII 516?
442	Valentinian I	SECURITAS REIPUBLICAE	364-7	18	2.2	C	LRBCII 481/482
443	Valentinian I	SECURITAS REIPUBLICAE	367-75	16	1.3 (frag)		LRBCII 227/228
444	Valens	SECURITAS REIPUBLICAE	364-7	18	2.2		LRBCII 478/483 AR
445	Valens	SECURITAS REIPUBLICAE	364-75	17	1.3	C	LRBCII 478
446	Valens	SECURITAS REIPUBLICAE	364-75	18	2.7	C	LRBCII 705? RM
447	Valens	SECURITAS REIPUBLICAE	364-75	18	1.6	C	LRBCII 97
448	Valens	SECURITAS REIPUBLICAE	367-75	19	2.3	C	LRBCII 502
449	Valens	SECURITAS REIPUBLICAE	367-75	16	1.8	C	LRBCII 524
450	Valens	SECURITAS REIPUBLICAE	367-75	18	2.2		LRBCII 516 AR
451	Valens	SECURITAS REIPUBLICAE	367-75	18	1.7		LRBCII 523 AR
452	Valens	SECURITAS REIPUBLICAE	367-75	18	2.3	C	LRBCII 528?
453	Valens	SECURITAS REIPUBLICAE	367-75	18	2.2		LRBCII 523 AR
454	Valens	SECURITAS REIPUBLICAE	367-75	16	1.6	C	LRBCII 516
455	Valens	SECURITAS REIPUBLICAE	367-75	17	2.5		LRBCII 1490/1499
456	Valens	SECURITAS REIPUBLICAE	367-75	18	1.6		LRBCII 1015/1021 AQ
457	Valens	SECURITAS REIPUBLICAE	375-8	18	2.8	C	LRBCII 730
458	Valens	SECURITAS REIPUBLICAE	375-8	16	1.5	A	LRBCII 730
459	Valens	SECURITAS REIPUBLICAE	367-75	frag	0.8	A	LRBCII 97
460	House of Valentinian	SECURITAS REIPUBLICAE	364-75	16	1.6 (frag)		LRBCII 481/482/483
461	House of Valentinian	SECURITAS REIPUBLICAE	367-75	19	2.2		LRBCII 104
462	House of Valentinian	SECURITAS REIPUBLICAE	364-75	14	1.3	D	LRBCII 96/97?
463	House of Valentinian	SECURITAS REIPUBLICAE	364-78	18	1.5	C	LRBCII 96/97
464	Valentinian I	SECURITAS REIPUBLICAE	364-75	frag		C	
465	Valentinian I	SECURITAS REIPUBLICAE	364-75	18	1.5	C	
466	Valentinian I	SECURITAS REIPUBLICAE	364-75	17	2.2	C	
467	Valentinian I	SECURITAS REIPUBLICAE	364-75	17	2	D	
468	Valentinian I	SECVRITAS REIPVBLICAE	364-75	19			
469	Valentinian I	SECURITAS REIPUBLICAE	364-75	16	1.7		
470	Valentinian I	SECURITAS REIPUBLICAE	364-75	frag			
471	Valentinian I	SECURITAS REIPUBLICAE	364-75	17	2	C	

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
472	Valentinian I	SECURITAS REIPUBLICAE	364-75	16	2.8	C	
473	Valentinian I/Valens	SECURITAS REIPUBLICAE	364-75	16	1.5 (frag)	C	
474	Valens	SECURITAS REIPUBLICAE	364-75	16	1.9	D	
475	Valens	SECURITAS REIPUBLICAE	364-75	16	1.8		
476	Valens	SECURITAS REIPUBLICAE	364-75	17	1.9	C	
477	Valens	SECURITAS REIPUBLICAE	364-75	18	1.9	C	
478	Valens	SECURITAS REIPUBLICAE	364-75	17	1.5	C	
479	Valens	SECVRITAS REIPVBLICAE	364-75	17	1.7	C	
480	Valens	SECURITAS REIPUBLICAE	364-75	FRAG	1.6 (frag)	C	
481	Valens	SECURITAS REIPUBLICAE	364-78	17	1.5		
482	Valens	SECURITAS REIPUBLICAE	364-75	16	1.5		
483	Valens	SECURITAS REIPUBLICAE	364-75	17	1.3 (frag)		
484	Valens?	SECURITAS REIPUBLICAE	364-75	16	2.1	C	
485	House of Valentinian	SECVRITAS REIPVBLICAE	364-78	16	1.3		
486	House of Valentinian	SECURITAS REIPUBLICAE	364-78	18	2.2	A	
487	House of Valentinian	SECURITAS REIPUBLICAE	364-78	13	1	C	
488	House of Valentinian	SECURITAS REIPUBLICAE	364-78	16	2.1	C/D	
489	House of Valentinian	SECURITAS REIPUBLICAE	364-78	18	2.7	C	
490	House of Valentinian	SECURITAS REIPUBLICAE?	364-78	18	2.3		
491	House of Valentinian	SECURITAS REIPUBLICAE	364-78	16	1.0 (frag)		
492	House of Valentinian	SECURITAS REIPUBLICAE	364-78	17	3.1		
493	House of Valentinian	SECVRITAS REIPVBLICAE	364-78	frag		A	
494	House of Valentinian	SECURITAS REIPUBLICAE	364-78	16	1.7	C/D	
495	House of Valentinian	SECURITAS REIPUBLICAE	364-78	15	1.7	C	
496	House of Valentinian	SECURITAS REIPUBLICAE	364-78	18	2.1	A	
497	House of Valentinian	SECURITAS REIPUBLICAE	364-78	15	1.1		
498	House of Valentinian	SECURITAS REIPUBLICAE	364-78	16	1.9	A	
499	Valens	VICTORIA AVGGG	375-8	16	1.1	C	LRBCII 739/740
500	Gratian	GLORIA NOVI SAECULI	375		1.6		LRBCII 529
501	Gratian	GLORIA NOVI SAECULI	375	18	2.3		LRBC II 529
502	Gratian	GLORIA NOVI SAECULI	367-75	18	2	C	LRBCII 529
503	Gratian	GLORIA NOVI SAECULI	367-75	18	3.4		LRBCII 503
504	Gratian	GLORIA NOVI SAECULI	367-75	18	1.4		LRBCII 517/523a
505	Gratian	GLORIA NOVI SAECULI	367-75	18	2	C	LRBC2 529 CON
506	Gratian	GLORIA NOVI SAECULI	367-75	16	2.4	C	LRBCII 517/523a
507	Gratian	GLORIA NOVI SAECULI	367-75	17	2.1	C	LRBCII 503
508	Gratian	GLORIA NOVI SAECULI	367-75	18	2	C	LRBCII 517/523a
509	Gratian	GLORIA NOVI SAECULI	367-75	17	2.1	C	LRBCII 517
510	Gratian	GLORIA NOVI SAECULI	367-75	18	1.3		
511	Gratian	GLORIA NOVI SAECULI	367-75	18	2	A	
512	Gratian	GLORIA NOVI SAECULI	367-75	16	2.5	D	
513	Gratian	VOT XV MULTXX	367-75	15	1.0 (frag)	C	
514	Gratian	SECURITAS REIPUBLICAE	375-8	18	2.2		LRBCII 533/534
515	Gratian	SECURITAS REIPUBLICAE	375-8	16	2.3		LRBCII 728
516	Gratian	ILLEG	367-83	15	1.7	C	
517	Valentinian II	GLORIA ROMANORUM	375-8	16	2	C	LRBCII 541 AR
518	Valentinian II	VICTORIA AUGGG	388-92	15	0.8	C	LRBCII 168 TR?
519	Valentinian II	VICTORIA AUGGG	388-92	12	1.1	A	LRBCII 562 AR
520	Valentinian II	VICTORIA AUGGG	378-83	13	1.2		LRBCII 546 AR
521	Valentinian II	VICTORIA AUGGG	378-83	13	0.8	C	LRBCII 546 AR
522	Valentinian II	SALVS REIPVBLICAE	383-92	14		A	LRBCII 2177?
523	Valentinian II	SALUS REIPUBLICAE	383-92	12	1	C	
524	Magnus Maximus	VICTORIA AUGG	383-7	14	0.8	C	LRBCII 556/7/8 AR
525	Theodosius I	VICTORIA AUGGG	388-95				
526	Theodosius	VICTORIA AUGGG	388-95	15	1.1		
527	Theodosius I	VICTORIA AUGGG	388-95	13	1	D	LRBCII 565/568?
528	Theodosius I	VICTORIA AUGGG	388-95	13	1.2		
529	Theodosius I	VICTORIA AUGGG	388-95	14	1.2	C	LRBCII 565/568
530	Theodosius I?	SALVS REIPVBLICAE	388-402	13	1.1	C	

Cat.no	Obverse	Reverse	Date	Diam. (mm)	Weight (g)	Field	Reference
531	Arcadius	VICTORIA AUGGG	383-7	12	0.9	C	
532	Arcadius	VICTORIA AUGGG	388-95	14	1.3		LRBCII 566/569 AR
533	Arcadius	VICTORIA AUGGG	388-402				
534	Arcadius	SALUS REIPUBLICAE	388-95	13	1.1		LRBCII 798/801/805
535	Arcadius	SALUS REIPUBLICAE	388-402	13	1.8	A	LRBCII 798/807/808
536	Arcadius?	SALVS REIPVBLICAE	388-402	11	1	C	
537	Arcadius?	SALUS REIPUBLICAE	388-402	14	1.2	A	LRBCII 1107/1110/1112 AQ
538	House of Theodosius	SALUS REIPUBLICAE	388-402	11			
539	House of Theodosius	VICTORIA AUGGG	388-402	13	1.1	C	
540	House of Theodosius	SALUS REIPUBLICAE	388-402	13	1.6	C	
541	House of Theodosius	SALUS REIPUBLICAE	388-402	11	1.2		
542	House of Theodosius	SALUS REIPUBLICAE	388-402	13	0.9		
543	House of Theodosius	SALVS REIPVBLICAE	388-402	11	1	C	
544	House of Theodosius	SALUS REIPUBLICAE	388-402	12	1.1	C/D	
545	House of Theodosius?	UNID		13	0.6 (frag)	A	

546-590 ILLEGIBLE

Abbreviations

Antiq. J.: Antiquaries Journal
Arch. J.: Archaeological Journal
BAR Brit. Ser.: British Archaeological Reports British Series
BAR Int. Ser.: British Archaeological Reports International Series
CBA: Council for British Archaeology
LHA: Lincolnshire History and Archaeology
TCWAAS: Transactions of the Cumberland and Westmorland Antiquarian Archaeological Society

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