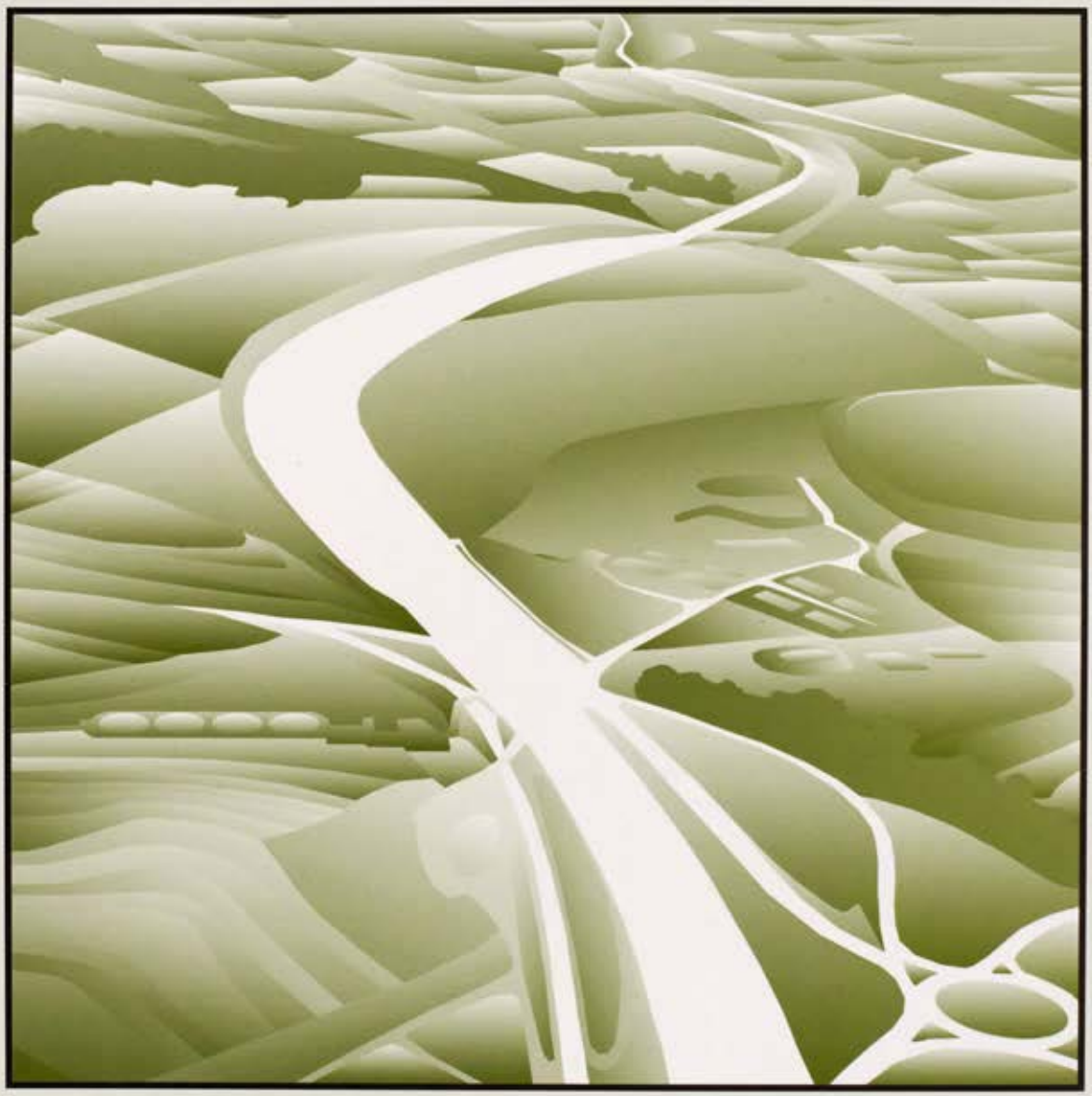
HAMPSHIRE FIELD CLUB

MONOGRAPH 9

Twyford Down, Hampshire Archaeological Investigations on the M3 Motorway from Bar End to Compton, 1990-93



by K E Walker & D E Farwell

The Trust For Wessex Archaeology

HIGHWAYS AGENCY

Twyford Down, Hampshire

Archaeological Investigations on the M3 Motorway from Bar End to Compton, 1990–93

Hampshire Field Club and Archaeological Society Monograph 9
General Editor: Richard Whinney

Twyford Down, Hampshire
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by K E Walker and D E Farwell

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Editor's note: The text of this report was finalised in April 1998 but circumstances beyond the control of Wessex Archaeology or the Society has prevented its publication until 2000. No updating of text or references has been undertaken since April 1998.

Foreword

In my capacity of Project Manager for the M3 Bar End to Compton scheme, I am very pleased to have been given the opportunity to provide a foreword for this archaeological analysis report.

The Highways Agency places considerable importance upon the planning and design of its road projects so as to avoid conflict with sites of archaeological interest. Sometimes a balance has to be struck between construction and less important areas. It is not always possible to detour round every site. However, if a site is identified, every endeavour is made to preserve it. If this is not possible, every care is taken to excavate it professionally so that a record remains. In fact, many new sites come to light which, had it not been for road construction, would have remained undiscovered and it is very often the case that developments can offer opportunities to study the past.

As part of its environmental commitments, the highways Agency records and preserves archaeological remains detected during road improvements, helping to build up a picture of how people lived and worked in the past. It is not only the finds that are of value, as the less glamorous work by the archaeologists in preparing the post-excavation report aims to develop an understanding of the site, reconstructing the past and enabling us to appreciate our history more fully. Post-excavation analysis is thus an essential part of mitigation work and investment in archaeology can provide a considerable return to the academic world and the public. The Highways Agency now has archaeological reports covering more than 600 miles (c. 970 km) of roads and these are being collated into a valuable archive for scholars in the future.

In February 1990, the then Department of Transport announced a substantial increase in funding to English Heritage for archaeological survey and excavation work associated with motorway and trunk road schemes. In advance of the new national arrangements, the Department of Transport made full provision for the cost of archaeological work at Twyford Down. English Heritage was commissioned and the Trust for Wessex Archaeology asked to formulate proposals for assessing the archaeological remains on the route of the proposed M3. Archaeological excavation was subsequently carried out by Wessex Archaeology in 1991 and following completion of this work. Gifford & partners were commissioned by the Highways Agency's consulting engineer for the scheme, Mott MacDonald. The brief included giving expert advice upon the post-excavation analysis specification, to project manage the post-excavation works, and to publish the report on behalf of the Highways Agency. This important phase of the project began in 1994.

Contrary to popular opinion, the final route was chosen to minimise the effect on important flora and fauna and only about 1 acre (0.4 ha) of good downland was sacrificed. I fact, 17 additional acres (*c.* 7 ha) of downland have been recreated as a result of the old A33 having been ploughed up, landscaped, seeded, and planted with indigenous species. Winchester has, at last, been reunited with St Catherine's Hill and this lovely stretch of countryside has been freed from the 50-year encumbrance of traffic.

The removal of the man-made barrier that was the old Winchester bypass is, without doubt, immensely important for both the natural and cultural heritage. It is gratifying to know that, by financing this study, the Highways Agency has enabled the body of knowledge about our past to be expanded and that a wide range of people may, perhaps, be encouraged to take an interest in the extraordinary treasures of our archaeological heritage

Noel Hume
Highways Agency
February 2000

Abstract

A programme of evaluations and large-scale excavation on the route of the M3 from Bar End to Compton culminated in the recovery of an intimate picture of the settlement and use of Twyford Down from the end of the Early Bronze Age to the early Romano-British period.

A primary cremation burial in a Collared Urn was deposited towards the end of the Early Bronze Age and surrounded by a penannular ditch. No traces of a mound survived but it is assumed that a barrow was constructed within the enclosed area at some period during its use. The barrow was built in an area of locally cleared ancient woodland. At least two main phases of funerary activity took place in the Early–Middle Bronze Age with both inhumation and cremation burials being placed within the enclosure and in the ditch. Some of these were contained within Deverel-Rimbury style urns. Dumps of pyre debris were identified in the ditch suggesting that the cremation pyres had been situated close by, possibly within the enclosed area. Some pits and other features in the general area also produced Middle Bronze Age pottery but there was no clear evidence for the occurrence of a Deverel-Rimbury settlement typically closely associated with other barrows on the chalk Downlands. Unusually, there was little evidence for land clearance or agriculture before or during the main period of use of the barrow.

Land clearance for farming started relatively late on Twyford Down. Small-scale settlement occurred during the later Bronze Age. Pits and post-holes revealed the presence of several circular and four-post structures and a series of lynchets, combined with molluscan evidence and plant remains, indicated intensive agricultural use within a stable pattern of fields. A series of pits containing burnt material may have been related to funerary activities but the barrow itself ceased to form a focus for burial.

There appeared to have been an hiatus of activity throughout most of the Iron Age, the local area perhaps being overshadowed by developments at St Catherine's Hill and Oram's Arbour. A final floruit occurred during the Late Iron Age–early Romano-British periods. No evidence for any structures were recorded but a series of ditched enclosures, trackways and lynchets indicate renewed intensive agriculture on the Down.

Chapter 1

Introduction

Introduction

The construction of the M3 motorway extension across Twyford Down from Bar End to Compton, south and east of Winchester, Hampshire, was the culmination of a programme of works initiated in the early 1970s. A series of archaeological site investigations and watching briefs, largely conducted under the direction of Peter Fasham and undertaken in advance of and during the construction of 17km of the M3 motorway between Popham and Bar End, was overseen by the M3 Archaeological Rescue Committee. The various results of the M3 project (undertaken between 1972 and 1988) have been comprehensively published in the *Proceedings* and the Monographs of the Hampshire Field Club. A retrospective consideration of the archaeological methods employed during the previous stages of the project has also been published (*see* for example, Fasham 1982; 1985, Fasham *et al.* 1989; Fasham and Whinney 1991).

The M3 extension as constructed is shown in Fig 1. In summary, the proposals were that a

> *dual three lane motor way some 4.2 km long would continue the M3 from Bar End to curve generally south west ... to cross Morestead Road before proceeding through Twyford Down in a deep cutting east of St Catherine's Hill to descend from the Downs and cross over the realigned B3335 at Hockley. From Hockley, the route on embankment would cross over the River Itchen, the Itchen Valley and the London–Southampton Railway ... before joining the Compton–Bassett section of the M3 ... north of the A31/A33 junction*
> (Public Local Inquiries document, file reference RSE M3/5/61/2/1, p139–40). (Approximate National Grid References SU 4725 to SU 4928).

Following the last of a series of a Public Inquiries, Wessex Archaeology was asked in March 1990 by English Heritage to prepare an evaluation strategy for the proposed route of the M3 Bar End to Compton link. The resultant initial archaeological fieldwork was undertaken in two phases between April and December 1990. Two areas were identified by the evaluation as being of archaeological significance and an excavation research design was duly submitted in April 1991. Wessex Archaeology was duly commissioned to implement the research design and major excavation covering some 3.5ha of Twyford Down took place between April and November 1991 (Plate 1).

This volume presents the results of all the archaeological work undertaken on Twyford Down between 1990 and 1993, in advance of and during the construction of this 'southernmost element of the route which had formed part of the original project' (Fasham and Whinney 1991, 79), that is, the scheme to: 'provide for the continuation of the M3 at Bar End, east of Winchester, to follow an alignment east of St Catherine's Hill, to Compton south of Winchester' (Public Local Inquiries document, file reference RSE M3/5/61/2/1, p1. 38). The archaeological investigations, the subsequent analysis and this publication were funded by the Department of Transport and the work was monitored by English Heritage and latterly by Gifford and Partners Ltd.

Archaeological Background

Before 1991 archaeological evidence already indicated a long history of human exploitation and/or occupation of the surrounding area to the south-east and south-west of Winchester. A number of archaeological sites survived as visible features in the landscape, others had been recorded through aerial photography or excavation; isolated finds had also been recovered from watching briefs and during construction and other works.

The earliest material included two Lower Palaeolithic hand-axes found at Twyford (Roe 1968, 115). The Hampshire County Council Sites and Monuments Record (SMR) shows that Mesolithic and Neolithic material had also been recovered locally. The barrow on Twyford Down (SMR SU42 NE 67) which was excavated during the course of this project and forms a major part of this volume, had previously been identified from aerial photographs. Several other examples of extant Bronze Age barrows and of ring-ditches were known on Compton and Twyford Downs, although there was only very limited evidence for Bronze Age activities of a non-funerary nature.

Winchester itself was the site of a significant Middle Iron Age enclosure (Whinney 1994, 91) and became dominant at least within the local area during the later Iron Age and Romano-British periods. A number of

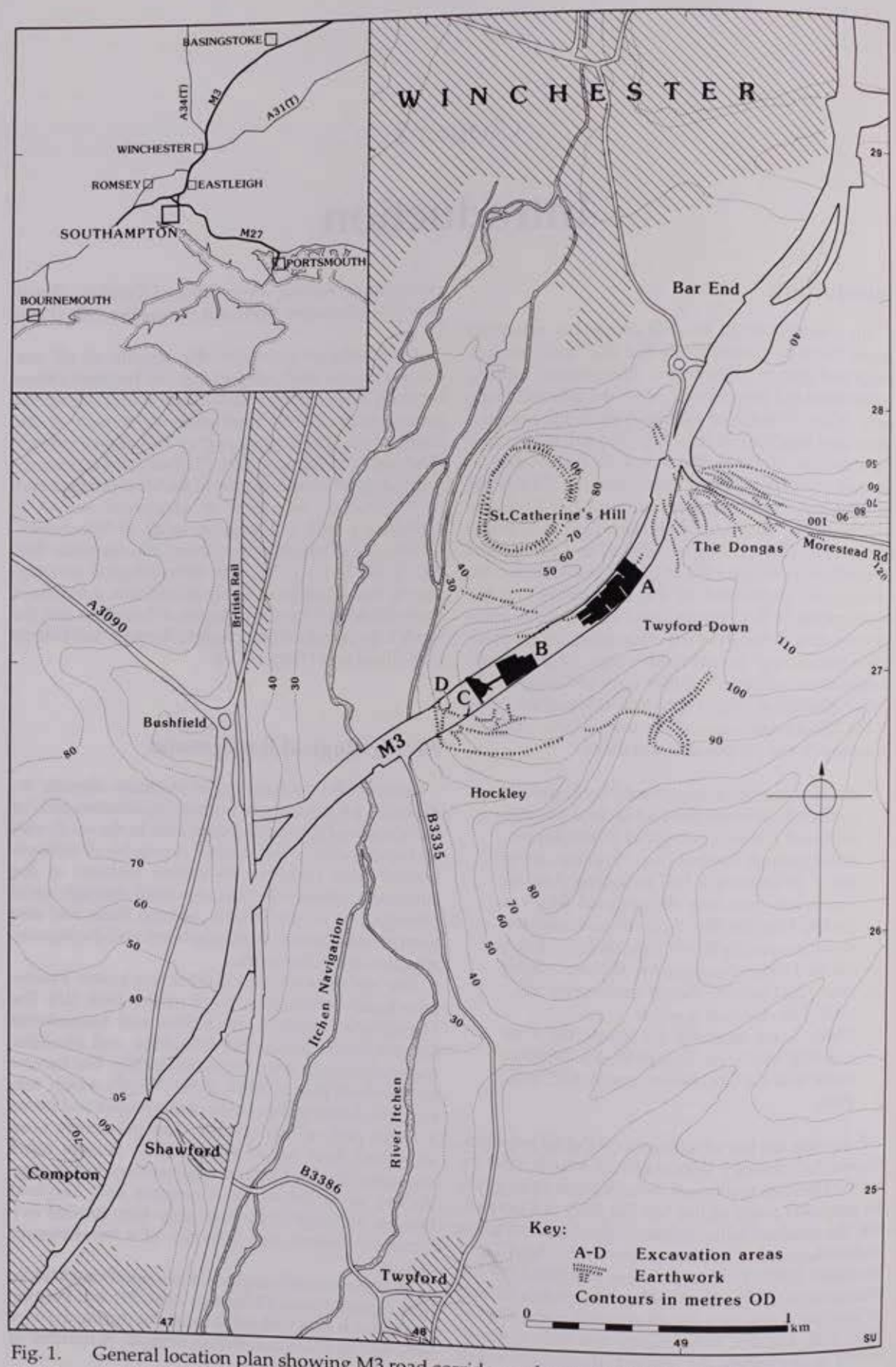


Fig. 1. General location plan showing M3 road corridor and excavation areas A–D.

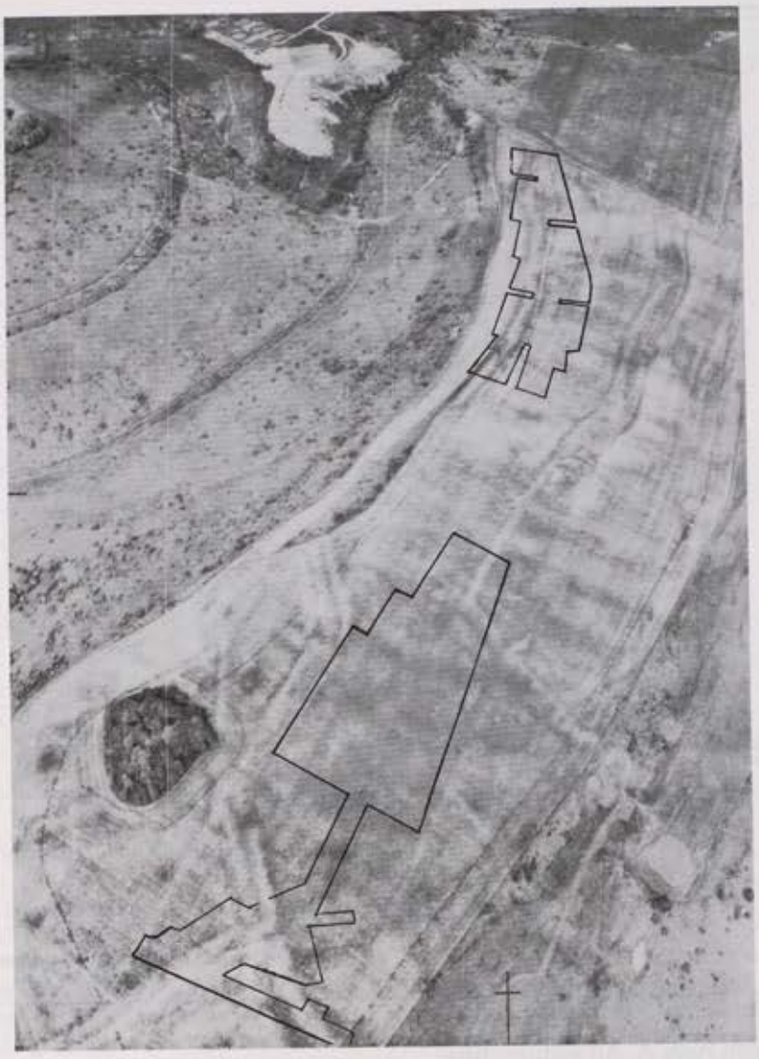


Plate 1 Aerial view of Twyford down in 1967 with approximate positions of excavation areas A–D overlaid.

Iron Age and early Romano-British occupation sites were excavated to the north-east of Winchester during previous phases of the M3 project, notably those at Winnall Down and Easton Lane (Fasham 1985; Fasham *et al.* 1989). In addition to a significant number of relatively isolated Iron Age and Roman finds, and the possible line of a Roman road, there are local sites of major significance from these periods. These include St Catherine's Hillfort (Scheduled Monument (SM) 28) and an enclosure and settlement site (SM 158) on Twyford Down but to the east of the proposed route of the motorway.

It was clear that the proposed road would have a direct impact upon two sites of national importance. The first (SM 273) was an area of Iron Age/ Romano-British occupation and agricultural activity on Twyford Down itself (SU 4843 2686) which was partly excavated in the 1930s (Stuart and Birbeck 1936). Earthworks on Twyford Down known as Hockley Lynchets (partly scheduled within SM 273) were known to be components of a series of complex prehistoric field systems which had been partly recorded in 1933–4 (*ibid.*). Field systems have been recorded by aerial photography over significant portions of Twyford Down and also on the nearby Compton and Teg Downs (south-west and west of Winchester, respectively).

At the north-east end of Twyford Down is an unusual archaeological site (SM 543) comprising a series of inter-connecting hollow-ways, known locally as the *Dongas*, which are possibly of medieval date (SU 4900 2767). This was the second site upon which the new road would encroach.

In addition to Twyford Down itself, other areas of archaeological potential close to or within the proposed route included a medieval moated site at Shawford (SM 12059) and a number of post-medieval remains, such as three burial mounds in Plague Pit Valley which mark the sites of common graves of 1666, the Itchen watermeadows, and the Itchen Navigation,

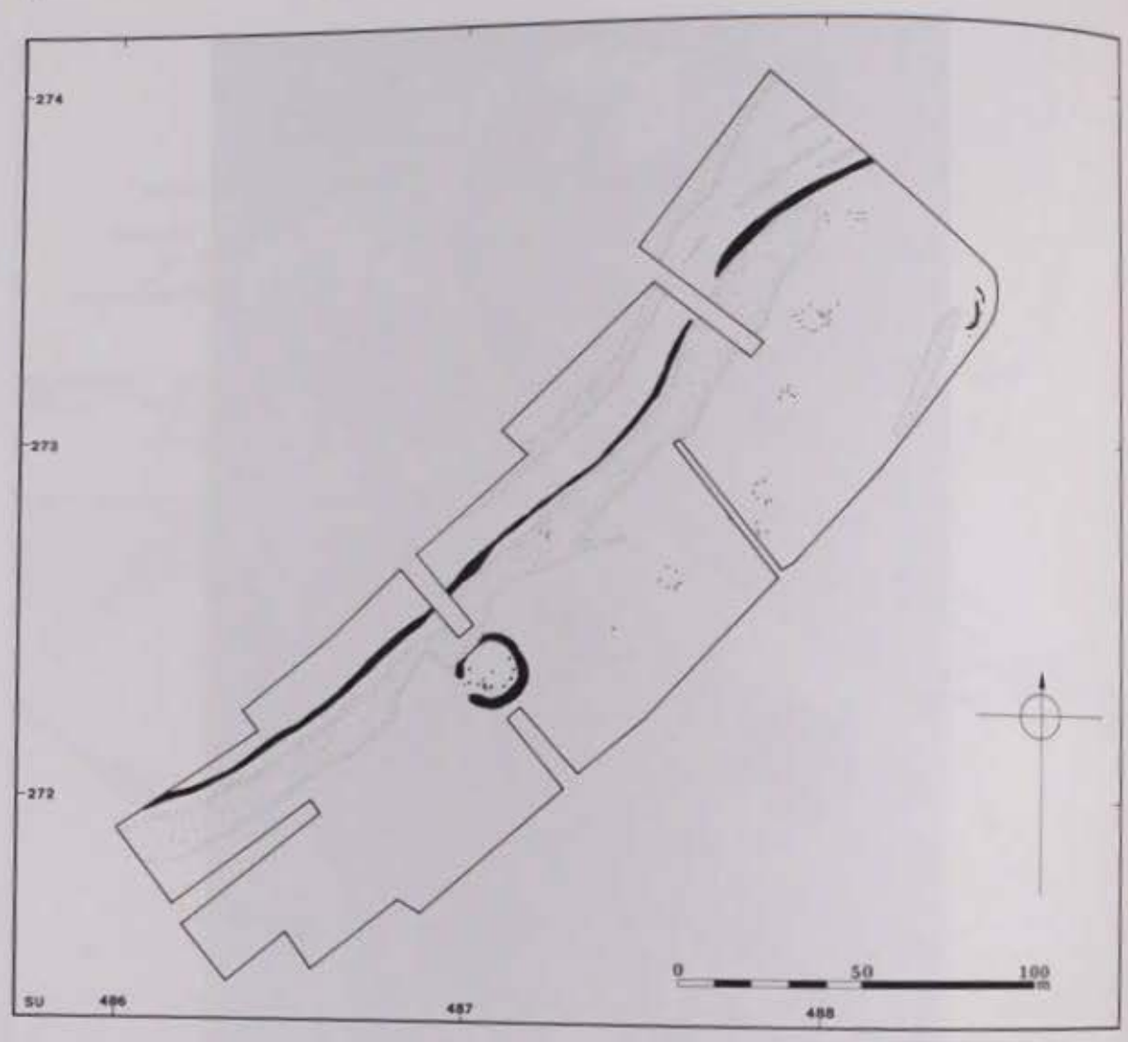


Fig. 2. Excavation Area A. All features plan.

one of the earliest canals in England. There was a relative scarcity of information in the archaeological record for the length of the route between the River Itchen and Shawford.

Previous archaeological investigations in the immediate vicinity of Twyford Down have included both sizeable excavations and some small scale, 'opportunistic'/rescue archaeological recording resulting from development of both infrastructure and leisure facilities. Excavations to the south-east of Winchester have included investigations of the Iron Age Hillfort and medieval structures of St Catherine's Hill, (1925–28) and the Roman enclosure (SM 158) further west on Twyford Down (1949). They also included excavations in 1933 and 1934 by J D M Stuart and J M Birkbeck, which investigated the Iron Age/Romano-British site which lies partly under Hockley Golf Course and on the periphery of the route of the M3 extension (1936, *Proceedings of the Hampshire Field Club* XIII).

Physical Background

The excavation areas at Twyford Down were situated on an Upper Chalk ridge lying at *c.* 96m OD. Here, land over 46m OD is part of a broad belt of Cretaceous Chalk deposits which form part of an east–west anticlinal structure, separating the Tertiary beds of the Hampshire Basin to the south from those of the London Basin in northern Hampshire (Schadla-Hall 1977, 4). The ridge forms the southern edge of a basin which reaches into Middle and Lower Chalk deposits to the south of St Giles's Hill, Winchester. Immediately to the north of Twyford Down, inside the southern edge of the basin, lies St Catherine's Hill, an outcrop of Upper Chalk and site of an Iron Age hillfort. The surface of the upland chalk deposits here was covered by occasional, superficial and variable deposits of clay-with-flints and loam, especially towards the west of the area. The surface of the chalk also had localised patches of both sand and fine flint gravel. Coombe Rock deposits were encountered in the area

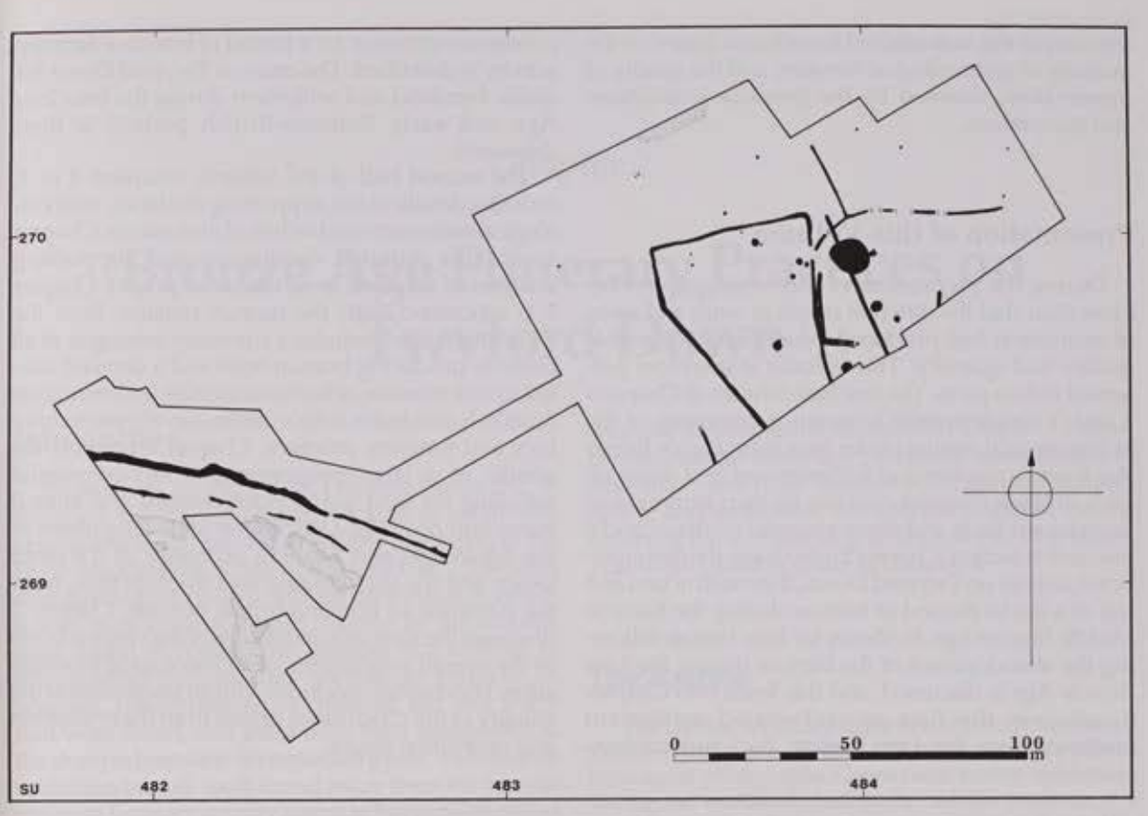


Fig. 3. Excavation Area B. All features plan.

of Hockley Lynchets (SU 4808 2680) and their surfaces were characterised by shallow linear gullies filled with fine silty clay material similar to that found at Easton Lane to the north of Winchester (Fisher 1989, 117–20).

The land on most of the M3 route across Twyford Down was grade 3 agricultural land associated with Chalk downlands. Within the excavation areas, the soil consisted of degraded ploughsoil which contained a considerable proportion of freshly detached chalk and clay. The soil was on average only 0.25m deep and contained many coarse components. The soil was generally slightly calcareous, though localised patches of clay resulted in small areas of more acidic soil. Landuse on Twyford Down included arable cultivation, a golf course, open grassland and areas of dense scrub and small trees. To the west of Twyford Down were the low lying alluvial deposits within the Itchen River valley (agricultural land of grades 4 and 5). This included an area of disused watermeadows used as grazing land.

The route of the M3 across Twyford Down coincided with the down's north-western limit. In effect the evaluation and excavation areas ran along a natural lip of high ground which dominates the adjacent part of the Itchen valley. To the north and west the ground drops away steeply; the vista ahead comprises the bold outline of St Catherine's Hill set to one side of the Itchen valley. To the south is the natural hinterland of Twyford Down; a gently rolling landscape of generally favourable south-east facing aspect.

The Project

Initial archaeological fieldwork was undertaken in two phases between April and December 1990 following the acceptance by English Heritage of the evaluation strategy for the proposed route of the M3 Bar End to Compton link prepared by Wessex Archaeology. Fieldwork incorporated a number of investigative techniques including artefact survey by surface collection, geophysical survey, auger survey, hand test pitting and machine trenching.

Two areas were identified by the evaluation as being of archaeological significance and an excavation research design was duly submitted in April 1991. Areas A and B were fully investigated by excavation (Fig 1). A total area of 3.5ha was cleaned and excavated by a team of, on average, 25 people. The excavation areas were located on the northern and western flanks of Twyford Down, overlooking the Plague Pit valley (a dry coombe) and the Itchen valley respectively. Two small additional areas (C and D) were opened nearby (Fig 1). Area A was found to contain archaeological features largely, though not exclusively, of Middle and Late Bronze Age date, while Area B contained features of largely Iron Age/Romano-British date (Figs 2 and 3 respectively). Methods and strategies employed during the excavations are discussed in Chapter 7, below.

During the construction programme, a watching brief was maintained along the length of the route. The

intensity of this was adapted to each area, based on the quantity of archaeological remains, and the quality of preservation, assessed by the previous evaluations and excavations.

Presentation of this Volume

During the preparation of this monograph it became clear that the different stages of work and areas of excavation had produced information of variable quality and quantity. This volume is therefore presented in two parts. The first half consists of Chapters 2 and 3 which present a narrative summary of the archaeological results under two main topics *Bronze Age funerary practices* and *Settlement and land allotment*. Each of these chapters contains its own summary of the relevant finds and environmental evidence and a discussion section. Chapter 2 introduces the first significant activity on Twyford Down, the construction and use of a burial mound or barrow during the Early to Middle Bronze Age. Evidence for later burials following the abandonment of the barrow during the Late Bronze Age is discussed, and this leads into Chapter 3; wherein the first securely-dated settlement evidence from the Late Bronze Age and contemporaneous evidence for a period of intensive farming activity is described. The reuse of Twyford Down for arable farmland and settlement during the later Iron Age and early Romano-British periods is then discussed.

The second half of the volume, Chapters 4 to 7, contains details of the supporting evidence, methodological statements and technical discussions. Chapter 4 contains detailed catalogues and supporting analyses of the finds from the entire project. Chapter 5 is concerned with the human remains from the excavations, and includes a summary catalogue of all contexts producing human bone and a detailed analysis of the remains, of both inhumation and cremation burials. It concludes with a discussion of pyre technology and funerary practices. Chapter 6 presents the results of a large programme of environmental sampling for land snails, plant remains and animal bones and provides a discussion of developments in the landscape and farming economy of Twyford Down and the surrounding area through time, from the Neolithic to Romano-British periods. Chapter 7 discusses the methods and results of the various facets of the overall programme of archaeological investigation. The chapter concludes with an assessment of the validity of the conclusions drawn from the evaluation and excavation stages.

Chapter 2

Bronze Age Funerary Practices on Twyford Down

Introduction

Excavations on Area A at Twyford Down (Fig 2) recorded the ploughed-out remains of what was originally a burial mound or barrow belonging to the Early–Middle Bronze Age (*c.* 1700–1400 BC). The ditch surrounding the barrow and the area inside it, which would have originally been covered by the mound, were found to contain the remains of a number of inhumation burials and cremation burials. In addition, concentrations of charcoal, ash and burnt flint were found, and these have been interpreted as the dumped remains of cremation pyres. Two further cremation burials were found away from the barrow but most funerary activity seems to have concentrated on this monument. Evidence for associated settlement was very limited, and is discussed in Chapter 3, below. Environmental sampling produced assemblages of land snails and plant remains which provided interesting, and somewhat unexpected evidence on the nature of the surrounding landscape and vegetation. This is discussed in detail in Chapter 6.

The Barrow

The barrow, which lay on the side of a north-west facing slope on Area A at *c.* 93m OD, had been previously plotted from aerial photographs. Geophysical survey undertaken during the evaluation had confirmed the presence of a roughly circular ditch enclosing an area of about 15m

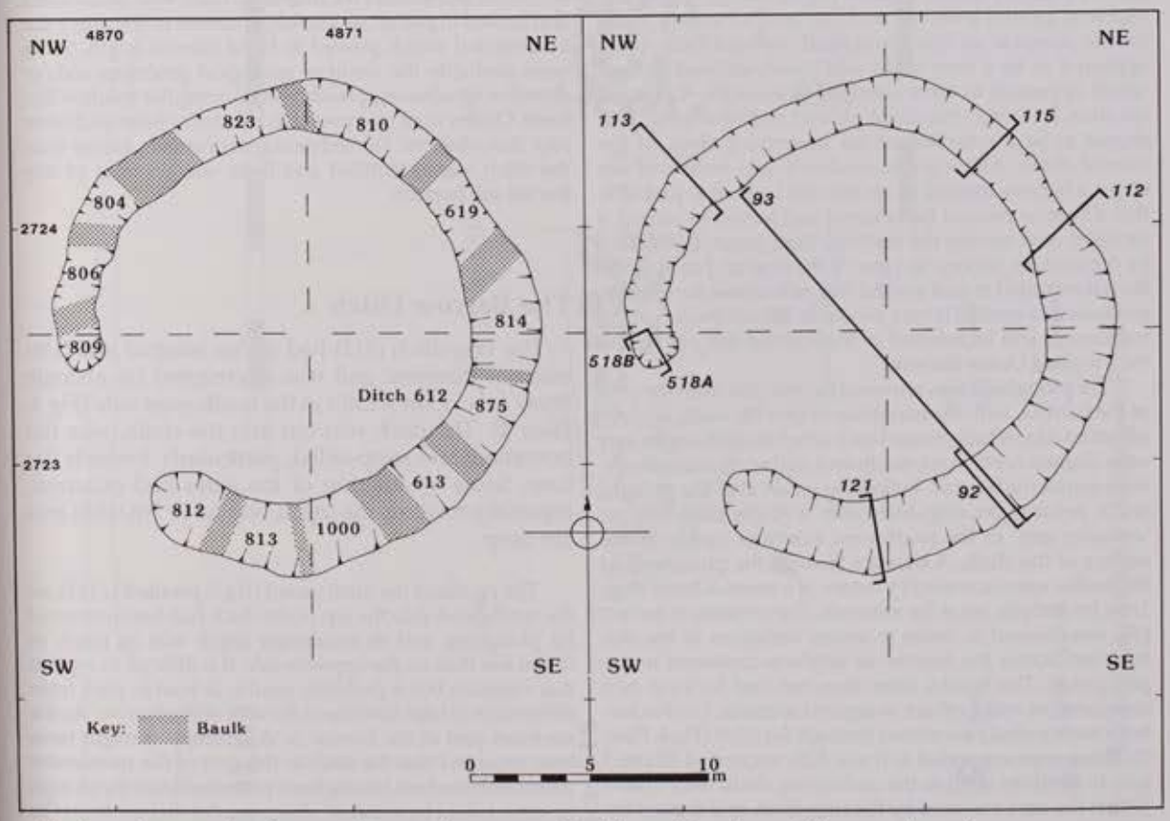


Fig. 4. Bronze Age barrow (Area A): segment details and location of illustrated sections

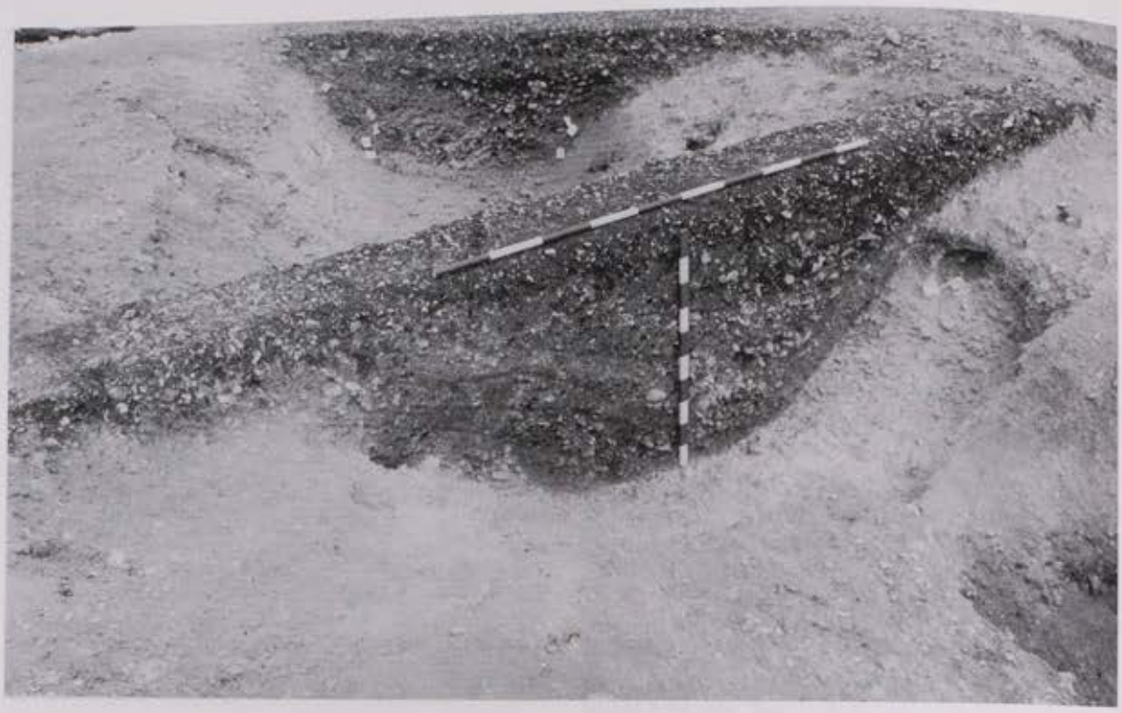


Plate 2. Excavation of barrow ditch.

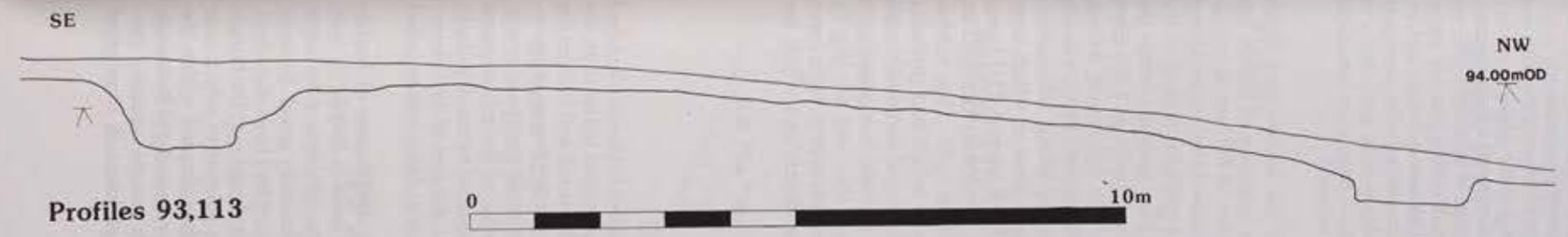
diameter. Before excavation there was little surviving evidence for any central mound: the earthwork was barely visible at ground level and an EDM contour survey made before removal of the ploughsoil showed only what appeared to be a very slight and poorly defined mound which appeared to have slumped downslope. Upon excavation, however, this slight mound and 'slumping' was shown to be a reflection of the underlying slope of the natural chalk. Although no evidence was recovered for either a barrow mound or an internal bank, it is probable that a barrow mound had existed and served to protect a localised area leaving the residual 'high ground' recorded by the contour survey. In view of the type and date of the burials recorded in and around this monument the original presence of a mound is very probable. For convenience, the monument will be referred to throughout this volume as the Twyford Down Barrow.

The ploughsoil was removed by machine from the area of the barrow, with the exception of two 5m wide, slightly off-set baulks, which crossed each other at right-angles and were aligned north-west–south-east and north-east–south-west across the barrow. Following removal of the ploughsoil a penannular ring-ditch with a single causeway or 'entrance gap' in the south-west side was visible in the surface of the chalk. A transect through the ploughsoil of the baulks was excavated by means of a series of hand-dug, 1m x 1m test pits, set at 2m intervals. The contents of the test pits were sieved in order to assess variations in the distribution across the barrow of artefacts contained in the ploughsoil. The baulks were then reduced to leave two complete 1m wide, off-set, staggered sections. Twelve sections were initially excavated through the ditch (Fig 4, Plate 2). These were expanded as it was fully excavated (Plates 3 and 4). Features cut into the underlying chalk were visible within the area enclosed by the ring-ditch, and these were excavated by hand. The chalk bedrock, both within the enclosure and around the ring-ditch itself, was discoloured and faulted in places. As a result, a number of features were investigated which proved to be of natural origin. Some were probably the result of geological processes and/or chemical weathering, possibly small, irregular solution features. Others were interpreted as tree throw holes and other root disturbances. No archaeological features earlier than the ditch were identified and there was no trace of any buried soil horizon.

The Barrow Ditch

The ring-ditch (612) had a 15m internal and 20m external diameter and was interrupted by a single break (of *c.* 5.5m width) in the south-west side (Fig 4, Plate 4). The ditch was cut into the chalk, was flat bottomed, and steep-sided, particularly towards the base. Some weathering of the sides had occurred, especially towards the top. It was up to 3m wide and 1m deep.

The profile of the ditch varied (Fig 5, profile 93/113); on the north-west side the top of the ditch had been removed by ploughing and its maximum depth was as much as 0.30m less than on the opposite side. It is difficult to explain this variation but it probably results, at least in part, from differences in later landuse in the area of the barrow. As the northern part of the barrow is 'downslope' it might have been expected that the ditch in this part of the monument would survive best, having been protected from the plough to some extent by material slumping downslope from the



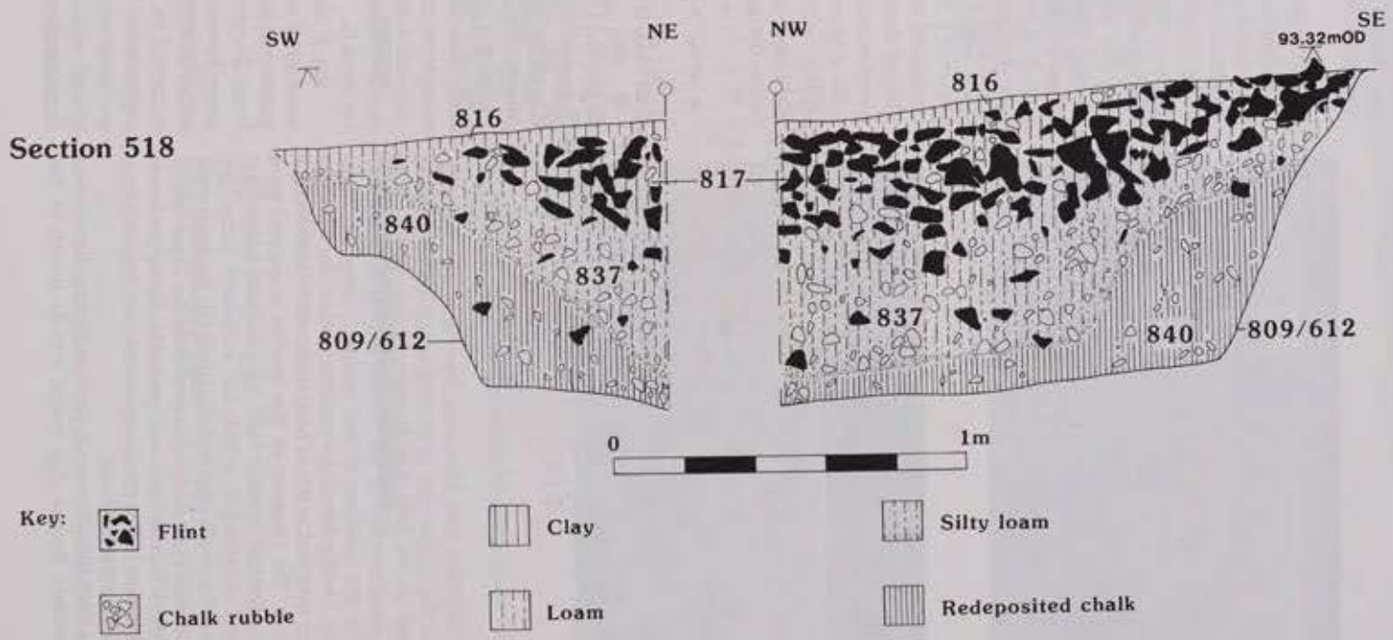


Fig. 5. Barrow ditch profile 93/113 and section 518.

Plate 3. Sequence of excavation of the barrow.

higher, southern part. However, there is evidence to suggest that the barrow lay in an area which became a field boundary in the Iron Age–Romano-British period. The, higher, southern half of the barrow may have been protected by the build-up of soil against a fence or, more probably, a hedge forming a 'positive lynchet', for which no evidence survived as it had been removed by more recent ploughing. The presence of this lynchet is implied by a 'negative lynchet' (context 1178; the ploughed edge of the next field downslope), which ran east–west across the northern (downhill) edge of the barrow. The southern edge of that feature appeared to have cut both the upper fills of the northern barrow ditch and, probably, the upper levels of the northern half of the enclosed area (*see* Chapter 3 for a discussion of the lynchets).

The ditch fills also varied, partly reflecting disturbance by secondary Bronze Age burial activity (much of the southern half of the ditch having been disturbed by graves; *see* Fig 6, section 121) but also by episodes of recutting/cleaning out of the ditch and the dumping of material in it. In addition there was, sometimes considerable, animal and root disturbance. Five main types of fills were recognised: primary erosion deposits, consisting predominantly of fine chalk silt accumulating in the very bottom of the ditch and resulting from initial weathering of the edges; secondary chalk and silt erosion deposits, some with a humic content, possibly dating from the first stage of agriculture after the construction of the barrow; chalk rubble, possibly representing material collapsed from the barrow mound and/or, infill, flint and ash deposits connected with secondary cremation activity; and agricultural soils, presumably of later Bronze Age date. In addition, there were substantial deposits of flint nodules in the terminals.

Although the features of the barrow lack direct stratigraphic relationships a sequence of events has been identified. The deposition of the central cremation burial (in a large plain Collared Urn) is considered to be roughly contemporary with the cutting of the ditch, on the grounds of its focal position within the monument. The initial (primary) silting of the ditch was not continuous around the full circuit. Where present it was, in some areas, followed by the placing of burials and then by secondary silting. Inhumation burials were placed in graves, some of which were dug into the primary silts (Fig 6, section 121) Loose chalk and flint rubble were apparently dumped in, generally from the enclosure side. This rubble contained some burnt material which had probably filtered down from above. A second series of burials (predominantly cremation burials) was associated with a layer containing much flint and ash (Fig 7), within which specific concentrations have been identified as dumps of pyre debris and which lay below the agricultural soil.

Burials in the Barrow

In total a minimum of 38 individuals was identified amongst the inhumed and cremated bones from the barrow; 17 from the cremation burials and 19 from the inhumation burials, with possibly several others represented amongst the other small groups of bones. Only two cremations and none of the inhumations were from outside the area bounded by the ring-ditch: one was within Area A but to the east of the barrow, and the other (Late Bronze Age in date), was recorded on Area B.

Fig 8 shows the overall distribution of burials associated with the barrow. Bone is frequently well preserved in chalk soils and the condition of the bones from Twyford Down was generally good. In some cases, however, the inhumations had been disturbed, either in antiquity or by recent ploughing. The burials occurred in two groups, the smaller of which was represented by six inhumations situated within the enclosure and the other by the remainder of the burials placed within the ditch. Both groups consisted predominantly of women and children. A number of

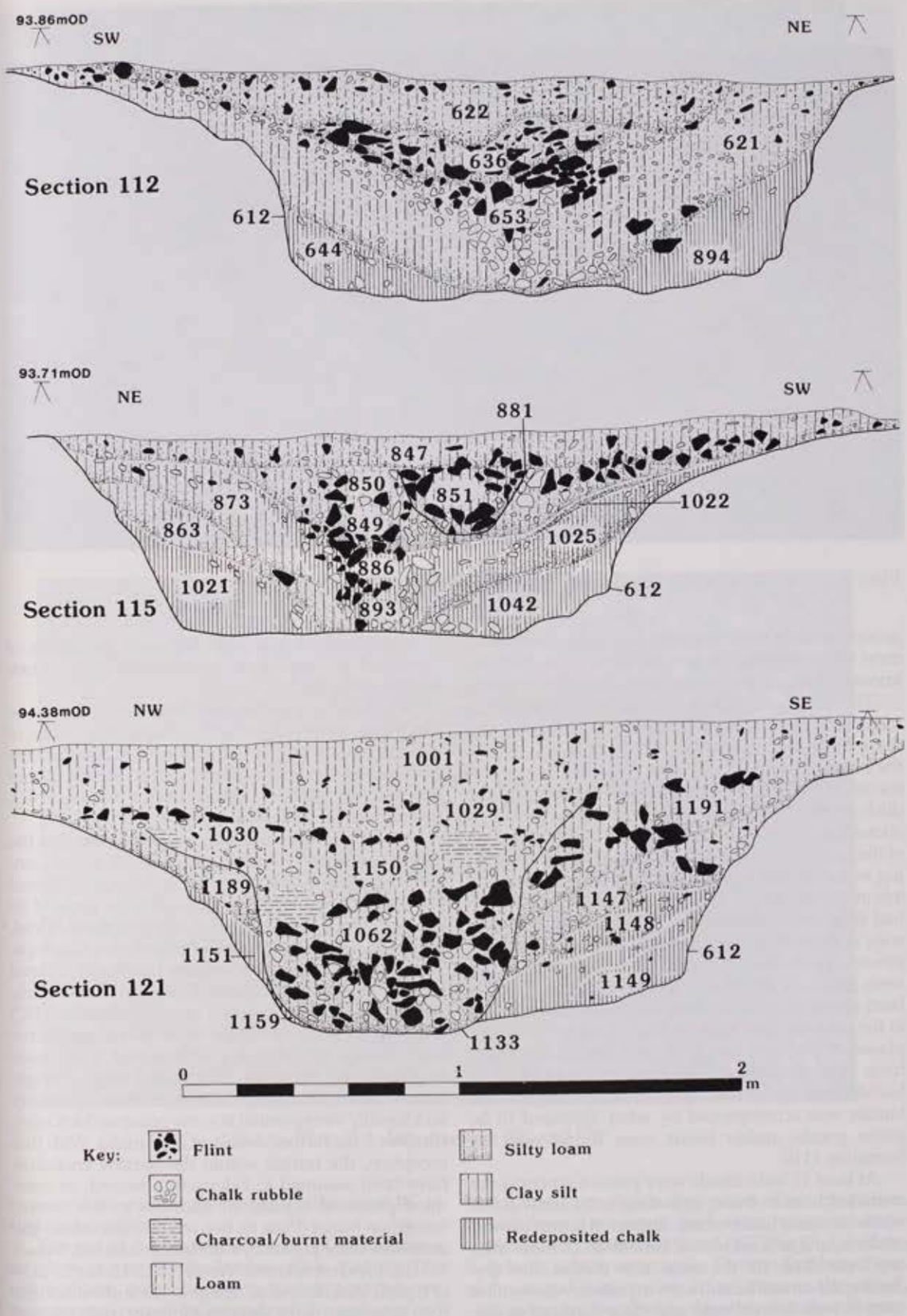


Fig. 6. Barrow: representative ditch sections.

Plate 4. Barrow fully excavated, view from the north-west.

groups of stray bone fragments were also recovered, most of these could be seen to have come from the known inhumations that had been disturbed (Plate 5).

The distribution of the burials across the monument was uneven; both those in the enclosure and those in the ditch being concentrated largely within the southern half. There was a particular concentration of burials in the south-west quadrant of the ditch (closest to the southern terminal). As described above, the upper levels of the ditch in the northern half of the monument had been removed by later ploughing so the possibility had to be considered that any inhumations placed high up in the ditch in this area had been subsequently lost, thus leaving an apparently uneven distribution (*see* above). However, as the inhumation burials in the southern half of the ditch were generally found at a low level within it, it has been reasoned that, had they originally been present in the northern half, they would probably have been placed at a similar low level and should, therefore, have been preserved. The uneven distribution of burials seems to be real. Only one of the inhumation burials was accompanied by what appeared to be grave goods; amber beads were found with inhumation 1110.

At least 17 individuals were present amongst the cremated human bone, including some individuals whose remains had become dispersed across several contexts, and at least two of the burials of more than one individual. Of the cremation burials, five (including the central burial) were in pottery vessels, nine were in well-defined cuts, and three survived as distinct concentrations of bone and charcoal which could be distinguished from the dispersed fragments of cremated human bone amongst the pyre debris dumps in the ditch.

The burial sequence from the barrow could not be completely resolved on field evidence (Fig 8). Six of the inhumation and 11 of the cremation burials were from within the enclosed area and so were without stratigraphic sequence being cut into natural chalk and sealed by modern ploughsoil.

A small circular pit, 865, centrally placed within the barrow enclosure contained a cremation burial (context 866), placed within a large inverted, plain Collared Urn (Vessel No. 2019, Fig 23, 1). On the basis of its position, this was presumed to be the primary burial, although there were no stratigraphic relationships. The vessel is a Secondary Series or Late Style Collared Urn (*see* Woodward, Chapter 5, below) of Early–early Middle Bronze Age date (mid-second millennium BC) although it is possible that the vessel may already have been of some age when it was deposited. The cremation burial was that of an older mature adult. A single bone from another individual was included (possibly accidentally incorporated at some point; *see* McKinley Chapter 5 for further details of all burials). With this exception, the burials within the barrow enclosure have been assumed to belong to a second, or even third phase of burials. In addition to the central cremation burial (Plate 6), two others from within the enclosure were in pottery vessels (contexts 660, Vessel No. 2011 and context 663, Vessel No. 2012; Fig 23, 2, 3) of typical Middle Bronze Age globular and bucket urn type belonging to the Deverel-Rimbury tradition and can therefore be roughly dated by reference to these

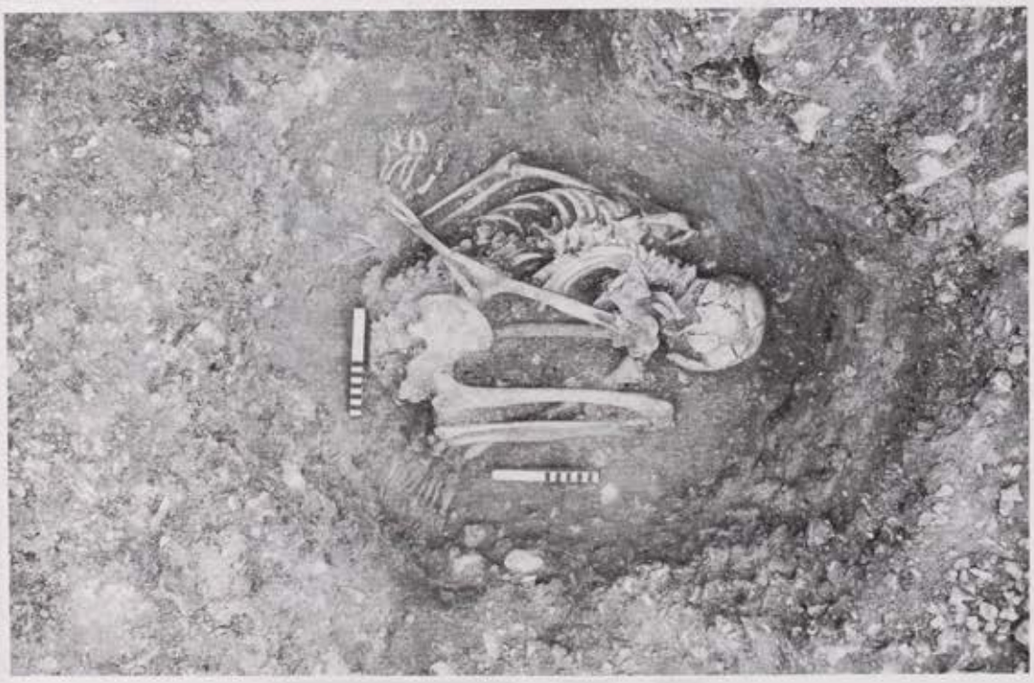


Plate 5. Inhumations 651 and 689.

to around the middle of the second millennium BC or slightly later (Plate 7).

The rest of the burials have been placed within a rough sequence for the barrow ditch infilling. The result shows that inhumation burials post-date the primary and part of the secondary silting phases and are in turn post-dated by the main phase of cremation burial and pyre debris deposition. Two cremation burials from the barrow ditch were recovered from within pottery vessels 2005 and 2027 (Fig 23, 4, 5; Plate 9, below), which were again Deverel-Rimbury type globular and bucket urns. In addition to the urned cremations, further sherds of pottery (representing up to nine vessels) in the Deverel-Rimbury tradition were

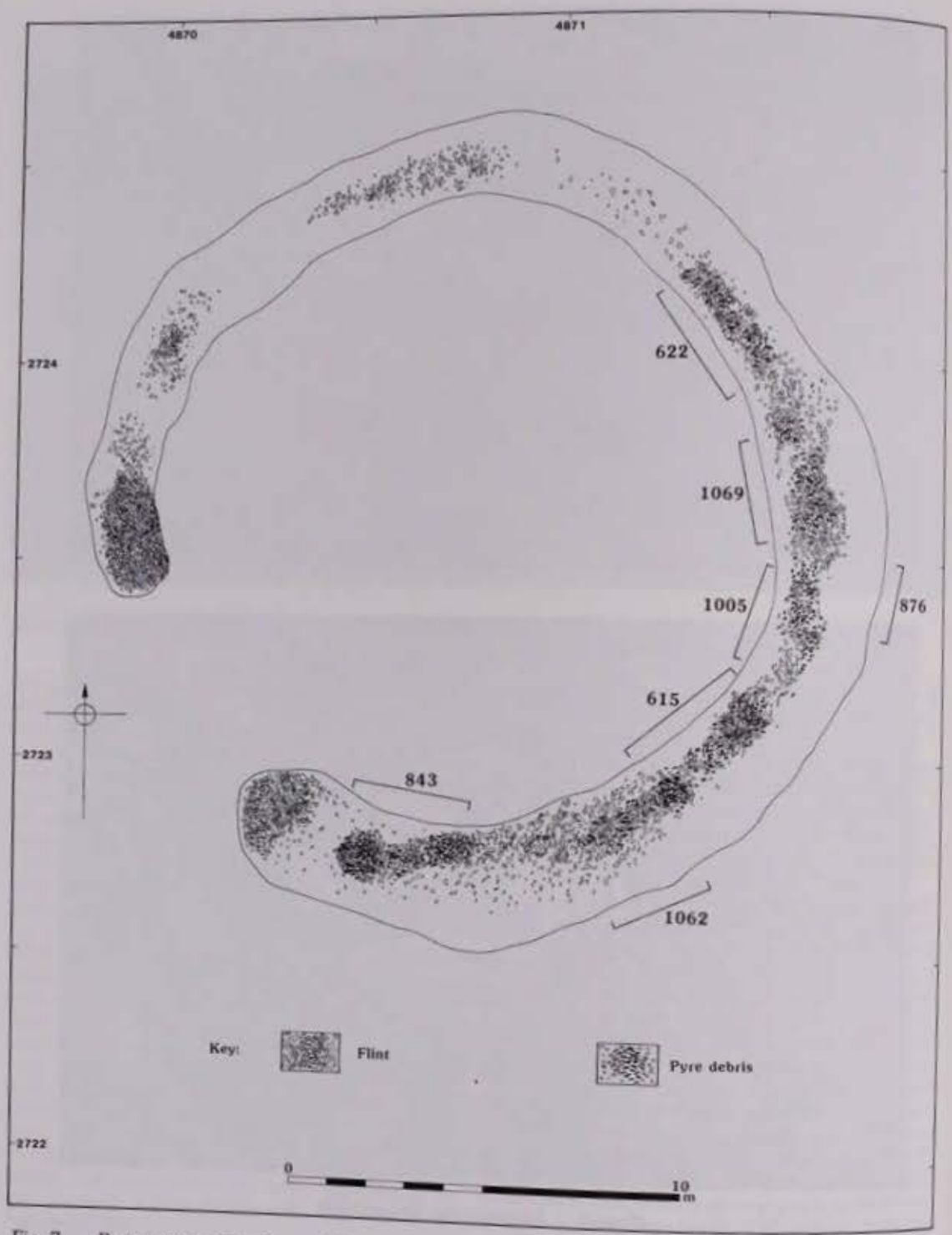


Fig. 7. Barrow: concentrations of flint and defined pyre debris dumps from within the barrow and enclosure.

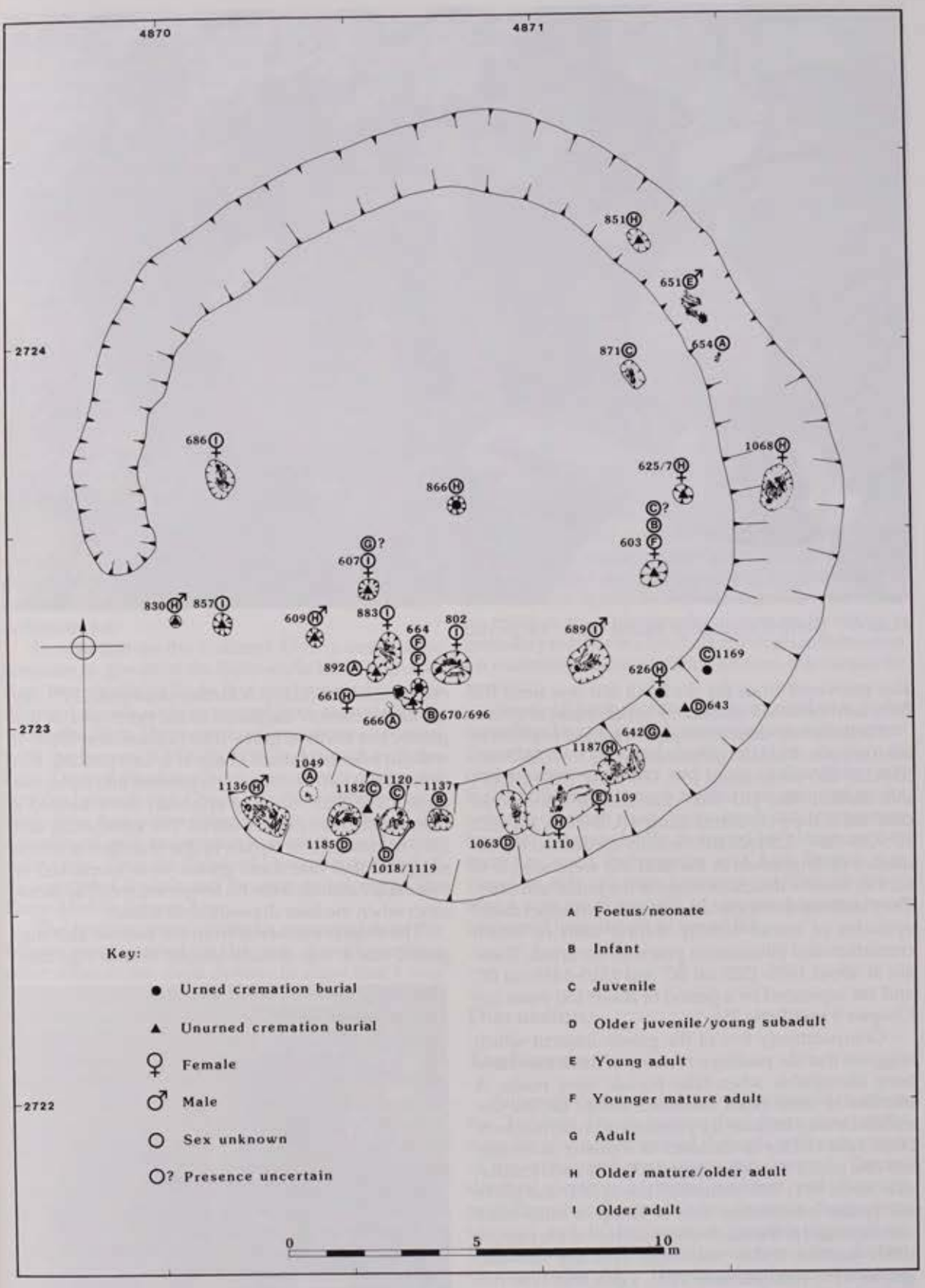


Fig. 8. Barrow: overall post-excavation plan with details of burials.

Plate 6 Central cremation burial under excavation.

also recovered from the ditch, all but one from the flint/ash horizon (ie secondary burial phase) or above.

Radiocarbon determinations obtained from three inhumation burials (inhumation 1136, UB–3865, 3314±19 BP; inhumation 651, UB–3864, 3164±31 BP, inhumation 686, UB–3863, 3160±23 BP) and from charcoal in the pyre debris dumps (UB–3866, 3316±21 BP; UB–3867, 3294±22 BP) broadly confirmed the sequence distinguished in the field but were unable to further resolve the chronology of the burial activities. They indicate that there are at least two distinct dated episodes of burial activity during both of which cremation and inhumation practices occurred. These are at about 1675–1525 cal BC and 1510–1415 cal BC and are separated by a period of about 150 years (*see* Chapter 5 and Table 25).

Comparatively few of the graves intercut which suggests that the positions of many of them may have been identifiable when later burials were made. A number of stake-holes identified within the barrow enclosure may indicate the presence of burial markers. Stake-hole 697 lay to the south of a cluster of burials; 669 (the pit for cremation burial 670/696), 660 (cremation burial 661), 663 (cremation burial 664) and grave 667 (infant inhumation 666). A group of stake-holes was recorded in the south-east quadrant of the barrow ditch (section 1000). Stake-hole 1172 lay between graves 1133 (inhumations 1109, 1110) and 1186 (inhumation 1187). It cut the fill (1188) of the latter. Two more, 1174 and 1176, lay just to the north of 1172 and cut the ditch fill (1189). A further stake-hole, 1171, lay inside the barrow enclosure to the north-east of this group, just north of grave 1083 (inhumation 1063). It was cut into the natural chalk. It is also possible that some of the flint material incorporated into the upper part of the ditch fill may originally have formed a number of grave marker cairns. The intercutting and later disturbance of burials by the insertion of others suggest either that some graves were unmarked or that earlier burials were no longer regarded as sacrosanct when the later deposits were made.

The objects recovered from the barrow also suggested that it was of early Middle Bronze Age date.

Plate 7. Cremation burials 660 and 663.

The only obvious grave goods are the amber beads from inhumation 1110 in grave 1133 (Fig 31). Similar beads have been found elsewhere in Bronze Age cremation burials in Wessex, such as at Easton Down, and have traditionally been dated to end of Early Bronze Age or the start of the Middle Bronze Age (Fasham 1982, 24–40). Other finds (Fig 20), some of which may be objects which were placed on funerary pyre rather than having been buried with the deceased, include a copper alloy awl of Early Bronze Age type, a copper alloy ring of probable Early Bronze Age type, and what is probably a fragmentary bracelet of Middle Bronze Age type (*see* Montague, Chapter 5). No later material was directly associated with any of the burials. The small amount of worked flint recovered from barrow contexts is also of Bronze Age date and no instances of *in situ* flint working could be identified; none of the flint can be considered to be have been deposited as grave goods. Large quantities of animal bone were recovered from the ditch, mainly fromthe flint/ash and flint deposits associated with burial activity. There is some suggestion of deliberate deposition, some of which may represent food offerings, especially where burnt animal bone was recovered from pyre debris or in association with cremated human bone, and the presence of a horse mandible in the secondary flint layer (817) in the northern terminal of the ditch seems also to indicate a deliberate act.

In addition to the Collared Urn, a vessel type common in graves of the Early–early Middle Bronze Age, two sherds of Early Bronze Age urn from two different vessels were recovered from secondary fills within the ditch. The majority of the pottery associated with the barrow is Middle Bronze Age and includes both Deverel-Rimbury type cremation vessels and scattered sherds (*see* Chapter 5). Late Bronze Age/ Early Iron Age pottery sherds were restricted to the agricultural soils and appear to relate to post-barrow cultivation. Thus the Twyford Down barrow and all its associated burials can be seen to belong to the Early–Middle Bronze Age.

The environmental evidence recovered from the barrow was expected, on the basis of evidence from other areas of the chalk downs, to show that it was built in an open, probably grassland landscape which had long been cleared of trees. In fact, the land snails, plant remains and microfaunal remains (mostly small mammals and amphibians) show that the barrow was constructed in a locally cleared ancient woodland. Snail assemblages typical of open grassland or ploughed downland do not occur until after the main period of use of the barrow for burial and, although cereal plant remains were found, their quantities were limited and analysis suggests the presence either of abandoned arable land or of very limited cultivation in the area around the barrow. The dominant plant materials recovered from the samples were the tubers and rootlets of onion couch grass. The tubers may have been food offerings but, as they are quite frequently found associated with prehistoric cremation cemeteries, it is also possible that the grass was collected as tinder for the pyres (*see* Clapham, Chapter 6, below).

Bronze Age Funerary Activity Beyond the Barrow

A single, shallow isolated pit, 742, which lay to the east of the barrow on Area A, contained an unurned human cremation burial (context 759) which has been assigned to the Middle Bronze Age phase of activity largely on spatial grounds. Details of the cremation burial are presented in Chapter 5.

Ten features were recorded on Area B, well to the west of the barrow, which were apparently associated with cremation-related activities (Fig 9). Cremation burial 5026 was deposited in a vessel of Late Bronze Age date in pit 5024 (Vessel No. 7004; Plate 8). This was the westernmost of the series of pits on Area B and the only one to contain a cremation burial. Details of the burial, an older mature adult, are presented in Chapter 5.

In addition to pit 5024, nine small pits or scoops were investigated on Area B. These features were positioned at roughly regular intervals in two approximately parallel alignments running from north-west to south-east. It may be that the deposits were made in relation to a topographical feature (possibly a boundary marker or a lynchet), although as there were no remaining traces of such a feature, this cannot be verified.

Seven of these features were so similar as to be considered a group. They were circular with average diameters of 0.30m and depths of 0.15m. As they all contained some pottery and traces of charcoal or ash in their fills, they were excavated and sampled on the asumption that they were probably cremation features. All were badly damaged by ploughing but each contained the remains of a Late Bronze Age vessel. In only one case, however (pit 5063, fill 5064), was a very small amount of cremated human bone recovered from the pit or vessel fill.

Discussion

The barrow

Although the excavation provided no evidence that the Twyford Down barrow had been structurally complex, the results gained through total excavation of the monument were somewhat unusual. The individual elements of burial tradition and funerary practice seen at Twyford Down are not in themselves unusual and find numerous parallels throughout Britain in many of the burial mounds and ring-ditches of the Bronze Age. The combined use of such a monument for both inhumation and cremation burial (Plates 9 and 10) and by users of different, subsequent, ceramic traditions is also familiar (cf Bradley 1981) and

Plate 8. Pottery vessel 7004 *in situ*.

yet, to date, there seems to be no exact parallel for this cemetery. The use of a barrow for a number of burials was commonplace and it has long been argued that such barrows may 'reflect current use of the same grave by families or kinship units over one or several generations' (Balkwill 1978, 29). Dumps of cremation pyre debris have been recognised from a number of prehistoric sites (*see* McKinley, Chapter 5, below) and, indeed, may have been present on more excavated sites but gone unrecognised in the past. However, deposits of pyre debris dumps 'representing several cremations as seen at Twyford Down appear not to have been previously encountered' (*see* McKinley in Chapter 5). What is most striking about the Twyford Down barrow, however, is the large number of both inhumation and cremation burials present in at least two major episodes of deposition.

The first known burial activity from Twyford Down is represented by the penannular ring-ditch surrounding a central cremation burial; the construction of a barrow mound need not have been associated with this burial. The burial was deposited in an inverted, undecorated Collared Urn (Plate 6). The secondary use of Collared Urn-related barrows for cremation burials in Deverel-Rimbury pots is a widespread phenomenon in southern England (*see*, for instance, Bradley 1981). At Itford Hill, Sussex, for example, a similar central urned cremation, surrounded by a penannular ring-ditch, was found in the small Middle Bronze Age barrow on the chalk downland (Holden 1972). At Itford Hill, a number of other urned and unurned cremations (which largely avoided the ditch), lay to the south and south-west of the barrow. Unlike the Twyford Down example, however, no inhumations were recorded. This barrow was demonstrably associated with a nearby enclosed settlement, a sherd from the barrow refitting with one from the settlement, and further demonstrated the use of similar pottery in both domestic and funerary contexts (Ellison 1980). In addition to secondary Deverel-Rimbury burials within the enclosure and ditch, the Twyford Down barrow had a single outlying, unurned, cremation burial situated well beyond the ring-ditch and to its south-east.

Locally, the Easton Down ring-ditch (Site R7), 2km north-east of Winchester (SU 495 313), provides an example of a ring-ditch with a central cremation burial (in this case, unaccompanied by a pottery vessel, but with a bronze knife-dagger). Like the Twyford Down barrow, that monument also produced more than one burial and different funerary rites were employed. Four possible further cremation burials (small pits containing tiny quantities of burnt bone, some possibly human) and six secondary inhumations, were recorded. Unlike the Twyford example, however, no burials were found in the excavated ditch sections, although a layer of ash and charcoal, some 0.15m thick, was recorded on top of primary fill in one section. The suggested period of use for the Easton Down ring-ditch was 'late Early Bronze Age to sometime in Middle Bronze Age *c.* 1600–1300 BC' (Fasham 1982, 39), more-or-less the same period covered by the radiocarbon determinations from Twyford Down. The excavator stated that, 'the burial ritual changed from cremation to inhumation, but this must, for the moment, be regarded as a localised phenomenon' *(ibid)*, although a similar sequence has been demonstrated elsewhere, for instance in the Middle Bronze Age cemetery at Down Farm Cranborne Chase (Barrett *et al.* 1991, 211–14).

Two other local sites north of Winchester also show some similarities with the Twyford Barrow. A barrow (A) at Larkwhistle Farm (SU 459 369) had a primary (central) cremation pit (largely robbed) and two secondary cremations within the mound. No burials were recorded from within the excavated ditch sections. Nor were there recorded burials from a ring-ditch (D) also at Larkwhistle Farm (SU 451 356). However, excavations there revealed a deposit of large flints towards the top of the ditch which included some utilised flakes and pottery: 'it appeared that this flint material and pottery may have come from the interior of the ring, perhaps from a small mound, although it must be said that there was no trace of a flint cairn or other mound, or indeed of any other activity in this central area' (Whinney 1987, 13).

Cemeteries with mixed sequences of inhumation/cremation burials are also known from further afield in the Early and Middle Bronze Ages (Fasham 1982, 39). An Early Bronze Age pond barrow at Down Farm, Cranborne Chase (SU 0006 1454) produced a 'small cluster of inhumation and cremation burials within and beyond the eastern margin of the barrow' (Barrett *et al.* 1991, 128–32). The deposits occurred in two main clusters and included urned and unurned cremation burials with Collared Urns and Food Vessels, in some cases accompanied by bone and bronze awls, and like the Twyford barrow, deliberate deposition of animals was noted; in this case, the individual burial of two cows and two sheep recorded at the edges of the monument. The pond barrow overlay several pits containing Beaker pottery, and Deverel-Rimbury pottery and a further bronze awl came from the secondary filling and ploughsoil (*ibid.*).

Also at Down Farm, a Middle Bronze Age cemetery utilised a later Neolithic ring-ditch. In this case a

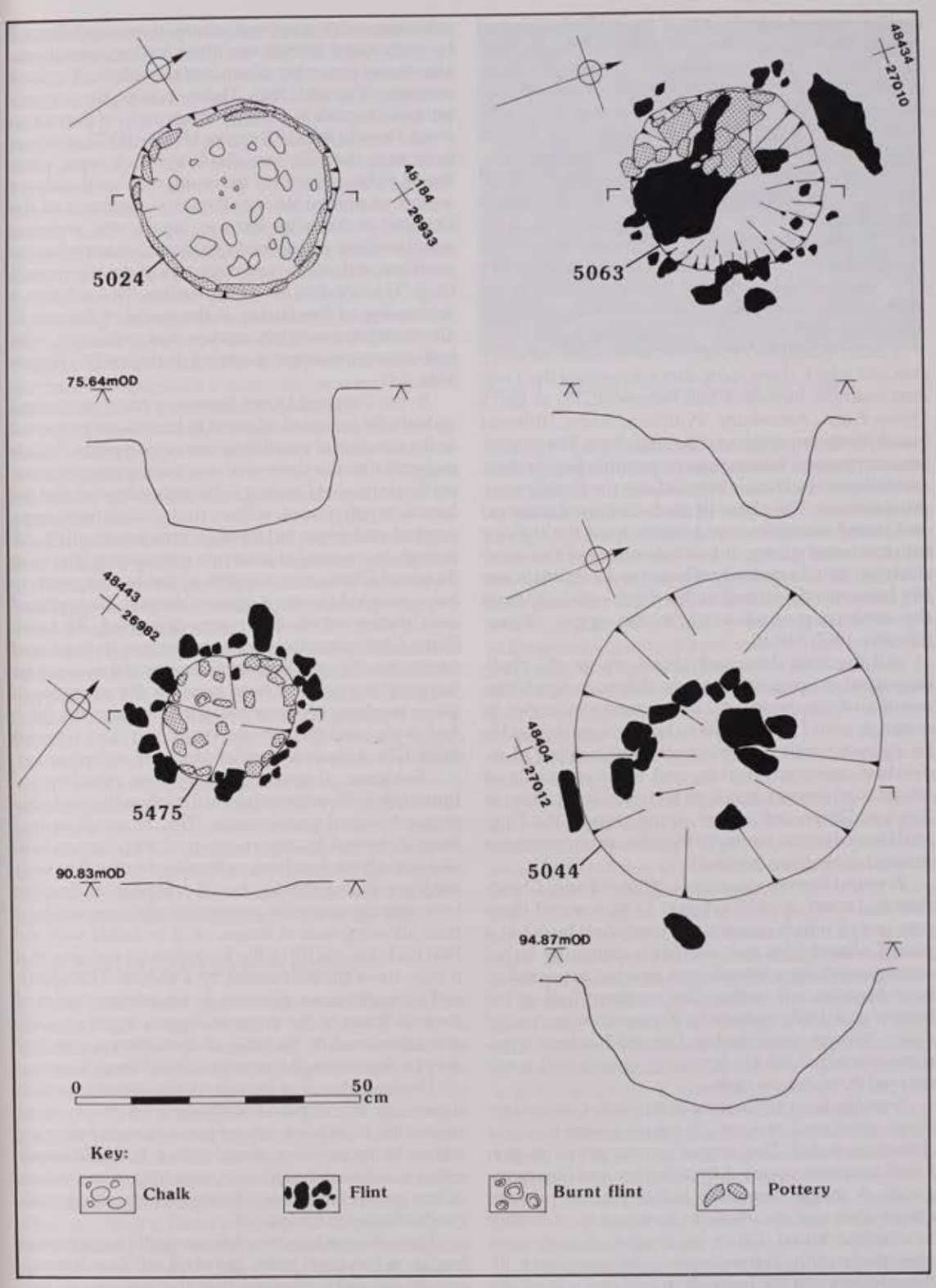


Fig. 9. Late Bronze Age ?cremation-related features: plans and profiles.

shallow slot cut into the top of the infilled ditch had apparently been deliberately filled in places with dumped flint which contained 'Deverel-Rimbury pottery, worked flint and small pieces of cremated bone, all of which were concentrated on the south-eastern side of the monument' (*ibid*, 211). Twelve cremation burials were recorded, most had been disturbed by ploughing. Only two of these were cut into the uppermost filling of the ditch, the rest lying outside the ring-ditch to the south and south-east. Two of the five recorded inhumation burials (one of which was identified away from the others and was possibly of a later date), were also cut into the upper filling of the ditch. No burials had been placed within the enclosure of the ring-ditch.

Further examples of barrows with mixed funerary rites and which share some characteristics of the Twyford example include a bell barrow (G.71) at Earl's Down Farm, Amesbury, Wiltshire, where different burial rites were employed through time. The central, unaccompanied inhumation of possible Beaker date, was followed by burials inserted into the slightly truncated mound. The phase III ditch contained unurned and urned cremations and 'apart from the definite features noted above, this whole sector of the outer ditch contained a quantity of burnt and unburnt bones (the latter mostly animal) at this depth — ie 2–3ft from the modern ground level, in the upper silting' (Christie 1967, 348–9).

All the sites discussed above are on the chalk downland in areas rich in finds of Bronze Age settlements and cemeteries. All share some similarities in common with Twyford Down but none can be said to be a direct parallel. In particular, the number of individual cremation burials, and more especially of inhumation burials, tends to be much lower than at Twyford Down and indeed, in this respect, the Twyford Down barrow has more in common with barrows situated away from the chalk.

A round barrow excavated at Latch Farm, Christchurch, Dorset in 1937 (Piggott 1938) covered three pits, one of which contained a cremation burial in a plain Collared Urn and another a cremation burial accompanied by a bronze awl in what appeared to have been an oak coffin. The southern half of the barrow and ditch produced *c.* 90 cremation burials, of which 70 were contained in Deverel-Rimbury urns, some accompanied by accessory vessels and some covered by ironstone slabs.

A multiple round barrow at Barnack, Cambridgeshire, produced at least 22 inhumations and one cremation burial. The central (primary) inhumation burial was accompanied by a Beaker and fine grave goods. A single cremation burial cut the primary inhumation and this was, in turn, cut by a further inhumation burial. Other inhumation burials were identified mainly in the centre of the monument, although three cut the inner ditch and one was on the base of that ditch (which was fully excavated). A time span of some 200–500 years (with a mean of 350) is suggested for the use of this monument (Donaldson 1977, 198–77). A barrow at Deeping St Nicholas, Lincolnshire, where a series of inhumations was followed by cremations in cists and then further cremations, also shows a number of similarities with the Twyford example (French 1994). These include the concentration of burials in the southern portion of the monument. French (*ibid.*, 107) quotes Holden (1972, *see above*) in noting that 'Deverel-Rimbury urns were often found to be inserted in the south and south-eastern sectors of several Wessex Barrows', and says of the Deeping St Nicholas Barrow: 'again, one wonders whether there was special significance attached to the southern and south-eastern sectors of the monument (*ibid.*, 111). At Barrow Hills, Radley, Oxfordshire, a 'succession of five burials in the centre of Barrow 12 alternated between inhumation and cremation, with both rites represented in one pit (feature 605)' (Halpin 1984, 13).

In the Twyford Down Barrow, a number of small stake-holes recorded adjacent to burials are proposed as the remains of possible grave marker posts. French suggests that the absence of any overlapping or intercutting burials at Deeping St Nicholas, implies that the locations of graves within that monument were marked and respected through time (*op. cit.*, 107). Although there were at least two intercutting graves at Twyford Down, the majority of the burials seem to have avoided previous graves, despite the confined area within which they were deposited. At Latch Farm, Christchurch, very few of the burials impinged on one another and here the presence of the ironstone 'capping stones' may have been for the purposes of grave marking as it was noted that those in the ditch 'lay flush with the contemporary turf line' (Piggott 1938, 175). At least two stakeholes were also recorded.

Evidence of animal activity was noted in inhumation 1109, where a part of the left radius and ulna showed rodent gnaw marks. This inhumation had been disturbed by the insertion of inhumation 1110 and some bone had been redeposited in the flint nodule layer sealing the later burial. It is possible that this bone was (presumably unintentionally) exposed for a time allowing ease of access, or, if included with the flint nodules, the fill of the layer was so vacuous that it may have allowed access by a rodent. The apparently simultaneous gnawing to the adjacent areas of the two bones of the forearm suggest that they were still articulated at the time of disturbance, possibly only by ligaments, but enough to hold them together.

The disturbance of burials which do not appear to have fully decomposed suggests a relatively short time-scale, both inhumations perhaps even occurring within living memory of each other. It would imply either accidental disturbance, resulting from the lack of any grave markers, or a disregard for earlier burials (*see* McKinley in Chapter 5).

There were at least two definite multiple cremation burials at Twyford Down, one of which (urned cremation burial 664), suggests that the remains of two mature adult individuals were included in the same vessel as separate, rather than mixed, deposits. Multiple cremation burials are known from elsewhere (Petersen 1981; Hazzledine 1982), though 'they most

commonly include a subadult or adult of either sex, with an immature individual' (*see* McKinley, Chapter 5) and the stratified separation of multiple remains within a single cremation vessel does not appear to have been a pattern commonly observed by researchers (though it must be admitted that only a comparatively small number of urns have yet been excavated in the laboratory by appropriate specialists). Morphological variations noted among the remains from the barrow include two variations (generally seen only in small numbers), which 'appear both relatively frequently and seem to have some spatial distribution within the cemetery', predominating amongst the individuals concentrated in the southern portion of the ditch' (*see* McKinley in Chapter 5). Such observations support the view that the barrow represents a domestic cemetery, at least containing some interrelated individuals.

It is unfortunate that the excavations did not recover evidence for the settlement which was presumably associated with this cemetery. Excavations elsewhere on the chalklands (including most of the examples cited above) have shown that Deverel-Rimbury cemeteries were usually positioned within a few hundred metres of the settlements which they served and were frequently positioned in areas which had long been cleared of trees, often occupying previously cultivated land. At Twyford Down the barrow was set in a locally, but not extensively, cleared area of ancient woodland and there was little evidence for agriculture. The site was used for burial in at least two episodes, lasting perhaps 150 and 100 years and separated by a period of perhaps 150 years, during which the number of burials would have been consistent with that of a small domestic farmstead occupied over several generations. It seems unlikely that the settlement was any great distance from the barrow but, in the absence of any positive evidence for its position, and in view of the molluscan evidence, the relationship between the Twyford Down barrow and its associated settlement remains somewhat enigmatic.

Late Bronze Age funerary activity

There are limited grounds for considering the Late Bronze Age vessel deposits on Area B to be a cremation-related phenomenon. These include the occurrence of one Late Bronze Age cremation burial (on roughly the same alignment, though further west than any of the others) and a very small quantity of human bone in a second pit, together with similar burnt material to that contained in most of the features. Most of the local cremation cemetery evidence is from Deverel-Rimbury cemetery clusters, such as that at Oliver's Battery on the south-west edge of Winchester (King 1989), or Daneshill, Basingstoke (Millett and Schadla-Hall 1992), rather than of later Bronze Age date. Similar types of features do not appear to have been recorded from either Easton Lane or Winnall Down (Fasham *et al.* 1989; Fasham 1985).

If they are cremation-related, these features would appear to represent a variation in funerary rite in that,

Plate 9. Pottery vessel 2027 as excavated.

although each contained the remains of a pottery vessel and quantities of burnt or heat cracked material, very little or no cremated human bone was present. As the pits had been badly damaged by subsequent ploughing, the possibility was considered that some cremated human bone had originally been included but had not been preserved. However, as cremated bone generally sinks within any feature or vessel into which it is placed (McKinley pers. comm.) and in view of the general quality of bone preservation on the site, it appears that cremated human bone was never included within the bulk of these features. Such features may be examples of the type of 'urns with no bones' or 'cenotaphs' discussed by Grinsell in his survey of round barrows of Wessex (1941, 100), although his examples appear to have been associated with a barrow mound rather than isolated features. One of the cremation deposits from Oliver's Battery contained only a few sherds of pottery and the possibility was suggested that this represented 'a token deposit of sherds with an otherwise unurned cremation' (King 1989, 18). It may be that the two pits, 5539 and 5541, represent a similar type of feature, although again it must be stressed that they contained no cremated bone and cannot therefore be considered as burials.

Isolated Bronze Age vessels in pits are known from elsewhere. At Bushfield Camp, Compton, Hampshire, two urns had been deposited upright in a single pit cut into the chalk and 'are said to have been filled with a mixture of soil, burnt flints and ash' (King 1989 18). Sherds from two Late Bronze Age vessels were recovered from a small pit or hearth site near Daneshill. The fill of this pit also held charcoal and calcined flint (Barrett 1992, 93.) At Ports Down (Portsmouth), a feature situated between two Bronze Age cremation pits was excavated and found to contain only 'a quantity of fire-crackled flints' (Corney *et al.* 1967, 21).

Late Bronze Age funerary rites and burial customs are poorly understood generally and, as a recent paper by Brück (1995) shows, formalised cemeteries are no longer a feature of the landscape and many deposits of human bone occur in what would generally be considered to be 'non-funerary' contexts, for instance

Plate 10. Excavating inhumation 686.

in settlements, middens, hoards and wet places. There was clearly a major change in the manner in which human remains were treated and perhaps in their general status and symbolic value within later Bronze Age society. Brück's catalogue emphasises the diversity of deposits which have been recorded and includes a number of examples of cremation deposits with Late Bronze Age pottery occurring amongst pits and post-holes of contemporaneous settlements (for instance at Broad's Green, Essex and Reading Business Park, Berkshire) and a few instances of pottery vessels containing charcoal or 'ashes' but no bone, or only a few fragments (eg, Coney Garth, North Yorkshire; Garton, Humberside; Vinces Farm Ardleigh, Essex; and Ryton-on-Dunsmore, Warwickshire). Clearly these sites are all very distant from Twyford Down and none of them are said to have included quantities of burnt flint. Perhaps a more pertinent example is from Langstone Harbour, Hampshire, where an isolated, largely complete Late Bronze Age vessel contained large quantities of burnt flint and organic material including seeds, but no bone. A further vessel also contained quantities of burnt flint and a few tiny fragments of human bone (Allen *et al.* 1994, 8–10). Although very unusual, in view of the diverse and frequently ambiguous nature of recorded Late Bronze Age burials, these features at Twyford Down could well be cremation related.

On the other hand, it is also possible that the vessels may have had storage functions, or indeed it may have been their contents which were significant. The linear distribution of the features appears to be deliberate and although there are no obvious landscape or settlement features in this area which would appear to have determined their position, it may be that they were associated with a boundary of some sort. The Late Bronze Age settlement identified to the east, on Area A, does not appear to have been enclosed; however, outlying fields or wider boundaries may have been significant. Amongst the Middle Bronze Age features at Bray, near Maidenhead, Berkshire, 'a single feature (326), apparently containing substantial parts of two pottery vessels, was found just to the south-east of the southern corner of enclosure 925. No cremated bone was noted and it is possible that this represents the burial of these vessels for storage or a similar function' (Barnes and Cleal 1995, 13–14).

Conclusion

There is little direct evidence for activity on Twyford Down before construction of the barrow. A possible exception is a small pit, 3273, which could not be dated on artefactual grounds, recorded at the north-east end of Twyford Down during the evaluation and tentatively assigned a Neolithic or Early Bronze Age date following the analysis of mollusc samples. These suggest recent clearance of ancient woodland (*see* Allen in Chapter 6). A single Beaker sherd was recovered from the top of the barrow ditch and another from the main lynchet across Area A. The archaeological and environmental evidence suggests that the barrow was constructed in the latest stages of the Early Bronze Age in a locally cleared area of ancient woodland as yet undeveloped for agricultural or settlement use. The Down can, therefore, be seen as a focus for the local population's rites of burial and the transformation from one world to the next.

The immediate contemporaneous archaeological landscape appears to have been surprisingly limited; the most securely dated settlement features are those of the Late Bronze Age period at the eastern end of excavation Area A (ie furthest from the barrow), although the possibility of a Middle Bronze Age element in the structures rather closer to Barrow, cannot be ignored and would not be surprising (*see* Chapter 3). The bulk of the ceramic material recovered from the main positive lynchet also implies that the main development of agricultural and settlement activities on the Down was during the Late Bronze Age, supporting the environmental evidence (Chapter 6) which points to a mixed and systematic farming regime taking hold in the later Bronze Age, in hitherto localised areas of clearance.

There is nothing to suggest that the barrow continued to play any significant role following the establishment of the later Bronze Age settlement and farming activities further to the east along Twyford Down, and indeed it would be unusual if it did (Brück 1995). No later features appear to have been deliberately cut into the barrow ditch or enclosure. The few sherds of Late Iron Age/early Roman date found in the upper fills of the barrow ditch are consistent with general farming activities and close-by occupation. A single Late Bronze Age cremation burial and a number of possible cremation-related features were recorded on Area B, well to the south-west of the barrow and of the Late Bronze Age settlement features. From the Late Bronze Age period on, we can start to consider Twyford Down as being dominated by the activities of the living, settlement and farming. The barrow itself had become, at best, a landscape feature devoid of its original meaning.

Chapter 3

Settlement and Field Systems on Twyford Down

Introduction

This chapter presents evidence for settlement activity on Twyford Down. Full finds catalogues are to be found in Chapter 4. Direct evidence for settlement during the later Bronze Age was found mainly on Area A (Fig 10; Plate 11) where a number of groups of post-holes indicated the presence of several structures of varying form and probably function. Agricultural activity on the Down is indicated by the survival of lynchets and trackways forming part of a field sysyem. Area B contained most of the surviving evidence for activity during the end of the Iron Age and into the early Romano-British period. Although a few pits and post-holes were identified no settlement structures were recorded. Most of the evidence is again for agricultural activity in the form of ditches, enclosures and field systems (Fig 11). The surviving traces of the field systems suggest a more extensive and intensive use of the area than is supported by the surviving chronological and spatial distribution of structures and associated pits. The environmental evidence is discussed in detail by Allen (Chapter 6), concluding with a summary of the landscape and economy.

Late Bronze Age Settlement

Structural evidence across the site was limited, although seven concentrations of post-holes were recognised (Fig 10, upper section). In spite of the poor level of preservation it is possible to suggest that at least two post-built circular structures and a four-post structure were represented. In addition, a number of

Plate 11. General view of Area A looking south.

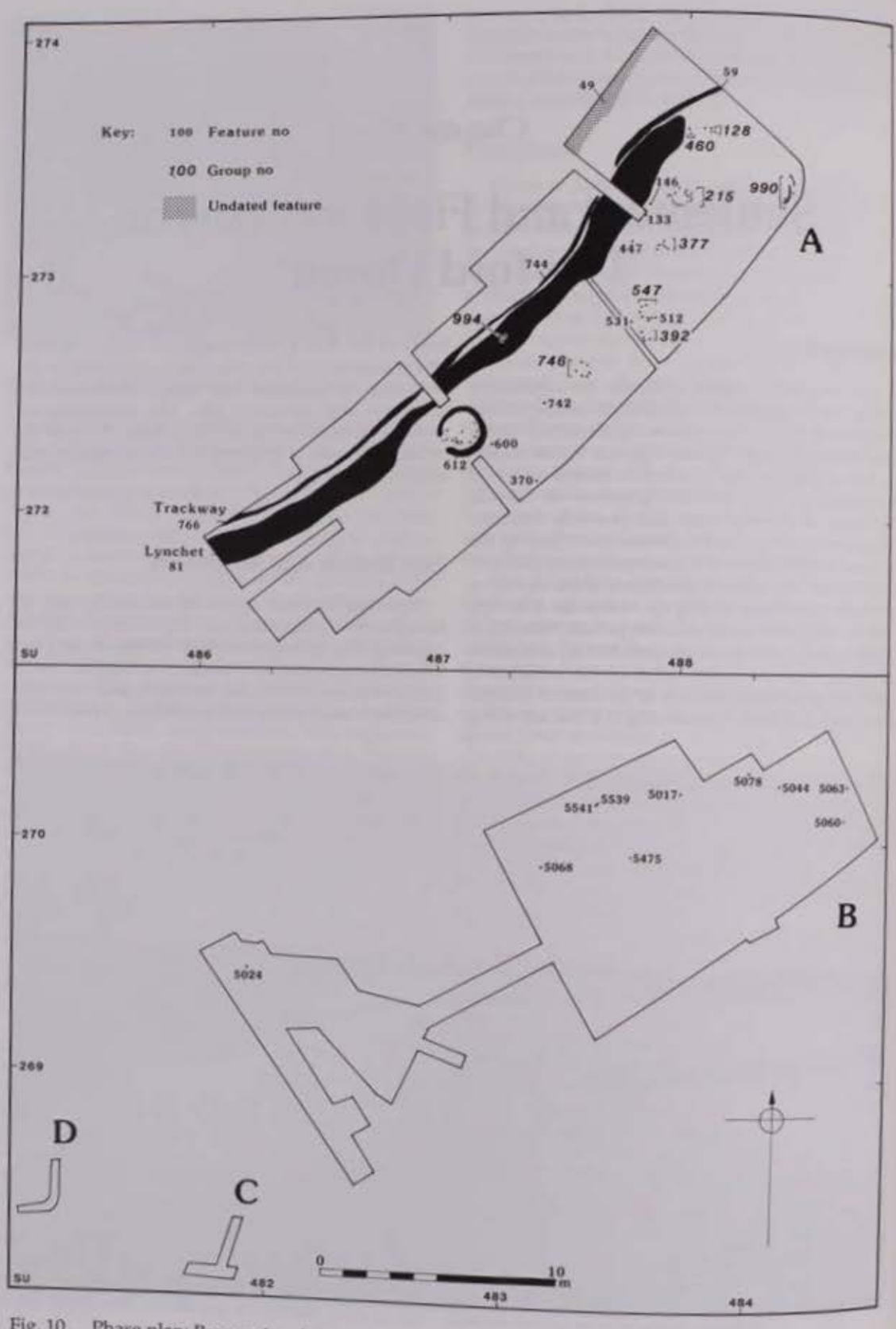


Fig. 10. Phase plan: Bronze Age features (Areas A–D).

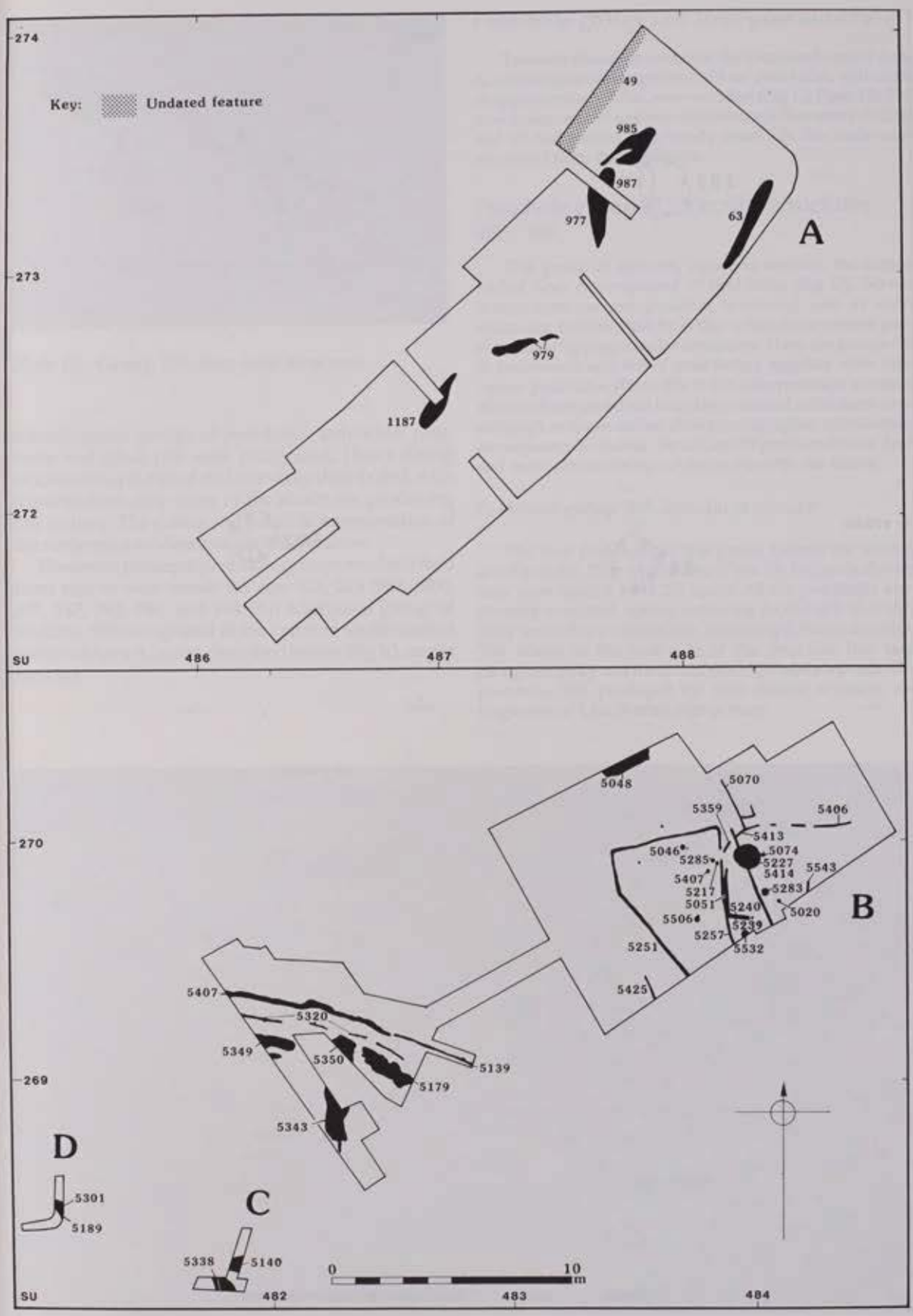


Fig. 11. Phase plan: Iron Age–Romano-British features (Areas A–D).

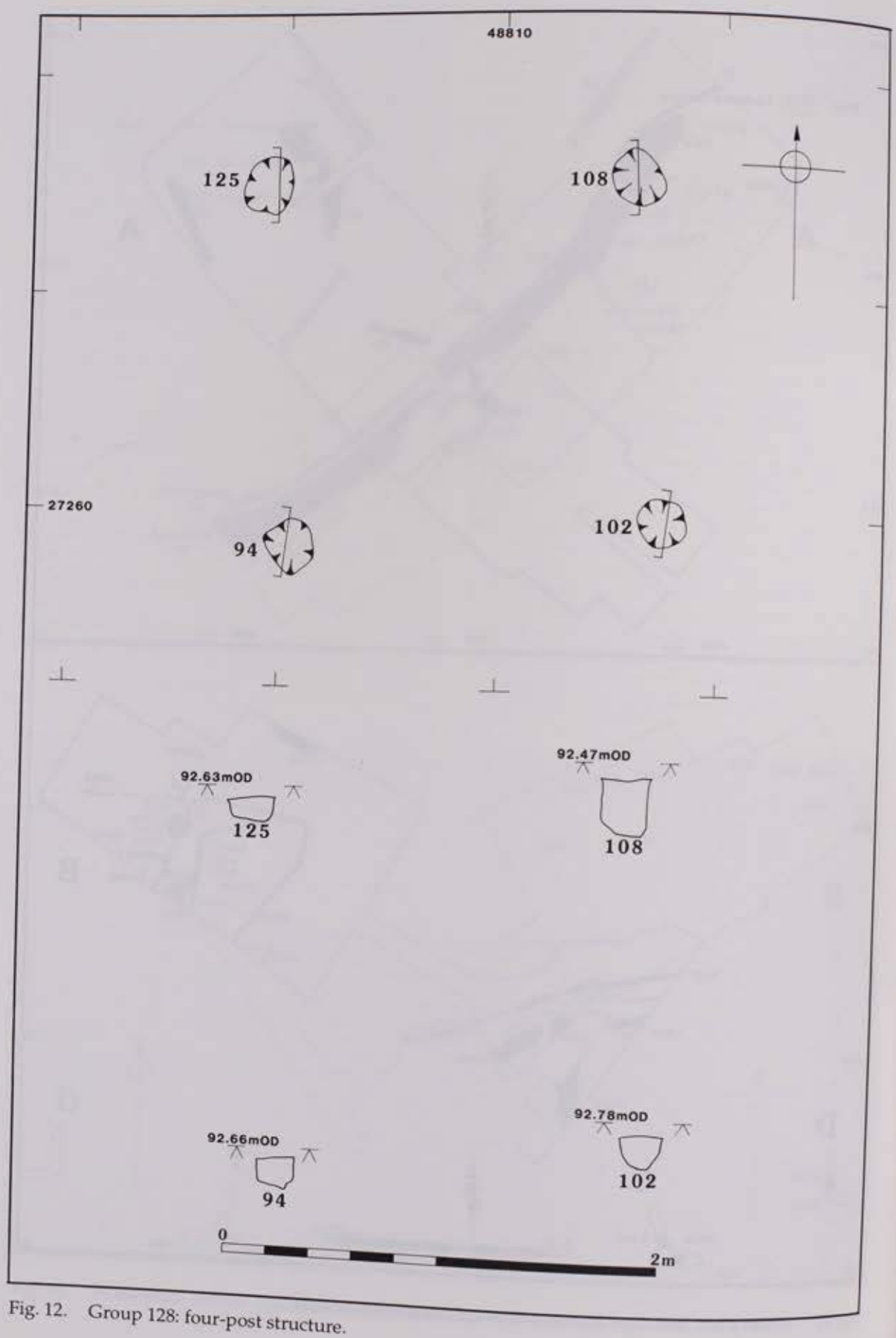


Fig. 12. Group 128: four-post structure.

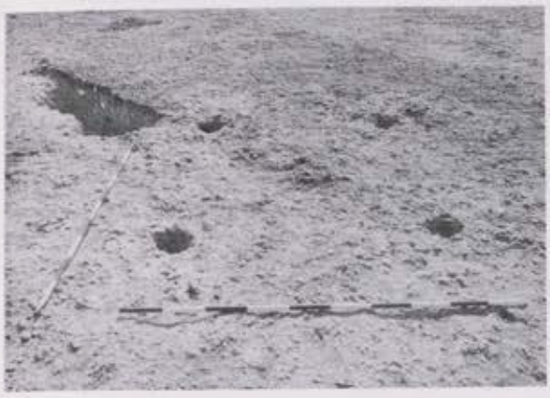


Plate 12. Group 128: four-post structure.

miscellaneous groups of post-holes, individual post-holes and small pits were recognised. Direct dating evidence was minimal and unevenly distributed, with features from only some of the structures producing any pottery. The dating and possible interpretation of the settlement evidence is discussed below.

The seven principal post-hole groups are described from east to west across the site: 128, 215 (988/989), 377, 547, 392, 746, and 994. An additional group of features, 990, recognised at the extreme south-eastern corner of Area A, is also described below (Fig 10, upper section).

Post-hole group 128: four-post structure

Towards the eastern edge of the excavated area of Area A, a rectangular arrangement of four post-holes, with sides of approximately 1.7m, was recorded (Fig 12; Plate 12). The post-holes were of uniform size (average diameter *c.* 0.22m) and all had similar clay/sandy loam fills. No finds were recovered from these features.

Post-hole group 215: circular structures 988/989

This group of features, recorded towards the eastern end of Area A, comprised 19 post-holes (Fig 13). Several interpretations are possible involving one or more structures, but the 'best-fit' is that which incorporates parts of two overlapping circular structures. These are groups 988 (9 post-holes) and 989 (7 post-holes), together with three 'spare' post-holes (Plate 13). If this interpretation is correct the structures could not have been utilised at the same time, although as there are no direct stratigraphic relationships the sequence is unclear. Structure 989 produced more finds and more secure dating evidence than 988 (*see* below).

Post-hole group 988: circular structure

The nine post-holes in this group formed the western arc of a circle *c.* 7.1m in diameter (Plate 13). In the south-west they were spaced 1.0–1.2m apart. All the post-holes were severely truncated, having surviving depths of 0.10–0.19m. They were all of a similar size, averaging 0.28m in diameter. The whole of the east side of the structure had been ploughed away and there was no evidence for a porch. One post-hole, 198, produced the only datable artefacts, two fragments of Late Bronze Age pottery.

Plate 13. Group 215: circular structures 988 and 989.

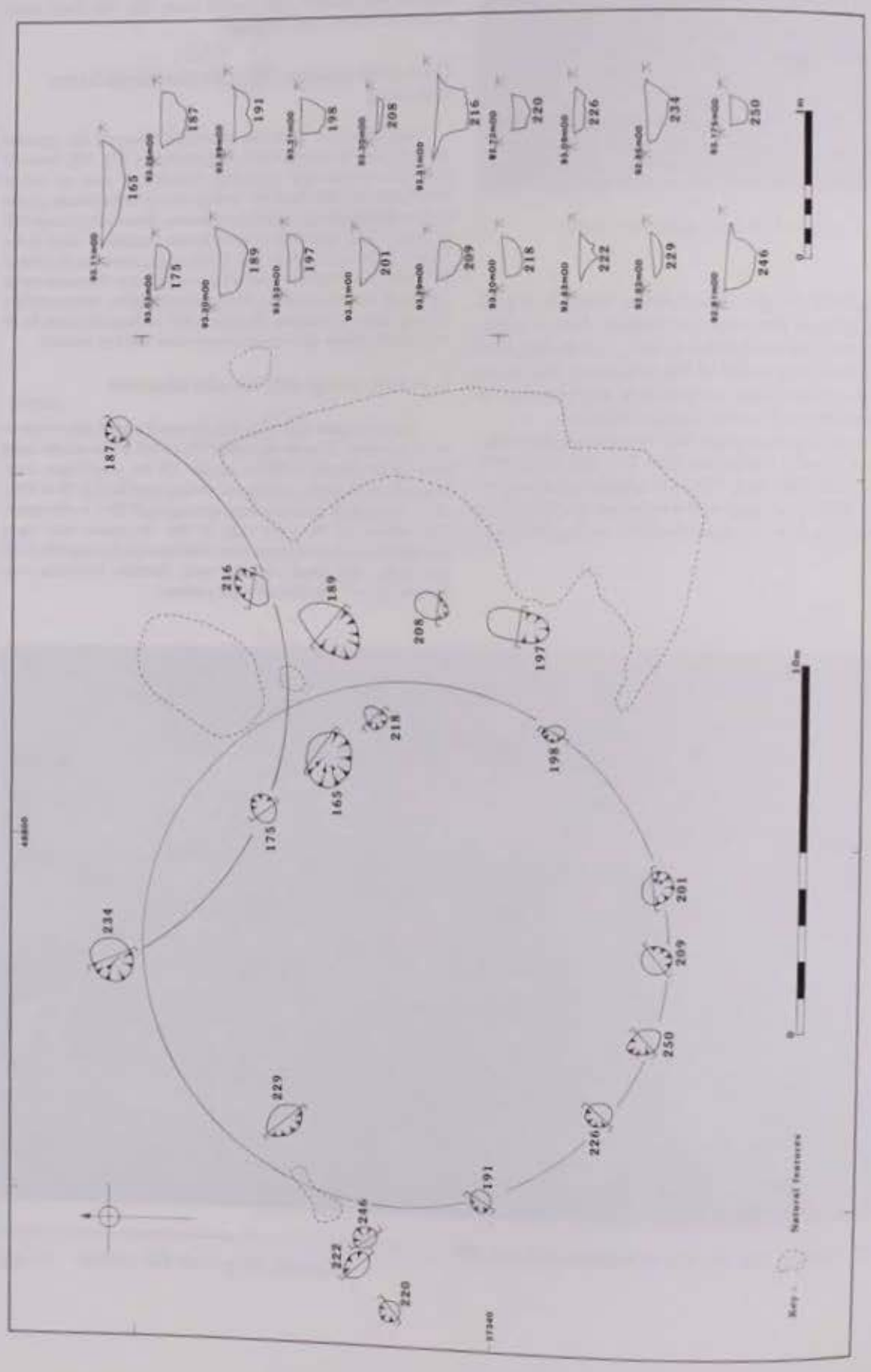


Fig. 13. Group 215: circular structures 988 and 989.

Post-hole group 989: circular structure

The seven post-holes in this group form the southern arc of a circle *c.* 7.4m in diameter (Plate 13). They were spaced approximately 3.0m apart and had an average width of 0.35m. Post-holes 165 and 189 were oval/sub-rectangular, lying approximately 0.5m outside the circle, between 175 and 216. They were *c.* 2.0m apart with their axes parallel to the arc of the circle and may have formed part of a south-facing porch. Post-hole 197 lay *c.* 3.0m out from 189 and may also have formed part of a porch. The relative sizes of the large and small post-holes in this group are similar to those in post-hole group 547. This structure produced relatively large amounts of material, including datable artefacts. Forty-six sherds of Late Bronze Age pottery were recovered from six post-holes.

Post-hole group 377: semi-circular structure

This group contains seven post-holes closely spaced in an approximate semi-circle in an area of 5 x 4m, to the north-east of structure 547 and south-west of group 215 (Fig 14). It is part of a wider spread of 14 post-holes (Fig 10) from 368 in the west to 386 in the east. Most of the post-holes in group 377 were spaced 1.0m–2.0m apart and they averaged 0.31m in width. The exceptions were 411 and 415, as 411 cut 415. Although four of the post-holes (351, 333, 349 and 339) can be placed on the arc of a circle approximately 3.6m in diameter, the features in this group do not appear to form part of any clear structure. One of the post-holes, 349, produced datable finds; two sherds of Late Bronze Age pottery.

The seven 'extra' post-holes in the wider spread in this area includes five individual, relatively isolated features and a possible pair of post-holes (373/382) lying approximately 1m apart.

Post-hole group 547: circular structure

This group, to the south-west of structure 377, comprised six severely truncated post-holes, four of which were of a similar size (0.35–0.40m diameter) and two larger ones (0.50m and 0.64m diameter). The four smaller post-holes form the north-west arc of a circle *c.* 5.5m in diameter. They were spaced approximately 2.25m apart (Fig 15). On the eastern side of the circle most of the area where two additional post-holes might have been located had been disturbed by root action. The two larger post-holes lay *c.* 0.5m south of the arc and may have formed part of a south-east facing porch. The smaller of the post-holes of this porch (context 543) appears to have had a smaller hole, possibly a stake-hole?, cut into its base. A stake-hole, 541, which lies adjacent to 543 may have been a further component of the building. Like post-hole 543, the stake-hole had a smaller hole cut into its base. The relative sizes of large and small post-holes are similar to those in post-hole group 989. None of the features of this structure produced any artefacts.

Post-hole group 392

This group consists of an irregular arrangement of four post-holes of differing sizes and depths, lying to the south-west of structure 547 (Fig 10). The features form no obvious structure. One post-hole, 439, produced a single sherd of Late Bronze Age pottery. Three stake-holes lay approximately 5m to the south of this feature and a further cluster of eight stake-holes lay immediately west of these.

Post-hole group 746: circular structure

The most westerly example of Bronze Age structural evidence lay to the east of the barrow on Area A (Fig 16). It was comprised of four small post-holes (average diameter *c.* 0.25m) and two large post-holes (*c.* 0.65m in diameter). The smaller post-holes lay on a circle with a diameter of *c.* 5.5m. All the post-holes had been truncated and had an average surviving depth of 0.15m. The positions of the smaller post-holes suggest that there may originally have been seven of these. The two large post-holes appear to have formed a south-east facing porch. No artefacts were recovered from this structure.

Group of features, 994

A group comprising three features (one pit and two post-holes) was recorded to the north-east of the barrow (Fig 10). The group was exposed only after the machine stripping of the main Bronze Age lynchet (contexts 765, 743, 81), although it is unlikely that they were cut through the upper lynchet soils. Pit 954 was found to contain two Middle Bronze Age vessels including a largely complete upright urn, Vessel No. 2022, which was lifted *en masse* for excavation in the laboratory (Fig 28, 16). Although the urn was found to contain charcoal and burnt flint, no cremated human bone was recovered. An environmental sample from the vessel fill has been shown to have contained small numbers of cereal grains (Clapham, Chapter 6). The two post-holes, 956 and 958, were identified approximately 2m to the south of the pit, although any relationship with the pit is unknown.

Group of features, 990

An additional group of features comprising post-holes, gullies, a pit and natural features was recorded at the south-eastern edge of Area A (Fig 10). Interpretation of these features was particularly difficult because of extensive root disturbance and the nature of the underlying chalk in the area. Although some features were clearly natural, a number of ambiguous but possibly features are included here (these features are marked with ?). Two concentric arcs of gullies comprised of an outer arc (281, 301?, 319?) and an inner arc (271?, 399) may represent the remains of a structure. At the north-east end, these arcs were *c.* 1.5–2.0m apart and both were broken at approximately the same point. The positions of post-holes within the arcs and extending west from them points to some deliberate activity in the area, although its nature cannot be defined. The group is bounded on the north-west side by Iron Age–Romano-British negative lynchet 63 which may have once extended further to the east.

At least three shallow and irregular linear features were recorded. One of these (context 298) produced a single sherd of Late Bronze Age pottery. The presence of the later negative lynchet to the north-west of this activity area may have removed evidence for any further existing features and the degree of truncation of features in this area seems severe. A possible function for these features may be suggested by a shallow semi-circular drainage gully surrounding the side of a Late Bronze Age/Early Iron Age round-house at Bancroft, Buckinghamshire. It is suggested that the survival of the feature on the upslope side of the building 'may indicate that it was originally deeper on this

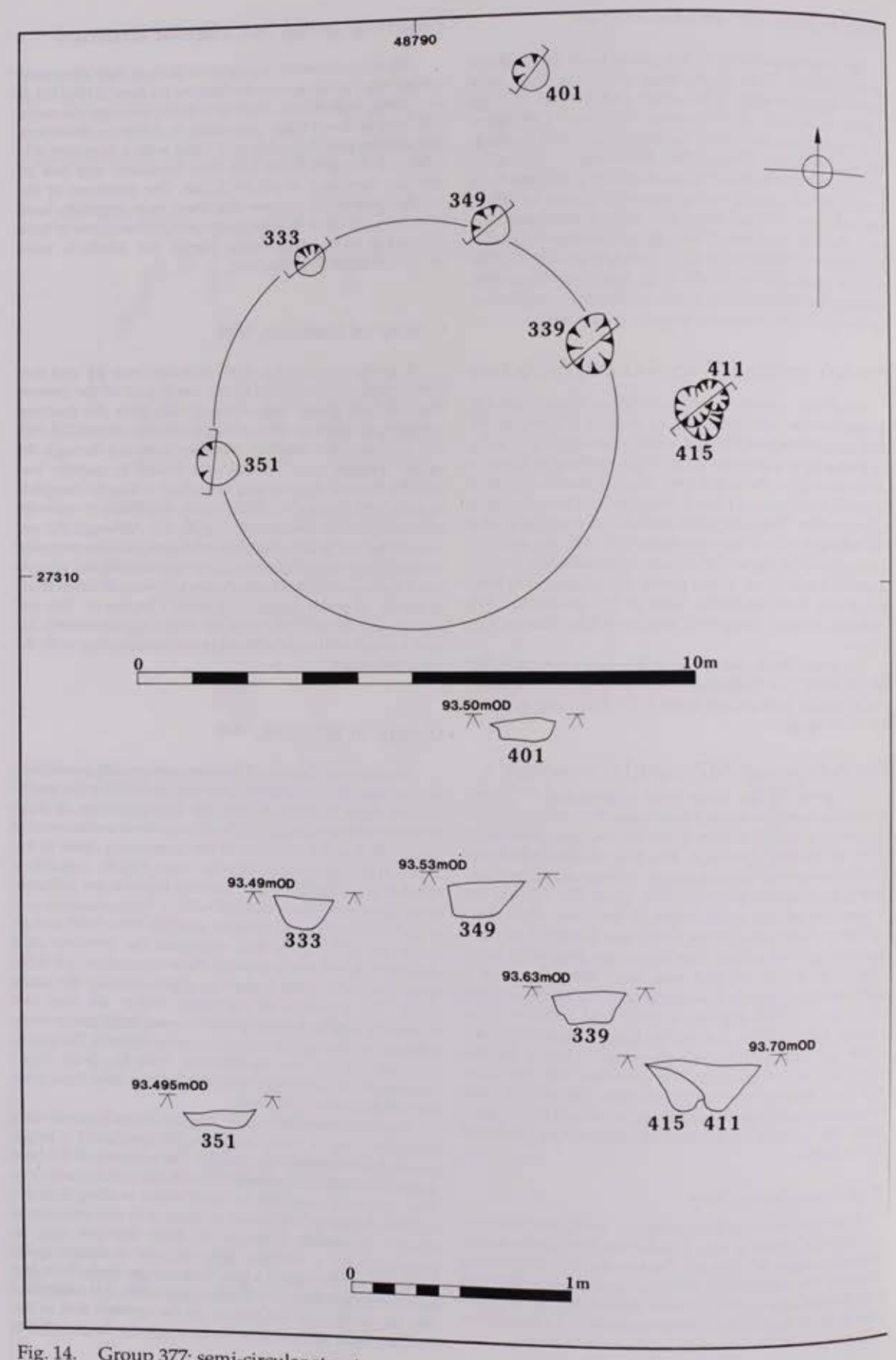


Fig. 14. Group 377: semi-circular structure.

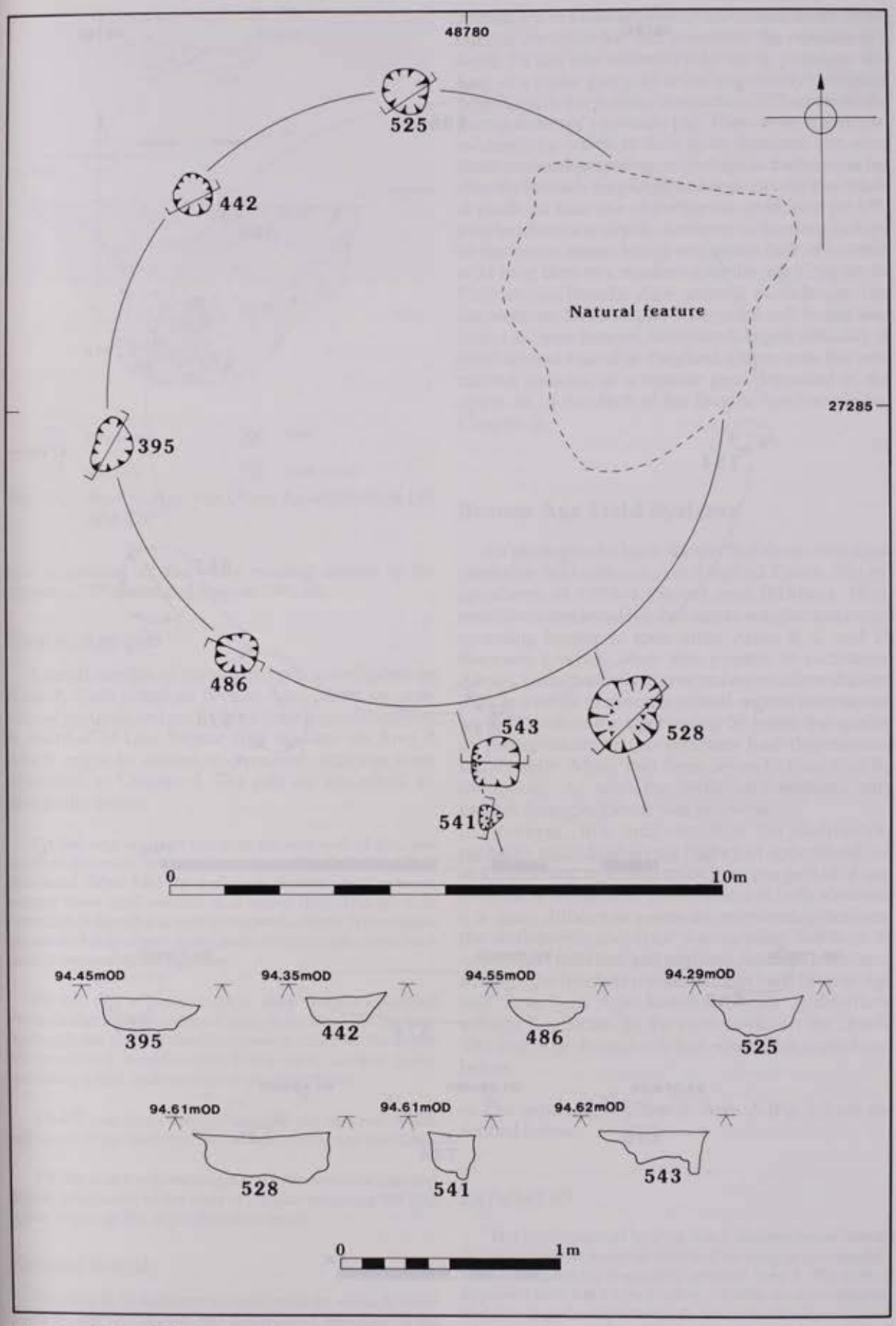


Fig. 15. Group 547: circular structure.

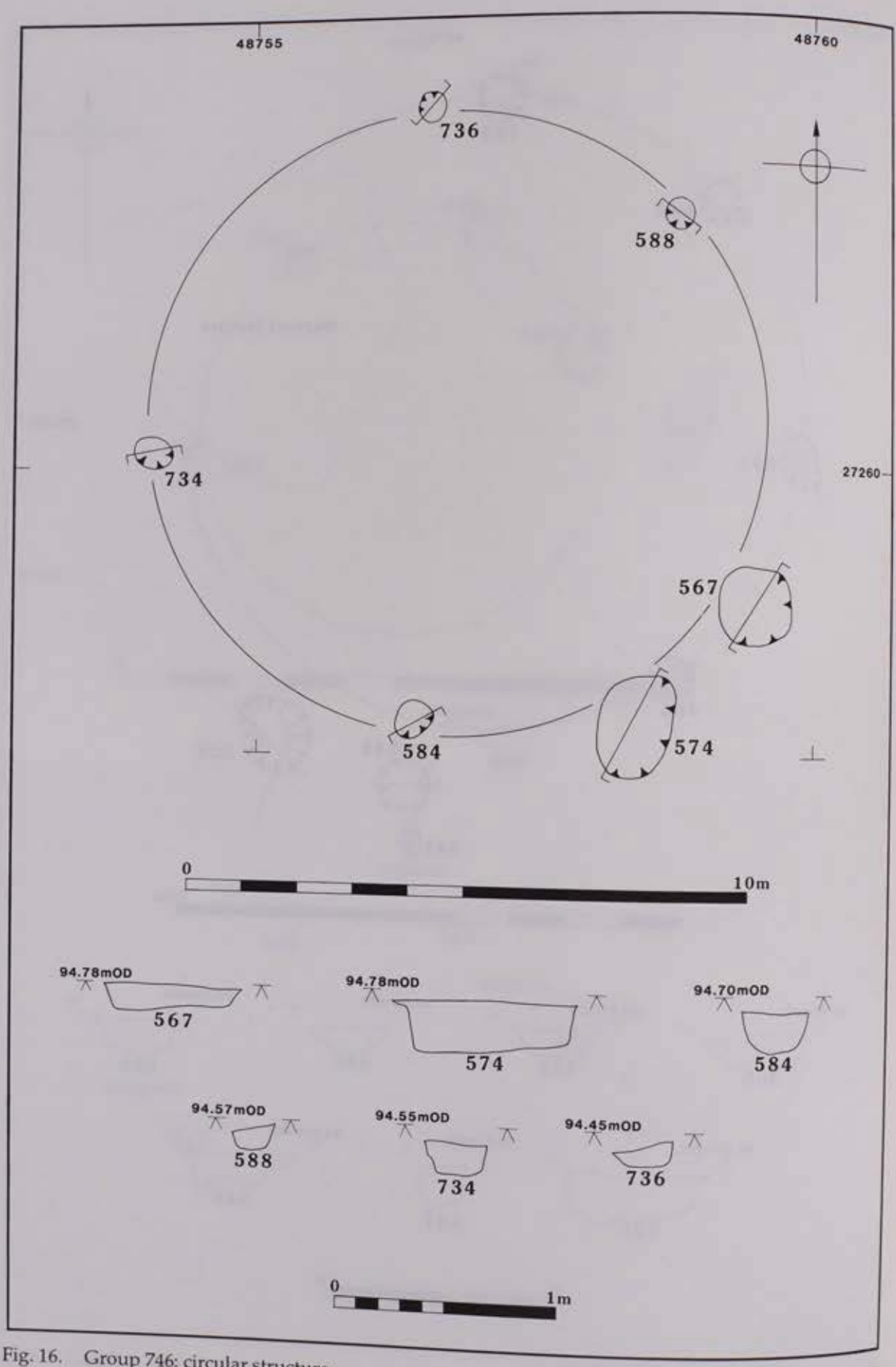


Fig. 16. Group 746: circular structure.

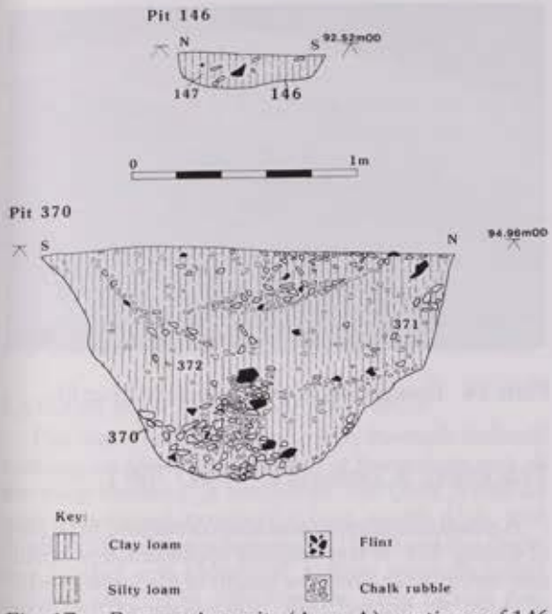


Fig. 17. Bronze Age pits (Area A): sections of 146 and 370

side to prevent all the water running around to the entrance...' (Williams and Zeepvat 1994, 26).

Bronze Age pits

A small number of the isolated pits investigated on Area A were dated as Bronze Age, partly on artefactual grounds and partly from their general location. A number of Late Bronze Age features on Area B which might be related to cremation activities were discussed in Chapter 2. The pits are described individually below.

Pit 146 was situated towards the east end of site, just south of the main lynchet, 81 (contexts 765, 743) (Fig 17). It produced both Middle and Late Bronze Age pottery, animal bone and worked and burnt flint. The pit was recorded close to the area of settlement activity. It contained no ash and only a very small amount of a single vessel so it cannot be considered funerary.

Pit 370 (Fig 17) was a large, deep feature identified towards the southern edge of Area A, south of the Barrow. Although the pit contained no ceramic material, the upper fill produced worked and burnt flint, animal bone, including antler, and occasional charcoal flecks.

Pit 447 was also identified towards the east end of site, just south of the main lynchet 81. It produced one flint flake.

Pit 531 was a sub-rectangular pit of moderate size and depth, positioned to the west of circular structure 547 and north of group 392. It produced no finds.

Animal Burials

Two shallow features investigated on Area A were each found to contain the articulated remains of an animal. Pit 512 was situated immediately south of the circular structure 547 and contained the remains of a lamb. Pit 133 was recorded adjacent to post-hole 407 (one of a wider group of seven apparently unrelated post-holes in the vicinity of structure 377) and held the part skeleton of a juvenile pig. There is no artefactual evidence by which to date these features, nor were there any stratigraphic relationships as the features lay directly beneath the ploughsoil and cut only the natural chalk. At least one of the burials (that from pit 133) may be of some antiquity, however as the morphology of the bones more closely resembles that of juvenile wild boar than of a modern juvenile pig (Chapter 6). Prehistoric/Bronze Age animal burials are not uncommon; for example, a neonatal calf burial was found at Dean Bottom, Wiltshire (Gingell 1992, 27). A third animal burial at Twyford Down was the articulated skeleton of a mature goat deposited in the upper fill of the ditch of the Bronze Age barrow (*see* Chapter 2).

Bronze Age Field Systems

Air photographs have shown that there were once extensive field systems over Twyford Down. The excavations of 1933–4 (Stuart and Birkbeck 1936) recorded substantial lynchet remains in the area corresponding largely to excavation Areas B, C and D. Remnant lynchets were also present in excavation Area A. Unfortunately, the recent excavations showed that, as a result of the agricultural regime maintained on the Down in the intervening 50 years, the quality of preservation of the lynchets had deteriorated significantly. Many had been severely truncated by ploughing. As with the settlement remains only limited dating evidence was recovered.

However, this indicates that the earthworks probably result from a long history of agricultural use of the land and represent more than one period of use. Because of the limited preservation of both elements it is again difficult to assess the relationship between the settlements and their surrounding fields or to reconstruct field size and patterns. Sections excavated through the lynchets confirmed that both Bronze Age and Late Iron Age–Romano-British agricultural activity is reflected by the earthworks on the Down. The Iron Age–Romano-British element is considered below.

The surviving lynchets in Area A (Fig 10) are described below.

Lynchet 49

This northernmost lynchet was a shallow linear feature of unknown date and was recorded running approximately east–west in the north-eastern corner of Area A. The feature appeared to be a positive lynchet — that is, an accumulation and layering of redeposited soils which had built up against a former field boundary. This had resulted in a level ground

surface although the underlying chalk bedrock sloped down towards the north. The southern edge of the feature was irregular. The lynchet was considerably deeper at the west than the east end of the site and was barely visible in the north-east corner of the trench because it decreased in depth as the natural slope of the chalk decreased. Four 1-metre wide trenches were excavated, that is, approximately 6.7% of the 60m visible length of feature. No date can be assigned to this lynchet on the basis of artefactual evidence as no pottery was recovered

Main Bronze Age Lynchet (Contexts 81/743/765)

The main positive lynchet was a low, linear feature considered to be part of group 299 (comprised of positive lynchet segments 81/743/765 and track 59). It ran from north-east to south-west, through almost the entire length of Area A, but ended close to the north-eastern trench edge. A total of *c.* 9.8% of the *c.* 245m of visible feature was excavated by hand and all of the lynchet was removed by machine at the end of the excavation to check for earlier features beneath. Pottery recovered from the excavated layers of this feature reflected most of the later prehistoric periods and includes a small amount of Beaker (from 765), Early/Middle Bronze Age, Late Bronze Age, Late Bronze Age/Early Iron Age, Early Iron Age and Late Iron Age/Romano-British material (Chapter 4, Table 5).

Lynchet 81 (the north-eastern segment of the lynchet) comprised a number of layers of accumulated soil in a broad band which followed the curve of the hill (Plate 14), lying along the break of slope between the flat upper areas to the south and the steeper slope descending to the north. Its fills had been truncated by the negative lynchets 985 and 987, the cuts of which were overlain by further lynchet layers. All layers had been subsequently truncated by modern ploughing. At its eastern end, 81 survived only as a spread of disturbed chalk. A suggested sequence for the development and history of the lynchet is:

1. original ground surface,
2. accumulation of soils at base of field bounded by track 59,
3. truncation of early lynchet soils by negative lynchet 987,
4. accumulation of later soils overlying track 59,
5. modern truncation of lynchet by ploughing.

Lynchet 743 (the central segment) comprised one or more layers of accumulated soil running approximately west–east in a broad band that followed the curve of the hill, lying on a break of the slope. In one area (sub division 581), the slope was broken by a flatter area of chalk which may have corresponded to the possible negative lynchet 979.

Lynchet 765 (the south-western segment) comprised layers of accumulated soil running west–east in a broad band following the curve of the hill just above the break of slope. It was severely truncated by modern ploughing. There was some variation in the layers of this feature; the material along the upper southern side being darker and with a higher proportion of flint fragments than that of the lower northern side.

Plate 14. Excavation in progress of lynchet 81.

Trackway (Contexts 59/744/766)

A possible trackway was also considered to be part of Group 229. It was aligned approximately north-east–south-west along the length of the western edge of Area A, immediately downslope of the main lynchet. It was composed of a compact layer of flint nodules within a shallow terrace. The feature was discontinuous but had an overall length of 255m, width of 2.25m, and depth of 0.20m. The nature of the layers within this feature suggests that it was created by erosion caused by human and animal passage along the edge of a field, rather than being a deliberately created metalled track (*c.* 22m (8.6%) were excavated). Only small amounts of pottery were recovered from this feature, the majority of which was Late Bronze Age in date (Chapter 4, Table 5).

Trackway 59 was truncated by modern ploughing at the eastern end where it measured only 1.35m wide and had a maximum depth of 0.13m. It survived best in sub-divisions 494 and 596, where it may have been protected from ploughing by the accumulation of the soils of lynchet 985. It appeared to peter out completely at the western end of the segment. The cut ran along the line of the hill just below the break of slope. It had an approximately horizontal base which was cut into the natural chalk, although it is unclear whether this was deliberate or a result of erosion. This had a deeper cut edge on the southern side, the northern edge being defined by the sloping away of the natural chalk. Where fills were best preserved, there was a thin (0.05-0.10m) layer at the base of closely packed flint and chalk lumps which were heavily worn. Again, it is unclear whether this was deliberately laid as a 'track metalling' or was a result of material eroding out of the lynchet and subsequently becoming compacted by traffic. This segment of trackway was cut by lynchet 985.

Trackway 744 was heavily truncated along its entire length, its eastern end having been completely removed by ploughing. It ran east–west and was the westward extension of trackway 59. Only in sub-division 768 was there any evidence of the 'metalled surface' found in parts of 59.

Trackway 766, again ran approximately north-east-south-west and was particularly badly truncated at its west end, where it was visible only as a staining of the chalk.

Lynchet 72 ('North-eastern Lynchet')

A linear feature running east–west was recorded south of lynchet 49 near the north-eastern corner of Area A. Interpreted as a negative lynchet, the feature had a flat base and a shallow sloping uphill (southern) side and no visible cut on the downhill, northern side, as the base converged with the natural slope of the chalk bedrock. The lynchet had been truncated by modern ploughing. Only five sherds of pottery were recovered from this feature, including Late Bronze Age, Late Bronze Age/Early Iron Age and Late Iron Age/early Romano-British material. Roughly 4m (7.3%) of the *c.* 54m of visible feature was excavated.

Lynchet (Contexts 977/987/985)

This was a linear feature cut into the chalk bedrock running south-west–north-east at the eastern end of the main Bronze Age lynchet 81/743 (765). It had an overall recorded length of *c.* 64m, width 8.5m, and depth 0.50m. Approximately 8m (12.5%) of this negative lynchet was excavated. Pottery again included material ranging in date from the Early Bronze Age through to the Late Iron Age/Romano-British period, although there was more Late Bronze Age/Early Iron Age than was found in the main Bronze Age lynchet. This negative lynchet had cut layers of the main Bronze Age lynchet.

Lynchet 977 was not excavated. The section through this segment lay only some 7m to the east of evaluation trench 3016, however, there were some significant differences between the two sections.

Lynchet 987 was a shallow irregular linear feature.

Lynchet 985 was a shallow linear feature running approximately east–west, getting thinner and shallower towards either end. The fills of the lynchet were recorded as overlying and dipping down into trackway 59. In addition the feature was found to truncate layer 347 (a layer in the main Bronze Age lynchet 81 (/743/765).

Lynchet 979 Late Bronze Age/Early Iron Age

Lynchet 979 was a shallow linear feature running over the centre section of main Bronze Age lynchet (length 28m, width 3m, depth 0.20m).

Iron Age–Early Romano-British Settlement Activity

There are two principal sources of evidence for Iron Age–Romano-British activity on Area B. A number of trenches excavated by Stuart and Birkbeck in 1933–4 were in the area covered by parts of Area B (*see* Chapter 7 for the location of the 1933–4 trenches). In addition to recording lynchets and field systems, the excavators reported finding large pits (some of which were excavated) and ponds, as well as 'Belgic occupation areas and Fire Pit'. A 'dark occupation soil distinct from the friable surface mould' was recorded over the top of three of the pits and to the west of a fourth. The 'fire pit' was as a square feature 'crammed with pot boilers and charcoal' (1936, 194).

No structures and no direct structural evidence for settlement were recorded during the course of the recent excavations on Area B. However, the presence of a number of isolated features, including post-holes and pits, some of which contained occupation debris, taken together with the series of ditches which appear to have defined enclosures, suggest that an Iron Age–Romano-British settlement was located close by (Fig 11, lower section). The location of the excavation area on the periphery of a settlement meant that relatively few archaeological features were identified (*see* Chapter 7 for discussion).

Post-holes

A number of individual post-holes was recorded within Area B, although no structures were identified. The features have been assigned to the Iron Age–early Romano-British phase on the basis of their location (generally within or close to the ditched enclosures) and the finds they contained. Small amounts of Late Iron Age/Romano-British pottery were recovered from three of the post-holes (5163, 5222, and 5224) and one (5544) produced a single sherd of Late Bronze Age/Early Iron Age pottery.

Pits

Nine pits identified within Area B were of Iron Age–Romano-British date. One of these, 5018, was very shallow and contained a single badly crushed pottery vessel. It was adjacent to a larger pit, 5046. The eight larger pits, all found in the north-eastern part of the site, were probably associated with the enclosed areas within which they were recorded. Seven were approximately circular in plan and the eighth was oval. Their diameters ranged from *c.* 0.62m to 2.5m and depths from 0.15m to 1.6m. Five (5046, 5074, 5217, 5285 and 5407) were of substantial size. Of a similar nature to these was pit 5537, a large 'beehive' pit which had previously been excavated by Stuart and Birkbeck (1936, pit I, 193) and which was said to have contained 'many fragments of burnt daub with bones and pot boilers' with La Tène pottery. Two of the pits (5020 (Fig 18), 5290) were small and shallow.

Five large pits were of types recognised at other Iron Age sites in southern Britain and generally interpreted as storage pits, 'although it is recognised that the contents of the pits as excavated derive perhaps exclusively from the period of their decay and their secondary role as convenient rubbish containers...' (Whittle 1984, 137). These included 'beehive pits' (5217, 5074 (Fig 18), 5537), one approximately cylindrical pit with a mouth narrower than the sides, 5407 (Fig 18), and a pit, 5285 (Fig 18), with slightly concave sides. A sixth pit of moderate size, 5046, was oval with steep straight sides. Pit 5290 was cut into fills of ditch 5414.

The larger pits revealed a complex sequence of fills and produced a wide range of 'domestic' material,

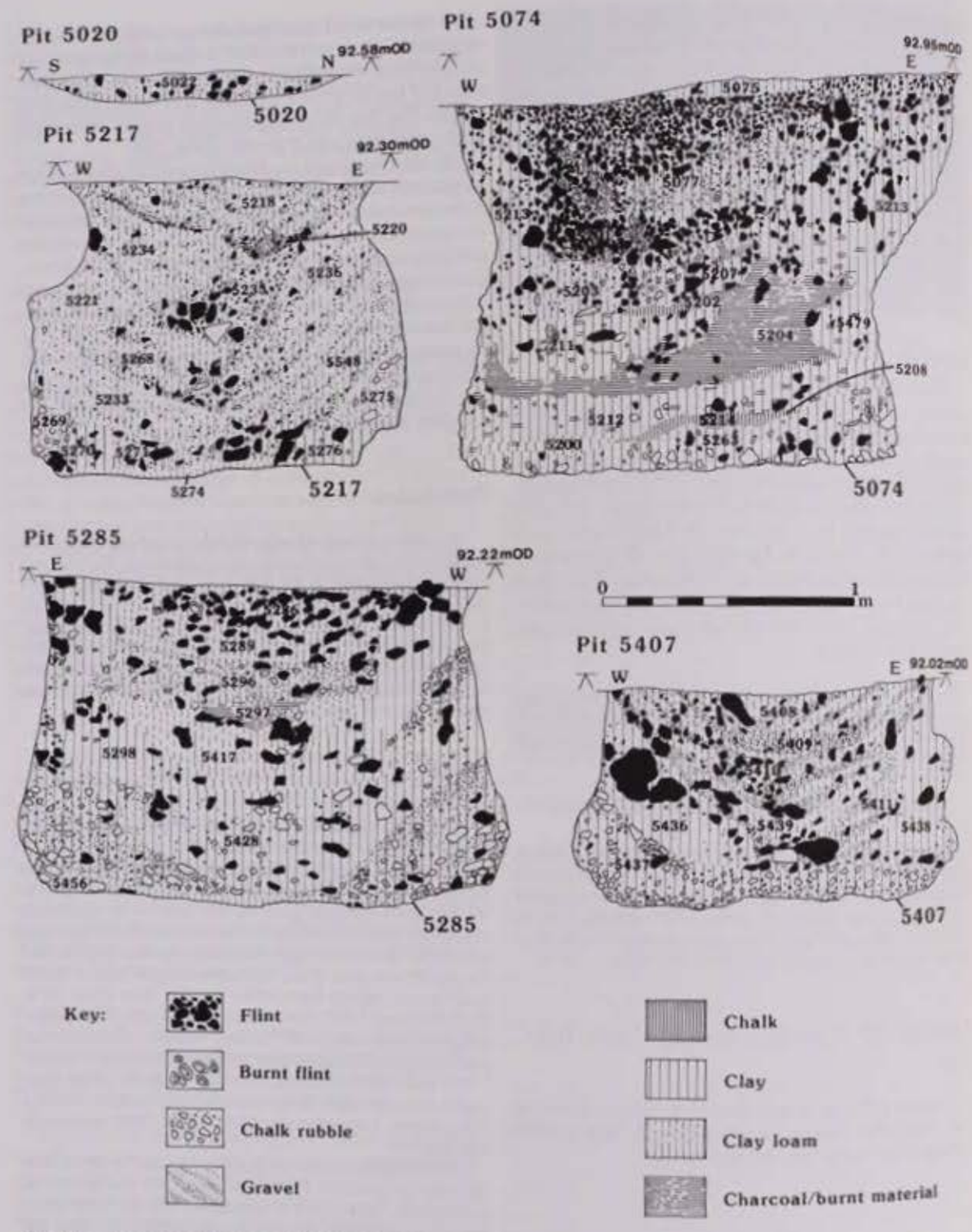


Fig. 18. Iron Age–Romano-British pits (Area B): representative sections.

including iron objects, quern and other stone fragments, ceramic building material, fired clay, animal bone and a bronze brooch fragment. Environmental samples from two of the pits (5047 and 5217) produced the largest number of representative cereal remains from the excavations (Clapham, Chapter 6). Pit 5074 was the only one of these pits to produce human bone (2g). It also contained pottery of Middle Iron Age, Late Iron Age/Roman and Romano-British date. Three of the pits (5285, 5290 and 5407) produced pottery of exclusively Late Iron Age date. One (pit 5074) held Late Iron Age and Romano-British material and two further pits (5020 and 5046) produced pottery of Romano-British date (Seager Smith, Chapter 4). Similar Iron Age pits have been widely recorded elsewhere in Hampshire, including sites such as Little

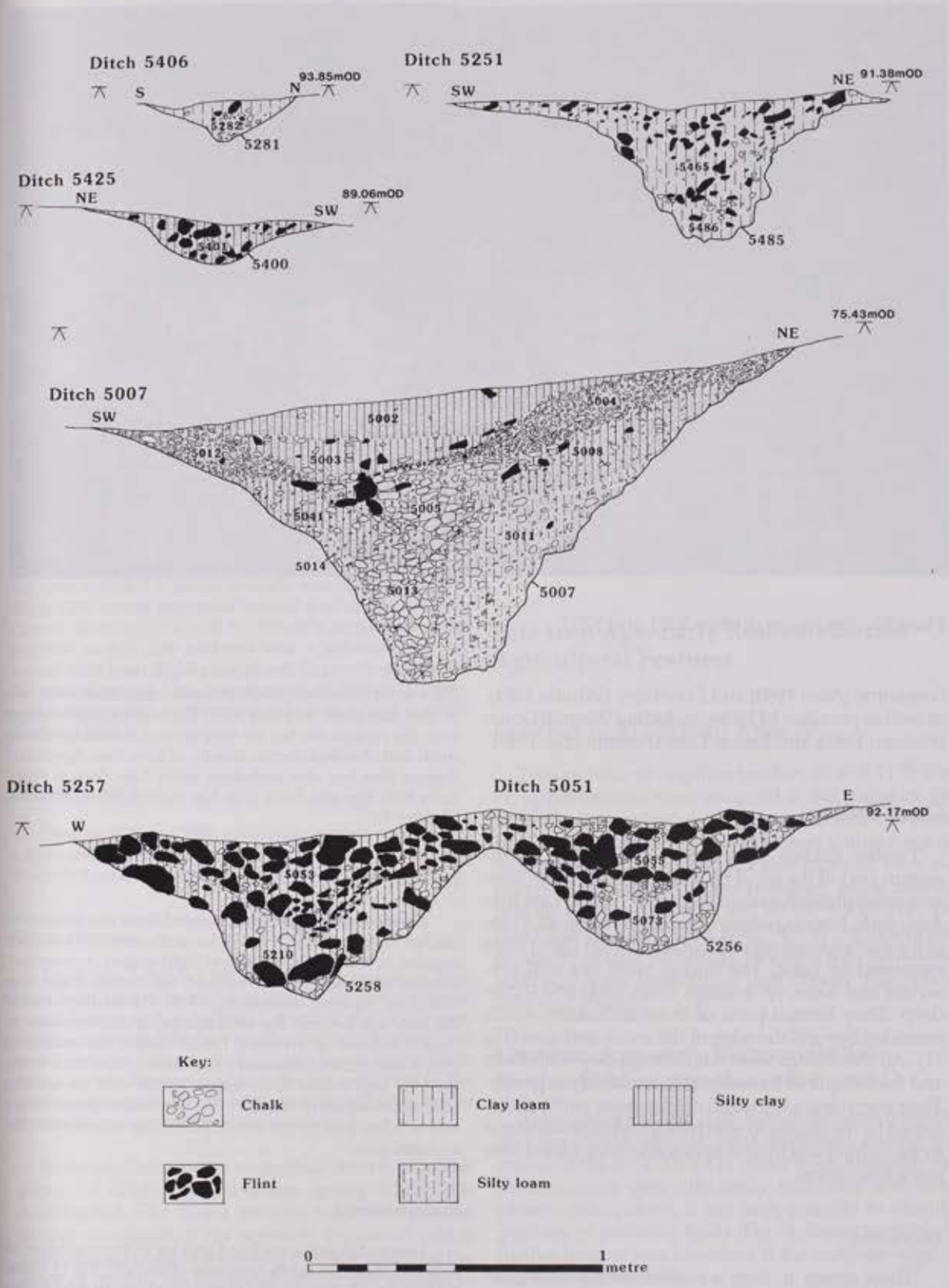


Fig. 19. Iron Age–Romano-British ditches (Area B): representative sections.

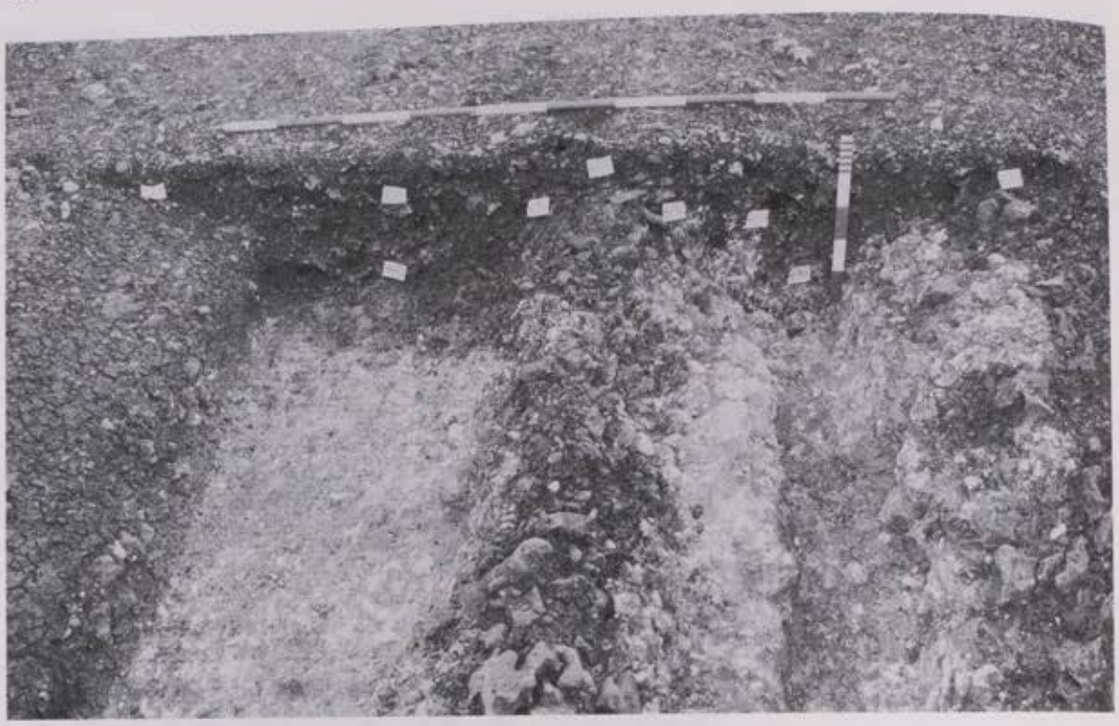


Plate 15. Enclosure ditches 5051 and 5257.

Somborne (Neal 1980) and Danebury (Whittle 1984), as well as previous M3 sites, including Winnall Down (Fasham 1985), and Easton Lane (Fasham *et al.* 1989).

Ditch System

Twelve ditches were uncovered in the north-eastern part of the site (Figs 11 and 19). Sections were excavated through each of them (Fig 19) and Late Iron Age/early Roman pottery was recovered. In all, 314m of the ditches were exposed, of which 65m (20%) were excavated by hand. The ditches were not well preserved and were, on average, 0.8m wide and 0.25m deep. They formed parts of three enclosures which extended beyond the edge of the excavated area (Fig 11). All the ditches were cut through clay-with-flints and they displayed considerable variability in profile. Their surviving widths and depths were partly determined by the degree to which they had been damaged by ploughing and their shapes sometimes varied over just a few metres.

Enclosures

These appear to form a number of sub-rectangular enclosed areas with minimum widths of 50m, which had been modified over time. These enclosures had a rough chequer board arrangement, although various interpretations are possible. The terminals of six of the ditches lay within 20m of each other, in the area where these enclosures converged. A very limited number of stratigraphic relationships were observed, which indicated that ditch 5413 was of later date than 5414 and 5070. The ceramic assemblages from the various ditches are very similar, including mainly small and abraded sherds, mostly of Late Iron Age/early Roman date but also including some Late Bronze Age/Early Iron Age and Early Iron Age material (Seager Smith, Chapter 4).

Enclosed area 1

The most complete of the enclosed areas was formed by ditches 5251 and 5257 (Fig 11). Its north-east end was rectangular, *c.* 45m wide, with clear right-angled corners but, because of a bend in its west side, the overall shape was triangular, tapering towards the south. The southern end of the area was beyond the southern baulk of excavation in Area B and had an area of *c.* 1900m^2 within the excavated area. If the ditches continued to the south on the same lines, the total area would have been *c.* 2300m^2. On the eastern side, approximately 8m from the north-east corner, there was a 3.5m gap in the ditch, providing access into the enclosed area.

Enclosed area 2

A second possible enclosed area lay to the south-east of enclosed area 1, its north-west side (ditch 5051, Fig 11, Plate 15) lay immediately parallel to the south-eastern side of area 1 ditch 5257. Its southern side was formed by ditch 5239 with which it formed a sharp corner. Ditch 5240 ran immediately parallel to 5239 and was clearly related to this arrangement, although its north-east end was cut by ditch 5051. Ditches 5051 and 5239 were recorded in the field as being

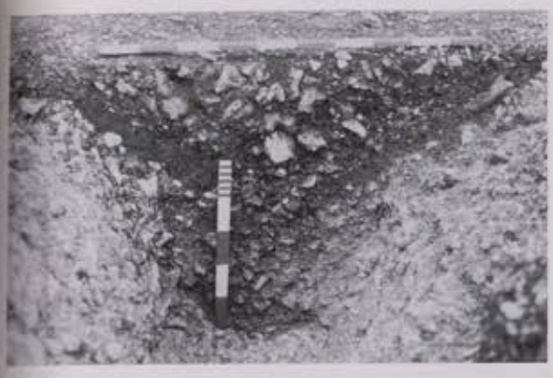


Plate 16. Section through ditch 5007.

the same feature, although it was noted that 5051 had a primary silting layer while 5239 did not. The south-western side of this area continued beyond the excavated area, as it was recorded in the 1933 excavation area as ditch YY, and it may have met or crossed the south-westerly extension of ditch 5543.

The northern corner of this area is unclear but appears to have been rounded. The northern terminal of ditch 5051 lay approximately 6.5m south-south-west of the terminal of ditch 5359, which may have formed part of the same enclosure. Its entrance would have been in roughly the same position as that into enclosed area 1, although the two would have been slightly staggered. The north-east side of the enclosure may have been formed by ditch 5070/5406, which formed the southern boundary to a third possible enclosed area.

Enclosed area 3

Ditches 5070 and 5406 apparently formed two sides of a third possible enclosed area, although both were severely truncated and there were no surviving ditch terminals.

Other elements

Ditch 5414, while not fitting into this arrangement, may have been related to enclosed area 1, its north terminal ended close to, and on the line of, the north end of that area. The area between ditch 5414 and the eastern side of enclosed area 1 narrows to the north, forming a funnel shape. Ditch 5414 also ran almost parallel to, but *c.* 5m to the west of, the northern extension of ditch 5070, its terminal being close to the south-western corner of enclosed area 3.

In the southern part of excavation Area B, a further group of ditches and lynchets (group 5169) was investigated. The major features were two parallel ditches (comprising six separate segments) which were aligned north-west–south-east across and up the slope of the hill, on the uphill side of and parallel to the truncated remains of negative lynchet 5349. All the segments were sectioned and pottery was recovered from two of them. In all 171m of ditch was exposed, of which 27m (16%) were excavated by hand. Their dimensions were variable; the uphill, north-eastern element of ditch 5007/5139, had an average width of 3.5m and depth of 1.3m (Plate 16). These were much larger than the dimensions of the segments forming the downhill south-western ditch (designated 5320), which were on average only 1m wide and 0.28m deep. The distance between the two ditches varied from *c.* 7m to *c.* 4m. From their relationship with the lynchets, these two ditches appear to have bounded a track or droveway ending at the corner of one or more fields.

Dew ponds

Two shallow, circular features interpreted as dew ponds (5227 and 5283) have been assigned to this phase. Prehistoric dew ponds are well known, for example, a probable Middle Bronze Age dew pond was recorded at Dean Bottom, Wiltshire (Gingell 1992, 30). Both these features, however, produced only Late Iron Age/Roman pottery and they are likely to have been significant features in the enclosure system within which they were identified. The larger pond (5227) was previously recorded by Stuart and Birkbeck in the 1930s when it was visible on the surface as a depression and the 'filling of boggy clay' was 'still waterlogged' (1936, 194–5, Fig v).

Late Iron Age–Early Romano-British Agricultural Features

Lynchet field system: Area A

Two sections of negative lynchet, 63 and 1178 (Fig 11, upper section), were assigned to this phase on the basis of stratigraphic relationships and finds. No more Romano-British features were defined within Area A. Small amounts of Romano-British material were recovered from other features, however, and it may be that the upper layers (985, 987, 977, 979, 980) over the main Bronze Age lynchet (765/743/81) represent the remnants of later prehistoric lynchets; they contained relatively large amounts of Late Bronze Age/Early Iron Age pottery.

Late Iron Age–early Romano-British lynchet field system: Areas B, C and D

Three groups of Iron Age–Romano-British lynchets and associated features were identified during the course of the excavations in Areas B–D. Although the features were generally badly truncated and their preservation patchy, it has been possible to identify portions of probable fields (Fig 11, lower section). A further lynchet was identified at the northern edge of the excavated Area B.

Areas C and D cut through the positive lynchet (5140/5301?) on the downhill (south-west) side of a rectangular field and two further lynchets which joined it at right angles and which formed the north-west and south-east edges of a smaller field.

Area C

The features included positive lynchet 5140, running north-west–south-east (the same as 5301 in Area D) and positive lynchet 5338 joining it at a right angle from the south-west. Downhill of both features were the truncated remains of negative lynchets, 5149 and 5170, cut into the natural chalk and later linear hollows, 5147 and 5315, running parallel to the lynchets.

Area D

The features included positive lynchet 5301 running north-west–south-east and positive lynchet 5189 joining it at a right-angle from the south-west. Downhill from 5301 were traces of a negative lynchet 5347 cut into the natural chalk. Cut into the lower slopes of positive lynchet 5301 was a linear hollow.

Area B

In addition to the groups of features identified above, a short section of probable negative lynchet, 5048, was noted at the northern edge of excavation Area B. The feature was extremely shallow and irregular, appeared to have been aligned approximately east–west, and lay lower down the slope than the other recorded lynchets. It produced relatively large amounts of pottery, including material of prehistoric and Late Iron Age/Romano-British date, which is likely to have been derived from settlement activity previously recorded further up the slope.

Discussion

Bronze Age settlement features

As a result of the poor preservation of the settlement features on Area A and of the relative paucity of pottery from the structures, the dating and interpretation of these features is, of necessity, somewhat subjective. The types of structures preserved are not uncommon on prehistoric settlement sites. The recorded structures were spread in a roughly linear fashion over approximately 150m of the hill side and top from the east end of Area A to the barrow and the settlement was not obviously defined by any ditch. How representative of the original settlement this distribution may be is, however, difficult to assess. It has been suggested that the 'majority of the Bronze Age occupation sites seem to have been small, consisting of only a few buildings; such settlements are often unenclosed and difficult to locate' (Fasham and Schadla-Hall 1981, 34). The Twyford Down example appears to be compatible with this definition.

The settlement features are not without local similarities. Although there are relatively few recorded examples of Late Bronze Age houses from central Hampshire (Fasham 1985, 126), two sites excavated immediately north-east of Winchester as part of the previous M3 project, have produced such structures. At Winnall Down, four possible post-built round-houses and a fence date to the Late Bronze Age. The Twyford examples appear to be rather smaller (measurable diameter 5.5–7.4m) than the those of Winnall Down (7–8m). The simple porches seen on the Twyford examples compare with house A at Winnall Down (Fasham 1985, 9–11). Both Middle and Late Bronze Age structures were recorded at Easton Lane where the buildings of the earlier phase were rather more dispersed than those of the later one (Fasham *et al.* 1989, 145).

Further evidence of probable Late Bronze Age settlement has been found a little over 2km to the north-east of Twyford Down at Winnall Allotments. Here, Middle and Late Bronze Age pottery was recovered from round-houses, a long-house, and various non-structural pits and post-holes (Harrison 1991, 6). The high degree of plough damage at Twyford Down makes difficult direct comparison of the distribution of structures with such sites as Winnall Down or Easton Lane. In addition, it has been pointed out that when a reasonable depth of topsoil (0.30m) is present, posts or stakes, even those of a reasonable size, will not 'penetrate significantly into the underlying chalk' (*ibid*, 145) so that structures of particularly slight construction may have left few traces.

No identifiable Bronze Age enclosures were recorded during the excavations. Unenclosed Bronze Age settlements are not unknown, however. For example, that at Burderop Down, Wiltshire 'occupied a ridge at the edge of the Marlborough Downs and contained post-built structures, including four-post buildings and had no field system directly associated with the settlement' (Gingell 1992, 156–7).

Four-post structures, similar to the Twyford Down example, have been recorded from many Middle and Late Bronze Age occupation sites, for example, Weir Bank Stud Farm, Bray (Barnes and Cleal 1995, 12) and Burderop Down, Wiltshire (Gingell 1992, 42–6). The Twyford Down example appears to have been smaller than both of the above. Interpretations of these structures have included granaries and roofed shelters. Possible pairs of post-holes have also been noted at Twyford Down. Elsewhere these have been defined as 'two-post structures', possibly racks of some kind.

Sufficient quantities of Late Bronze Age pottery were recovered from the structures at the north-east of the site to allow a Late Bronze Age date to be assigned to that area. Some Middle Bronze Age and Late Bronze Age/Early Iron Age material was, however, also recorded from 'structural' features. Generally, less Late Bronze Age material was produced by the structures immediately east of the barrow. It is possible to divide the structures loosely on spatial grounds into two elements (north-east and south-west). Woodward (Chapter 5) suggests that the south-western element may represent an earlier (Middle Bronze Age) phase of activity. She also sug-

gests that it is possible to suggest some intra-site patterning with, perhaps, the presence of both domestic and ancillary units.

As discussed in Chapter 2, Deverel-Rimbury cemeteries on the chalk downland generally lie within a few hundred metres of associated occupation sites (Bradley 1981; Fasham and Schadla-Hall 1981, 34). A Middle Bronze Age phase of settlement activity would therefore not be unexpected but the evidence from Twyford Down is very slight compared to most recorded Deverel-Rimbury settlements on the chalk. In view of the survival of the bases of some features of this apparent date, and of later features which can be interpreted as parts of structures, it seems unlikely that a typical Deverel-Rimbury settlement has been differentially eroded away from this area of the down and we can only assume that it lay beyond the excavation area.

Bronze Age field systems

As with the settlement evidence, the poor preservation of the archaeological record on Twyford Down hampers the interpretation of the remaining lynchets within a wider context of prehistoric settlement and farming on the Hampshire Downs. Comparison of the results of the 1930s excavations with those of 1991 indicate the degree to which the archaeology has been damaged. Accordingly, the remains may perhaps best be interpreted by comparison with other, better preserved field systems.

The lynchets represent the remains of prehistoric fields, and tracks were also identified at Twyford Down. At Shearplace Hill, Dorset, Rahtz noted that, even if not directly associated with fields, tracks can be seen as providing access both to and through arable fields (1962, 306). Although there is reason to believe that there were areas of Early Bronze Age clearance and cultivation, for example, at Preshute Down Farm, Wiltshire (Gingell 1992, 155), many of the recorded field systems all over the southern chalk downlands are accepted as being Late Bronze Age in date. Reuse of later Bronze Age field systems in the early Roman period is also well attested, for example, in north Wiltshire (*ibid.*, 155).

Only a limited amount of ceramic material was present in the lynchet soils on Twyford Down. What was recovered, however, ranged in date from Early Bronze Age to Late Iron Age/Roman, the earlier material being more common from the lower layers in the sequence (Chapter 4, Table 5). The very small quantities of Early Bronze Age pottery imply that they probably evolved after this period. It is possible that clearance for farming occurred in the Middle Bronze Age. There is no direct relationship between the Barrow and the main Bronze Age Lynchet, although it is situated almost immediately north (downslope) of the barrow. Elsewhere, 'many field systems in Wessex are secondary to Bronze Age round barrows ... far less often, round barrows overlie the fields' (Barrett 1980, 88). Evidence from environmental samples from the recent excavations, however, indicates that the clearance of woodland from the slopes of the Down occurred relatively late and that the Middle Bronze Age Barrow was constructed in recently, and probably quite locally, cleared ancient woodland (Allen, Chapter 6). A later Bronze Age date for the lynchet formation may, therefore, best explain the agricultural remains on Area A.

Late Iron Age–early Romano-British settlement

The ceramic material from the features excavated within Area B is predominantly of Late Iron Age–early Romano-British date and includes a small number of imported finewares and British finewares (Seager Smith, Chapter 4). The pottery implies that the terminal date for the Iron Age/early Roman assemblage is unlikely to extend much beyond the late first or early years of the second century AD. The ditches appear to have defined a series of approximately rectangular enclosures and again the pottery suggests a Late Iron Age–Romano-British date. The enclosures did not contain evidence for structures and the relatively few features (storage/rubbish pits and isolated postholes) were mainly distributed around the periphery of the enclosures. They are probably paddock enclosures. Enclosures of sub-rectangular shape and with associated droveways are typical of the later Iron Age in Hampshire (Millett and Russell 1984, 55). A linear series of early Romano-British rectangular enclosures was recorded at both Easton Lane and Winnall Down, although probable settlement structures were apparently more integral to the enclosures at those sites (Fasham *et al.* 1989, 75; Fasham 1985, 31).

Conclusion

Primary settlement evidence in the form of traces of houses was recovered from the eastern half of Area A. The evidence consisted of circular post-rings of 5–7m diameter. Where evidence for porches survived they faced to the south and east. Direct dating evidence suggests that the settlement flourished during the Late Bronze Age. These post-built structures did not survive in good condition and it has not been possible to flesh-out the form of the settlement in any detail. In general five reasonably well-defined structures have been identified in two rough concentrations (Fig 10). It can be suggested that two small household units might be involved (Woodward, Chapter 6). In addition, when the material evidence from the lynchets, the environmental data and the grouping of Late Bronze Age features on Area B are all considered together, a broad interpretation of the landscape development can be attempted.

Following the disuse of the barrow (Chapter 2), the Down enters a period of burgeoning land allotment, settlement and agricultural development. The spine of Twyford Down was delimited by a lynchet to the

north of the barrow on Area A and by an alignment of vessel deposits across Area B. Assuming that at least some of this activity is directly contemporaneous we can suggest a division between settlement to the north-east and agricultural land to the south-west.

Interestingly the Middle Iron Age is under-represented on Twyford Down. Within the immediate area a number of major sites of Middle Iron Age date have been identified, notably the enclosures on St Catherine's Hill and at Oram's Arbour and the unenclosed phase of settlement at Winnall Down/Easton Lane. No significant activity can be attested from Twyford Down, which presumably fulfilled a secondary agricultural role during this period.

During the Late Iron Age–early Romano-British period there is evidence for more intensive activity concentrated on Area B. The small-scale paddock enclosures and the contents of storage/refuse pits attest to the presence of a nearby simple farming community with few external links; while the evidence for the presence of contemporary lynchet accumulations overlying and eroding the earlier Bronze Age fields on Area A shows intensive agricultural activity to have been widespread over Twyford Down. The environmental evidence shows the introduction of oats to have occurred during this period and that farming intensified in the local region.

Thereafter, the Down reverted to less intensive agricultural uses and limited woodland regrowth, forming a landscape of passage, eg drove-route, gallops and pasture, rather than a base for enduring settlement.

Chapter 4

The Finds

Introduction to the assemblages

Chapters 2 and 3 presented a summary of the use of Twyford Down for both settlement and burial from the Bronze Age to the Roman period. This chapter presents details of the many objects that were recovered during the excavations, together with catalogues and illustrations of the more important finds and summary discussions of the various assemblages. A detailed report and discussion on the human bone, together with a catalogue of human remains, are to be found in Chapter 5. Full details of all the material are retained in the archive.

A large assemblage of pottery, weighing almost 58kg, was recovered during the excavations and includes a series of urns and urn fragments, mostly relating to the use of the barrow for funerary purposes, and a quantity of Late Iron Age/Romano-British material which relates largely to domestic and farming activities on Area B. These assemblages are accompanied by small quantities of flintwork, metalwork and worked bone objects, and by various artefacts of domestic function such as quern fragments, whetstones, roof tiles and both fired clay and ceramic building material. The only certain grave goods from the barrow are 14 amber beads from a single inhumation.

Metalwork, by R. Montague

Eighty pieces of generally unremarkable metalwork were recovered during the excavations, of which a minimum number of 52 iron nails and screws could be discerned from 79 recorded fragments. In addition to various lengths of copper alloy and iron rods and sheet fragments, most of the other artefacts are small personal items such as bracelets, rings, buckles and brooches. The only identifiable tool is a fragment of a modern ploughshare. Given the evidence for prehistoric settlement and agriculture on Twyford Down this is perhaps surprising.

No nails were recovered from Area A and all but three of the remainder came from Area B. In general, nails recovered from Late Iron Age–Romano-British contexts are of Manning's Type 1B — iron nails with a square sectioned tapering shank less than *c.* 150 mm in length and with flat, rounded or sub-rectangular heads (Manning 1985, 134). Two hobnails were also recovered, both from unphased contexts but are almost certainly Romano-British in date. In addition to the four horseshoe nails, which are likely to be medieval or later, a few modern timber nails and screws were recovered.

Metalwork was recovered from cremation burial 607 in pit 606 within the barrow and from flinty and ashy layer complexes 615 and 1002/1005 in the barrow ditch. Cremation burial 607 was accompanied by an incomplete bronze awl, broken into four fragments. It is noteworthy that the only metalwork recovered from the barrow ditch occurred in the southern part in sub-divisions 613, where pyre debris layer 615 produced six fragments of what was probably a copper alloy wire bracelet, and adjoining subdivision 875, where a copper alloy wire ring and a small fragment of iron rod were recovered from pyre debris layers 1002/1005. It is possible that these represent pyre goods which were scooped up with the pyre debris after the cremation had taken place rather than being collected and deposited as grave goods with the cremation burials.

A 4th century BC copper alloy brooch (Fig. 20, 5) is from one of the fills of lynchet 1178, which has been dated on ceramic evidence to the Late Iron Age/early Romano-British period. The catchplate, foot and tip of the pin are missing but, apart from this, the brooch is in excellent condition. While it is quite likely that this object is merely a residual find in this context, it is poosible that the brooch was a family heirloom which had been passed down through several generations before being lost and becoming incorporated in the soil of the lynchet.

Catalogue of copper alloy and bronze objects (Fig 20)

1. Copper alloy ?awl fragment. Wedge-shaped, broken at one end with other 'chisel-like' end slightly reduced by powdery corrosion. Slight groove down each broad face at broken end. Very similar in size and shape to copper alloy awl fragment (No. 4 below). Length 13.3mm, width at chisel end 3.9mm, width at other end 2.8mm, max. thickness 1.9mm. Obj. No. 2010, context 534, Area A.
2. Fragments of a plain bronze ?wire bracelet with hooked terminals. Six fragments of copper alloy rod, all found within an area of *c.* 4.5 x 4.5m , may all belong to the same object. Oval or sub-circular cross-section, varying in diam. from 1.7mm to 2.7mm. Curvature is

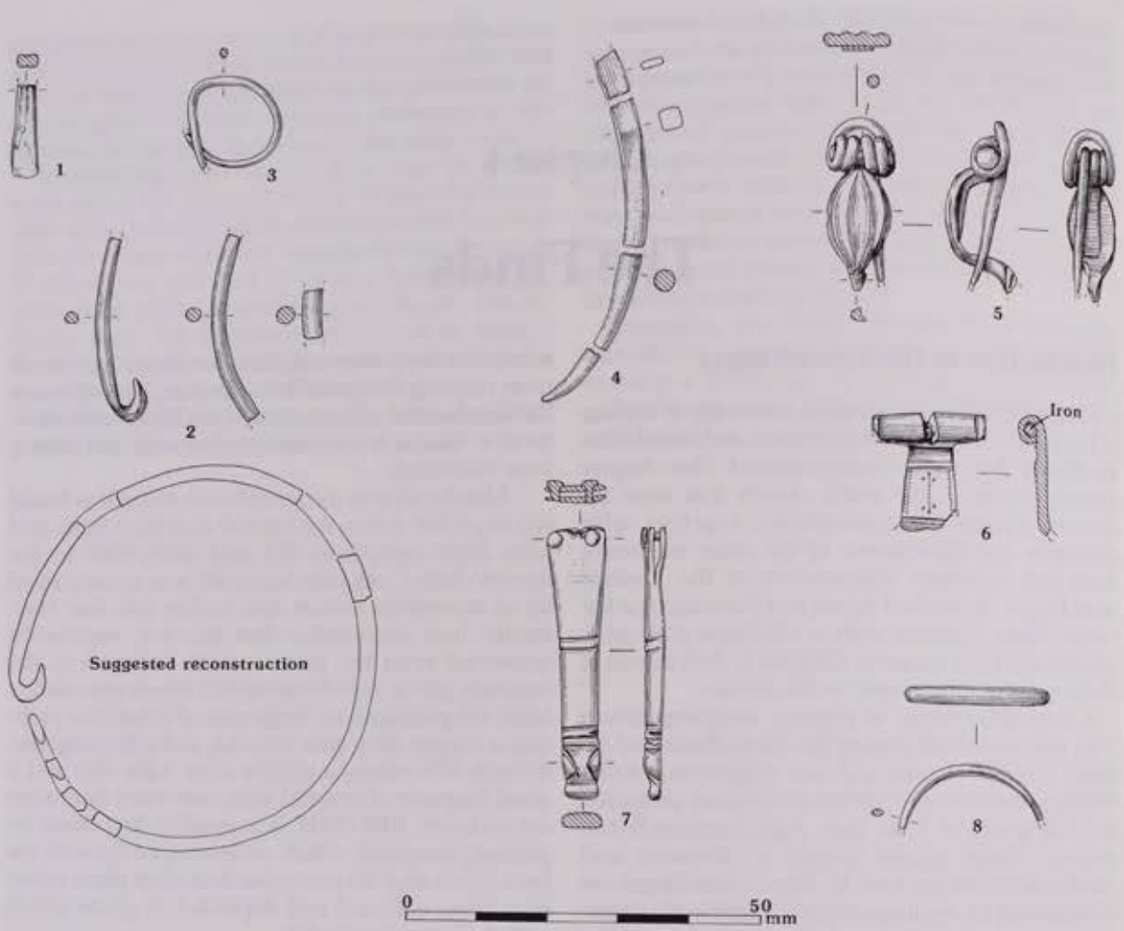


Fig. 20. Objects of copper alloy. Scale 1:1.

visible on three fragments. One has a hooked terminal facing inwards (ie against the wrist of the wearer) which makes the interpretation of this object as a bracelet slightly uncertain as this does not seem a particularly comfortable way fasten a bracelet. Diameter of bracelet *c.* 50mm. Two similar examples are known from the Middle Bronze Age hoard at Ebbesbourne Wake, Wiltshire (Moore and Rowlands 1972, 63–4, nos 16 and 17, plate XV). Obj. No. 2563 (comprising Obj. Nos 2009, 2517, 2519, 2543, 2551), contexts 615, 649 and 650 (pyre debris layer), Area A.

3. Part of a small copper alloy wire ring in two joining fragments, with overlapping ends, both broken in antiquity. From flint layer in barrow ditch sub-division 875. Sub-circular section. Diam. ring 13.0–13.5mm, Diam. wire 1.3–1.5mm. A much larger bronze ring (diam. 39.0–42.0mm) of similar construction was recovered along with 20 jet or shale buttons from an Early Bronze Age inhumation burial in a barrow at Hunmanby, North Yorkshire (Kinnes and Longworth 1985, 119, Fig 250.5). Obj. No. 2544, context 1002, Area A.
4. Copper alloy awl with one pointed and one chisel-like end. Four non-joining fragments with unurned cremation burial. Central area may be slightly expanded; cross-section at the pointed end is sub-circular, at the chisel-like end rectangular. Original length *c.* 49mm in length. Awls of this kind are a common grave good in Early Bronze Age barrow cremation and inhumation burials (Lawson 1995). Obj. No. 2564 (comprising Obj. Nos 2518, 2526, 2528), context 607, Area A.
5. Bronze brooch with four-coil mock spring and external chord and copper alloy axial rod through coils. End of one inner coil forms pin, end of other inner coil expanded into small flat tongue. Bow apparently fixed to tongue by two small copper alloy rivets, which do not show on upper face and have been carefully finished on lower surface so as to be barely visible. Foot broken below flattened leaf-shaped bow, which is decorated with three broad and pointed 'oval-shaped' grooves. Tip of pin also broken. Length 23.9mm. Of Hull and Hawkes' Type 1Bc (1987, 107–10), with a lateral flattening of and 'pointed oval' groove decoration on the bow and a mock spring dated to the 4th century BC, perhaps survivng a little later. Similar examples are known from or close to the Thames at London and from Dorset, Oxfordshire, Surrey, Cambridgeshire, Norfolk, and south Humberside. Another brooch, of Hull and Hawkes' Type 1A, is known from Twyford Down, and has been dated to around 400 BC (*ibid.*, 82). Obj. No. 2016, context 824, Area A.
6. Bronze brooch fragment; rectangular sectioned bow with iron rotating pin *in situ*. Bow flares outwards below hinge and bears grooved and fine punched decoration. Both ends of hinge grooved. Length 16.3mm, width of hinge 15.7mm. Hod Hill type

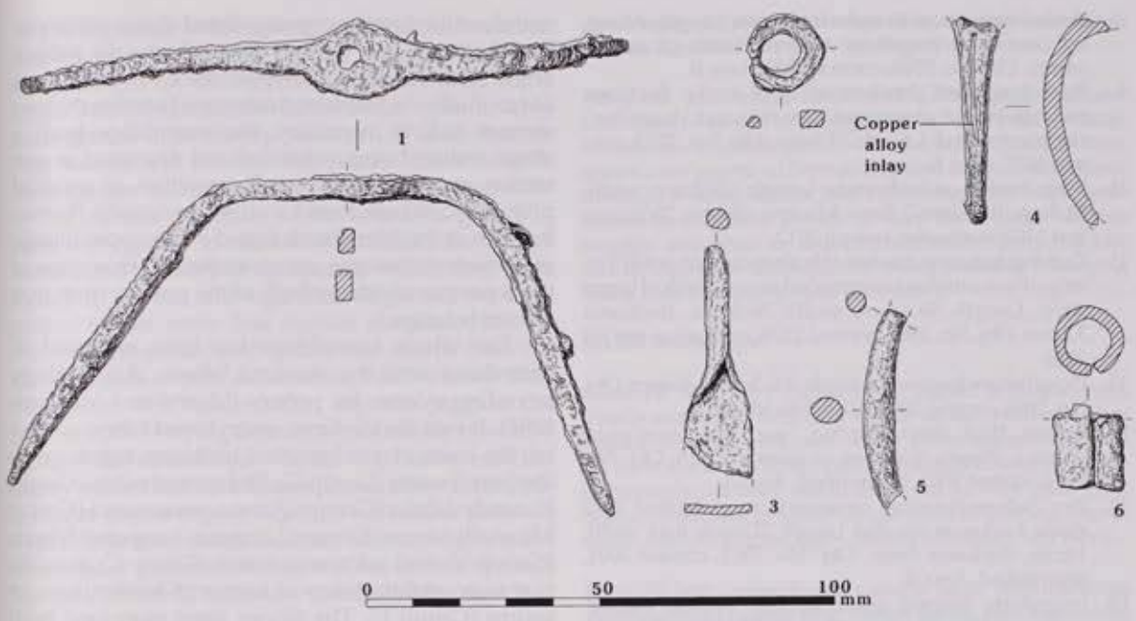


Fig. 21. Objects of iron. Scale 2:3.

(Hawkes and Hull 1947) dated by Hattatt (1982) to AD 43–70. Obj. No. 7010, context 5047, Area B.

7. Copper alloy strap-end with zoomorphic design, two copper alloy rivets surviving in split end. Plain originally flat back. Divided into three fields by two sets of transverse incised grooves. Split end tapers; below first set of grooves sides are more or less parallel. Lower field marked by animal head terminal with eyes on either side represented by incised lines outlining a slightly raised area and snout suggested by flat end of the object with a 'pinched' area just above. Length 37.8mm. This object was recovered from layer 2076 within test pit 2009 during the evaluation. Similar to unstratified examples from Winterbourne Whitchurch and Hod Hill, Hanford, both in Dorset (Keen 1986, 195–6, Fig 2.3, 2.4). Keen dates these to the 9th century AD by comparison with other examples from stratified deposits, such as Portchester Castle (Cunliffe 1976b, 216, Fig 136.52) and an unpublished example from Six Dials, Southampton, both in Hampshire. Obj. No. 2801, context 2076, evaluation test pit 2009 (Hockley Lynchets, south of St Catherine's Hill).
8. Copper alloy cast discoidal button with integral loop. Diam. 29.6mm. Post-medieval. Obj. No. 2803, Context 2120, evaluation test-pit 2019.

(Not illustrated)

9. Copper alloy finger ring fragment, lenticular sectioned, undecorated. Band 2.6mm thick. Diam. *c.* 20.4mm. Obj. No. 2003, context 123, topsoil over barrow, Area A.
10. Copper alloy pin; spherical head. probably a sewing pin. Length 33.6 mm. Post-medieval. Obj. No. 2501, context 5, unstratified, Area A.
11. Copper alloy buckle; rectangular with oval slot for strap and seating for pin. Length 84.3mm. Post-medieval. Obj. No. 2808, context 1013/24, field-walking.
12. Victorian copper alloy farthing. 1864. Diam. 20.2mm. Obj. No. 2500, context 123, topsoil over barrow, Area A.

Catalogue of iron objects (Fig 21)

1. Object with two spiked arms and central expanded area with circular perforation, presumably for suspension of, or from, another object. Both arms bent downwards. Function uncertain. Length between spikes 131mm. Obj. No. 7538, context 5498, Area B.
2. 'Washer-like' ring formed from tapering strip of rectangular section with butting ends. Max. diam. 17.2mm. Obj. No. 7521, context 5055, Area B.
3. Strip with sub-square sectioned tang formed by folding over edges of strip. Tang complete; broad end broken. Length 50mm, width of broad end 14.7mm. Obj. No. 7007, context 5047, Area B.
4. Brooch bow fragment. Bow a tapering strip with rectangular cross section with copper alloy, possibly brass inlaid, strip running down centre. Length 43.3mm, max. width 9.3mm, max. thickness 3.8mm. Mackreth (1981, 135) notes 'brooches made of iron are probably not to be expected after the first twenty years of Roman Britain, but they are to be expected in pre-Conquest times. Obj. No. 2502, context 123, topsoil over barrow, Area A.
5. Curving rod fragment, broken both ends, sub-circular to oval cross-section. Length 42.1mm, max. diam. 6.5mm, min. diam. 4.6mm. Obj. No 2508, context 358, topsoil over barrow, Area A.
6. Collar formed from strip *c.* 15–16mm wide, rolled over with ends butting. Broken projection on one side next to join. Diam. 14–14.9mm. Possibly a small tubular goad similar to one from from Vindolanda, Northumberland (Bidwell 1985, Fig 49.41). Obj. No. 7027, context 5001, unstratified, Area B.

(Not illustrated)

7. Short length of slightly curved rod, oval cross-section, broken both ends. Length 4.3mm, max. diam. 2.0mm, min, diam. 1.6mm. Obj. No. 2562, context 1005, Area A.

8. Folded strip waste, in seven fragments. Length of longest conjoining fragments 46.8mm, width of strip *c.* 14mm. Obj. No. 7526, context 5232, Area B.
9. Rod fragment, broken at both ends. Sections rectangular but at one end very thin and 'chisel-like', slightly splayed. Length 37.3mm. Obj. No. 7523, context 5077, Area B.
10. Strip, broken at both ends. Length 130.5mm, width 32.7mm, thickness 2.2mm. Modern. Obj. No. 2802, context 2102, evaluation test-pit 2012.
11. Curving iron strip, broken at both ends, with small thin strip of iron attached or corroded across width of larger strip. Length 50.1mm, width 36.8mm, thickness 3.2mm. Obj. No. 2805, context 2136, evaluation test pit 2018.
12. Ploughshare fragment. Length 106.3mm. Modern. Obj. No. 2809, context 1016/10, fieldwalking.
13. Broken, thick sheet, curving, ?part of an iron pipe. Diam. *c.* 70mm, thickness of sheet *c.* 7mm. Obj. No. 7501, context 5001, unstratified, Area B.
14. Bar. Sub-rectangular cross-section, elongated oval shape, broken at one end. Length 51.4mm, max. width 14mm, thickness 7mm. Obj. No. 7502, context 5001, unstratified, Area B.
15. Irregularly shaped piece, broken. Broken square-sectioned ?shank or arm. Length 25.6 mm. Obj. No. 7503, context 5001 unstratified, Area B.
16. Broken forked object with one long arm almost complete. Lenticular to slightly dished in section, with square perforation at one edge. Other arm broken near fork. Body of object below fork is semi-circular in section and tapers to a blunt point. Function unknown. Length 193mm. Obj. No. 7504, context 5001, unstratified, Area B.

Pottery, by R.H. Seager Smith and A. Woodward

Introduction

A total of 7723 sherds, weighing 57,857g, was recovered during the excavations. This assemblage consists of material from all contexts including natural features, topsoil and site-clearance material, and is of Early/Middle Bronze Age to Late Iron Age/early Roman date.

The part of the assemblage recovered from phased contexts can be broken down into five main groups broadly relating to chronology and different feature groups across the site:

1. Bronze Age cremation vessels and single-vessel sherd concentrations.
2. Early to Middle Bronze Age material from the barrow ditch layers and individual features.
3. Late Bronze Age/Early Iron Age material from the lynchet soils and isolated individual features.
4. Iron Age and early Roman material from the enclosure ditches.
5. Iron Age and early Roman material from pits and other isolated features.

This report is presented in two sections, the first of which considers the prehistoric pottery, consisting mainly of the first three groups listed above, while the Iron Age and early Roman pottery forms the subject of the second section. However, the two sections are not mutually exclusive and reference between the two sections will be necessary, the assemblage from a single feature being quantified and discussed in one section only. Thus the small quantities of residual prehistoric sherds found in Iron Age/early Roman features or the later sherds found in the upper fillings of prehistoric features, are quantified in the section of the report to which the bulk of the pottery from that feature belongs.

The whole assemblage has been analysed in accordance with the standard Wessex Archaeology recording system for pottery (Morris and Mepham 1994). It was divided into seven broad fabric groups on the basis of predominant inclusion types: grog-tempered wares (Group G), flint-gritted wares (Group F), sandy fabrics (Group Q), micaceous wares (Group M), shelly wares (Group S), organic-tempered fabrics (Group V), and calcareous wares (Group C), in addition to an eighth group of fabrics of known type or source (Group E). The fabrics were examined both macroscopically and using a binocular microscope at x20 power and these groups were then further subdivided into 59 different fabrics based on the range, frequency and coarseness of the inclusions present. Each of the fabric types has been assigned a unique alpha-numeric fabric code combining a letter signifying fabric group with a chronologically significant number (1–99 for Bronze Age and Early Iron Age fabrics; 100–399 for Late Iron Age/early Roman fabrics). The following terms are used to describe the frequency of inclusions present: rare — less than 3%; sparse — 3–10%; moderate — 10–20%; common — 20–30%; abundant — 30%+.

The pottery has been quantified using both the number and weight (to the nearest whole gram) of sherds of each fabric type by context. Each sherd was examined and assigned a form type with additional attributes from selected variables recorded where appropriate. These included details of vessel form, size, surface treatment, decoration and manufacturing technique, recorded to identify and characterise the range and nature of the vessels present. Details of surface abrasion, residues and evidence of reuse and repair have also been noted to provide information about the ways in which the assemblage was used. For the prehistoric material, details of firing were also recorded. A site-specific vessel type series was constructed for the assemblage, based on the range of types found at other similar sites in the area (Hawkes 1985; 1987; 1989; Stuart and Birkbeck 1936). Not all of the vessel forms identified at these sites occur amongst the present Twyford Down assemblages and consequently there are gaps in the numerical sequence of vessel forms presented in this report. Each sherd or group of related sherds were given a unique number (a Pottery Record Number or PRN) and the attributes recorded for them subsequently computerised, using the data-handling system D-base IV.

The condition of the assemblage is highly variable, unified only by its fragmentary nature. The mean sherd weight for the assemblage is only 8.5g. Some large, well-preserved sherds do occur, most notably amongst the individually-deposited, Middle Bronze Age vessels and the Iron Age/early Roman sherds from the pits but in general the sherds are very small.

The surface condition of the sherds is generally poor and appears to relate to their fabric, the type of feature and geology of the area in which they were found. In general and regardless of period, the flint-gritted fabrics show less surface abrasion than the sandy or grog-tempered wares, and sherds from cut features, such as pits and ditches, survive better than those from soil accumulation deposits, such as the lynchet soils. Varying degrees of soil acidity have also affected the assemblage. Sherds from areas with the highly acidic clay-with-flints subsoil, show a markedly higher degree of post-depositional surface abrasion than sherds from the chalk areas, although here, some sherds have absorbed elements of the chalk soil which has itself affected the surface stability of the sherds.

Prehistoric Pottery, by A. Woodward

Fabrics, by R.H. Seager Smith

Beaker

Fabric Q5: Hard, medium-grained fabric with common quartz <0.5mm, sparse grog/clay pellets, <1mm, rare poorly-sorted crushed flint 0.5–2mm across and rare iron oxides <0.5mm. Iron-rich; generally with oxidised exterior surface and margin, rest of the sherd unoxidised; orange–brown to very dark grey. Handmade. Early Bronze Age (Beaker). Probably similar to Fabric C6 at Easton Lane, used for a variety of Beaker vessels, including Late Style and domestic vessels (Ellison 1989, Fig 86, 28, 30, and 31).

Early/Middle Bronze Age

Fabric G1: Soft, soapy fabric with sparse, poorly sorted grog/clay pellets <4mm across, in matrix containing moderate white mica/micaceous sand <0.1mm, and rare iron oxides <0.5mm across. Iron-rich; generally completely oxidised throughout; orange–red. Surfaces roughly smoothed or unaltered. Handmade. Date uncertain; at least some sherds of this fabric may be of Early Bronze Age date.

Fabric G2: Very soft, friable fabric containing moderate poorly-sorted grog/clay pellets <3mm across, rare iron oxides <0.5mm, and rare crushed flint and quartz both <1mm across. Iron-rich; irregularly fired; bright red–brown to very dark grey. Surfaces generally smoothed. Handmade. Early or Early to Middle Bronze Age – Collared Urn.

Fabric G3: Soft, densely-textured fabric, containing moderate, poorly-sorted grog and rare to sparse crushed flint both <2mm across, with rare quartz, <0.5mm, and iron oxides <1mm across. Iron-rich; generally with exterior surface and margin oxidised, rest of sherd unoxidised; orange to very dark grey. Surfaces generally smoothed. Handmade. Predominantly of Early Bronze Age date, although a few Late Bronze Age and Early Iron Age sherds also occur.

Fabric G4: Soft, friable fabric with a laminated structure. Inclusions of sparse to moderate grog/clay pellets <2mm across, rare to sparse, poorly-sorted crushed flint 0.5–4mm across, rare quartz <0.5mm and sparse carbonised organic material, 1–3mm across. Iron-rich; irregularly fired; red–brown to chocolate brown to very dark grey. Surfaces roughly smoothed or wiped. Handmade. Early/Middle Bronze Age date, although one sherd probably belonging to the Late Bronze Age was also noted.

Middle Bronze Age

Fabric F8: Soft, very friable fabric gritted with common, poorly sorted crushed flint <3mm across, with rare iron oxides <0.5mm and rare white mica/micaceous sand <0.1mm in a very slightly calcareous matrix. Iron-rich; predominantly oxidised fabric; brick red to very dark grey. Surface treatment generally rough hand smoothing. Handmade. Middle Bronze Age – Deverel-Rimbury urn fabric.

Fabric F9: Soft, coarse, highly variable fabric with moderate poorly-sorted crushed flint, <8mm across, rare iron oxides <0.5mm and moderate white mica/micaceous sand <0.1mm. Iron-rich; irregularly fired; purple–red, brick red or dark grey–brown. Surfaces unaltered, smoothed or roughly wiped. Handmade. Middle Bronze Age – Deverel-Rimbury urn fabric.

Fabric F10: Very fine, soft fabric with rare to sparse, well-sorted crushed flint and sparse to moderate grog/clay pellets, both <1mm across, and rare iron oxides <0.5mm across. Iron-rich; irregularly fired; orange–brown to very dark grey–brown. Surfaces are generally carefully smoothed. Handmade. Middle Bronze Age – globular urn.

Fabric F13: Soft, well-prepared fabric containing common, moderately well sorted crushed flint, 0.25–2mm across, rare iron oxides <0.5mm and carbonised organic material <5mm across in matrix containing moderate white mica/micaceous sand <0.1mm. Iron-rich; predominantly unoxidised; brick red to dull grey–brown. Surfaces carefully smoothed. Handmade. Middle Bronze Age – globular urn.

Fabric F16: Soft, well-prepared, medium-grained fabric with sparse crushed flint from 0.25–2mm across and sparse grog also <2mm. Iron-rich; predominantly unoxidised, although some sherds have oxidised or irregularly fired exterior surface; orange–brown to very dark grey. Surfaces generally carefully smoothed. Handmade. Middle Bronze Age – globular urn.

Fabric F17: Soft, well-prepared, fine-grained fabric with moderate to common crushed flint from 0.5–3mm across, moderate quartz <0.5mm and sparse iron oxides <0.75mm. Frequency of flint grits increases towards base of vessels — close to rim occur in only sparse amounts. Predominantly unoxidised; dark grey–brown to very dark grey, exterior surfaces and margins are paler in colour than core. Surfaces unaltered or roughly smoothed. Handmade. Middle Bronze Age – part of the Deverel-Rimbury tradition.

Late Bronze Age

Fabric F11: Soft fabric with moderate very poorly-sorted crushed flint, 0.5–6mm across, rare to moderate grog/clay

pellets 2–6mm across, rare to sparse white mica/micaceous sand <0.1mm, and rare iron oxides <0.5mm. Iron-rich; irregularly fired; red–brown to mustard yellow to grey–brown to very dark grey. Surfaces generally unaltered. Handmade. Late Bronze Age.

Fabric F12: Soft, friable fabric with common, very poorly-sorted crushed flint 0.5–6mm across, moderate quartz and rare iron oxides, both <0.5mm. Matrix very clean with no visible inclusions. Iron-rich; irregularly fired, exterior surface and margin predominantly oxidised, rest of sherd unoxidised; brick red to mustard yellow to very dark grey–brown. Smoothed surfaces. Handmade. Late Bronze Age.

Fabric F14: Moderately hard fabric with poorly-sorted flint, 0.5–3mm across, occurring in sparse to common amounts, rare quartz and iron-oxides, both <0.5mm across, and very rare soft, white powdery calcareous particles <1mm across, in a matrix containing common white mica/micaceous sand <0.1mm. Iron-rich; irregularly fired; orange to red–brown to very dark grey. Surfaces unaltered or finger smeared, smoothed or wiped, often using vertical strokes. Handmade. Late Bronze Age.

Fabric F18: Hard, moderately coarse fabric tempered with sparse to moderate crushed flint from 0.5–4mm across, common quartz <0.25mm and rare iron oxides <0.5mm. Iron-rich; predominately unoxidised with oxidised exterior surface; brick red to very dark grey. If present, surface treatment generally rough finger smearing. Handmade. Late Bronze Age.

Fabric C1: Soft fabric containing sparse to moderate soft, white particles 0.25–4mm across, which have a slight reaction with 10% hydrochloric acid – may be degraded calcite, sparse grog/clay pellets 0.5–3mm across, moderate quartz/quartzite <2mm across, moderate to common mica/micaceous sand <0.1mm and rare iron oxides <1mm. Iron-rich; irregularly fired; orange–brown to brick red to very dark grey. Surfaces unaltered or roughly smeared. Handmade. Probably Late Bronze Age but just possibly very coarse Beaker fabric (Cleal pers. comm.).

Late Bronze Age/Early Iron Age

Fabric F1: Hard, moderately fine-grained fabric with rare to sparse, moderately well-sorted crushed flint <1mm across, rare carbonised organic material <3mm across, rare quartz and sparse iron oxides both <0.5mm and rare soft, white calcareous particles <3mm. Iron-rich; irregularly fired; pale orange–brown to very dark grey. Surface treatments generally rough finger smearing, smoothing or wiping, often using vertical strokes. Handmade. 'Fineware' fabric. Late Bronze Age/Early Iron Age.

Fabric F2: Hard fabric characterised by sparse plus poorly sorted crushed flint 0.5–7mm across and a range of other inclusions, including quartz, iron oxides, chalk and grog/clay pellets which occur in varying quantities and frequencies. Iron-rich; all firing conditions occur but exterior surface of many sherds oxidised; weak brown to orange to red to dark brown to very dark grey. Surfaces unaltered, finger smeared or wiped. Handmade. Late Bronze Age/Early Iron Age.

Fabric F3: Soft to moderately hard, coarse-grained fabric containing moderate to common quartz <0.5mm and rare to sparse crushed flint <3mm across. Iron-rich fabric; all firing conditions occur; colour varies from orange–brown to dark brown to very dark grey. Surface treatments generally confined to rough finger smearing, smoothing or wiping, often using vertical strokes. Handmade. Late Bronze Age/Early Iron Age.

Fabric F4: Soft to moderately hard fabric with rare to sparse crushed flint <2mm across in a matrix containing common white mica/micaceous sand <0.1mm. A range of other inclusions such as quartz, iron oxides and carbonised organic matter may also occur in rare to sparse amounts. Iron-rich; irregularly fired; pale brown to brick red to very dark grey–brown. Surfaces unaltered or roughly finger smeared. Handmade. Late Bronze Age/Early Iron Age.

Fabric F5: Hard, dense fabric containing moderate to common crushed flint <4mm, moderate quartz and rare iron oxides <0.5mm and, sometimes, rare soft calcareous particles <1mm across. Iron-rich; irregularly fired; pale brown to brick red to very dark grey–brown. Surfaces unaltered or roughly smeared. Handmade. Late Bronze Age/Early Iron Age.

Fabric F6: Hard, dense fabric with common well-sorted, crushed flint <2mm across, and rare quartz, iron oxides and carbonised organic material in matrix containing common white mica/micaceous sand <0.1mm. Iron-rich; irregularly fired, often with oxidised exterior surface; dull brown to very dark grey. Surfaces unaltered, finger smeared, smoothed or wiped. Handmade. Late Bronze Age/Early Iron Age.

Fabric F15: Soft, close-textured, fine-grained fabric with rare to sparse crushed flint 0.5–2mm across, sparse grog/clay pellets, 1–2mm across, and sparse carbonised organic material <2mm across in a matrix containing common white mica/micaceous sand <0.25mm across. Iron-rich; irregularly fired but oxidisation of exterior surface at least is comparatively common; orange to pale brown to brown–grey. Surfaces generally unaltered. Handmade. Late Bronze Age/Early Iron Age.

Early Iron Age

Fabric F7: Soft to moderately hard fine-grained fabric containing rare to sparse crushed flint and quartz, both <1mm across, and rare iron oxides <0.5mm and soft, white calcareous particles <2mm across. Iron-rich; irregularly fired but most frequently with oxidised surfaces and unoxidised or only partially oxidised core; brick red to dull grey–brown. Surfaces always smooth, sometimes with light to moderate burnish. Handmade. 'Fineware' fabric. Early Iron Age.

Fabric Q6: Moderately hard, fine-grained fabric with common well-sorted quartz <0.75mm and rare crushed flint <1mm, iron oxides <0.5mm, and white mica <0.25mm. Iron-rich; generally oxidised with brick red or orange surfaces and a pale brown core, although some examples with unoxidised surfaces. Surfaces often abraded but appear to be smooth and carefully finished. Handmade. 'Fineware' fabric. Early Iron Age.

Fabric M1: Soft, very fine-grained fabric with abundant white mica/micaceous sand <0.1mm, sparse iron oxides 0.5–2mm across, sparse carbonised organic material <2mm

long and rare quartz <0.25mm. Iron-rich; generally oxidised with brick red or orange surfaces and pale brown core, some examples with unoxidised surfaces. Smooth and carefully finished surfaces. Handmade. 'Fineware' fabric. Early Iron Age.

Other Prehistoric Fabrics

Fabric Q2: Moderately hard, medium-grained fabric containing common quartz <0.5mm, rare to sparse carbonised organic matter, up to 6mm long, and rare iron oxides <0.5mm. Iron-rich; generally unoxidised, sometimes with oxidised exterior surface; red–brown to very dark grey. Surfaces unaltered. Handmade. Featureless sherds only; no dating evidence.

Fabric Q3: Soft, medium-grained fabric with common to abundant fine sand, <0.25mm across, rare to sparse crushed flint, <1mm, and grog/clay pellets <2mm. Also common to abundant black glassy grains, <0.25mm, possibly glauconite or black iron oxides but too small to be certain. Iron-rich; irregularly fired; dull orange–brown to grey–brown. Surfaces smoothed or unaltered. Handmade. Date range uncertain. Probably of Late Bronze Age date but firing of some sherds is very reminiscent of later Neolithic fabrics while others may be of Early Iron Age date.

Fabric S1: Soft, fine-grained fabric with rare to sparse crushed shell from 0.5–3mm across in a matrix containing abundant quartz <0.25mm and rare iron oxides <0.5mm. Iron-rich; oxidised or with oxidised exterior surface and margin, rest of sherd unoxidised. Surfaces unaltered. Handmade. Featureless sherds only; no dating evidence.

Vessel type series

The 12 identifiable Deverel-Rimbury vessels were classified according to the Central Wessex types defined by Ellison (1975):

Type 1A	Classic Type I globular urn, thin-walled with shallow-tooled geometric decoration (Vessel No. 14).
Type 1B	Coarser, usually larger, globular urn, often plain with lugs, or decorated with roughly executed simple geometric motifs (Vessel Nos 2, 5, 11).
Type 2	Urns with fairly straight neck, expanded rim and one or more rows of finger-impressed decorations, often on cordons, at intervals below rim (often termed 'barrel urns') (not illustrated).
Type 3A	Bucket urn, straight sided, with horizontal finger tipped impressed cordon (Vessel No. 7).
Type 3B	Bucket urn with simple row of finger-tip impressions in body of vessel (not illustrated).
Type 4	Plain vessel with slack biconical profile, simple or flattened rim (Vessel No. 12).
Type 5	Bucket urn with row of bosses fairly well down the body; sometimes bosses linked by fingertip impressed cordon (Vessel Nos 3, 4, 16).
Type 7	Accessory vessel, usually plain or with simple bosses (Vessel Nos 9, 10).

The Bronze Age pottery from the barrow: the ring-ditch

The pottery assemblage from the ring-ditch on Area A includes 11 identifiable vessels (Figs 22–5) and various deposits of individual sherds or small groups of fragments. The occurrence of pottery by phase within the filling of the ditch is shown in Tables 1 and 2. The primary silt contained one sherd only and this was in a fabric typical of the Middle Bronze Age period. Within the secondary silt there were two pieces of Early Bronze Age urn, from different vessels. One of these was a rim sherd (Fig 23, 13) from a small, plain vessel. In addition there was a simple rim sherd of Middle Bronze Age type.

The chalk rubble deposit above these silt layers was largely sterile but contained portions of the rim of a plain thin-walled vessel of biconical profile (Fig 23, 12) and two scraps of pottery in a Middle Bronze Age fabric.

The deposits of flint and flint plus ash which lay above the chalk rubble contained seven Middle Bronze Age vessels which were associated with cremation burials. Most of the sherds belonged to these seven vessel deposits, or could be ascribed to one or other of these vessels. The total number of sherds that could not be ascribed to the seven vessels was only 35 (*see* Table 2). It seems unlikely, therefore, that the seven urns deposited had been accompanied by

Table 1. Pottery: occurrence in the barrow ditch filling, by phase.

Description	Ident. vessels	Total sherds	Total weight (g)	Mean sherd weight (g)	E/MBA	MBA	LBA/EIA	LIA/RB	Uncert. prehist.
Primary silt	–	1	4	4	–	1	–	–	–
Secondary silt	1	3	42	14	2	1	–	–	–
Chalk rubble	1	19	142	7	–	19	–	–	–
Flint deposit	7	88	519	6	3	82	3	–	–
Flint/ash deposit		299	4005	13	1	298	–	–	–
Tertiary fills	2	190	1643	9	2	74	100	7	7

Table 2. Bronze Age pottery: distribution by barrow ditch sub-division.

Ditch sub-division	809	806	804	823	810	619	814	875	613	1000	813	812
Flint and flint/ash												
E/MBA	–	–	–	–	3	–	1	–	–	–	–	–
MBA	1	–	–	–	4	4	56	191	93	6	25	–
LBA/EIA	–	–	1	1	1	–	–	–	–	–	–	–
Total	1	–	1	1	8	4	57	191	93	6	25	–
Vessels	–	–	–	–	–	–	1	2	2	–	2	–
Sherds not ascribed to vessels	1	–	1	1	6	4	3	1	6	6	6	–
Tertiary fills												
EBA	–	1	–	–	–	–	–	–	1	–	–	–
MBA	–	1	–	1	2	4	11	34	7	2	12	–
LBA/EIA	–	9	5	3	12	–	5	20	40	4	1	1
Total	–	11	5	4	14	4	16	54	48	6	13	1

separate sherd deposits, as has been noted on some other sites.

Tables 1 and 2 demonstrate that most of the pottery from these layers was of Middle Bronze Age date, although there were a few earlier items present, and several sherds of the Late Bronze Age/Early Iron Age period which were probably intrusive. The agricultural soil infilling the hollow of the ditch above the flint and ash deposits contained two vessels (Fig 23, 6 and 8) and a collection of sherds which belonged to the Middle Bronze Age and Late Bronze Age/Early Iron Age traditions in almost equal proportions. It seems unlikely that the two urns found in this layer could have belonged to the main phase of deposition associated with the flint and ash episodes below, especially as these two vessels appear to belong to a later (Late Bronze Age) tradition.

Within the area defined by the ring-ditch, the series of cremation burials included three which were contained in ceramic vessels. These comprised the central burial which was contained in a large plain Collared Urn (Fig 23, 1) and two vessels of Middle Bronze Age type (Fig 23, 2 and 3). Although the central burial occupied a focal position, this does not necessarily imply that this burial was primary within this sequence.

The identifiable vessels belong to the Collared Urn series, the Central Wessex grouping of Middle Bronze Age ceramics (as defined in Ellison 1975) and to the post-Deverel-Rimbury plain ware tradition of the Late Bronze Age (Barrett 1980) (*see* list of illustrated prehistoric sherds, below).

Vessels which survived more than 50% complete included the three urns from within the ring-ditch enclosure (Fig 23, 1–3) and the vessels from the burnt layers within the ditch filling (Fig 23, 4, 5, 9 and 10). The bucket urn (Fig 23, 7), globular urn (Fig 23, 11), the biconical urn (Fig 23, 12) from the chalk rubble and the Late Bronze Age vessels from the agricultural soil survived as smaller portions of vessels (22% of rim, 1 rim sherd, <10% of rim, 10% of rim and three major sherds respectively). An impression of the degree of fragmentation of the various vessels is provided by study of the mean sherd weights, which are listed below. The three vessels within the enclosure (Fig 23, 1–3), the bucket urn (Fig 23, 4) and one of the Late Bronze Age vessels (Fig 23, 8) survived in large chunks, whilst the rest were much more fragmented, with mean sherd weights falling in the 9-14 g range.

The distribution of pottery around the ditch filling is shown in Table 2. This shows that in both the Early and Middle Bronze Age periods, most vessels and sherds were concentrated in the south-eastern sector of the ditch (especially sub-divisions 613 and 875). The two Late Bronze Age vessels also came from subdivision 613, although from the agricultural soil. This suggests that this area of the ditch was a favoured location for structural deposition over a long time period. The Middle Bronze Age sherds not ascribed to identified vessels also cluster in the southern sectors of the ditch but, in contrast, the sherds of the Late Bronze Age/Early Iron Age from the agricultural soil, have a more general distribution around the ditch filling (*see* Table 2). The mean sherd weight for the Middle Bronze Age sherds from the agricultural soil is 9g, whilst that of the Late Bronze Age/Early Iron Age sherds is only 5g. These categories of information, taken together, imply that the Middle Bronze Age sherds in the agricultural soil derive from the cremation and other deposits in the flint and ash layers below, whilst the later sherds relate to post-barrow episodes of cultivation.

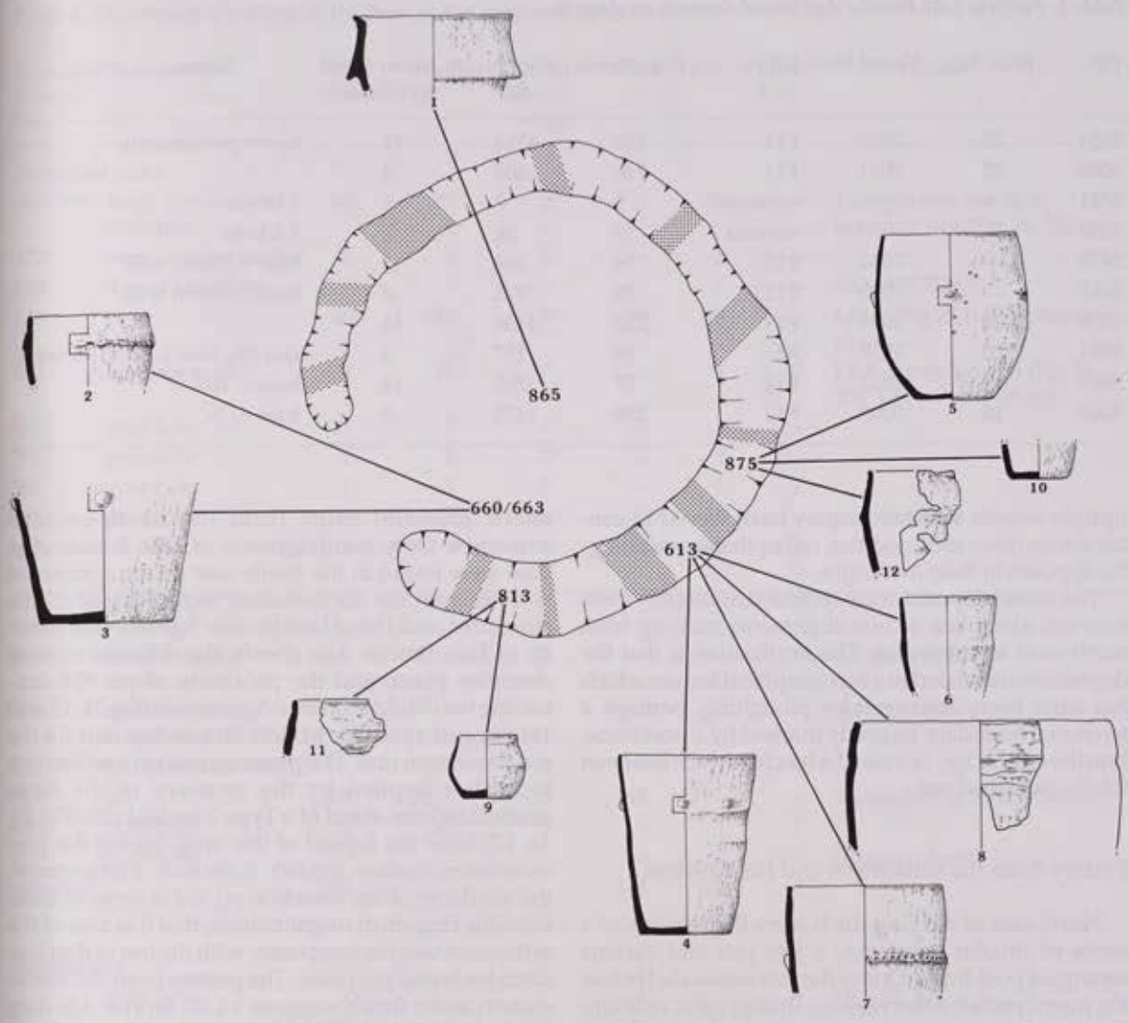


Fig. 22. Location of pottery vessels within the barrow ditch and enclosure.

The Bronze Age Vessel Deposits on Area B

Across the northern zone of the area excavated on Area B there was a series of small pits containing fragments of Bronze Age pottery and, in many cases, these represented formerly complete or semi-complete vessels of large size. Those which could be reconstructed are illustrated in Fig 25. The fabrics were different from those of the urns found in the ring-ditch of Area A and the presence of distinctive characteristics such as internally bevelled and incurving rims, rows of perforations and externally expanded base angles, indicates that this series of vessels is Late Bronze Age in date.

Some details of the individual vessel deposits are given in Table 3. The surviving sherds were relatively large, with mean sherd weights ranging from 3 to 41g. In general these were in accord with those calculated for the urn burials found in the Middle Bronze Age ring-ditch (Table 1). However, in only one case, vessel 7012 in pit 5063, were cremated remains recovered, and these were small in weight (1.7g). It would appear that the Area B vessels were deliberately deposited but not in association with human cremations. The bases are preserved better than the rims and one vessel base (Fig 25, 23; Plate 8) survived in its entirety. This suggests that the vessels were deposited in upright positions and that some of the upper portions eventually fell into the interior of the vessels, whilst other portions were eroded and removed by the plough. Even so, many of the bases only survive in part and it may be that the vessels were broken, or fragmentary, at the time of deposition. Only the small jar (Fig 25, 20) seems to have been deposited in an inverted position. Two pits did not contain the remains of single vessels, but small collections of sherds in several fabric types. All, however, were of Late Bronze Age character. The mean sherd weights were very low and one wonders whether other deposits, of an organic and perishable nature, may originally have been present. Indeed, the

Table 3. Pottery: Late Bronze Age vessel deposits on Area B.

Pit	Illus. No.	Vessel No.	Fabric	No. sherds	Weight (g)	Mean sherd weight (g)	Notes
5024	23	7004	F11	102	4214	41	lower portion only
5068	22	7011	F11	116	409	4	
5541	–	–	various	5	7	1	3 fabric
5539	–	–	various	17	26	2	3 fabrics
5475	–	7032	F12	54	169	3	base + 25mm wall
5017	–	7003	F12	39	312	8	base + 60mm wall
5078	21	7021	F11	227	3138	14	
5044	20	7030	F3	58	157	3	rim 5%; base c. 35%; inverted
5063	19	7012	F12	57	767	14	base c. 10%
5060	18	7009	F12	288	1473	5	base 67%

upright vessels themselves may have served as containers for other commodities, rather than as meaningful deposits in their own right.

The vessel deposits were recorded at roughly even intervals along one or two alignments running from north-west to south-east. The implication is that the deposits were related to a topographical feature which has since been destroyed by ploughing, perhaps a territorial boundary formerly marked by a post fence, hurdles or a hedge, or indeed a lynchet which has been totally ploughed out.

Pottery from the settlement and field system

North-east of the ring-ditch were the remains of a series of circular structures, a few pits and various settings of post-holes. One of the pits was sealed below the main lynchet; otherwise no stratigraphic relationships and no associated occupation layers had survived. However, in simple spatial terms, the structural evidence can be divided into two groups: a south-western group comprising the two small circular structures 547 and 776, together with post-hole group 392, various post-holes, and possibly pit 954 below the lynchet and, further to the north-east, a second sector of structures. This second group included the large circular structure 988/989, semi-circular structure 377, the four-post structure 128, various other post-holes and pit 146. Each group of structures conforms to the household unit of main living hut associated with various ancillary structures which is well known from sites of later Bronze Age date (eg Bradley and Ellison 1975; Ellison 1981). At Twyford Down, however, the situation is particularly interesting in that the two household units may be of differing dates, the north-eastern one succeeding that identified nearer to the ring-ditch.

The occurrence of the pottery found within the settlement features is summarised in Table 4. Although more sherds (157 in total) were recovered from the south-west sector, most of these derived from the pit beneath the lynchet. Thus most of the settlement sherd material came from the north-eastern structures. Only two fragments of Late Bronze Age date were found in the south-west sector, compared with 69 from the north-eastern sector. Whilst all the structures could be of Late Bronze Age date, the paucity of Late Bronze Age sherds, the different style of structure plans, and the proximity of pit 954 containing two Middle Bronze Age vessels (Fig 24, 15 and 16), suggest a possible Middle Bronze Age date for the south-western unit. The presence of such a settlement is further implied by the recovery of the large unabraided rim sherd of a Type 2 necked urn (Fig 24, 16, 17) from the topsoil of this area, during the pre-excavation surface artefact collection. Furthermore, the similarity of the vessels in pit 954 to some of these from the ring-ditch might indicate that this area of the settlement was contemporary with the use of the ring-ditch for burial purposes. The pottery from the north-eastern sector firmly suggests a Late Bronze Age date for this settlement unit, although pit 146 contained a primary deposit of Middle Bronze Age globular urn sherds (Fig 23, 14) and a collection of Late Bronze Age sherds which had been deposited, or naturally collected, within the upper levels of its filling.

The number of diagnostic sherds or vessels is low (2%) and the nature of deposition is highly variable. The pits contained substantial portions of four vessels, three Middle Bronze Age and one Late Bronze Age, and the mean sherd weights for these features were high. The only other features to contain large sherds were post-hole 295, which contained part of the base of a single vessel, and some features in group 990. All other sherds were very small, with mean sherd weights for the structures and individual post-holes falling in the 1-5g range (*see* Table 4). They were far smaller than the sherds associated with the flint and ash deposits in the ring-ditch filling, the mean sherd weight for these being 9g (*see* Table 1). The sherd totals from the settlement are too low to allow any attempt to analyse their distribution in terms of former activities and their find-spots are unlikely to reflect the primary deposition of material, except in the case of the two pits.

Table 4. Occurrence of pottery in the Bronze Age settlement area.

Feature/ Group No.	Feature type	No. sherds	Weight (g)	Mean sherd wt (g)	MBA	LBA	LBA/ EIA	Notes
North-east sector								
988/989	large circular structure	48	77	2	–	48	–	1 simple rim not illus; inturned rim (Fig 26, 24)
377	semi-circular shelter	2	3	2	–	2	–	
128	4-post structure	–	–	–	–	–	–	NO POTTERY
146	pit	40	271	7	30	10	–	MBA (Fig 25, 14); 2 phases of use
990	features to SE	3	21	7	–	1	2	LBA expanded rim (Fig 26, 25); 1 EIA decor. sherd
451	post-hole	1	1	1	–	1	–	
791	post-hole	1	2	2	–	1	–	
386	post-hole	1	3	3	–	1	–	
295	post-hole	5	77	15	–	5	–	part of 1 base
sub-total		101			30	69	2	
South-west sector								
547	small circular structure	–	–	–	–	–	–	NO POTTERY
776	small circular structure	–	–	–	–	–	–	NO POTTERY
392	group of post-holes	1	3	3	–	1	–	
954	pit	148	3617	24	148	–	–	2 vessels (Fig 25, 15, 16)
600	post-hole	8	43	5	–	1	7	
727	post-hole	–	–	–	–	–	–	[Roman sherd]
sub-total		157			148	2	7	
Fieldwalking								
	type 2 rim	1			1			(Fig 24, 17)
Total		259			179			

A total of 726 sherds (3116g) was recovered from test-pits and excavated sub-divisions along the lynchet runs on Area A. Although the mean sherd weight of 4g was low, all the material was stratified. Diagnostic sherds survived at the 7% level. From a detailed analysis of form and fabric types, it was possible to identify 3% of the assemblage as Early/ Middle Bronze Age in date, 30% as Late Bronze Age and 23% as earliest Iron Age. A further 41% of the sherds were of undiagnostic coarse wares which could be of Late Bronze Age or Early Iron Age date, and 3% were of Late Iron Age or Romano-British type. The distribution of sherds by period amongst the various lynchet features is shown in Table 5.

Where stratification survived, the lynchet layers could be divided into an earlier and a later set. The mean sherd weights relating to the later layers (5g) were slightly greater than those for the earlier layers (3g and 4g, *see* Table 5). From a series of seven stratified layer sequences it was possible to demonstrate that the earlier layers contained more Early to Late Bronze Age pottery than the later layers and that the latter produced most of the diagnostically Early Iron Age pieces (data in archive). However, with the exception of a single context (107), sherd totals per individual context were very low. A more detailed breakdown of the mean sherd weight data by sherd date is shown in Table 6. It was thought that sherd size might be indicative of the intensity and duration of ploughing that had taken place in the various periods. From Table 6 it can be seen that the Early/Middle Bronze Age sherds were particularly large. They appear to belong to material from the Middle Bronze Age settlement and burial activity which occurred to the south-east and the fact that they became incorporated within the lynchet material indicates that the field boundary was established some time during the Middle Bronze Age. The other dated sherds, 216 of the Late Bronze Age, and 165 of the Early Iron Age, suggest that the lynchet continued to function throughout the Late Bronze

Table 5. Pottery: occurrence of pottery by period within the lynchet groups.

Lynchet	No. diag. sherds	E/MBA	LBA	LBA/ EIA	EIA	LIA/ RB	Total sherds	Total weight (g)	Mean sherd wt (g)
72	–	–	1	1	–	3	5	28	6
59 trackway	–	–	8	2	1	–	11	15	1
Main lynchet									
81 (east)	2	2	20	1	3	1	27	111	4
743 (centre)	10	6	23	38	44	–	111	341	3
765 (west)	7	1	1	57	57	14	130	379	3
Later elements									
987	18	7	156	65	22	1	251	1369	5
985	13	8	7	136	38	2	191	873	5
Total	50	24	216	300	165	21	726	3166	4

Table 6. Pottery: mean sherd weights (g) by period

	E/MBA	LBA	LBA/EIA	EIA
Main lynchet				
81	10	4	2	1
743	7	3	3	2
765	–	21 (1 sherd)	2	3
Later elements				
987	14	5	5	4
985	7	4	5	3

Age, which may have been its main period of use, and on into the beginning of the Iron Age. Presumably the Late Bronze Age episodes of cultivation were associated with the Late Bronze Age settlement nucleus discussed above, whilst the exact location of an adjacent Early Iron Age focus is unknown. However, material of a similar date, incorporating an early furrowed bowl, was recovered by Stuart and Birkbeck (1936) from other sections of the field system on Twyford Down.

The dating of the sherd material depended on fabric analysis and the form of various diagnostic sherds which were distributed as follows:

Late Bronze Age	flat rim	3
	internal rim level	3
	slashed shoulder	2
	slashed rim	2
	thickened rim	1
	expanded base angle	1
Early Iron Age	flared rim	2
	notched rim	1
	finger impressed shoulder	2
	incised geometric decoration	3
	furrowed bowls	19

No fragments of scratch-cordoned bowls were identified and ploughing or other activities appear to have ceased in Area A before the development of the full Early Iron Age.

List of Illustrated Prehistoric Sherds

(Fig 23)

1. Collared Urn; Secondary Series or Late Style, Fabric G2. Mean sherd wt: 25g. Context 866, fill of pit 865 (central cremation pit), (Vessel No 2019).
2. Type 1B globular urn, Fabric F9. Mean sherd wt: 34g. Context 662, fill of pit 660 (within barrow enclosure), (Vessel No 2011).
3. Type 5 bucket urn, Fabric F8. Mean sherd wt: 39g. Context 665, fill of pit 663 (within barrow enclosure). (Vessel No 2012)
4. Type 5 bucket urn, Fabric F9. Mean sherd wt: 78g. Context 623, flint/ash deposit in barrow ditch, (Vessel No 2005).
5. Type 1B globular urn, Fabric F10. Mean sherd wt: 8g. Context 1162, flint/ash deposit in barrow ditch, (Vessel No 2027).
6. Late Bronze Age, Fabric F16. Mean sherd wt: 5g. Context 614, agricultural soil top of barrow ditch. (Vessel No 2030).
7. Type 3A bucket urn, Fabric F9. Mean sherd wt: 14g. Contexts 876, 615, 623, agricultural soil, flint/ash, barrow ditch, (Vessel No 2006).
8. Late Bronze Age, Fabric F9. Mean sherd wt: 51g. Context 614, agricultural soil, barrow ditch, (Vessel No 2029).
9. Type 7 accessory vessel, Fabric F19. Mean sherd wt: 9g. Contexts 819, 843, agricultural soil, flint/ash barrow ditch, (Vessel No 2553).
10. Type 7 accessory vessel, Fabric F17. Mean sherd wt: 9g. Contexts 876, 1005, agricultural soil, flint/ash barrow ditch, (Vessel No 2554).
11. Possibly Type 1B globular urn, Fabric F9. Contexts 834, 843, agricultural soil, flint/ash, barrow ditch. (TRN 10724 + 10765).
12. Type 4 biconical vessel, Fabric F9. Mean sherd wt: 9g. Context 1003, chalk rubble, barrow ditch, (Vessel No 2020).

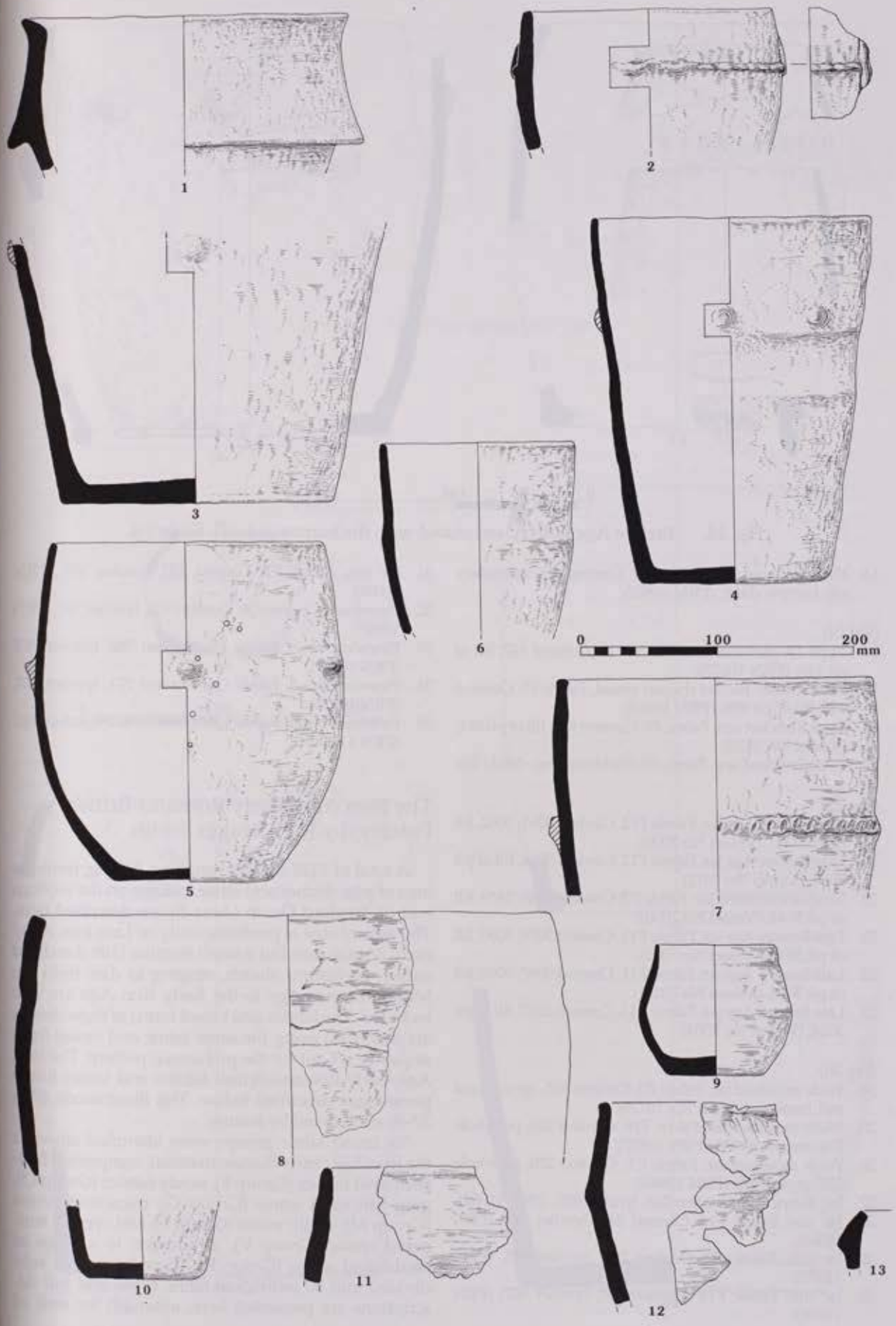


Fig 23. Bronze Age pottery associated with the barrow (1–13). Scale 1:4.

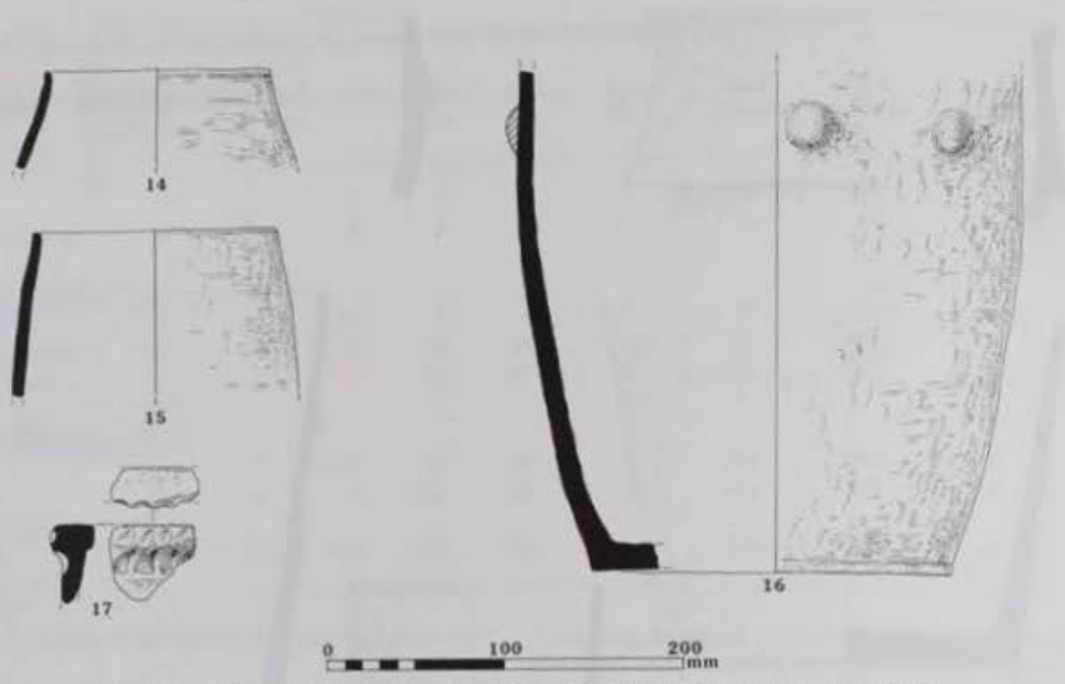


Fig. 24. Bronze Age pottery associated with the barrow (14–17). Scale 1:4.

13. Plain Collared Urn, Fabric G2. Context 616, secondary silt, barrow ditch, (PRN 10802).

(Fig 24)
14. Type 1A globular urn, Fabric F13. Context 147, fill of pit 146, (PRN 10677).
15. Rim, smaller bucket shaped vessel, Fabric F9. Context 955, fill of pit 954, (PRN 10665).
16. Type 5 bucket urn, Fabric F9, Context 955, fill of pit 954, (Vessel No 2022).
17. Type 2 necked urn, Fabric F8. (Fieldwalking –1002/10).

(Fig 25)
18. Late Bronze Age jar, Fabric F12. Context 5061, 5062, fill of pit 5060, (Vessel No 7009).
19. Late Bronze Age jar, Fabric F12. Context 5064, fill of pit 5063, (Vessel No 7012).
20. Small shouldered jar, Fabric F3. Context 5045, 5459, fill of pit 5044, (Vessel No 7030).
21. Late Bronze Age jar, Fabric F11. Context 5079, 5080, fill of pit 5078, (Vessel No 7021).
22. Late Bronze Age jar, Fabric F11. Context 5067, 5069, fill of pit 5068, (Vessel No 7011).
23. Late Bronze Age jar, Fabric F 11. Context 5027, fill of pit 5024, (Vessel No 7004).

(Fig 26)
24. Wide mouthed jar, Fabric F3, Context 845, agricultural soil, barrow ditch, (PRN 10735).
25. Wide mouthed jar, Fabric F18. Context 235, post-hole 234, structure 989, (PRN 10837).
26. Wide mouthed jar, Fabric C1. Context 278, post-hole 277, group 990, (PRN 10843).
27. Jar, Fabric F14. Context 243, lynchet 985, (PRN 11059).
28. Jar rim, Fabric F14. Context 243, lynchet 985, (PRN 11060).
29. Jar rim, Fabric F2. Context 762, lynchet 985, (PRN 11077).
30. Jar rim, Fabric F14. Context 107, lynchet 987, (PRN 11018).
31. Jar rim, Fabric F2. Context 107, lynchet 987, (PRN 11009).
32. Bipartite jar, Fabric Q6. Context 922, lynchet 765, (PRN 10967).
33. Fineware bowl, Fabric F7. Context 582, lynchet 743, (PRN 10919).
34. Fineware bowl, Fabric Q6. Context 771, lynchet 767, (PRN 10955).
35. Fineware bowl, Fabric Q6. Context 432, lynchet 985, (PRN 11038).

The Iron Age/Early Romano-British Pottery, by R.H. Seager Smith

A total of 3120 sherds, weighing 20107g, from the area of pits, ditches and other features on the western end of Twyford Down (Area B) are described here. The assemblage is predominantly of Late Iron Age/early Roman date but a small number (108 sherds) of earlier, prehistoric sherds, ranging in date from the Middle Bronze Age to the Early Iron Age are also included. The fabrics and vessel forms of these sherds are described using the same fabric and vessel form sequence set out for the prehistoric pottery. The Iron Age/early Romano-British fabrics and vessel forms present are described below. The illustrations (Figs 27–9) are ordered by feature.

Six broad fabric groups were identified amongst the Iron Age/early Roman material, comprising flint-tempered fabrics (Group F), sandy fabrics (Group Q), grog-tempered wares (Group G), micaceous wares (Group M), shelly wares (Group S), and organic tempered wares (Group V), in addition to a range of established wares (Group E). These have been subdivided into 30 individual fabric types and full descriptions are presented here, although for ease of

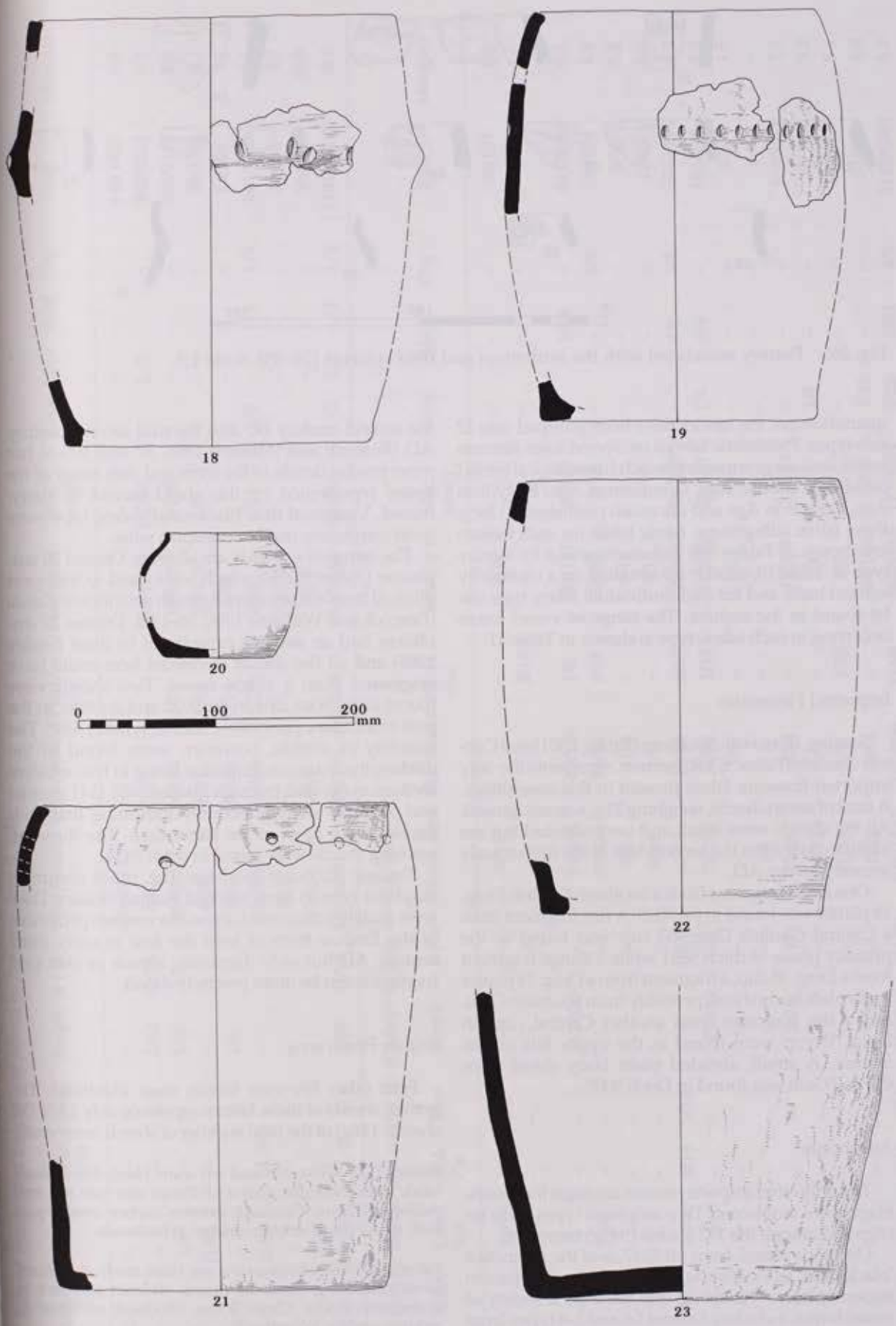


Fig. 25. Bronze Age pottery (18–23). Scale 1:4.

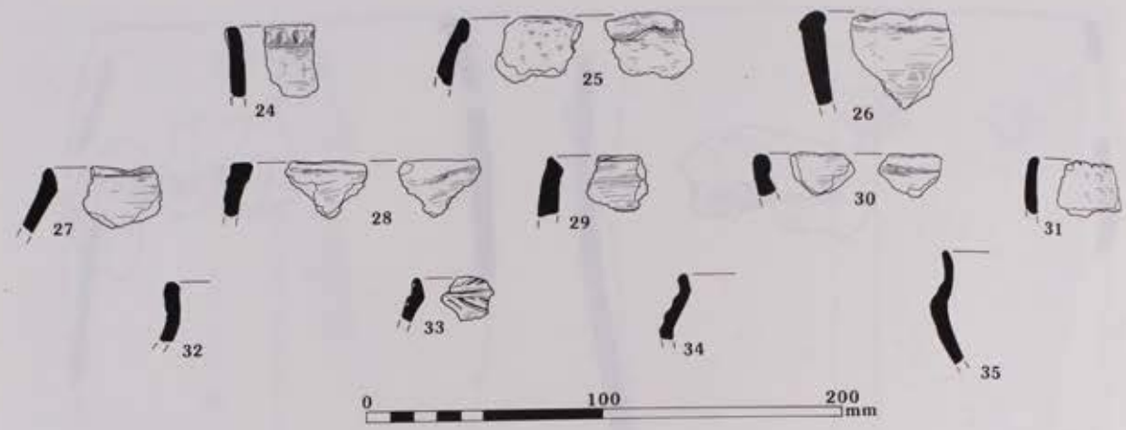


Fig. 26. Pottery associated with the settlement and field systems (24–35). Scale 1:3.

quantification, the fabrics have been grouped into 12 sub-types. Prehistoric fabrics recovered from features in this area are grouped by broad chronological period (ie Middle Bronze Age, Late Bronze Age/Early Iron Age, Early Iron Age and uncertain prehistoric). Using these fabric sub-groups, fabric totals for each feature are shown in Tables 7–9 and summarised by feature type in Table 10; similar information on a context by context basis and for each individual fabric type can be found in the archive. The range of vessel forms occurring in each fabric type is shown in Table 11.

Imported Finewares

Samian, from both Southern (Fabric E301) and Central Gaulish (Fabric E304) centres, represents the only imported fineware fabric present in this assemblage. A total of seven sherds, weighing 21g, was recognised. All the sherds were small and very abraded but are likely to date from the second half of the first or early second century AD.

One small fragment from a Southern Gaulish Drag. 18 platter was found in pit 5020. A rim fragment from a Central Gaulish Drag. 33 cup was found in the primary phase of ditch 5251 while a flange fragment from a Drag. 35 cup, a fragment from a Drag. 18 platter and a plain body sherd, probably from Southern Gaul, and a rim fragment from another Central Gaulish Drag. 33 cup were found in the upper fills of this feature. A small, abraded plain body sherd from Central Gaul was found in Ditch 5007.

Amphorae

The only other imports present amongst the assemblage were amphorae. Two amphora types were recognised among the 172 sherds (941g) recovered.

One body sherd, from pit 5217, is of the distinctive 'black sand' fabric (Fabric E262) from the Campanian region of Italy. This fabric was used for a variety of vessel forms, including Dressel 1A and 2–4 types, from the second century BC into the mid second century AD (Peacock and Williams 1986, 87 and 105–6) but more precise details of the form and date range of the vessel represented by this sherd cannot be determined. Vessels of this 'black sand' fabric type were most commonly used to transport wine.

The remaining sherds are all from Dressel 20 amphorae (Fabric E256), which were used to transport olive oil from the southern Spanish province of *Baetica* (Peacock and Williams 1986, 36–140). Dressel 20 amphorae had an average capacity of 66 litres (Sealey 1985) and all the sherds recovered here could have originated from a single vessel. Two sherds were found in pit 5046, one in pit 5020 and another in the post-truncation, pre-hollow soils of lynchet 5348. The majority of sherds, however, were found in the ditches; the main concentration being in two adjacent sections excavated through ditches 5051 (141 sherds) and 5257 (23 sherds), possibly indicating that both ditches were open at the same time. The three remaining sherds were found in ditch 5414.

Dressel 20 were perhaps the most common amphora type to have reached Roman Britain. They were widely transported across the western provinces of the Empire from at least the first to early third century AD but only diagnostic sherds or stamped fragments can be more precisely dated.

British Finewares

Four other fineware fabrics were identified. Together, sherds of these fabrics represent only 1.1% (37 sherds, 116g) of the total number of sherds recovered.

Fabric Q105: White-surfaced red ware. Hard, fine grained fabric with moderate quartz <0.25mm and rare red iron oxides <0.75mm. Oxidised; exterior surface cream/pale buff, rest of sherd reddish–orange. Wheelmade.

Fabric Q108: Off-white sandy ware. Hard, medium-grained fabric containing moderate quartz <0.5mm and rare to sparse iron oxides <2mm across. Oxidised; off-white to reddish–orange. Wheelmade.

Table 7. Pottery: number and weight (g)of fabrics by feature – Area B, pits.

Pit	MBA	LBA/ EIA	EIA f'w	Sam	Amph	B f'w	Flint/ sand	Flint /mica	Flint/ misc	Sandy g'w	Misc. sandy	Grog	Mica	Shell	Org	Total	Mean wt
5018	–	–	–	–	–	–	449/1621	–	–	–	–	–	–	–	–	449/1621	3.6
5020	–	–	–	1/4	1/52	10/16	3/12	1/4	–	349/1772	18/155	–	2/2	–	–	385/2017	5.2
5046	–	1/4	–	–	2/30	1/8	29/288	4/160	3/10	218/1396	8/226	–	–	–	–	266/2122	7.9
5074	–	11/65	–	–	–	–	4/50	8/74	11/41	20/103	1/6	–	–	–	–	55/339	6.1
5217	2/7	–	–	–	1/6	–	3/31	9/100	6/54	2/26	–	–	–	–	–	23/224	9.7
5285	–	11/38	1/5	–	–	–	73/1932	104/804	22/309	28/91	2/16	1/2	–	1/2	1/4	244/3203	13.1
5290	–	–	–	–	–	–	3/62	–	1/1	30/132	–	–	–	–	–	34/195	5.7
5407	–	2/16	–	–	–	–	17/264	9/57	–	7/24	–	–	–	–	–	35/361	10.3
Total	2/7	25/123	1/5	1/4	4/88	11/24	581/4260	135/1199	43/415	654/3544	29/403	1/2	2/2	1/2	1/4	1491/10082	6.7

Table 8. Pottery: number and weight (g) of fabrics by feature – ditches.

Ditch	MBA	LBA/ EIA	EIA f'w	Sam	Amph	B f'w	Flint/ sand	Flint/ mica	Flint/ misc.	Sandy g'w	Misc. sandy	Grog	Mica	Org	Total	Mean wt
5007	–	23/76	1/1	1/4	–	–	5/16	–	–	3/10	–	–	–	–	33/107	3.2
(5183) 5320	–	1/6	–	–	–	–	–	–	2/10	–	–	–	–	–	3/16	5.3
5051	–	–	–	–	141/636	–	50/386	88/708	1/2	43/197	17/86	–	1/68	–	341/2083	6.1
5070	–	2/4	–	–	–	–	96/485	14/88	3/16	18/62	5/18	–	–	1/1	139/674	4.8
5239	–	–	–	–	–	–	3/6	1/16	–	4/14	–	–	–	–	8/36	5.5
5240	–	–	–	–	–	–	8/61	1/8	–	3/16	–	–	–	–	12/85	7.0
5251	7/21	10/36	6/14	5/13	–	19/68	10/67	10/26	2/17	129/601	59/520	–	4/9	3/5	264/1397	5.3
5257	–	2/10	–	–	23/132	1/1	17/130	11/60	1/16	74/326	20/157	1/4	3/4	–	153/840	5.5
5406	–	–	–	–	–	–	–	1/1	–	1/2	–	–	–	–	2/3	1.5
5413	–	–	–	–	–	–	1/4	–	–	–	–	–	–	–	1/4	–
5414	–	–	–	–	3/78	1/3	29/201	2/34	–	47/256	21/164	–	–	–	103/736	7.1
5359	–	–	–	–	–	–	11/124	1/5	–	2/4	–	1/6	–	–	15/139	9.2
5425	–	–	–	–	–	–	10/45	1/2	2/32	4/8	–	–	–	–	17/87	5.1
5543	–	–	–	–	–	–	5/22	5/51	–	35/159	5/56	1/12	–	–	51/300	5.8
Total	7/21	38/132	7/15	6/17	167/846	21/72	245/1547	135/999	11/93	363/1655	127/1001	3/22	8/81	4/6	1142/6507	5.7

Table 9. Pottery: number and weight (g) of sherds by feature – individual features: post-holes, dew ponds, lynchets and amorphous deposits.

Feature	LBA/EIA	Uncert.	Amph.	B f'w	Flint/sand	Flint/mica	Flint/misc.	Sandy g'ware	Misc. sandy	Mica	Shell	Org.	Total	Mean wt
Post-hole 5222	–	–	–	–	5/12	–	–	–	–	–	–	–	5/12	2.4
Post-hole 5163	–	–	–	–	–	–	1/2	–	–	–	–	–	1/2	–
Post-hole 5224	–	–	–	–	–	–	–	5/5	–	–	–	–	5/5	1.0
Post-hole 5504	1/6	–	–	–	–	–	–	–	–	–	–	–	1/6	–
Dew pond 5227	–	–	–	–	4/22	3/20	–	16/70	1/4	1/4	–	–	25/120	4.8
Dew pond 5283	–	–	–	1/4	1/10	1/4	–	22/120	3/36	1/2	–	–	29/176	6.0
Lynchet 5048	4/12	–	–	–	–	–	–	–	–	–	–	–	4/12	3.0
?Pit 5539	2/4	–	–	–	–	–	–	–	–	–	–	–	2/4	2.0
Lynchet 5347	15/61	1/4	1/7	–	1/1	7/26	–	4/17	–	–	1/3	–	30/119	3.9
Deposit 5083	–	–	–	–	60/995	11/146	–	83/557	20/260	–	–	–	174/1958	11.2
Deposit 5499	–	–	–	–	–	–	–	3/20	–	–	–	–	3/20	6.6
Deposit 5552	5/4	–	–	4/16	10/57	7/19	–	159/749	22/237	–	–	1/2	208/1084	5.2
Total	27/87	1/4	1/7	5/20	81/1097	29/215	1/2	292/1538	46/537	2/6	1/3	1/2	487/3518	7.2

Table 10. Pottery: number and weight (g) of sherds by feature types.

Feature type	MBA	LBA/ EIA	EIA f'w	Uncert.	Sam	Amph	B f'w	Flint/ sand	Flint/ mica	Flint/ misc.	Sandy g'ware	Misc. sandy	Grog	Mica	Shell	Org.	Total	Mean wt
Pits	2/7	25/123	1/5	–	1/4	4/88	11/24	581/4260	135/1199	43/415	654/3544	29/403	1/2	2/2	1/2	1/4	1491/10082	6.7
Ditches	7/21	38/132	7/15	–	6/17	167/846	21/72	245/1547	135/999	11/93	363/1655	127/1001	3/22	8/81	–	4/6	1142/6507	5.7
Others	–	27/87	–	1/4	–	1/7	5/20	81/1097	29/215	1/2	292/1538	46/537	–	2/6	1/3	1/2	487/3518	7.2
Total	9/29	90/342	8/20	1/4	7/21	72/941	37/116	907/6904	299/2413	55/510	1309/6737	202/1941	4/24	12/89	2/5	6/12	3120/20107	6.4
Mean wt	3.1	3.8	2.5	–	3.0	5.5	3.1	7.6	8.1	9.2	5.1	9.6	6.0	7.4	2.5	2.0		

Key to Tables 7–10

MBA: Fabrics F9, F16
LBA/EIA: Fabrics F1, F2, E3, E4, F5, F14, F15, F18
EIA f'w: Fabrics Q6, F7
Uncert.: Fabric Q2

Sam: Fabrics E301, E304
Amph:Fabrics E256, E262
B f'w: Fabrics E103, Q105, Q108, M101
Flint/sand: Fabrics F100, F101, F108

Flint/mica: Fabrics F102, F103
Flint/misc.: Fabrics F104, F106, F107
Sandy g'ware: Fabrics Q100, Q101, Q102
Misc. sandy: Fabrics Q103, Q104, Q106, Q107

Grog: Fabric G100
Mica: Fabrics M100, M102
Shell: Fabric S100
Org.: Fabrics V100, V102

Fabric M101: Oxidised micaceous fineware. Soft, smooth, fine-grained fabric containing common white mica flecks <0.1mm across and sparse poorly-sorted red iron oxides 0.5–2mm across. Fully oxidised. Wheelmade.

Only two body sherds (9g) of the oxidised micaceous fineware (Fabric M101) were recovered, one from pit 5046 and the other from ditch 5251. This fabric may represent an abraded colour-coated ware but is unprovenanced and no details of vessel form are apparent from the surviving sherds.

The remaining fabrics in this group are white/buff wares which form part of the standard range of products found on most Roman sites. With the exception of the Corfe Mullen ware from Dorset, these fabrics are unprovenanced, although likely to be of British origin and each may include the products of more than one centre. The Corfe Mullen kiln has a central date of *c.* AD 50–60 with extreme limits a decade or so either side of this range (Calkin 1935, 54) and a first to early second century AD date would also be appropriate for both the white-surfaced red ware (Fabric Q105) and off-white sandy ware (Fabric Q108) fabrics. Only two rim sherds were identified; a small rim fragment from a pulley-wheel rim flagon (Type 120) from dew pond 5284 and a rim from an unspecified jar form (Type 100) found in ditch 5251. Both occurred in the sandy white ware fabric (Fabric Q108). The majority of sherds in these three fabrics are, however, likely to be from flagon forms which were the most commonly produced vessel forms in these wares and used as serving or temporary storage vessels for liquids. Both the fabric and form of these vessels would have added a new and very different 'Romanised' element to the native, pre-Roman, Iron Age ceramic tradition of the area.

Coarsewares

Six of the major fabric groups: flint-tempered fabrics (Group F), sandy fabrics (Group Q), grog-tempered wares (Group G), micaceous wares (Group M), shelly wares (Group S), and organic tempered wares (Group V), are represented amongst the coarsewares recovered from this site. These have been divided into 22 individual fabric types based on the range of inclusions and grain size, although each fabric may contain the products of more than one source. The correlation between fabric types and vessel form is shown in Table 11.

Flint-tempered fabrics

Flint with sand:

Fabric F100: Hard, medium- to coarse-grained fabric tempered with rare to sparse crushed flint, 0.5–5mm across, moderately well-sorted within each sherd. Matrix contains sparse to common quartz sand and rare iron oxides, <0.5mm across and rare grog/clay pellets and carbonised plant material <3mm across. Iron-rich; firing varies from fully oxidised to unoxidised. Surface treatment generally rough smoothing. Handmade.

Fabric F101: Hard, medium- to coarse-grained fabric tempered with moderate to common crushed flint, up to 4mm across, size range and sorting varying markedly between sherds. Matrix contains sparse to common quartz sand, <0.5mm. A range of other inclusion types, including iron oxides, grog/clay pellets and carbonised plant material, occurring in varying quantities may also be present. Iron-rich; firing varies from fully oxidised to unoxidised. Surfaces unaltered, smoothed or lightly burnished. Handmade.

Fabric F108: Soft to hard, fairly coarse grained fabric containing rare to sparse, poorly-sorted crushed flint <2mm across, common quartz sand 0.5–1mm across and rare iron oxides <0.5mm. Iron-rich; orange–brown to very dark grey. Manufacturing technology uncertain.

Flint in a micaceous matrix:

Fabric F102: Hard, iron-rich fabric tempered with rare to sparse, poorly sorted crushed flint <1mm across. Matrix contains common to abundant white mica or micaceous sand <0.25mm, rare quartz and iron oxides <0.5mm, and carbonised plant material <1mm across. Firing varies from fully oxidised to completely unoxidised. Surface smoothing, or even a light burnish, survives on some sherds. Manufacturing technology uncertain.

Fabric F103: Hard, iron-rich fabric tempered with moderate to common poorly sorted flint <3mm across; matrix contains common mica or micaceous sand <0.1mm, rare to sparse quartz <0.5mm, and rare iron oxides <0.5mm. Firing varies from fully oxidised to fully unoxidised. Surfaces unaltered, smoothed or even burnished to a light to moderate gloss. Handmade.

Flint with other inclusions:

Fabric F104: Hard, iron-rich fabric, tempered with sparse to common crushed flint <0.3mm, occasionally with rare quartz <0.5mm, iron oxides <0.5mm and/or mica <0.25mm. Firing varies from fully oxidised to fully unoxidised. Surfaces may be roughly smoothed. Handmade.

Fabric F106: Hard, iron-rich fabric containing rare to sparse crushed flint <2mm, moderate iron oxides <1mm, sparse to moderate quartz <0.5mm, and sparse soft white, non-calcareous particles <0.5mm. Oxidised surfaces with unoxidised core. Handmade.

Fabric F107: Hard, iron-rich fabric containing sparse crushed flint <3mm, sparse grog <2mm, moderate to common mica or micaceous sand <0.25mm, rare to sparse quartz <0.5mm, and sparse iron oxides <0.5mm. Irregularly fired; orange–brown to very dark grey brown. Handmade.

Sandy fabrics

Sandy grey wares:

Fabric Q100: Fine sandy grey ware. Hard, fine-grained fabric containing abundant quartz/white mica <0.25mm and rare iron oxides <0.5mm. Commonly unoxidised. Surfaces often abraded but traces of smoothed and lightly burnished surfaces survive. Hand made and wheel-thrown

examples. Fabric group containing products of more than one source.

Fabric Q101: Medium-grained sandy grey ware. Hard to very hard fabric characterised by moderate to abundant quartz <0.5mm across. A range of other inclusions, including mica/micaceous sand, iron oxides, crushed flint fragments, grog/clay pellets, and carbonised organic matter may also occur in variable frequencies and quantities. Commonly unoxidised. Surface treatments, where present, confined to smoothing and wiping. Hand made and wheel-thrown examples. Fabric group containing products of more than one source.

Fabric Q102: Coarse-grained sandy grey ware. Hard to very hard fabric characterised by moderate to abundant quartz greater than 0.5mm across. A range of other inclusions, including mica/micaceous sand, iron oxides, crushed flint fragments, grog/clay pellets, and carbonised organic matter may also occur in variable frequencies and quantities. Commonly unoxidised. Surfaces burnished, smoothed or wiped. Hand made and wheel-thrown examples. Fabric group containing the products of more than one source.

Miscellaneous sandy fabrics:

Fabric Q103: Very coarse quartz gritted ware. Hard, granular fabric containing moderate to common well-rounded, multi-coloured quartz grits up to 2mm across, common micaceous sand/mica <0.1mm, and rare red iron oxides, <1mm across. Generally completely oxidised, unoxidised sherds also occur; these often thinner-walled. Surfaces generally unaltered but occasionally hand smoothed or wiped. Handmade.

Fabric Q104: Generally off-white to pale grey, hard to very hard, coarse-grained fabric containing common quartz <0.5mm, sparse black iron oxides <2mm across, and rare crushed flint and carbonised organic material <3mm across. Laminated, 'open' textured. Generally oxidised. Manufacturing technology uncertain but probably wheelmade.

Fabric Q106: Hard, coarse-grained fabric containing rare grog/clay pellets, <4mm, rare to sparse iron oxides <0.5mm, and common quartz <0.5mm, in a matrix of micaceous sand/mica <0.1. Grain size varies between sherds but generally fairly consistent within each. Commonly oxidised, sometimes core is unoxidised. Handmade.

Fabric Q107: Hard, fairly fine-grained fabric containing rare grog/clay pellets <2mm, rare to sparse iron oxides <0.5mm, and abundant micaceous sand/mica <0.1mm. Generally unoxidised. Manufacturing technology uncertain.

Grog tempered wares

Fabric G100: Hard, iron-rich fabric containing moderate grog/clay pellets <2mm across, sparse iron oxides <0.5mm across and rare quartz <0.5mm across. Generally oxidised or irregularly fired. Handmade.

Micaceous wares

Fabric M100: Very fine micaceous greyware. Hard, very fine-grained fabric with common white mica and tiny, black glassy grains, possibly glauconite or black iron oxides, both <0.1mm, rare quartz <0.25mm, and rare red iron oxides <0.5mm. Iron-rich; surfaces generally unoxidised but margins and/or margins and core may be oxidised. Smoothed surfaces. Wheelmade.

Fabric M102: Fine micaceous greyware with rare organic particles. Hard, fine-grained fabric with common white mica <0.25mm across, sparse quartz <0.5mm, rare organic particles <3mm, and iron oxides <0.5mm. Unoxidised; generally dark grey surfaces and light grey–brown core. Manufacturing technology uncertain.

Shell tempered wares

Fabric S100: Soft or moderately hard fabric containing common poorly-sorted crushed shell <2mm across and rare iron oxides and quartz both <0.5mm. Iron-rich; irregularly fired. Handmade.

Organic tempered wares

Fabric V100: Soft, fine-grained fabric with moderate carbonised organic matter up to 3mm long in a matrix containing common white mica <0.1mm and rare iron oxides <0.75mm, and quartz <1mm across. Oxidised surfaces and margins with unoxidised core but generally very abraded. Handmade. Possibly briquetage (cf. Morris 1985, 76).

Fabric V101: Soft, soapy fabric with common carbonaceous material lining linear voids <2mm long and very rare iron oxides <0.5mm. Unoxidised. Manufacturing technology uncertain. Fabric only occurs among material found in area of prehistoric features on this site and may, therefore, be of uncertain prehistoric date.

Fabric V102: Soft, gritty fabric containing sparse to moderate poorly-sorted sand <0.5mm, rare grog/clay pellets <2mm, and rare carbonised organic material <3mm. Unoxidised. Manufacturing technology uncertain.

Vessel Type Series

This type series was constructed and used for all the Iron Age/early Roman fabrics excluding the samian and amphora. The correlation between fabrics and vessel forms is shown in Table 11.

Type 63 — Incurving saucepan pots. Most common form of saucepan pot at Winnall Down (Hawkes 1985, vessel form 19, Fig 54, 58–66); rims usually plain and rounded but some proto-bead and internally thickened examples also occurred. Comparable with vessels from phase 2 (Middle Iron Age) and phase 3 (Late Iron Age/early Roman) at Micheldever Wood, Hampshire (Hawkes 1987, Fig 21, 10; Fig 22, 18 and 22; Fig 23, 27; Fig 24, 41) and at Easton Lane (Hawkes 1989, Fig 93, 29). Examples of this form, dated to La Tène II, were recovered during the 1930s excavations on Twyford Down (Stuart and Birkbeck 1936, Fig VI, 3–5) (Figs 27, 5; 28, 29).

Type 100 Rims too small to assign to a specific jar type but generally from bead rim or necked forms; where possible, this is noted in the free-text comments field in the archive. Not illustrated.

Type 101 High shouldered bead rim jars. Detail of profiles of this basic jar form vary widely — rim can be moulded into a bead or grooved beneath to give impression of a bead; shoulders can be high and distinct or practically absent. Occur in both prehistoric and Late Iron Age/early Roman fabrics. Form begins in the Middle Iron Age but is most commonly dated to between *c.* 50 BC and the end of the first century AD. Equivalent to vessel forms 21, 25, and 26 at Winnall Down (Hawkes 1985, Fig 57, 92–4) and is perhaps the most common jar form in all assemblages of a similar date in the area (Cotton and Gathercole 1958; Wood, in prep.; Cunliffe 1971; Hawkes 1987; 1989; Stuart and Birkbeck 1936; Neal 1980; Wessex Archaeology 1989; Seager Smith 1997) (Fig 27, 3, 7, 8; Fig 28, 15, 24, 25, 27, 30; Fig 29, 41).

Type 102 Bead rim jars with chamfered rims and a range of profiles. A variant of Type 101. Equivalent to vessel form 43 at Winnall Down (Hawkes 1985, Fig 58, 109–11) and also known from the earlier excavations at Twyford Down (Stuart and Birkeck 1936, Fig VII, 14, 15 and 26–9) *c.* 50 BC to the end the first century AD (Fig 27, 9; Fig 28, 20).

Type 103 Large 'beaded' rim storage jar. Wide variety of profiles. Examples from Micheldever Wood (Hawkes 1987, Fig 21, 9 and Fig 23, 35) are dated to the Early/Early Middle Iron Age and Middle Iron Age periods. However, the form continues, with only minor variations, well into the Roman period, being produced at a variety of centres, including Alice Holt (Lyne and Jefferies 1979, class 4, Figs 15 and 30) until at least the mid second century AD (Fig 27, 6; Fig 28, 16, 21; Fig 29, 42).

Type 104 Wide-mouthed jars with a high-shoulder and a slightly everted or flared rim. Some may be better defined as bowls. Occur at Micheldever Wood (Hawkes 1987, Fig 21, 5; Fig 23, 28 and 29; Fig 24, 48 and Fig 27, 96) in Iron Age contexts and in an early Roman group at Winnall Down (Hawkes 1985, Fig 58, 113) (Fig 27, 1; Fig 28, 28).

Type 105 Necked jars with upright or slightly everted necks; rim terminal can be plain or slightly beaded. Another highly variable form, probably including vessels produced at a several different centres spanning a wide date range. Well-represented at Winnall Down (Hawkes 1985, fig. 58, 90, 95–105), Micheldever Wood (Hawkes 1987, Fig 25, 73, Fig 26, 87, 88, 90, 91, 100 and 103) and from the earlier excavations at Twyford Down (Stuart and Birkeck 1936, Fig VII, 31–4, 37–41 and 56–7). Comparable with a range of vessels from other Hampshire sites such as Ashley (Neal 1980, 12, 18, 19, 21, 31, 33, 36, 43, 44 and 46), Bitterne (Cotton and Gathercole 1958, 70 type BER1 and 75 type JN1), and Nursling (Seager Smith 1997), and from Fishbourne, West Sussex (Cunliffe 1971, 212, type 161). Dated from *c.* 50 BC to the middle of the second century AD; some of the later, sandy grey ware examples may be from the Alice Holt kilns (Lyne and Jefferies 1979) (Fig 27, 2, 10, 11; Fig 28, 17, 18; Fig 29, 34, 39).

Type 106 High-shouldered, necked, and cordoned jars. Equivalent to vessel forms 23 and 47 at Winnall Down, where these vessels occur mainly in pre-Conquest (phase 5) deposits. Similar vessels (Hawkes 1987, Fig 23, 30 and Fig 24, 37) from a pit dated to the very end of phase 2 (Middle Iron Age) or early phase 3 (Late Iron Age/early Roman) at this site indicate a wide date range for this vessel type. Cordoned jars continued to form a significant part of the output from the early (*c.* AD 60 to the mid second century AD) Alice Holt industry (Lyne and Jefferies 1979, 20, class 1) (Fig 27, 14).

Type 111 High-shouldered bowl/jar with a 'pulled', upright rim. Similar Late Iron Age forms are known at Winnall Down (Hawkes 1985, Fig 57, 91) (Fig 29, 35, 36, 38).

Type 112 Necked bowls — *cf* Micheldever Wood (Hawkes 1987, Fig 24, 60) an Iron Age type (Fig 42, 33).

Type 113 Round-bodied bowl with an inturned, internally swollen rim. An example of this form found during the 1930s excavations at this site was dated from *c.* AD 20–50 (Stuart and Birkeck 1936, Fig VII, 44) while part of a similar vessel was found in a pit believed to be of Vespasianic (*c.* AD 70–80) date at Bitterne (Cotton and Gathercole 1958, Fig 19, 17) (Fig 28, 31; Fig 29, 44)

Type 115 Carinated bowls or dishes (examples with large diameters may be platters) with plain, unelaborated rims. 'Native' copies of Gallo-Belgic forms. Examples from the 1930s excavations at this site were dated from *c.* 50 BC–AD 50 (Stuart and Birkeck 1936, Fig VII, 47 and 48) and early Roman examples occur at Winnall Down (Hawkes 1985, fig. 58, 115 and 117). A range of similar vessels, sometimes decorated with burnished wavy lines, are known at Bitterne (Cotton and Gathercole 1958, Fig 19, 13; Fig 20, 3 and Fig 21, 4) (Fig 27, 32; Fig 28, 43).

Type 116 Carinated bowls or dishes (examples with large diameters may be platters) with an incised groove on the interior surface just beneath the rim. 'Native' copies of Gallo-Belgic forms. Equivalent to vessel form 50 at Winnall Down (Hawkes 1985, Fig 58, 125 and 126). A similar vessel, decorated with burnished wavy lines, was found at Bitterne (Cotton and Gathercole 1958, fig 24, 1) (Fig 28, 16).

Table 11. Pottery: generalised co-occurrence of vessel forms by fabric type.

	Bead rim jars				Other jar forms						Bowls/dishes							Misc.		Samian		
	100	101	102	103	63	104	105	106	119	121	111	112	113	115	116	117	122	118	120	D.18	D.33	D.35
Samian																						
E301																				X		X
E304																					X	
British finewares																						
Q105	X																					
Q108	X																		X			
Flint-gritted fabrics																						
F100		X																				
F101	X	X		X		X	X											X				
F108		X																				
F103	X	X	X	X	X	X	X															
F104		X																				
F107							X															
Sandy greywares																						
Q100	X	X						X							X	X						
Q101	X	X	X			X	X	X	X	X	X	X	X	X	X	X						
Q102	X	X	X			X	X				X			X	X		X		X			
Misc. sandy wares																						
Q103				X																		
Q104	X																					
Q106				X			X															
Q107						X																
Micaceous greyware																						
M100	X																					
Shelly wares																						
S100		X																				

Type 117 Carinated open bowls or dishes with flat, or more commonly, bifurcated rims. The form is paralleled at Nursling (Seager Smith 1997), and Fishbourne (Cunliffe 1971, Fig 105, 208.1) where it is considered to be a late first to early second century AD type. Over 100 examples were found during the 1930s excavations at this site (Stuart and Birkeck 1936, Fig VII, 50-3); dated *c.* AD 50–100, but the form is not well-represented amongst the present assemblage. These vessels are similar to the 'Atrebatic' bowls commonly found in Hampshire, Sussex and Surrey and known to have been produced by the Alice Holt industry from *c.* AD 60 into the mid second century (Lyne and Jefferies 1979, class 5) as well as at a variety of other British and Continental centres.

Type 118 Lids, all forms but the majority have plain 'rims' and are slightly domed. Could also be shallow dishes or platters. Lids occur at Bitterne (Cotton and Gathercole 1958, 78–9), East Horton Farm, near Fair Oak (Wessex Archaeology 1989, Fig 5, 8) and at Nursling (Seager Smith 1997) but, with the exception of Easton Lane (Hawkes 1989, Fig 93, 37, and 38), not at the other sites along the line of the M3 motorway (Fig 28, 23).

Type 119 Necked jar with a slightly everted, square rim, the flat upper surface of which is rilled (Fig 28, 26).

Type 120 Flagons/jugs, all forms. Early Roman (first–second century AD) (Fig 29, 37).

Type 121 Necked jar with a narrow mouth and a slightly everted, flat-topped rim. (Fig 29, 40).

Type 122 Flat-flanged straight-sided bowl/dish. The form is probably copied from the Black Burnished ware industry of Dorset where the form develops *c.* AD 120, continuing into the third century AD (Davies and Seager Smith 1993, 235). Not illustrated.

A total of 2796 sherds (18,635g), or 89.6% of the total number of sherds recovered belong to the coarseware assemblage. This assemblage is roughly equally divided between the sandy and flint-tempered fabrics; the sandy wares accounting for 54% and the flint-tempered fabrics for 45% of the sherds. Overall, the sandy greyware fabrics (Fabrics Q100, Q101 and Q102) predominate, accounting for 46.8% of all the coarseware sherds and 86.6% of the sandy wares. The flint with sand tempered fabrics (Fabrics F100, F101 and F108) are the second most numerous group, forming 32.4% of all the coarseware sherds and 71.9% of all the flint-tempered sherds. The micaceous, grog-, shell- and organic-tempered fabrics form very minor components of the assemblage, together representing only 0.8% of the coarseware sherds. All the grog- and organic-tempered sherds recovered are featureless body sherds. It is possible that the three sherds of the organic-tempered Fabric V100 recovered are from briquetage containers as this fabric is broadly paralleled by a known briquetage fabric from Winnall Down (Morris 1985, 76).

Limited petrological examination of the fabrics from other sites along the line of the M3 motorway (Hawkes 1985, 60; 1987, 24) indicates that the main inclusions of quartz, glauconitic sands and flint could have been obtained relatively locally, although sources further afield could not be ruled out. Superficial comparison of the fabrics present at each of these sites, indicates the use of a similar, broadly comparable range of inclusion types. It is probable, therefore, that the majority of coarseware fabrics in this assemblage are also of relatively local manufacture (within *c.* 10–15km of the site). Exceptions to this may include the shell-tempered ware (Fabric S100) which, if it contains fossiliferous shell, is unlikely to be of local origin, although a source in Dorset or western Wiltshire is possible, and some of the sandy grey wares which may include products from more than one source. Vessel forms, such as the carinated bowls with bifurcated rims and the necked and cordoned jars may indicate that at least some of the sandy greywares are products of the Alice Holt industry. The importance of this industry in the supply of ceramics to the area around present-day Winchester in the early Roman period is illustrated at Winnall Down where up to 30% of the greyware is believed to be from the Alice Holt kilns (Hawkes 1985, 69), while at East Horton Farm, near Fair Oak, 22% of the total assemblage weight was identified as Alice Holt products (Wessex Archaeology 1989). Other early Roman kilns producing greywares are known at Shedfield (*c.* 18km distant) and Rowlands Castle (*c.* 35km distant) (Swan 1984, map 18).

The coarseware vessel forms are dominated by a variety of bead-rim jars (27–9) which occur in both the major coarseware fabric groups (Table 11), with one example in a shelly ware. No preferred size range is evident, although the measurable rims do suggest that a considerable range of sizes is present. Indeed, the identification of meaningful size groups within any of the individual vessel forms is hampered by the fragmentary nature of the assemblage. Bead rim jars occur in all assemblages of a similar date in the area (Cotton and Gathercole 1958; Cunliffe 1971, 212, Fig 102, 166; Hawkes 1985, Figs 57 and 58; 1987, Figs 25, 27, and 28; 1989, Fig 93; Stuart and Birkbeck 1936, Fig VII, 13–29; Neal 1980, Figs 26 and 27; Wessex Archaeology 1989, Fig 5).

Most common among the other jar forms are a range of upright or very slightly everted necked jars (Fig 27, 2, 10, 11; Fig 28, 18; Fig 29, 34, 39), also well-represented at other sites in the area (Hawkes 1985, Fig 58, 90, 95–105; 1987, Fig 25, 73, Fig 26, 87, 88, 90, 91, 100 and 103; Stuart and Birkbeck 1936, Fig VII, 31–4, 37–41 and 56–7; Neal 1980, 12, 18, 19, 21, 31, 33, 36, 43, 44, and 46; Cotton and Gathercole 1958, 70 type BER1 and 75 type JN1; Cunliffe 1971, 212, type 161; Seager Smith in prep). These vessels also occur in both the flint-tempered and sandy wares, while the necked and cordoned jars (Fig 27, 14) only occur in the sandy grey wares. The remaining jar forms comprise a range of

'native' (ie Type 104) forms which occur in the flint-tempered and sandy fabrics and a range of more 'Romanised' forms (ie Types 119 and 121) which occur only in the sandy wares (Table 11).

The bowl/dish forms occur exclusively in the sandy grey ware fabrics. These vessels also comprise a 'native' (Types 111 and 112) and more 'Romanised' forms (Types 113, 115, 116 and 117). The flat-flanged, straight-sided bowl/dish (Type 122), represented by a single flange fragment from an isolated post-hole 727 and which may well be intrusive in this context, is the only form that need date after *c.* AD 120. Lids are not well-represented in this assemblage and only occur in the coarse sand with flint-tempered ware (Fabric F101; Fig 28, 23). Similarly, only one flagon/jug was recorded amongst the coarsewares (Fig 29, 37) occurring in a coarse sandy grey ware fabric and found in feature 5083.

The coarseware assemblage is generally hand-made, although at least some of the sandy greyware vessels (especially Fabrics Q100, Q101 and Q102) and the fine micaceous greyware vessels (Fabric M100) were produced on a wheel. The majority of vessels show little sign of extensive surface treatments, although soil acidity and surface abrasion may have affected the survival of this. Where surface treatments are apparent, these are usually confined to the smoothing or wiping with some attempts at burnishing, but rarely to an even finish or a high gloss. Decoration is also comparatively rare amongst the coarseware assemblage, although, again soil conditions may have affected its survival. In addition to the illustrated vessel (Fig 28, 22), only four sherds with decoration were recorded. These comprise two sherds of sandy greyware (Fabric Q101), probably from carinated bowls/dishes, with burnished, paired diagonal lines between horizontal incised grooves which were found in Pits 5020 and 5046, a sherd with thumb-impressions from the neck/shoulder region of a large, flint-tempered (Fabric F100) jar from pit 5046, and another sandy greyware sherd (Fabric Q102) with two closely-spaced incised grooves, giving the impression of a raised cordon between them, from pit 5074.

Three sherds, all of coarse sandy greyware ware (Fabric Q102) and from pit 5046, have single post-firing perforations drilled through the wall of the vessel. One of these is situated on the shoulder of a bead rim jar (Fig 27, 15) and one of the other perforated body sherds is of sufficiently similar appearance to suggest that it might be derived from the same vessel. The third perforated sherd is from a different vessel, probably also a jar, but distinctively fired with abraded, pinkish–buff surfaces and a light grey core. It is probable that all these perforations represent repair holes, indicating the curation of at least part of the ceramic assemblage. None of the sherds present in this assemblage has the post-firing perforations drilled through the base or lower part of the vessel walls which first appear in the Middle Iron Age and become increasingly common in the Late Iron Age and early Roman periods across wide areas of southern England.

List of Illustrated Late Iron Age/Early Roman Sherds

(Fig 27)

1. Jar with high shoulder and slightly flared rim (Type 104); flat base; undecorated. Entire vessel likely to be present but too fragmentary to permit reconstruction. Fabric F101. Context 5028, fill of pit 5018, (PRN 10658).
2. Large necked jar with an upright rim (Type 105). Fabric F107. Context 5286, fill of pit 5285, (PRN 10162).
3. Small, high-shouldered jar or beaker (Type 101). Fabric F103. Context 5286, fill of pit 5285, (PRN 10156).
4. High-shouldered jar (Type 101); exterior surface smoothed. Fabric F103. Context 5296, fill of pit 5285, (PRN 10147).
5. Incurving saucepan pot (Type 63); undecorated but exterior surface especially burnished to moderately high gloss. Fabric F103. Contexts 5428 and 5456, fill of pit 5285, (PRN 10197 and 10193).
6. Very large bead rim storage jar (Type 103); undecorated but very distinctively fired with bright red exterior surface and black interior surface, possibly originally coated with a sticky substance. Both surfaces smoothed or roughly burnished using broad, horizontal strokes around upper part of vessel, changing to vertical diagonal strokes on exterior surface further down vessel walls. Fabric F103. Context 5428, fill of pit 5285, (PRN 10195).
7. Small, high-shouldered bead rim jar (Type 101); surfaces abraded. Fabric Q102. Context 5022, fill of pit 5020, (PRN 10029).
8. High-shouldered bead rim jar (Type 101); band of very rough wiping occurs on exterior surface. Fabric Q101. Context 5022, fill of pit 5020, (PRN 10022).
9. Chamfered bead rim jar (Type 102); exterior surface smoothed. Fabric Q102. Context 5022, fill of pit 5020, (PRN 10028).
10. Small, necked jar with slightly everted rim (Type 105); exterior surface smoothed. Fabric Q102. Context 5022, fill of pit 5020, (PRN 10030).
11. Necked jar with slightly everted rim (Type 105); very abraded surfaces. Fabric Q101. Context 5022, fill of pit 5020, (PRN 10023).
12. Rim from flanged bowl/dish (Type 117). Fabric Q100. Context 5022, fill of pit 5020, (PRN 10020).
13. Profile of a flanged bowl/dish (Type 117); slight carination in middle of vessel wall, bordered by shallow incised grooves. Two concentric incised grooves also occur on underside of the base. Fabric Q100. Context 5022, fill of pit 5020, (PRN 10021).
14. Wide-mouthed, necked jar, with raised cordons at shoulder and neck (Type 106). Fabric Q100. Contexts 5021 and 5022, fill of pit 5020, (PRN 10001 and 10019).

(Fig 28)

15. High-shouldered bead rim jar (Type 101). Small, post-firing perforation drilled through shoulder of this sherd; surfaces wiped. Fabric Q102. Context 5047, fill of pit 5046, (PRN 10076).
16. Large, high-shouldered jar with inturned bead rim (Type 103); surfaces roughly smoothed. Fabric F103. Context 5047, fill of pit 5046, (PRN 10058).
17. Necked jar with a slightly everted rim (Type 105); surfaces abraded. Fabric Q101. Context 5047, fill of pit 5046, (PRN 10068).
18. Large necked jar with a slightly everted rim (Type 105). Fabric Q106. Context 5047, fill of pit 5046, (PRN 10087).

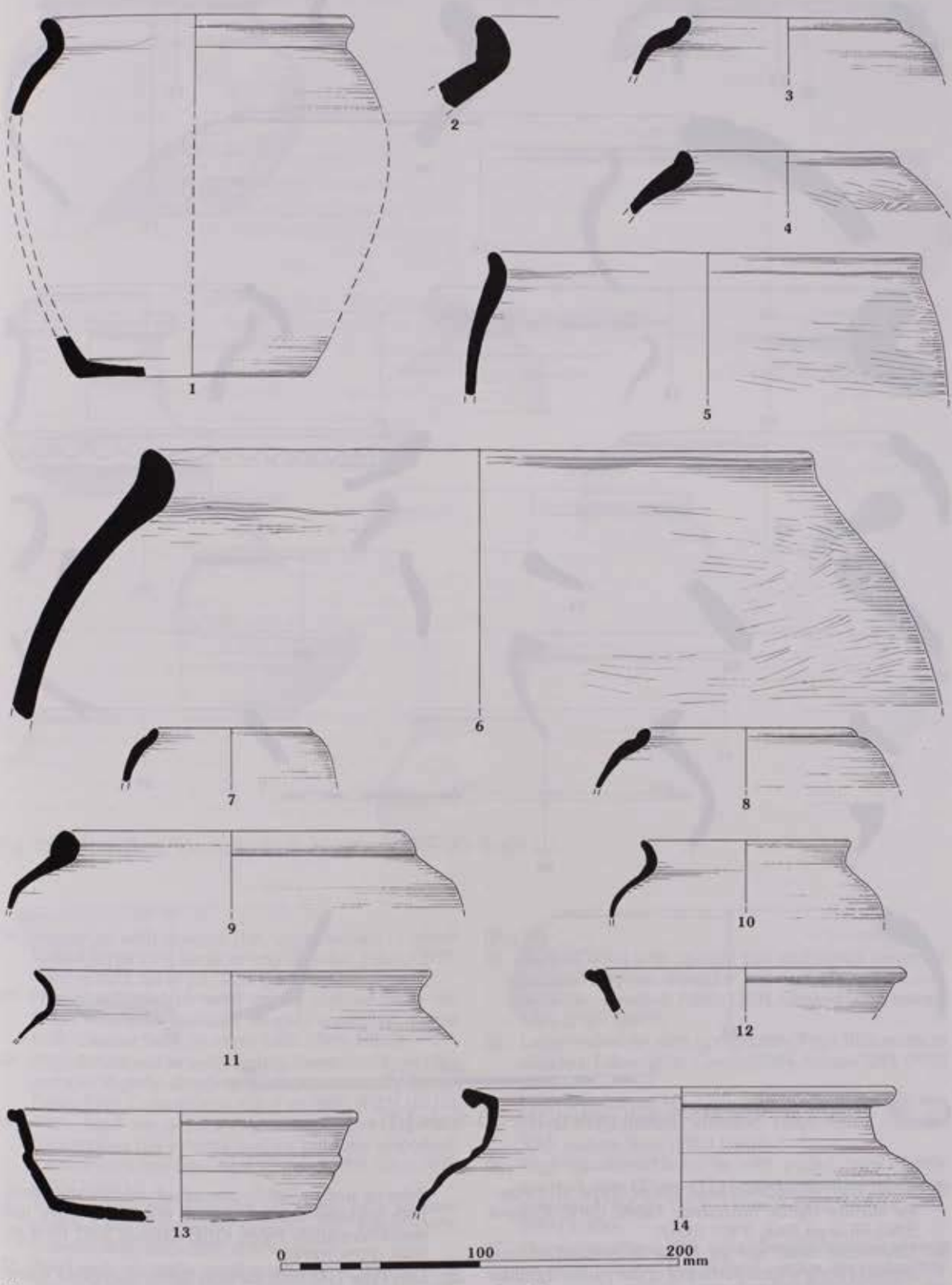


Fig. 27. IronAge/Romano-British pottery (1–14). Scale 1:3.

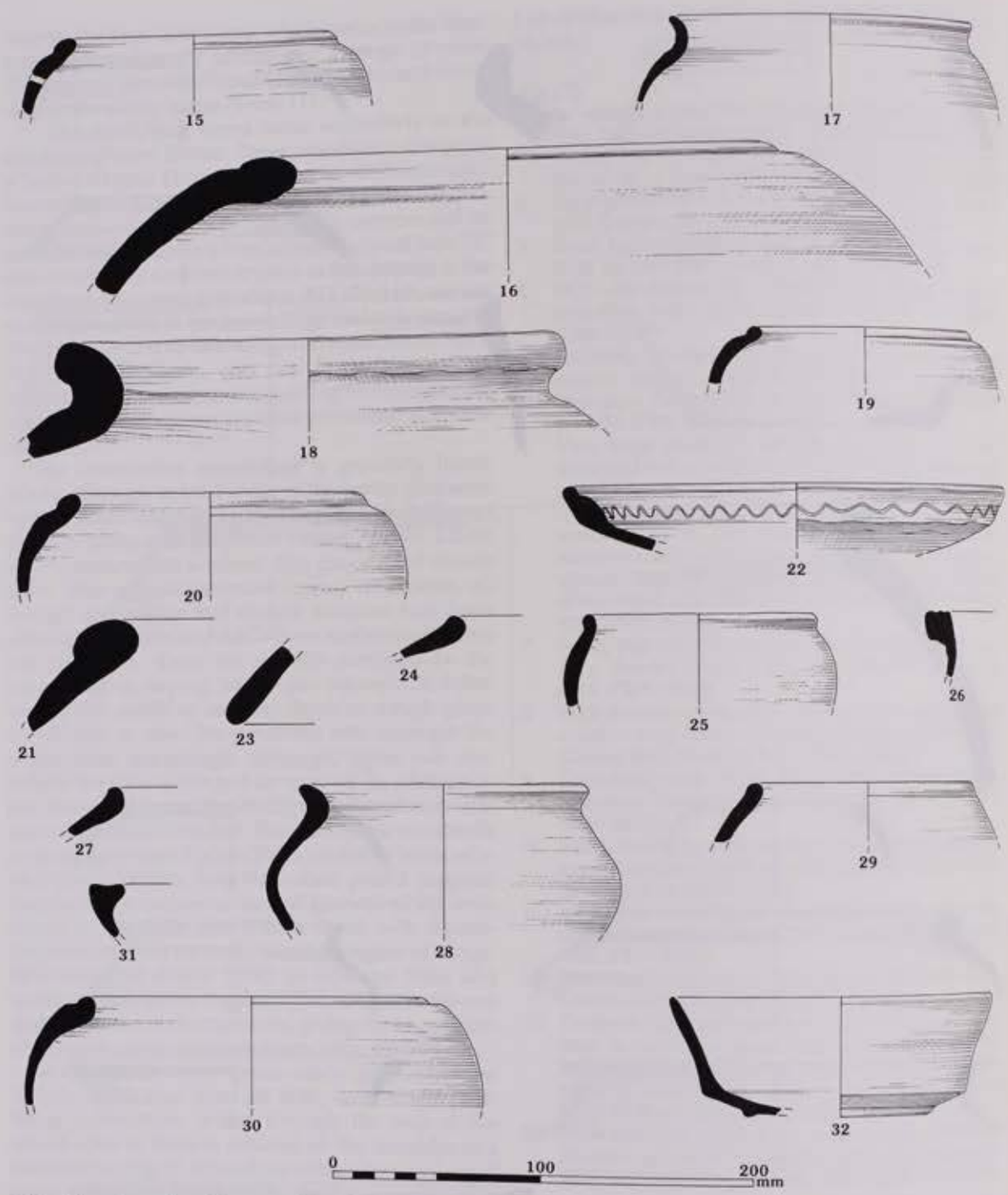


Fig. 28. Iron Age/Romano-British pottery (15–32). Scale 1:3.

19. Small, high-shouldered bead rim jar (Type 101); exterior surface lightly burnished. Fabric Q102. Context 5090, fill of pit 5046, (PRN 10047).
20. Chamfered bead rim jar (Type 102); band around centre of body wiped, surface of upper part of shoulder and rim smoothed. Fabric Q102. Context 5090, fill of pit 5046, (PRN 10048).
21. Large storage jar with inturned bead rim (Type 103). Fabric Q103. Context 5090, fill of pit 5046, (PRN 10085).
22. Shallow, carinated dish or platter (or just possibly lid), grooved on interior surface just below rim (Type 116). Exterior surface lightly burnished; interior smoothed. Both surfaces decorated with burnished wavy line above carination. Fabric Q100. Context 5090, fill of pit 5046, (PRN 10050).
23. Lid (Type 118); both surfaces lightly burnished. Fabric F101. Context 5090, fill of pit 5046, (PRN 10043).
24. High-shouldered bead rim jar (Type 101). Fabric F104. Context 5220, fill of pit 5220, (PRN 10127).
25. Small bead rim jar (Type 101); possibly post-depositionally burnt. Fabric F103. Context 5218, fill of pit 5220, (PRN 10119).

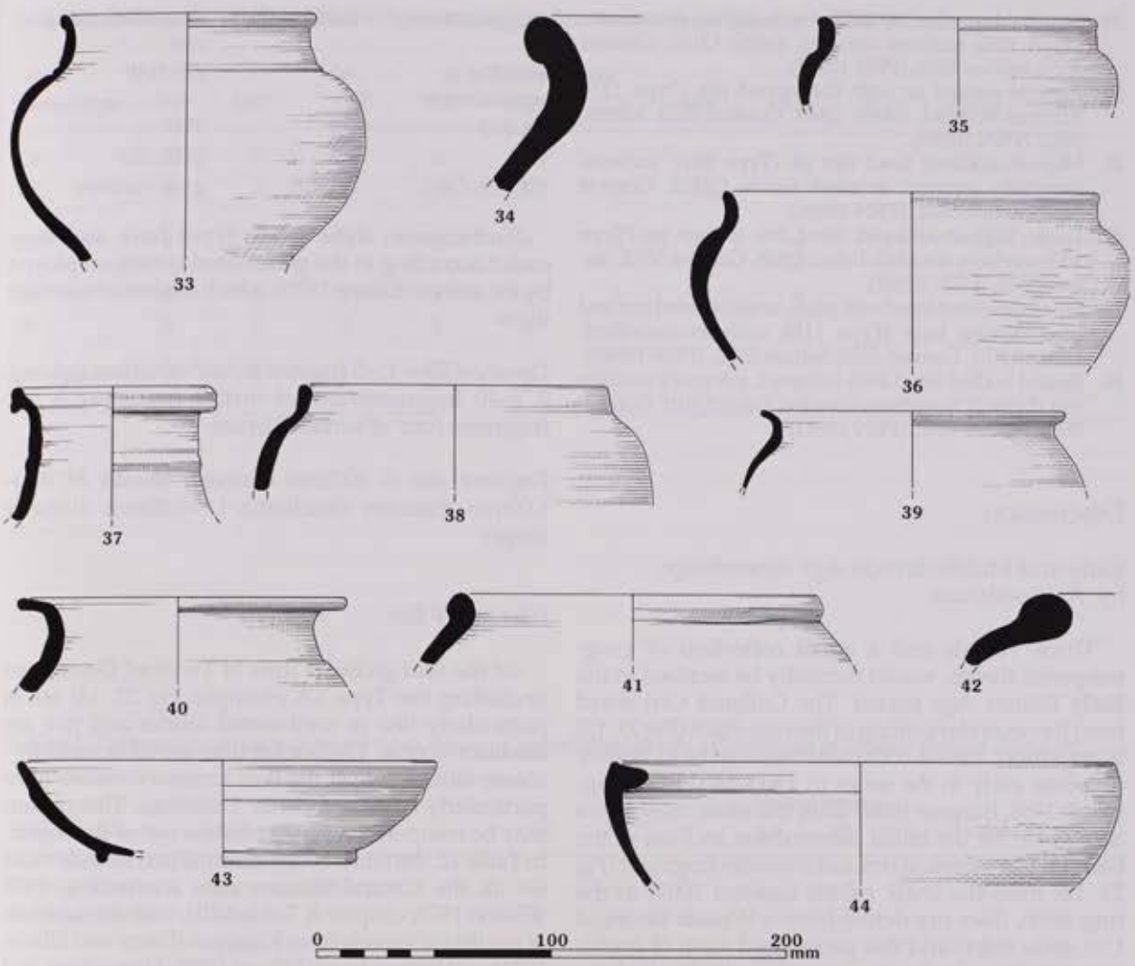


Fig. 29. Iron Age/Romano-British pottery (33–44). Scale 1:3.

26. Necked jar with squared rim, upper surface of which is rilled (Type 119); surfaces very abraded. Fabric Q101. Context 5218, fill of pit 5220, (PRN 10124).
27. High-shouldered jar with poorly defined bead rim (Type 101); both surfaces roughly smoothed. Fabric F101. Context 5409, fill of pit 5407, (PRN 10212).
28. High shouldered jar with slightly flared rim (Type 104); surfaces slightly abraded; post-depositionally burnt. Fabric F103. Context 5410, fill of pit 5407, (PRN 10218).
29. 'Proto-bead' rim of incurving saucepan pot (Type 63); undecorated but exterior surface carefully smoothed. Fabric F5 (Middle Iron Age). Context 5003, ditch 5005, (PRN 10264).
30. High shouldered bead rim jar (Type 101); surfaces abraded but apparently undecorated. Fabric Q101. Context 5455, ditch 5251, (PRN 10415).
31. Bowl with internally swollen rim (Type 113); surfaces abraded but apparently undecorated. Fabric Q101. Context 5557, ditch 5414, (PRN 10504).
32. Carinated bowl with plain, unelaborated rim (Type 115); surfaces abraded but apparently undecorated. Fabric Q102. Context 5547, ditch 5543, (PRN 10543).

(Fig 29)

33. Necked bowl with upright rim and raised cordon at junction between shoulder and neck (Type 112); surfaces very abraded. Fabric Q101. Context 5084, feature 5083, (PRN 10613).
34. Large necked jar with upright rim (Type 105); surfaces abraded. Fabric Q106. Context 5084, feature 5083, (PRN 10617).
35. High-shouldered bowl/jar with 'pulled', upright rim (Type 111); surfaces abraded. Fabric Q102. Context 5085, feature 5083, (PRN 10603).
36. High-shouldered bowl/jar with 'pulled', very slightly everted rim (Type 111); exterior surface and rim smoothed. Fabric Q101. Context 5085, feature 5083, (PRN 10600).
37. Flagon/jug (Type 120), or just possibly narrow necked jar, with collared rim. Raised cordon approximately half way down neck. Very abraded. Fabric Q102. Context 5085, feature 5083, (PRN 10604).
38. High-shouldered bowl/jar with 'pulled', upright rim (Type 111). Fabric Q101. Context 5553, feature 5552. (PRN 10577).

39. Small, thin-walled necked jar with slightly everted rim (Type 105); surfaces abraded. Fabric Q102. Context 5553, feature 5552, (PRN 10587).
40. Narrow-necked jar with flat-topped rim (Type 121); surfaces abraded. Fabric Q101. Context 5553, feature 5552, (PRN 10583).
41. High-shouldered bead rim jar (Type 101); surfaces, especially interior, abraded. Fabric Q102). Context 5553, feature 5552, (PRN 10586).
42. Large, high-shouldered, bead rim storage jar (Type 103); surfaces abraded. Fabric Q106. Context 5553, feature 5552, (PRN 10592).
43. Small carinated bowl with plain, unelaborated rim and low footring base (Type 115); surfaces smoothed. Fabric Q101. Context 5553, feature 5552, (PRN 10580).
44. Round bodied bowl with inturned, internally swollen rim (Type 113); surfaces abraded. Fabric Q101. Context 5553, feature 5552, (PRN 10581).

Discussion

Early and Middle Bronze Age Assemblage, by A. Woodward

Three vessels and a small collection of grog-tempered sherds, would normally be ascribed to the Early Bronze Age period. The Collared Urn sherd from the secondary silting of the ring-ditch (Fig 23, 13) bears a short, convex collar which should be indicative of a date early in the series (*c.* 1800–1600 BC; Longworth 1984; Burgess 1986). This, therefore, may give a date range for the initial construction and use of the barrow. The biconical rim and shoulder fragment (Fig 23, 12) from the chalk rubble (context 1003) in the ring-ditch, does not derive from a Wessex Biconical Urn *sensu stricto* and this generalised form of profile with a flattened rather than an internally levelled rim is found throughout the Middle Bronze Age in Wessex and the Thames valley. The focal burial, with its large Collared Urn possessing a pronounced concave collar (Fig 23, 1), throws up more problems. The presence of Collared Urns within Deverel-Rimbury cemeteries is well known, most famously at Latch Farm (Piggott 1938) and Handley Barrow 24, Dorset, but they also can occur in flat cemeteries such as Pokesdown, Dorset (Clay 1927). Barrett (1975) would argue that the two ceramic traditions are in part contemporary and it is particularly interesting to note, therefore, that the Twyford Down focal urn is a late form (*c.* 1450–1250 BC), as is that from Handley 24, which possesses four of Burgess's late traits (1986, 348). Thus the central positioning of this burial may have held social, rather than chronological significance.

In order to appreciate the chronological and other dimensions relating to the Middle Bronze Age assemblage from Twyford Down, it is necessary to compare the form and fabric attributes present with those on sites of a similar period from the Winchester area and secondly from the Central Wessex area as a whole. Initially, the fabrics represented may be compared with those defined at Easton Lane (Ellison 1989) and the following concordance is offered:-

Twyford Down	*Easton Lane*	*Ellison/Woodward code*
F10; E16 is equivalent to	A5	ISF; IMF
F8; F13	A6	3MF
F17	A8	3MF; 3LF
G2; G3; G4	D1; D5	grog varieties

Furthermore, these fabric types have also been coded according to the generalised system employed by the author (Ellison 1975), which can be summarised thus:-

Density of filler: 1. <5 fragments/cm^2 of surface (sparse); 2. 5–10 fragments/cm^2 of surface (medium); 3. >10 fragments/cm^2 of surface (dense).

Fragment size: S <0.5mm diameter (small); M 0.50–1.00mm diameter (medium); L >1.00mm diameter (large)

Filler type: F flint

Of the four globular urns at Twyford Down, two (including the Type 1A example, Fig 23, 14) are in particularly fine or well-sorted fabrics and two are medium–coarse. The bucket urns are all in medium–coarse fabrics, whilst the two accessory vessels have particularly large and dense inclusions. This pattern may be compared with that for the rest of the region. In Table 12, the fabric codes summarised include those for all the Central Wessex sites analysed in 1975 (Ellison 1975, chapter 8, Table VIII), with the addition of results for vessels from Kimpton (Dacre and Ellison 1981) and Easton Lane (Ellison 1989), Hampshire, and Shrewton, Wiltshire (Green and Rollo-Smith 1984), which were analysed using the same coding. Although a wide degree of variation is displayed, and this shows no distinct sub-regional trends, some patterns can be highlighted. The globular urns of Type 1A all contain small or medium flint inclusions, often in great density, and very evenly sorted and mixed. The 1B vessels also tend to have these finely mixed fabrics but more variation is evident. By comparison, the fabrics of the large Type 2, slightly necked, vessels are highly variable. The bucket urns also display variable fabrics but large flint inclusions are more highly represented than in the Type 2 urns or the globular types. On the other hand, the specialised Type 5 buckets have a finer range of fabrics, more reminiscent of the range found in the Type 1A globular urns. Although such trends can be perceived, there is nothing to indicate that the vessels were other than locally made. Even the highly decorated globular urns show site-specific repeated features and this argues against the specialist production of these fine wares. The large regional style groupings previously defined (Ellison 1981) are better explained in social terms rather than as a reflection of organised distribution networks.

Table 12. Pottery: distribution of fabric types among Central Wessex vessel types of Middle Bronze Age date.

	Fabric code										
Vessel type	ISF	IMF	ILF	2SF	2MF	2LF	35F	3MF	3LF	Grog	Sand
1A	2	5	–	6	6	–	10	4	–	1	1
1B	4	5	–	10	6	2	14	3	–	4	–
2	8	13	3	3	9	8	8	9	1	–	–
3A	6	6	7	1	4	1	5	5	4	3	–
3B	3	8	6	3	8	4	6	10	4	–	1
5	1	1	1	2	3	–	1	1	–	–	–

Table 13. Pottery: occurrence of vessel types among Central Wessex site assemblages of Middle Bronze Age date.

		Vessel type							
Site	Reference	1A	1B	2	3A	3B	4	5	7
Twyford Down	barrow ditch	–	3	–	1	–	1	2	2
Twyford Down	other	1	–	1	–	–	–	1	–
	Total	1	3	1	1	–	1	3	2
Winchester area									
Easton Lane	Fasham *et al.* 1989	4	?1	–	2	–	–	–	2
Winnall pits	Hawkes 1969	3	1	–	1	2	–	–	–
Winnall allotments	Rees pers. comm.	–	–	4	–	–	–	–	2
Compton Way	King 1989	1	3	2	4	2	–	–	–
Bushfield Camp	"	–	–	–	–	–	–	1	–
Minden Way	"	–	–	1	–	–	–	–	–
									–
Central Wessex									
West Meon	Lewis & Walker 1976	6	–	1	–	–	1	–	1
Chalton	Cunliffe 1970	–	–	–	–	1	1	1	–
Colbury	Preston & Hawkes 1933	–	–	–	–	–	2	5	–
Landford	Preston 1929	–	2	–	3	2	–	1	–
Boscombe Down E.	Stone 1936	9	3	3	1	3	–	–	–
Thorney Down	Stone 1941	11	–	3	1	1	–	–	–
Daneshill	Millett & Schadla-Hall 1992	–	–	–	4	–	2	–	–
Kimpton C	Dacre & Ellison 1981	–	–	22	–	–	–	–	–
D		5	2	–	3	4	–	–	–
D/E		1	3	–	1	–	–	–	–
E		1	16	–	1	8	–	2	4
F		–	1	–	–	2	–	1	3
Handley 24	Barrett *et al.* 1991	3	–	5	2	4	–	–	–

The occurrence of Middle Bronze Age form types within all the sizeable assemblages known from the Winchester area and Central Wessex as a whole is shown in Table 13. From this data, it can be deduced that the assemblages fall into two main groups. Whilst the generalised bucket urns of Type 3 and the accessory vessels, Type 7, occur in most of the assemblages, the other types seem to cluster in two modes. Firstly, Type 1A globular urns tend to occur in association with Type 2 urns, whilst specialised bucket urns of Types 4 and 5 seem to occur either in assemblages which have no globular urns at all, or globulars only or mainly of Type 1B. The ring-ditch assemblage from Twyford Down falls into the second mode of assemblages, as do those from Charlton, Colbury, Landford, Daneshill and Kimpton phases E and F. Interestingly, all the other assemblages from the Winchester area are of the Type 1A globular urn plus necked urn variety (Table 13).

It might be concluded that this difference in assemblage composition has a chronological basis, the more complex/decorated combinations pre-dating the plainer assemblages. Indeed, the sequence groups of cemetery development proposed for the site at Kimpton (Dacre and Ellison 1981) would uphold such a notion. However, some caution is needed here and a few thoughts concerning the Kimpton sequence may be advanced to advantage. The major problem posed by the report on the Kimpton cemetery is that the radiocarbon dating results were received after the report had gone to press. The dates obtained did not support in any clear manner the sequence of cemetery growth which had been worked out using the few stratigraphic relationships recorded so impeccably by the excavator, together with perceived groupings of distinct vessel types. A reworking of the evidence might replace the simplistic pattern of platform growth through time with a much more complex model involving the simultaneous growth of a series of cemetery clusters. Each may have begun with a Type 2 slab burial, for these were certainly early on stratigraphic grounds, but the concentrations of Type 1A (phase D) and Type 1B (phases D/E and E) globular urns may have denoted social or functional differences rather than a chronological sequence. Thus, although the Twyford Down ring-ditch assemblage set matches that of phases D/E, E and F at Kimpton, it may not have occupied a relatively late date within the local Middle Bronze Age tradition. We may conclude that the pottery at Twyford Down could well fit the date range indicated by the radiocarbon dates obtained for the flint and ash layer in the ditch (1675–1515 cal BC (UB-3866; 3316±21 BP) and 1680–1525 cal BC (UB-3867 3294±22 BP)) and, returning to our previous consideration of the concave-necked Collared Urn, could have been in use at the time of the act that led to its focal deposition.

Late Bronze Age, by A. Woodward

As a result of the extensive excavations associated with previous M3 construction contracts and recent developments around Romsey, the Late Bronze Age ceramic repertoires of Hampshire are reasonably well known. Both the plain ware post-Deverel-Rimbury and the later 'decorated' styles, as defined by Barrett (1980), are represented. The occurrence of selected diagnostic features in the funerary, domestic and lynchet assemblages on Twyford Down and on a series of eight other Hampshire sites is shown in Table 14. At Twyford Down, the vessels from the ring-ditch and settlement area are all of plain ware style, similar to the assemblage from Winnall Down, whilst the vessel deposits on Area B and the lynchets also contain material that fits better into the later 'decorated' phase. Thus we have further confirmation that agricultural activity outlived the span of the Late Bronze Age domestic unit identified on Area A.

As far as the fabric types are concerned, the main Late Bronze Age fabrics at Twyford Down are F11 and F12, characterised by the occurrence of varying densities of large angular flint inclusions, which are evenly sorted and well distributed. The matrices are distinctly more sandy than those encountered in the Middle Bronze Age assemblages. Similar, highly diagnostic Late Bronze Age fabrics were also noted at Easton Lane (fabrics A7 and A9: Ellison 1989, 87) and at Winnall Down (fabric 2: Fasham 1985, 61). The important technological implications suggested by the introduction of these sandy, well-mixed pottery fabrics have been discussed by Raymond (1994) in connection with the assemblages recovered during the Wessex Linear Ditches Project on Salisbury Plain. The employment of fabrics with a higher sand content allows the production of vessels with thinner walls and in a wider range of forms and sizes.

In the Salisbury Plain study area, the establishment of linear ditched territories is dated, mainly by ceramics, to the Late Bronze Age period (Bradley *et al.* 1994). Similar boundaries, albeit on a smaller scale, were dated to a similar period at Easton Lane (Fasham *et al.* 1989, Fig 64), although on this site, some ditched enclosures appear to have been established in the Middle Bronze Age (*ibid.*, Fig 30). On Twyford Down, the main lynchet of Area A may have been established in the Middle Bronze Age but its main period of development and use lay within the Late Bronze Age and earliest Iron Age. Meanwhile, at the same time, or slightly later than the Area A boundary development, the line or double row of Late Bronze Age vessel deposits was being laid out on Area B. As noted previously, these deliberate deposits may have served to mark the line of an important boundary, which may or may not have been further delineated by a fence, lynchet or hedge. The importance of such deliberate deposits in the legitimisation of important boundaries has also been observed on Salisbury Plain, although there they took a different form, human and animal remains, and were deposited in a later period, the Middle Iron Age (Bradley *et al.* 1994).

Taken together, the lynchet and vessel deposit evidence from Twyford Down indicates a complex and diverse process of land allotment which was taking place throughout the Late Bronze Age period. This

Table 14. Pottery: occurrence of Late Bronze Age ceramic features on Hampshire sites.

Site	Ref.	Formal attributes							
		Flat rim	Int. bevelled or hooked rim	FP or slashed rim top	Row of perfora-tions	FP shoulder slack	FP shoulder sharp	Slashed shoulder sharp	Expanded base angle
Twyford Down									
Barrow ditch			X						
Area B									
vessels		X	X		X	X			X
settlement		X	X						
lynchets		X	X	X				X	X
Easton Lane	Fasham *et al.* 1989			X	X		X	X	X
Mainly plain wares									
Church Lane, Nursling	Rees 1993								X
Hook, Warsash	Ashbee 1987	X			X				
Winnall Down	Fasham 1985		X		X				X
Mainly decorated									
Easton Down	Fasham 1982			X			X		
Newton Lane, Romsey	Rees 1993		X			X			
Old Down Farm 2	Davies 1981			X					
Kimpton G	Dacre & Ellison 1981	X		X		X			X

data can thus be employed to amplify the growing body of evidence which supports the widespread establishment of linear boundary patterns and lynchet field systems during that period. In many southern areas, the formerly cited evidence for Early and Middle Bronze Age fields has been reassessed and found wanting, whilst careful analysis of lynchets by excavation and field survey has provided new levels of critically-assessed dating evidence.

In Berkshire, Ford (1982) has demonstrated that the linear ditched territories date from the Late, not the Middle Bronze Age, and that the coaxial field systems, previously dated to the Middle Bronze Age, were not laid out until the Romano-British period. Meanwhile, extensive fieldwork and excavation on Bullock Down, near Eastbourne in East Sussex showed that the field systems were developed from the Late Bronze Age (Drewett 1982, 137 and 130–1: Frost Hill) to the Iron Age (*ibid.*, 16–21: Heathy Brow) and that the integrated double lynchet trackways also originated in the same time period (*ibid.*, 97–9). Where lynchets were dated in association with the Linear Ditches Project on Salisbury Plain, they also were seen to begin their long lives in the Late Bronze Age (Bradley *et al.* 1994, 55: Dunch Hill) or Early Iron Age (*ibid.*, 89 and 121: Coombe Down).

In west Dorset, there is growing evidence that ditched territories and fields were established earlier than this. Linear ditches of Middle Bronze Age date have been excavated at Poundbury (Green 1987, 22–31), although these and others continued is use through the Late Bronze Age and the Iron Age. The field systems excavated at Rowden (Woodward 1991, 47 and 54) and at South Lodge, Cranborne Chase (Barrett, *et al.* 1991, 146 *ff.*) pre-dated structures of Middle Bronze Age date and went out of use before the Iron Age, while at Hog Cliff Hill, Late Bronze Age structures were constructed in the lee of an existing field bank (Ellison and Rahtz 1987, Fig 23). In spite of this evidence from Dorset, the presumed Middle Bronze Age date for the origins of the huge coaxial field systems of Central Dorset (RCHME 1970, 46) does now need testing by a carefully constructed programme of selective excavation.

In the light of all this recent evidence, the dating of the lynchets in Area A, Twyford Down fits most neatly. The main *floruit* in the Late Bronze Age and Early Iron Age periods is matched in Berkshire, Sussex and Wiltshire, whilst the modest Middle Bronze Age beginnings can be paralleled on Cranborne Chase and in west Dorset.

Early Iron Age, by A. Woodward

The main diagnostic ceramics of Early Iron Age date on Twyford Down are the furrowed bowls (Fig 26, 33–5), some of which are embellished with a red finish or 'haematite coating'. One piece from a similar bowl was also found by Stuart and Birkbeck (1936, 197) elsewhere amongst the field lynchets on Twyford Down. Large assemblages of this ceramic phase, which dates from the eighth–seventh centuries BC, are known locally from Meon Hill (Liddell 1934, Fig XI and 1937, Plate 23) and from Winnall Down (Hawkes in Fasham 1985, Fig 52) but, in both these cases, occupation continued into the full Early Iron Age phase, which is characterised by scratch-cordoned bowls. The latter do not occur in Area A of Twyford Down. Interestingly, the early furrowed bowl stage is not represented at Danebury and some other hillforts in its vicinity (Cunliffe 1984, 254), or within the excavated portions of St Catherine's Hill, Winchester (Hawkes *et al.* 1930).

The flared rims from Twyford Down are also represented in the Winnall Down assemblage and incised geometric decoration is found at that site (Fasham 1985, Fig 52) and in Old Down Farm, phase 3 (Davies 1981, Fig 15, 45). The fineware fabrics from Twyford Down are sandy with some fine flint; these are matched by fabrics 3, 4 and 9 at Winnall Down and those described for Old Down Farm. On all sites, the bowls occur in a series of different fabrics.

The presence of furrowed bowl assemblages on smaller enclosed settlement sites and within field systems, both in Hampshire and on Salisbury Plain (eg Raymond 1994, 88–9), might suggest that there was a substantial development of land allotment and dispersed controlled agriculture in the earliest Iron Age. It appears that this pre-dated the establishment of the major hillforts which can be ascribed to the sixth century BC.

Late Iron Age and Roman pottery assemblages, by R.H. Seager Smith

In general terms, the assemblages from the 1990s excavations on Twyford Down are comparable with the material found during the 1930s (Stuart and Birkbeck 1936) and from other Iron Age / early Roman sites in the vicinity (Hawkes 1985, 69–76; 1987, 27–33; 1989, 94–6; Neal 1980, 135–9; Wessex Archaeology 1989). A similar reliance on flint-tempered fabrics is apparent at all these sites, together with a range of more specialised 'Romanised' forms, including copies of Gallo-Belgic vessels, and the use of the wheel in manufacturing technology, most frequently occurring among the sandy fabrics. In addition to the rural sites noted above, many of the vessel forms present at Twyford Down can be paralleled amongst the earliest stratified groups at Bitterne, which are dated to *c.* AD 70–120 (Cotton and Gathercole 1958, Figs 19–21) and by the period 1 (terminal date of *c.* AD 75–80) pottery from Fishbourne (Cunliffe 1971, 175–217). Consequently, the terminal date for the Iron Age/early Roman assemblage from this site is unlikely to extend much beyond the late first or early years of the second century AD.

However, it is more difficult to establish the date of earliest activity represented by the pottery recovered. That the Roman invasion had comparatively little immediate impact on pottery production in this area is apparent in the fabrics and vessel forms, many of which exhibit little chronological variability over much of the second half of the first millennium BC. Two probable incurving saucepan pots (Fig 27, 5; 28, 29) were identified among the material from pit 5285 and ditch 5007. Examples of this form, dated to La Tène II, were also found during the 1930s excavations in this area (Stuart and Birkbeck 1936, Fig VII, 3–5) and the form is very common in Middle Iron Age contexts at many other sites in the area (Hawkes 1985, Fig 54, 58–66; 1987, Fig 21, 10, Fig 22, 18 and 22, Fig 23, 27 and Fig 24, 41; 1989, Fig 93, 29; Cunliffe 1984, 293, type PA). Other forms too may belong to this period. The bead rim jars (Type 101), for example, are known to occur with saucepan pots at other sites (Hawkes 1985, 62, Fig 56, 80–83; 1987, 27; Cunliffe 1976b, 21 for a list of stratified examples), although the forms are indistinguishable from the Late Iron Age/early Roman examples. Examples of the large bead rim storage jars (Type 103) are dated to the Early/early Middle Iron Age and Middle Iron Age periods at Micheldever Wood (Hawkes 1987, Fig 21, 9 and Fig 23, 35) while the necked (Type 105) and necked and cordoned (Type 106) jars may have a similarly long life-span, continuing to be produced until at least the end of the first century AD.

Continental and regional imports are comparatively rare among the material recovered. Very small quantities of samian were found, while the amphorae recovered could have been derived from as few as two vessels (one of each fabric type). It should also be remembered that amphorae are suitable for a multitude of uses once empty and that the empty containers may well have been traded in their own right. Thus the presence of Italian wine- and Spanish oil-carrying amphorae at this site need not mean that either commodity was used by its inhabitants.

The majority of coarsewares would appear to be of local manufacture, although it is probable that at least some of the sandy grey wares are products of the Alice Holt/Farnham industry, some *c.* 35km distant. Some links with areas further afield are indicated by the pale-firing flagon fabrics (ie Fabrics Q105 and Q108) and the Corfe Mullen ware from Dorset. Dorset Black Burnished ware, however, was not identified; this fabric occurs at both Bitterne (Cotton and Gathercole 1958, Fig 22, 3) and Fishbourne (Cunliffe 1971, Fig 74, 2 and 3) only from *c.* AD 120 onwards. The absence of this fabric may, therefore, be chronologically related, although it does occur in small quantities at Ashley (Neal 1980, 139) and Micheldever Wood (Hawkes 1987, 24). In common with the other rural sites in the area (Hawkes 1987, 27–33; 1989, 94–6; Stuart and Birkbeck 1936; Neal 1980, 135–9; Wessex Archaeology

Table 15. Pottery: percentages of major fabric groups by feature type.

	Prehistoric fabrics	Samian	Amphora	British f'wares	Flint-gritted wares	Sandy wares	Other coarsewares
Pits	26	14	2	30	60	45	21
Ditches	48	86	97	57	31	32	62
Misc.	26	–	1	13	9	22	17

1989; Seager Smith 1997), mortaria are also absent at Twyford Down, although these vessels occur at both Bitterne and Fishbourne by *c.* AD 75. Again, this absence may be related to chronology but it is probable that factors such as functional and status differences between rural and urban sites are also of relevance here, mortaria being highly specialised 'Romanised' vessels, completely alien to the native, pre-Roman Iron Age ceramic tradition of the area and, therefore, indicative of the adoption of Continental methods of food preparation.

Distribution of the Iron Age/Early Roman ceramic assemblage

In the following discussion, all the percentage figures given are based on the number of sherds; similar information based on the weight of sherds is available in the archive.

Meaningful comment on the distribution of both vessel forms and fabrics across the site is, to a large extent, hampered by the highly fragmentary nature of the assemblage and the small quantity of sherds recovered from many of the features. The mean sherd weight for the Late Iron Age/early Roman assemblage as a whole is only 6.4g. However, Tables 7–10 indicate the distribution of the Iron Age/early Roman assemblage by feature, in addition to summarising the total quantities of the fabric groups recovered. The major fabric groups represented as a percentage of the total number of sherds found in each of the three main feature types (pits, ditches and miscellaneous features and deposits) are shown in Table 15. A general impression of the range of vessel forms present can be gained from the illustrations, while a generalised correlation between vessel forms (represented by rim sherds) and the fabrics in which they occur is shown in Table 11 and the vessel forms present in each feature is summarised in Table 16.

Pits: Seven of the eight excavated pits contained pottery and, for the sake of convenience, the single vessel found in small circular feature 5018 is considered together with this group. A total of 1491 sherds (10,082g) was recovered from these features. This represents 48% of the total number of sherds recovered. The mean sherd weight of this material is 6.7g.

Twenty-eight sherds of prehistoric fabrics, ranging in date from the Middle Bronze Age to the Early Iron Age, were present (*see* Table 7 for the quantities in each feature). These sherds represent only 1.8% of the material from the pits and their mean sherd weight is only 4.8g, suggesting their residuality in these contexts. No rim sherds were present among this material (Table 16) but one body sherd from an Early Iron Age fineware bowl was noted in pit 5285.

Fourteen of the 22 vessel forms occur within the assemblage from the pits (Table 16; Fig 27, 1–14; 28, 15–28). These are numerically dominated by the bead rim jar types, although a wide range of the more 'Romanised' forms, generally occurring in the sandy fabrics are also present. Overall, the flint-tempered fabrics account for approximately half (759 sherds or 51% of the total) the sherds from the pits. The sandy fabrics are represented by 683 sherds or 46% of the total. Samian, amphora, the British finewares, and other coarseware fabrics are poorly represented, each accounting for less than 1% of the total number of sherds (Table 16).

However, the importance of the flint-tempered wares is artificially raised by the presence of the 449 sherds from the flint and sand-tempered bead rim jar (Fig 27, 1) found in pit 5018. If this vessel is excluded, then the total number of sherds present is 1042. Of these, the flint-tempered fabrics are represented by only 310 sherds, or 30% of the total, while the sandy fabrics account for 65.5%. The individual assemblages from three pits (5020, 5046 and 5427) reflects this dominance of sandy over flint-tempered wares. Approximately equal quantities of these fabrics occur in pits 5074 and 5290, although only four sherds were recovered from this latter feature. The comparatively small quantities of sherds from pits 5217 (23 sherds) and 5407 (30 sherds) both show a reliance on the flint-tempered wares.

The much larger assemblage (244 sherds) from pit 5285 is overwhelmingly dominated by the flint-tempered wares (Table 7), which together account for 81% of the total sherds, the sandy fabrics being represented by 30 sherds or 12% of the total. Sherds from an incurving saucepan pot (Fig 27, 5) were identified amongst the assemblage from this feature while other vessels, such as the bead-rim jars (Fig 27, 2 and 3) and the large storage jar (Fig 27, 6), belong to types that have a long life span, beginning in the Middle Iron

Table 16. Pottery: vessel forms by feature.

		Bead rim jars			Other jar forms					
	Prehist	100	101	102	103	63	104	105	106	119	121
5018			X								
5020		X	X	X			X	X	X		
5046		X	X	X	X		X	X			
5074		X	X								
5217			X					X		X	
5285		X	X		X	X		X			
5290											
5407							X			X	
5007	33					X					
	39										
5051				X			X				
5070			X				X				
5240		X									
5251	39	X	X	X	X		X	X	X		
5257		X	X								
5406		X									
5414		X	X				X				
5359		X									
5543		X	X								
5227		X						X			
5283		X	X					X			
5048	39										
5539			X								
5083		X	X				X	X			
5552		X	X		X		X	X			X

Age. Many of the sherds from this feature exhibit the light burnishing uncommon amongst the assemblage as a whole, while the absence of the more 'Romanised' vessel forms in the sandy fabrics may also be chronologically relevant. Although it is impossible to prove conclusively, material from the filling of this feature may represent nearby activity belonging to an earlier part of the Middle to Late Iron Age, indeed activity of this date was identified during the earlier excavations at this site (Stuart and Birkbeck 1936, 196–7).

Ditches: Thirty-six per cent (1142 sherds, 6507g) of the sherds recovered were from the ditches. The mean sherd weight is 5.7g, smaller than that from the pits and slightly below average for the assemblage as a whole (6.4g).

Fifty-two sherds (4.5% of the total) of prehistoric date were identified, found in ditches 5007, 5183, 5070, 5251 and 5257 (*see* Table 7 and archive for further details). The mean sherd weight for this group is only 3.2g and the majority are featureless body sherds. Rim fragments from Late Bronze Age/Early Iron Age coarseware jar forms (Type 39) and an Early Iron Age fineware bowl (Type 33) sherd were identified from ditches 5007 and 5251.

The sandy fabrics predominate among the Late Iron Age/early Roman assemblage from the ditches, accounting for 43% (490 sherds), while flint-tempered fabrics represent 34% (391 sherds) of the total. Amphora, samian, and the British finewares are well-represented, the majority of sherds in each of these fabric groups being found in ditch contexts (Table 15). Ceramically, the assemblages recovered from the various ditches differ very little from each other. The majority of sherds are small and abraded, the widest range of both fabrics and forms being recovered from the deepest, least truncated features (ditches 5051, 5070, 5251, 5257 and 5414: Tables 1 and 16). Overall, 15 different vessel forms were recognised, including the samian platter (Drag. 18) and cup (Drag. 33 and 35) types but the highly fragmentary nature of the assemblage means that few fragments from these contexts were illustrated. Bead rim jar forms again predominate but a wide range of other types were also identified (Table 21). No featured sherds were found in the excavated sections of ditches 5183, 5239, 5413

Bowls/dishes						Misc.		Samian		
111	112	113	115	116	117	118	120	D.18	D.33	D.35
			X	X	X					
				X		X		X		
			X	X						
							X	X	X	X
				X						
		X								
			X	X						
							X			
X	X						X			
		X	X	X						

and 5425, while the only featured sherds from ditches 5240, 5406 and 5359 were jar rims of indeterminate type.

Miscellaneous features and deposits: This group consists of a range of individual features and deposits, including post-holes, dew ponds, lynchet soils and natural features. A total of 487 sherds (3518g) was found in the features, representing 16% of the total assemblage. The mean sherd weight of this material is 7.2g, higher than for the assemblage as a whole.

Post-holes: Four post-holes contained small quantities of pottery (Table 9). Plain body sherds of Late Iron Age/early Roman fabrics were recovered from post-holes 5163, 5222, and 5224, while a single sherd of Late Bronze Age/Early Iron Age coarseware was found in post-hole 5504, possibly indicating a prehistoric date for this feature.

Dew ponds: The pottery recovered from both these features is of Late Iron Age/early Roman date, with no earlier sherds being identified. Sandy fabrics predominate amongst these groups, with a comparatively restricted range of vessel forms, comprising bead rim (Type 101) and necked (Type 105) jars in addition to a 'pulley-wheel' flagon rim (Type 120) on an off-white sandy ware fabric (Fabric Q108) from dew pond 5283.

Lynchet soils: Very little pottery was recovered from these deposits. Late Bronze Age/Early Iron Age fabrics, including rim sherds from coarseware jar types were identified in lynchets 5048 and 5539. A larger number of sherds (30 sherds, 119g), including material of prehistoric and Late Iron Age/early Roman date, was found in lynchet 5348 but no featured sherds were recognised. All this material is likely to be derived from the settlement activity identified further up the slope.

Natural features: The fillings of three features believed to be of natural origin contained pottery of Late Iron Age/early Roman date. Feature 5499 contained three body sherds of pale grey 'Romanised' sandy greyware, probably from the same vessel. These sherds may have been accidentally incorporated into the filling of this feature.

Table 17. All worked flint (except material recovered from sieving).

Area A Feature	1	2	3	4	5	6	7	Total
Barrow								
Ditch, basal rubble	–	4	3	–	–	–	–	7
secondary silt	–	16	7	–	–	–	–	23
flint deposit	1	83	29	–	1	1	–	115
flint/ash	6	67	42	3	–	1	–	119
cremation deposits	9	11	1	–	–	–	–	21
Grave 1013	3	4	–	–	–	–	–	7
Grave 1133	9	17	–	–	–	–	–	26
Grave 1084	1	9	–	–	–	–	–	10
Grave 1145	1	1	–	–	–	–	–	2
Grave 637	–	2	–	–	–	–	–	2
Bronze Age features								
Lynchet 81	–	90	42	3	1	2	?1	139
Trackway 59	–	4	1	–	–	–	–	5
Lynchet 72	–	9	7	–	–	–	–	16
Lynchet 977/985/987	2	117	35	7	1	1	–	163
Structure 989	–	4	–	1	1	–	–	6
Structure 547	–	–	1	–	–	1	–	2
Misc. post-holes	–	3	2	2	–	–	–	7
Misc. pits	1	3	3	–	–	–	–	7
Late Iron Age/early Romano-British features								
Lynchet 1178	–	4	2	–	1	1	–	8
Lynchet 63	–	5	3	–	–	–	–	8
General unstratified finds								
	3	471	212	5	5	9	–	650
Total	13	903	433	22	10	16	1	1398

Key: 1 = cores; 2 = unbroken flakes; 3 = broken flakes; 4 = burnt worked flakes; 5 = retouched flakes; 6 = scrapers; 7 = piercer

Larger quantities of material were, however, recovered from features 5083 and 5552 (Table 9). The sherds from feature 5083 have one of the highest mean sherd weights (11.2g) of the assemblage as a whole. Sherds of Corfe Mullen ware, the off-white sandy flagon fabric (Fabric Q108) and one piece of possible briquetage (Fabric V100), were identified in feature 5552 in addition to the flint-tempered and sandy coarseware fabrics.

The assemblage from feature 5083 is confined to the flint-tempered and sandy coarseware fabrics, the sandy wares accounting for some 60% of the whole. An impression of the range of forms present in both features can be gained from Table 16 and the illustrations (Fig 29, 33–44). Although bead rim jar and other long-lived types do occur, these groups also contain many of the 'Romanised' vessel forms, which, coupled with the predominance of the pale grey sandy fabrics used in their production, may indicate a first century AD date for this material.

Flint, by P. Harding

The flint assemblage from Twyford Down has been quantified and is shown by feature and type in Table 17. The total of 1398 pieces comprises 50% from unphased or miscellaneous contexts, 26% from derived secondary ploughsoil lynchet accumulations of prehistoric and Romano-British date and 24% from the barrow. Only 234 pieces (17%) of the entire collection was well stratified, being material from the flint or flint/ash deposits of the barrow ring-ditch. This assemblage, which includes two pairs of refitting flakes, has been examined in more detail. The remaining material is presented in summarised form.

The Barrow

The material from the barrow includes small insignificant quantities of material from the primary and secondary fills of the ring-ditch which are in mint

Table 17. (continued)

Area B Feature	1	2	3	4	5	6	7	Total
Bronze Age features	–	1	1	–	–	–	–	2
Pit 5024	–	5	–	–	–	–	–	5
Pit 5044	–	–	1	–	–	–	–	1
Pit 5539								
Late Iron Age/early Romano-British features								
Lynchet 5048	–	11	3	–	–	–	–	14
Lynchet 5140	–	9	3	–	–	–	–	12
Ditch 5007	–	1	1	–	–	–	–	2
Ditch 5051	–	1	1	–	–	–	–	2
Ditch 5070	–	5	5	–	–	–	–	10
Ditch 5251	1	19	26	1	1	1	–	49
Ditch 5257	–	2	1	–	–	–	–	3
Ditch 5406	–	2	1	–	–	–	–	3
Ditch 5413	–	1	–	–	–	–	–	1
Ditch 5359	–	1	3	–	–	–	–	4
Pit 5020	–	1	3	–	–	–	–	4
Pit 5046	–	1	–	–	–	–	–	1
Pit 5074	–	1	2	–	–	–	–	3
Pit 5285	1	3	–	–	–	–	–	4
Pit 5290	–	–	1	–	–	–	–	1
Post-hole 5344	–	–	1	–	–	–	–	1
General unstratified finds								
	–	34	15	–	–	–	–	49
Total	2	98	68	1	1	1	0	171

condition. There are no well defined clusters to indicate *in situ* knapping or dumping. It is likely that the material has silted in from the ditch edges or migrated down from the upper fills.

The collection from the flint and flint/ash deposits has been combined to maximise the sample. A simple metrical analysis of major attributes has been undertaken. The flint is generally in mint condition and includes pairs of refitting flakes. The ratio of cores to flakes (1:35) is low, especially as most of the cores are under exploited, some being no more than test pieces, however the shortfall in cores cannot be taken to indicate core preparation as most of the flakes are non-cortical. The classifiable cores, which include four burnt pieces, are all single platform examples with limited exploitation along one edge. Striking platforms have been prepared by a flake removal where this was necessary.

There is a number of 'small' flakes which are likely to be by products of tool manufacture. In addition to the total given above, a number of 'retouched' were recovered from sieved context 1036, which were associated with a broken end scraper blade. The recovery of these 'retouch' flakes confirms that all aspects of the knapping sequence are present.

The retouched material comprises an end scraper made on a flake by direct, irregular retouch, a broken scraper blade and a flake with low angle, discontinuous, direct retouch around part of one edge.

Isolated flint flakes were associated with graves. There is nothing to indicate that they represented deliberate grave goods and it is more likely that they were redeposited in the grave backfill.

There is a minimal quantity of struck flint from the site; however, the proportions are consistent with other excavated barrow assemblages where cores accounted for no more than 1% of the assemblage and flakes formed up to 98%. This is despite the fact that the cores at Twyford Down are under exploited and, therefore, realistically under-represented when compared with the flakes.

Surface collection prior to the stripping of the site indicated a thin spread of flint in the area. This raised the possibility that much of the assemblage had been eroded downslope into the valley below. The small quantity of material from stratified contexts confirms

the results of the fieldwalking and suggests that the site lies a considerable distance from the main focus of both domestic and industrial activity. Flint is available in the area but not in large quantities and the barrow had no flint cairn which could be utilised as a source of raw material in later periods.

The primary ditch fills contemporary with the construction and early use of the monument have a low flint content which is not unusual on barrow sites. Most flint working at Twyford Down occurs in the later phases using nodules from the flint layer of the ditch which may be related to field clearance. The associated flint knapping waste, now much mixed by the intrusion of later burials and animal activity, can be seen as exploitation of these nodules during later funerary rites. The absence of large refitting sequences suggests that knapping did not take place in the ditch but probably took place beyond it.

There is nothing to suggest that the flint in the barrow ditch is residual and its stratigraphic position places it with the later burials of the Middle/Late Bronze Age. The morphology and technology of the flakes do not contradict this.

Structures

There is insufficient material to add to the interpretation of the structures. Structure 547 includes a well made end scraper on an elongated flake. The blank has an abraded butt and the scraping edge has direct, regular retouch forming the convex edge.

Lynchets and Trackways

This material is composed mainly of flakes, the ratio of cores to flakes (1:111) being extremely low. The quantity of material from lynchet 1178, which partially truncates the ditch of the barrow, is particularly low. Most of the flakes are similar in both morphology and technology to the stratified material from the barrow ditch. Some have slight edge damage but the majority are surprisingly fresh and undamaged, suggesting that they have not moved far. Isolated patches of calcium carbonate concretion ('race'), resulting from ground water precipitation, are well developed on pieces in the barrow ditch and the lynchets. This process could have occurred since the redeposition of flints in the lynchet. The cores from lynchet 977/985/987 comprise a burnt single platform flake core and an opposed platform flake core. The scrapers are undiagnostic end scrapers made on flakes.

Area B

No context has sufficient material to require further detailed examination. The 171 pieces of flint include both patinated and unpatinated material. The scraper from ditch 5251 is an undiagnostic end scraper made on a flake. The distribution of flint from Area B is summarised in Table 17.

Shale, by M. Laidlaw

Part of a shale spindle whorl was recovered during clearance of the Late Iron Age/Romano-British area on Area B. The object is laminated, slightly domed, 30mm in diameter and with a central perforation measuring 8mm in diameter. The most likely source for the raw material is the coastal exposures of Kimmeridge shale on the Isle of Purbeck, Dorset, items of which are comparatively widespread in the Iron Age (Cunliffe 1984, 396) and into the Roman period (Lawson 1976).

Stone, by M. Laidlaw

Only stone which was considered either to be foreign to the site or which showed definite or possible signs of working was collected. The total quantity thus recovered was 204 fragments (15,556g). The assemblage has been divided into worked objects and unworked, non-local, fragments. Only the worked stone objects are discussed here, comprising a total of 124 fragments (11,141g); details of the unworked, non-local stone may be found in archive. The worked stone assemblage is dominated by quern fragments, together with four whetstones, a loomweight, three unidentified objects, and a number of roof tile fragments.

Querns

Three quern stone fragments were positively identified as being derived from one saddle quern and two rotary querns. The remaining 33 fragments each have part of at least one original surface preserved but, because of their fragmentary nature, could not be assigned to type.

The identified saddle and rotary querns and ten other quern fragments were found during general site clearance. Most of the remaining fragments were recovered from Late Iron Age/Romano-British ditches 5051 (11 fragments), 5257 (1 fragment), pit 5046 (7 fragments) uncovered in the northern part of Area B, ditch 5007 in the south (1 fragment) and also one fragment from the Bronze Age negative lynchet 985 on Area A.

Most of the quern fragments are of greensand, a commonly exploited stone type for the area. Greensand occurs in a broad arc to the north of the Wessex chalklands and further afield to the Isle of Wight and in the Weald of Sussex and Kent. One of the many possible quarries exploiting this resource for the area, in the Iron Age and early Romano-British period, was the Lodsworth quarry in West Sussex (Peacock 1987). A small number of sarsen quern fragments were also identified, possibly from a source in Wiltshire, and two possible gritstone fragments may have been obtained from the Mendips, Derbyshire/Yorkshire, or from the Hampshire basin (Brown 1984, 408).

Similar querns of greensand and sarsen have been documented from sites such as Danebury (Brown

1984, 415), Maiden Castle (Laws 1991b, 229), Winnall Down (Jecock 1985, 77), and Old Down Farm, Andover (Davies 1981, 94).

Whetstones

The four whetstones were all recovered from site clearance and, although fragmentary, were characteristically smooth with rounded edges and exhibited polished and worn surfaces. One fragment is possibly a mudstone, while the three other fragments are of a fine-grained sandstone. These objects are not closely datable on morphological grounds, and a date anywhere in the later prehistoric or Romano-British periods is possible.

Loomweight

One degraded chalk weight, interpreted as a loomweight for a vertical loom, was found in the Late Iron Age/Romano-British ditch 5051. On the basis of size, the pear-shaped form and countersunk perforation towards one end, it can be compared to other Iron Age loomweights from Danebury (Brown 1984, 419–22), Micheldever Wood (Winham 1987, 40) and Maiden Castle (Laws 1991b, 213–4).

Roof tiles

A total of 79 (2418g) stone roofing tile fragments was recovered, all from the amorphous feature 5499 on Area B. Fourteen fragments are of a shelly limestone, ten of which are pinkish in colour and the remaining four are conjoining, indicating, therefore, the presence of at least two tiles. The other 65 pieces are very fragmentary limestone, not necessarily from a single tile. A likely source for the limestone is the outcrops at Purbeck, Dorset. A roof tile of Purbeck limestone was identified at Winnall Down (Jecock 1985, 84).

Objects of uncertain function

Two objects of uncertain function were recovered from Bronze Age features on Area A. One is a naturally perforated pebble recovered from the cremation deposit 851 in the barrow ditch and the other is a rectangular object, possibly of metaquartzite, from the flint deposit in ditch 619. In addition, a trapezoidal, fine grained mudstone object was found in the Late Iron Age/Romano-British pit 5046 on Area B, which also produced many fragments of quern stones.

Fired Clay, by M. Laidlaw

In total, 270 fragments (2191g) of fired clay were recovered. This includes two biconical beads from a flint and ash deposit in the Bronze Age barrow ditch on Area A, context 843, and three possible oven plate fragments, two from pit 5285 and one from pit 5074, both in the Late Iron Age/Romano-British settlement area on Area B.

The two complete fired clay beads were found in a flint and ash deposit associated with secondary cremation activity within the Bronze Age barrow ditch (Fig 31, 9 and 10). Both are biconical with central perforations and were presumably used as a form of personal adornment. Parallels of this date range have been identified at West Kennett (Annable and Simpson 1964, no 36) and further afield in Derbyshire, Manchester, and Co Antrim (Longworth 1984, 56).

Two oven plate fragments have been tentatively assigned to type 2 oven plates as identified at Danebury, which are characterised by a central, circular flue surrounded by a number of smaller perforations (Poole 1984, 118). Although fragmentary, the presence of a central flue and surrounding smaller holes is evident on the Twyford Down examples (Fig 30, 1, 2).

The central flue in probably within the diameter range of 120–150mm given for the Danebury examples. Circular impressions were noted on one surface of one of the fragments from pit 5285, which may have been the caused by a framework used to support the structure prior to firing or, alternatively, as it appears to be a properly formed outer edge, it may have rested on supports to facilitate reuse (Fig 30, 1). Similarly, the squared impressions on the fragment from pit 5074 may be indicative of a framework. The fragment from pit 5285 has a steeply concave inner surface and, if complete, would have formed a narrow band as opposed to the slightly convex central plate fragments identified at Danebury and the variously shaped plate edges preserved at Maiden Castle (Poole 1984; 1991).

An industrial use for these oven structures, such as parts of a crucible furnace, has been suggested for the Danebury examples (*ibid.*, 118). However, as there is no supporting evidence for on-site metalworking at Twyford Down, this would seem unlikely for the plate fragments discussed here. Other possible functions may be of a domestic nature.

The remaining fragments of fired clay are not diagnostic. A small number of surfaces were visible, suggesting that some fragments may be daub deriving from structures, although wattle impressions were not readily apparent. The majority of fragments were found in the large ditch 5007, with relatively small quantities in most other contexts; full contextual details may be found in archive.

(Fig 30)

1. Possible oven plate fragment; rim-like fragment, ring shaped; four smoothed surfaces, three concave, one stabbed; Oxidised, soapy, fine grained fabric. Obj. No. 7026, context 5289, pit 5285.
2. Possible oven plate fragment; nine fragments, largest ring shaped with one flat surface, opposite slightly domed; inner, curved surface smoothed, outer has broken off leaving irregular surface; oxidised, fine grained fabric. Obj. No. 7528, context 5428, pit 5285.

(Fig 31)

9. Biconical bead; circular, central perforation, decreases in diameter from 2–1mm; reduced fabric. Length

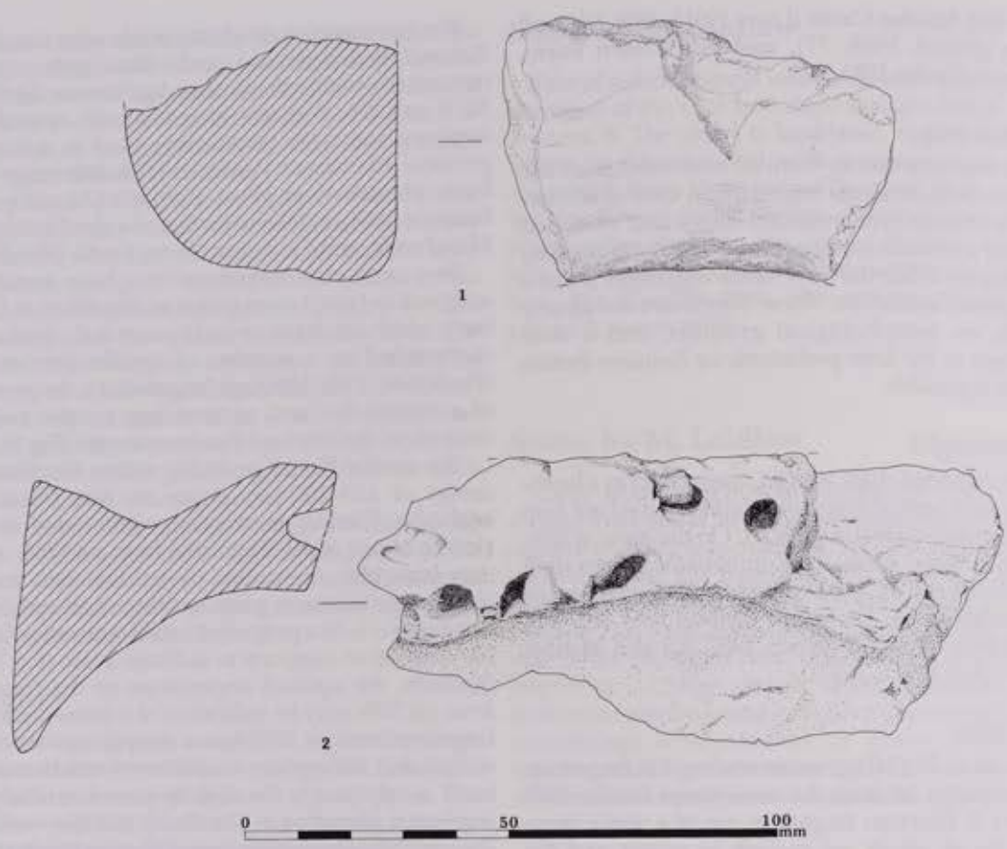


Fig. 30. Objects of fired clay. Scale 3:4.

10mm, Diam. 3–8mm. Obj. No. 2541, context 843, barrow ditch.

10. Biconical bead; circular, central perforation, possibly worn around one end with diam. 1–1.5mm; oxidised fabric. Length 6mm, diam. 4–8mm. Obj. No. 2542, context 843, barrow Ditch.

Ceramic Building Material, by M. Laidlaw

A total of 268 fragments (10,167g) was recovered. This included 19 small fragments (168g) found during general site clearance or in the soils over the top of the barrow ditch on Area A. Because of the lack of any justifiable significance applicable to these pieces in the absence of detailed recovery locations, no further analysis was undertaken.

The remaining assemblage was recovered from the Iron Age–Romano-British pit and ditch fills on Area B and included many featureless fragments of tile and brick, although some did have surviving surfaces. In addition, diagnostic fragments from eight *tegulae*, six *imbrices* and 12 bricks were identified.

The brick fragments are possibly from *bessalis* bricks which supported the floor above a hypocaust (Brodribb 1987). They ranged in thickness from 40–45mm, as opposed to the thinner *tegulae* of 15–19mm and the 8–15mm thick *imbrices*. The majority of these identifiable fragments were found in the clearance layer 5001, with the exception of one *tegula* fragment recovered from ditch 5257, one brick and three *imbrex* fragments from amorphous feature 5499, and six brick fragments from lynchet 5350 and pit 5020.

The non-diagnostic fragments, possibly mainly fragments of Romano-British roofing tiles, were concentrated in the northern part of Area B and were recovered from five of the ditches that formed the enclosure system, four pits and two dew ponds which were associated with the paddock enclosures.

No detailed fabric analysis was undertaken but a brief visual examination of the assemblage indicated two distinctive fabric types were present. All fragments were oxidised and mainly in a poorly-wedged fabric with moderate grog inclusions, with smaller quantities of fragments in a finer sandy fabric. The presence of such a quantity of ceramic building material and fragments of stone roofing tiles, both material types that provide structural evidence for the Roman period, helps to verify that a settlement involving substantial buildings was in the vicinity.

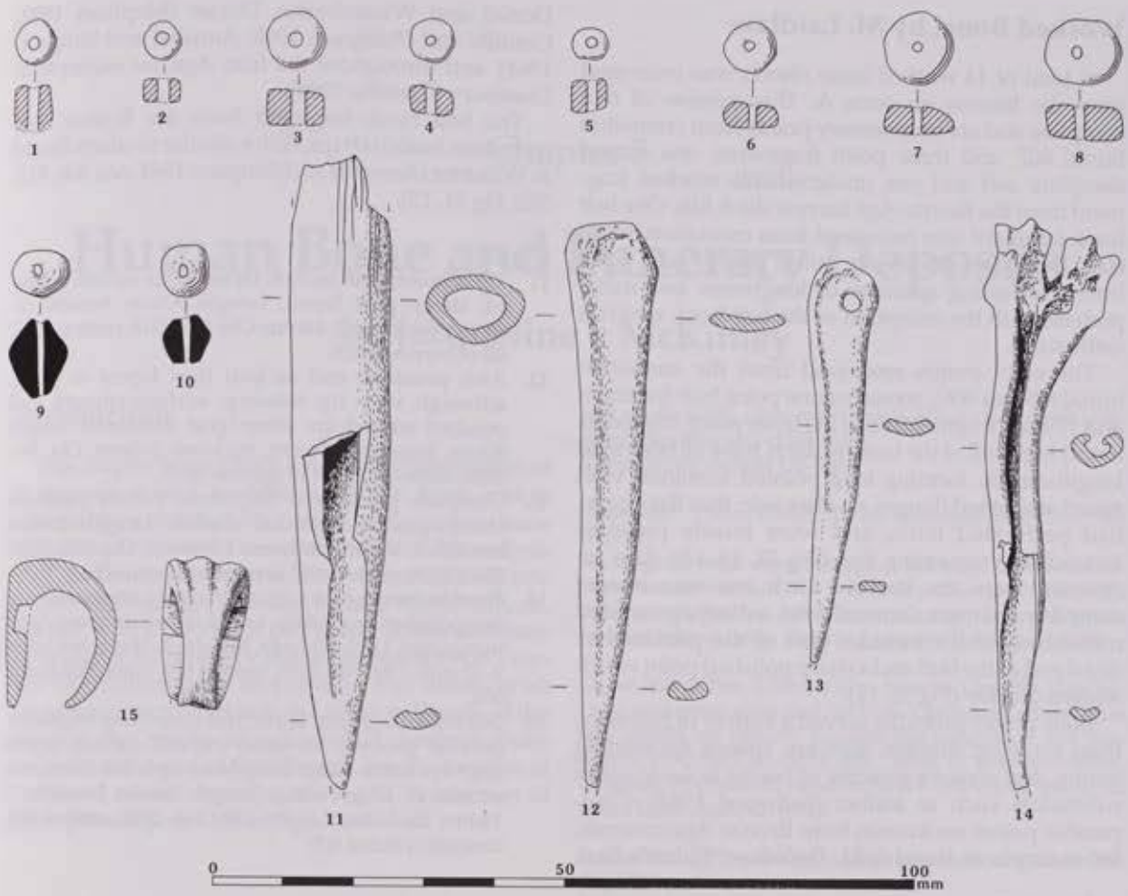


Fig. 31. Amber beads (1–8), fired clay beads (9, 10) and worked bone objects (11–15). Scale 1:1.

Amber beads, by M. Laidlaw

Fourteen amber beads were recovered from the inhumation grave 1133 on Area A. Three beads were found *in situ* and the remainder were retrieved from a soil sample taken from the grave and subsequently wet sieved.

Although all the beads are of a poor condition and cracked to varying degrees, their forms could generally be recognised. Ten beads are cylindrical in shape, two of flattened spherical shape, one-bun shaped and one unidentifiable because of its fragmentary condition (Fig 31, 1–8). The beads range in diameter from 5–10mm and in thickness from 3–5mm. All are pierced with a single perforation most of which are central, although three are perforated slightly off-centre. The perforations range in diameter from 1–3mm.

Amber beads have been found as grave goods from the Early to Middle Bronze Age period, as attested by other inhumations at Easton Lane (Fasham *et al.* 1989, 112, Fig 103). They are also found in many Bronze Age cremations (Annable and Simpson 1964; Longworth 1984). Amber is generally regarded as an 'exotic' substance and was imported from the Baltic or could have been washed up on British North Sea coasts.

(Fig 31)

1. Cylindrical bead; small fragment missing, central perforation, Diam 6mm, Length 7mm. Obj. No. 2024, context 1124, fill of grave 1133.
2. Cylindrical bead; cracked, central perforation, Diam 5mm, Length 4mm. Obj. No. 2025, context 1124, context 1124, fill of grave 1133.
3. Cylindrical bead; slightly cracked, central perforation, Diam 8mm, Length 4mm. Obj. No. 2515, context 1062, fill of grave 1133.
4. Cylindrical bead; slightly cracked, central perforation, Diam 6–7mm, Length 4mm. Obj. No. 2516, context 1062, fill of grave 1133.
5. Cylindrical bead; slightly cracked, perforation off-centre, Diam 5mm, Length 4mm. Obj. No. 2522, context 1062, fill of grave 1133.
6. Flattened spherical bead; cracked, perforation slightly off-centre, Diam. 8mm, Length 4mm. Obj. No. 2514, context 1062, fill of grave 1133.
7. Flattened spherical bead; cracked, perforation slightly off-centre, Diam. 5mm, Length 10mm. Obj. No. 2523, context 1062, fill of grave 1133.
8. Bun-shaped bead; cracked, flat on one surface, the opposite domed, central perforation, Diam. 10mm, Length 4mm. Obj. No. 2540, context 1062, fill of grave 1133.

Worked Bone, by M. Laidlaw

A total of 14 worked bone objects was recovered from the barrow on Area A. This consists of two complete and six fragmentary points from cremation burial 607, and three point fragments, one almost complete awl and one unidentifiable worked fragment from the Bronze Age barrow ditch fills. One belt hook fragment was recovered from cremation burial 609. The bone objects all utilise sheep/goat sized bones, including splinters of longbones and metapodials, with the exception of the belt hook which is cattle sized.

The eight points recovered from the cremation burial 607 (pit 606), consist of one point butt fragment and 17 shaft fragments, and the three point fragments found in the fill of the barrow ditch, have all been split longitudinally forming long pointed terminals with raised smoothed flanges at either side, thin flat points, had perforated butts, and were mostly polished around any remaining tips (Fig 31, 13–14). Also recovered from the barrow ditch was one almost complete awl manufactured from a sheep/goat sized metatarsal, which includes part of the proximal or distal end as the butt and a sharp polished point which widens quickly (Fig 31, 12).

Bone points probably served a variety of functions from weaving shuttles, skewers, spoons for feeding young, and awls for piercing or boring holes in softer substances such as leather (Sellwood 1984). Comparable points are known from Bronze Age contexts, for example at Burghfield, Berkshire, Eldon's Seat, Dorset and Winterborne, Dorset (Mepham 1992; Cunliffe and Phillipson 1968; Annabel and Simpson 1964), and throughout the Iron Age, for example at Danebury (Cunliffe 1984).

The belt hook fragment from the Bronze Age cremation burial 609 (pit 608) is similar to others found in Wiltshire (Annable and Simpson 1964, nos 306, 313, 332; Fig 31, 15).

(Fig 31)

11 Tip of point; shaft broken, tapers to tip, surface polished; sheep/goat femur. Length 90mm, breadth 3–16mm, thickness 2–14mm. Obj. No. 2513, context 1167, fill of barrow ditch.

12. Awl; proximal end as butt then tapers to point, although very tip missing; surface smooth and polished around tip; sheep/goat metatarsal. Length 80mm, breadth 2–14mm, thickness 2–5mm. Obj. No. 2028, context 872, fill of barrow ditch.

13. Complete point; four fragments; surface polished; sheep/goat metapodial medial. Length 20mm, breadth 7–10mm, thickness 1.5–4mm. Obj. Nos 2527; 2530; 2536, context 607, cremation burial 606.

14. Point fragment; burnt; four conjoining fragments; surface polished around tip, which is broken; sheep/goat metacarpal. Length 81mm, breadth 2–18mm, thickness 2–12 mm. Obj. No. 2532, context 607, cremation burial 606.

15. Belt hook fragment; burnt; five conjoining fragments, parallel grooves on outer curved surface, tapers slightly; cattle-sized long-bone splinter from ring section of tibia/radius. Length 26mm, breadth 7–14mm, thickness 2–6mm. Obj. No. 2535, context 608, cremation burial 609.

Chapter 5

Human Bone and Funerary Deposits

by Jacqueline I. McKinley

Introduction

This chapter begins with a summary description of all deposits found to contain human bone and is followed by a detailed discussion of the human bone itself. This discussion is based on the specialist analysis of all the human remains and considers such aspects as the number, age, sex, and stature of individuals, together with evidence of pathology. It also discusses the evidence for funerary ritual and practices on Twyford Down during the Bronze Age. Full details of all the material recovered is in the archive. Details of the selection and results of radiocarbon determinations are given at the end of this chapter. For the location of burial and related deposits, see Fig 32. A selection of grave plans is provided in Figs 33–6.

Summary of Graves and Other Contexts Producing Human Remains

Inhumation burials

Graves and other contexts containing inhumation burials are listed in context order; those from within the barrow enclosure first. Dimensions of the grave (where this could be identified) are listed in the following order: length, width, depth (after the removal of the ploughsoil). The height of the base of the grave or of the human bone is given in metres OD, where recorded. The orientation of the grave or skeleton is given where this could be determined.

Inhumation burials within barrow enclosure

Grave 667 0.24m, 0.19m, 0.05m, base 94.01m OD. (Fig 36)
Oval scoop with irregular sides and base. Contained inhumation **666** which was directly below ploughsoil. Grave fill (668), clayey silt with chalk and flint fragments and occasional charcoal flecks. Inhumation **666** loosely crouched, oriented NW–SE, head to SE.

Grave 637 1.05m, 0.65m, 0.35m, base 93.07m OD. (Fig 33)
Oval with steep sides and flat base, oriented N–S. Contained inhumation **686** , which was sealed below grave fills and was crouched on its right side, head to N, with evidence of some slight disturbance. Clay loam with large flint nodules and chalk (638), over main grave fill of chalky silt with significant flint and chalk (639).
Radiocarbon sample UB-3863.

Grave 687 1.10m, 0.90m, 0.60m, Inhumation 93.82m OD. (Fig 33)
Rectangular with steep sides and flat base. Contained inhumation **689** which was below clay loam grave fill (688), tightly crouched on left side, arms extended and wrists crossed behind body. Oriented approx. E–W, head to W.

Grave 800 1.05m, 0.74m, 0.30m, base 94.12m OD. (Fig 36)
Oval with steep sides and flat base. Contained inhumation **802** which lay directly beneath the ploughsoil and was tightly crouched on right side. Bone in poor condition. Oriented NNW–ESE, head to NNW. Surviving grave fill was a loose chalk silt (801).

Grave 841 0.77m, 0.50m, 0.15m, inhumation 93.81m OD. (Fig 33)
Rectangular with irregular sides and base. Contained inhumation **871** which lay directly below the ploughsoil and was tightly crouched on right side, oriented approx. N–S, head to S. Surviving grave fill was a 'capping layer' of silty clay loam with flints (842).

Grave 858 0.90m, 0.62m, 0.11m, inhumation 93.98m OD. (Fig 36)
Oval with steep sides and flat base. Contained inhumation **883** which was partially sealed by a compacted layer of flint and chalk rubble grave fill (867). Inhumation damaged by ploughing, crouched on right side, bone in poor condition. Oriented NNE–SSW, head to NNE.

Inhumation burials within barrow ditch

No grave cut visible. Inhumation 93.44m OD. (Fig 33)
Inhumation **651** , tightly crouched on right side, oriented NW–SE, head to the SE, below flint deposit (636) and above chalk rubble (653) in ditch SD 619.
Radiocarbon sample UB-3864.

No grave cut visible. Inhumation 93.49m OD. (Fig 33)
Inhumation **654** , probably crouched on left side, oriented NE–SW, head to NE, but disturbed, below flint deposit (636) and above chalk rubble (653) in ditch SD 619.

Grave cut not recognised. Inhumation 93.41m OD. (Fig 35)
Inhumation **1018/1119** lower legs and feet *in situ*, cut by grave **1084**. Disarticulated bone redeposited in grave **1084** over inhumation **1120** . Within ditch SD 813, below grave

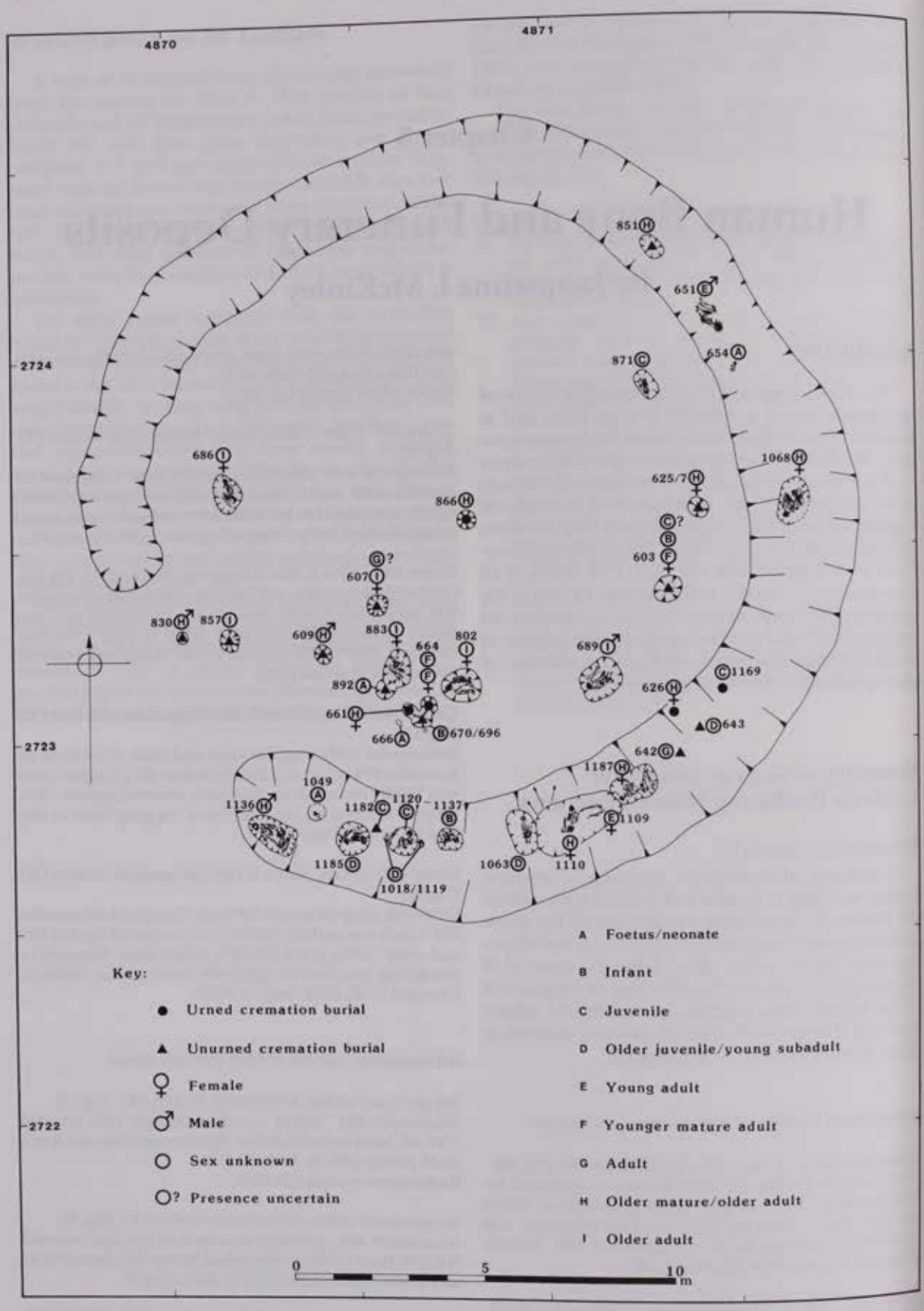


Fig. 32. Barrow: overall post-excavation plan with burial details.

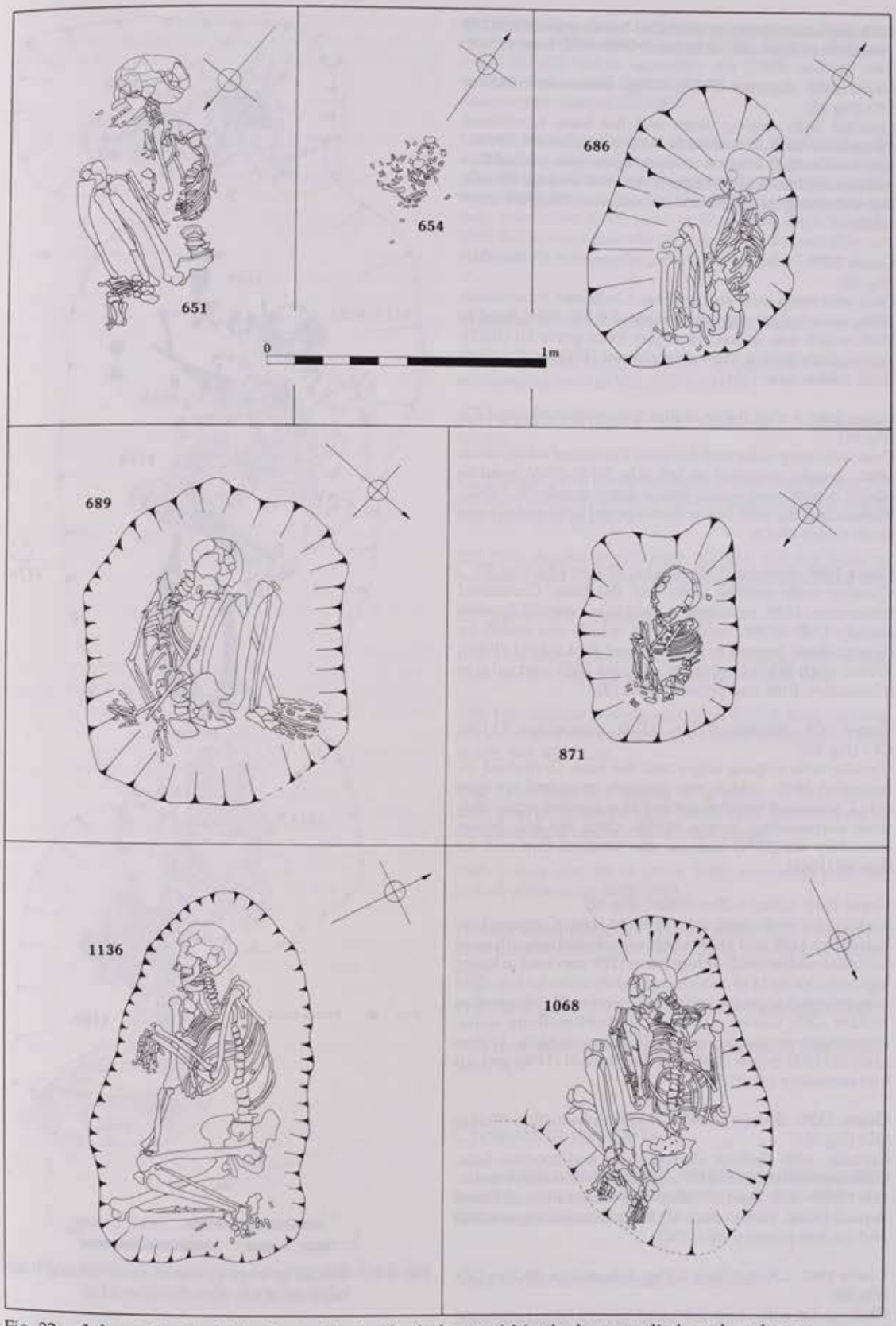


Fig. 33. Inhumation burials: plans of individuals from within the barrow ditch and enclosure.

1023 and cut into primary silt (1156). Inhumation **1018/1119** crouched on right side, oriented ?NNW–SSE, head to SSE.

Grave 1023 diameter 0.90m, 0.30m, Inhumation 92.96m OD. (Fig 35)
Circular with sloping sides and flat base. Contained inhumation **1185**, crouched on right side, oriented NNW–SSE, head to SSE, which was sealed below grave fill of flint nodules in a friable silty matrix (1184). Within ditch SD 813, below flint deposit (1130) and cut into secondary silt layer (1131).

Grave 1070 0.20m, 0.75m, 0.30m, inhumation 93.48m OD. (Fig 33)
Oval with steep sides and flat base. Contained inhumation **1068**, crouched on right side, oriented NNE–SSW, head to SSW, which was sealed below clay loam grave fill (1069). Within ditch SD 814, below flint deposit (1044) and cut into chalk rubble layer (1141).

Grave 1083 1.15m, 0.60m, 0.40m, Inhumation 93.64m OD. (Fig 34)
Oval with steep sides and flat base. Contained inhumation **1063**, loosely crouched on left side, NNE–SSW, head to NNW, which was sealed below loam grave fill (1082). Within ditch SD 1000, below flint deposit (1030) and cut into chalk rubble (1143).

Grave 1084 diameter 0.70m, 0.40m, 93.10m OD. (Fig 35)
Circular with vertical sides and flat base. Contained inhumation **1120**, crouched on right side, oriented approximately ENE–WSW, head to ENE, which was sealed by disarticulated human bone **1119** and flint rubble (1085). Within ditch SD 813, below fill of grave **1023** and cut into inhumation **1018** and primary silt (1132).

Grave 1129 diameter 0.50m, 0.10m, inhumation 93.10m OD. (Fig 35)
Circular with sloping edges and flat base. Contained inhumation **1049**, which was probably crouched on right side. Cut was not well defined and fill was indistinguishable from surrounding layers. Within ditch SD 812, below secondary silt (1031) and cut into terminal flint and silt deposit (1041).

Grave 1133 2.20m, 1.20m, 0.90m. (Fig 34)
Rectangular with steep sides and flat base. Contained inhumations **1109** and **1110** which were sealed beneath loam with flint rubble (1062). Inhumation **1109** survived as lower legs only, cut by **1110**, which was tightly crouched on right side, oriented approximately N–S, head to N, Inhumation 93.42m OD. Grave cuts for two inhumations indistinguishable so given one overall grave cut **1133**. Within ditch SD 1000, below chalk and flint deposit (1150) and cut into secondary silt (1189).

Grave 1135 diameter 0.60m, 0.10m. Inhumation 93.31m OD. (Fig 35)
Circular, with shallow sloping sides and concave base. Contained inhumation **1137**, crouched on left side, orientation NNW–SSE, head to SSE, which was in a thin silt loam deposit (1024). Within ditch SD 813, below fill of grave **1023** and cut into primary silt (1132).

Grave 1145 1.30m, 0.70m, 0.15m, inhumation 93.26m OD. (Fig 33)
Rectangular with steep sides and uneven base. Contained inhumation **1136** which was directly below the overlying

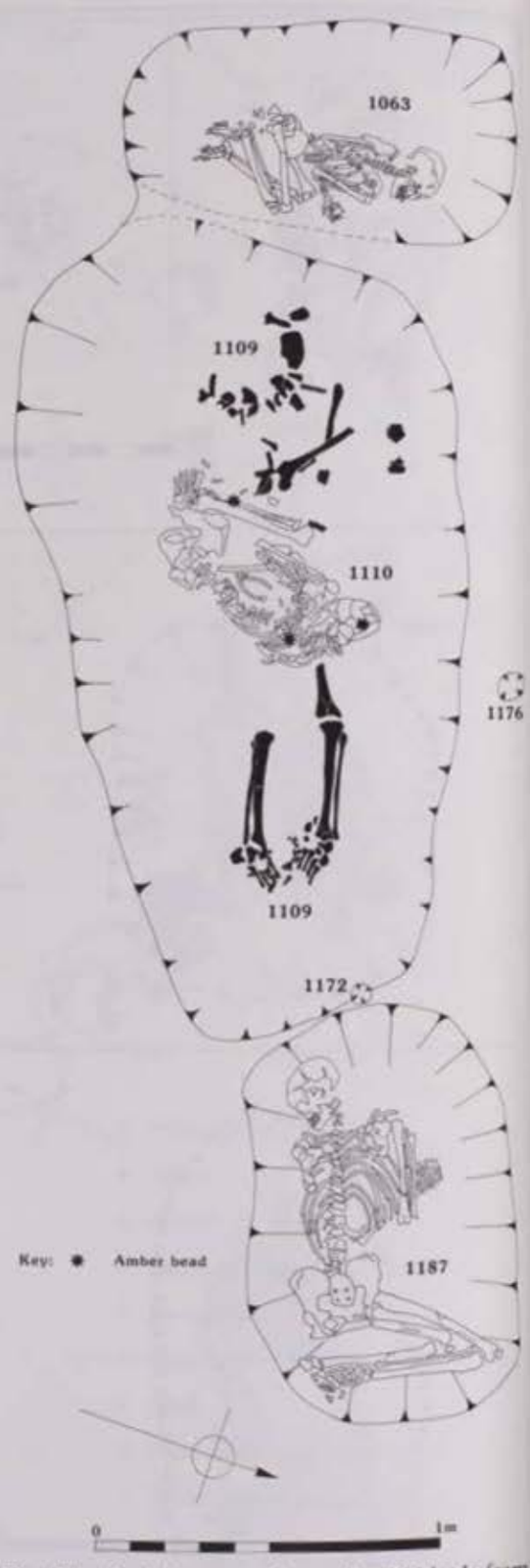


Fig. 34. Burial group: plans of individuals from barrow ditch sub-division 613.

Fig. 35. Burial group: plan of individuals from barrow ditch sub-division 813.

silt. Inhumation, flexed in 'kneeling' position on right side, orientation WNW–SSE, head to NNW. Within ditch terminal SD 812, below secondary silt (1108) and cut into terminal flint and silt deposit (1041).
Radiocarbon sample UB-3865.

Grave 1186 1.22m, 0.84m, 0.20m, base 93.48m OD. (Fig 34) Rectangular with sloping sides and flat base. Contained inhumation **1187** which was sealed by loam and flint rubble layer (1188). Inhumation flexed in 'kneeling' position on left side, orientation E–W, head to W. Within ditch SD 613/1000, below secondary silt (691) and cut into secondary silt (616).

Miscellaneous contexts producing human bone

636 Flint deposit in ditch SD 619, NB not from 851 on same stratigraphic level as 855, 1035 to south.

843 Flint and ash deposit/flint nodule layer in south ditch SD 813.

851 Shallow pit in north-east ditch in flint nodule layer, NB not from inhumation **651** in same stratigraphic layer as 636, 855, 1035 etc (Fig 33).

855 Flint deposit in NE ditch SD 814, NB not from inhumation **1068** , on same stratigraphic level as 636 and 1035

858 (grave cut for inhumation **883**).

1030 Flint layer in south ditch, from disturbed inhumation **1109** same stratigraphic level as 636, 843, 855, 1035.

1035 Flint deposit in north-east ditch SD 814. Bone not from any excavated inhumation burial. Same stratigraphic level as 636, 843, 855, 1030.

1062 Loam with flint rubble, fill of grave cut 1133. Associated with inhumations **1109/ 1109a/ 1110** but could not be definitely attributed to one or other burial.

1085 Loamy clay fill of grave 1084, associated with disturbed inhumation **1018 /1119** .

1124 Silt loam fill of grave 1133, associated with inhumation **1110** but some bone from **1109 / 1109a** and some of unclear origin.

1184 Fill of grave 1023, associated with inhumation **1185** .

?? is from **1136** or with redeposited bone in flint nodule layer 843?

Cremation deposits

Contexts containing cremated human bone are also listed in context order, again those from within the barrow enclosure first.

Area A (Barrow) cremation burials

Within barrow enclosure
Pit 602 diameter 0.53m, 0.12m.

Circular with steep sides and concave base. Context **603** : unurned cremation burial, disturbed.

Pit 606 diameter 0.50m, 0.37m.
Circular with steep/undercut sides and concave base. Context **607** : unurned cremation burial. Evidence of pyre debris.

Pit 608 0.60m, 0.46m, 0.28m.
Oval with vertical sides and concave base. Context **609** : unurned cremation burial.

Pit 624 diameter 0.50m, 0.22m.
Circular with sloping sides and concave base. Context **625/627** : unurned cremation burial.

Pit 660 diameter 0.55m, 0.10m. (Plate 7; Fig 36)
Circular with sloping sides and flat base. Context **661** : cremation burial in Vessel No. 2011; globular urn (Fig 23, 2).

Pit 663 0.35m, 0.28m, 0.22m. (Plate 7; Fig 36)
Oval with steep sides and flat base. Context **664** : urned cremation burial in Vessel No. 2012; bucket urn (Fig 23, 3); truncated.

Pit 669 0.49m, 0.34m, 0.10m. (Fig 36)
Oval with sloping sides and flat base. Context **670/696** : unurned cremation burial.

Pit 829 diameter 0.30m, 0.15m.
Circular with vertical sides and irregular base. Context **830**: unurned cremation burial.

Pit 856 diameter 0.49m, 0.15m.
Circular with steep sides and concave base. Located between barrow ditch terminals. Context **857** : unurned cremation burial.

Pit 865 diameter 0.50m, 0.52m.
Circular with vertical sides and flat base. Central within barrow, presumed to be primary burial. Context **866** : cremation burial in inverted Vessel 2019; Secondary Series Collared Urn (Fig 23, 1). Pyre debris recorded.

Pit 891 0.55m, 0.45m, 0.08m. (Fig 36)
Oval with sloping sides and flat base. Context **892** : unurned cremation burial.

Within barrow ditch

Pit 881 0.70m, 0.45m, 0.09m.
Oval with irregular sides and base. In ditch SD 810, below agricultural soil (848), cut into or part of flint rubble (849). Context **851** : unurned cremation burial in shallow pit, very disturbed.

Pit 1183 0.90m, 0.50m, 0.10m.
Oval with poorly defined edges and irregular base. Within ditch SD 812, below agricultural soil (836) and cut into flint and ash deposit (843). Context **1182** : unurned cremation burial.

No cut visible. Context **626** : Disturbed cremation burial in upright bucket urn, Vessel No. 2005 (Fig 23, 4) within layer 615 in the barrow ditch SD 613.

Context 623
Bone ?spill outside urned cremation burial, context 626.

Context 642 see pyre debris/spill
No cut visible. Layer **643** : lens of ash and unurned cremated bone (diameter 0.25m, within layer 615). Within ditch SD 613.

No cut visible. Layer **1019**: ashy lens with unurned cremated bone (0.45m, 0.40m, 0.02m). Within ditch SD 875.

Cremation-related contexts (barrow ditch)

Pyre debris dump/spill

Layer 615
Deposit of ash and flint nodules 3.5m, 1.10m, 0.20m.
Within ditch SD 613, below agricultural soil 674 and above deposit 1157 and secondary silt (691). ***(See also*** contexts 616, 628–33, 642, 643, 645–650. ?Associated with cremation burial, context **626/623**).
Radiocarbon samples UB-3866 ; UB-3867.

Layer 616
Flint/ashy deposit, same as 615 but further into ditch, barrow ditch SD 613. PROBABLY = 615, SLIGHT OVER SPILL.

Context 628
A sub-division of layer 615 second layer level with 629–633. *See* also 642–650.

Contexts 629–633
As context 628, sub-divisions of layer 615.

No cut visible; **layer 642**
Lens of ash and cremated bone (diameter 0.25m) within layer 615. Within ditch SD 613. *See also* contexts 228–633 and 643–650. Contained unurned cremation burial.

Contexts 645–50
Lower levels of context 615. See also 628–633 and 642–650.

Context 843
Deposit of ash and flint nodules 3.25m long, 1.00m wide and 0.15m deep. Spread of burnt and unburnt human and animal bone in flint nodule layer within ditch SD813, below agricultural soil 836, and above flint deposit 1130, cut by cremation pit 1183. Same stratigraphic level as 615.

Context 853
In south ditch, fill of pit 852. Contained fragments of cremated bone.

Context 1002
Upper levels of very disturbed urned cremation burial, see also contexts 1162 and 1169. Some pyre debris.

Context 1005/1036
Deposit of ash and flint nodules 2.00m long, 0.75m wide, and 0.15m deep. Within ditch SD 814/875, below agricultural soil 876 and above flint deposit 1060 and ash layer 1019. Associated with context 615? Contained cremated bone.

Context 1124
Redeposited, in fill of grave 1133 (inhumation **1110**), probably from 1157.

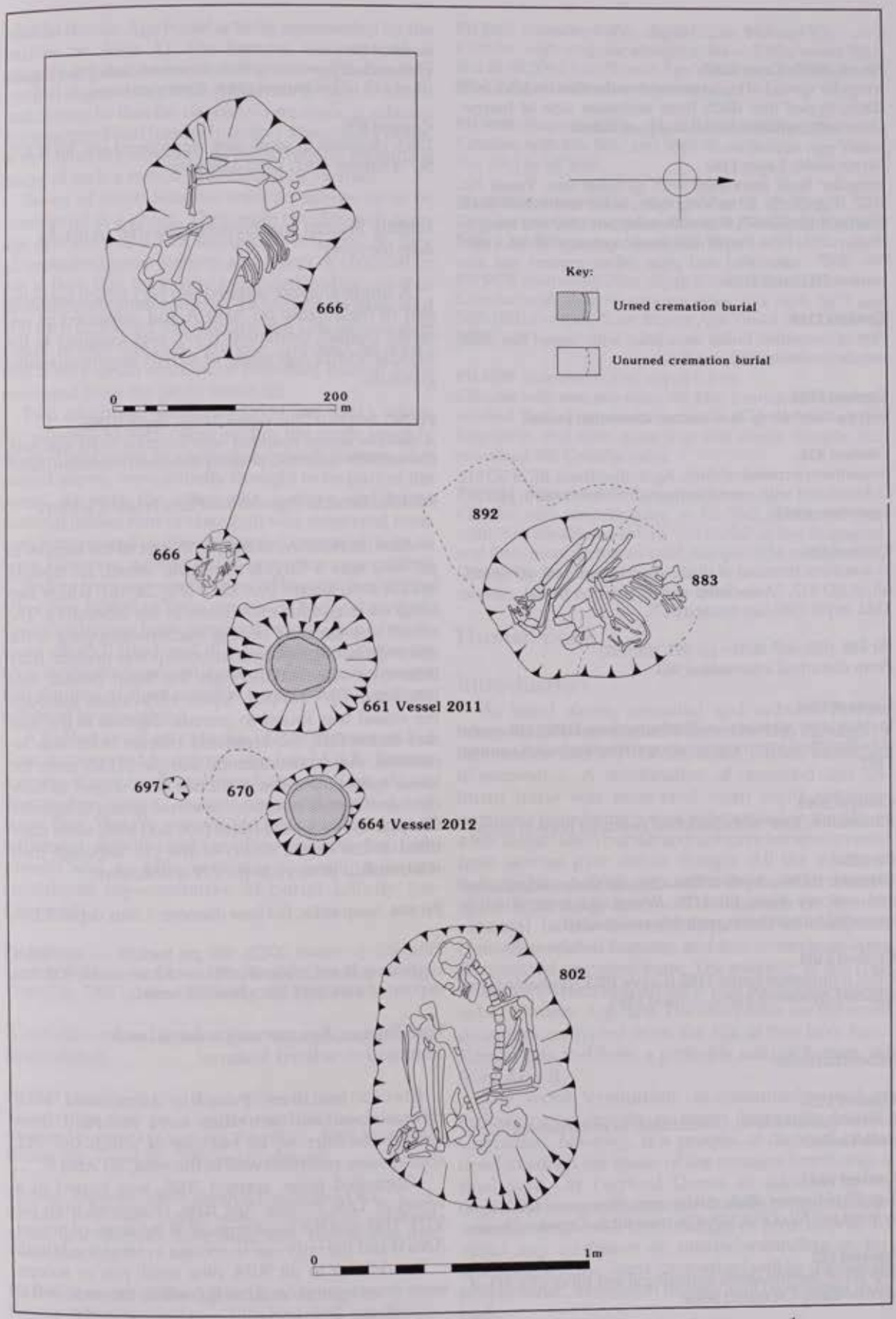


Fig. 36. Inhumation/cremation burial group: plan of individuals from within barrow enclosure.

No cut visible. Layer **1157**
Irregular spread of burnt material under flint nodules in SE ditch, tipped into ditch from enclosure side of barrow. Unurned cremation burial and pyre debris.

No cut visible. Layer **1162**
Irregular layer associated with globular urn, Vessel No. 2027 (Fig 23, 5). 2.1m long, 0.8m wide and 0.10m thick. Within ditch SD 875, below flint deposit 1002 and lying on chalk rubble 1054. Part of disturbed cremation burial. Vessel No. 2027 associated and pyre debris present, see also context 1002 and 1169

Context 1169
Part of cremation burial associated with Vessel No. 2027, see also contexts 1002 and 1162

Context 1175
Fill of stake-hole 1174. Unurned cremation burial.

Context 832.
In southern terminal of ditch. Agricultural soil, fill of SD 812 . ?Associated with cremation burial, context **1182** in pit 1183 (see context 843).

Context 836
In southern terminal of ditch. Agricultural soil, fill of 813, fill of SD 812. ?Associated with cremation burial, context **1182** in pit 1183 (see context 843).

Pit 858 (fills 867, 883) = pit **891** (fill 892)
From disturbed inhumation **883.**

Context 1062
In ditch layer associated with inhumations **1109/1110** probably disturbed from neighbouring cremation burial, context **1157.**

Context 1069
Inhumation **1068** with disturbed cremated bone in ditch.

Pit 1154
Diameter 0.16m, depth 0.10m. Circular with vertical sides and concave base, fill 1155. Within ditch SD 813. 2g cremated human bone, probably redeposited.

Context 1184
Fill of inhumation burial **1185** (Grave **1023**) probably from adjacent cremation burial, context **1183.**

Miscellaneous

Context 123
Barrow clearance level. Unstratified, 'over the barrow'. Cremated bone.

Context 614
Top fill of barrow ditch, cut by cremation grave 602. Agricultural soil fill of 613, SD of barrow ditch. Cremated bone.

Context 622
Top fill of barrow ditch, agricultural soil fill of 619, SD of barrow ditch. Cremated bone.

Context 636
Flint nodule layer in north-east barrow ditch. Flint deposit fill of 619, SD of barrow ditch. Cremated bone.

Context 876
Ditch clearance in south-east. Agricultural soil, fill of 875, SD of barrow ditch. Cremated bone.

Middle Bronze Age cremation burial (Area A, non-barrow)

A single, shallow isolated pit (742), which lay to the east of the barrow on Area A and contained an unurned human cremation (759), was assigned to the Middle Bronze Age phase of activity largely on spatial grounds.

Pit 742 length 0.72m, width 0.75m, depth 0.09m.
A shallow scoop, rounded with irregular sides and base, Context **759** : unurned, possibly disturbed cremation burial.

Middle Bronze Age ?cremation-related feature

Also on Area A, to the north-east of the barrow in pit 954, was a largely complete vessel, an upright bucket urn, Vessel No. 2022 (Fig 24, 16), which was lifted en masse for excavation in the laboratory. The vessel was exposed during machine stripping of the site so its stratigraphic relationship was unclear. It lay below, or was cut through, the main Bronze Age lynchet (765)/743/(81). Upon excavation, although the vessel was found to contain charcoal at the base and burnt flint, no cremated human bone was recovered. An environmental sample (3132) from the lower spits of the vessel fill has been shown to have contained small numbers of cereal grains (Clapham, Chapter 6). Two post-holes (956 and 958), were identified c. 2m to the south of the pit, although their relationship (if any), to pit 954 is unknown.

Pit 954 Steep sides, flat base diameter 0.38m, depth 0.31m.

Fills; 955 (= vessel 2022), 960 pit backfill — silty loam containing burnt material, 961 — fill of vessel, 975 thin deposit of dark grey loam beneath vessel.

Late Bronze Age cremation burial and '?cremation-related features'

Eleven features, possibly associated with cremation-related activities were recorded from outside the barrow, all but one of which (pit 742, above) were recorded well to the west, on Area B.

Cremated bone, context 5026, was buried in a vessel of Late Bronze Age date, recovered from pit 5024. This was the westernmost of the series of pits on Area B and the only one to contain a cremation burial.

In addition to pit 5024, nine small pits or scoops were investigated on Area B (well to the west of the

Middle Bronze Age burial activity represented by the barrow on Area A). The features were spaced at roughly regular intervals, along two approximately parallel alignments running from north-west to south-east. It may be that the deposits were made in relation to a topographical feature (possibly a boundary marker or a lynchet), although, as there were no remaining traces of such a feature, this cannot be verified.

Seven of these features were so similar as to be considered as a group. They were circular with average diameters of 0.30m and depths of 0.15m. As they all contained some pottery and traces of charcoal or ash in their fills, they were excavated and sampled as probable cremation features. All were badly truncated and each contained the remains of a Late Bronze Age vessel. In only one case, however, (pit 5063, fill 5064), was a very small amount of cremated human bone recovered from the pit or vessel fill.

Two additional small pits (5539 and 5541), which lay adjacent to each other within the same roughly linear distribution of cremation-related features discussed above, were initially thought to be part of the series. As with the other pits, pottery and burnt material (either flint or charcoal) was recovered from both features and neither contained cremated human bone. However, neither did they contain a proportion of pottery from any single vessel comparable with the other pits. Both had been extremely badly damaged, their tops having been removed by ploughing (maximum depth 0.10m) and it is possible that they may have originally been similar to the other features and that the rest of their ceramic content had also been removed by ploughing.

A further small pit (146, fill 147) at the east end of Area A contained fragments of a late Middle Bronze Age urn. It also contained significant amounts of Late Bronze Age pottery, animal bone and worked and burnt flint. The pit was situated close to the area of settlement activity and, as there was no fuel ash present and so little of a single vessel, it is not considered representative of burial activity (*see* Chapter 3).

Pit 5026
Context **5024** : urned cremation burial. Late Bronze Age Vessel No. 7004 (context 5025) (Fig. 25: 23; Plate 8).

?Cremation-related features (no cremated human bone unless stated)

Pit 5017 diameter 0.15m, depth 0.03m. 91.94m OD.
Scoop rather than pit. Circular with flat base, severely truncated by recent ploughing. Two fills — 5015, 5016. Late Bronze Age Vessel No. 7003 and fill thereof.

Pit 5044 diameter 0.50m, depth 0.29m 93.66m OD.
Circular, with steep regular sides, contained an upturned vessel, four fills 5045, 5474, 5466, 5459. Late Bronze Age Vessel No. 7030

Pit 5060 diameter 0.30m, depth 0.10m. 94.55m OD.
Circular with concave sides — 2 fills. 5061, 5062. Late Bronze Age Vessel No. 7009 in fill 5062.

Pit 5063 diameter 0.40m, depth 0.26m. 94.81m OD.
Circular, with irregular straight sides — 2 fills, vessel 7012, and its fill 5064. Late Bronze Age Vessel No. 7012 filled with 5064. 1.7g of human bone recovered.

Pit 5068 diameter 0.30m, depth 0.17m. 88.37m OD.
Circular, with fills 5067 and 5069. ?Late Bronze Age Vessel No. 7011 in fill 5069.

Pit 5078 diameter 0.43m, depth 0.10m. 93.11m OD.
Circular with concave sides, fills 5079 (= vessel), 5080 and 5096. Late Bronze Age Vessel No. 7021.

Pit 5475 diameter 0.22m, depth 0.10m. 90.81m OD.
Circular with shallow concave sides, fills 5476, 5477 and 5478 (fill of vessel). ?Late Bronze Age Vessel No. 7032 in fill 5477.

Pit 5539 diameter 0.30m, depth 0.10m.
Circular with concave sides, fill 5540 (contained burnt and worked flint). Not considered to be a 'pot burial' as few fragments, and from more than one vessel. Sample 3133 contained 302 Cerealia indet.

Pit 5541 diameter 0.28m, depth 0.10m.
Circular with concave sides, — fill 5542 (contained charcoal). Not considered to be a 'pot burial' as few fragments, and from more than one vessel. Sample 3134 contained 127 Cerealia indet.

Human Bone

Introduction

As listed above, cremated and unburnt human bone was recovered from 78 contexts. This includes 19 inhumation and 17/?18 cremation burials identified in excavation. A combination of cremated and unburnt bone was recovered from eight contexts; cremated bone being found redeposited in the fills of a few inhumation burials and unburnt bone recovered from several pyre debris dumps. All the inhumed bone and most of the cremated bone was from the area of the Bronze Age barrow. Two contexts on Area A, external to the barrow, appeared to comprise cremation-related features, and five contexts on Area B contained cremated bone. The majority of the contexts from which human bone was recovered appear to be of Bronze Age date. The exceptions are the small quantities recovered from the fills of two Iron Age/Roman pits and from a probable natural feature, all from Area B.

The word 'cremation' is commonly used in archaeological reports to mean 'cremation burial'. Cremation, however, is a process of disposal of the dead in which the burial of the remains forms only a final part. On Twyford Down, in addition to redeposited bone and cremation burials, cremated bone was also recovered from dumps of pyre debris. To avoid any confusion or misunderstanding in the following text the word 'cremation' will be used in its proper sense, 'cremation burials' will be referred to as such.

Key to Tables 18 and 19.

Disturbance (dist.)

redep.	redeposited burnt bone
+	mild disturbance to inhumation burial
>+	substantial disturbance to inhumation burial
>++	gross disturbance to inhumation burial
*	undisturbed cremation burial
$	cremated bone, may be crushed but unmoved
?	level of disturbance uncertain
	disturbed cremation burial
total wt	total weight cremated bone (g)
% rec	percentage skeleton recovered in inhumation burial
no. ind.	number of individuals identified

Pathology

exo	exostoses
ddd	degenerative disc disease
o.p.	osteophytes
d.l.	destructive lesions
p.d.	periodontal disease
m.v.	morphological variation
Schmorl's	Schmorl's nodes
a.m.t.l.	*ante mortem* tooth loss
o.a.	osteoarthritis
p.n.b.	periosteal new bone
c.a.	congenital absence
d.c.o.	distal centre ossification
animal	
u/b	unburnt
imm.	immature

Type

c	crouched
r	right side
l	left side
s	supine
e	extended
f	flexed
?	orientation unknown
u	urned cremation burial
un	unurned cremation burial
pdd	pyre debris dump
sp	spill
C	cervical
T	thoracic
L	lumbar
S	sacral
p.	proximal
d.	distal
r	right
l	left

pyre/grave good

b/g stn.	blue/green staining
w.	worked
obj.	object
sub.	adhering substance
Cu-	copper alloy
a/b	antler/bone

Methods

Cremated bone

All cremation-related contexts were subject to 100% soil recovery as environmental or artefact samples and wet sieved to 2mm fraction size. The cremated bone, together with any other archaeological inclusions, were separated from the residues in post-excavation.

Analysis followed the writer's standard procedure for the examination of cremated bone (McKinley 1989; 1994a). The cremated bone extracted from each context was passed through a sieve stack of 10, 5, and 2mm mesh size. The relative weights of bone from each sieve and the maximum skull and long bone fragments, illustrates the degree of bone fragmentation in each context.

Identifiable bone was separated for further examination, being divided into skull, axial skeleton, upper and lower limb categories. This may demonstrate any deliberate bias in the skeletal elements collected for burial. 'Identifiable' bone is defined as fragments which may be identified to a particular bone or group, eg tibia, proximal foot phalanx, cervical vertebra. Where a fragment could only be identified as, for example, upper limb or long bone articular surface, this was not considered detailed enough to include with the 'identifiable' bone. Some areas of the skeleton are, by their nature, easier to identify than others even as small fragments, for instance the skull, a factor which must be considered in analysis of the significance of skeletal elements included in a context.

Animal bone fragments (mostly cremated) were extracted and forwarded to the archaeozoologist. Pyre and grave goods, additional to those extracted by the finds staff were also recovered.

Table 18. Summary of inhumation burials.

Context	dist.	type	% rec.	no. ind.	age	sex	pathology	animal
636/653 / 851	redep.	?	*c.* 1%	?	older subadult			
651		c r	*c.* 100%	1	young adult	male	dental hypoplasia; p.d.; cribra orbitalia; Schmorl's - T, L, S1; d.l. - p.radius, r.1st metatarsal; exo. - humerus shaft; spondylolisis; m.v. - crowded teeth, multi-cusped M3, wormians, atlas double facet, vastus notch, calcaneal facet in talus, 'squatting' facets.	imm. vert., patella, rib
654	+	c l	*c.* 80%	1	foetus/neonate (<3 months)		p.n.b. - vault	
666		c	*c.* 60%	1	foetus/neonate			
686		c r	*c.* 90%	1	older adult	female	a.m.t.l.; caries; dental abscess; calculus; p.d.; o.a. - temporo-mandibular, costo-vertebral, hip joints; exo. - bi-lateral p.humeri, d.humerus, r.ilium, patellae, l.fibula, calcanea; new bone - l.p.radius; o.p. - p.ulnae, T, L, S1, l.navicular; ddd - S1; fracture - l.d.fibula; *coxa vara*; m.v. - metopic suture, wormians, depression d.humerus, atlas double facet, 5th middle/distal foot phalanges fused, c.a max. r.C?	present.
689		c l - wrists crossed behind	*c.* 90%	1	old adult	male	a.m.t.l.; p.d.; calculus; caries; dental abscesses; bi-lateral secondary sinusitis; p.n.b. - mandible, maxilla; o.a. - temporo-mandibular, atlas-axis, T, L, S, costo-vertebral, hips, shoulders, l.4th foot phalanges; o.p. - T, L, l.foot phalanx; ddd - L5-S1 body surfaces; exo. - iliac crest, ischial tuberosity, d.humerus, finger phalanges, tibiae & fibulae distal shafts, patellae, calcanea; cyst - d.humerus, d.tibia; calcified tissue; m.v. - atlas double facet, exo. in trochanteric fossae, 'squatting' facets, vastus notch.	
802		c r	*c.* 80%	1	old adult	?female	a.m.t.l.; calculus; p.d.; caries; dental abscesses; exo - occipital vault, iliac crest, ischial tuberosity, d.fibulae, calcanea, foot phalanx; o.a. - l.p.radius, l.p. ulna, bi-lateral temporo-mandibular, axis-atlas, C, T, L, S1; ddd - C, L, S1; o.p. - C, T, thoracic rib facets, acetabulum, r.scapula, r.d.radius, d.femora, l.p.tibia; fracture - r.ulna	
843	redep.	?	*c.* 3%	?	young/mature adult	??female	p.n.b. - tibia shaft	present
855/1035	redep.	?	*c.* 1%	?	adult	??male		
871		c r	*c.* 65%	1	young juvenile		cribra orbitalia; m.v. - non-fusion atlas posterior arch	

Table 18. (continued).

Context	dist.	type	% rec.	no. ind.	age	sex	pathology	animal
883	>+	c r	*c.* 30%	1	older adult	female	ddd - L, S1; o.a. - L, S, costo-vertebral, hip; new bone - d.humerus; o.p. - d.humerus, p.ulna, navicular; exo - ilium, patella; m.v. - 5th middle/distal foot phalanges fused	
1018/ 1119	>+	c r	*c.* 90%	1	older juvenile		calculus; caries; dental hypoplasia; cribra orbitalia; m.v. - crowding of teeth, retention r.maxillary deciduous C and retarded eruption permanent C, ?c.a. r.mandibular P1, twisted/impacted mandibular l.P2, 3rd d.c.o. 1st metacarpals/tarsals	present
1049		c r	*c.* 50%	1	foetus/neonate			
1063		c l	*c.* 98%	1	young subadult		dental hypoplasia; cribra orbitalia; m.v. - 3rd d.c.o. 1st metacarpals/tarsals, metopic suture, c.a. mandibular r.M3 & maxillary r.M3, retention maxillary l.deciduous C with retarded and displaced eruption of permanent C, atlas double facet.	intrusive rodent
1068		c r	*c.* 98%	1	older mature adult	female	calculus; caries; a.m.t.l.; dental abscesses; d.l. - p.radius, 1st p.foot phalanges; d.l. & new bone - l.4th proximal-middle phalangeal joint; pitting - p.humerus; calcified soft tissue; o.p. - atlas, T, L, acetabulae, knee joints; Schmorl's - T, L; o.a. - L, costo-vertebral; exo - p.femur, patella, calcanea; m.v. - atlas central groove, non-fusion atlas posterior arch, atlas extra facet, 13 thoracic vertebrae and ribs.	
1109	>+	?s ?e	*c.* 80%	1	young adult	female	calculus; bone resorption/destruction - humerus shafts; cyst - p.ulna; m.v. - metopic suture, 'squatting' facets, ?13th thoracic vertebra.	
1109a (1062)	redep.	?	*c.* 5%	?	subadult			
1110		c r	*c.* 95%	1	older mature adult	female	a.m.t.l.; p.d.; calculus; caries; dental abscesses; cribra orbitalia; o.a. - temporo-mandibular, p.humeri, C, T, costo-vertebral, hips, naviculars; d.l. - ?floor of l.orbit, d.femur; pitting - p.radius, radial tuberosity, manubrium, sternum; exo - radial tuberosity, d.tibia, d.fibulae; o.p. - C, T, L; ddd - C, L; Schmorl's - T, L; p.n.b. - d.tibiae, d.fibulae; cysts - navicular, 1st metatarsal & 1st proximal phalanx; loss of cortical bone - proximal foot phalanx; m.v. - atlas double facet, non-fusion axis posterior arch.	
1120		c r	*c.* 95%	1	young juvenile		dental hypoplasia; sinusitis & associated infection of sockets/teeth; cribra orbitalia; m.v. - 3rd d.c.o. 1st metatarsals, non-fusion atlas anterior arch.	

Table 18. (continued).

Context	dist.	type	% rec.	no. ind.	age	sex	pathology	animal
1136		f r	c. 95%	1	older mature adult	male	caries; dental abscesses; p.d.; dental hypoplasia; calculus; calcified tissue; o.p. - rib facets, L, S; pitting - manubrium & sternum, scapula, clavicle, p.humeri; ddd - C; Schmorl's - T, L; exo - os pubis, clavicle, patella, calcanea; o.a. - finger phalanx; m.v. - crowding anterior mandibular teeth, c.a. mandibular M3, 'squatting' facets, r.5th middle-distal phalanges fused.	
1137		c l	c. 85%	1	infant		m.v. - 13 thoracic vertebrae	
1185		c r	c. 98%	1	older juvenile/ young subadult		calculus; dental hypoplasia; caries; dental abscesses; p.n.b. - mandible ; m.v. - retention l.mandibular & both maxillary deciduous canines with retarded eruption & impaction of permanent canines, c.a. all M3, gap in mandibular alveolus, 3rd d.c.o. in 1st metacarpals/tarsals.	sheep & shrew
1187		f l, head r	c. 95%	1	older mature adult	female	calculus; p.d.; caries; dental abscesses; o.a. - bi-lateral temporo-mandibular, costo-vertebral; Schmorl's - T, L; o.p. - L, S; ddd - L; fractures - 2 r.ribs; pitting - acetabulae, r.acromio-clavicular joint, l.calcaneum; d.l. - p.radius; m.v. - metopic sutures, c.a. mandibular M3, misaligned mandibular r.P1, retention maxillary l.deciduous canine, atlas double facet, 13 thoracic vertebrae, os acromiale (l.).	

Table 19. Summary of cremation burials and cremation-related contexts.

Context	dist.	type	total wt (g)	no. ind.	age	sex	pathology	animal	pyre goods
603		un	669.3	2/?3	1) young/mature adult 2) young infant ?3) juvenile	1) ?female			?amber
607	*	un	1235.0	1/?2	1) older adult ?2) adult	??female	caries; o.a. - temporo-mandibular, T, p.radius, d.ulna; d.l. - p.femur; ddd - T/L; o.p. - T/L, S.		w.a.obj, w.stone obj.
609	*	un	1795.5	1	older mature adult	??male	Schmorl's - T; m.v. - ?retention maxillary deciduous molar.		w.a.obj; amber-sub.
615		pdd	755.7		older adult	??female	exo. - femur shaft; o.a. - T	present	
623	?=615/ ?626	pdd?/ ?sp	357.1		mature adult	??female			b/g stn.

Table 19. Summary of cremation burials and cremation-related contexts (continued).

Context		dist.	type	total wt (g)	no. ind.	age	sex	pathology	animal	pyre goods
661			u	1293.1	1	older mature adult	??female	m.v. - c.a. mandibular r.M3		orange sub.
664			u	3433.3	2	1) younger mature adult	min. 1	exposed pulp cavities; o.p. - atlas; m.v. - fusion		amber sub.;
						2) younger mature adult	female	5th middle-distal foot phalanges		b/g stn.
670/696			un	65.8	1	young infant (*c.* 2 yr.)			u/b	
830			un	1998.8	1	older mature adult	male	d.l. - dental; m.v. - wormian.	present	b/g stn.
843	as 615		pdd	820.9		1) adult				sherds
						2) juvenile				
						3) foetus/neonate				
851			un	1213.5	1/??2	older mature adult	?		present	
857		?*	un	849.3	1	older adult	?	caries; ddd - T/L; o.p. - p. femur.	antler burr	orange sub.
866		$	u	1869.6	1/??2	older mature adult	?	hypercementosis; cribra orbitalia; o.a. - l.temporo-mandibular; ddd - C.		sherds
892			un	1.6	1	neonate/young infant				
955			ritual	0		-			u/b	
1002	?=615/		?pdd/	86.6		1) infant/juvenile			u/b	
	?=1169		?u sp			2) young/younger mature adult			scorched	
1005	=1019		?pdd/?s p	17.6		infant			u/b	
1019			?un	14.5	?1	infant				
1157	as 615?		pdd	1337.0		1) young/mature adult			?bird	
						2) foetus/neonate			u/b	
1162	?=1169/		?pdd/	192.8		1) young juvenile				w. a/b obj.
	= 615?		?u sp			2) adult				
						?3) young infant (1 bone only)				
1169			u	166.9	1	juvenile				
1182		?*	?un	443.5	?1	juvenile (*c.* 7-8 yr.)				
Non Barrow										
759			un	149.2	1	older subadult/young adult	?			
5026			u	1078.8	1	older mature adult	?		present	

Table 19. (continued).

Context	dist.	type	total wt (g)	no. ind.	age	sex	pathology	animal	pyre goods
625/627		un	1447.3	1	older mature adult	??female	caries; pitting - auricular surface; m.v. - metopic suture.		
626		u	1764.4	1/??2	older mature/older adult	?female	ddd - C; o.a. - costo-vertebral; o.p. - atlas	u/b	sherds; amber sub.; b/g stn.
628	= 615	pdd	300.0		1) adult 2) infant	1) ?female			
629	= 615	pdd	448.1		1) older infant/young juvenile 2) older mature/older adult	2) ??female	ddd - C		
630	= 615	pdd	41.8		adult				
631	= 615	pdd	69.5		adult	??female			
632	=615	pdd	208.7		older juvenile/young subadult				
633	= 615	pdd	192.2		older juvenile/young subadult				
642	?=615	?pdd /?un	210.4	?	adult	?			
643		un	504.0	1	older juvenile/young subadult				orange stn.
645	= 615	pdd	29.1		subadult/adult				
646	= 615	pdd	279.9		adult	?	caries	charred inc. fish	
647	= 615	pdd	168.6		older mature/older adult	?	ddd - T/L	u/b	
648	= 615	pdd	42.4		adult	?			
649	= 615	pdd	932.9		1) older juvenile 2) older mature/older adult	?	caries; ddd - C; m.v. - wormian	present	
650	= 615	pdd	501.1		1) older juvenile/young subadult 2) older mature/older adult	?		u/b	?glass; Cu-

Number of Individuals in Cremation-related Contexts

The number of individuals represented in a context was ascertained either from obvious age-related differences in size and development of the bone, as between immature and adult individuals, or by duplication of identifiable bone fragments — skull fragments are particularly useful here as many areas of the skull are easily recognisable even as very small fragments and occur either singly or in pairs.

Care must be exercised to ensure that duplicate bones are not intrusive, either as a result of post-depositional site disturbance or in consequence of the accidental inclusion at time of burial of unrecovered debris from previous cremations.

Age

Age of immature individuals was assessed from the stage of tooth development (van Beek 1983) and ossification/epiphyseal bone fusion (Gray 1977; McMinn and Hutchings 1985) and the length of long bones (Bass 1987). The age of adults was assessed from the stage of epiphyseal (McMinn and Hutchings 1985; Webb and Suchey 1985) and cranial suture fusion, pattern of degenerative changes in the pubic symphyses (Brooks 1955); tooth wear patterns (Brothwell1972), and other age-related degenerative changes to the bone (Bass 1987). Age categories used are:

feotus/neonate	<6 months
infant	6 months–4 years
juvenile	5–12 years
subadult	13–18 years
young adult	19–25 years
mature adult	26–45 years
older adult	45 years+

Where insufficient evidence was present to aid age assessment, there may be overlaps between categories.

Sex

Sex was ascertained from the sexually dimorphic traits of the skeleton (Bass 1987), including, for cremated bone, the maximum cranial vault thicknesses '1a' and '1b' according to Gejvall (1981).

As with age assessment, a combination and scoring of traits were used in order to overcome any methodological bias (*see* McKinley 1993b; 1994a for further discussion) or variations in sexual dimorphology within the group. Levels of reliability reflect the quantity and quality of available traits on which to base the assessment; '??' denotes possible, '?' denotes probable.

Indices and stature estimation

In the inhumation burials, cranial, platymeric, and platycnemic indices were calculated according to Brothwell (1972) and Bass (1987). Stature was estimated using Trotter and Gleser's regression equations (1952; 1958).

Pathological lesions and morphological variations were recorded and diagnoses suggested where appropriate. Anatomical terminology according to Gray (1977) and McMinn and Hutchings (1985).

Archive

Full details of all identified bone are presented in the archive report, including,

for cremated bone:
— the number of identified bone fragments with descriptions of morphology and pathological lesions;
— bone measurements;
— variations in the colour of individual bone fragments from the buff/white of full oxidation;
— any coloured staining to bone fragments or adhering substances;
— a brief note on animal bone fragments recovered and pyre/grave goods removed during the osteological examination.

for inhumed bone:
— Skeleton Record Sheets and Data Sheets show skeletal elements recovered, tooth wear patterns, and measurements taken;
— text descriptions of morphology and pathological lesions

Summary of results

A summary of the results is presented in Tables 18 and 19. Contexts comprising only scatters of bone, small quantities of redeposited bone, or containing no identifiable cremated bone fragments, may not be included in these tables.

Weights of cremated bone from all contexts are presented in Table 19. Where applicable, these tables also show the intra-context distribution of bone. All weights are given in grams (g) to one decimal place. All measurements are given in millimetres (mm). With reference to cremation-related contexts, unless stated otherwise, all bone, human and animal, is cremated/burnt.

Condition of bone and disturbance

The site is situated on chalk and the cremated bone and most of the unburnt bone was preserved in good condition. However, bone from two adjacent inhumation burials inside the barrow (802 and 883) was worn and in a poor state of preservation, as was bone from contexts 843 and 858, the latter redeposited from burial 883. Both the inhumation burials had been disturbed, particularly 883, the grave cuts were very shallow (802, *c.* 0.30m; 883 0.11m) and presumably truncated (possibly up to 0.40m of the original old ground surface has been lost, *see* Chapter 2). The three other inhumation burials within the barrow also had fairly shallow graves (871; 0.15m) but did not show the degree of disturbance noted in 802 and 883.

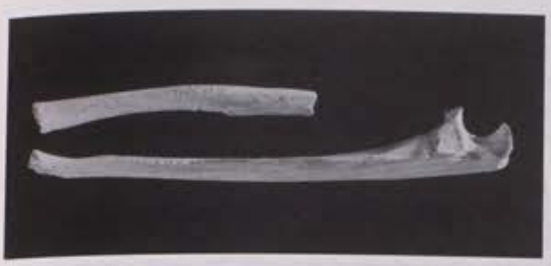


Plate 17. Inhumation burial 1109: left radius and ulna showing areas of rodent gnawing along the interosseous and anterior borders of the shafts.

There was evidence for the possible one-time presence of a minimum of two, possibly four, other inhumation burials within the barrow. Unburnt/inhumed bone was found redeposited in the large flint nodule layer comprising the upper fill of the ditch at various points around the circumference. One of these contexts (843) contained worn bone; bone from the other contexts was in good condition. The disturbance resulting in this redeposition appears to have been contemporaneous with the later cremation activity within the barrow. The presence of only a few bones in each case may indicate that inhumations were only partly disturbed in the first instance. That grave cuts within the barrow may have been completely obliterated, possibly at a date later than the initial disturbance, is indicated by the very shallow depth of the grave cut for 883 (0.11m).

Two of the inhumation burials intercut, causing substantial disturbance, both were in the southern part of the ditch where the burials were most dense. One cremation burial had slightly clipped the corner of a grave within the barrow but did not appear to have disturbed the inhumation burial.

The majority of the cremation burials had been disturbed to some degree, certainly 72%, possibly 83%. Of the 11 within the barrow, 9 had been truncated to some extent, as had those situated away from the barrow. Several of the burials within the ditch fill had been disturbed by animal activity (*see* Table 19).

Other evidence of animal activity was noted in relation to inhumation 1109, where a *c.* 42mm length of the interosseous and anterior borders of the left radius and ulna show rodent gnaw-marks (Plate 17). This inhumation had been disturbed by the later insertion of inhumation 1110 and some bone had been redeposited in the flint nodule layer sealing the later burial. It is possible that this bone was exposed for a time allowing ease of access, or, if included with the flint nodules, the fill of the layer was so vacuous that it may have allowed access to a rodent. The apparently simultaneous gnawing to the adjacent areas of the two bones of the forearm suggests that they were still articulated at the time of disturbance, possibly only by ligaments, but enough to hold them together.

Table 20. Number of individuals identified in each age and sex category.

Inhumation burials

Age category	Total	??F	Total F	??M	Total M
Foetus/neonate	3	–	–	–	–
infant	1	–	–	–	–
Older infant/young juvenile	1	–	–	–	–
Young juvenile	2	–	–	–	–
Older juvenile	1	–	–	–	–
Young subadult	1	–	–	–	–
Subadult	1/?2	–	–	–	–
Young adult	2	–	1	–	1
Young/mature adult	1	1	1	–	–
Older mature adult	4	–	3	–	1
Older/old adult	4	–	3	–	1
Adult	?1	–	–	?1	?1

Cremation burials

	Total	?F	??F	Total F	??M	Total M
Neonate/young infant	1	–	–	–	–	–
Young infant	2	–	–	–	–	–
Infant	?1	–	–	–	–	–
Juvenile	1/?3	–	–	–	–	–
Older juvenile/young subadult	1	–	–	–	–	–
Older subadult/young adult	1	–	–	–	–	–
Younger mature adult	2	–	–	1	–	–
Young/mature adult	1	1	–	1	–	–
Older mature adult	7	–	2	2	1	2
Older mature/older adult	1	1	–	1	–	–
Older adult	2	–	1	1	–	–
Adult	?2	–	–	–	–	–

The disturbance of burials which do not appear to have fully decomposed suggests a relatively short time-scale, both inhumations perhaps even occurring within living memory of each other. It would imply either accidental disturbance resulting from the lack of any grave markers or a disregard for earlier burials, either from a lack of respect (for instance if a different 'group' was using the cemetery), or because, after a certain time, the burial was no longer considered sacrosanct.

Demography

Minimum numbers are given, with additional tentative identifications where the integrity of a context may be compromised and/or the interpretation of the context is under question. Cremated bone from the pyre debris dumps represents material not collected for inclusion in a burial and cannot be taken to be indicative of individuals not already counted from the burials.

A minimum of 40 individuals was identified (Table 20), with a possible 8 others; 19, possibly 24 from the cremation burials; 19 from the inhumation burials, with a minimum of 2 others (possibly 2), identified from redeposited bone.

Age

Five, possibly eight (26%/33%) of the cremated individuals were immature, compared with 10/?11 (48%) of the inhumed individuals; adults comprised 67%/74% and 52% of the respective groups.

The apparent difference between the two groups may not be genuinely demographic or cultural, it may reflect poor recovery from the pyre and/or survival of the cremated remains of neonates and young infants. The bone of such young infants does survive cremation (both in modern crematoria and on pyres) but is obviously very small and fragile. The reasons for an apparent absence of young infants from cremated 'populations' could be numerous and have been discussed in detail elsewhere by the writer (McKinley 1989; 1994a). One possible area of loss may be in multiple cremations, which most frequently comprise a combination of immature and adult individuals. In the one multiple cremation/burial containing young infant bones from Twyford Down, the quantity of bone in the burial represented a maximum of between *c.* 42–67% of the expected total cremated bone weight of the adult alone (McKinley 1993a). Where the mourners did not feel it necessary to include a higher percentage of the adult remains in the burial, it is not impossible that they could have accidentally omitted to include any of the infant bone at all. In any demographic consideration, it is important to remember that we may have a limited view of the 'population'.

Sex

All the adults from the inhumation burials were sexed, 57% of those from the cremation burials. Not all cremated remains were collected for burial (see below) and if there are insufficient fragments of a usable size reflecting sexually dimorphic traits it may not be possible to suggest the gender of an individual. Of the inhumed adults 70% were female and 30% male; of the cremated adults 32% were female, 11% male. The former clearly shows a greater number of females than males within the group; the latter, whilst appearing to present the same pattern, may merely be demonstrating a bias in the ease of identifying females since almost half the adults could not be sexed.

In both groups there is little apparent discrepancy in age distribution between the sexes. The majority of individuals fall within the older mature adult category, though a relatively high percentage of inhumed females (42%) are within the older adult category.

Comparison of the age and sex distributions from several of the larger contemporaneous, mainly cremation, cemeteries (Table 21), show a variation in percentages of immature individuals compared to adults, the reason for which may include those outlined above. The figures also demonstrated the inherent problems with sexing cremation burials, thereby limiting significant comment.

The lack of precise information regarding the phasing and time-scale of use for the cemetery at Twyford Down precludes much demographic comment. We do not know the time lapse between individual burials, nor between the use of the two different rites. The small number of intercutting graves, within what is an area of fairly dense deposition, suggests that there may have been at least some grave markers which were respected. As already described, one of the intercutting graves, 1110 cutting 1109, seems to suggest the earlier inhumation was still at least partly articulated at the time of its disturbance.

The overall impression is for a normal domestic cemetery, comprising at least some inter-related in-

Table 21. Human bone: number of burials and age distribution in contemporaneous cemeteries.

	Itford Hill	Coneygre Farm	Pasture Lodge Farm	Knighton Heath	Earl's Farm Down	Handley Barrow 24	Simons Ground
No. burials	12	44	23	46	17	45	138
Immature	33%	14%	44%	9%	47%	9%	32%
Adult	47%	86%	56%	91%	53%	71%	45%
	(2F, 1M)			(11F, 7M)	(1F, 2M)	(4F, 3M)	(5M)

Cremation cemeteries: Itford Hill (Holden 1972); Coneygre Farm & Pasture Lodge Farm (Allen *et al.* 1987); Knighton Heath (Petersen 1981); Handley Barrow 24 (Rogers 1991)
Mixed cremation/inhumation cemeteries: Earl's Farm Down (Powers and Brothwell 1967; Newell and Cornwall 1967)

dividuals (*see* 'Morphological variations' below). This would correspond with the interpretation given for other contemporaneous cemeteries of a similar size (*see* above) and with the general conclusions drawn by Ellison (1980). Clearly, individuals of all ages and both sexes may have qualified for the same burial rites.

Indices and Stature Estimation

Cranial index: It was possible to calculate the cranial index from eight of the adult inhumation burials. All were dolichocranial (round-headed) with one exception, the female 686 which was mesocranial (midway between round and long headed).

Platymeric and platycnemic index: Both indices were calculated for nine of the adult inhumation burials. In the platymeric indices (degree of anterior–posterior flattening of the femur shaft), all except one fell in the platymeric range, the female 802 being eurymeric. In the platycnemic indices (degree of medio–lateral flattening of the tibia shaft) seven were mesocnemic, one platycnemic (female 686), one eurycnemic (female 1068).

The close ranges within the indices suggests a high level of homogeneity within the group.

Stature estimation: It was possible to estimate the stature for eight of the adult inhumations:

female (6):	average estimated height 151.99cm (*c.* 5ft)
	range: 138.82–162.10 cm (*c.* 4ft 7in–5ft 4in)
male (3)	average estimated height 170.43 cm (5ft 7in)
	range: 167.60–172.90cm (5ft 6in–5ft 8in)

Pathology and morphological variations

A summary of lesions is presented in Tables 18 and 19. Lesions and/or morphological variations were noted in all except three of the inhumation burials (84.2%) and in one of the redeposited contexts. Nine of the cremation burials (47.4%) showed some lesions/variations, as did bone from five of the pyre debris dumps.

Incomplete recovery of skeletal remains places constraints on pathological diagnosis. As cremation burials are by nature both incomplete and fragmentary, discussion of pathology is severely curtailed. Therefore, with reference to the cremated bone, only a resumé of the numbers and type of lesions occurring is presented.

Dental disease

Thirteen individuals from the inhumation burials (68%) and six from the cremation burials (32%) showed some form and degree of dental disease. A total of 357 erupted teeth were recovered from the inhumation burials and 429 possible tooth sockets (erupted teeth only). Table 22 gives the number of mandibles and maxillae, teeth and sockets by gender.

Ante-mortem tooth loss: Ante-mortem tooth loss was evident in five individuals, four females and one male, all in the older mature or older age categories. A total of 19/429 teeth were lost, *c.* 4%.

	mandibular		maxillary	
	left	right	left	right
female	3/48 (6%)	7/48 (15%)	1/46 (2%)	6/48 (12.5%)
male			1/24 (4%)	1/24 (4%)

Females exhibited slightly higher tooth loss than the males at 9% and 2% respectively. The significance of this observation is limited in view of the higher number of older females identified within the group. Almost all the teeth lost were molars and premolars, with the exception of the maxillary left first incisor in 689 and the maxillary right first incisor in 1068. The loss of lone anterior teeth may result from trauma rather than disease, in consequence of a, either accidental or deliberate, blow to the face.

Calculus and periodontal disease: Tooth loss tends to increase with age and may be related to one or more factors, such as excess wear, diet and dental hygiene. Dental calculus harbours the bacteria which predisposes to periodontal disease, a gum infection which may cause bone resorption with consequent loosening of teeth, and exposure of more of the tooth surface to caries attack. Ten individuals from the inhumation burials showed varying levels of calculus deposits ranging from mild to heavy. Heavier deposits were noticed around the distal teeth, and buccally. Some degree of periodontal disease was noted in seven of the inhumation burials, four of which exhibited *ante-mortem* tooth loss and six of which showed carious lesions and dental abscesses.

Caries: Carious lesions were noted in nine dentitions, five female (62%), two male (67%), and two immature. The overall incidence was 9%, 14% for the females, 10% for the males.

	mandibular		maxillary	
	left	right	left	right
female	3/37 (16%)	5/33 (15%)	8/42 (19%)	2/38 (5%)
male	1/19 (5%)	2/22 (9%)	1/16 (6%)	3/16 (19%)
unsexed (immature)	3/33 (9%)	2/33 (6%)		

Most of the lesions appeared to be cervical in origin but some, notably those in the immature dentitions, were occlusal. The majority of the lesions (*c.* 70%) were

Table 22. Human bone: numbers of mandibles and maxillae, erupted teeth and socket positions noted in inhumation burials.

	Mandibles		Maxillae		Mandibular teeth		Maxillary teeth		Mandibular sockets		Maxillary sockets	
	left	right	left	right	left	right	left	right	left	right	left	right
Female	5	6	5	6	37	33	41	38	48	48	46	48
Male	3	3	3	3	19	22	16	16	24	24	24	24
Unsexed (immature)	9	8	7	5	33	33	34	35	35	36	36	36
Total	17	17	15	14	89	88	91	89	107	108	106	108

in the molar teeth, with lesser numbers in the premolars and one in a canine crown. Lesions were also noted in single teeth from three of the cremation burials and from two of the pyre debris dumps. All appeared to be molars.

Abscesses: Many of the carious lesions had caused gross destruction of the tooth and had tracked into the sockets resulting in the development of dental abscesses. All except one of the individuals who had carious lesions also had one or more dental abscesses and no individual with a dental abscess showed an absence of caries, although the lesions were not always directly related. Eight dentitions had abscess lesions, the same five females and two males with carious lesions, and one of the immature individuals. The overall incidence amongst the inhumation burials was 7%, 8% for females, 12% for males.

	mandibular		maxillary	
	left	right	left	right
female	1/48 (2%)	6/48 (12%)	5/46 (11%)	4/48 (8%)
male	4/24 (17%)	1/24 (4%)	4/24 (17%)	3/24 (12%)
unsexed (immature)	1/35 (3%)	2/33 (6%)		

Again, most of the lesions (65%) were in the molar tooth sockets, with 17% in the premolar sockets. The older adult male 689 had lesions in the sockets of three mandibular and six maxillary teeth, including both mandibular first incisors, between which lesions had tracked, and a maxillary canine which may have become infected from the adjacent premolar socket. Excess wear had led to exposure of the pulp cavity in the maxillary right first incisor in 1187 (older mature female), the abscess in the socket apex probably resulted from infection tracking through the exposed cavity.

The severity of lesions varied from slight destruction of the socket profile, to gross lesions tracking between sockets, buccally through the alveolus and occasionally leading to the formation of periosteal new bone on the surface of the maxillary (689) or mandibular bodies (689 and 1185, Plate 18), or through into the antrum (689).

Disruption in a maxillary molar socket in cremation burial 830, with resorption of all except the palatal branch, suggests the presence of a dental abscess, with or without any associated carious lesion. Adjacent sockets were fully intact. The exposed pulp cavity in one incisor/canine/premolar root from cremation burial 664, may have lead to infection or the socket.

Secondary sinusitis: Five of the six maxillary abscesses noted in 689 had tracked through into the maxillary sinuses, a single fistula being evident in the floor of the left antrum, four in the right. Slight, fine new bone coated the walls, roof and distal floor of the left antrum. Thick (*c.* 2mm), extensive new bone covered the wall, floor, and roof of the right antrum, with a paler covering of fine new bone over the greatest affected distal walls (Plate 19).

The lesions noted in the left maxilla of the young juvenile 1120 also appear to represent secondary, as opposed to primary, sinusitis. The left deciduous canine root was resorbing as a result of infection in the socket, opening buccally through the alveolus and superiorly into the antrum as a single lesion. There is a large destructive lesion in the anterior medial por-

Plate 18. Inhumation burial 1185: anterior lateral view of mandible from the left side showing small destructive lesion (arrowed) and periosteal new bone developed in response to spread of infection from dental abcesses.

Plate 19. Inhumation burial 689: medial view of the right antrum showing three of the four fistulas in the floor and the thick, extensive new bone covering the wall, floor and roof, with a paler covering of fine new bone over the distal walls.

tion of the left antrum, with disorganised, woven new bone covering the remainder of the walls and floor. A smaller lesion leads through the palate in the base of this lesion, adjacent to the deciduous first/second molars (Plate 20). The infection appears to have affected the development of the permanent first premolar crown, the enamel on the upper part being destroyed/malformed, with gross ?hypoplasia affecting the rest of the crown. A thin layer of surface new bone coated the walls of the premolar crown crypt (Plate 21). A malformed permanent ?canine crown was also recovered, the crown is stunted and occupies only the palatal portion of the commenced root formation; a layer of enamel appears to have been stripped-off all except the very cervical portion of the crown and lines of ?hypoplasia are evident (Plate 21). Any crypt for this crown had been destroyed unless it is represented by the large destructive lesion described above.

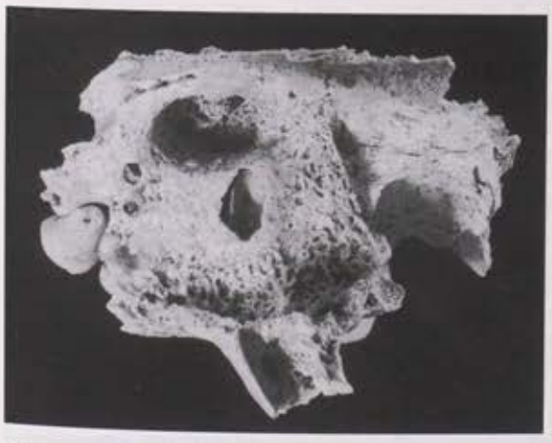


Plate 20. Inhumation burial 1120: superior view of the left maxilla, dental abcesses and prolific new bone in the antrum indicative of sinus infection.

Hypoplasia: Hypoplasia is a developmental defect in the tooth enamel formed in response to growth arrest in the immature individual, the predominant causes of dental hypoplasia are believed to include periods of illness or nutritional stress (Hillson 1979). Lines of hypoplasia were noted in the enamel of two adult males and four of the immature individuals. Canines, premolars and molars were affected, incisors only in 1120. One-three lines were evident, definition varying from slight to medium.

Hypercementosis: This is a harmless condition involving the excessive formation of secondary cementation, medium hypercementosis was noted in a third molar root from cremation burial 866. The condition may be triggered by age, periapical inflammation, mechanical stimulation or trauma.

Deficiency Disease

Cribra orbitalia, manifest as pitting in the roof or one or both orbits, is believed to result from a metabolic disorder connected with childhood iron deficiency anaemia. Six individuals (*c.* 32%) from the inhumation burials had slight–extensive bilateral lesions (maximum in 651, young adult male). Heavy

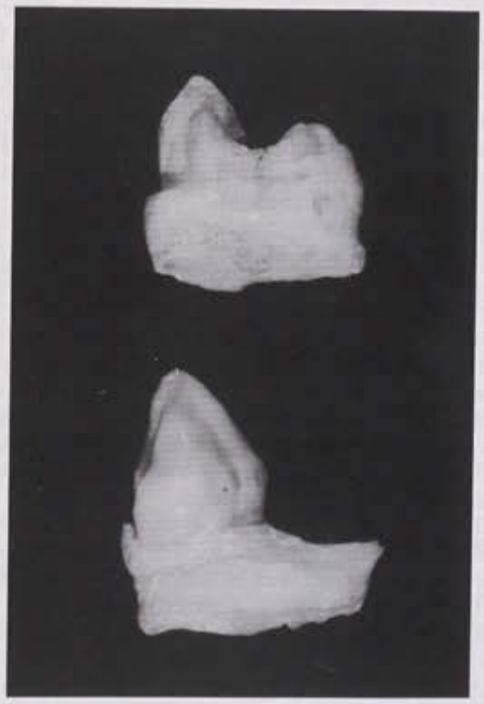


Plate 21. Inhumation burial 1120: (above) the left permanent premolar crown with the enamel on the upper part destroyed/malformed and with gross ?hypoplasia affecting the rest of the crown; (below) left permanent canine crown, similarly malformed.

lesions were noted in the left orbit of cremation burial 866 (corresponding fragment from right side absent).

Trauma

Fractures: Direct trauma was indicated in three inhumation burials, all adult females. Burial 802 had a well-healed, slightly misaligned diagonal fracture in the distal half of the right ulna shaft. The adjacent section of the radius showed no lesions but the distal end of the bone was missing. The form of the fracture suggests an oblique or spiral pattern and may have resulted from either a fall or a blow (Adams 1987). Well-healed fractures in two ?adjacent right rib shafts from burial 1187 also probably resulted from either a direct blow or a fall against a hard object (Adams 1987). A diagonal bony callus, indicative of fracture, in the left meso-distal fibula shaft from burial 686 was probably sustained in the same traumatic event as provoked the formation of disorganised new bone (exostoses) along the line of the interosseous ligament attachment, indicative of trauma to the ligament. The adjacent tibia and bones of the ankle show no lesions suggestive of associated trauma. An isolated fracture of this type is most likely to have resulted from a direct blow (Adams 1987).

Possible trauma to the face resulting in loss of anterior teeth has been discussed above.

Spondylolysis: This is a condition in which there is separation of the inferior articular processes and the spine from the rest of the vertebra, usually occurring in the fifth, or more rarely the fourth, lumbar vertebra. Spondylolysis is believed to result from injury or stress fracture in the immature individual (Adams 1986). The condition was noted in the fifth lumbar vertebra of burial 651 (young adult male).

Many traumatic events do not directly affect the bone, soft tissue trauma often leaves no impression on the skeleton but some does. Muscle/tendon and ligament strains or ruptures may be indicated by the formation of exostoses at the insertions (as in the case of burial 686, above). Periosteal new bone may illustrate where infection from soft tissue trauma has spread to the underlying bone. These lesions may also develop in consequence of a number of other factors and there may not always be sufficient supporting evidence to suggest their aetiology (*see* below).

The evidence for traumatic events is relatively low and in no instance severe. All the lesions noted could have occurred as a result of accidents involving falls or have been the result of direct violence. That the lesions, other than the spondylolysis, were all noted in adult females may be of significance, suggesting either they were involved in higher risk occupations than the males or were the subject of violent behaviour.

Infection

Evidence of infection associated with dental disease has been discussed above, including secondary sinusitis, and periosteal new bone on the buccal surface of the mandible and maxilla formed in response to spread of infection from dental abscesses.

Periosteal new bone: Infection of the periosteal membrane covering bone may lead to the formation of periosteal new bone. Infection may be introduced directly to the bone as a result of trauma, or via the blood stream from foci elsewhere in the body.

Non-specific periosteal new bone was noted in the tibiae and right fibula of inhumation burial 1110 and in both fragments of tibiae shafts from the redeposited bone in 843. In 1110 (older mature adult female), periosteal new bone on the distal posterior shafts of both tibiae and the distal anterio–lateral shaft of the right fibula was associated with mild–heavy exostoses along the interosseous attachments of the bones. This may suggest the aetiology of the infection in this case was connected with a traumatic event.

The slight but extensive lesions noted in the tibiae shafts from 843 do not have any associated lesions in the tibiae or fibulae but since the bone was redeposited and recovery limited any further comment is precluded.

A fine covering of surface new bone was noted over most of the outer surface of the vault of foetus/neonate 654. No further lesions were noted.

Degenerative joint disease

Table 23 shows the distribution of lesions within the vertebrae, no lesions were noted in the immature individuals. A total of 394 vertebrae was counted from the inhumed bone, including 148 female and 75 male.

Osteophytes: Irregular growths of new bone which may develop along joint margins, osteophytes may occur alone or in association with other lesions such as eburnation and pitting in the joint surface. Seen alone, the lesion is largely age-related, in association with other lesions it may be indicative of disease such as osteoarthritis or degenerative disc disease.

From the inhumation burials, eight individuals, six female and two male, had lone lesions in the vertebrae. Overall incidence was 20% in the females and 27% in the males. Distribution of lesions varied between the sexes (Table 23) but the significance of this variation is debatable given the small size of the group. Lesions were also noted on the margins of other, extra-spinal joints in six individuals, including 15 joint surfaces of four females and two joint surfaces in two males (Table 23). Between one (689 and 1136, both males) and seven (802) joint surfaces were affected within one individual, including, in burial 802, two adjoining joint surfaces in the right wrist and the left knee. Extra spinal manifestations were far greater amongst the females than the males.

Lone osteophytes were noted in one or two joints in four cremation burials, all adult, three female and one unsexed. Two females had lesions in the atlas anterior facet, one in a thoracic/lumbar vertebra and the first sacral vertebra body surface, the unsexed

Table 23. Human bone: number of vertebrae present and distribution of lesions.

Vertebra	Female					Male					Unsexed
	no. id.	Sch.	o.p.	ddd	o.a.	no. id.	Sch.	o.p.	ddd	o.a.	no.id.
C1	6	–	2	–	–	3	–	–	–	1	7
C2	6	–	1	1	1	3	–	–	–	1	6
C3	6	–	1	1	2	3	–	–	–	–	5
C4	6	–	1	2	2	3	–	–	1	–	5
C5	6	–	1	2	1	3	–	–	1	–	4
C6	6	–	1	2	1	3	–	–	–	–	4
C7	6	–	1	2	1	3	–	–	–	–	4
C un-no.	5	–	–	–	–	–	–	–	–	–	4
T1	5	–	1	–	–	3	–	1	–	1	4
T2	5	–	1	–	1	3	–	1	–	1	4
T3	5	–	1	–	1	3	–	1	–	1	4
T4	5	–	1	–	1	3	–	1	–	1	4
T5	5	–	–	–	1	3	–	1	–	1	4
T6	5	–	1	–	–	3	1	1	–	1	4
T7	5	1	–	–	1	3	1	1	–	–	4
T8	5	2	1	–	–	3	1	1	–	–	4
T9	5	1	1	–	–	3	1	1	–	1	4
T10	5	1	–	–	–	2	2	1	–	–	4
T11	5	1	1	–	1	3	2	1	–	–	4
T12	5	1	–	–	–	3	2	1	–	1	4
T13	3	1	–	–	–	–	–	–	–	–	1
T un-no.	6	–	3	–	1	–	–	–	–	–	17
L1	5	2	–	–	1	3	–	1	–	1	4
L2	5	3	–	1	2	3	1	1	–	–	4
L3	5	1	3	–	2	3	1	1	–	–	4
L4	5	1	1	–	2	3	1	2	–	–	4
L5	5	–	1	1	1	3	1	2	1	–	4
L un-no.	2	–	2	3	1	–	–	–	–	–	9
S1	5	–	3	2	2	3	1	1	1	1	4
un-no.	–	–	–	–	–	–	–	–	–	–	28

C	cervical	no. id.	number identified
T	thoracic	Sch.	Schmorl's nodes
L	lumbar	o.p.	osteophytes
S	sacral	ddd	degenerative disc disease
un-no.	un-numbered	o.a.	osteoarthritis (intra-vertebral only)

individual having lesions on the margins of the femur head.

Degenerative disc disease: Pitting in the vertebral body surfaces following the breakdown of the intervertebral disc may be accompanied by osteophyte formation on the surface margins. Degenerative disc disease is largely related to age and reflects wear-and-tear.

Lesions were noted in seven individuals from the inhumation burials, five female and two male. The overall incidence was 5%: 11% in the females and 5% in the males. In contrast with the distribution of osteophytes and other degenerative joint diseases, there is a noticeable absence of lesions from the thoracic region of the spine for both sexes (Table 23).

Lesions were noted in bones from four cremation-related contexts. Burials 857 and 866 had lesions in the thoracic/lumbar and cervical vertebrae respectively. Context 647 and 648 from pyre debris complex 615 probably represent remains of the same individual and show lesions in the cervical and thoracic/lumbar vertebrae.

Schmorl's nodes: A rupture in the intervertebral disc allowing the nucleus pulposus to protrude into the vertebral body will lead to the formation of a destructive

lesion. Such lesions most frequently occur in the vertebrae subject to greatest mechanical stress at points in the normal curvature of the spine (Manchester 1983). This pattern is reflected in the distribution of lesions from the inhumation burials, none occurring above T6 in the males and T7 in the females. Lesions were noted in three females and two males, with an overall incidence of *c.* 8%, 10% in the females and 20% in the males. The distribution between thoracic and lumbar vertebrae was roughly equal in the males, in the females lesions in the lumbar were more than twice as frequent as in the thoracic.

Lesions were noted in only one cremation burial, the thoracic region of 609 (mature adult male).

Osteoarthritis: A disease affecting the synovial joints, osteoarthritis, is basically the result of age-related wear-and-tear, with predisposing factors such as previous disease, injury and obesity (Adams 1986). Manifest by osteophytes on joint surface margins with associated pitting and/or eburnation of the joint surface (Rogers *et al.* 1987), the weight bearing joints of the spine and lower limb are most prone to development of the disease.

Spinal lesions were noted in four females and one male from the inhumation burials, with an overall incidence of *c.* 10%: 18% in the females and 16% in the males. The distribution varied slightly between the sexes (Table 23) but the small size of the group precludes comment on the significance of these variations. The two older adults 689 (male) and 802 (female) had lesions in all areas of the spine involving the majority of vertebrae. Lesions in 883, 1068 and 1110 were limited to the lower vertebrae, the lumbar region being most commonly affected.

Extra-spinal manifestations were noted in eight individuals from the inhumation burials, six females and two males. Lesions were most common in the costo–vertebral joints (five female, one male), followed by the temporo–mandibular joint (four female, one male), four individuals had lesion in the hip joints (three female, one male), two in the shoulder joints (one males, one female). In most cases there was bilateral involvement, though the severity of the lesions may vary. Other affected joints included the left wrist (802, female), an interphalangeal finger joint (1136, male), both naviculars (1110, female), and the left fourth interphalangeal foot joint (689). According to Adams (1986), primary osteoarthritis in the tarsal bones is rare and it may be significant that in 1110 there is evidence for trauma in the fibulae. The number of joints affected per individual varied between one (1136, older mature adult male) and nine (689, older adult male).

Early stages of the disease may be indicated by areas of pitting with no other associated lesions noted in several joint surfaces; the lesser tubercle of the right humerus from 1068; the right radius in 1110 has pitting in the head, there was also pitting with exostoses in the tuberosity and pitting in the manubrio–sternal joint; small areas of slight pitting were present in the manubrio–sternal joint, left lateral clavicle, right scapula and both humeral lesser tubercles in the older mature male 1136, and in the acetabular rims, acromio–clavicular joint and left calcaneum from 1187.

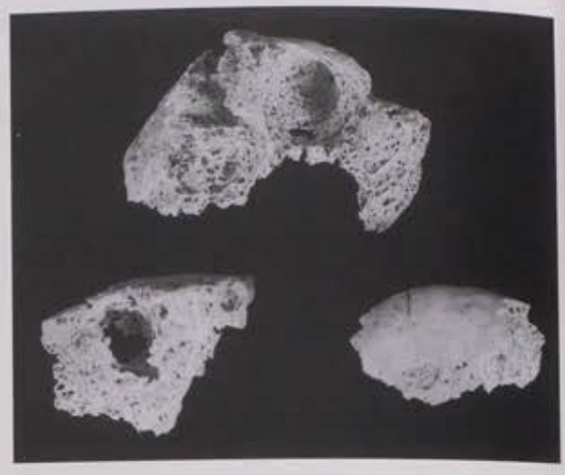


Plate 22. Cremation burial 607: gross destructive lesions in the distal head of an ulna (above) and in the proximal head of a radius (below).

Lesions were noted in bone from three cremations burials and one pyre debris dump. Adult female (607) and 866 (adult) had lesions in a minimum of one temporo–mandibular joint. Cremation burial 607 also had gross lesions in a proximal radius articular surface and one distal ulna articular surface (Plate 22). Costo–vertebral lesions were noted in 626 (adult female) and from 615 pyre debris dump lesions were present in the thoracic spine. Burial 625/627 had an area of pitting in the auricular surface of the innominate.

Miscellaneous lesions and conditions

Coxa vara: A term applied where the neck-shaft angle of the femur is reduced by the mechanical stress of the body weight acting on a defective or abnormally soft femur (Adams 1986). The causes may include congenital predisposition, slipped epiphysis, fracture and softening of the bone as a result of various diseases. In burial 686, an older adult female, there was bilateral reduction of the angles, the heads being almost on a level with the greater trochanters. There were also mild to medium osteophytes on the margins of both heads and exostoses in and around the notches. Fracture is not indicated and there are no other lesions which would suggest a 'bone-softening' disease.

Calcified soft tissue: Calcified soft tissue, probably rib cartilage, was noted in three inhumation burials, two male and one female. The calcification was probably age-related.

Exostoses: Exostoses are bony growths which may develop at tendon and ligament insertions on the bone.

Plate 23. Inhumation burial 651: lateral view of the right first metatarsal showing gross disruption in the medial aspect of the head, with remodelling of the contours, numerous small cysts and disorganised new bone.

Causative factors include age-related wear-and-tear, traumatic stress or various diseases such as diffuse idiopathic skeletal hyperostosis (DISH). It is not always possible to be conclusive with respect to the aetiology of particular lesions.

Eight inhumed individuals, all three males and five of the females, had varying severity of exostoses at between one and eight sites. The frequency of lesions increased with age. Lesions were most common along the iliac crests, anterior superior patella, and distal calcaneum (Table 18). Exostoses along the interosseous borders between the distal tibia and fibula have already been linked with traumatic events (for instance, 686 and 1110, above). There were no other apparent lesions which may link the exostoses with any specific disease and, with the possible exception of two individuals, 689 and 802, with lesions in the tibia and fibula as already described, the majority are probably the result of age-related wear-and-tear.

Destructive lesions: These lesions, occurring most often in an articular surface, may relate to a number of diseases, including degenerative joint disease, infections and tumours. In the absence of supportive evidence in the form of associated lesions, it is not always possible to be conclusive as to the cause.

A small destructive lesion was noted in the distal articular surface of the right tibia in 689. There are small destructive lesions in the right first metatarso–phalangeal joint in 1110, other lesions in the foot include osteoarthritis, in the navicular surfaces, and possible trauma related changes in the distal fibula.

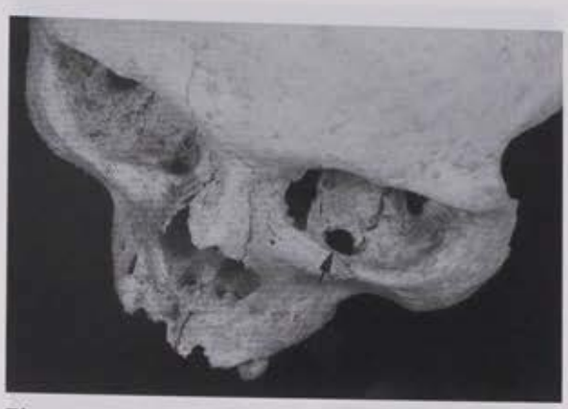


Plate 24. Inhumation burial 1110: superior anterior view of the skull showing a lesion (arrowed) in the floor of the left orbit, 3mm posterior to the orbital margin and 5mm lateral to the infra-orbital canal, opening into the antrum.

Slight depressions were observed in the centre of both radial heads in 651, the cortical bone is intact. There is gross disruption in the medial aspect of the right first metatarsal head from 651 (Plate 23), with remodelling of the contours, numerous small cysts, and disorganised new bone. The surface of the adjoining proximal phalanx has only a slight depression in the centre of the surface. There are no other lesions in the bones of either foot.

In burial 1068, small destructive lesions were noted in the centre of both radial heads, and the centre of the proximal articular surfaces of both first proximal foot phalanges.

Burial 1110 has a smooth-margined opening (9 x 7mm) in the floor of the left orbit, situated 3mm posterior to the orbital margin and 5mm lateral to the infra-orbital canal (Plate 24). The lesion opens into the roof of the antrum. There are no other lesions within the orbit and it was not possible to see into the antrum to ascertain whether there were any changes which may aid diagnosis. The maxillary dentition did exhibit numerous destructive lesions, with ante-mortem loss of the left M1 and M2 and dental abscesses associated with all the left maxillary molar sockets. However, there was no evidence of infection having spread to the sinus cavity. This individual also has several, small, coalesced destructive lesions in the inferior portion of the right femoral inter-condylar surface. In addition, there is a deep, smooth-margined destructive lesion (5.5 x 3.5mm, 4.5mm deep) in the superior–posterior portion of the right lateral condyle, in which the spongy bone is exposed. An area of pitting extends 9mm inferior to the lesion. The adjacent areas of patella and tibia show no change. The lesions appear infective in nature.

Plate 25. Cremation burial 607: fragment of femoral head showing gross subchondral destructive lesions.

The right radial head in burial 1187 has a central destructive lesion, there is no sclerosis. No lesions were noted in the adjacent humeral articular surface.

Cremation burial 607 has a minimum of nine, coalesced, subchondral destructive lesions (maximum 14mm diameter) in one side of a femoral head. The lesions have smooth margins and there appears to be some sclerosis (Plate 25). There are no other associated lesions, but the same individual showed gross subchondral cysts in one radial head and one ulna head, both had associated pitting and eburnation indicative of osteoarthritis.

Bone resorption: The cortical bone of one proximal foot phalanx shaft from burial 1110 has apparently been resorbed/eroded. None of the metatarsals or other proximal phalanges showed a loss of cortical bone, the middle and distal phalanges were not recovered.

New bone: Slight new bone formation, which did not have the appearance of either osteophytes or periosteal new bone, was noted on the meso-distal side of the left radial head in burial 686 and as a ridge between the capitulum and trochlear in the right humerus from burial 883.

In general, the pathological observations may be considered 'normal' for a small, domestic 'population'. There is no evidence of major trauma, the traumatic lesions identified were confined almost exclusively to the females suggesting either they were engaged in higher risk activities than the males, or they were occasionally the subject of violent behaviour. Evidence of degenerative joint disease was higher amongst the females and slightly different distribution of lesions would again indicate different work patterns for females and males, the onus possibly being on the females. Cribra orbitalia and hypoplasia were not noted in the female remains.

Table 24. Human bone: overall incidence of most frequently occurring morphological variations.

Variation	Percentage
Congenital absence mandibular M3	50%
Congenital absence maxillary M3	20%
Crowding of teeth	21% dentitions with perm. teeth
Retention of deciduous maxillary canine &/or retarded eruption/ absence of permanent canine	33% of dentitions
Wormian bones	13% crania
Metopic suture	27% crania
Atlas double facet	40% atlas
13 thoracic vertebrae/ribs	36% skele. with full thor. spine
Vastus notch	15% patellae
'Squatting' facets	33% fused tibiae
Ankylosis of 5th middle–distal interphalangeal (toe) joint	80%

Morphological variations

These are 'normal' variations in the skeletal morphology and may, with other predisposing factors, indicate genetic relationships within a 'population' (Berry and Berry 1967) (Fig 37, Table 24). Work by Finnegan (1978) has shown there may be some slight bias to one side in bi-lateral traits and a slight sexual based bias in the incidence of some variations but neither appeared of great significance. Overall figures of incidence are not available for most of the variations.

Non-fusion of the atlas posterior arch, which generally occurs between the fourth and fifth year (Gray 1977), was noted on one adult female and possibly in one young juvenile (13% atlas). In addition, there are single instances of multi-cusps tooth crown forms; congenital absence of the right mandibular P1, ?non-fusion of the atlas anterior arch, non-fusion of the axis posterior arch, os acromialie (Stirland 1984), exostoses in the trochanteric fossa and calcaneal double facet (Finnegan 1978). The occurrence of a third distal centre of ossification in the first metacarpal/tarsal, seen in four immature inhumations, has been shown to be of little significance (Weddell 1939).

Variations were also noted in several cremation-related contexts, including two with wormian bones, a metopic suture, retention of a deciduous molar, congenital absence of a mandibular right M3, and ankylosis of the fifth meso-distal interphalangeal joint of the foot.

The significance which may be attached to many of these variations is limited and, in some cases, their status as 'natural' variations is open to question, for instance there are arguments to suggest that wormian bones develop in response to parturition trauma and 'squatting' facets were for many years believed to be

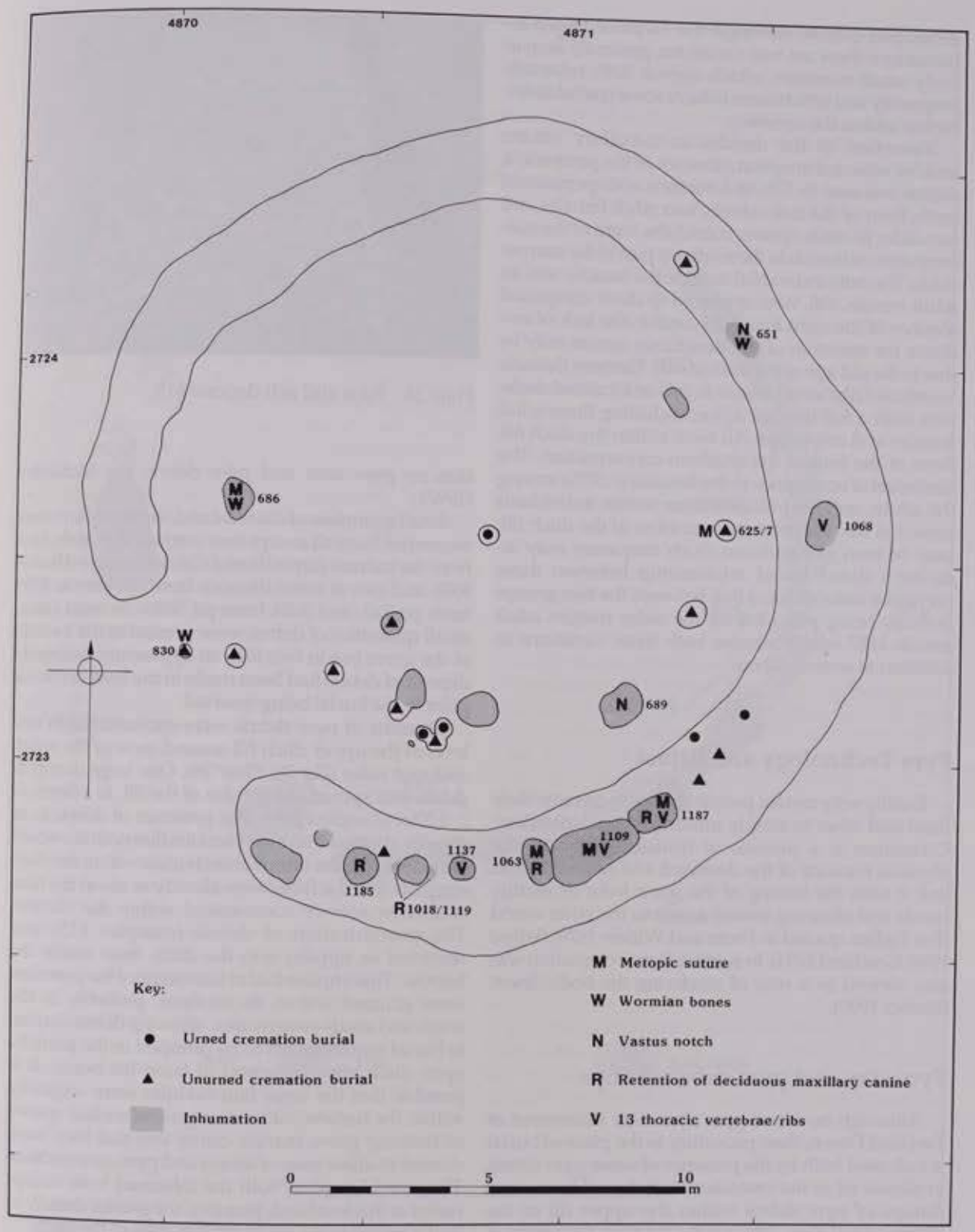


Fig. 37. Human bone: significant morphological variations identified among the Bronze Age human remains.

developed defects. Amongst the Twyford Down inhumations there are two variations, generally seen in fairly small numbers, which appear both relatively frequently and which seem to have some spatial distribution within the cemetery.

Retention of the deciduous maxillary canine and/or retarded eruption/absence of the permanent canine was seen in 33% of dentitions with permanent teeth. Four of the individuals, two adult females and two older juvenile/young subadults, were in the concentration of burials in the southern part of the barrow ditch. The only individual outside the barrow was an adult female, 686, who appeared to show congenital absence of the right maxillary canine (the lack of evidence for retention of the deciduous canine may be due to the old age of the individual). Thirteen thoracic vertebrae/ribs were present in 36% of inhumed skeletons with a full thoracic spine, including three adult females and one infant. All were within the ditch fill, three of the four in the southern concentration. The limitation of occurrence to the females (*c.* 38%) among the adults, and the predominance within individuals buried in the southern concentration of the ditch fill, may be seen as significant. Such frequency may indicate a direct blood relationship between these particular individuals, a link between the two groups perhaps being provided by the older mature adult female 1187 who possesses both these variations in addition to several others.

Pyre Technology and Ritual

Exactly why certain people choose to cremate their dead and other to simply inhume them, is not clear. Cremation is a process of transformation of the physical remains of the deceased and known beliefs link it with the freeing of the spirit from its earthly bonds and allowing instant access to the other world (Ibn Fadlan quoted in Foote and Wilson 1979; Barber 1990; Graslund 1994). In some cultures, cremation was also viewed as a way of rendering the body 'inert' (Barber 1990).

Pyre sites and pyre debris dumps

Although no actual pyre sites were discovered at Twyford Down, their proximity to the place of burial is indicated both by the presence of some pyre debris in almost all of the cremation burials and by several dumps of pyre debris within the upper fill of the barrow ditch. Pyre debris is the material remaining at the pyre site after cremation and collection of the required bone and pyre goods for burial and, when redeposited, comprises a mixture of burnt material, predominantly charcoal, but may incorporate cremated bone, fuel ash slag, burnt flint, etc. The possible location of pyre sites within the barrow is also suggested by the form and position of the largest of the debris dumps (complex 615). For further discussion on pyre sites and pyre debris, see McKinley (1997).

Plate 26. Flint and ash deposit 615.

Small quantities of charcoal and/or burnt flint were recovered from all except four cremation burials, two from the barrow (urned burial 626 and unurned burial 830), and two at some distance from the barrow (759 from pit 742, and 5024 from pit 5026). In most cases, small quantities of debris were present in the backfill of the grave but in two fills, an apparently deliberate deposit of debris had been made in the base of the cut prior to the burial being inserted.

Deposits of pyre debris were encountered in one level of the upper ditch fill around most of the south and east sides (Fig 38; Plate 26). One large dump of debris was spread along *c.* 8m of the fill, to a depth of *c.* 0.20m (complex 615). The presence of debris in or directly above the layer of vacuous flint nodules which sealed most of the inhumation burials within the ditch suggests that the flints were already *in situ* at the time cremation activity commenced within the barrow. The concentration of debris (complex 615) was recorded as tipping into the ditch from inside the barrow. This implies that at least some of the pyre sites were situated within its confines, probably in the south and south-eastern area, allowing debris surplus to burial requirements to be dumped in the partially open ditch after collection of bone for burial. It is possible that the large flint nodules were originally within the barrow, either as a general surface spread or forming grave marker cairns and that they were cleared to allow ease of access and pyre construction. This would explain both the inhumed bone redeposited at this level and, possibly, the greater density of flint nodules in the south-eastern area of the ditch.

The lack of a pyre site or any apparent *in situ* burning within the barrow is not surprising in view of the level of truncation of the old ground surface, estimated to be as much as 0.40m (Chapter 2). Experimental pyre cremations have shown a very clear outline of the pyre after the site was cleared but also demonstrated the shallow depth to which the effects of the pyre had penetrated *c.* 0.10–0.12m. At Twyford

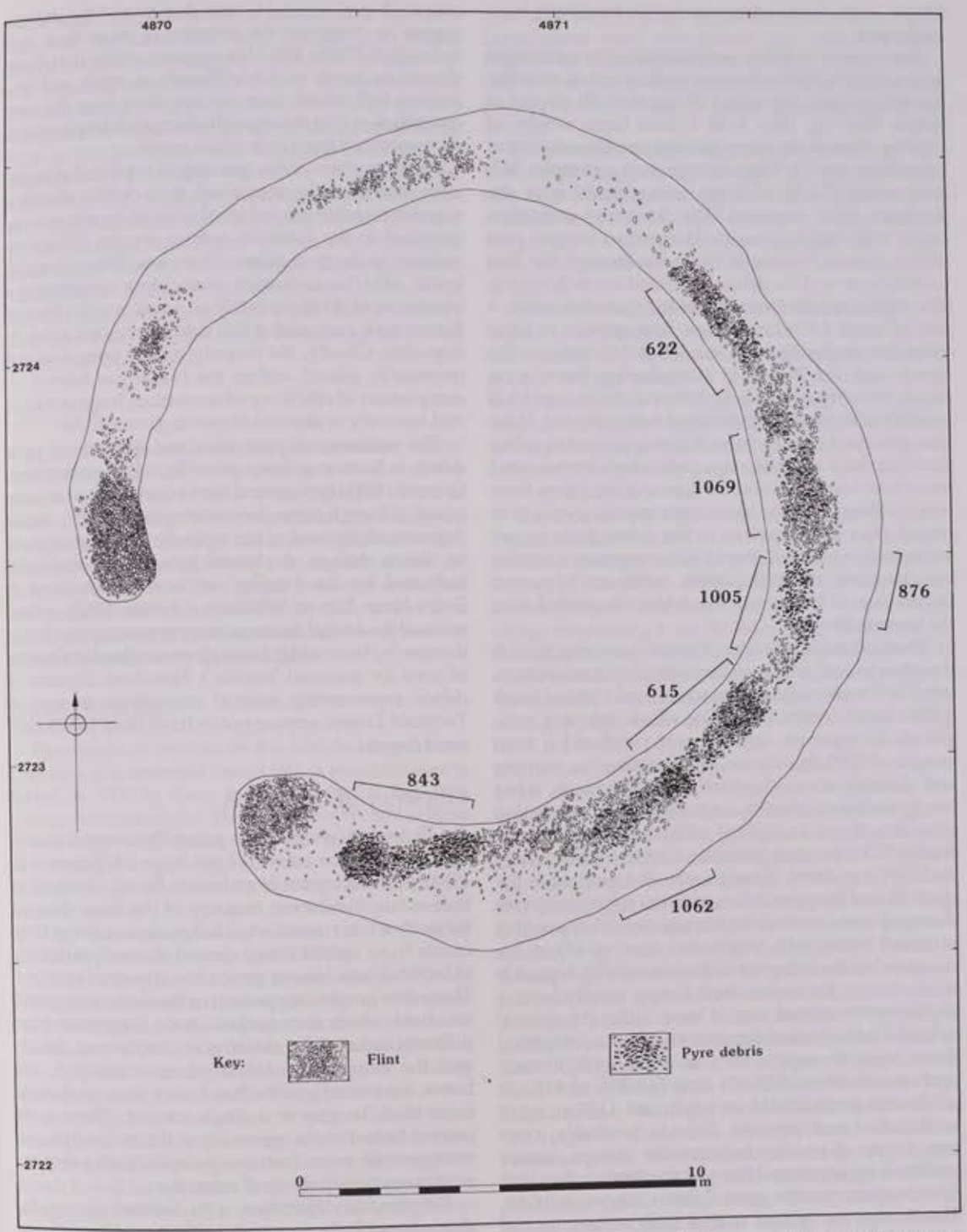


Fig. 38. Concentrations of flint and defined pyre debris dumps within the barrow ditch and enclosure.

Down, such shallow features would have long been destroyed.

Seven areas of debris were identified in excavation and subject to 100% recovery in the form of environmental samples. Separated by areas of fill devoid of debris (Fig 38), they held a total bone weight of 6586.1g. Five of the areas yielded small quantities of bone (between 0.4–9.5g). A larger dump, complex 843, comprising 824.5g of bone, was situated near the southern ditch terminal. The ?unurned cremation burial 1182 (443.5g, juvenile) formed an integral part of this deposit, the burial being cut through the flint nodule layer and the debris deposited around/over it. The bone from the dump included that of an adult, a juvenile and a foetus/neonate and appears to have formed a single deposit. The relationship between the dump and the ?burial is inconclusive; there is no duplication of juvenile bone between the two and it is possible that the same individual is represented. If the dump formed a single deposit, as it appeared to, either the bone from the other two individuals represented must have been buried elsewhere and the debris from two, perhaps closely contemporaneous pyres, was mixed prior to deposition, or the debris from an unconnected cremation (burial 603 comprises a similar combination of individuals, with no apparent duplication of bone) may have been deposited over the unurned burial.

The most extensive area of debris was complex 615, the main area of which was sub-divided in excavation into 12, roughly equal, horizontal and vertical (each 0.10m deep) components. The whole complex comprised 20 separate contexts and produced a total weight of 5592.5g of bone. By assessing the number and distribution of identified bone fragments, it has been possible to identify a minimum of six dumping episodes, three associated with cremation burials. Burials 643 (unurned, juvenile), 1169 (urned, juvenile) and 1019 (unurned, infant), were all deposited in the ditch fill and the pyre debris from the respective pyres dumped over/around the burials (one other possible unurned burial, 642, was noted close to 643 in excavation but the integrity and nature of this deposit is inconclusive, the writer feels it may simply form a slightly concentrated area of bone within the general debris). The four other deposition episodes comprised (from west to east); 1157, an adult with foetus/neonate; divisions 628–631 and 648–646 of 615, an adult with juvenile; 615 an adult; and 1162 an adult with ?infant and ?juvenile. There is, inevitably, a certain degree of overlap between the dumps, further confused by an animal burrow (badger) in the ditch fill at this point but the general distinction was evident. The dumps are spread over a fairly wide area and some were more distinct than others, for instance 1157 and 1005 at either end of the spread. Where there is an overlap, there was no physical distinction in excavation for separate deposits, which would suggest this area was used for the dumping of debris from closely contemporaneous pyres.

There is, therefore, evidence for at least seven pyres. Some can be linked with individual burials, most cannot. It is of interest to note that four of the dumps appear to comprise the remains of more than one individual (Table 19). This suggests either that there should be more multiple burials of adult and immature individuals than are apparent from the one identified, or that the separate dumps of debris are not necessarily all from individual pyres.

A comparison of the quantity of bone in the burial with that from the associated pyre debris, shows a variable distribution. In burial 1019, 14.9g of bone was included in the burial, a greater weight (17.6g) remaining in the pyre debris. There was 504g of bone in burial 643, the associated pyre debris comprising a minimum of 400g, probably an equal weight (two of the contexts comprising this debris included a mix of deposits). Clearly, the majority of the bone was not necessarily placed within the burial (*see* below). A comparison of efficiency of cremation, fragmentation and recovery of skeletal elements given below.

The existence of pyre sites and deposits of pyre debris is known of from other Bronze Age barrows. Grinsell (1941) lists several sites where pyre sites were noted, although some, for instance those with '... small deposits of charcoal ...' are as likely, if not more so, to be debris dumps. A cleared pyre site is obviously indicated by the 'bonfire' or 'hearth' excavated at Earl's Farm Down, Wiltshire (Christie 1967), where some of the 'burial' features may represent pyre debris dumps (no bone weights are given nor the distribution of bone for unurned 'burials'). However, deposits of debris representing several cremations as seen at Twyford Down, appear not to have been previously encountered.

Efficiency of cremation

Efficiency of cremation is generally assessed macroscopically by the colour of the bone (Shipman *et al.* 1984), with variations from brown/black (charred) to buff–white. Whilst the majority of the bone showed the buff–white coloration of full oxidation, some fragments from almost every context showed variations of brown, black, blue or grey, a few appeared unburnt. There was no obvious pattern in the skeletal elements involved which may include bone fragments from different areas of the skeleton in one context. Rarely was the whole of a skeletal element affected, and bones, for example of the hand, may show variations from black to grey in a single context. There is no pattern linked to the age or sex of the individual and contexts with more than one individual may demonstrate varying efficiency of cremation.

No specific difficulties with technology are indicated, and the homogeneity of the variations in bone colour within the group as a whole would suggest a general shortage of either time, temperature or oxygen supply (McKinley 1989; 1994a), perhaps linked to the quantity of wood used to construct the pyres. The perception of what was considered 'full/efficient cremation', which is known to vary for a number of reasons (Barber 1990, 381; McKinley 1994a, 79–80), may not have necessitated full oxidation

of the bone. There is no obvious difference between bone from the burials and those from the pyre debris dumps such as may suggest deliberate selection of well cremated fragments for burial. Context 851, the 'primary' burial, has the greatest number of skeletal elements showing variations in colour, demonstrating there is no particular link between efficiency of cremation and 'status' (however that might be measured). This consistent variability in the efficiency of cremation, whilst not frequently being recorded from Bronze Age burials, is not unknown, for instance, some of the burials from Simons Ground, Dorset (Hazzledine 1982), the primary burial from Ports Down, Hampshire (Brothwell 1967), and a recently excavated central burial from Westhampnett, West Sussex (McKinley 1997).

Collection

In essence, almost all cremation burials are 'token' in that there was rarely any attempt to collect all the bone for burial and to refer to any specific burial as 'token' is misleading. Whilst cremation burial reports always show a wide range of bone weights recovered from individual burials (note that, in discussion, reports do not always distinguish between disturbed and undisturbed burials, or divide data in terms of immature and adult burials), it has not been possible, as yet, to identify why this should be so.

Weight of bone

The weight of bone from the burials ranged from 1.6g from the unurned burial 892, a neonate/young infant, to 3433.3g from the urned burial 664, two younger mature adults. The maximum weight of bone from a single adult burial was 1998.8g (830 unurned). The overall average weight of bone was 1052.3g; that from the single adult burials 1479.0g, from single immature burials 199.4g, and from multiple burials 1779.2g. The average weight from the two undisturbed single adult burials was 1515.2g.

Observations at modern crematoria (McKinley 1993a) have shown that the weight range of collectable (<2 mm fraction) bone expected from an adult cremation, is *c.* 1000–2400g (the minimum being a very elderly, gracile female), with an average of *c.* 1650g. Elsewhere, weights of 1600–3600g have been noted (Evans 1963) but it is unclear whether this includes bone dust as well as archaeologically compatible bone of <2 mm fraction (comparative data would suggest it does). It will be apparent from the weights of bone presented above that a very high percentage was usually collected for burial, though in no instance was the recovery 100%. Obviously, a considerable effort in terms of time expenditure was put onto recovery of the bone for burial. In both the urned and unurned burials, although some pyre debris may be included, generally in the backfill, the bone appears to have been collected separately for burial. Recovery of the bone, if it were to be collected in full, would be a time consuming process, *c.* 4 hours for one person in experiment (McKinley pers. obs.), but relatively simple. Experiments have also shown that cremated bone requires no cleaning and may easily be picked-off the bed of wood ash having retained its correct anatomical position and relationship to the pyre as it collapsed (*ibid.*).

The recorded weights also suggest that bone may have been lost from some of the disturbed burials, although others retained higher bone weights than the undisturbed ones. Multiple cremation burials did not necessarily contain greater bone weights than single ones, with the exception of 664 where two adults were included.

Of the 19 cremation burials identified during osteological examination, six were urned, 13 unurned. Of those containing the remains of single adults, a slightly greater average weight of bone was recovered from the urned burials (1642.4g) than from the unurned ones (1412.3g). The significance of this difference in average weights should be treated with caution, however, since the greatest weight from a single adult was from an unurned burial.

The consistently high weights of bone included in the burials does not seem to be repeated at other larger contemporaneous cremation cemeteries. At Simons Ground (Hazzledine 1982), although one burial contained 1350g of bone, the remaining 118 burials all had <650g, most being in the 50–300g range (there was no breakdown in relation to age of the individual or level of disturbance). From the 44 burials at Coneygre Farm, Thurgarton, Nottinghamshire, (Allen *et al.* 1987) the average weight of bone from urned burials was 327g, from cist burials 144g and from unurned burials 89g and, although a maximum weight of 1475g was noted from one burial and 915 g from a second, the remainder were much lower. The average weight of bone from the Pasture Lodge Farm, Long Bennington, Lincolnshire, burials was 466.2g (Allen *et al.* 1987) and, although there were four burials >1000g and three of 800–1000g, 72% of the burials were well below 700g. It has been noted elsewhere by the writer that consistently high bone weights are generally found in Bronze Age central barrow burials, both in comparison with other types of cremation burial of the same date and burials from other periods. Of the eight central Bronze Age burials examined by the writer to date (Alpington, Norfolk; Fordington Farm, Dorset; Field Farm, Burghfield, Berkshire; Nettleton Top, Lincolnshire; Guiting Power III, Gloucestershire; Withington, Cheshire; Jodrell Bank, Cheshire; Westhampnett, West Sussex) the range of weights noted was 922.7–2747.1g, with an average of 1733.3g (McKinley 1990; 1991a; 1992a; 1993c; 1992b; 1994c; 1994d; 1997). Other similar burials at Ports Down (Nicholls 1987) and Ashey Down, Isle of Wight (Drewett 1970), also show high weights of bone at 1190g and 1077g respectively.

As with other aspects of the cremation ritual, it may be that the time expended on collecting bone for burial in some way reflected the status of the deceased, in whatever terms that may have been calculated by the mourners.

Fragment size

Cremated bone fragments in response to a number of factors including cremation, collection, burial, disturbance, excavation, and post-excavation treatment (McKinley 1994b), none of which involve deliberate breakage of the bone before burial. Measurements presented in osteological reports should always be viewed as post-excavation fragments sizes, not necessarily reflecting the size of fragments at time of deposition.

From the burial contexts, the maximum fragment recorded was 125mm from the undisturbed unurned burial 607. The overall average maximum fragment size recorded from the burials was 85.5mm (including immature burials), from undisturbed burials the average was 96mm, from the urned burial 82mm, and from the unurned burials 62mm. The pattern emerging from these figures is supported by the percentage of bone recovered in the 10mm fraction (*see* above). A minimum of 26% and a maximum of 81% of the bone was included in the 10mm fraction with an average of 51%. From undisturbed burials, an average of 57% (all unurned) of the bone was in the 10mm fraction, from urned burials 55% and from unurned burials 49%.

The figures demonstrate that disturbance may result in increased fragmentation and that bone may also suffer increased breakage when not offered the added protection of an urn in the burial environment (McKinley 1994b). The fragment sizes noted are all within the normal range (McKinley 1993b) and there is no evidence to suggest that any deliberate fragmentation of bone occurred prior to burial.

Figures recorded for bone from the pyre debris context indicate slightly higher levels of fragmentation than for bone from the burials. The maximum bone fragment size was 81mm, with an average maximum fragment size of 39mm. The quantity of bone in the 10mm fraction varies between 23–50%, with an average of 41%. These figures are closest in comparison with the averages for the unurned burials and probably reflect something of the unprotected environment in which the debris was deposited. Some increased fragmentation may also have occurred if the mourners recovering the bone for burial trampled over the pyre site in the process, or if pyre debris was raked together and subject to unceremonious deposition.

Skeletal elements identified

In common with many other cremation deposits examined by the writer, there is a slight variation in the elements present in each context, with no evidence to suggest that specific areas of the skeleton were deliberately selected for burial. It would appear that an apparently random selection from each skeletal area was collected for burial, leaving an apparently equally random selection of elements in the pyre debris.

Multiple cremation/burials

Two definite multiple burials were identified (10.5%), 603 an adult female with young infant and possibly a juvenile, and 664, two mature adults, at least one of which was female. One other possible multiple is 607, two adults, but the evidence is insubstantial and inconclusive. Three further burials contained a single duplicated bone each, which is likely to be the result of contamination either from disturbance, or the accidental inclusion of a bone from a previous cremation collected from an inefficiently cleared pyre site.

The various alternative interpretations of these multiple deposits have been discussed in detail elsewhere by the writer (McKinley 1994a), where it was concluded that, in most instances, the implication was for the individuals being cremated together on the same pyre. An alternative explanation, for at least some of these burials, is suggested by the urned burial 664, which was emptied in four 0.05m spits by the conservator. The presence of two adults within the burial was evident from the frequent duplication of identifiable bone fragments.

The bone was analysed in the constituent spits and it was noticed that duplicate bones did not occur between spits 1 and 2, nor between spits 3 and 4, only between spits 1/2 and 3/4. In some instances, pairs of bones appeared to be deposited in the same spit, for instance ulna coronoid processes in spit 2. As both individuals were of a similar age and possibly of the same sex, it is difficult to be conclusive, but the available evidence suggests that the two individuals were included in the vessel as separate deposits, one above the other. Elsewhere, where the writer has both personally emptied urn contents and where urns have been emptied in spits for analysis (eg McKinley 1993b; 1994a; 1991b), there has been no evidence of layering, either of bone elements, different individuals or human and animal bone.

The retention of bone from one cremation until the bone from a second can be included prior to burial is supported by a passage in Homer's *Iliad* where Patroclus' spirit speaks to Achilles '...do not have my bones laid apart from yours, Achilleus, but with them, just as we grew up together in your house... ' (1951 trans. Lattimore; 23, 83–4). That his instructions were followed is confirmed by a passage from Homer's *Odyssey* (thanks to J. Musgrave for drawing attention to the passage), in which the spirit of Agamemnon addresses that of Achilles 'In this [golden amphora] your white bones lie, my lord Achilles, and mingled with them the bones of Menoetius' son Patroclus, dead before you, and separately those of Antilochus, who was your closest friend after Patroclus' death...' (1972 trans. Rieu; 24, 73–6). In this instance, however, the implication is that the bones were mixed ('mingled') rather than being placed one set above the other as appears to be the case in 664. Alternatively, it is possible that the two adults in 664 were cremated on the same pyre; experiments have shown (McKinley pers. obs.) that two individuals placed side-by-side on a pyre retain their relative position as the pyre

collapses and the layering seen in 664 urn could occur if the remains of the two individuals was collected separately prior to deposition.

Burials comprising multiple cremations most commonly include a subadult or adult, of either sex, with an immature individual, although two adults together are not unknown. The list of multiple cremation burials presented by Petersen (1981) shows 68% to be of adults with immature individuals, 28% of two adults, and 4% of two immature individuals. None of the 67 burials from Coneygre Farm or Pasture Lodge Farm 7(Allen *et al.* 1987) appeared to be multiple. At Simons Ground (Hazzledine 1982) 14% of the burials were identified as multiple, all of an adult and an immature individual. From Petersen's sample (1981), 68% of the multiple burials included two individuals, the remaining 32% were of three or four.

Cremated animal bone

Small quantities of cremated animal bone were recovered from four adult burials (16%) and three pyre debris dumps. Although not as common as in later cremation burials, the inclusion of cremated animal bones in Bronze Age burials has been recorded elsewhere. From a total of 91 Bronze Age burials examined by the writer (covering 31 different sites in Scotland, Wales and England), small quantities of cremated animal bone were present in *c.* 15% (McKinley, pers. obs.). Wilkinson (in Williams and Wilkinson 1988) recorded 64g of pig/sheep-size bone from a cist burial in Co. Tyrone. However, no cremated animal bone was identified in the burials from Knighton Heath, Dorset (Denston 1981), Itford Hill, East Sussex (Ratcliffe-Densham 1972), or Simons Ground (Hazzledine 1982).

That not all animal remains cremated on the pyre were included in the burial is witnessed by the recovery of cremated animal bone with other pyre debris. As the quantities occurring are usually relatively small, it is possible that in some instances animal bone from the pyre was not included in the burial at all. The figures should, therefore, be viewed as a minimum.

Pyre goods and coloured staining

Fragments of pyre good were recovered during osteological examination from three burials and one pyre debris dump. Most of these fragments were of worked antler or animal bone, though fragments of copper-alloy and possibly amber were also found.

An orange–yellow substance was noted adhering to fragments of skull and in one case upper limb, in six burials, including adults of both sexes and an immature individual. This material has been noted elsewhere, for instance in burials from Withington Bronze Age barrow (McKinley 1994c). The nature of this substance is as yet unconfirmed (analysis is being undertaken) but the consistent involvement of fragments of skull (mostly vault) may be significant.

Blue/green spot staining was noted on bone fragments from four burials and one pyre debris dump. There was no evident pattern in the distribution and only a few fragments of bone were involved in each case. Researchers in Germany have suggested the staining is caused by the manganese in the apatite (mineral) of the bone (Herrmann, pers. comm.). Another alternative may be suggested by the similarity in the colour of the staining and that caused to bone by the proximity of copper-alloy (analysis is on-going).

Possible cremation-related feature

Context 955 comprised the fill of an intact inverted Bronze Age vessel, situated to the north-east of the barrow. The 0.24m deep fill of the vessel was emptied in 0.02m spits by the writer. The fill was found to be almost entirely composed of large burnt flint nodules with a thin layer (*c.* 20mm) of charcoal across the base. The only bone recovered was animal, an unburnt metapoda from spit 2. Whilst clearly not a 'burial', the nature of the fill and proximity to the barrow would suggest it was in some way connected with the cremation ritual. A similar, though unurned, deposit was found at Ports Down (Corney *et al.* 1967), where a pit, recorded between the two cremation burials and of similar dimensions, '... was found to comprise only a quantity of fire-cracked flints.' Why such deposits should have been felt necessary is far from clear but such careful deposition would suggest more than a 'clearing-up' operation.

Spatial distribution

Contemporaneous cemeteries assessed by Ellison (1981; 1982) were ascertained to demonstrate no spatial patterning based on age or sex. Although this may also hold true to a large extent at Twyford Down, two noticeable clusters were discernible (Fig 32). All the older adults identified, both cremated and unburnt, were confined to the interior of the barrow. Their presence here was not exclusive, as individuals across the age ranges were also found within the barrow. Secondly, there was a noticeable clustering of immature individuals (*c.* 53% of those identified), again both cremated and unburnt, along a *c.* 7.5m length of the southern portion of the ditch fill. There were no adults interspersed between these seven burials. The possible significance of these clusters remains open to question.

Radiocarbon dates, by Michael J. Allen and K. E. Walker

Clearly a number of funerary rites are present within and around the Twyford Down barrow, including both inhumation (crouched) and cremation burials. The cremation pyre sites were not identified

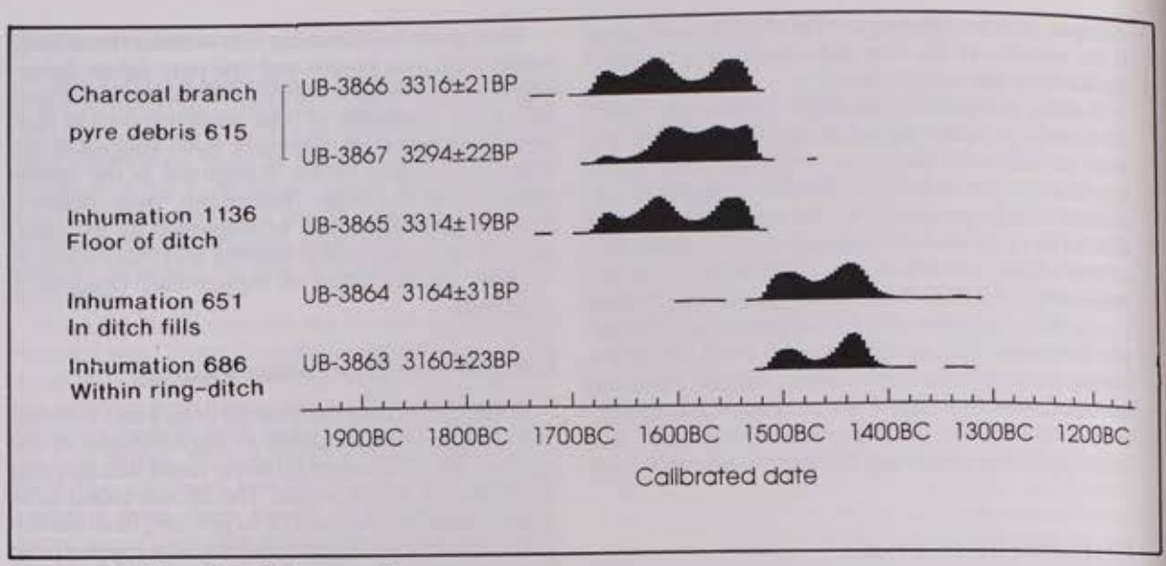


Fig. 39. Radiocarbon dating results.

but were apparently fairly local, possibly within the area of the barrow, their presence being indicated by dumps of pyre debris.

Crouched inhumation burials were placed on the base of the ditch (eg inhumation 1136) but others occur both cut into the ditch, and within the area assumed to have been covered by the barrow mound. Although stratigraphically it is clear that the burials on the floor of the ditch were placed there earlier than either the cremation or inhumation burials occurring within the ditch fills (layer 615) there are no no direct stratigraphic relationships. Furthermore, the available stratigraphy is not sufficient to allow us to be certain whether the cremation and inhumation practices in the ditch took place contemporaneously.

In an attempt to determine the period of use of the barrow site for burial and to define the internal chronology of the various episodes and traditions of burials, samples were submitted for radiocarbon dating from both pyre charcoal and human bone from the barrow. Because of the possibility that these episodes of burial being contemporaneous, or separated by only a relatively short period of time within the Bronze Age, high precision radiocarbon determinations were obtained from the Belfast Radiocarbon Laboratory.

Samples

Cremation-related material

Because the act of cremation destroys bone collagen, it is rarely possible to obtain radiocarbon determinations directly from cremated bone. Indirect dating was attempted by selecting a sample of charcoal from the pyre debris within the ditch (layer 615) which, it was assumed, formed part of the funerary activities represented by the cremation burials themselves. An intact roundwood branch 39mm in diameter (< 20-30 rings) and 158mm long of Pomoideae (ie hawthorn/apple/pear/rowan/whitebeam, etc; ident J. Ede) was selected.

Inhumations

Three inhumations were selected for dating and in each case the left femur and left humerus were submitted. The three inhumations were:

- Crouched burial on the floor of the ditch (inhumation 1136)
- Crouched burial within enclosure (inhumation 686)
- Crouched burial in ditch fills (inhumation 651) in layer 615 associated with pyre debris

Determinations, results and interpretation

The high precision radiocarbon determinations supplied by Belfast are presented below. All determinations have been calibrated using the maximum intercept method (Stuiver and Reimer 1986) with the AMT20.14C dataset in CALIB v2.0 which uses the data from Pearson and Stuiver (1986) and Pearson *et al.* (1986). The end points of the calibrated dates have been rounded outwards to 5 years for those determinations with a error term less than 20 years, and rounded outwards to 10 years for those with error terms greater than 20 years following the form recommended by Mook (1986). The probability distributions (Fig 39) have been produced using OxCal v2.10 (Bronk Ramsey 1994) and are presented in Table 25.

The determinations obtained from the charcoal branch are statistically contemporaneous at a 95% confidence level (Ward and Wilson 1978) at both the

Table 25. Radiocarbon determinations.

	Lab. ref.	Determination (BP)	Cal BC (1 sigma)	Cal BC (2 sigma)
Charcoal samples				
3017	UB-3866	3316±21	1625–1525	1675–1515
3017	UB-3867	3294±22	1645–1530	1680–1525
Weighted average		3305±15	1625–1525	1675–1525
Bone samples				
1136 (inhumation on floor of ditch)	UB-3865	3314±19	1640–1530	1670–1525
651 (inhumation in ditch fills)	UB-3864	3164±31	1510–1420	1520–1400
686 (inhumation within enclosure)	UB-3863	3160±23	1450–1440	1515–1410

1 sigma and 2 sigma ranges. Inhumation 1136, from the floor of the ditch, produced a date range of 1670–1525 cal BC (UB-3865; 3314±19 BP) which is statistically indistinguishable from the pyre charcoal; 1675–1515 cal BC (UB-3866, 3294±22 BP) and 1680–1525 cal BC (UB-3867, 3316±21 BP). However, the crouched burials in the ditch (inhumation 651) and within the area of the barrow (inhumation 686) are both later than the burial on the bottom of the ditch (1136) and are contemporary with each other at the 95% confidence level (Ward and Wilson 1978). These dates therefore indicate two distinct dated phases of burial activity (Fig 39).

We can suggest two phases of inhumation burial; the first being the crouched burials on the floor of the ditch, and the second being a period when crouched inhumations were buried both within the area enclosed by the ring-ditch, and in the fills of the silting ditch itself.

There is, however, a problem with the determination from the pyre debris, which stratigraphically should be later than the crouched burial on the floor of the ditch, and also, on stratigraphic grounds, broadly contemporary with burials in the ditch fills. The determination for the burnt Pomoideae branch indicates that it is earlier than the burials in the ditch fills and presumably relates to a phase of cremation practices contemporary with the crouched burial on the floor of the ditch. This implies that the cremation burials represented by the extensive charcoal spreads in the ditch belong to a second phase of cremation activity which has not been directly dated by radiocarbon, but which is probably contemporary with the second phase of inhumations.

Conclusion

From the radiocarbon evidence we can suggest that there are at least two distinct dated episodes of burial activity during both of which cremation and inhumation practices occurred. They are at about 1675–1525 cal BC and 1510–1415 cal BC and statistical analysis indicates that they are separated by a period of about 150 years (Fig 39).

Chapter 6

Landuse and Economy: the Later Prehistoric and Early Roman Environment of Twyford Down

by Michael J. Allen

Introduction to the Environmental Data: Landscape and Economy

The prehistory of the central Hampshire area has been relatively well studied in archaeological terms and there is a fairly good set of environmental data to complement our archaeological knowledge (cf Fasham and Whinney 1991; Allen 1996). Although there is, in general terms, a broad framework of information about both the prehistoric chalkland landscape and the farming economy it supported, recent work has shown that information may be very site specific and that it can be dangerous to extrapolate on a regional or even sub-regional basis. Less is known about Romano-British rural chalkland sites and, in particular, the farming economy which probably supported them.

The analysis of land snails, charred plant remains and animal bones presented here provides detailed information from Twyford Down. The analyses broadly address two major themes; landscape and farming economy. The nature of the landscape is indicated by land snail analysis, charred plant remains and the record of colluvium, while details of the farming economy are provided by the charred seeds and animal bones.

Landscape

Relatively detailed information has been obtained for the pre-Bronze Age (Neolithic) environment on Twyford Down from a few, anomalous features. The local nature of some of the evidence from the barrow on Site A may not be wholly representative of Twyford Down in the Bronze Age but the more open farmed downland evident from the later Bronze Age onwards is not only apparent from the analysis of sites on the other side of the Itchen valley from Twyford Down but also from previously obtained and published sequences.

Farming economy

Plant remains and animal bones from the Bronze Age and Late Iron Age/Romano-British settlement complement the physical evidence of field systems recorded in the excavations and the detailed analysis of land snails from the lynchets comprising those systems.

The comparison of environmental data from the Twyford Down excavations with other work in the area is presented at the end of this chapter. This, together with the integration of the interpretations presented here with both the physical evidence and aerial photographs, enable some conclusions to be drawn about human impact upon the down and the development of farming systems employed in prehistory and in the early historic periods.

Palaeo-environmental Sampling Strategy and Methods

The sampling strategy adopted during the excavations and the post-excavation analysis programme were devised in an attempt to provide information which would be directly relevant to the wider aims of the project (Chapter 1) and, in particular, to consideration of the pattern of landscape use throughout the later prehistoric and early Roman periods. The principal objective was to examine the progressive intensification of landscape use from the Neolithic into the early Roman period, and also to 'consider the relationships and developments between Bronze Age settlements and their resource landscapes' (Wessex Archaeology 1994). Thus the intention was to attempt to understand both the changing physical environment, which provides the natural resource (the landscape), and changing farming practices (the economy) through time.

During the excavation of the barrow, a large series of samples was taken in order to address these themes

as well as to provide information about the human population, including funerary practices and pyre technology. As indicated above, the aims can be crudely characterised as those dealing with landscape and those with economy. Although they are far from mutually exclusive (as will be seen in the analysis), it is convenient to describe the sampling strategies under these two headings. The nature of funerary practices and the human remains are not discussed further in this chapter.

Landscape

The project's environmental strategy therefore aimed at examining both the wider landscape (ie chalkland and river valley) and, more specifically, the history and pattern of landscape use on Twyford Down itself. The nature of the physical landscape was mainly addressed by a large land snail sampling programme augmented by an auger survey in the Itchen valley.

Land snail sampling strategy

The chalk downland around Winchester has been relatively well studied; a series of molluscan sequences was obtained from the work along the MARC3 excavations, including Neolithic–Iron Age sequences from Winnall Down and Easton Down (Mason 1980; 1982; 1985; Evans and Williams 1991; Allen 1989). Pollen analysis from Winnall Moor at the foot of Winnall Down (SU 4860 2991) provides a complementary palaeo-environmental sequence.

The aim of the mollusc analysis presented here, was, therefore, to provide a more detailed account of Twyford Down; a block of chalk downland not previously examined in this landscape. The opportunity to examine limited areas of adjacent local landscapes, such as Compton Common and the Itchen Valley, was also taken so that the detail from Twyford Down could be placed in a wider context and the possibility of examining Downland versus river valley, and any variation between Twyford and Compton Downs explored. The molluscan sampling strategy was designed to provide a detailed picture of the landuse associated with both funerary and domestic activity on Twyford Down and a broader spatial picture of the landscape development of the area.

The broader framework is gained from a combination of the new land snail analyses from Compton Common and the Itchen valley, presented below, and a review of the other detailed, local analyses. However, because of the limited spatial reference of past mollusc communities (Evans and Williams 1991) and despite the details of landuse which this analysis could provide for Twyford Down and was already available for Easton Lane/Winnall Down (Allen 1989; Mason 1985), the broader picture can only be a generalised one. We cannot assume that limited single sequences from individual sites are wholly representative of the landuse of the much larger landscape (Allen 1988) but the large array of sequences will provide some indication of the overall nature of the downland in the Winchester area. We must also remember that most molluscan analyses have been conducted from deposits and features on archaeological sites; these are therefore already biased towards areas of cleared and utilised land by virtue of the existence of the archaeological evidence (*cf* Allen 1994).

A relatively large number (64) of land snail samples was analysed. Each sequence addresses the environment relating to specific chronological or spatial locations and so the reports presented in the following order:

1. Evidence from the barrow.
2. Evidence from the settlement, fields and miscellaneous non-barrow contexts.
3. Evidence from Compton Down and the Itchen valley.

The chapter concludes with a summary discussion of the palaeo-environmental data.

Sample suite

On Twyford Down, a series of sample sequences was taken to provide detail of the landuse and landscape history associated with both the funerary and the occupation activity. This comprised columns of samples through an undated but pre-Bronze Age feature (484) and Neolithic pit 3273 and the barrow ditch. The column samples were augmented by spot samples taken from pre-barrow features in order to provide evidence for pre-barrow and nearby settlement activity and the history of landuse associated with the barrow and settlement.

A detailed series of samples was taken from the Bronze Age–Romano-British lynchets which included the main lynchet feature (Plate 27) on the west of the Down (Area A) and a series through the Celtic field systems to the south of the Down (Area C). These present evidence from the fields for farming activity.

Finally, samples from footslope colluvium on the edge of Compton Common and from a series of dated features within the Itchen valley provide information for the general background of the area.

Augering

To complement the excavations on the downland at Twyford Down, Shawford Down and Compton Common, augering was undertaken along the Itchen valley using a 40mm diameter Dutch auger to assess the depth of deposits and enable crude characterisation, by field description, of the sediment units. On shallow floodplains alluvium may mask archaeology, whilst deeper sequences have the potential to provide superb palaeo-environmental sequences. The Itchen valley at Winnall Moor produced a sedimentary and peat sequence in excess of 4.3m deep, the pollen

Plate 27. Level of survival of main lynchet (81) in Area A during machine trenching of the evaluation.

analysis of which produced a long dated palaeo-environmental sequence (Waton 1982; 1983; 1986). It was hoped to find a complementary sequence in the Itchen Valley below Twyford Down from which the results of pollen analysis could be tied to landscape activities identified from the excavations.

Economy

The development of the farming economy is directly related to the pattern of expansion of the field systems and their use (*see* above). A broad picture of farming from the Bronze Age to early Roman periods is already provided by plant remains reviewed by Monk (1991) from a series of analyses from Winnall Down by that writer (1985) and Keepax (1985), from from Easton Lane (Carruthers 1989) and from a number of Bronze Age ring-ditches (Murphy in Fasham 1982). Similarly, the faunal remains from excavations at Winnall Down (Maltby 1985b), Easton Lane (Maltby 1989) and four ring-ditches (Coy and Maltby in Fasham 1982), reviewed by Maltby and Coy (1991), provide a comparative database for the chalklands around Winchester. For Twyford Down itself, however, the aims of analysis were specific: to determine both the nature of crop and animal husbandry via analysis of the relevant remains and to examine this data in relation to both the physical and environmental evidence of the developing field patterns and the wider landscape.

During the excavations on Twyford Down, a programme of collection of bulk samples was implemented for the recovery of carbonised plant remains by manual recovery, augmented by material from sieved samples. The aims of the faunal and plant remains analyses were to determine the animal husbandry and crop husbandry regimes respectively and to examine this information in relation to the changing pattern and intensification of landscape use on Twyford Down. The analysis of the plant remains (charred seeds and charcoal) were also specifically aimed at addressing questions of the nature of the environment and of the pyres associated with the Bronze Age barrow, to assist in understanding these funerary practices.

Sampling strategies

The faunal remains were largely collected by manual recovery during excavation. However, this was augmented by the sieving of 35 bulk samples for small bones of birds and small mammals, and other microfauna. A large suite of bulk samples was collected for plant remains. These included two main elements: the barrow, and pits and features from the settlement area. A total of 84 samples was taken from both the excavation and evaluation, processed and assessed. From these 33 samples were selected for analysis.

Processing and analytical methods

Land snails

All samples were processed by standard methods outlined by Evans (1972). The shells were identified under a x10–x30 stereo-binocular microscope and the nomenclature follows Kerney (1976a). All preliminary identifications were by Sarah F. Wyles and checked by the writer.

Plant remains

Bulk samples of 10 litres were processed at Wessex Archaeology by standard floatation methods. The flots were retained on a 0.5mm mesh and the residues on a 1mm mesh. The residues (to 1mm) of all selected samples were sorted under a x10 stereo-binocular microscope for plant remains and these, together with the unsorted flots (0.5mm), were presented for analysis.

Identifications were carried out using a low magnification (x6–x50) Wild M5 stereo-microscope. All critical identifications were checked with the modern Seed Reference Collection at the Pitt-Rivers Laboratory, Department of Archaeology, University of Cambridge. Nomenclature follows that of Stace (1991), except for the cereals.

Faunal remains

Faunal remains were collected by manual recovery during excavation. Microfauna and smaller bones were extracted from the residues and flots of bulk samples processed by standard floatation methods. The assemblage was analysed at the Centre for Human Ecology, University of Southampton, using the comparative collection maintained at the Department of Archaeology. The full archive for this assemblage is housed at the Centre for Human Ecology. All measurements follow the conventions of von den Driesch (1976).

The Downland of the Bronze Age Barrow

Land snails from the barrow

The fills of the barrow ring-ditch were sampled and analysed to determine the environmental history of the barrow and also to provide some broader information about the nature of the downland during the use of the monument. The upper tertiary fills provided information about the post-barrow environment which is contemporary with the Bronze Age settlement and lynchets. Some indication of the nature of other areas of the downland in the vicinity has already

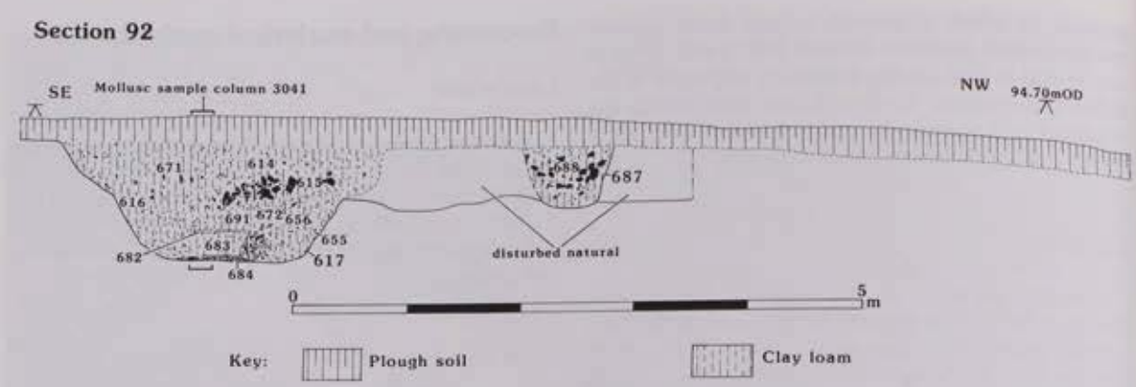


Fig. 40. Ring-ditch 612, section 92 showing location of mollusc column.

been provided by the analysis of land snails from the ring-ditches on Easton Down and Winnall Down (Burntwood Farm R6, Mason 1980; Winnall Down R17, Mason 1982; 1985; Easton Down R7, Mason 1982; Easton Lane, Allen 1989, and reviewed by Evans and Williams 1991). The ring-ditch on Twyford Down provides information to complement this previous work and allows us to attempt to reconstruct a more detailed picture of the nature and use of the Bronze Age downland to the east of Winchester. In the absence of a preserved buried soil, the ditch (Fig 4, section 92 and Fig 40) was sampled in a column of nine contiguous samples (column 3041) and this was augmented by four further spot samples. The spot samples include two pre-barrow features and additional samples from both the primary fill and one ditch fill layer (615) not sampled in the mollusc column (Fig 40). The results are presented in Table 26 and as a composite histogram of relative abundance in Fig 41. It was hoped that land snail analysis would provide a long landuse history for the barrow environs.

Sampled contexts

The two pre-barrow contexts were confined to very shallow, somewhat undefined, features. A single sample was taken from a shallow, possible solifluction or rootbole feature (context 113) and a second spot sample from the single fill of a shallow linear feature (context 617) that was cut both by the ring-ditch and by two burials (687 and 852).

The ring-ditch profile did not display a typical tripartite ditch fill sequence of primary, secondary, and tertiary fills (*cf* Evans 1972, 321–42; Limbrey 1975, 190–200; Allen 1995a). Although the ditch profiles did contain a tripartite sequence, the primary fill in most areas was unusually shallow if present at all (*see* Figs 5 and 6) and in the sampled section episodes of deliberate backfill (eg 672) and dumping of flints (eg 615) as well as numerous burials could be seen. It is, therefore, likely that the ring-ditch itself had a long history of modification which may have included emptying of the primary fills at some stage. The surviving primary fills (eg 685 and 684) were extremely shallow and it is interesting to note that after only five months of weathering in 1990 chalk rubble accumulation in the open ditch was greater than that seen in the excavated sections.

It is important, therefore, to understand the origin of the fills in terms of the possible hiatus/lacuna created by cleaning out the primary fill, by digging into the fills particularly for purposes of insertion of burials, and the nature and origin of deliberately dumped backfill in the ditch. Thus, the molluscan sequence presented below is not easily interpreted and the problems are further exacerbated by the surprisingly unusual composition of the land snail assemblages which provided an unexpected picture of the nature of the land on and around the barrow in the Bronze Age.

The ditch profile: Ditch 612, section 92

depth	context
0.20–0.85	671 *Tertiary fill:* Dark yellowish–brown to brown (10YR 3/4–4/3) silty clay loam with common small chalk pieces and few medium chalk pieces — cut by cremation burials.
spot sample	615 *?Dumped pyre debris:* Dark yellowish–brown (10YR 3/4) clay loam with common to abundant medium and large flint nodules with many pieces of charcoal and relatively large charred pieces of wood. Cut by cremation burials. Radiocarbon dates of 1675–1515 cal BC (UB-3866; 3316±21 BP) and 1680–1525 cal BC (UB-3867; 3294±22 BP).
0.85–1.0	691 *Secondary fill:* Dark yellowish brown (10YR 3/4) clay loam with many small and medium chalk pieces and few medium flints. At base becomes more chalky (682).
1.0–1.2	683 *Secondary fill:* Dark yellowish–brown (10YR 4/4) clay loam with 10% small chalk pieces and few medium angular flints
1.2–1.25	684/5 *Primary fill:* Abundant medium, small and very small chalk pieces and rare flints in a light grey (10YR 7/2) silty clay loam calcareous matrix.

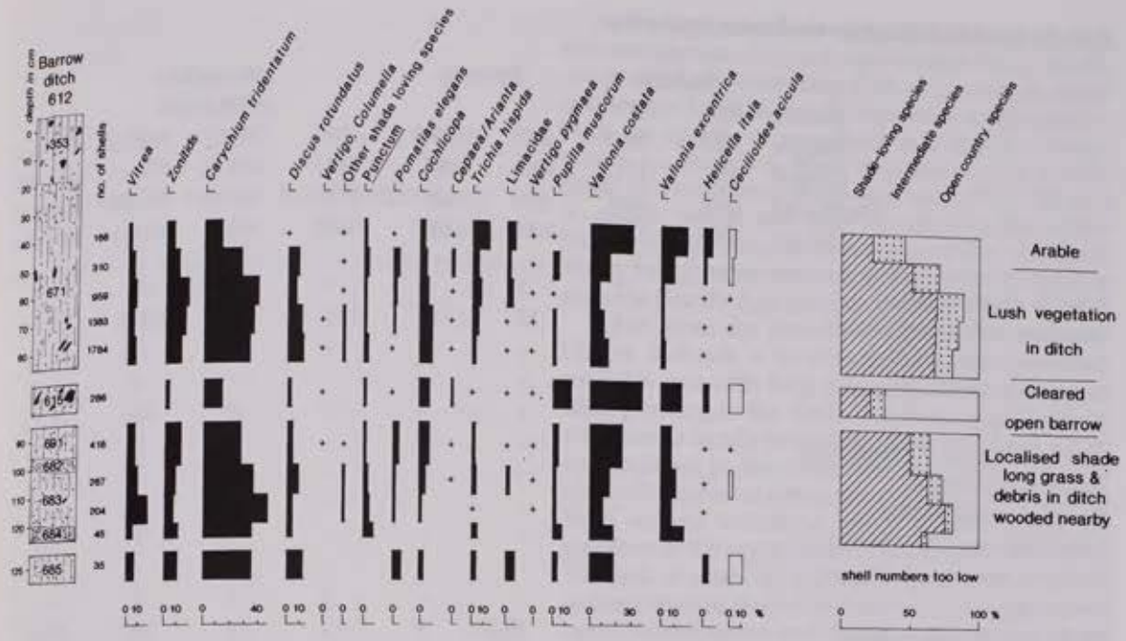


Fig. 41. Mollusc histogram for ring-ditch 612, section 92.

Because of the known pre-Iron Age activity in the area, including a Neolithic pit on Easton Down and other Bronze Age ring-ditches (eg Easton Down, Winnall Down), it was thought that the Twyford Down barrow would have been built in an already established open downland and that the assemblages would provide us with some information about the intensity of use and phases of abandonment between episodes of ritual activity, such has been demonstrated at other barrows in Sussex (Round-the-Down, East Sussex; Allen 1995d) and Hampshire (Buckskin II, Allen *et al.* 1995). However, the environmental picture from the ring-ditch at Twyford Down proved to be unusual and, in some ways, superficially irreconcilable with the known archaeological activity recorded here. The results are presented in Table 26 and as histograms of relative abundance (Fig 41) in which the Zonitids include predominantly *Aegopinella nitidula* and *A. pura* and *Oxychilus cellarius* and the *Vitrea* species are plotted separately. The other shade-loving species are represented by *Acanthinula aculeata, Ena obscura, Cochlodina laminata* and *Clausilia bidentata* (*see* Table 26 for details). Throughout the sequence, some very well preserved shells were recorded, some retaining their periostrocum and these have been recorded separately in Table 26 and excluded from the analysis.

Pre-barrow contexts

The spot samples taken in order to provide some indication of the pre-barrow environment produced only four shells each. Unfortunately, therefore, no palaeo-environmental interpretation can be made from these.

Barrow ditch sequence

With the exception of the primary fills, shell preservation and numbers were moderate to high (up to 1784). The assemblages were species-rich and contained a number of ancient woodland and relatively rare species in low numbers.

The assemblages from both the primary and secondary fills are broadly similar and are dealt with together. In the thin, shallow, primary fills, which were comprised of small and medium (but not large) chalk pieces, shell numbers were typically low (less than 50 shells per kg). In contrast, the secondary fills (683 and 691) were predominantly fine-grained deposits and mollusc numbers were good (averaging nearly 300 shells). The most common species in these assemblages are those belonging to Evans's shade-loving category (1972, 194–6) which attain 76% of the assemblage but gradually decline towards the top of the secondary fill. This group is largely accounted for by the presence of *Carychium tridentatum* which is accompanied by Zonitids, *Vitrea* and *Discus rotundatus*. Significantly open country species, in particular *Vallonia excentrica* and *Pupilla muscorum* are present throughout but in low numbers. The xerophile *Helicella itala* occurs as single individuals in four of the assemblages. The most common open country species is *Vallonia costata* which here is probably occupying the more shady niche in open woodland that it can inhabit (Evans 1972).

Table 26. Land Mollusca from the Bronze Age barrow

	Natural		Primary		Secondary Ditch fills			
Feature	617	113						
Sample	3053	3073	3051	3042	3043	3044	3045	3052
Context	692	1012	685	684	683	683	691	615
Depth (cm)	spot	spot	spot	120–125	110–120	100–110	85–100	spot
Wt (g)	1000	1300	1000	1000	1000	1000	1000	1000
Pomatias elegans (Müller)	+	2	2	–	4	5	15	3
Carychium tridentatum (Risso)	–	1	12	15	92	93	107	37
Cochlicopa lubrica (Müller)	–	–	–	–	–	2	4	2
Cochlicopa lubricella (Porro)	–	–	–	–	–	–	–	1
Cochlicopa spp.	+	–	1	–	5	9	26	16
Columella edentula (Draparnaud)	–	–	–	–	–	–	2	–
Vertigo pusilla Müller	–	–	–	–	–	–	1	1
Vertigo cf. *pusilla* Müller	–	–	–	–	–	–	1	–
Vertigo pygmaea (Draparnaud)	–	–	–	–	–	–	3	4
Vertigo cf. *moulinsiana* (Dupuy)	–	–	–	–	–	–	–	–
Vertigo spp.	–	–	–	–	1	3	2	–
Pupilla muscorum (Linnaeus)	–	–	1	3	3	5	16	37
Vallonia costata (Müller)	1	–	6	7	19	38	95	105
Vallonia excentrica Sterki	–	–	–	7	14	25	31	39
Vallonia spp.	–	–	–	–	–	–	–	–
Acanthinula aculeata (Müller)	–	–	–	–	3	2	–	–
Ena obscura (Müller)	–	–	–	–	–	–	–	–
Punctum pymaeum (Draparnaud)	–	–	–	2	2	4	2	3
Discus rotundatus (Müller)	3	–	4+[1]	2	7	21	18	7
Vitrina pellucida (Müller)	–	1	–	1	1	–	1	–
Vitrea crystallina (Müller)	–	–	–	–	1	1	–	–
Vitrea contracta (Westerlund)	–	–	2	2	30	19	24	3
Nesovitrea hammonis (Ström)	–	–	–	–	6	3	4	1
Aegopinella pura (Alder)	–	–	1	1	2	8	13	4
Aegopinella nitidula (Draparnaud)	–	–	2	3	11	12	32	4
Oxychilus cellarius (Müller)	–	–	[1]	–	1	1	3	–
Limacidae	–	–	2	–	–	6	5	2
Cecilioides acicula (Müller)	–	12	3	–	–	5	1	29
Cochlodina laminata (Montagu)	–	–	–	–	–	1	1	–
Clausilia bidentata (Ström)	–	–	–	–	+	1	–	–
Balaea perversa (Linnaeus)	–	–	–	–	–	–	–	–
Helicella itala (Linnaeus)	–	–	1	–	1	1	3	10
Trichia hispida (Linnaeus)	–	–	1+[1]	2	1	7	7	2
Cepaea hortensis (Müller)	–	–	–	–	–	–	–	–
Cepaea/Arianta spp.	–	–	–	–	–	+	2	5
Taxa	2	3	12	11	19	21	23	19
Shannon index	1.56	1.04	2.08	2.03	1.96	2.28	2.38	2.09
Total	4	4	35	45	204	267	418	286

[ ] = modern/?modern shells, not included in totals or calculations
All totals exclude *Cecilioides acicula*

		Tertiary Ditch fills		
3046	3047	3048	3049	3050
671	671	671	671	671
75–85	65–75	55–65	45–55	35–45
1000	1000	1000	1000	1000
12	25	24	11	2
591	480	361	79	19
17	20	8	1	–
15	16	4	1	–
120	88	48	14	6
–	–	–	–	–
1	–	–	–	–
–	2	–	–	–
7	8	7	2	1
1	1	–	–	–
–	–	–	–	–
30	20	6	11	1+[3]
235	136	68	43	49
52	28	23	29	30
8	–	–	–	–
21	26	10	2	–
6	4	–	–	–
36	18	6	3	1
199	135	56	23	1
10	7	3	2	2
9	–	–	–	–
95	70	55	16	4
26	4	7	4	–
71	95	44	10	1
89	95	109	19	8
44	20	10	3	1
22	9	38	10	10
–	10	11	7	6
–	2	2	–	–
6	2	1	1	1
–	–	1	–	–
3	3	3	5	8
48	67	52	15	19
–	–	1	–	–
10	2	12	6	2
26	26	25	22	19
2.41	2.36	2.31	2.55	2.21
1784	1383	959	310	166

At the top of the secondary fill, the occurrence of two rare species – *Columella edentula* and *Vertigo pusilla* – is particularly interesting. Both occur only as single specimens (Table 26) but their presence is noteworthy; both are species of woodland and shady environments. *C. edentula* is often recorded in wet woods, fields and calcareous marshes (Evans 1972, 153) and *V. pusilla*, which has been recorded in the earlier feature 484, is found on moss, ivy and dry woodland floors, being more common in the earlier Postglacial than the Bronze Age contexts recorded here.

Apart from the above two species, these assemblages indicate a localised shady environment, probably one with long grasses (*C. tridentatum*) possibly growing in the ditch, and more woodland environments locally providing leaves and moss which accumulated in the ditch. This may even have included branches or rotten wood (possibly brought in) from ancient woodland which would explain the presence of the rupestral and rarer species (*V. pusilla*). The lack of more open country species does tend to indicate that the downland here was not large areas of open cleared down and that the colonisation by the full suite of open country species seen elsewhere (eg Easton Lane) had not occurred here. Nevertheless, today the woodland to the west above Plague Pit valley contains *C. edentula* (Allen pers. obs.) and the former ancient woodland fauna in the Itchen valley also harboured specimens of *Helicodondata obvulata* until 1991 (Allen, pers. obs.; in prep.), the occurrence of both indicating the presence of former ancient woodlands.

The layer of dumped material (context 615) is more difficult to interpret because the origin of the shells is not known. Nevertheless, it is significant that a considerably larger proportion of the assemblage is open country with the Vallonias, *H. itala* and *Pupilla muscorum* being an important component. The numbers of shade-loving species drop. This indicates the presence of considerably more open ground from which this soil layer has been obtained; possibly the barrow mound itself.

What is surprising is that the tertiary fills, which in the field were thought to be typical ploughwash deposits, also contain a very high percentage of shade-loving species and even fewer open country species than the secondary fills. The shell numbers in the base of the tertiary fills are very high (1789) but decline to 166 at the top of the sampled sequence. This molluscan evidence seems, therefore, to contradict the sedimentary record and is superficially difficult to explain. Most of the shade-loving species are *C. tridentatum* and species which can live in long grassland refugia. There is no evidence in either the sediments themselves or the mollusc assemblage for shrub regeneration or for the increase in species of the Punctum group which Evans argues is common in vegetation regeneration in ditches. The high shell numbers and species diversity indices (Table 26) indicate a rich fauna and conditions suitable for both shell life and preservation. The shells indicate a rich vegetation, but the deposits are typical of ploughwash. We can reconcile this by

suggesting that local areas were tilled but that large areas of open land did not exist and the accompanying mollusc fauna did not immediately colonise this suitable habitat because of the presence of tracts of woodland (cf. Thomas 1982; 1985).

The upper tertiary fill (0.3–0.5m), however, shows the characteristic decline in shade-loving species and increase in open country. This indicates the onset of more open, disturbed and ploughed conditions and can probably be attributed to the later Bronze Age. They may be coincident with the lynchet recorded to the west of the barrow

Discussion

The recorded sequence (Figs 40 and 41) is far from a typical molluscan sequence from a Bronze Age barrow in southern England. The presence of shade-loving species indicates that tracts of uncleared ancient woodland existed (as shown by the analysis of pit 484; see below) in the earlier–Middle Bronze Age in the vicinity. The clearance of woodland for the construction of the barrow (and presumably for timber to fuel the pyres) is not reflected in the assemblages. Migration of open country species has therefore not occurred, probably because of the nature of inhospitable ancient shade-loving environments in the vicinity. This is probably further compounded here by the presence of long grasses and shade in the ditch, possibly exacerbated by other materials (branches) lying in the ditch making this an ideal refugia for snails (as indicated by species diversity and shell numbers). The barrow mound was, however, cleared of any trees or shrubs and an indication of more open habitats in the immediate vicinity is provided by the shells from the layer of dumped pyre debris, 615.

Ploughing of this landscape is only recorded in the snail assemblages relatively late in the ditch silting history. Eventually, assemblages more typical of open and ploughed downland colonise the ditch fauna in the upper fills.

Summary

The barrow at Twyford Down was constructed in a locally cleared ancient woodland. Only limited areas of this ancient woodland had been previously cleared and tracts of it remained extant throughout most of the Bronze Age. The activity associated with the barrow and the proximity of ancient woodland encouraged long grassy vegetation to grow in the ditches but the mound may have been devoid of vegetation (possibly because it may have been the pyre site). The insertion of burials and cremations resulted in a rapid infill of the ditch which was three-quarters full by the Middle Bronze Age. Although areas of the down were cleared locally of vegetation for other activities, ploughing of the area immediately adjacent to the barrow does not seem to have occurred until after the majority of the funerary activity had ceased, and the down itself was probably not largely deforested and ploughed until the later Bronze Age.

Plant remains from the barrow, by Alan J. Clapham

Plant remains were analysed from 23 samples from the barrow, of which three contained no remains (Tables 27 and 28). In general, the plant remains are well preserved, although those analysed from some contexts are badly eroded. The sampled contexts include cremation burials, pyre debris, inhumations from the barrow ditch and pits and stake-holes. Fourteen of the samples were cremation deposits or pyre debris of Early–Middle Bronze Age date; three of the cremation burials were from the barrow ditch and six were from within the barrow enclosure and all samples of pyre debris were from the ditch. Four samples were from inhumations or grave fills (two from the barrow ditch and two from the barrow enclosure). A further four samples were from the barrow ditch and one sample was taken from a stake-hole (1172), possibly associated with pyre debris 1157, which was cut between graves 1133 and 1186.

Chaff and cereal grains were rarely recorded and the commonest cereal remain is that of Cerealia indeterminate, being present in ten of the samples. The only other cultivated economic taxa identified is a single example of a flax seed (*Linum usitatissimum* L.).

Taxa of non-economic importance were found in the samples, mainly as single finds except for the presence of remains of onion couch grass (*Arrhenatherum elatius* var. *bulbosum* (Willd.) St Amans), indeterminate parenchyma and, in one sample, six pignut tubers (*Conopodium majus* (Guoan) Loret). Charcoal was found in all of the samples, some containing very little else. Modern intrusive seeds were present in most samples, mainly as roots.

Inhumations

Of the four samples from Bronze Age inhumations and grave fills, three contained charred plant remains; one (from inhumation 1049) contained charcoal, molluscs, and human bones but no plant remains. Most of the plant material consisted of unidentifiable cereal remains with single finds of an indeterminate legume and onion couch grass rootlet (Table 27).

Cremation burials

The nine samples from cremation burials contained very little evidence of economic activity and no identifiable cereal grains were recovered (Table 27). Indeterminate cereal remains were present in only five samples. The most consistently recovered remains were of onion couch grass tubers and rootlets as well as indeterminate fragments of parenchyma.

Table 27. Plant remains: analysis of samples from the Bronze Age cremation and inhumation burials in the barrow.

Sample	3095	3090	3060	3003	3001	3038	3039	3058	3059	3083	3063	3062
Context	1162	1002	851	603	609	661/662	670/696	857	866	1124	858	867
Description	barrow ditch			cremation burials barrow enclosure						inhumation burials barrow ditch	barrow enclosure	
	vessel 2027		pit 881	pit 602	pit 608	pit 660	pit 669	pit 856	pit 865	1110	883	883
Hordeum sp. paleas	–	–	–	–	–	–	–	2f	–	–	–	–
Cerealia indet.	24f	–	–	–	–	1f	–	5f	12f	10f	7f	19f
Cerealia embryo	–	1	–	–	–	–	–	–	–	–	–	–
Corylus avellana nutshell	–	–	–	1f	–	–	–	–	2f	–	–	–
Chenopodium sp.	–	–	–	–	1f	–	–	–	–	–	–	–
Sanguisorba minor	–	–	–	–	–	–	–	–	1	–	–	–
Trifolium/Medicago sp.	5	–	–	–	–	–	–	–	9	–	–	–
Legume indet.	–	–	–	–	–	–	–	–	–	1f	–	–
Conopodium majus pignut tubers	–	–	–	–	–	–	–	–	6t	–	–	–
Rhinanthus minor	–	–	–	–	–	–	–	–	1	–	–	–
Plantago lanceolata	–	–	–	–	–	–	–	–	1	–	–	–
Galium aparine	2	–	–	–	–	–	–	–	–	–	–	–
Arrhenatherum elatius ssp. *bulbosus*	7t+23r	7r	–	2r	8r	3r	6t	7t+13r	38t+104r	–	1r	1r
Poaceae indet.	–	–	–	–	–	–	–	–	2	–	–	–
Parenchyma indet.	–	6f	21f	8f	18f	–	10f	–	–	–	–	–
Stems/roots/twigs	–	–	–	8	6	–	1	–	–	–	–	1
Unident.	3	–	–	–	–	–	–	–	–	–	–	–

f = fragments; r = roots/rootlets; t = tubers

Single examples of salad burnet (*Sanguisorba minor* Scop.) and yellow hayrattle (*Rhinanthus* sp. L.) were identified from cremation burial 866 in vessel 2019.

Pyre debris layers

Five samples from layers 615 and 1157 were analysed for plant remains (Table 28). Cereal remains include single finds of a spelt (*Triticum spelta*) glume base, a wheat grain, an indeterminate wheat spikelet fork and a barley grain. Two fragments of indeterminate cereal grains were also recovered. Other finds include single examples of hazel nutshell (*Corylus avellana* L.), fumitory (*Fumaria officinalis* L.), dock (*Rumex* sp. L.), cleavers (*Galium aparine* L.), buttercup (*Ranunculus acris/repens/bulbosus*), hedge parsley, (*Torilis* sp. Adans.) and black nightshade (*Solanum nigrum* L.). Indeterminate legumes (vetches, vetchlings and clovers), and unidentifiable grasses were also recovered. The most common finds are those of tubers and rootlets of onion couch grass and indeterminate parenchyma fragments which were present in all samples.

Barrow Ditch

Only two of the samples contained any charred plant remains other than charcoal, which was present in large quantities in samples from contexts 1144 and 1041. Representatives of economically important taxa are sparse, with records of one barley rachis fragment from the fine secondary fill (context 616) and three fragments of indeterminate cereals from a rubbly secondary fill (context 643), this sample also contained one find of flax seed. A single tuber of onion-couch grass was recovered from the fine secondary fill (context 616) along with 23 fragments of indeterminate parenchyma.

Discussion

By far the most common finds within each sample are onion couch grass tubers and rootlets, along with parenchyma fragments. Eight of the nine cremation samples contained remains of this grass species as did all five samples from the pyre debris layer, 615. Identifiable remains of cultivated plants were very rarely recovered, and those that were came mainly from the

Table 28. Plant remains: analysis of samples from the Bronze Age barrow ditch and other features.

Sample	3011	3012	3019	3020	3091	3026	3056	3096
Context	631	628	649	650	1157	653	616	1173
Description		pyre debris: layer 615			pyre debris: layer 1157	layers in ditch		stake-hole 1175
Triticum spelta glume base	1	–	–	–	–	–	–	–
Triticum sp. grain	–	–	1	–	–	–	–	–
Triticum sp. spikelet fork	–	–	1	–	–	–	–	–
Hordeum sp. grain	1	–	–	–	–	–	–	–
Hordeum sp. rachis frag.	–	–	–	–	–	–	1	–
Cerealia indet.	–	–	–	2f	–	3f	–	1f
Ranunculus a/r/b	–	–	–	1	–	–	–	–
Fumaria officinalis	–	–	–	1	–	–	–	–
Corylus avellana nut shell	1f	–	–	–	–	–	–	–
Rumex sp.	–	–	–	1	–	–	–	–
Vicia/Lathyrus sp.	–	3	2f	2f	–	–	1	–
Trifolium medicago sp.	–	–	2	–	–	–	–	–
Linum usitatissimum	–	–	–	–	–	1	–	–
Torilis sp.	–	–	–	1	–	–	–	–
Solanum nigrum	–	–	–	1	–	–	–	–
Galium aparine	–	–	1	–	–	–	1	–
Arrhenatherum elatius ssp. *bulbosus*	3t	9t+10r	10t+21r	9t+20r	1t+1r	–	1t+5r	–
Poaceae indet.	–	2	–	–	–	2	–	–
Culm nodes	–	9	–	2	–	1	1	–
Parenchyma indet.	32f	115f	53f	99f	43f	–	23f	–
Stems/roots/twigs	–	5	–	9	–	–	6	–
Unident.	–	–	–	1	–	–	–	–

f = fragments; r = roots/rootlets; t = tubers

pyre debris layers 615 and 1157. Associated weed species were also rarely recorded.

It may be suggested that the remains represent tinder used to fire the cremation pyres, as suggested by Robinson (1988), Moffett (1991), and Clapham (1995). Other remains, such as pignut and parenchyma fragments, along with possible representatives of grassland, such as the grass caryopses, clovers, vetches/vetchlings and ribwort plantain, imply that turf may have been used or burnt *in situ*. Moffett (1991) suggests that pignuts are very difficult to uproot as the stems break off at ground level. The presence of charred, possible stems/roots can also be used as evidence for the use of turf during cremation.

Onion couch grass and pignut tubers are also edible, as stated by Godwin (1975) and, therefore, the possibility that they could have been gathered for ritual purposes must also be taken into consideration. Other edible wild foods present include hazelnuts and blackberry. The unidentifiable parenchyma remains may also represent a food resource but this is difficult to determine.

The ditch samples from the Bronze Age Barrow consisted mainly of charcoal, which may have been redeposited from the cremation burials present in the ditch and within the barrow. There is very little evidence from the plant remains to give an indication of the surrounding environment, although the presence of the onion couch grass and those plant taxa mentioned above, along with single finds of salad burnet and hay rattle, suggest the presence of species-rich grassland. Buttercup, hedge parsley, black nightshade and cleavers intimate the presence of an arable component in the area.

One site which may be of some use as a comparison, is that of Hartshill Barrow, West Overton, Wiltshire excavated by Evans and Swanton in 1987 (unpublished). On this site a large cremation cemetery was excavated and samples taken for charred plant analysis. The analysis found that many of the samples from the cremation burials contained tubers and rootlets of onion couch grass (a total of 191 tubers and 113 rootlets from 18 samples) and 84 tubers of pignut from seven samples. Like the remains at Twyford Down, the tubers were well preserved.

Onion couch grass tubers are now being found from a large number of Bronze Age sites, especially cremation deposits, all over Britain. Whether, these

Table 29. Animal bones: number of identified specimens (NISP) hand-retrieved from the Bronze Age barrow.

	Horse	Cattle	Sheep	Goat	Sh/Go	Pig	Dog	Red deer	Roe deer	Fox	Badger	Wild cat	Total id.
Skull	–	2	–	1	34	–	5	1	–	–	1	–	44
Horn-core/ antler	–	6	–	1	–	–	–	–	–	–	–	–	7
Maxilla	–	–	–	–	2	–	1	–	–	–	–	–	3
Mandible	2	9	1	2	6	–	1	–	–	–	–	–	21
Loose teeth	2	47	1	1	22	3	8	6	–	2	2	–	94
Hyoid	–	1	–	–	1	–	–	–	–	–	–	–	2
Atlas	–	–	–	–	1	–	–	–	–	–	–	–	1
Axis	–	–	–	1	–	–	–	–	–	–	1	–	2
Scapula	–	3	1	2	2	–	–	–	–	–	–	–	8
Humerus	–	6	–	2	7	2	–	–	–	–	2	1	20
Radius	1	6	–	2	7	–	–	–	1	–	1	–	18
Ulna	1	4	1	2	1	–	–	–	–	–	1	–	10
Vertebra	–	5	–	–	30	–	3	–	–	–	–	–	38
Rib	–	–	–	–	69	–	–	–	–	–	10	–	79
Sternum	–	–	–	4	–	–	–	–	–	–	–	–	4
Pelvis	–	3	1	2	–	1	–	–	–	–	2	–	9
Sacrum	–	–	–	1	1	–	–	–	–	–	bac	–	2
Femur	–	5	–	2	3	–	1	–	–	–	–	–	11
Tibia	–	4	2	2	12	–	–	–	–	–	2	–	22
Fibula	–	–	–	mal	–	–	–	–	–	–	1	–	1
Patella	–	–	1	2	1	–	–	–	–	–	–	–	4
Calcaneus	–	3	–	2	–	–	–	–	–	–	–	–	5
Astragalus	–	2	–	2	–	–	–	–	–	–	–	–	4
Tarsal	–	–	–	5	–	–	–	–	–	–	–	–	5
Carpal	–	5	–	9	1	–	–	–	–	–	–	–	15
Metacarpal	–	4	–	2	5	–	–	–	–	–	2	–	13
Metatarsal	–	4	–	2	6	–	–	1	1	–	3	–	17
Sesamoid	–	3	–	3	1	–	–	–	–	–	–	–	7
Phalanx I	–	2	–	8	1	–	2	–	–	–	–	–	13
Phalanx II	–	2	–	6	2	–	–	–	–	–	–	–	10
Phalanx III	–	1	–	7	–	–	–	–	–	–	–	–	8
Total	6	127	8	73	215	6	21	8	2	2	28	1	497
%	1	26	2	15	43	1	4	2	<1	<1	6	<1	
Unident.													1134

bac = baculum; mal = lateral malleolus

Other Taxa: *Apodemus sylvaticus* 1, Amphibian indet. 1; bird (raven, duck) 5; *Rana temporaria* 1; *Bufo* sp. 4

remains represent pyre food offerings for the deceased or, as suggested by Robinson (1988), the remains of tinder used to fire the pyre is difficult to unravel. Although in the case of Twyford Down possible re mains of charred roots were also present in those samples containing the onion couch grass tubers, it can be suggested either that they were used as a tinder or that turves containing the tubers were used for this purpose.

Conclusion

The charred plant remains from the barrow are dominated by the tubers and rootlets of onion couch grass. Cereal plant remains are also present, although not in large quantities and unlike the other sites excavated along the M3 corridor, very few other representatives of an arable based economy are present.

The area surrounding the barrow, from the analysis of the charred plant remains, implies that it was

mainly grassland, although the presence of the onion couch grass tubers may suggest abandoned arable land (Robinson 1988). There is little evidence for the presence of cultivation as there appear to be very few seeds of plant species which grow in arable or disturbed ground, although the presence of the small number of cereal remains suggests that cultivation did occur in the area.

Animal bones from the barrow, by Adrienne Powell, Kate M. Clark and Dale Serjeantson

Animal bone was recovered from the ring-ditch and other internal features of the barrow, including some bone in direct association with human burials. The fragment count for the hand-retrieved material is shown in Table 29. A total of 1643 fragments was examined, of which 508 were identified to species (30.7%). In addition, 35 contexts produced sieved samples containing bone. These are shown in Table 30.

The hand-retrieved portion of the material is dominated by the remains of sheep, goat and cattle. Horse, pig, dog, red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), fox (*Vulpes vulpes*), badger (*Meles meles*) and wild cat (*Felis silvestris*) are present in smaller numbers. With the exception of the material discussed below, most is very eroded and fragmented.

All the goat bones, with the exception of an isolated horncore, came from a single individual from feature 852 (Plate 28). Most skeletal elements are represented, with the exception of a few of the smaller bones such as carpals, tarsals and distal phalanges. Measurements are held in archive. This animal had a full adult dentition, of which the left mandible was at wear stage F (Payne 1973), with the right slightly more worn at stage G. All limb bone epiphyses were fused, although the line of fusion was still visible on the proximal tibiae. Therefore, the combined dental and bone fusion data suggest an animal of 3½–6 years, probably around 4 years old. The proximal left metatarsal of this animal is dominated by massive proliferation of reactive bone, although the articular surface is unaffected. A post-mortem break shows invasion of the medullary cavity with complete obliteration of cortical bone on the latero-anterior aspect. This goat would have been very lame. No other signs of pathology were apparent. Calculation of withers height using the factors of Schramm (quoted in von den Driesch and Boessneck 1973) indicates an animal standing between 56.5cm and 58.5cm. Reference to the Animal Bone Metrical Archive Project (Centre for Human Ecology 1995), shows that there are no contemporary specimens with which to compare the Twyford Down individual.

The cattle bones from contexts 636 and 1035 represent more than one individual; however, it is likely that the bulk of the remains came from one animal: a right astragalus from context 636 articulates with a right calcaneus from context 1035. Context 1035 also contained an articulating group comprising right humerus, radius and ulna. The presence of a fragmented but complete skull, ribs, vertebrae (including

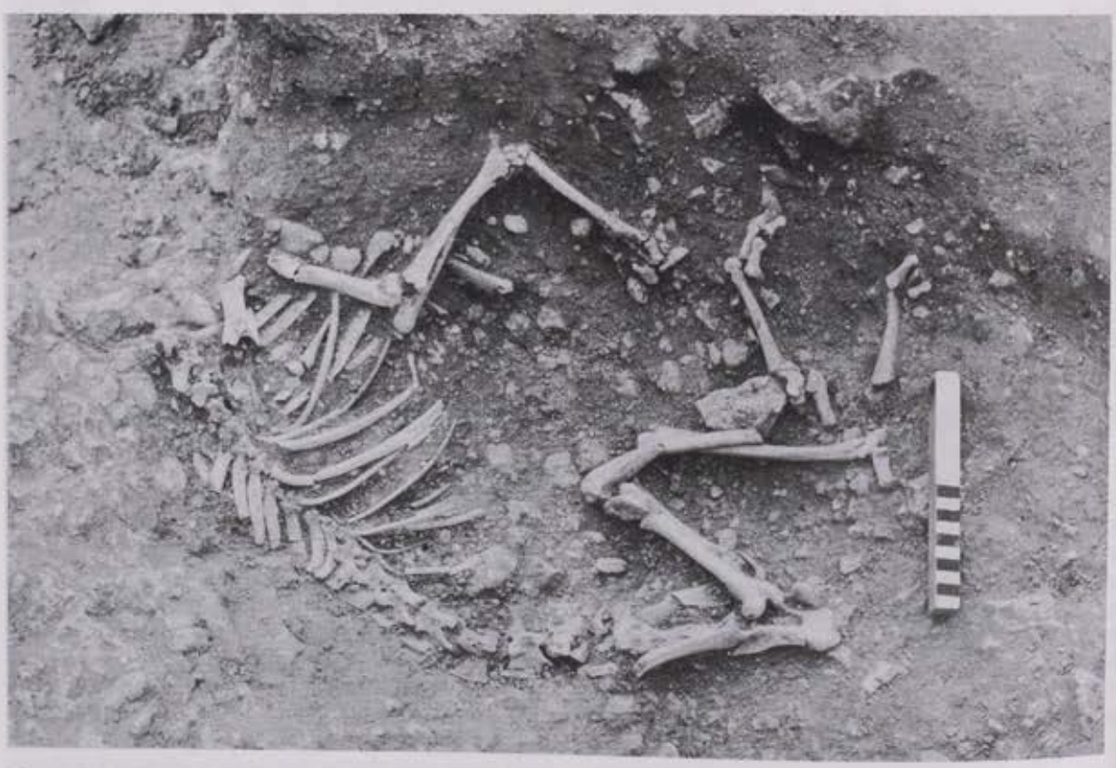


Plate 28. Articulated goat skeleton in pit 852.

Table 30. Animal bones: NISP from sieved Bronze Age contexts.

Context	509	607	616	623	639	646	647	649	650	653	670	686	830	843	851	857	866	955
Type	1	4	2	7	3	7	7	7	7	5	4	3	4	7	4	4	4	9
Cattle	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–
Roe deer	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Sheep/goat	–	–	–	1	–	–	–	–	1	–	–	–	–	8	–	–	–	1
Dog	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fox	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–
Badger	–	–	–	–	–	–	–	–	3	–	–	–	–	3	–	–	–	–
Woodmouse	–	–	–	–	1	–	–	–	–	–	–	x	–	–	–	–	–	–
Water vole	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Field vole	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bank vole	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small vole	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–
Small rodent	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–
Mole	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Common shrew	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Bird	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–
Slow worm	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lizard indet.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Reptile indet.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Frog	–	–	x	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–
Toad	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Amphibian indet.	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–
Fish	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–
(Mollusc)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Large mammal	–	–	–	–	–	–	1	–	1	2	–	–	–	2	–	–	–	–
Small mammal	–	–	–	–	1	–	–	–	3	–	–	–	9	15	–	–	–	–
Unident.	–	1	–	–	1	1	–	1	1	–	1	–	1	523	1	–	1	8
Total	2	2		1	5	3	1	1	10	3	1		13	565	2	1	1	10

Table 30. Continued.

Context	1002	1005	1018	1036	1035	1041	1062	1085	1110	1124	1136	1144	1147	1157	1162	1173	1184	1188	Total
Type	8	7	3	7	8	2	3	3	3	3	3	3	2	4	7	6	3	3	
Cattle	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	11
Roe deer	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Sheep/goat	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	14
Dog	–	4	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	8
Fox	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Badger	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8
Woodmouse	–	1	–	x	–	–	21+	–	4	x	2	–	–	–	1	–	–	–	30
Water vole	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Field vole	–	3	–	–	–	1	56	–	2	–	–	–	–	–	–	–	–	–	62
Bank vole	–	1	–	–	–	–	9	–	10	–	–	–	–	–	–	–	1	–	21
Small vole	–	2	–	–	–	–	9	–	3	x	1	–	–	–	–	–	–	–	15
Small rodent	–	6	–	–	–	–	45	1	56	–	7	x	–	2	3	–	1	1	124
Mole	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Common shrew	–	–	–	–	–	1	24	–	–	–	–	–	–	–	–	–	–	1	27
Bird	–	–	–	–	2	–	3	–	–	–	–	–	–	–	–	–	–	–	7
Slow worm	–	–	–	–	–	92	48	–	–	–	–	–	–	–	–	–	–	–	140
Lizard indet.	–	3	–	–	–	3	10	–	–	–	2	–	–	–	–	–	24	–	42
Reptile indet.	–	–	1	x	–	4	14	–	1	–	–	–	–	–	–	–	16	–	36
Frog	–	–	–	–	–	–	–	–	–	x	1	–	–	–	–	–	–	–	3
Toad	–	–	–	–	–	–	1	–	–	–	3	–	–	–	–	–	–	–	5
Amphibian indet.	–	3	–	–	–	4	14+	–	–	–	2	–	x	–	–	–	1	12	38
Fish	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
(Mollusc)	–	–	–	–	–	–	–	(1)	–	–	–	–	–	–	–	–	–	–	(1)
Large mammal	–	–	–	x	–	—	–	1	–	x	–	–	–	3	–	–	–	–	10
Small mammal	1	4	–	–	–	–	–	–	–	–	–	–	–	17	2	–	–	1	53
Unident.	9	88	–	–	–	3	257	–	6	–	37	–	–	71	14	1	18	8	1052
Total	12	118	1		2	108	511	3	82		55			98	20	1	62	24	1718

x = present but unquantified
Context type: 1: lynchet (positive); 2: secondary silt; 3: grave fill; 4: cremation burial; 5: primary rubble; 6: stake-hole; 7: flint/ash rubble; 8: flint fill; 9: pit fill

Table 31. Animal bones: dog measurements.

	Element	Side	Measure	(mm)
Bronze Age				
Barrow	Maxilla	R	Length M^1 alveolus	12.7
		R	Length carnassial alveolus	19.5
		L	Length carnassial alveolus	19.2
	Mandible	L	Ht vertical ramus	53.3
			Ht mandible at M_1	23.3
			Thickness at M_1	11.4
			Length molar row	35.4
			Length carnassial alveolus	22
	Femur	R	Depth caput	17.8
	Mandible	R	Ht mandible at M_1	25.3
			Thickness at M_1	11
Trackway 59	Upper carnassial	L	Length	17.9
Late Iron Age/early Romano-British				
Post-hole	Mandible	L	Length carnassial alveolus	20.3
	Mandible	L	Length carnassial alveolus	22.2
			Length molar row	38.1
			Ht mandible at M_1	25.3
			Thickness at M_1	11.7
Pit	Humerus	R	Proximal depth	37.5
			Shaft breadth	12.1

caudal vertebrae) and distal limb bone elements, suggests that the entire carcase was originally present. It was not possible to age the animal using dental information; however, the proximal humerus was unfused, indicating an animal less than four years old. The evidence for dog gnawing on the calcaneus suggests the carcase was not buried immediately.

The dental data for cattle (3 M_3s) suggest the cattle were rather old: one elderly adult and two senile (Halstead 1985). However, there was material from younger animals — a humerus, unfused distally, possibly neonatal. Only 28 fragments out of the total exhibited gnaw marks, mainly carnivore; three fragments showed knife cuts from butchery, and five fragments were burnt.

Cranial and mandibular dog remains were found in with pyre debris (contexts 876, 1002, and 1157) and unurned cremation burial 1005 in layer 847. As fragments of the same mandible were found in 876 and 1002, it is assumed that all the remains from these contexts came from the same dog and it is possible, on the basis of measurement, that the lower carnassial and upper canine from 1005 are also from this individual. Context 1005 contained remains of both adult and neonate animals, the pup being represented by a scapula. All the dog fragments, except for a femoral head from context 847, are from material in pyre debris/unurned cremation deposits but none of the dog bone is burnt. In addition to the pup, there are probably two older dogs represented in the barrow, both of which have adult dentition but virtually no wear on the premolar teeth. On the basis of the size of two upper third premolars and a canine tooth in context 1157, one of the dogs is not much larger than a modern fox. Measurable dog bones are detailed in Table 31. No butchery marks were visible, although dogs almost certainly were eaten in the Bronze Age (Olsen 1994; Cunliffe 1991).

There are three bones from wild carnivores; two loose teeth of fox and a humerus of wild cat. The latter species has also been identified at the Bronze Age settlements of Brean Down, Somerset (Levitan 1990) and West Row Fen, Suffolk (Olsen 1994).

The badger remains also represent one animal, a small individual with a weak sagittal crest compared to modern reference specimens. This was a mature male, with all bones fused and a worn dentition. The oral portion of the M_1 was broken away, with this half of the alveolus filling but no other signs of pathology. The bones came from more than one context and stratigraphic unit; they were mainly from the adjacent ditch segments 875 and 613. However, the right mandible came from ditch segment 813, several metres away from the articulating left mandible in segment 613. This scattering of the bones and their more weathered surface texture implies that, in contrast to the goat, which was buried in a pit, the badger may not have been deliberately buried but was probably

Table 32. Animal bones: identification of worked bone objects.

Context	SF no.	Species	Anatomy	Artefact	Burnt?
607	2529	s/g size	long bone splinter	point	Y
607	2537	s/g size	long bone splinter	point frag; joins 2529	Y
607	2530	s/g size	metapodial medial	pierced & polished	Y
607	2527	s/g size	long bone splinter	point	Y
607	2536	s/g size	long bone splinter	joins 2527 to 2530	Y
607	2547	s/g size	long bone splinter	polished point segment	N
607	2539	s/g size	medial metapodial	joins 2531	Y
607	2546	s/g	metapodial medial	pierced	Y
607	2531	s/g size	metapodial medial	pierced point	Y
607	2532	s/g	metacarpal	point (heat distortion)	Y
609	2535	cattle size	long bone splinter	ring from section of tib. or rad.	Y
838	2548	s/g size	medial metapodial	pierced	N
872	2028	s/g size	metatarsal	point	N
1035		s/g	metatarsal	point	N
1162	3095	unid.	unid.	pierced	N
1167	2513	s/g size	femur	point	N

exposed long enough for scavengers to disperse the carcase. However, the badger remains do not appear to have been subjected to the attentions of dogs, which might suggest that dismemberment and dispersal of the carcase occurred in some isolation from human activity. Evidence of badgers is not unusual on Bronze Age sites, both ritual and domestic. Remains have been identified at the cremation cemetery at Down Farm, Woodcutts, Dorset (Legge 1991), an early Bronze Age burial monument ditch at Avebury, Wiltshire (Grigson 1980), and the Late Bronze Age domestic sites at Bishops Cannings Down and Dean Bottom on the Marlborough Downs, Wiltshire (Maltby 1985a).

Remains of at least three sheep/goat were recovered; they range from 6 months to 6 years of age from the dental evidence (Payne 1973). Only eight bones were positively identifiable to sheep. Most of the vertebrae and rib identifications recovered appear to be from the goat skeleton discussed above.

The mandible of a horse was found in the north terminal of the ditch (context 817), recovered in a fragmented condition. Age estimates on the crown heights of the teeth range from 2–6 years, although most of the teeth suggest about 5 years (Levine 1982). There was little evidence of alteration on the bones although such evidence may have been obscured or destroyed by the sometimes severe surface erosion. The horse was an important and still quite rare animal in the mid-second millennium BC. Placing the horse mandible in the ditch terminal is more likely to have been a deliberate act rather than the chance disposal of waste bone.

The bones within the ring-ditch, therefore, include a number which have been deliberately placed in the burial monument and others which are disarticulated fragments from food consumption.

Worked bone

Fourteen worked bone objects were recorded from the barrow. These are discussed in Chapter 4, above. The identifications of worked bone material are detailed in Table 32.

Birds

Most of the bird bones came from the sieved samples, only six being recovered by hand — four of raven and two of small wild duck. Identifications of birds are detailed in Table 33. Ravens are found on other sites in both ritual and domestic contexts, for instance in Iron Age contexts at Danebury (Serjeantson 1991; Coy 1984), although they do scavenge on human settlement and so their incorporation into the site could be accidental. At Twyford Down they are identified in the ring-ditch, in the agricultural soil, flint/ash deposit, and in the secondary silt. The duck remains could derive from human deposition or have been the prey of, for example, fox or raptor.

Fish

Fish were represented by three vertebrae of eel (*Anguilla anguilla*), trout (*Salmo trutta*) and a salmonid (P. Smith, pers. comm.). These are most likely to be food residues.

Microfauna

There are a realtively large number of bones of micromammals and amphibians present in the barrow contexts which are unlikely to be anthro-

Table 33. Animal bones: bird bone.

	Context	Species		Anatomy
Bronze Age barrow				
Tertiary fill	876	raven	*Corvus corax*	tibiotarsus
	876	duck	*Anas* sp.	wing digit
Flint/ash deposits	615	raven	*Corvus corax*	humerus
	843	passerine	*Turdus* sp.	distal ulna
	843	small passerine	–	proximal ulna
	1035	passerine	Turdidae	humerus
	1035	passerine	–	humerus
Secondary silts	616	raven	*Corvus corax*	femurs R, L
Inhumation burials	1062	passerine	–	humerus
	1062	blackbird/ouzel size	*Turdus* sp.	humerus
	1062	unident.	–	tarsometatarsus
	1063	duck (prob. teal)	*Anas* sp.	coracoid
Late Iron Age/early Romano-British settlement				
Pit	5456	passerine	*Turdus* sp.	7 bones: humeri, radius, ulnae, metatarsal

pogenic in origin. Nearly all of these were retrieved from the sieved samples. Identification of small mammals is based mainly on Yalden and Morris (1990) and Hillson (1986).

Field vole (*Microtus agrestis*) was the most frequent in the identified micromammal remains, followed by woodmouse (*Apodemus sylvaticus*), common shrew (*Sorex araneus*), bank vole (*Clethrionomys glareolus*), water vole (*Arvicola terrestris*) and a single occurrence of mole (*Talpa europaea*) which may well be intrusive.

The bones of reptiles and amphibians were well represented and both frog (*Rana sp.*) and toad (*Bufo bufo*) are present. It was not possible to identify the reptiles to species, with the exception of slow worm (*Anguis fragilis*) (Yalden, pers. comm.), which was represented by the numerous dermal plates only, although vertebrae described as 'reptile indet' may belong to this species. Slow worm does not appear to have been reported previously from Bronze Age sites in Hampshire.

The remains associated with skeletons 1110 and 1136 represent the contents of samples taken from the crania of two human interments. The occurrence of woodmouse, two species of vole and a reptile in one skull, and woodmouse, vole, lizard and amphibian in the other, invites consideration of the mechanism for the deposition of these remains. Burrowing activity and subsequent occupation of the cavity within the cranium may be an explanation but the human skeletons were recovered 0.9m below the original ground surface and the bank vole does not burrow below 0.1m (MacDonald and Barrett 1993). Legge (1991) has discussed the occurrence of toad skeletons recovered from within a cattle skull buried in a Grooved Ware pit at Firtree Field, Cranborne Chase; he considers that these toads attempted to use the skull as a place to hibernate. He points out that toads can burrow 0.4m into loose soil in order to hibernate and that they are able to climb even vertical surfaces of rough texture making them unlikely pitfall victims. However, in the case of the Twyford Down small mammals, bioturbation may be a more likely answer; context 1062, the grave fill 1133, is the most prolific deposit in terms of microfaunal content and includes remains of all the species identified in the cranium alone. They are unlikely to be pitfall victims in such a shallow feature. If these animals are contemporary with the human skeleton, it may be that the matrix of the fresh grave fill was in some way particularly attractive to them, either as a habitat or because of incorporated edible matter.

All the species in the microfaunal assemblage are environmentally compatible. *Arvicola terrestris* is adaptable and catholic in its environmental requirements but, in Britain, still associates with areas of fresh water, from ditches to lakes. *Microtus agrestis* favours grasslands, young or open woodland, heaths and dunes but needs sufficient grass height to provide cover. It prefers damp ground and excavates shallow burrows beneath the ground or surface runs below a thick mat of grass. *Clethrionomys glareolus* similarly likes the cover of scrub and herbage, nesting in radiating tunnel systems. *Apodemus sylvaticus* also creates burrow systems, incorporating food storage chambers; this animal is adaptable and will occupy woodland, arable, bracken and bramble scrub and dunes. *Sorex araneus* favours thick grass, bushy scrub or bracken, and uses the burrows of other species for nesting, although it is capable of locating (often by echo-location) and digging out prey from 0.12m depth in soil. The slow worm probably has the most constrained environmental requirements of this

group, needing a well vegetated, damp habitat with extensive ground cover, such as glades in woods or lush scrub (Arnold and Burton 1978), where it feeds mainly on small slugs.

The microfauna indicate a local environment which is damp and probably scrubby grassland or glade rather than fully wooded. Their concentration in one particular context is notable — 54.8% of the total sieved contribution identified to species or genus is from this grave.

Wood, Farm and Field: Landuse History of Twyford Down

This section presents environmental evidence from non-barrow contexts, principally associated with evidence for later Bronze Age–early Roman settlement and field systems on Twyford Down. Land snails from the upper tertiary fills are also considered, however, as they provide information on the post-monument environment.

Land snail evidence

Pre-Bronze Age Environment

Feature 262/484: A large undated feature, 262/484, in excess of 2m across and 1m deep was sealed beneath the thin toe of the main ?Bronze Age lynchet (Area A, 81, Fig 10) excavated across Twyford Down, the land snail analysis of which is reported below. Although undated, this feature was sampled to provide information about the pre-barrow and earlier landscape of Twyford Down.

The feature (Figs 42 and 43) seems to have been a composite one, comprising a mass of lenses of chalk rubble (262) in which was a bowl of later, finer sediments (484). Neither elements contained any dating evidence and are not obviously man made. The origin of the feature is unknown but it may represent a very large tree-throw hollow formed in an earlier (periglacial) weathering feature. In section, the main fills (262) comprised bedded horizons of chalk rubble and chalk wash overlain by a pale brown silty layer (487), possibly containing derived loess. Within this feature was a bowl of soil material up to 0.7m deep. Although considerably larger, it is not dissimilar in composition from the tree-throw hollows described by Macphail (1987) and Macphail and Goldberg (1990), which comprise a mass of loose weathered chalk (derived from the root ball) and a humic soil infill. Examples include Balksbury, Hampshire (Macphail in Wainwright and Davies 1995; Allen 1995b, Fig 69).

Two short columns of five and four samples were taken from the main soil fill of the feature and a large spot sample was taken from the chalk deposits (Fig 42). The sampled contexts are summarised below:

Feature 484	
0.2–0.4 m	132 Dark yellowish–brown (10YR 4/4) almost stone-free silt loam. Weak blocky structure, rare small chalk pieces and medium flints. Gradual smooth boundary with 479 but clear smooth boundary with 480.
0.4– 0.6 m	479 Dark yellowish–brown (10YR 3/4) almost stone-free calcareous silty clay loam. Weak blocky structure, rare small chalk pieces and medium flints. Clear smooth boundary
0.5–0.8 m	480 Yellowish–brown (10YR 5/4) silt loam with common to many small and medium chalk pieces. No structure discernible in the field, clear smooth boundary.
0.8–0.9 m	481 Dark brown (10YR 4/3) silt loam with common medium and large chalk pieces and common medium flints, sharp smooth boundary. Considered to be the 'primary' fill of 484.
Feature 262	
spot sample	483 Very pale brown (10YR 7/4), almost stone-free coarse silty loam, few small and very small chalk pieces.

Apart from in the coarse silty (?loess) loam (483), mollusc preservation was good and shell numbers were moderate to high with high species diversity indices (Table 34), although fewer shells were preserved in the upper, less calcareous, silty deposits (132). Adequate numbers of shells were ensured by processing samples of at least 1.5kg from this feature rather than the 1kg standard used elsewhere.

The silty fills at the base of the sampled sequence contained few shells (Table 34) but produced predominantly shade-loving species. With the exception of this assemblage, the remainder can be broadly divided into groups on the basis of the mollusc assemblage composition and the environment they represent, which coincidentally correspond to the basic fill divisions.

The assemblage from the silty loam at the base of the sampled sequence from feature 262 was predominantly shade loving (*Discus rotundatus*) but, significantly, it contained the only specimen of *Abida secale* from this sequence. This small assemblage is difficult to interpret. Although generally comprised of shade-loving species, *Abida secale* is a xerophile but is frequently recorded in light open woods with dry or stony soils and commonly on lightly wooded slopes. It is unknown prior to the late Devensian but is characteristic of the late Devensian fauna (Kerney 1963) but it certainly was unable to survive in densely forested areas in the Postglacial (Kerney 1962). The lack of comprehension of the nature or origin of the feature as a whole and the low numbers in this assemblage do not enable more detailed comment at this stage but this may represent an early Postglacial fauna of light woodland.-

The basal stone-free brown coarse silty loam in feature 484 was dominated by *Discus rotundatus* and *Carychium tridentatum*, with *Aegopinella nitidula* and *Vitrea*. The predatory Zonitids (*A. nitidula*, *Vitrea contracta* and *Oxychilus*), together with both *D. rotundatus* and *C. tridentatum* may indicate a leaf litter of a deciduous woodland. *P. elegans* may, therefore, have occupied the niche provided by bare soil created by the heavy leaf litter. Only two open country species occur; *Vallonia costata*, which is often found in open woodlands (eg at Ascott-under-Wychwood, Oxfordshire (Evans 1972, 251–6)) and *Pupilla muscorum*, an obligatory heliophyle, which may indicate the presence of some open areas in the vicinity (cf. Thomas 1985).

The yellowish–brown silt loam with few chalk and flint pieces (480) and the dark yellowish–brown silty loam (479) can be considered the same unit on sedimentological and molluscan grounds. These fills are characterised by very high mollusc numbers and the assemblages are predominantly (*c.* 90%) shade-loving species and no open country species occur. *Discus* and *Carychium* are predominant in which the latter seems to rise to a peak before declining. The predatory Zonitids remain significant and *Oxychilus cellarius* gives way to *A. pura*. The assemblage is a typical ancient woodland; the anthropophobe *Ena montana*, which occurs in low numbers throughout, is intolerant of cultivation or disturbance (Kerney 1968) and requires warmer summer conditions. It is often recorded from old, undisturbed oak woodland with little or no human disturbance. Similarly, *Acicula fusca*, which only occurs in these deposits, is unusual in post-Neolithic contexts and has strong woodland preferences (Evans 1972, 135) but has frequently been recorded in hillwash with rich woodland or scrub faunas, for instance at Southerham Grey Pit, Lewes (Allen 1994; 1995c), Duxmore Combe, Isle of Wight (Allen unpubl.), Strawberry Hill, Wiltshire (Allen 1994) and Pitstone, Buckinghamshire (Evans 1966), and is unusually abundant in other Holocene hillwash sequence (eg Oxted, Surrey; Davis 1953). Perhaps more significant, however, is the occurrence of the rare Vertiginid *Vertigo pusilla* which is extinct in southern Britain today and has not been recorded as a sub-fossil in this area (Kerney 1976a; in press). It too is a typical woodland species living among moss and dead leaves (Ellis 1969) and is more common in the earlier part of the Postglacial.

This assemblage is, therefore, representative of a mature, undisturbed woodland, typically of the Postglacial thermal optimum (5500–3200 BC; Kerney 1968; 1976b) and can, therefore, be seen as belonging to Kerney's mollusc biozone d^2 (Kerney 1977); ie Atlantic–Sub-boreal which covers the Late Mesolithic and earlier Neolithic periods. This assemblage is similar to that from the base of the Neolithic pit (F1017) at Easton Lane (Allen 1989).

At the top of the soil infill, a darker, less calcareous deposit (132) showed both a strong decline in shell numbers and change in the mollusc assemblages. *Pomatias elegans*, which frequents loose soil and disturbed ground and has often, therefore, been taken as an indicator of clearance or tillage, is predominant. The relative numbers of shade-loving species decline sharply but are not complemented by an influx of species typical of more open conditions, with the single exception of the low numbers of *Pupilla muscorum*. These loose soil conditions (*P. elegans*) may be those commonly found in the top of tree-throw hollows (pers. obs.) but here, with the decline in numbers and taxa of shade-loving species, probably indicate clearance of woodland. The lack of migration and colonisation of new species from open country habitats and the continued presence of *Ena montana* suggest there were few local habitats available for the open country species to migrate from, and that clearance was recent and is not yet reflected in the small *Ena montana* population. This context lies, unconformably, beneath the toe of the ?Bronze Age lynchet.

Pit 2373: During the evaluation exercise, a small undated pit (2373) was recovered from trench 3016 at the northern end of Twyford Down. Although undated, it was adjacent to a lynchet which contained relatively large quantities of Bronze Age pottery (more than 40 sherds). As the pit contained pottery, it is assumed to pre-date the lynchet; a supposition corroborated by the land snail evidence.

Two samples were taken from the chalky silty clay loam in this feature, however both produced relatively low numbers of shells (Table 34). Although the numbers of shells was relatively low, the assemblages are important in that they contain both a predominance of shade-loving species and the presence of both *Acicula fusca* and, more significantly, *Ena montana*. The significance of these are discussed above. The most common species are *Pomatias elegans* and *Discus rotundatus* making these assemblages similar in character to those from the top of feature 484, indicating recent clearance of an ancient woodland. On this basis, it is tentatively suggested that this feature belongs to the Neolithic or earlier Bronze Age. These depauperate assemblages again compare well with that from Neolithic pit F1017 at Easton Lane.

Both sequences indicate the presence of an ancient and undisturbed broad-leaved deciduous woodland existing on Twyford Down. The precise date for this cannot be discerned and no datable material was recovered from 484; however, the mollusc assemblages can be seen to belong to Kerney's biozones of the Atlantic to Sub-boreal and this feature is therefore assumed to be of Neolithic date.

Earlier–Middle Bronze Age environment: contribution of the barrow assemblages

The detailed analysis of the barrow was presented above. This indicated that large tracts of Twyford

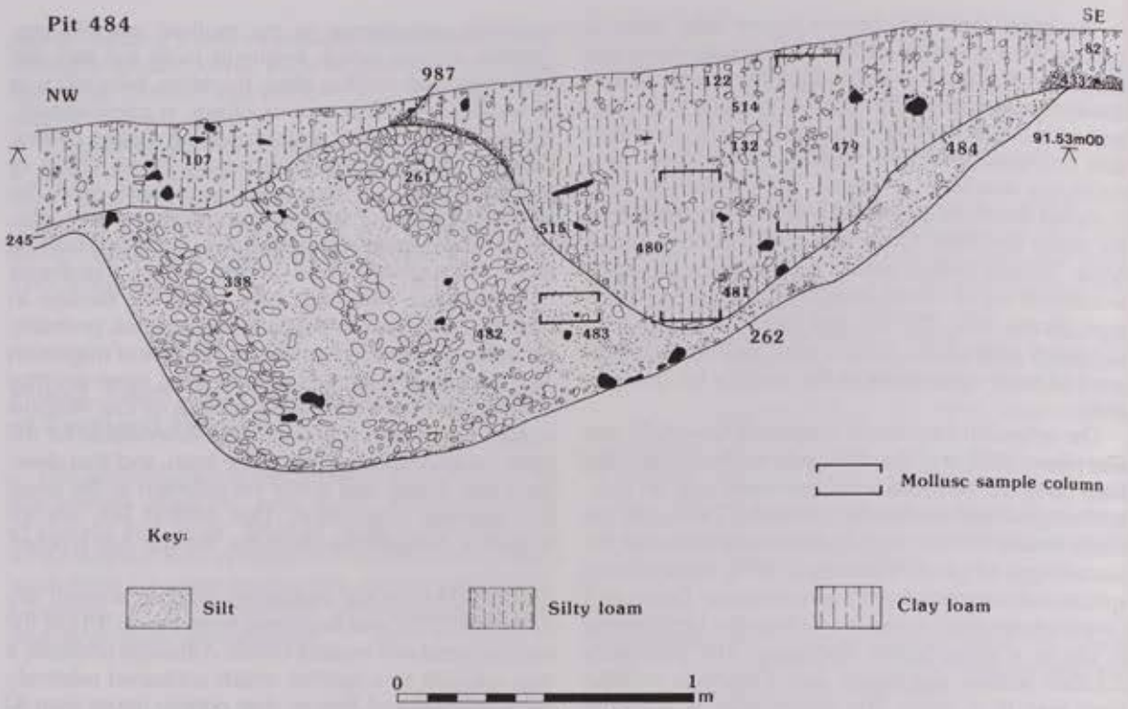


Fig. 42. Section of feature 484 showing location of mollusc column

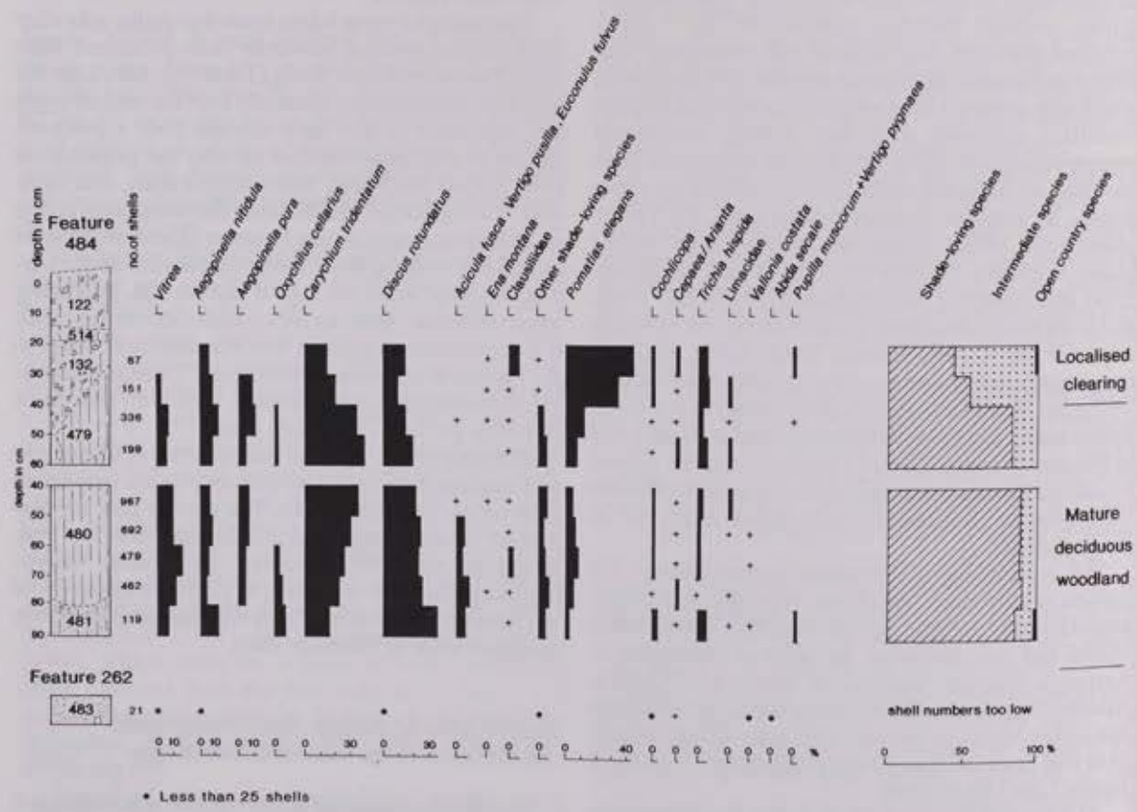


Fig. 43. Mollusc histogram for feature 484

Table 34. Land snails: from undated feature 484 and Neolithic pit 3273

Feature	262	484									3273	
Zone	1	2	2	2	2	2	2	2	3	3	4	4
Sample	3141	3136	3137	3138	3139	3140	3142	3143	3144	3145	2523	2522
Context	483	481	480	480	480	480	479	479	132	132	3272	3272
Depth (cm)	spot	80-90	70-80	60-70	50-60	40-50	50-60	40-50	30-40	20-30	spot	spot
Wt (g)	1500	1500	1500	1500	1500	1500	1000	1000	1000	1000	1000	1000
Pomatias elegans (Müller)	–	2	24	37	40	41	13	37	51	38	4	13
Acicula fusca (Montagu)	–	6	33	19	29	13	–	2	–	–	1	+
Carychium tridentatum (Risso)	–	19	106	123	209	342	78	115	31	13	–	5
Cochlicopa lubrica (Müller)	–	–	–	–	1	2	–	1	1	–	–	–
Cochlicopa lubricella (Porro)	–	–	–	–	–	3	–	–	–	–	–	–
Cochlicopa spp.	1	5	4	9	16	12	2	3	2	2	–	–
Vertigo cf *pusilla* Müller	–	–	1	–	–	–	–	–	–	–	–	–
Vertigo pygmaea (Draparnaud)	–	–	–	–	–	–	–	–	–	2	–	–
Abida secale (Draparnaud)	1	–	–	–	–	–	–	–	–	–	–	–
Pupilla muscorum (Linnaeus)	–	2	–	–	–	–	–	1	–	–	–	–
Vallonia costata (Müller)	2	1	–	1	1	–	–	–	–	–	–	–
Acanthinula aculeata (Müller)	–	–	8	8	6	23	4	5	2	–	–	–
Ena montana (Draparnaud)	–	–	3	–	–	3	–	1	2	1	–	1
Ena obscura (Müller)	–	–	4	–	1	6	2	–	–	1	–	–
Punctum pymaeum (Draparnaud)	2	2	12	9	13	15	2	2	–	–	–	–
Discus rotundatus (Müller)	12	42	115	110	165	200	37	45	14	12	6	15
Vitrina pellucida (Müller)	–	–	1	–	–	–	–	–	–	–	–	–
Vitrea crystallina (Müller)	–	–	–	2	5	1	3	5	2	–	–	–
Vitrea contracta (Westerlund)	2	8	56	72	69	101	9	17	1	–	–	1
Nesovitrea hammonis (Ström)	–	–	1	–	–	2	–	–	–	–	–	–
Aegopinella pura (Alder)	–	–	25	24	47	68	9	37	14	–	1	–
Aegopinella nitidula (Draparnaud)	1	15	25	28	59	65	15	42	13	5	–	4
Oxychilus cellarius (Müller)	–	8	23	13	–	3	4	5	1	–	5	5
Limacidae	–	1	2	–	3	14	3	3	3	–	1	2
Euconulus fulvus (Müller)	–	–	–	–	2	1	–	–	–	–	–	–
Cochlodina laminata (Montagu)	–	–	2	6	1	6	–	–	+	4	–	+
Macrogastra rolphii (Turton)	–	–	–	–	–	–	1	1	–	–	–	–
Clausilia bidentata (Ström)	–	1	2	6	5	8	–	–	2	2	+	–
cf *Balaea perversa* (Linnaeus)	–	–	–	–	2	–	–	–	–	–	–	–
Trichia striolata (C.Pfeiffer)	–	–	–	–	–	–	2	2	–	–	–	–
Trichia hispida (Linnaeus)	–	6	6	10	16	28	12	11	11	5	–	–
Arianta arbustorum (Linnaeus)	+	–	–	–	–	–	–	–	–	–	–	–
Helicigona lapicida (Linnaeus)	–	+	1	–	+	2	–	–	–	–	–	–
Cepaea nemoralis (Linnaeus)	–	–	1	–	–	1	–	–	–	–	–	–
Cepaea/Arianta spp.	–	1	7	2	2	7	3	1	1	2	–	1
Taxa	7	15	23	17	20	24	17	19	15	12	6	9
Shannon index	1.43	2.09	2.28	2.18	2.10	2.11	2.06	2.09	2.03	1.84	1.54	1.79
Total	21	119	462	479	692	967	199	336	151	87	18	47

Down were uncleared ancient woodland and that clearance for the barrow itself is not reflected in the snail assemblages because of that dense woodland. The barrow itself seems to have been covered by long grass and possibly other materials, in its earlier phase but was cleared when the second phase of burial and cremation activity took place.

In the post-monument phase, environmental evidence from the upper tertiary fill of the barrow ditch (0.3–0.5m) shows the characteristic decline in shade-loving species and increase in open country (*V. excentrica, V. costata* and *H. itala*) at the beginning of which (0.4–0.5m) is a minor increase in *Pomatias elegans*. This sequence indicates the onset of more open, disturbed and ploughed conditions. These can probably be attributed to the later Bronze Age and may be coincident with the lynchet recorded to the west of the barrow.

Ploughing of this landscape is, therefore, only recorded in the snail assemblages relatively late in the ditch silting history. Eventually, assemblages more typical of open and ploughed downland colonise the ditch fauna in the upper fills. The tardiness in the apparent arrival of assemblages more typical of the downland in the Bronze Age (cf Allen 1994) may be the result of a combination of two factors. First, woodland clearance and large areas of tillage on Twyford Down, or this area specifically, may have taken place later than elsewhere in southern England and, secondly, the ditch fills themselves may have accumulated relatively rapidly because of the incorporation of dumped material and insertion of a number of cremation and inhumation burials.

Nevertheless, this strongly indicates the presence of undisturbed ancient woodland refugia on Twyford Down in the earlier and Middle Bronze Ages which contradicts the author's own generalised suggestions that most of the chalklands had been cleared and were under pasture, tillage or secondary shrubland by this time (Allen 1988; 1994). Tillage around the barrow only seems to have occurred later, the earliest time at which this could have occurred (from the sediment and mollusc sequence) is in the later Bronze Age.

Late Bronze Age–early Romano-British field systems; evidence from the lynchets, by Sarah F. Wyles

A series of Late Bronze Age to early Roman lynchets recorded by Stuart and Birkbeck (1936) was excavated and sectioned on Twyford Down. Two Late Bronze Age lynchets (3339 and 3017), which were sectioned during the evaluation (trenches 3016 and 3017), and a Late Iron Age/early Romano-British lynchet (5189), identified in excavation on Area D, were sampled (Figs 10 and 11). The two Late Bronze Age lynchets ran parallel down the north-western slope of Twyford Down, whilst the later lynchet was situated along the south-western slope of this area of downland. The sediments of these three lynchet sections (Figs 44–6) are described below.

The results of the analysis are presented as standard histograms of relative abundance (Fig 45). As with the analysis of the barrow samples, some species have been grouped for this purpose and the nomenclature follows Kerney (1976a). In Figure 45, the Zonitids include *Vitrea contracta, Aegopinella nitidula, A. pura, Oxychilus cellarius* and *Nesovitrea hammonis*; the other shade-loving species include *Punctum pygmaeum, Acanthinula aculeata, Ena obscura, Helicigona lapicida, Cochlodina laminata* and *Clausilia bidentata*; and *Cochlicopa* includes both *lubrica* and *lubricella*.

Lynchet 3339 (Trench 3016)

3266 Very dark greyish-brown (10YR 3/2) fine clay loam with occasional flint and chalk rubble and frequent root material. Plough soil.

3268 Greyish-brown (10YR 5/2), slightly granular clay loam with frequent small (5–40mm) and occasional large (80–120mm) quite angular, eroded chalk pieces and occasional eroded sub-angular flints well distributed throughout the layer with a fairly distinct interface with 3266. Lynchet make-up.

3270 Silty loam with medium-large flint and chalk fragments. Lynchet make-up.

3267 Yellowish-brown (10YR 5/4) sticky clay loam matrix with 70% chalk rubble with occasional flint nodule fragment and patches of pea grit gravel across its surface. Top of weathered natural.

Lynchet 3017 (Trench 3017)

3280 Dark brown (7.5YR 3/2) silt loam with *c.* 40% flint (50–400mm) and chalk (50–200mm) inclusions and *c.* 20% root material. Plough soil.

3284 Dark brown (10YR 3/3) silt loam with *c.* 20% chalk and *c.* 10% flint inclusions. Fill of small shallow ditch (3283). This is overlain by 3280.

3281 Dark reddish-brown (5YR 3/3) silt clay with *c.* 20% flint inclusions and *c.* 5% chalk flecks. Lynchet make-up underlying 3280.

3288 Brown (10YR 5/3) silt loam with occasional charcoal flecks and *c.* 20% flint (20mm) and *c.* 5% chalk (10mm) inclusions. Lynchet make-up.

3300 Dark greyish-brown (10YR 4/2) clay silt loam with *c.* 60% medium (30mm) flint inclusions. Small field bank against which the soil (3288) of the positive lynchet accumulated.

3301 Yellowish-brown (10YR 5/4) silt loam with *c.* 50% chalk and *c.* 20% flint inclusions. Possible buried soil under (3300).

Lynchet 5189 (Area D)

5191 Dark brown/black (10YR 4/3) loose and friable coarse silty clay loam with common small (<5mm) and medium chalk fragments and many small flint inclusions (3mm); weak massive structure. Natural accumulation of soil post-dating lynchets 5189 and 5301.

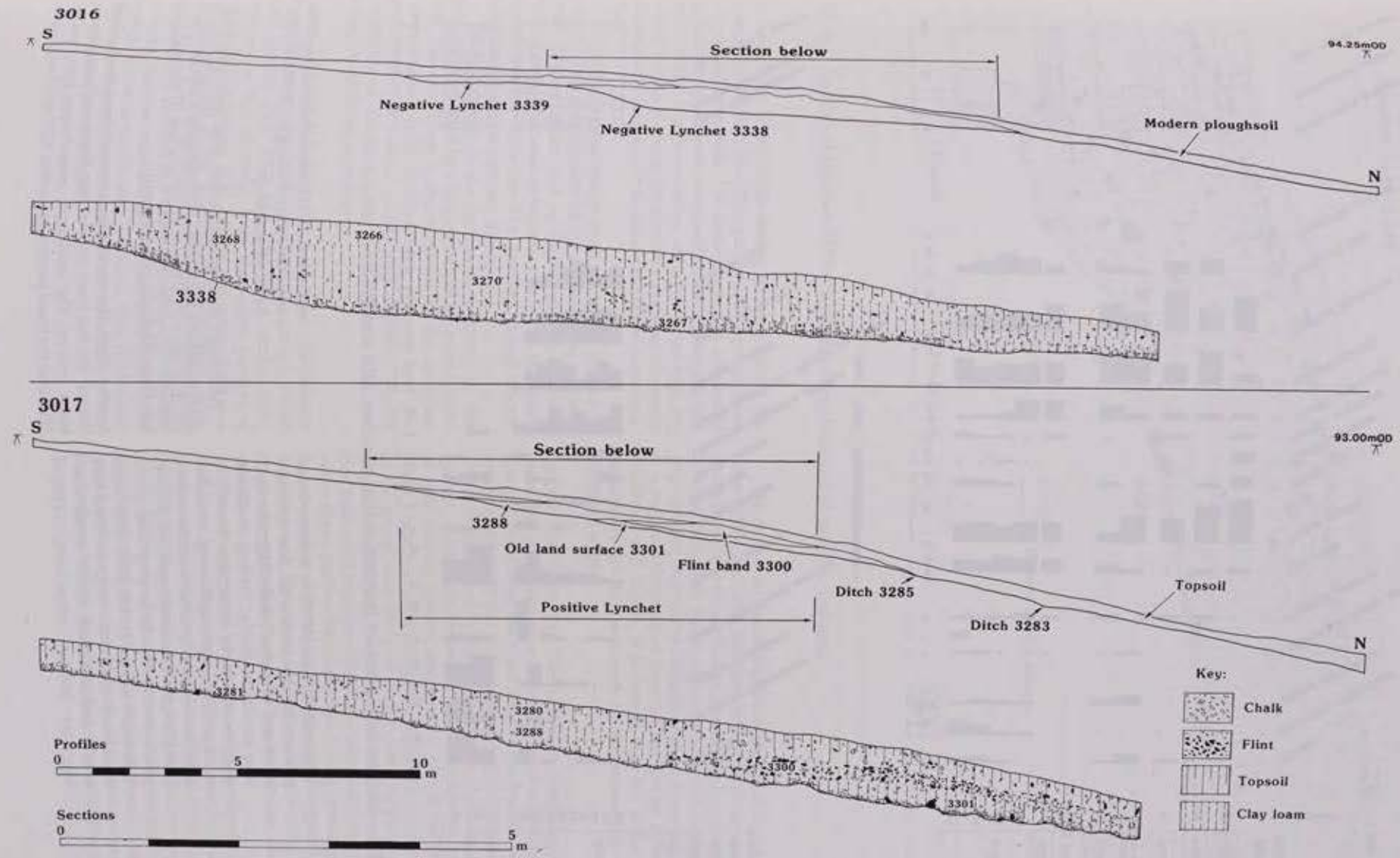


Fig. 44. Lynchets and ditches in trial trenches 3016 and 3017: profiles and sections.

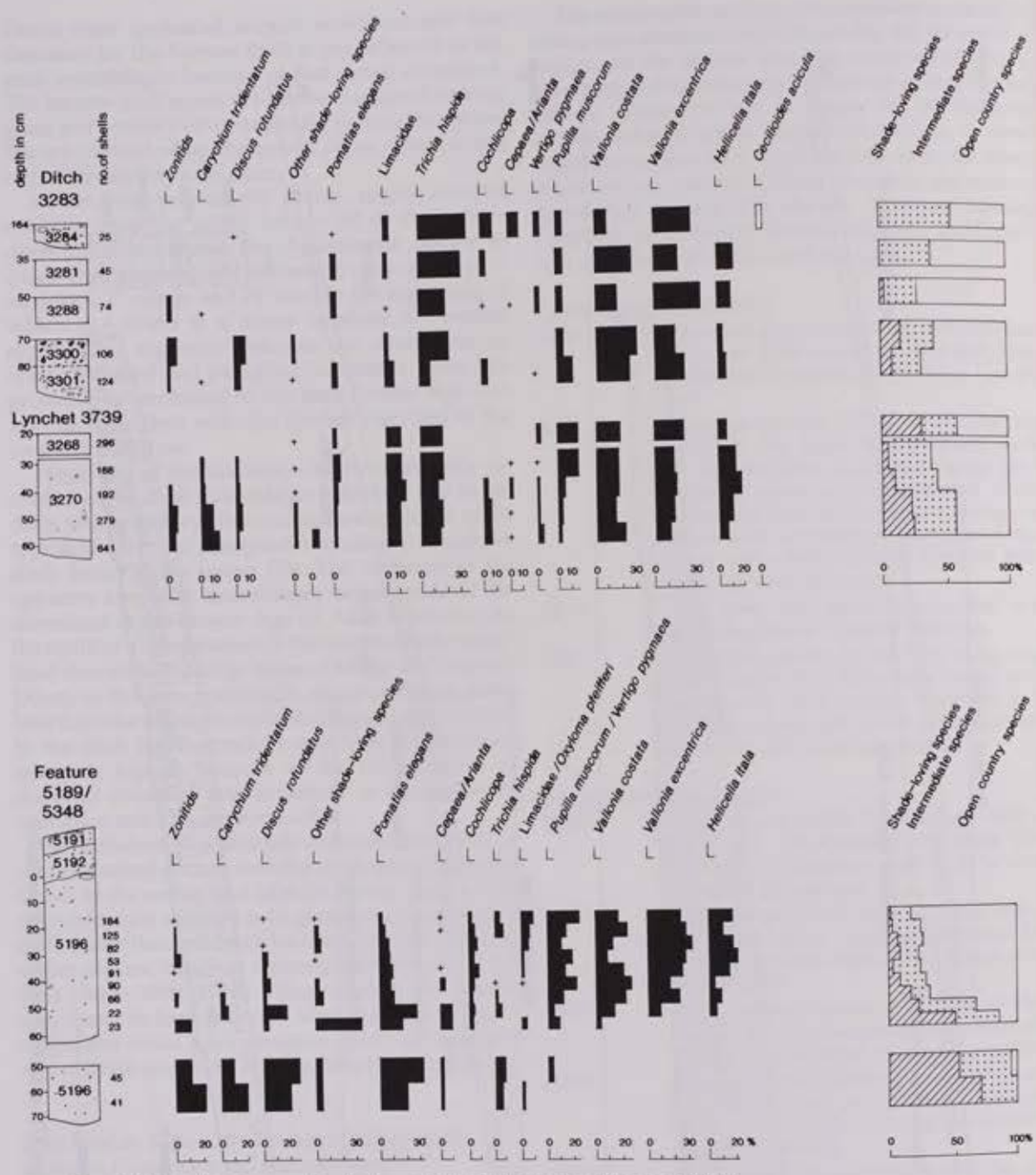


Fig. 45. Mollusc histogram for features in trial trenches 3016 and 3017

5192 Yellowish–brown (10YR 5/4) fairly loose coarse silty clay loam with over common small and very small chalk fragments and few medium flints; strong medium angular to blocky structure. Common vertical macropores indicating considerable bioturbation (probably earthworms). Late plough soil truncating earlier soil deposits associated with lynchet 5189.

5196 Yellowish–brown (10YR 5/4) silty loam with many small chalk fragments and rare small and medium flint; weak subangular blocky structure, typical colluvium. Very small charcoal fragments were present throughout the section. Lynchet make-up.

Although shell preservation was generally good, shell numbers fluctuated and samples from the top of lynchet 3017 and the base of lynchet 5189 produced less than 50 shells per kilogram.

Lynchet 3339: The molluscan sequence from lynchet 3339 (trench 16) has been divided into three molluscan assemblage groups. The molluscan assemblages from context 3267 and the basal portion of context 3270 are characterised

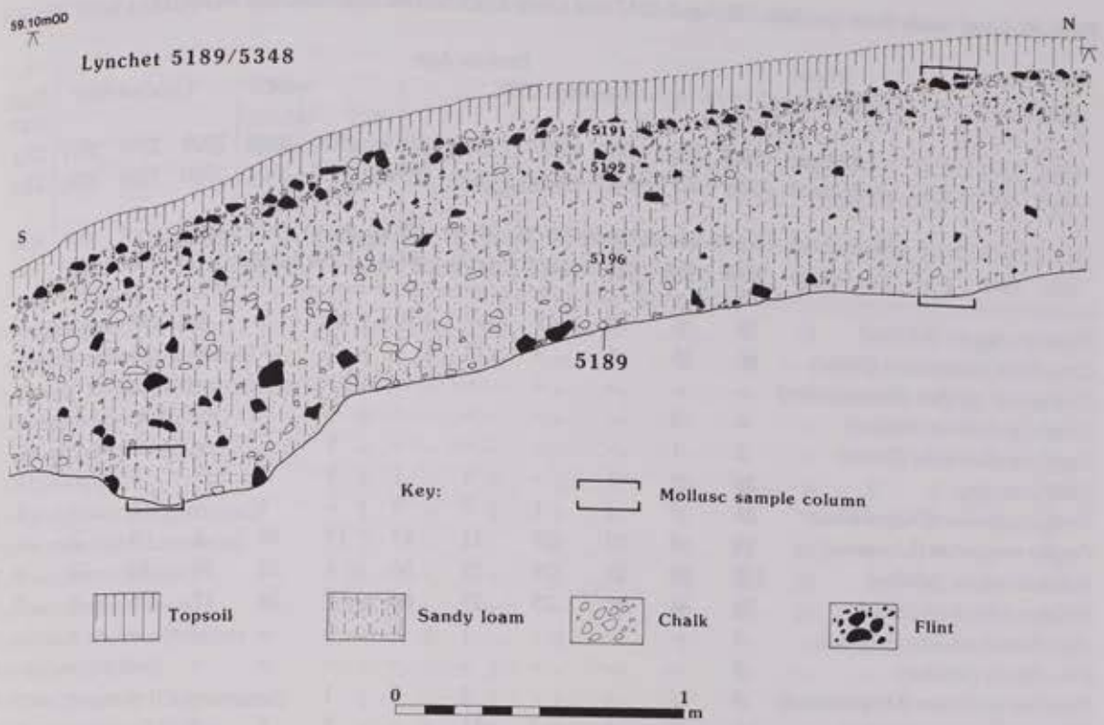


Fig. 46. Section of lynchet 5189/5348, showing location of mollusc column

by the presence of the shade-loving element, which declined from *c.* 25% to *c.* 10%. The open-country species show a corresponding increase. The assemblages are dominated by *Trichia hispida*, *Vallonia costata* and *excentrica*, *Helicella itala* and Limacidae. *Pupilla muscorum*, although never high, increases. The shade-loving component comprises of a range of species with *Carychium tridentatum* being the most significant.

The molluscan assemblage from the upper portion of context 3270 is characterised by the shade-loving element, which declines further and by *Pupilla muscorum*, which shows a marked increase to become one of the dominant species, together with the five species named above. *Carychium tridentatum* virtually disappears.

The final change in the molluscan sequence in this lynchet is represented by a single assemblage from context 3268. This assemblage is characterised by the complete disappearance of the shade-loving element and the predominance of *Vallonia costata* and *excentrica*, *Pupilla muscorum* and *Trichia hispida*, with *Helicella itala* and Limacidae also being significant.

Lynchet 3017 and ditch 3283: The molluscan assemblages from this sequence can be divided into two groups. Those from contexts 3301, 3300 and 3288 have similar characteristics as that observed from the upper portion of context 3270 in lynchet 3339. Within this group there is a minor fluctuation in the assemblage composition, characterised by a rise in the shade-loving element caused by an increase in the Zonitids and *Discus rotundatus*. A decrease in *Pupilla muscorum* and *Vallonia excentrica* is mirrored by an increase in *Trichia hispida* and *V. costata*. This fluctuation appears to correlate with the small field boundary which preceded the lynchet proper.

The molluscan assemblages from the top of the lynchet, context 3281, and ditch 3283 (trench 17) have the same broad characteristics as the molluscan assemblage from the top of lynchet 3339, with *Trichia hispida* and the Vallonias being predominant. Within the ditch assemblage, however, there is a higher occurrence of intermediate species including *Cochlicopa* and *Cepaea*. It is notable that this is the only occurrence in this sequence of the burrowing snail *Cecilioides acicula*.

Lynchet 5189 (Area D): The molluscan assemblages represented in this sequence have been subdivided into two groups. Those from the basal 20cm of the lynchet form a group which is similar to the basal group of lynchet 3339. This is characterised by the predominance of shade-loving species, which decline from 70% to 50%, and low proportion of open country species, which rise to 13% of the assemblage. There is a minor fluctuation within the composition of the group, with the basal portion being dominated by *Discus rotundatus* and *Pomatias elegans* which increase, and Zonitides and *Carychium tridentatum*, which decline; whilst in the upper portion the other shade-loving species group is predominant with *Discus rotundatus* and *Pomatias elegans* declining and *Carychium tridentatum* disappearing. The range of intermediate and open country species also increases.

The second group in this sequence consisted of the molluscan assemblages from 55–15cm, the main body of the lynchet, and was similar to the second group from lynchet 3339. It is characterised here by the decline of the shade-loving species and *Pomatias elegans* and the dominance of the assemblage by *Pupilla muscorum*, *Vallonia costata* and *excentrica*, and *Helicella itala*. There are several fluctuations within this grouping. The assemblages at

Table 35. Land snails from lynchets 3339 and 3017 and ditch 3283 in trial trenches 3016 and 3017

Phase	Bronze Age											?
Feature	Lynchet 3339							OLS	Lynchet 3017			Ditch 3283
Sample	2514	2515	2516	2517	2518	2519	2520	2508	2509	2510	2511	2512
Context	3267	3270	3270	3270	3270	3268	3267/3268	3301	3300	3288	3281	3284
Depth (cm)	56-63	46-56	37-46	28-37	30-40	20-28	spot	spot	spot	spot	spot	spot
Wt (g)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Pomatias elegans (Müller)	15	6	6	8	7	10	10	5	1	2	2	+
Carychium tridentatum (Risso)	86	25	6	3	15	–	3	1	–	1	–	–
Oxyloma cf. pfeifferi (Rossmässler)	–	–	–	–	–	–	–	–	–	–	–	–
Cochlicopa lubrica (Müller)	6	3	–	–	–	–	–	–	–	–	1	–
Cochlicopa lubricella (Porro)	2	1	–	–	–	–	1	–	–	–	–	–
Cochlicopa spp.	24	9	5	–	4	1	1	5	–	1	–	2
Vertigo pygmaea (Draparnaud)	24	7	4	1	7	9	–	1	–	2	–	1
Pupilla muscorum (Linnaeus)	14	8	10	27	12	47	13	16	6	4	2	1
Vallonia costata (Müller)	132	40	32	29	25	56	6	32	34	12	12	2
Vallonia excentrica Sterki	73	41	31	25	35	66	7	28	17	26	8	7
Acanthinula aculeata (Müller)	3	–	–	–	1	–	–	–	–	–	–	–
Ena obscura (Müller)	2	–	–	–	–	–	–	–	–	–	–	–
Punctum pymaeum (Draparnaud)	8	1	–	–	2	–	1	–	–	–	–	–
Discus rotundatus (Müller)	10	14	6	3	11	–	5	6	8	–	–	+
Vitrina pellucida (Müller)	4	–	–	–	1	–	–	–	–	–	–	–
Vitrea crystallina (Müller)	–	–	1	–	–	–	–	–	–	–	–	–
Vitrea contracta (Westerlund)	8	8	1	–	3	–	1	–	1	1	–	–
Nesovitrea hammonis (Ström)	12	–	–	–	1	–	–	–	–	–	–	–
Aegopinella pura (Alder)	8	5	1	–	1	–	2	2	–	–	–	–
Aegopinella nitidula (Draparnaud)	7	4	1	–	7	–	–	–	6	1	–	–
Oxychilus cellarius (Müller)	–	–	–	–	1	–	1	–	–	–	–	–
Limacidae	65	26	26	18	30	33	4	9	3	1	1	1
Cecilioides acicula (Müller)	–	–	–	–	–	–	–	–	–	–	–	1
Cochlodina laminata (Montagu)	2	2	–	2	–	–	1	–	1	–	–	–
Clausilia bidentata (Ström)	3	3	2	–	1	1	–	1	1	–	–	–
Clausiliidae	–	–	–	–	–	–	–	–	–	–	–	–
Helicella itala (Linnaeus)	37	28	32	22	14	22	5	7	4	7	5	–
Trichia hispida (Linnaeus)	90	46	25	29	41	51	8	10	24	15	14	9
Helicigona lapicida (Linnaeus)	–	+	–	–	+	–	–	–	–	–	–	–
Cepaea/Arianta spp.	6	2	3	1	6	–	3	–	–	1	–	2
Taxa	23	19	17	12	21	10	16	14	12	13	8	8
Shannon index	2.51	2.51	2.30	2.09	2.51	1.94	2.51	2.13	1.91	1.91	1.71	1.72
Total	641	279	192	168	225	296	72	124	106	74	45	25

Totals exclude *Cecilioides acicula*

45–55cm are distinguished by a marked increase in *Discus rotundatus* and *Pomatias elegans*, whilst the Zonitids and the other shade-loving group disappear. This gives way to an increase in *Pupilla muscorum* and *Vallonia costata*, with antipathetic behaviour in *Vallonia excentrica* and *Helicella itala*. This pattern is reversed in the assemblages at 25–35cm, with *Pupilla muscorum* and *Vallonia costata* decreasing whilst *Vallonia excentrica* and *Helicella itala* increase.

The local landscape history of the Late Bronze Age lynchets: The first molluscan group of lynchet 3339 reflects a pre-lynchet environment of open grassland with some scrub element, providing a habitat for the true rupestral species. The late clearance evidence from this block of downland explains the unusually high proportion of shade-loving species recorded. This is followed by a mixed environment of grazed grassland and arable. The disappearance of *Carychium* is a useful indicator of the onset of cultivation or heavy grazing (Evans 1972, 195). The final phase of this lynchet indicates an area of arable, with the probable removal of surviving scrub.

Table 36. Land snails: from lynchets 5140 and 5189/5348.

Phase		Late Iron Age–early Romano-British										
Lynchet	5140	5189/5348										
Sample	3109	3111	3112	3114	3115	3116	3117	3118	3119	3120	3121	3122
Context	5146	5196	5196	5196	5196	5196	5196	5196	5196	5196	5196	5196
Depth (cm)	spot	60-70	50-60	55-60	50-55	45-50	40-45	35-40	30-35	25-30	20-25	15-20
Wt (g)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Pomatias elegans (Müller)	3	8	15	4	6	7	8	9	4	6	6	4
Carychium tridentatum (Risso)	4	9	4	–	1	2	1	–	–	–	–	–
Oxyloma cf. pfeifferi (Rossmässler)	–	–	–	–	–	–	–	–	–	–	–	1
Cochlicopa lubrica (Müller)	3	–	–	–	–	–	–	–	–	1	–	2
Cochlicopa lubricella (Porro)	–	–	–	–	–	–	–	–	–	–	1	2
Cochlicopa spp.	4	–	–	1	1	2	4	6	2	4	5	–
Vertigo pygmaea (Draparnaud)	1	–	2	1	–	1	–	–	–	1	4	5
Pupilla muscorum (Linnaeus)	5	–	–	1	1	7	20	12	10	7	13	40
Vallonia costata (Müller)	21	–	–	1	3	15	25	19	5	11	29	31
Vallonia excentrica Sterki	26	–	–	–	2	16	15	24	15	27	35	44
Acanthinula aculeata (Müller)	–	2	–	6	–	1	–	–	–	–	–	–
Ena obscura (Müller)	–	–	1	–	–	–	–	–	–	–	–	–
Punctum pymaeum (Draparnaud)	1	–	1	1	–	–	–	–	–	1	–	–
Discus rotundatus (Müller)	3	8	12	1	4	2	5	3	2	1	–	+
Vitrina pellucida (Müller)	–	–	–	–	–	–	–	–	–	–	–	–
Vitrea crystallina (Müller)	–	–	–	–	–	–	–	–	–	–	–	–
Vitrea contracta (Westerlund)	–	–	1	2	–	1	–	–	1	1	–	–
Nesovitrea hammonis (Ström)	–	–	–	–	–	–	–	–	–	–	1	1
Aegopinella pura (Alder)	–	1	2	–	–	1	–	–	–	–	–	–
Aegopinella nitidula (Draparnaud)	–	1	1	–	–	–	–	–	–	1	–	–
Oxychilus cellarius (Müller)	–	–	2	1	–	1	–	1	2	–	1	1
Limacidae	4	1	–	1	–	–	1	2	1	4	7	13
Cecilioides acicula (Müller)	–	–	–	–	–	–	–	–	–	–	–	–
Cochlodina laminata (Montagu)	1	–	–	–	–	2	1	–	–	–	–	–
Clausilia bidentata (Ström)	1	–	–	1	–	1	1	–	+	2	2	2
Clausiliidae	–	+	–	–	–	–	–	–	–	–	–	–
Helicella itala (Linnaeus)	11	–	–	–	1	6	4	14	11	15	13	32
Trichia hispida (Linnaeus)	3	2	3	–	1	1	1	–	–	[1]	7	6
Helicigona lapicida (Linnaeus)	–	–	–	–	–	–	–	–	–	–	+	+
Cepaea/Arianta spp.	–	1	1	2	2	–	4	1	–	–	1	+
Taxa	14	10	12	13	10	16	13	10	10	13	13	14
Shannon index	2.17	1.95	1.95	2.31	2.07	2.24	2.03	1.94	1.94	2.05	2.09	1.99
Total	91	41	45	23	22	66	90	91	53	82	125	184

[] = modern/?modern shells, not included in totals or calculations
Totals exclude *Cecilioides acicula*

The pre-lynchet environment of 3017 is one of mixed grassland and arable. The fluctuations within this group are probably the result of longer grass by the small field bank, within the area of grazed grassland and arable. The undated small field ditch, 3283, below lynchet 3339, probably occurred in this arable environment with a localised micro-habitat of long grass by the ditch edge, as reflected by the increased presence of the intermediate species. The assemblages of the main lynchet deposits are similar to those at a number of other chalkland sites, such as Overton Down and Fyfield Down, Wiltshire (Evans 1972); Kiln Coombe, East Sussex and Chalton, Hampshire (Bell 1983).

The local landscape history of the Late Iron Age/early Romano-British lynchet: The pre-lynchet environment of lynchet

5189 was open grassland (Area D). In this locality, however, there seems to have been a greater amount of long grass and scrub within the open grassland coverage than reflected in the earlier lynchets. The molluscan assemblages from the very basal portion of the lynchet appear to indicate open grassland of a mesic composition and scrub which gives way to a decline in the proportion of long grass. The main part of the lynchet history occurred in a combination of a grazed grassland and arable environment.

The first of the fluctuations within this environment represents a transition to short grassland and arable. The removal of some of the scrub element would produce the disturbed ground favoured by *Pomatias elegans*. The other fluctuations appear to indicate a period of pasture followed by one of arable. This fluctuation between arable and pasture could well have been more marked but may have become blurred as a result of depositional processes.

Summary: In the Late Bronze Age, the land snail evidence from the lynchets appears to reflect a changing local landscape from open grassland with scrub to a mixture of grazed grassland and arable and then to arable. This trend is also reflected in the Late Iron Age–early Romano-British period, with the area around the lynchet being open long grassland and scrub changing to a mixture of pasture and arable. This suggests that, although there were still wooded areas in the Middle Bronze Age, from the Late Bronze Age Twyford Down was generally open and experienced changing landuse. Although the area closest to the excavated area appears to have been exploited for farming purposes first, the later lynchet sequence reflects the same trends of landuse. The assemblages from the upper deposits of the barrow sequence appear to correlate with the Late Bronze Age lynchets.

Plant remains, by Alan J. Clapham

Plant remains were found in all but one of the ten samples analysed from outside the barrow on Area A and from Area B. In general, the plant remains recovered were well preserved, although those analysed from some of the Bronze Age contexts were badly eroded. Of the ten samples studied, only one was from Area A (fill of a Middle Bronze Age urn not associated with the barrow), the remaining nine samples from Area B included one from a ditch, three from pits, four from cremation-related pits and one from a probably natural feature, 5487 (context 5488). Four samples were Late Bronze Age in date and the remaining five were from Late Iron Age/Romano-British contexts. Plant remains, other than charcoal, were recorded from all Late Iron Age/Romano-British samples and all but one of the Late Bronze Age samples. Results are presented in Table 37.

Chaff and cereal grains were rarely recorded, although one sample from a pit (5539, context 5540) on Area B contained 39 barley (*Hordeum vulgare* L.) grains. The most common cereal remain is that of Cerealia indeterminate, being present in all of the samples which produced plant remains (Table 37).

Taxa of non-economic importance were found in the samples, mainly as single finds, except for the presence of the remains of indeterminate parenchyma. Charcoal was found in all of the samples, some containing very little else. Modern intrusive seeds were present in most samples, mainly as roots, although in some samples from Area B remains of modern linseed capsules and seeds were identified.

Middle Bronze Age urn fill (Area A)

The fill of one Middle Bronze Age urn (vessel 2022) from pit 954 (context 955), which was not related to the barrow, was analysed. Apart from the pyre debris from the barrow itself, the urn fill was the only sample to produce largely cereal grains and the only sample to produce grains in a good enough state of preservation to be identified. Wheat grains (*Triticum* sp. L.) and two barley grains are present with seven further unidentified grains (Table 37). No onion couch grass tubers were recovered from the urn, although six fragments of indeterminate parenchyma were identified.

Late Bronze Age (Area B)

Four samples from Late Bronze Age contexts were examined, all from cremation-related pits (5024, 5068, 5539 and 5541). Very few plant taxa were recovered; a total of 57 barley grains were identified from the four samples, along with a single find of a wheat grain and glume base. Indeterminate cereal remains are again the most commonly identified material, with a total of 491 fragments. Eighteen fragments of hazel nutshell are from three of the pits (5024, 5539, 5541). Pit 5024 contained single examples of ribwort plantain (*Plantago lanceolata* L.) and indeterminate grass caryopses. Six onion couch grass tubers were also recovered from pit 5024 along with 63 fragments of possible stems or roots. Pit 5068 contained nothing but twiggy charcoal and buds.

Late Iron Age/Romano-British (Area B)

Samples from two pits and a ditch were examined and included three samples from two pits, two from pit 5074 and one from pit 5217. These samples contained the largest number of representatives of cereal remains, six grains of wheat and two of barley, along with two wheat spikelet forks and 15 glume bases which were not identifiable to species. One fragment of a barley palea/lemma and three fragments of oat awn are also present. Indeterminate cereal remains are again the most common remains.

Weed species present include goosefoot, *Chenopodium* sp. L., knotgrass (*Polygonum aviculare* L.), black bindweed (*Fallopia convolvulus* (L.) A. Love), dock, indeterminate legumes, and cleavers. Spike-rush

Table 37. Plant remains: analysis of samples from the Bronze Age cremation-related features (Areas A and B) and Late Iron Age–early Romano-British features in Area B.

Sample	3132	3102	3133	3134	3129	3126	3106	3108	3124
Context	955	5026	5540	5542	5488	4266	5077	5204	5220
Phase	MBA	Late Bronze Age			?	LIA/RB		LIA/ERB	
Description	Pit	Cremation-related features				Ditch		Pits	
	954	5024	5539	5541	5487	5051	5074	5074	5217
Triticum sp. grain	2	1	–	–	–	–	3	2	1
Triticum sp. spikelet fork	–	–	–	–	–	–	2	–	–
Triticum sp. glume base	–	1	–	–	–	–	8	6	1
Hordeum sp. grain	2	–	39	18	–	–	–	2	–
Hordeum sp. paleas	–	–	–	–	–	–	1f	–	–
Avena sp. awns	–	–	–	–	–	1f	1f	2f	–
Cerealia indet.	7f	62f	302f	127f	11f	104f	48f	79f	2f
Corylus avellana nut shell	–	1f	11e	6f	–	–	–	–	–
Chenopodium sp.	–	–	–	–	–	–	1	–	–
Polygonum aviculare	–	–	–	–	–	–	1f	1	–
Fallopia convolvulus	–	–	–	–	–	–	–	2f	–
Rumex sp.	–	–	–	–	–	–	–	1	–
Rubus fruticosus	–	–	–	–	–	1f	–	–	–
Prunus spinosa	–	–	–	–	23+729f	–	–	–	1f
Vicia/Lathyrus sp.	–	–	–	–	2f	–	–	–	–
Legume indet.	–	–	–	–	–	–	–	–	1f
Vitis vinifera	–	–	–	–	1f	–	–	–	–
Plantago lanceolata	–	1	–	–	–	–	–	–	–
Galium aparine	–	–	–	–	–	–	1	1+1f	–
Eleocharus sp.	–	–	–	–	–	–	–	2	–
Carex sp.	–	–	–	–	1	–	–	1	–
Arrhenatherum elatius ssp. *bulbosus*	–	6t+1r	–	–	–	–	–	1t+1r	–
Bromus/Avena sp.	–	–	–	–	–	–	–	1	1
Poaceae indet.	–	1	–	–	–	1	3	2f	–
Culm nodes	–	–	–	–	–	–	2	–	–
Parenchyma indet.	6f	–	–	–	–	–	–	–	–
Stems/roots/twigs	–	63f	–	–	–	–	–	4	–
Unident.	–	–	–	–	–	1	3	–	–

f = fragments, r = roots/rootlets, t = tubers

(*Eleocharis* sp. R. Br.) and sedge (*Carex* sp. L.) fruits are represented as are onion couch grass tubers, Brome/oats caryopses (*Bromus/Avena* sp. L.), and indeterminate grass caryopses. Sloe stones (*Prunus spinosa* L.) are also present.

One ditch sample was analysed, from ditch 5299. The most common find from this is unidentifiable cereal remains, other remains include single finds of oat awns (*Avena* sp. L.), bramble (*Rubus fruticosus* L. agg.), and indeterminate grass caryopses.

Feature 5487

One sample from feature 5487 was analysed. Plant remains recovered from this sample are dominated by 23 whole and 729 fragments of sloe stones. The whole sloe stones exhibit rodent teeth marks, probably of woodmouse. Other remains include two fragments of vetch/vetchling (*Vicia/Lathyrus* sp. L.), one fragment of a possible grape (*Vitis vinifera* L.), and a sedge nutlet. The large pieces of charcoal present in the sample have been identified as *Prunus* sp. L. (C. Cartwright, pers. comm.).

Discussion

The single sample examined from the Middle Bronze Age urn contained two wheat grains and two barley grains and it is, therefore, not possible to interpret these remains. The four Late Bronze Age samples analysed contained very few plant taxa, the most common being cereal remains of barley grains and

indeterminate cereals along with hazel nutshells. It may be suggested that these remains represent ritual offerings associated with act of cremation. The presence of onion couch grass tubers may indicate their use as tinder for the cremation pyres (*see* above).

Five samples from Late Iron Age/early Romano-British contexts contained a wider variety of plant taxa, the pit samples being the richest overall. The presence of cereal remains in the pits suggests that they were used for crop storage, the other taxa present are weed species, lending support to this interpretation (Table 37). The ditch sample also contained indeterminate cereal remains which may well have been dumped.

Feature 5487 is very interesting as the dominant plant taxa is sloe stones, many of which have been gnawed by woodmice. It is very unlikely that woodmice would gnaw at charred sloe stones, therefore, these remains represent rotted sloe fruits, the fresh stones of which had been gnawed. There were large pieces of charcoal present in the sample, identified as *Prunus* sp. It is therefore possible to suggest that this is the remains of a blackthorn (*Prunus spinosa*) shrub which has been burnt, either accidentally or intentionally, perhaps during clearance activity.

Other sites along the M3 corridor with which we might compare the asemblages from Twyford Down are Micheldever Wood, Winnall Down and Easton Lane (Fasham 1985; Fasham and Whinney 1991; Fasham *et al.* 1989). However, these sites are mainly later in date than Twyford Down and although Twyford Down has evidence dating from the later Bronze Age, with the exception of the barrow, the samples are mainly Late Iron Age and early Romano-British in date. Micheldever Wood, Winnall Down and Easton Lane are mainly habitation sites with the plant remains being recovered mainly from pits and other domestic features (eg Carruthers in Fasham *et al.* 1989; Monk 1985; Monk 1991). The charred plant remains from these sites consist mainly of crop processing waste such as chaff, straw, and weed seeds associated with the crops and have been used to interpret the local conditions and agricultural practices in the surrounding areas.

In contrast, the evidence from Twyford Down is mostly from features which are not demonstrably domestic but which include predominantly contexts associated with funerary and agricultural activities.

No other M3 sites appears to have produced remains of the onion couch grass, which dominate the barrow samples from Twyford Down and lends support to the idea that this plant is associated in some way with the act of cremation. Cereal remains have been identified from Twyford Down, mainly from the pits but also from one cremation burial and the Middle Bronze Age urn fill. Wheat remains appear to be restricted to the Late Iron Age/early Romano-British phases and the two small caches of barley to the Late Bronze Age cremation-related pits. The most common cereal remains are indeterminate cereal fragments. Overall, cereal plant remains, although present, are not recorded in any quantity and, unlike the other sites excavated along the M3 corridor, very few other representatives of an arable based economy are present. The small caches of grain in the Late Bronze Age cremation-related pits may have been ritual in nature. Other pits contained very small amounts of cereal crop processing remains. This suggests that crops were grown in the vicinity at some stage but it is not possible to determine the nature of cultivation because of a lack of reliable indicator species.

Analysis of the charred plant remains suggests existence of grassland in the surrounding area, although the presence of the onion couch grass tubers may suggest abandoned arable (Robinson 1988). There is little evidence in the charred plant remains for the presence of cultivation, as there appears to be very few seeds of plant species which grow in arable or disturbed ground. The presence of the few cereal remains suggests that cultivation did occur in the area. The samples analysed, however, were very specific and do not necessarily represent all the processes involved or reflect the entire local natural environment.

An interpretation of the amorphous feature, 5487, which is probably Late Iron Age/early Romano-British in date, is now made clear by the presence of rodent gnawed (possibly woodmouse) sloe stones and large pieces of *Prunus* sp. wood which suggest that this feature is the remains of a burnt down blackthorn bush.

Animal bones, by Adrienne Powell, Kate M. Clark and Dale Serjeantson

The animal bone assemblage discussed here comes from both Areas A and B. Although some are from Bronze Age features (Area A), most are from the Late Iron Age/early Romano-British ditch system and settlement (Area B). The bones are discussed in two groups — Bronze Age features and the Iron Age/Romano-British settlement. Bone from an area of the later settlement which had been overcut in excavation has been recorded but is not discussed here.

Bronze Age features

The number of identified specimens recovered from the lynchet, post-holes and pits is shown in Table 38. This assemblage is small and fragmentary, totalling 534 fragments. Of these, 207 (39%) were identified to species but the large proportion of identifiable fragments is because of the presence of two substantially complete juvenile skeletons.

The lamb skeleton from pit 512 (context 489), distinguished from goat by the absence of a pillar on the erupting DPM_4, has all bones unfused. The skeleton was not measured but the bones appear to be stockier than expected in Bronze Age animals and bones of modern-sized sheep/goat occur in the same context. These factors cast some doubt on the antiquity of this skeleton.

Table 38. Animal bones: numbers of identified specimens (NISP) hand retrieved from Bronze Age features.

	Horse	Cattle	Sheep/ goat	Pig	Dog	Red deer	Fox	Total identified
Skull	–	2	1	–	–	–	–	3
Horn-core/antler	–	–	–	–	–	2	–	2
Maxilla	–	–	–	1	1	–	–	2
Mandible	1	5	2	–	–	–	2	10
Loose teeth	2	28	19	9	–	–	–	58
Scapula	–	1	–	3	–	–	–	4
Humerus	1	2	1	3	–	–	–	6
Radius	–	3	4	3	–	2	–	12
Ulna	–	–	1	1	–	–	–	2
Vertebra	–	–	7	30	–	–	–	37
Rib	–	–	26	–	–	–	–	26
Sternum	–	–	2	1	–	–	–	3
Pelvis	–	–	3	–	–	–	–	3
Sacrum	–	–	–	1	–	–	–	1
Femur	–	1	3	–	–	–	–	4
Tibia	1	1	3	–	–	–	–	5
Calcaneus	–	1	1	–	–	–	–	2
Astragalus	–	2	–	–	–	–	–	2
Carpal	–	–	–	1	–	–	–	1
Metacarpal	1	1	2	–	–	–	–	4
Metatarsal	–	–	3	–	–	–	–	3
lat. metapodial	–	–	–	2	–	–	–	2
Metapodial	–	–	–	3	–	–	–	3
Sesamoid	–	1	–	–	–	–	–	1
Phalanx I	–	–	2	2	–	–	–	4
Phalanx II	–	–	–	4	–	–	–	4
Phalanx III	–	–	–	3	–	–	–	3
Total identified	6	48	80	67	1	3	2	207
Unidentified	3	23	39	32	<1	1	1	327

The pig skeleton in pit 133 (context 134) is also of a juvenile animal. Again, all bones are unfused. This context is in the same stratigraphic unit as that containing the lamb skeleton. In the case of the juvenile pig, however, the bone morphology more closely resembles that of the juvenile wild boar in the Faunal Remains Unit comparative collection than it does that of a juvenile modern pig.

Of the relatively large proportion of cattle remains, 58% are loose teeth. The remainder of the identified material is from horse, red deer (bone), fox, and dog.

The Late Iron Age/Romano-British settlement

This group of bones comprised 418 hand retrieved fragments of which 271 (65%) were identifiable to species (Table 39), and 229 fragments from sieved samples of which 56 were identifiable.

The large proportion of identified fragments and the predominance of sheep/goat, results from the presence of yet another skeleton of a lamb. The animal was very young, with all bones unfused; a mandible from a different context of the same pit may be from the same animal and this suggests the lamb was possibly neonatal. The skeleton is almost complete and in an excellent state of preservation; the auditory bullae, unfused sternebrae, and unfused vertebral facies were all recovered and, therefore, there was some suspicion that it may have been a later intrusion. However, the skeleton was recovered in the basal fill of a pit containing Iron Age/Roman pottery.

From a higher fill of the same pit come two horse skulls, both fragmentary and incomplete, although one is represented by both maxillary tooth rows. The age of this latter skull, based on crown heights of the loose teeth, ranges from 7–10 years, with most teeth at a height suggesting an age of 8–9 years (Levine 1982).

Cattle are mainly represented by loose teeth, of which one is a lower M_3 exhibiting a congenital absence of the distal cusp. Horse and red deer (*Cervus elaphus*) are present in small numbers.

Table 39. Animal bones: NISP hand retrieved from Late Iron Age/early Romano-British features.

	Horse	Cattle	Sheep	Sheep/ goat	Pig	Dog	Red deer	Total
Skull	2	3	–	13	–	–	–	18
Horn-core/antler	–	–	–	–	–	–	1	1
Maxilla	–	–	–	–	2	1	–	3
Mandible	–	3	1	7	1	2	–	14
Loose teeth	3	23	–	17	8	–	–	51
Hyoid	–	–	–	2	–	–	–	2
Atlas	–	–	–	1	–	–	–	1
Axis	–	–	–	1	–	–	–	1
Scapula	–	–	–	3	1	1	–	5
Humerus	–	4	–	3	–	–	–	7
Radius	2	4	–	5	–	–	1	12
Ulna	–	–	2	2	1	–	–	5
Vertebra	–	–	–	47	–	–	–	47
Rib	–	–	–	48	–	–	–	48
Sternum	–	–	–	1	–	–	–	1
Pelvis	–	–	–	3	–	–	–	6
Sacrum	2	1	–	1	–	–	–	1
Femur	–	–	–	4	–	–	–	4
Tibia	–	3	–	8	–	–	–	11
Patella	–	–	–	1	–	–	–	1
Calcaneus	–	–	–	2	–	–	–	2
Astragalus	–	–	–	2	–	–	–	2
Metacarpal	1	–	4	3	–	–	–	8
Metatarsal	–	1	4	8	–	–	1	14
Phalanx I	–	–	–	3	–	–	–	3
Phalanx II	–	–	–	1	–	–	–	1
Phalanx III	–	–	–	2	–	–	–	2
Total identified	10	42	11	188	13	4	3	271
Unidentified	4	15	4	69	5	1	1	147

Table 40. Animal bones: NISP from sieved Late Iron Age/early Romano-British features

Species	Feature	5024	5217	5285	5285	5285	5285	5251	Total
	Context	5026	5220	5289	5297	5428	5356	5492	
Cattle		–	–	–	1	–	–	–	1
Sheep/goat		–	1	–	–	–	1	–	2
Woodmouse		–	–	–	–	1	3	–	4
Water vole		–	–	–	1	–	10	–	11
Field vole		–	–	1	–	–	1	–	2
Bank vole		–	–	–	–	1	–	–	1
Small rodent		–	–	8	4	1	5	–	18
Hedgehog		–	–	–	–	–	–	3	3
Common shrew		–	–	–	–	–	1	–	1
Bird		–	–	–	–	–	8	–	8
Amphibian indet.		–	–	2	2	–	–	–	4
Fish		–	–	1	–	–	–	–	1
Unident. small mammal		2	–	–	2	1	2	–	7
Unident.		3	1	127	32	–	3	–	166
Total		5	2	139	42	4	34	3	229

Remains of dog were recovered from four contexts. In a post-hole, a burnt mandibular fragment retains a measurable carnassial alveolus which suggests this was a medium-sized dog and, in the ditch, a left mandibular fragment with unworn M_2 indicates an animal with a large and fairly powerful jaw. Pit 5236 contained a complete right mandible of a neonatal pup. A right humerus of a dog from another pit (5203) suggests a well built but not tall dog—perhaps similar to a stocky terrier. There are three knife marks on the posterior portion of the proximal articular surface and two knife marks below the caput posteriorly, at the insertion of M. triceps. These suggest careful disarticulation at the shoulder, but not skinning.

Seven bird bones were recovered from at least two different species — *Turdus* sp. of thrush size, and passerine smaller than redwing. The most frequent elements are those which tend to survive the longest, ie the humerus and ulna.

The association of the bird remains with rodent bones could suggest that they are the result of predation, but this is probably unlikely as they were recovered from the bottom of a pit. The preservation of the bones is good and this can be due either to benign survival conditions in the soil, or to preservation in owl pellets which protect the bone from decomposition (Armour-Chelou 1988). However, these remains also come from the basal context of the pit containing the lamb skeleton and this is too deep for bird pellet deposition. The bones are, therefore, probably of anthropogenic origin.

Microfaunal remains are summarised in Table 40 and form a very similar suite to that of the Bronze Age features, although there are no reptiles in this later group. The majority of the remains of *Arvicola terrestris* (water vole) are from one animal and from the same basal pit context as the lamb skeleton discussed above. The hedgehog (*Erinaceus europaeus*) is the only species present in the Late Iron Age/Romano-British contexts and absent from earlier ones. As evidence for the immediate environment of the site, the microfauna do not in themselves suggest a change in the localised surroundings from the Bronze Age to the Iron Age.

The Wider Landscape: Molluscan and Sediment Analyses from Compton Down and the Itchen Valley

The use of the landscape in areas adjacent to Twyford Down and along the route of the M3 corridor were summarily examined by limited evaluation trenching and by the analysis of two molluscan sequences from colluvium on Compton Down (Table 41) and other spot samples from features at the foot of Compton Down on the edge of the Itchen Valley (Table 42).

Compton Down was clipped by the new M3 corridor where it meets the Itchen Valley (Fig 1). Trial trenches (Chapter 7) were conducted across the slopes, two of which encountered colluvial footslope deposits which were sampled for land snails by field staff. The two colluvial deposits reflect different aspects of Compton Down; colluvium revealed in trench 3002 represented sampled hillwash in a short dry valley which runs from Compton Down to the Itchen Valley at Shawford, and colluvium in trench 3009 had accumulated in a Romano-British negative lynchet at about 48m OD. The Shawford dry valley deposits, which were sampled on the southern slope to the north of Hurdle Way at about 32m OD, provide an indication of the nature of the valley bottom and the local landscape use of the slope of Compton Down immediately to the south. In contrast, the sediments from the negative lynchet (trench 3009) reflect local landuse on the eastern edge of Compton Down, that is on the western margins of the Itchen Valley.

Shawford Dry Valley (Trench 3002)

Sediments

The Shawford dry valley is only *c.* 300m long and runs from west to east where it enters the Itchen Valley at Shawford. A 25m long trench (Trench 3002) was cut through the deposits on the northern side of the valley floor near the head of the valley. The sequence comprised 0.6m of colluvium (contexts 3203 and 3204) over a highly calcareous colluvium, 3207, which sealed a dark yellowish–brown humic old land surface, 3208. The old land surface was developed on gravels (context 3209) overlay a chalky coombe deposit, 3210, resting on chalk (Fig 47).

3202 Grassland. Typical humic rendzina; dark brown (10YR 3/3) silty loam with few stones.

3203/4 Colluvium. Brown (10YR 5/3), silty clay loam, becoming lighter, yellowish brown (10YR 5/4) with depth, common small and medium chalk pieces, many small and medium flints.

3207 Calcareous colluvium. Light grey-brown (10YR 6/4) silty clay loam with common medium angular and subangular flints.

3208 Humic old land surface. Dark yellowish brown (10YR 3/4) humic, almost peaty, silty loam, rare very small chalk and flint pieces, some charcoal flecks or manganese nodules noted.

3209 Gravels. Common medium and large angular flints in a dark yellowish brown (10YR 3/4) slightly humic silty loam matrix.

3210 Coombe Deposits. Very light grey (10YR 7/1), highly calcareous chalky silt with small and very small chalk pieces in a calcareous marl matrix

Although no archaeological features were identified in this trench, four small sherds of Late Bronze Age pottery were recovered from the humic old land surface and the gravels on which it was developed. The colluvium, however, contained a variety of mater-

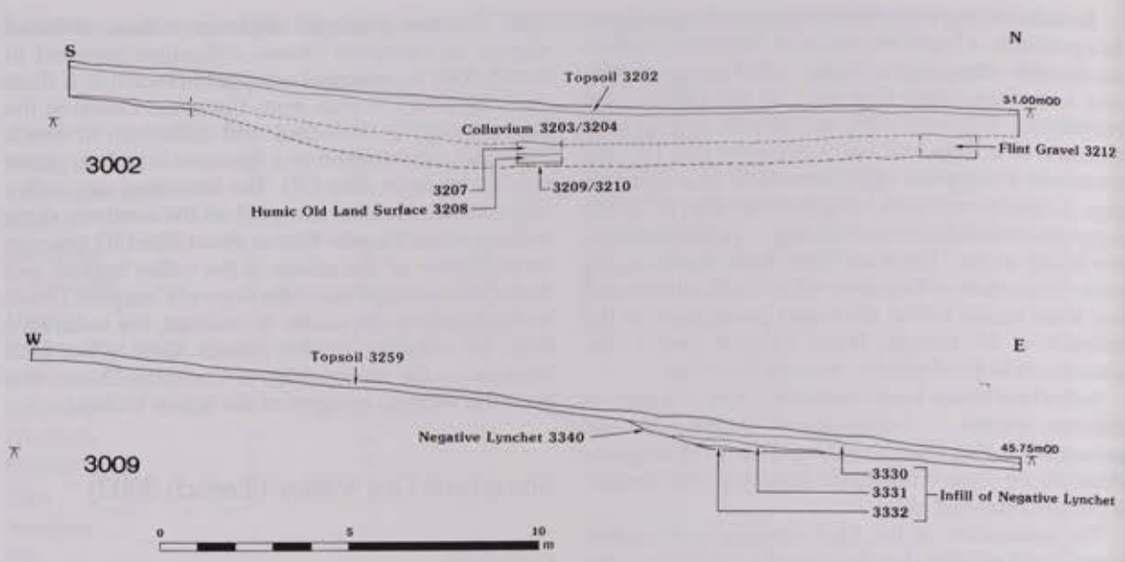


Fig. 47. Profiles of colluvial sequence in trial trench 3002 (Shawford Dry Valley) and lynchet in trial trench 3009 (Compton Down)

ial, including post-medieval pottery, and a fragment of tile (probably Romano-British) as well as prehistoric and medieval pottery. On this basis, the old land surface was thought to be Bronze Age in date and the colluvium of prehistoric to recent age.

A column of eight samples was taken contiguously at 0.1m intervals through the sequence for land snail analysis (Table 41). Unfortunately, horizon boundaries were not always respected but, where this occurred in the colluvial sequences, it is not considered a problem.

Land snails

The results of analysis are presented in Table 41 and a histogram of relative abundance is presented as Fig 48. The humic old land surface and gravels on which it was developed contained relatively high shell numbers of which a large proportion were fresh-water slum species, mainly *Bithynia tentaculata* and *Valvata piscinalis*. The remaining assemblage was dominated by species typical of open country, such as *Trichia hispida*, and *Vallonia costata*. The lack of shade-loving elements indicates a generally open landscape but the fresh-water species are typical of slow-running water and of muddy and locally damp conditions. We can, therefore, suggest that the valley may seasonally have contained running water, possibly even a small stream running into the Itchen, and that the valley floor was covered with damp, lush vegetation. Although sherds of Bronze Age pottery were found, these were small and abraded; further, large fragments of *Helix aspersa*, which are not thought to be intrusive, were recovered from the humic old land surface. This is a species thought to have been a Roman introduction (Kerney 1966) and this old land surface is therefore tentatively thought to be Roman or later; the Bronze Age pottery having originated from Bronze Age sites known to lie upslope in the vicinity.

The initial colluvial layer (context 3207) was highly calcareous, reflecting serious thinning of the soils upslope but also may contain some chalk wash eroded down-valley by fluvial agencies or under flood conditions. The fresh-water species decline as terrestrial (colluvial) sediments accumulate. *Vallonia pulchella* and *V. costata* are superseded by *V. excentrica* and *V. costata* and the main colluvial layers (3203 and 3204) are typical of ploughwash deposits and contain land snail assemblages which reflect arable conditions (*cf* Bell 1983; Allen 1992; 1994).

Compton Down negative lynchet

Sediments

In Trench 3009, a section was cut through a 0.5m deep negative lynchet (context 3340). The lynchet containing weathered chalk (3332) sealed by typical calcareous ploughwash colluvium (contexts 3331 and 3330; Fig 47). The lowest of these contained four sherds of Romano-British pottery, including part of the rim of an Oxfordshire mortarium dated to the 3rd or 4th century AD, and 13 fragments of Romano-British tile. The latest infill (3330) was distinctly more calcareous.

Land snails

A column of three spot samples was taken from layers within the negative lynchet. The results are presented in Table 41 and Fig 48 as histograms of relative abundance. All samples were dominated by open country species, particularly *Vallonia costata* and *V. excentrica*. The lower two assemblages are typical of

Table 41. Shawford Dry Valley and Compton Down: Mollusca from the colluvial sequence in trial trenches 3002 and lynchet in 3009

Phase		Bronze Age								Romano-British		
Feature	Tree hollow	3002: colluvium								3009: colluvium		
Sample	2545	2524	2525	2526	2527	2528	2529	2530	2531	2541	2540	2539
Context	3326	3209	3208	3207	3207/3204	3204	3204/3203	3203	3203/3202	3332	3331	3330
Depth (cm)	spot	73-83	63-73	53-63	43-53	33-43	23-33	13-23	3-13	spot	spot	spot
Wt (g)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Pomatias elegans (Müller)	+	2	16	6	+	1	6	1	1	+	+	–
Carychium tridentatum (Risso)	3	–	–	–	–	–	–	–	–	–	–	–
Carychium sp.	1	–	–	–	–	–	–	–	–	–	–	–
Succinea putris (Linnaeus)	–	–	–	–	1	–	–	–	–	–	–	1
Cochlicopa lubrica (Müller)	–	4	6	–	–	1	–	–	–	–	–	1
Cochlicopa lubricella (Porro)	–	–	–	–	–	–	–	–	–	–	–	1
Cochlicopa spp.	1	3	4	3	4	1	5	3	2	–	2	1
Vertigo pygmaea (Draparnaud)	–	–	7	3	1	–	2	–	–	+	–	3
Pupilla muscorum (Linnaeus)	–	1	43	11	8	5	4	4	–	1	2	4
Vallonia costata (Müller)	–	10	33	26	24	26	31	41	20	–	8	15
Vallonia pulchella (Müller)	4	–	27	27	9	1	–	–	–	–	–	–
Vallonia excentrica Sterki	–	–	–	–	–	23	41	28	14	1	12	20
Vallonia excentrica/pulchella	–	4	27	–	15	–	–	–	–	–	–	–
Acanthinula aculeata (Müller)	–	–	–	+	1	–	–	–	–	–	–	–
Punctum pymaeum (Draparnaud)	–	–	–	–	1	–	1	–	–	–	–	1
Discus rotundatus (Müller)	29	1	+	+	1	–	–	–	+	+	–	–
Vitrina pellucida (Müller)	–	–	–	–	–	–	–	–	–	–	1	–
Vitrea contracta (Westerlund)	5	–	–	1	–	–	–	1	–	–	–	–
Nesovitrea hammonis (Ström)	–	–	2	–	–	–	–	–	–	–	–	–
Aegopinella nitidula (Draparnaud)	4	–	–	10	1	–	–	–	1	–	–	5
Oxychilus cellarius (Müller)	–	1	–	12	–	–	–	–	–	–	–	1
Limacidae	3	–	9	–	9	5	23	19	27	3	2	4
Cecilioides acicula (Müller)	112	15	13	–	32	99	179	157	20	4	195	264
Cochlodina laminata (Montagu)	–	–	–	9	–	–	1	–	–	–	–	–
Clausilia bidentata (Ström)	–	–	1	30	1	–	1	–	–	–	+	–
Helicella itala (Linnaeus)	1	–	14	–	2	7	6	8	4	3	2	6
Trichia hispida (Linnaeus)	3	10	38	2	36	35	36	48	27	–	3	11
Helicigona lapicida (Linnaeus)	–	–	+	+	–	–	–	–	–	–	–	–
Cepaea/Arianta spp.	2	–	–	–	5	–	+	2	–	1	+	+
Helix aspersa (Müller)	–	–	+	–	–	–	–	–	+	–	–	+
Valvata cristata (Müller)	–	1	–	–	–	–	–	–	–	–	–	–
Valvata piscinalis (Müller)	–	16	4	–	–	–	–	–	–	–	–	–
Bithynia tentaculata (Linnaeus)	–	21	44	–	–	–	–	–	–	–	1	–
Lymnaea truncatula (Müller)	–	–	–	–	1	–	–	–	–	–	–	–
Limnaea glabra (Müller)	–	–	1	–	–	–	–	–	–	–	–	–
Lymnaea spp.	–	–	–	–	1	–	–	–	–	–	–	–
Taxa	10	11	15	12	18	9	12	10	8	5	9	13
Shannon index	1.74	2.00	2.37	2.13	2.17	1.69	1.89	1.73	1.63	1.46	1.82	2.14
Total	56	74	276	154	121	105	157	155	96	9	33	74

Totals exclude *Cecilioides acicula*

Fig. 48. Mollusc diagrams of colluvial sequence in trial trench 3002 (Shawford Dry Valley) and lynchet in trial trench 3009 (Compton Down)

ploughwash deposits, that is to say, the mollusc assemblage represents a local arable area and are similar to those from the colluvium in the Shawford Valley. Of interest here is the presence of *Bithynia tentaculata*, a fresh-water species, indicating the proximity of this field to the Itchen valley floor. The assemblage from the upper deposit, however, contains a number of Zonitids (*Vitrea contracta, Aegopinella nitidula, Oxychilus cellarius* and *Nesovitrea hammonis*), the presence of which probably indicate the establishment of longer grasses along the field boundary.

Foot of Compton Down

At the foot of Compton Down, but above the floodplain of the Itchen valley, a series of four spot samples was taken from both natural deposits and shallow ditches (trenches 3028 and 3005).

Undated natural deposits: tree hollow and humic peats

In Trench 3028, situated at about 36m OD, an irregular sub-circular feature (3327) thought to be a tree-hole, was sampled. Although less than 60 shells were recovered, the assemblage was dominated by shade-loving species, in particular *Discus rotundatus* but with *Vitrea contracta* and *Aegopinella nitidula*. The land snail assemblage probably confirms the field interpretation of a tree hollow. Unfortunately, it remains undated but does provide limited evidence of some trees on the slopes of Compton Down.

Lower down the slope, at about 30m OD and only 30m from the Itchen valley floodplain, peaty humic clays were recovered from trench 3005 associated with chalk brash. A spot sample from this was analysed (Table 42) and the assemblage was dominated by fresh- and brackish-water species, many of which are species common in streams and rivers. *Ancylus fluviatilis*, in particular, is common in rivers and streams but requires a hard surface on which to attach itself. The combination of *Bathyomphalus contortus, Hippeutis complanatus*, and *Pisidium* spp., indicate that these are probably a result of over-bank flooding; the terrestrial elements of the assemblage are open but more inclined towards damper habitats (*V. pulchella*). This, therefore, probably indicates former damp, but not marshy, habitats on the Itchen valley margins, possibly when the river itself was prone to more extensive flooding episodes. Unfortunately, this deposit is undated and may belong to anytime in the Late Glacial and Holocene history of the Itchen valley.

Bronze Age and Romano-British ditches

About 75m to the south of the peaty humic clays, two ditches were uncovered (trench 3004) from which a single spot sample was taken from the lower fills of each. Both ditches lie at about 31m OD, some 4m above the present floodplain. The mollusc assemblages are summarised below and presented in Table 42.

Ditch 3225 (Bronze Age)

A very rich and diverse assemblage (1500 shells) was recovered from ditch 3225. The assemblage was of pre-

Table 42. Compton Down and Itchen Valley: land snails from features in trial trenches 3004, 3005 and 3028.

Trench	3028	3005		3004
Feature	Tree hollow	Peat	BA ditch	RB ditch
Sample	2545	2551	2537	2536
Context	3326	3335	3234	3232
Depth (cm)	spot	spot	spot	spot
Wt (g)	1000	1000	1000	1000
Pomatias elegans (Müller)	+	+	+	–
Acicula fusca (Montagu)	–	–	1	–
Carychium minimum Müller	3	–	4	2
Carychium tridentatum (Risso)	–	–	2	1
Carychium sp.	1	–	4	3
Succinea putris (Linnaeus)	–	4	8	4
Oxyloma pfeifferi (Risso)	–	–	10	–
Succinea/Oxyloma spp.	–	–	164	–
Cochlicopa lubrica (Müller)	–	2	–	5
Cochlicopa spp.	1	–	4	14
Vertigo pygmaea (Draparnaud)	–	–	–	11
Pupilla muscorum (Linnaeus)	–	5	7	32
Vallonia costata (Müller)	–	–	10	91
Vallonia pulchella (Müller	4	19	–	7
Vallonia excentrica Sterki	–	–	5	42
Punctum pymaeum (Draparnaud)	–	–	1	6
Discus rotundatus (Müller)	29	–	9	–
Vitrina pellucida (Müller)	–	–	–	2
Vitrea crystallina (Müller)	–	–	1	–
Vitrea contracta (Westerlund)	5	–	1	–
Nesovitrea hammonis (Ström)	–	–	1	2
Aegopinella pura (Alder)	–	–	4	–
Aegopinella nitidula (Draparnaud)	4	–	–	1
Oxychilus cellarius (Müller)	–	–	2	–
Limacidae	3	7	3	2
Cecilioides acicula (Müller)	112	61	–	35
Clausilia bidentata (Ström)	–	–	1	–
Candidula intersecta (Poiret)	–	–	–	[1]
Helicella itala (Linnaeus)	1	8	1	6
Trichia hispida (Linnaeus)	3	8	1	53
Cepaea/Arianta spp.	2	–	–	2
Valvata cristata (Müller)	–	9	–	1
Valvata piscinalis (Müller)	–	118	680	19
Bithynia tentaculata (Linnaeus)	–	31	19	4
Bithynia leachii (Sheppard)	–	–	31	–
Lymnaea truncatula (Müller)	–	2	7	–
Lymnaea glabra (Müller)	–	–	2	–
Lymnaea peregra (Müller)	–	–	6	–
Planorbis planorbis (Linnaeus)	–	–	111	–
Anisus leucostoma (Millet)	–	–	4	–
Bathyomphalus contortus (Linnaeus)	–	2	43	1
Gyraulus laevis (Alder)	–	–	–	1
Gyralus albus (Müller)	–	–	27	3
Hippeutis complanatus (Linnaeus)	–	3	92	–
Planorbids spp.	–	–	19	–
Ancylus fluviatilis (Müller)	–	2	55	–
Acroloxus lacustris (Linnaeus)	–	–	19	–
Pisidium nitidum (Jenys)	–	–	–	1
Pisidium spp.	–	2	–	–
Sphaerium/Pisidium spp.	–	–	141	–
Taxa	10	15	36	23
Shannon index	1.74	1.73	2.10	2.35
Total	56	222	1500	316

dominately fresh- and brackish-water species, particularly *Valvata piscinalis* with *Planorbis planorbis* and *Pisidium* sp. This assemblage is typical of small bodies of water and vegetation and suggests that the ditch held slow-flowing but not stagnant water and containing some vegetation for the snails to live on. Some elements of the terrestrial component reflect a damp moist environment (*Succinea/Oxyloma* and *Carychium minimum*) but a rich mesic scrubby environment is suggested by the rest of the terrestrial assemblage.

Ditch 3233 (Romano-British)

The sample from ditch 3233 was not as rich, containing less obligatory fresh- and brackish water species. Nevertheless, the presence of some species indicate that this Romano-British ditch was drier than the Bronze Age one through which it was cut. It may only have been seasonally waterlogged. The terrestrial component, in contrast to ditch 3225, was typical of open dry but rich grassland.

Itchen Valley watermeadows

A limited auger survey of the Itchen valley watermeadows, which lie at *c.* 28m OD, was conducted to assess both the depth and character of the floodplain deposits. A series of 19 holes was bored by hand using a 40mm diameter dutch auger. Work by Waton (1982; 1983; 1986) at Winnall Moor (SU 486 299), only 3km to the north, indicated the presence of over 4m of peat from which a long and dated vegetation history was gained from pollen analysis.

The augering in the Itchen valley watermeadows indicated that only relatively shallow deposits had accumulated in the flat-bottomed valley. The Itchen valley floor was solid chalk, overlain by gravels, and

the floodplain sediments comprised calcareous gravels and marls above which were shallow, brown organic and black humic peats of about 1m depth and overlain by non-organic alluvium (Plate 29). The date of peat initiation is unknown, although it may well be prehistoric in origin. However, the formation of peats certainly continued into the post-medieval period as a clay pipe stem was recovered from peat in one augerhole. The lack of deeply stratified alluvial and peat sequences along the M3 corridor here contrasts markedly with the 4.3m of deposits recorded and analysed by Waton at Winnall Moor (Waton 1982; 1986) and from work conducted in other major valleys in southern England, eg. in the Ouse and Cuckmere valleys in Sussex (Scaife and Burrin 1983; 1985).

Plate 29. Test-pit through the Itchen Valley watermeadows showing peat and overlying chalk consolidation associated with watermeadow usage

Landscape and Economy: a Discussion of the Environmental Evidence

The aims of the environmental analyses were to present an interpretation of the pattern of landscape use throughout the period between the later prehistoric and early Roman periods so that the relationships and developments between Bronze Age settlements and their resource landscapes could be considered. In particular, the aim of both the faunal and plant remain analysis was to determine the animal and crop husbandry regimes respectively and enable this information to be related to the changing pattern and intensification of landscape use on Twyford Down. A subsidiary aim was that of examining the wider physical landscape (ie chalkland versus river valley). The discussion which follows addresses these aims by means of a synthesis of the environmental data described above presented under the major themes introduced at the beginning of this chapter, namely landscape and economy.

Landscape

The land snail analysis provided information on a long sequence of landuse from Twyford Down and allowed us to compare this with the local pollen records from the calcareous fen at Winnall Moor (Waton 1983; 1986), as well as with other land snail data from the region. We can indicate how Twyford Down relates to other areas in the vicinity and possibly refine our understanding of the prehistoric and early historic landscape.

Ancient woodland

Land snails from both the pits and the barrow indicate the presence of ancient woodland habitats. The evidence of ancient, broad-leafed woodland, inferred by the mollusc sequences, is undated but equates well with Atlantic–Sub-boreal woodland sequences elsewhere in the county, for instance at Easton Lane (Allen 1989) and Burntwood Farm (Mason 1980; Evans and Williams 1991) rather than the older (Boreal) woodland seen a little further away at Balksbury, Andover (Allen 1995b).

The pollen evidence from Winnall Moor indicates Boreal (Mesolithic) woodland and Waton argues for the elm decline and local human clearance of the woodland in the Late Mesolithic at 4720–4340 cal BC (HAR-4342; 5630±90BP). Although this is within the range of dates for the elm decline in southern England (Scaife 1988, 23), Waton acknowledges the possibility of hardwater error (Shotton 1972) which may give a result of greater age (Waton 1986, 171). The pollen evidence indicates that from the Late Mesolithic onwards the pollen catchment area of about 1–4km (Waton 1986, 172) was largely free from woodland. The land snail evidence from Twyford Down, however, indicates the persistence of ancient woodland into the Bronze Age. These two lines of evidence, although they appear superficially contradictory, at a more detailed level they are not and serve to reinforce the relatively local nature of the interpretation of both pollen and land snail sequences.

Woodland clearance at Winnall Moor, of elm, oak and possibly pine, on the dry floodplain margins and local downland occurred in the later Mesolithic/earlier Neolithic, and the floodplain itself remained open from that time. However, Waton suggested that woodland existed on the edge of the pollen catchment zone (1–4km) and on the hillslopes, and the land snail evidence from both Easton Lane (Allen 1989) and Twyford Down indicates that this was indeed the case. Within the Itchen valley itself, and around Winnall Moor, the Late Mesolithic/Early Neolithic woodland clearance was permanent.

Clearance of the woodland

The land snail evidence from Twyford Down indicates the very late clearance of ancient woodland

which contrasts strikingly with the earlier (Late Mesolithic/Early Neolithic) clearance at Winnall. Despite this early evidence around Winnall, clearance on Twyford Down is surprisingly late; the ancient woodland does not seem to have been largely removed until the later Bronze Age. In other areas open established downland is recorded from the Neolithic, for instance in Wiltshire (eg South Street and Horslip, Evans in Ashbee *et al.* 1979), and in Dorset (Maiden Castle, Evans and Rouse in Sharples 1991 and Dorchester environs, Allen 1997). Most of the buried soils beneath Bronze Age barrows on the chalklands of southern England that have been analysed for land snails indicate that local clearance had occurred and that open established short downland prevailed prior to the construction of the barrow. Good examples of this are Buckskin II, Hampshire (Allen in Allen *et al.* 1995), Arreton Down, Isle of Wight (Kerney in Alexander *et al.* 1960), Round-the-Down, Sussex (Allen 1995d), and Amesbury 71 (Kerney in Christie 1967), Roughridge Hill (Evans 1972, 335), Hemp Knoll (Evans 1972; Evans in Robertson-Mackay 1980) and King Barrow Ridge, all in Wiltshire (Allen and Wyles, in Cleal and Allen 1994). This is corroborated by pollen analysis of the buried chalkland soil from Gallibury Down, Isle of Wight (Scaife 1984). The evidence from Twyford Down reinforces the fact that the downland, even within the relatively small area around Winchester, was a mosaic of vegetation habitats where neither woodland nor open cleared land were universal.

Some clearance on Twyford Down is evident in the Early Bronze Age and it is assumed that the woodland was cleared locally, at least for both the construction of the barrow and for any other associated activities. The clearance was not extensive and woodland and shrubs still existed on the Down. This is indicated both by the land snail evidence and by the list of species identified from the animal bones which include red and roe deer, woodmouse, field and bank vole, and possibly wild boar.

The clearance of woodland on Twyford Down started in the Early Bronze Age but, by the Late Bronze Age, seems to have been relatively extensive (on this Down) and was permanent. The regeneration of scrubland with shrubs (such as hazel and hawthorn) did occur locally.

Economy

The downland was cleared of vegetation for the principle activities of occupation, burial and farming. Farming is evident in the broadest sense by the presence of the field systems first mapped by Stuart and Birkbeck (1936). These date to the later Bronze Age but seeds from the Early–Middle Bronze Age barrow included cereal remains of barley and weed seeds which seem to indicate the presence of arable fields on Twyford Down at that time. The animal remains were dominated by sheep, goat and cattle and indicated that they too were a part of the farming economy. However, it is possible that their presence here may also relate to practices of the disposal of the dead and feasting at the barrow site (cf. Clark in Allen *et al.* 1995). By the later Bronze Age many of the field systems were present as formal bounded fields (lynchets) and the land snail evidence indicates both tillage and grazing. Certainly the former included both wheat and barley in the later Bronze Age and, by the Iron Age/early Romano-Btitish period, also included oats. The field systems extend over relatively large areas of the Down and the evidence for a rotation system from the Late Bronze Age onwards indicates systematic farming. Sheep, the dominant animal bones, were presumably herded on the Down, together with smaller herds of cattle.

There is no evidence for great change in the local environment or of the farming economy. The detailed economic evidence (plants and animal bones) presented above is similar to a relatively large number of sites in the Winchester area (Maltby and Coy 1991; Monk 1991; Green 1981). Unfortunately, like those from previous studies in the area, the plant remains from Twyford Down are relatively sparse and only provide a general idea of farming practices. Nevertheless, the continued regular recovery of such remains will in time allow more detailed statements to be made (Allen 1996).

The most significant 'changes' that can be detected are the introduction of oats in the Late Iron Age/early Romano-British period and the expansion of the farmed area. Certainly farming is evident on the opposite side of the Itchen valley, at this time resulting in lynchets and colluviation on Compton Down and in the Shawford valley. Throughout this time and, in fact, from the Early Neolithic period, the Itchen valley itself, which separated Twyford from Compton and Shawford, seems to have remained open and free of trees.

Conclusion

Perhaps the most significant contribution that the environmental data from this project has made is not that of the defining and detailing changing animal and crop husbandry, as was the original intention, but that of demonstrating the vegetational mosaic of the downland in the Neolithic and Bronze Ages. The presence of large tracts of ancient woodland on the Down until well into the Bronze Age is unusual when compared with a large number of other chalkland sites in southern England which have been analysed (Allen 1994). The survival on the Down today of rare modern land snails (*Columella edentula*), and (at least until 1991) of the very rare *Helicodonta obvulata* in the Itchen Valley and the richness of the Downland vegetation (some of which was designated as a Site of Special Scientific Interest), may in part be a result of this late clearance of vegetation.

Chapter 7

Archaeological Investigation Methods and Retrospective

Introduction

In March 1990 Wessex Archaeology was asked to prepare a strategy to assess the 'full archaeological potential of the proposed route of the M3 extension between Bar End and Compton, with a particular emphasis to be placed on the evaluation of the (known) archaeological remains on Twyford and Hockley Downs' (Wessex Archaeology 1990a; b). The area under consideration was a corridor approximately 4.5km long and 100m wide (Fig 49). The selection of appropriate survey techniques had to take into account the finite financial and time resources available, as well as the known archaeological potential, local topography, existing landuse, and access. The aim was to integrate the survey techniques to obtain maximum information regarding the location, extent, and quality of archaeological sites and features. As a result of legal processes, the fieldwork had to be carried out in two stages. It was undertaken between April–May 1990 and November–December 1990. Following the evaluation survey discussed below, an excavation strategy was proposed for the threatened areas of this central part of the route (Wessex Archaeology 1991b). This reflected the archaeological potential of the various areas as revealed during the course of the evaluation. The methods employed in the subsequent excavations and the validity of their results are discussed below.

As a corollary of the planning process, the previously known archaeology of the proposed route had been collated and summarised (Whinney 1985; Morgan-Evans 1987). Probable areas of high archaeological potential had been indicated, based on sources generally employed by archaeological contractors undertaking 'desktop studies': that is, the County Sites and Monuments Record (SMR), Scheduled Monument listings, aerial photographs, and published excavation reports. The information obtained by the desktop study is summarised in Chapter 1.

The survey methods applied during the evaluation had previously successfully been employed in advance of the construction of other sections of the M3 (Fasham and Whinney 1991, 79–96). The two Scheduled Monuments within the proposed road corridor were the subject of Monument Clearance and were given particular consideration when the evaluations were designed.

Evaluation Methods

The evaluation methods employed were designed to be part of a staged approach whereby information produced from the different surveys would complement each other and direct further work (Figs 50–3). In fact, although this happened in some cases, various external considerations adversely affected the order and timing of some elements of the evaluations, particularly work in the area of the Dongas. Methods employed during the evaluation were:

- geophysical survey — magnetometer survey to detect magnetic anomalies was undertaken by Geophysical Surveys, Bradford;
- artefact collection by surface survey (fieldwalking) was employed over the available arable land;
- auger survey was undertaken mainly to provide general soil depth and profile information, additionally auger samples were taken in the Itchen valley for environmental purposes;
- hand excavated, 1x1m test pits were sited at designated intervals aligned off the centre line of the proposed route, where fieldwalking was not possible, or where extra information was required regarding soil depths etc;
- machine trenching using a tracked excavator with a 2m wide toothless ditching bucket. The trenches were sited following examination of the results of the previous survey methods, or in pasture areas not amenable to less intrusive techniques;
- measured contour survey (using a Sokkisha total station electronic distance measurer (EDM) and a data logger) was restricted to earthworks, including the barrow on Twyford Down, the Dongas (Plate 30), and part of the Hockley Down lynchets.

One area where archaeological survival was likely to be limited was identified in advance of field evaluation. The most northerly block of the route, close to Bar End, lay within the boundaries of a sewage treatment works and had been subject to considerable disturbance prior to the proposed road scheme. In view of the limited potential and particular health and safety considerations because of the possibility of soil con-

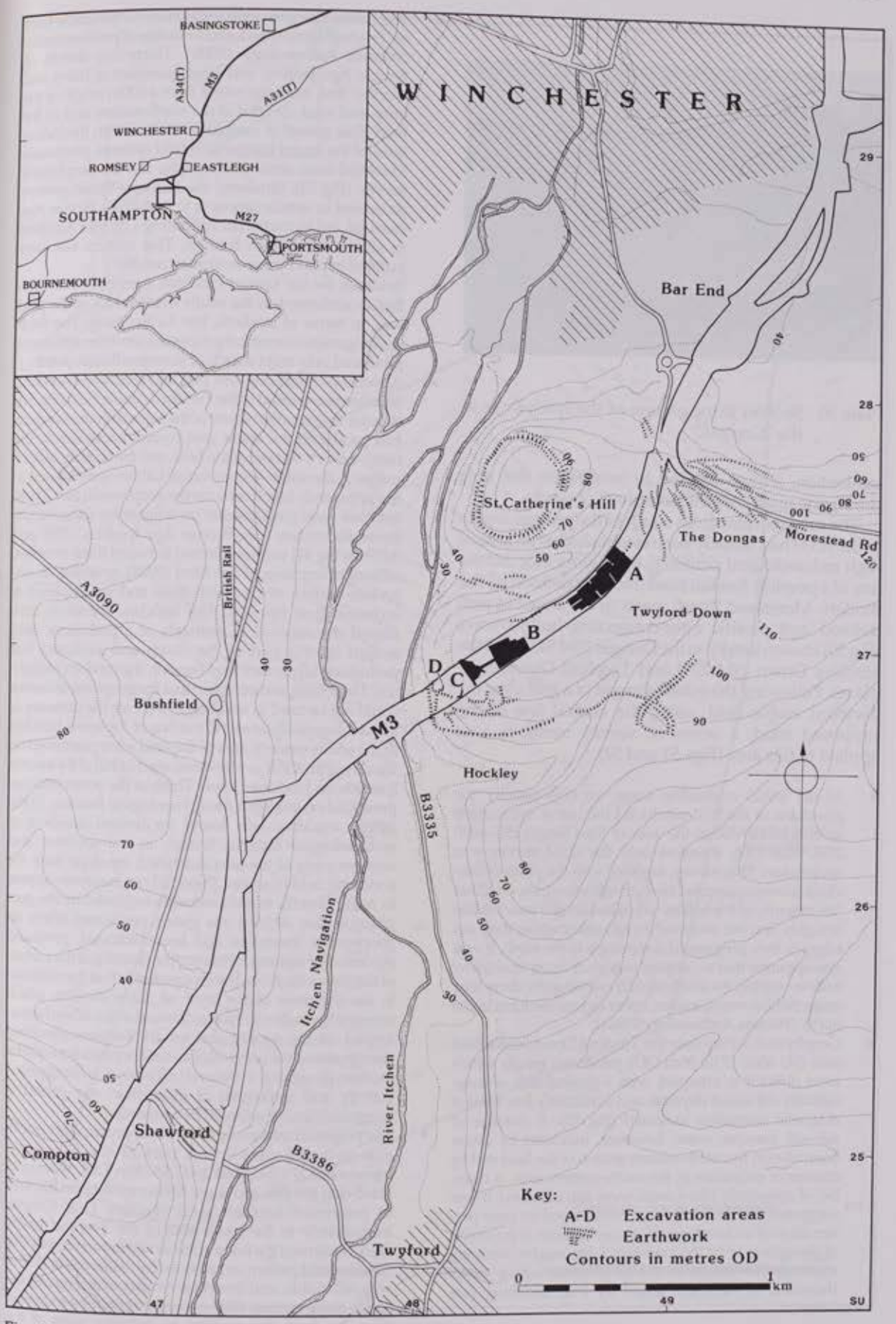


Fig. 49 General location plan showing M3 road corridor and excavation areas A–D

Plate 30. Section through one of the trackways in the 'Dongas'

tamination, it was decided to investigate this area during the main construction phase of works.

The road corridor from south of the sewage works to the A333 had already been established as an area of high archaeological potential, containing as it did the line of a possible Roman road (roughly defined by the modern Morestead Road), parts of the series of well defined and prolific inter-connecting hollow-ways (Fig 50) known locally as the Dongas (SM 543), and the Hockley Down (SM 273) and Twyford Down complexes. Following the establishment of a grid over the Twyford arable field, using the central line of the proposed road, a series of survey methods was applied to this area (Figs 51 and 52).

- At the initial evaluation stage, an objection by the guardians of the SSSI precluded the use of sub-surface investigations within the area of the Dongas (SU 4890 2755, 92m OD), therefore only the EDM survey was undertaken. This survey, together with the plans of previous surveys (supplied by the contractors), showed that 'the majority of the hollow-ways had similar base widths (roughly 3m) but widened considerably across their top edges as they progressed downslope to the north. It was also apparent that a complex pattern of up to 16 shallow hollow-ways in the south rapidly converged to form four major hollow-ways, and or, linear erosion features in the north' (Wessex Archaeology 1993a).
- Geophysical survey over the Twyford Down arable field area (SU 4860 2710, 96m OD), produced results which were difficult to interpret, with a general lack of magnetically enhanced deposits and a relatively low level of magnetic anomalies indicated (Fig 52). A number of sub-soil features were, however, indicated by linear anomalies in the north-eastern section of the field and by clusters of anomalies in the south-western area. A number of apparently blank areas were also indicated. It was suggested that this may have been caused by poor preservation of archaeological features because of the effects of ploughing, or by the masking of deposits by overlying material. The results of the geophysical survey were, therefore, of necessity tested by trial trenching (see below).
- The fieldwalking exercise undertaken in the arable field on Twyford Down produced a number of positive results (Wessex Archaeology 1990b). Thirty-five sherds of Bronze Age pottery, and large quantities of burnt and worked flint, were recovered from a 400m length of the proposed road corridor at the north-eastern end of the field. This spread of material coincided with the indications of the round barrow and field systems, previously identified from aerial photographs and the geophysical survey (Fig 52). Similarly, the Romano-British pottery recovered in similar amounts to that of the Bronze Age material, led to caution in attributing a Bronze Age date to all the sub-surface features. This caution was later justified in part by the excavation results.
- Evidence for the known Late Iron Age/early Romano-British settlement in the south-western half of the field was, in terms of artefacts, less forthcoming. The fieldwalking areas nearest to the expected site of the settlement produced only eight sherds of Romano-British pottery.
- A series of hand-dug test pits and machine-excavated trenches was located in the Twyford Arable Field (Fig 51), in order to assess the nature of the sub-soil features which had produced the linear geophysical anomalies in the north-eastern section of the field and the clusters of anomalies in the south-western area. Others were located to test apparently blank areas on the geophysical plot. Three trenches were positioned to investigate the nature of the linear anomalies. Late Bronze Age lynchets (3339 and 3017, *see* Fig 44) were confirmed in two of these trenches, although stripping of the third (3018), revealed an unbroken surface of clay-with-flints and no evidence of archaeological features. The trenches, therefore, confirmed the survival of elements of a prehistoric field system on this part of the down and indicated that prehistoric layers survived beneath the modern ploughsoil. The results also indicated that the geophysical survey could not be used in isolation to indicate the presence of archaeological features. All but one of the seven trenches in the south-western area of the field were positioned on the clay-with-flints, and all were sited uphill of the known lynchets on Hockley Down. Three of the seven trenches produced no evidence for archaeological features. In the others, evidence was found for limited numbers of archaeological features, mainly in the southern and western parts of the area examined, up-slope from the surviving field lynchets. These did not, however, appear to relate directly to the anomalies indicated by the geophysical plot. At least one trench, positioned where no geophysical anomalies had been indicated, produced evidence for features following the cleaning of the surface of the clay-with-flints. It seems probable that the variation in the thickness of the layer of clay-with-flints which covered the bedrock chalk at this end of the down had an impact on the geophysical results. Features identified demonstrated the survival of ancient deposits beneath the modern ploughsoil at this end of the down and suggested activity and settlement of more than one period; a suggestion later confirmed by excavation.
- The proposed motorway route ran approximately north-east to south-west across part of the Scheduled Monument 273 (SU 4808 2680, 68–38m OD). A series of hand-dug test pits and auger holes excavated in this area of preserved lynchets near Hockley Golf Course, immediately to the south-west of the Twyford arable field, confirmed the known status of this monument (Fig 53). The field pattern, as recorded by fieldwork in 1933–4 was still visible, and the major lynchet which ran north–south along easting 4809 was represented by a drop of over 2m from the positive to negative parts of the

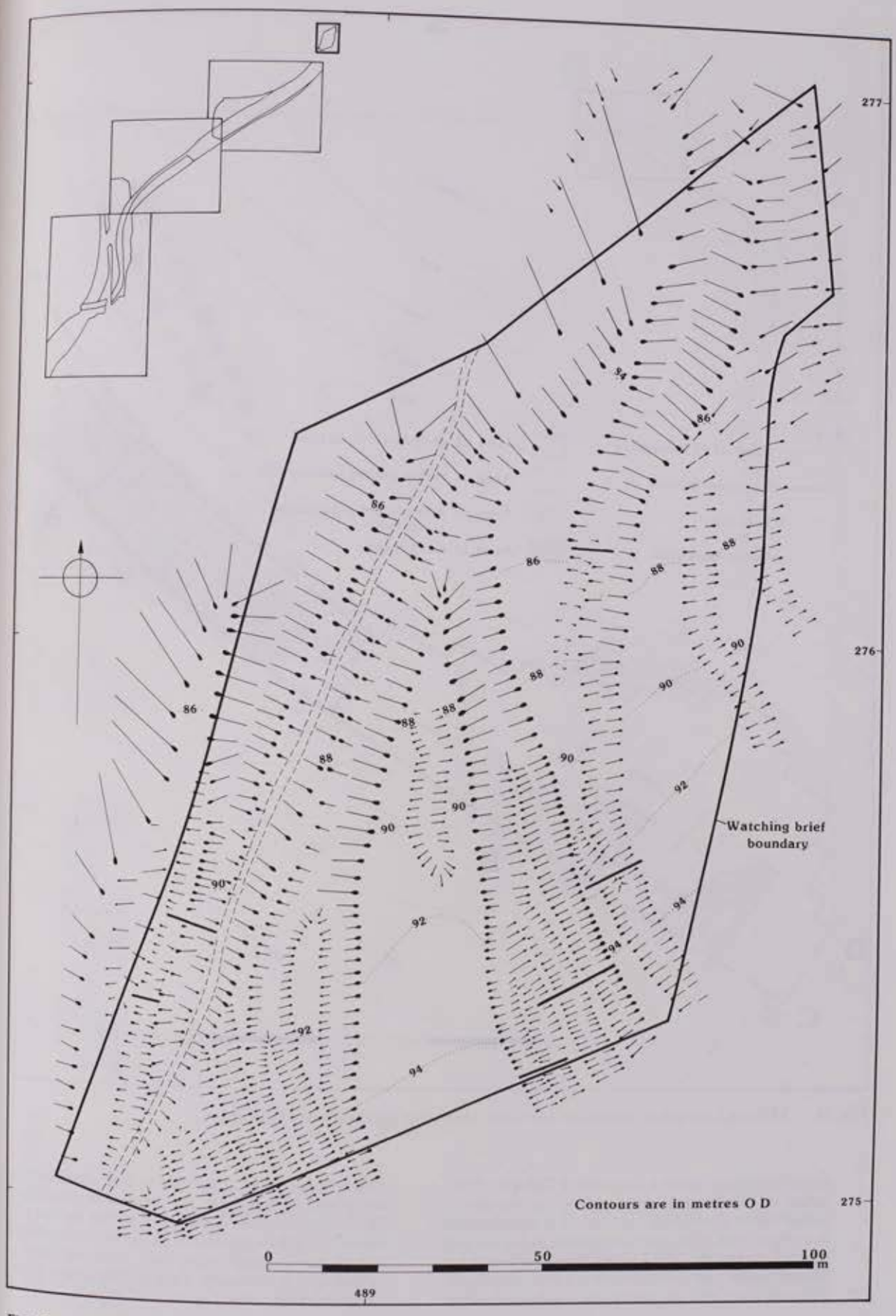


Fig. 50 Plan of 'Dongas' showing area of watching brief and location of excavation trenches

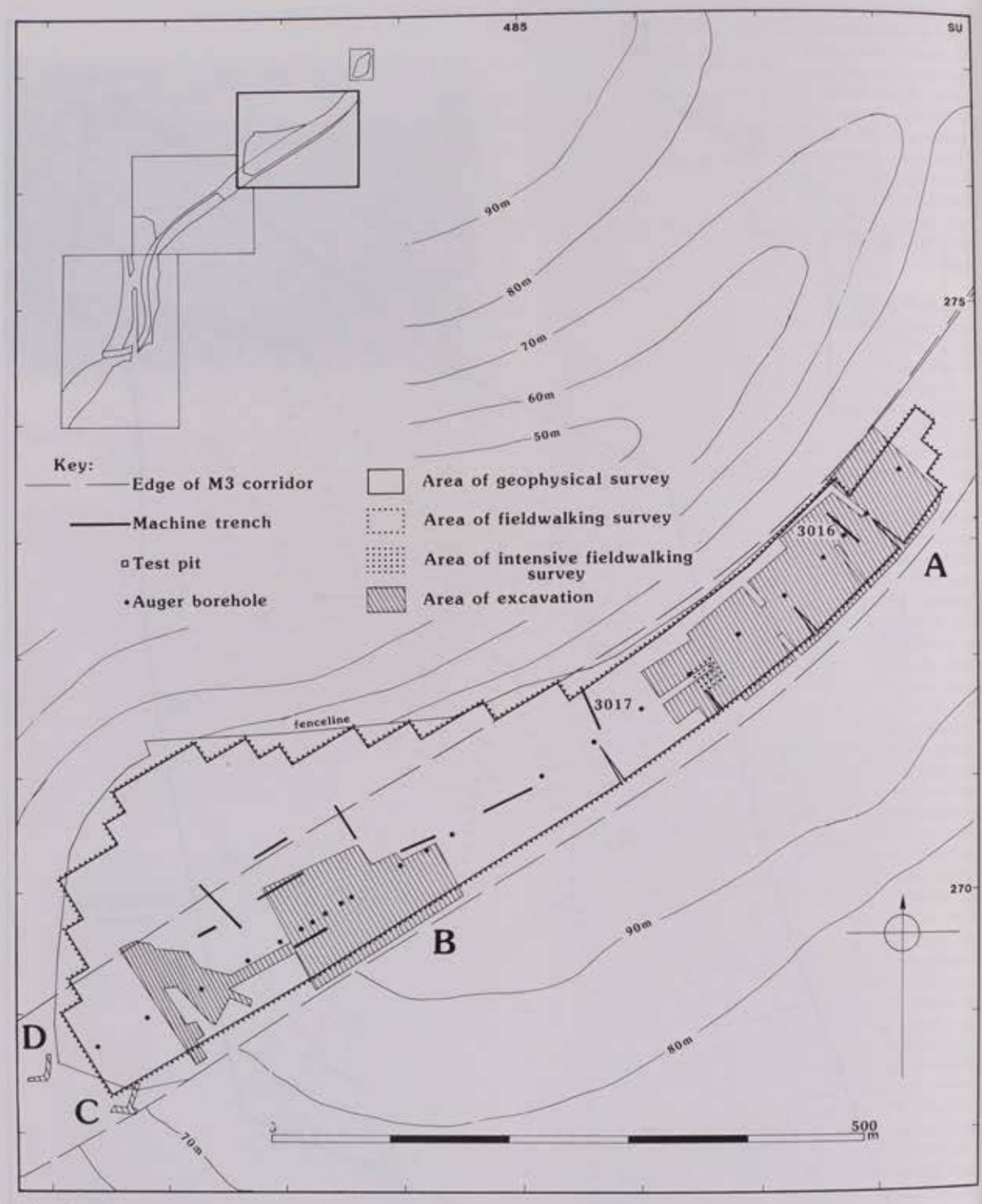


Fig. 51. M3 road corridor: northern sections, showing methods of excavation

respective fields of which it was formed. The agricultural nature of the site was clear and no cut features of archaeological significance were found. It was observed that preservation of the lynchets themselves deteriorated markedly below the 50m contour. Buried soils and full lynchet profiles were only encountered above that height, in the east of the area. The presence of one sherd of pottery and a strap-end of Anglo-Saxon date could only be interpreted as stray finds. The presence of quantities of Middle–Late Bronze Age pottery within the test pits, however, and its occurrence on the surface in the adjacent part of the Twyford arable field, were both seen as indicators of the antiquity of the lynchet system, a view which was later justified by excavation (Areas C and D).

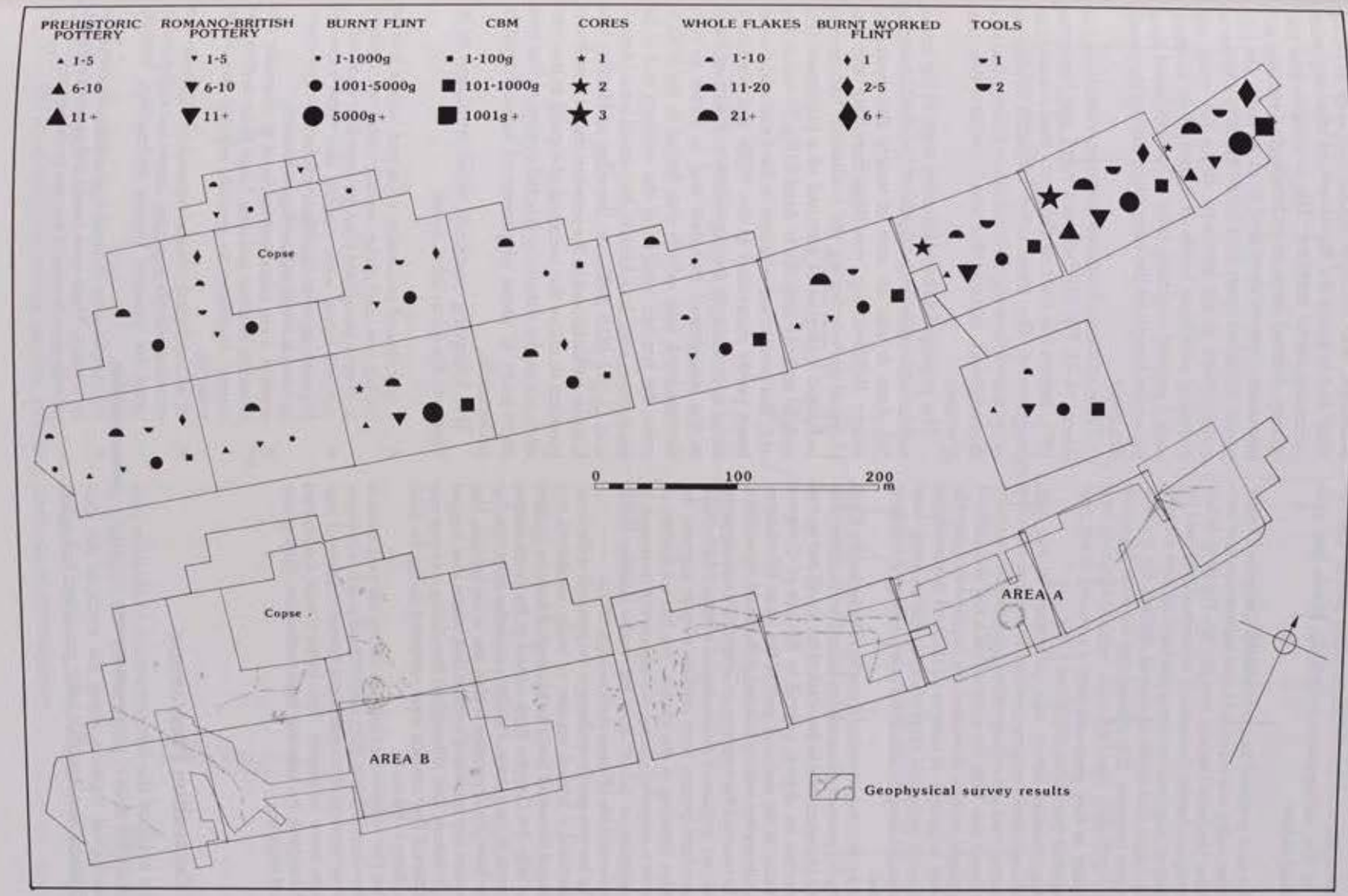


Fig. 52. Twyford arable field, surface collection of artefacts, and geophysical survey: results

The southern block of the route, comprising the Itchen valley, Compton Down and Shawford areas had varied topography and landuse (Fig 49). The survey methods employed were adopted accordingly. As a result of the initial survey, a watching brief of these areas was the recommended action. The results of the subsequent watching briefs are also discussed below.

- The land available for survey in the Compton Down/Itchen valley was subjected to the same techniques used in the Twyford/Hockley area (Fig 54). The River Itchen floodplain largely consisted of watermeadows used for grazing. Auger survey was undertaken in order to assess the nature and depth of alluvial deposits for environmental purposes. This showed that the water meadows (SU 4775 2655, 28m OD) were unlikely to have a long history as they produced only a relatively short peat sequence (maximum depth was 1.7m).
- Magnetometer survey was undertaken in this area, although there was some previous disturbance caused by existing road and railway cuttings and the survey results reflected this. With the exception of a few well defined apparent pit-type anomalies, the results were generally weak or unclear. A number of undated archaeological features including lynchets and ditches were later recorded along the side of the valley during the watching brief.
- Test pits in the grounds of Compton House and the Knoll (Fig 54) were supplemented by limited fieldwalking (part of a ploughed field to the north of the Knoll) and by trial trenches on sloping ground to the east of Compton House, to the east and west of the main Winchester–Southampton railway line and at Bushfield roundabout. The results of the trenching at Compton House suggested that any features of archaeological interest which might have been present were unlikely to have survived the major terracing of the garden. The limited amount of pottery recovered during the assessment were seen as suggestive of 'fall-off' from the nearby Romano-British settlement site (Wessex Archaeology 1991a).
- The test pits used to evaluate in the grounds of the Knoll identified a limited number of badly weathered and animal disturbed linear archaeological features (gullies) cut into the Coombe Rock subsoil in the south-eastern corner of the garden. Possible post-holes were noted in the base of a depression within one of the test pits. This feature also contained worked flint, which may suggest a prehistoric date, although no firm dating evidence was obtained. Few artefacts were recovered during the fieldwalking to the north.
- Test pits were also undertaken during the evaluation at Shawford (SU 4695 2525, 61m OD), although no features of archaeological interest and a limited number of artefacts were recovered. This pattern was maintained throughout the watching brief undertaken during later turf stripping.

The Excavation Programme

As a result of the comprehensive evaluation process outlined above, proposals for the recording of archaeological remains along the route of the proposed motor way corridor were presented to English Heritage in April 1991. The excavation research design (Wessex Archaeology 1991b), suggested that the archaeological programme was to be 'seen as the investigation of a 'transect' through an archaeologically-rich and historically important landscape' and the opportunity not only to record 'sites' but to study the development of an important communications corridor. The evaluation had previously defined areas of archaeological remains and resources were concentrated in those areas. The proposals included open-area excavations in advance of construction at six locations along the route, and intensive watching briefs at a further six locations, with a general watching brief to be maintained along the entire length of the new route during the topsoil stripping.

Three of the six locations were excavated (with four Areas, A–D, Fig 49), between April and November 1991, before the start of the main road construction programme. The three other locations selected for excavation following the evaluation process, had to be investigated during the road construction programme.

The principal excavation sites were in the area of arable cultivation on the flanks of Twyford Down (Fig 55). Area A was an area of nearly 2ha, positioned where fieldwalking, machine trenching and geophysical survey during the evaluation had strongly indicated a degree of survival of a prehistoric field system and of a ring-ditch. Area B (Fig 55) was an area of *c.* 1ha positioned adjacent to the focus of the settlement partly excavated in the 1930s and planned in order to investigate the significance of features found in the assessment trenches and to locate an early Roman track way which was found in the 1930s to cross the lynchet system at the western end of the excavation area. In addition, two small areas (Areas C and D, SU 4810 2680), on the edge of Hockley Golf Course and adjacent to the western end of Area B were planned to allow the removal of topsoil in two transects across the surviving lynchet system so that hand excavation of areas of preserved subsoil could be undertaken.

The following methods were employed to investigate the excavation areas:

- a mechanical excavator, equipped with a toothless bucket, was used under carefully monitored conditions, to remove ploughsoil from the areas to be excavated;
- sub-soil layers were cleaned and hand excavated. Exposed clay-with-flints and chalk bedrock were cleaned by hand to reveal archaeological features;
- features were excavated by hand to determine their structure, function and date. Large linear features were sample excavated to provide sections and datable material;
- all archaeological remains exposed by excavation were recorded with photographic, drawn and written records using the standard Wessex Archaeology recording system;
- soil samples were obtained from suitable deposits, dated by artefacts. These were sieved and assessed in order to provide an indication of the past environment.

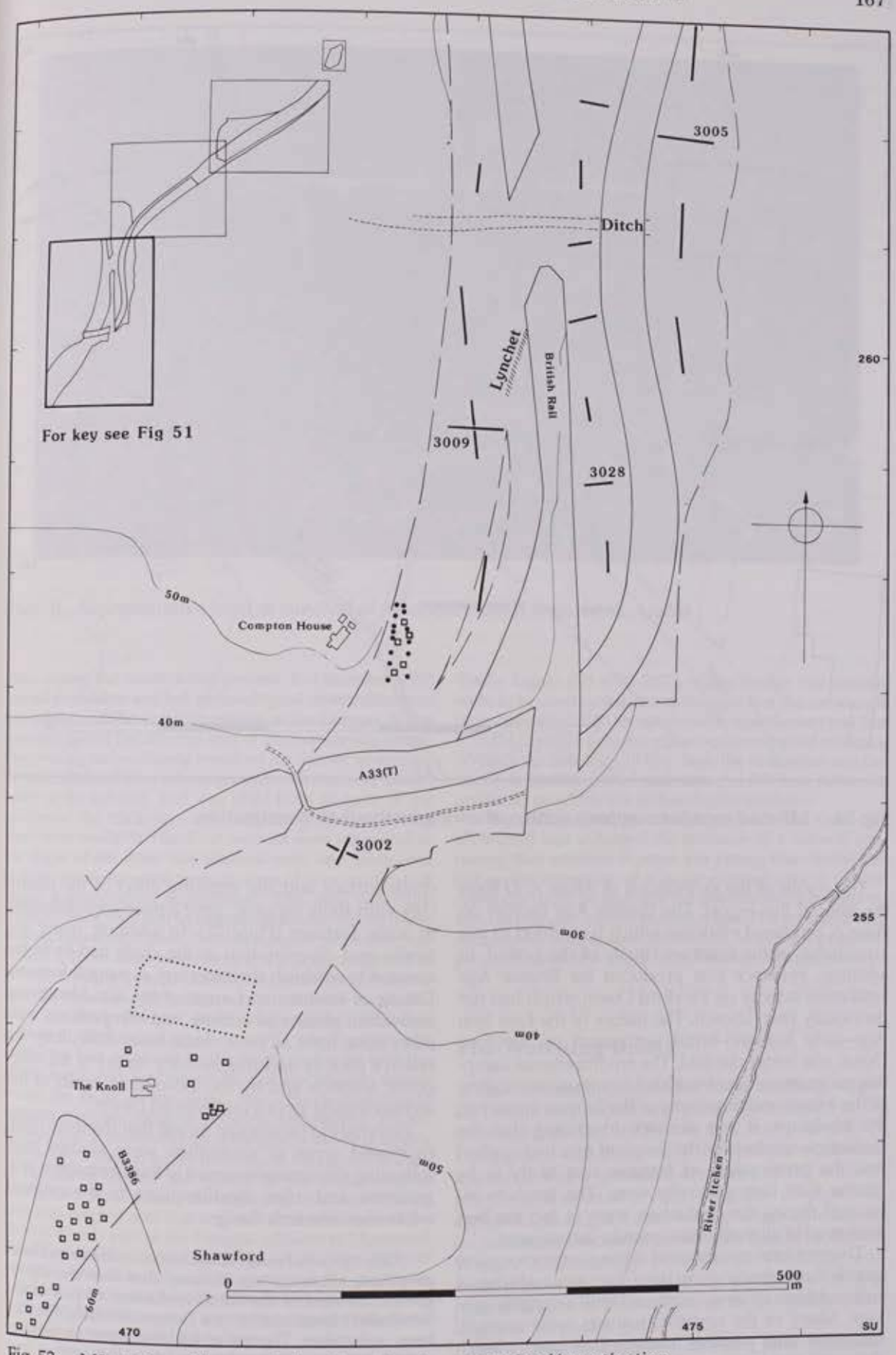


Fig. 53. M3 road corridor: central section, showing methods of investigation.

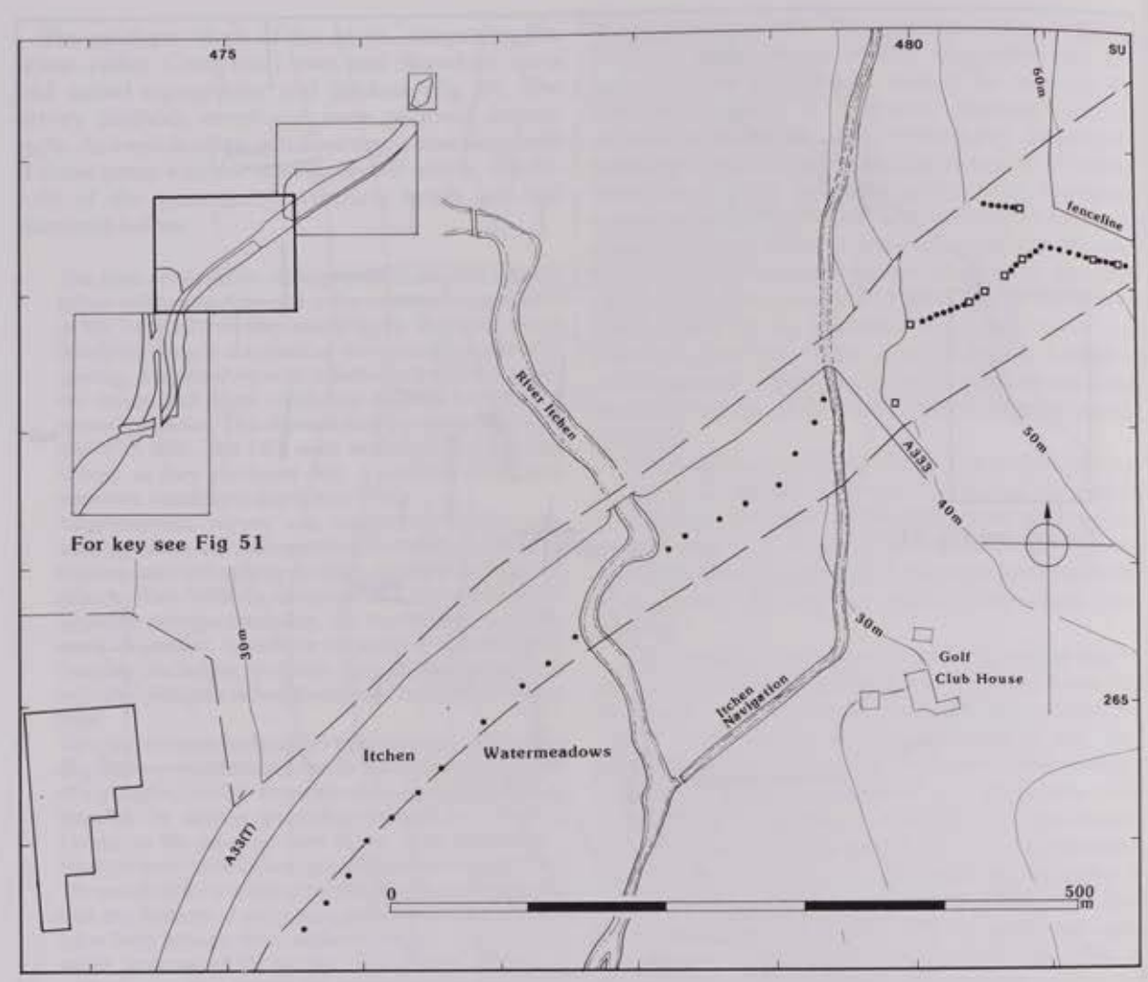


Fig. 54. M3 road corridor: southern section, showing methods of investigation.

The results of the excavations of Areas A–D form the bulk of this report. The Bronze Age Barrow on Area A produced evidence which has added to our knowledge of the funerary rituals of the period. In addition, evidence was produced for Bronze Age settlement activity on Twyford Down which had not previously been known. The nature of the Late Iron Age–early Romano-British settlement on Twyford Down was better clarified. The environmental sampling programme has also added to our understanding of the nature and timeframe of the human impact on the landscape. It was perhaps frustrating that the evaluation results from the Twyford area had implied that the preservation of features was likely to be greater than they generally were. The lynchets excavated during the evaluation were in fact the best preserved of all those subsequently investigated.

The problems encountered during excavation were largely those of excavating large open areas which had suffered from erosion, combined with a variable geology. Many of the negative features were severely truncated and positive features had been plough damaged and badly eroded. The poor quality of the chalk surface and the masking effect of the patchy clay-with-flints capping, gave a poor edge definition to some features (Plate 31). In addition, many soil marks and discoloration in the chalk had to be excavated to establish their identity as natural features. Dating of features and areas of the site, identifying individual phases of activity and comparisons with other sites, have all been made more difficult by the relative paucity and fragmentary nature of the diagnostic artefacts and by the incomplete nature of the archaeological record on Twyford Down.

External circumstances meant that the three other proposed areas of excavation were studied only following the commencement of the construction programme and after modifications to the original excavation research design.

Although a full series of evaluation methods had been proposed, circumstances dictated that only the above-ground element of the initial evaluation, of part of the Scheduled Monument 543 (the Dongas, SU 4890 2755), had been undertaken. The rest of the 'evaluation' (ie hand or machine excavated trenches to assess soil profiles and depths, artefact preservation, etc), therefore, had to take

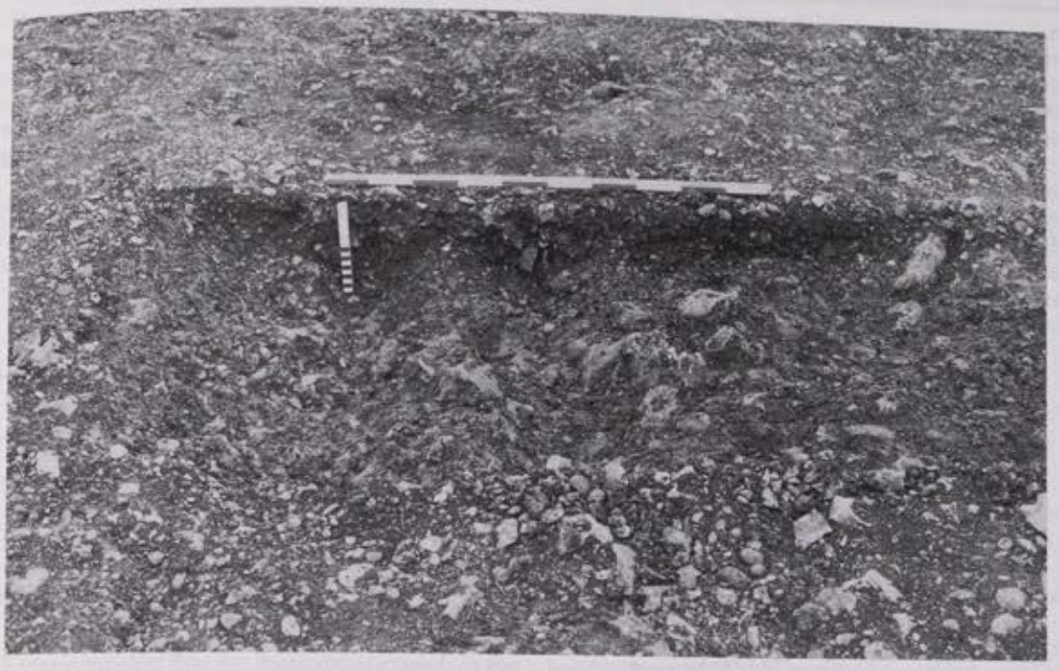


Plate 31. Representative level of survival of 'enclosure' ditch features on Area B

place during the construction process. In December 1992 limited evaluation and full archaeological observation was carried out in difficult circumstances at the Dongas. In the southern part of the affected area of the monument, where the covering turf was being removed for species relocation, a mechanical turf lifter was employed with minimal disturbance to the sub-soil. Turf was lifted from all parts of the profiles of the trackways and temporary sections across them were available. Hand-cut sections were excavated at the edges of the main turf removal area, and additional sections were excavated through areas of poor quality turf under archaeological supervision. This area was fully recorded using standard techniques and some 60m of trackway sections were drawn. Datable material recovered was limited to three flint waste flakes and a single fragment of ceramic building material. Lack of archaeological material from the topsoil suggested that an early date for the monument is unlikely (Wessex Archaeology 1993a). The work confirmed that, as indicated on aerial photographs, the trackways had extended to the south and west into the arable fields and that.the traces quickly became fainter across the brow of the slope. No other archaeological features were encountered (Wessex Archaeology 1993b). However, in the northern part of the area, which was largely covered by trees and scrub, mechanical felling and the use of bulldozers limited the quality of the archaeological observation. In addition, the soil cover was found to be extremely limited over that area and scrub clearance of the most northerly part of the Dongas, adjacent to Morestead Road, revealed only the presence of modern rubbish dumping and disturbance. This section of the route was probably the most adversely affected by external, non-archaeological factors and where the staged evaluation–excavation programme broke down.

Further small scale hand excavation work was undertaken during the construction programme at Hockley Traffic Lights (SU 4790 2670) where bridge foundations were to be constructed. It was thought that the site should be in a prime location for early medieval settlement and that it might preserve valuable palaeo-environmental evidence (Wessex Archaeology 1991b). Both the evaluation and the intensive watching brief maintained in this area, however, produced no additional archaeological evidence.

The evaluation in the former garden of the Knoll (SU 4705 2537) had indicated the presence of a sub-soil containing flint artefacts. Further test pitting was carried out but on the inspection of a larger exposed area of natural sub-soil it could be seen that the possible features encountered previously were of natural origin. The watching brief undertaken during demolition and levelling operations produced no observations of archaeological significance.

The Watching Briefs

The construction areas for road, auxiliary works and temporary offices and yards were visited on 54 occasions between 16 October 1992 and 1 April 1993. During each visit the areas of known new work were inspected and a general assessment of the work in progress was made. Any features of potential archaeological significance were photographed, part-excavated and recorded in accordance with standard Wessex Archaeology procedures. Planning was undertaken by reference to either surviving pre-existing field boundaries or to the construction engineer's chainage grid.

The Resident Engineer and the Environmental Consultant had been made aware of the priority areas

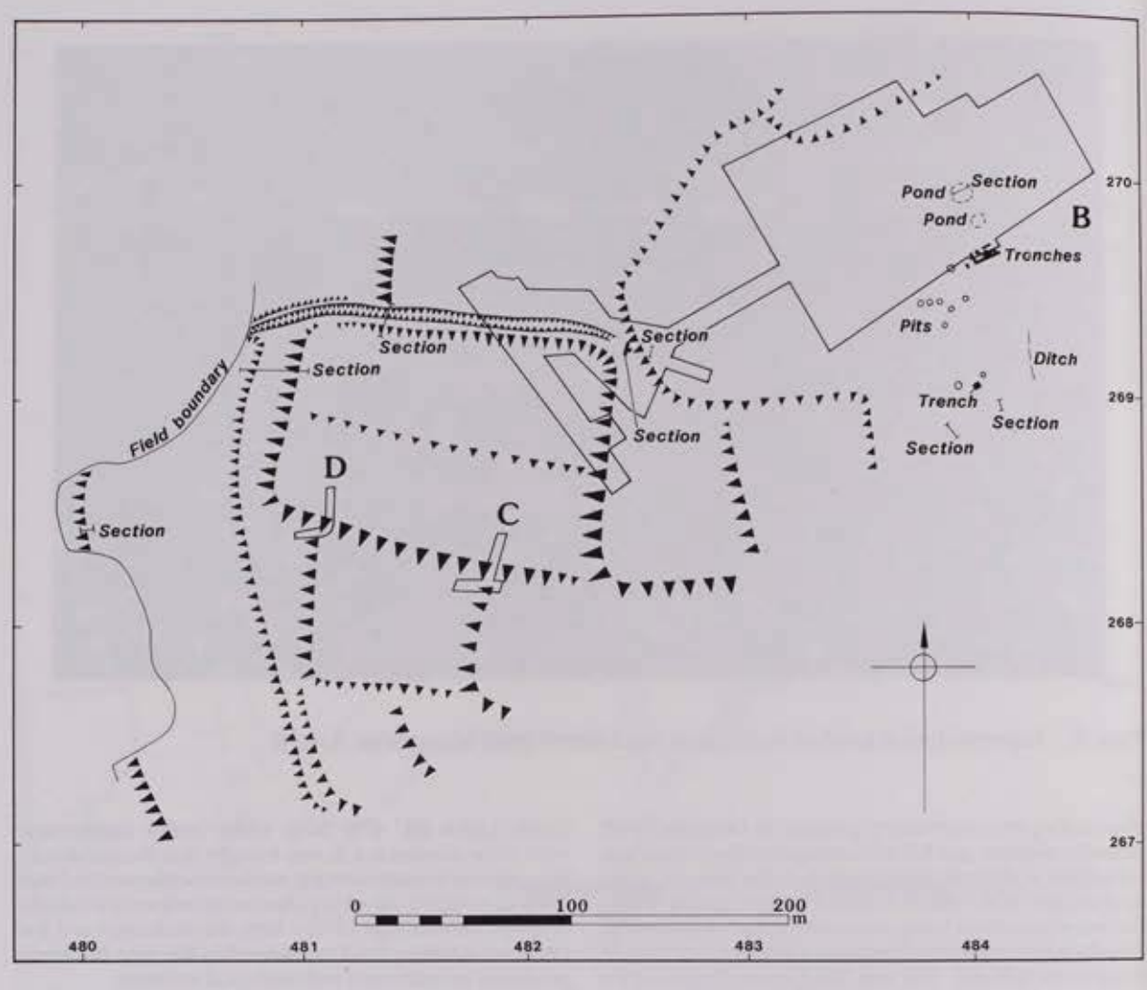


Fig. 55. Survey and feature information from 1930s' excavations with location of Area B

for archaeological watching briefs and communications between them and Wessex Archaeology was generally good, given that the initial construction period suffered continuous interruption from the weather and the activities of the road protesters. Site visits were also made at random to check progress and meet sub-contractors.

The results of the watching brief did not add substantially to the archaeological record. Only at Shawford was more material collected than had been expected but even there, although the quantities of flint work were considerable, no features were encountered. In the Itchen valley the picture of agricultural use gained from the evaluations in 1990 was fleshed-out but not altered. On Twyford Down the focal areas of archaeological interest had been removed by excavation in 1991 and the watching brief served to check for the presence of outlying isolated features which, in the event, were not encountered. The combination of poor preservation of features and crude earthmoving techniques may have enhanced the apparent lack of archaeological evidence in this area but, in general, it would seem that no significant archaeological remains were present.

Post-Excavation Methods

Following the conclusion of the field work, a post-excavation methods strategy was employed which has now become standard for large projects. A detailed assessment document (over 80 pages in length) was prepared. The objectives of the assessment corresponded with those laid out in the guideline document *Management of Archaeological Projects* (English Heritage 1991), namely to produce:

- a factual summary, characterising the quantity and perceived quality of the data contained in the site archive;
- a statement of the archaeological potential of the data contained in the site archive, and
- recommendations on the storage and curation of the data contained in the site archive and the timescale on which this should be achieved.

The assessment document concluded with a section outlining the aims and objectives of the post-excavation programme. The document had identified the potential of the information recovered and proceeded to define three major and two minor thematic aims.

The major aims were:

- to explain the role and nature of funerary ritual in the context of a rural Bronze Age settlement;
- to consider the pattern of landscape use throughout the period between the later prehistoric and early Romano-British periods;
- to assess the validity of and arrive at an idealised package for evaluating chalkland areas within the context of road scheme assessments.

The minor aims were:

- to consider the relationships and developments between Bronze Age settlements and their resource landscapes;
- to encapsulate the nature and character of Late Iron Age–early Romano-British rural chalkland settlements.

It was suggested that the thematic approach to the synthesis of the post-excavation analyses would result in a three part discussion. Parts 1 and 2 to be divided chronologically into the Bronze and Iron Ages, with Part 3 concentrating on the later prehistoric landscape. Under the Bronze Age section there was to be a discussion of the Bronze Age barrow as a focus of funerary ritual and this would be followed by a study of its relationship to the local Bronze Age settlement pattern and structure. The study of Late Iron Age–early Romano-British site within the context of later prehistoric rural chalkland settlements would introduce the later discussion about the exploitation of the natural resources and development of the landscape.

Summary

The completion of the M3 extension between Bar End and Compton involved some 45ha of primarily agricultural and amenity land. Wessex Archaeology's involvement began with the evaluation programme which comprised the following elements:

- geophysical survey of 2.4ha;
- artefact collection by surface survey (fieldwalking) over 2.2ha;
- auger survey comprising 85 points;
- hand excavated, 1x1 m test pits to a total of 100;
- machine excavated trenches which totalled 1130m in length;
- measured contour survey of 1.5ha.

This led to the complete excavation of around 3ha of land prior to the start of the construction programme. In all some 18 months passed between the start of the evaluation programme and the end of the excavation programme. Within that time the accumulating information was assimilated and assessed to provide a flexible response. The generous time and money package allotted to the excavation process, coupled with a continuous monitoring system, enabled a high degree of on-site variation otherwise unavailable to more modest schemes.

The post-excavation assessment stage enforced a 'cooling-off' period and helped to provide an opportunity to consider the initial results with a detached view. The proposals put forward for the form and content of the final publication, while serving to focus the work undertaken, turned out in the end to be over-elaborate.

Retrospective

The potential pit-falls for the unwary or over-optimistic when interpreting evaluation results, or indeed when formulating the initial proposals for post-excavation interpretation, have been starkly underlined by the Twyford Down project.

The existence of a developed, and well-known lynchet system in this area had provided, until relatively recently, surviving caches of artefacts. These artefacts were still being incorporated and dispersed into the contemporary ploughsoil at the time of the evaluation. The resultant artefact distributions, however, owe as much to the sequence of lynchet erosion as to any original settlement pattern. The survival of artefacts, especially pottery, taken in conjunction with the apparent survival of earthworks within the ploughed land at the time of the evaluations, led the excavator to believe that a reasonable good level of survival of features could be expected.

In fact, much of the apparent survival of vestigial earthworks resolved itself during the excavation into variable survival of the underlying chalk. In the barrow, the area of the expected mound coincided with a surviving higher section of natural chalk; on Area B, a north–south lynchet first noted as surviving in the arable field in 1976 (Fasham 1980b, Fig 34) was found to consist of a raised ridge of chalk and a residual negative lynchet. In both cases it may be that the original topography had in some way survived as a muted reflection in the surface of the chalk because of differential protection of the chalk by variations in the original overlying soil cover.

The proportion of features of archaeological origin surviving in the area of the excavations was disappointingly low; and much time and energy was expended in the investigation of features which proved to be of natural origin and in variations in the natural geology. Overall, the level of archaeological data surviving in a retrievable state across this exposed chalk ridge was limited. Only the barrow confounded the general picture of a degraded landscape with its unexpected wealth of information surviving below the ploughzone. The generous allocation of time and money for these investigations

gave the programme the necessary element of flexibility. It should be noted that inherent flexibility within any excavation programme is of prime importance. While evaluation stages, as in this case, provided a reasonable quantity of accurate information on which to build an interim interpretation; that interpretation is heavily reliant on past experience and educated guesswork — evaluation is not an exact science! Every excavation programme should, therefore, have the flexibility to reallocate resources, as was possible in this case, in order to deal with the unexpected — after all, it is the element of the unknown that makes field archaeology such a richly rewarding experience.

During the preliminary stages of the post-excavation process a number of factors served to complicate the issue. The combination of quantity and quality of information gained from previous excavations in the immediate area led to understandably high expectations for the completion, or at least advancement, of period and landscape-based studies. These ideals influenced the 'themes' proposed for the final publication.

The results of the painstaking analysis of the material recovered served to underline the basic strengths and weaknesses of archaeological data. The combination of well-preserved deposits containing ranges of materials from successive periods of occupation simply did not survive, or indeed occur, over much of Twyford Down. A coherent and readily understandable synthetic history of the Down cannot, therefore, be constructed. However, where material has survived and been recovered, the data was of uniformly high standard and often provided intriguingly novel information.

Three new discoveries stand out: firstly, the unexpectedly late start for large-scale land clearance and occupation on Twyford Down during the Bronze Age; secondly, the recovery of a single intensively utilised, and well-dated, barrow with a wealth of information on cremation practice; and thirdly, the change in overall use of the Down edge during the later stages of the Bronze Age from primarily a focus for burial activity to mixed settlement and burial activity. The abiding impression gained from consideration of the results *in toto*, is not one of continuity of use and development, but of succeeding waves of activity leaving their mark on this kilometre stretch of Down edge. The general centre of activity for this Down may well have remained to one side of the exposed spine excavated prior to road construction, and with luck survives better-preserved beneath the farmland and golf course to the south and east.

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by Lesley and Roy Adkins

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HAMPSHIRE FIELD CLUB & ARCHAEOLOGICAL SOCIETY
MONOGRAPH 9

A programme of evaluations and large-scale excavation on the route of the M3 from Bar End to Compton culminated in the recovery of an intimate picture of the settlement and use of Twyford Down from the end of the Early Bronze Age to the early Romano-British period.

A primary cremation burial in a Collared Urn was deposited towards the end of the Early Bronze Age and surrounded by a penannular ditch. No traces of a mound survived but it is assumed that a barrow was constructed within the enclosed area at some period during its use. The barrow was built in an area of locally cleared ancient woodland. At least two main phases of funerary activity took place in the Early-Middle Bronze Age with both inhumation and cremation burials being placed within the enclosure and in the ditch. Some of these were contained within Deverel-Rimbury style urns. Dumps of pyre debris were identified in the ditch suggesting that the cremation pyres had been situated close by, possibly within the enclosed area. Some pits and other features in the general area also produced Middle Bronze Age pottery but there was no clear evidence for the occurrence of a Deverel-Rimbury settlement typically associated with other barrows on the chalk Downlands. Unusually, there was little evidence for land clearance or agriculture before or during the main period of use of the barrow.

Land clearance for farming started relatively late on Twyford Down. Small-scale settlement occurred during the later Bronze Age. Pits and post-holes revealed the presence of several circular and four-post structures and a series of lynchets, combined with molluscan evidence and plant remains, indicated intensive agricultural use within a stable pattern of fields. A series of pits containing burnt material may have been related to funerary activities but the barrow itself ceased to form a focus for burial.

There appeared to have been an hiatus of activity throughout most of the Iron Age, the local area perhaps being overshadowed by developments at St Catherine's Hill and Oram's Arbour. A final floruit occurred during the Late Iron Age early Romano-British periods. No evidence for any structures was recorded but a series of ditched enclosures, trackways and lynchets indicate renewed intensive agriculture on the Downs.

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