

## UNCORRECTED ARCHIVE REPORT

### APPENDIX 1 – ASPECTS OF SETTLEMENT AND LANDUSE

Edited by George Lambrick

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#### INTRODUCTION

This Appendix provides more detailed discussion of a number of different aspects of settlement and landuse, drawing on the main stratigraphic and chronological evidence and the specialist reports in the other appendices.

It includes an interpretative overview of the changing environment and land use; developments in animal and crop husbandry; evidence for food processing; the character of domestic occupation, rubbish disposal and activity areas; water supply; enclosures, fields, paddocks and trackways; storage; food preparation and cooking; personal ornaments and crafts; and exchange.

## **THE GENERAL ENVIRONMENT By Mark Robinson and James Greig with Bob Wilson and Martin Jones**

### **The Nature of the Evidence**

Deposits were sampled to recover a range of different biological remains that reflect the natural environment and people's use of it, as well as the economic species that were exploited. The presence of such remains in deposits reflects complicated taphonomic processes, some of which apply to all types of remains while others are particular to their character. This includes preservation factors, and although Mount Farm has a long (if intermittent) sequence of deposits spanning the early Neolithic to the earlier Saxon periods, they are not equally represented across different types of evidence, which include pollen, insect remains, waterlogged plant remains, charred plant remains, plant impressions on pottery, animal bones and snails. Detailed results and technical discussion of the different types of remains are presented in the relevant specialist reports Appendices 16 to 19). In the following sections the specialists' interpretations which were written on a thematic basis have been edited together to integrate the different lines of evidence.

### *Neolithic and Early Bronze Age*

#### *Trees and Shrubs*

The animal bone evidence comes from a range of early, mid, late Neolithic and Beaker pits, and is too sparse to provide a detailed breakdown through the mid 4<sup>th</sup> to mid 2<sup>nd</sup> millennia BC, and local conditions may well have varied through time. But taking a very broad view of this period overall, the unusually high preponderance of pig (69% by number of bones) with some deer (8%) could suggest a significant component of woodland in the environment, though the total number of bones is small and their possible chronological spread is significant. It is also likely that the species proportions reflect selection of species for special feasting activities rather more than the natural environment.

The charred hazel nuts amongst the carbonised plant remains are typical of the period, reflecting food resources gathered from glades or edges of woodland or scrub. The presence of cereals does not automatically imply extensive clearance, as horticultural plots could have been established in woodland glades (see below).

In general clearance is likely to have been pursued to improve grazing capacity, and it is thought that much of the drier gravel terraces were largely cleared by the later Neolithic if not before (Hey et al forthcoming). How far this applies to sites like Mount Farm at the very edge of large expanses of gravel with major monuments is questionable, but one factor that may be relevant is whether the siting of burials, a post ring and other evidence of funerary and/or ceremonial activity at Mount Farm was related to the site being intervisible with the local monument complexes at Dorchester, Drayton St

Leonard and Stadhampton. If so, the implication would be that the local area was thoroughly cleared from an early period. However, it is perhaps more likely that the location of Mount Farm in relation to these other complexes was merely a relatively dry, slightly elevated point *en route* between the monuments without implying actual intervisibility.

### *Grassland*

Direct evidence for grassland in the earlier prehistoric period is sparse, as there are few wild food plants or animals directly indicative of grassland. The relatively low proportion of sheep (15%) is not unusual – and is higher than for some of the major ceremonial monuments – but again it is far from clear whether bones from the meat that was eaten fully reflect the natural surroundings.

### *Arable and Bare Ground*

The cultivation of crops is evident from a few charred cereal grains and possibly associated seeds of wild species from the carbonised plant remains, but the extent and location of any cultivation is unknown, and little can be deduced about the growing conditions in which the cereals were produced. It is possible that the seeds of cleavers, vetches and black bindweed were gathered for food, like the hazelnut fragments that dominate some of the earlier prehistoric carbonized seed remains. The absence of threshing debris and limited range of arable weeds is typical and suggests small-scale horticultural production of cereals that may have grown to be gathered like wild species rather than as field scale crops. It is likely that cultivated ground may have been very restricted, both in terms of the area in use at any one time, and the permanence of plots.

### *Middle to late Bronze Age*

#### *Trees and Shrubs*

By the middle to late Bronze Age the area around Mount Farm had been largely cleared of trees and shrubs, with pollen of woody species in the mid to late Bronze Age waterhole at 4% (F162/A/22) and 3% (F162/A/27). By comparison, at Sidlings Copse on the hills north east of Oxford, the pre-clearance levels of tree and shrub pollen were around 90%, dropping to (and staying) around 20% and occasionally 10% from the early to middle Bronze Age onwards (Day 1991).

Of the total terrestrial coleoptera, wood and tree dependent species made up 4% identified from the middle to late Bronze Age waterhole, whereas a value of 20% or more for these species would be expected from contexts surrounded by relatively complete tree cover (Robinson 1981). The tree-dependent coleoptera did not include any species that are confined to woodland there were no woodland ants. The landscape at Mount Farm therefore seems to have been predominantly open, although with trees or scrub very much in evidence.

The macroscopic plant remains give evidence for a range of woody species growing near to the pond including blackberry (*Robus fruticosus* agg.), dogwood (*Thelycramia sanguinea*), rose (*Rosa* sp.), hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*), oak (*Quercus* sp.), hawthorn (*Crataegus* cf *monogyna*) and elder (*Sambucus nigra*). In addition, the plant-eating beetles indicate the presence of willow (*Salix* sp.). Of the non-woody plants present, only two seeds of three-nerved sandwort (*Moehringia trinerva*) represent species largely restricted to the type of shady conditions that exist beneath a tree or shrub canopy. Although, several of the other herb species, such as stinging nettle (*Urtica dioica*) are able to grow under woodland conditions this is not a requirement.

It is not clear from this evidence what woodland may have survived further away on the gravel terraces: the overall impression is of open grassland with some scrub, perhaps centred on the waterhole. There was no direct evidence from the biological remains whether or any of the scrub in the vicinity of the waterhole took the form of mixed hedges. There may just have been extensive scrubby rough pasture.

### *Grassland*

Grassland formed a significant or even the major part of the non-wooded environment around the middle to late Bronze Age waterhole.

The most abundant pollen comes from grasses, ribwort plantain, red and white clover, nettles and composites. Such a pollen spectrum has often been found from well and ditch deposits where the macro fossils and insects confirm that deposition took place in surroundings of grassland, often pasture (Greig 1982). Although it is not possible to interpret the pollen records in terms of the landscape cover of the various taxa that they represent, it is interesting that on a presence and absence basis they correspond well with plants recorded by Fuller (1975) for modern meadows in the Midlands (Appendix 17, Table A17:1). Much of the difference in relative importance of species can be accounted for by differing pollen productivity.

Unsurprisingly, this grassland had a calcareous element, as shown by a few pollen records of species like salad burnet and sainfoin, which is to be expected on a limestone gravel substrate. The general richness of the grassland flora also gives some evidence that the grassland was probably nutrient rich. A tentative suggestion is that some of the grassland (perhaps close to the waterhole) was close-grazed, with many rosette plants like plantains and composites, which tolerate this damage, and unpalatable ones like buttercups and nettles which grazing animals avoid. It is interesting to note that records of rue and knapweed only occur in the Roman and later samples, which could be an indication that they were less common earlier.

Amongst the insects present, species of Elateridae and Scarabaeidae beetles with larvae that feed on roots in grassland comprised 6% of the terrestrial coleoptera, which is a relatively high proportion for sites on the Thames gravels. The value for dung beetles of 7% is rather low however, although some pasture must have been present.

The grassland species represented by their seeds tend to suggest rather dry conditions, which is what would be expected on the higher gravel terraces. They included small-flowered buttercup (*Ranunculus parviflorus*) and parsley piert (*Aphanes arvensis* agg.), annuals which tend to colonise bare areas in dry grassland but also occur in arable fields. Seeds of greater plantain (*Plantago major*) were numerous, perhaps as a result of trampled, short turfed conditions in the vicinity of the pond. Interestingly, seeds of sorrel (*Rumex acetosella* agg) were identified from both the waterlogged Bronze Age samples. It is a species which tends to favour acidic soils, although it can grow in either grassland or as an arable weed. It is likely that rainwater leaching caused decalcification in the stone-free silt loams which mostly seem to have been the original soils on the higher gravel terraces (Robinson in Palmer 1980). At Mount Farm the lack of snails in layer 101/H/2, only slightly earlier in date, may also reflect this. Such conditions might have allowed a limestone heath flora to develop in places.

Compared with the Neolithic predominance of pig, the high proportion of cattle bones (at 76% by number), mainly from the upper fill of the ring ditch F101, is also consistent with more grassland by this period. However, this may again reflect selective consumption (eg connected with feasting) rather than environmental conditions.

#### *Arable and Bare Ground*

The pollen evidence suggests that arable and bare ground was not a significant aspect of the Bronze Age environment, though this depends rather on how some relatively common taxa (eg nettles and umbellifers) are assigned to habitat groups. Cereal pollen is present, accounting for 2% to 6% of total pollen. Both figures are for samples from Waterhole 162, the higher figure being from the slightly later deposits.

The possible extent of arable is difficult to assess from beetles. The coleoptera characteristic of bare ground may have been a result of some of the gravel terrace being arable, but this is not certain, and could at least partly reflect bare ground conditions on the sides of the waterhole.

However, the many seeds of arable-type weeds suggest that there was either an area of disturbed ground adjacent to the pond or that there were cultivated fields nearby. The waterlogged biological remains do not exclude the possibility that the weeds were related to a settlement near the pond to which cereals had been imported for consumption; but the pollen evidence of rather more disturbed ground coupled with more cereal pollen seems more likely to reflect an increase in cereal cultivation in the later Bronze Age, as compared with slightly earlier deposits from the base of the waterhole.

Carbonised seeds are unfortunately very sparse for this period, and so add nothing to indicate the character of any arable land, but their scarcity may only indicate that crop processing was not a major activity in the immediate vicinity: despite the presence of a quern stone in the waterhole, there is little good evidence of significant domestic activity.

There is direct evidence of ploughing on the site at a slightly later date in the late Bronze Age or early Iron Age ploughsoil with underlying ploughmarks in the upper fill of the Bronze Age ring ditch. This ploughing had mixed limestone gravel into the soil, which no doubt would have countered any tendency towards surface acidification. Variations in the upper filling of waterhole 162 indicated a rather changeable sequence of deposition processes, and a detailed analysis of the deposits was made by Mr P Fisher for his MSc thesis (Fisher 1978, 14-70 – copy in site archive). While his conclusions differ somewhat from what then would have been a more conventional interpretation of the field observations, particularly with regard to stoniness (Fisher 1978, 71; Limbrey 1975, 298), the varying horizons in the deposits filling the waterhole suggest alternating episodes of stable and less stable sediment accumulation which may reflect changes in vegetation cover and agricultural activity.

#### *Aquatic Habitats*

The pollen evidence suggests little aquatic vegetation in the base of waterhole 162 when it may have been kept open, but rather more in later deposits higher in the fill.

Clumps of stinging nettles (*Urtica dioica*), rushes (*Juncus* sp.) and (from a single seed) gipsywort (*Lycopus europaeus*) were probably from plants growing at the water's edge but – as might be expected given its limited extent and position on relatively high ground – the pond does not seem to have developed a rich aquatic flora.

The only aquatic mollusc from the samples was *Aplexa hypnorum*. It can withstand temporary drying out of its habitat, but there is no reason to suspect that conditions in the pond were so extreme. Rather the distance of the pond from any natural bodies of water would have restricted colonists to those species which are semi-amphibians.

No such problem existed for the numerous small water beetles that lived in the pond, for they fly readily and can detect even small pools while on the wing. *Helophorus brevipalpis* agg. was the most abundant of these species.

#### *Human Activity*

The biological evidence supports, though does not fully confirm the impression that there was rather little domestic activity in the vicinity of the pond. Synanthropic beetles were represented only by a single individual of *Ptinus fur* (a species which in any case has alternative habitats unrelated to human activity), and beetles which tend to infest structural woodwork such as *Anobium punctatum*, were entirely absent. However, the frequency of those species is usually low from pre-Roman sites even when some buildings were present. Another group of species, the Lathridiidae are often abundant from occupation sites but again the relatively low proportion of them from the Bronze Age deposits at Mount Farm is no lower than has been recorded from some Iron Age domestic sites. The single seed of greater celandine (*Chelidonium majus*) from the pond is interesting, it is a species commonly associated with human settlement but it can also grow in natural habitats (Godwin 1975, 129).

### *The Iron Age*

Unfortunately none of the waterholes belonging to this period contained well-preserved waterlogged deposits for sampling; nor were there any buried soils apart from the above-mentioned ploughsoil of late Bronze Age / early Iron Age date.

#### *Trees, Shrubs*

The presence of a few deer bones is typical; more unusual, also from a middle Iron Age context, is the single bone of a marten, which is a species that favours woodland, and one of wild cat. At least by modern standards, but possibly not contemporary behaviour patterns, the presence of raven might also indicate a relatively wild hinterland to the site.

Despite these signs of vegetational shelter for some quite large wild species, from the early Iron Age at least, the great preponderance of domesticated animal bones suggest that the landscape was open and largely pasture or arable. Apart from the raven, birds active in this landscape included rook or crow, grey heron and wild duck.

#### *Grassland and Aquatic Habitats*

The animal bones are typical for the higher gravel terraces in being dominated by sheep, then cattle with rather few pigs, but some horse (cf Hambleton 1999; Lambrick with Robinson 2008). Amongst the wild species, field vole is recorded. The presence of water vole reflects nearby watercourses and perhaps the Iron Age waterholes, but unfortunately good waterlogged evidence was not preserved for these.

#### *Arable and Disturbed Ground*

The evidence of the carbonised plant remains is much more abundant for the Iron Age, and in general terms this reflects a shift to larger scale cultivation of crops than is likely to have been the case in earlier prehistory (at least till the middle Bronze Age). The wild species present (Appendix 19, Table A19:2) are naturally heavily biased towards what was growing in and around arable fields and areas of settlement. The diverse weed flora in evidence from the Iron Age onwards permits more definite conclusions to be drawn about the ecology of the arable land and to some extent its extent, suggesting variation in soil nitrogen levels, moisture and the location of fields in relation to underlying geology as well as husbandry practices. These factors are discussed in the section on crop husbandry below.

#### *Human Activity*

The absence of waterlogged evidence restricts interpretation, of what impact the obvious presence of settlement activity had on the local environment, but as noted above, the presence of a number of normally rather shy species amongst the middle Iron Age animal bones (otter, marten and raven) may indicate that human activity was not very intensive, or at least that relatively undisturbed habitats still existed not far

away.

## ***The Roman Period***

### *Trees and Shrubs*

The pollen evidence indicates that in the Roman period woodland and scrub trees were much the same as the level (2-3%) as they had been in the mid to late Bronze Age, while on the basis of the percentage of wood and tree-dependent Coleoptera (excluding species which favour structural timber), they seem to have been if anything more important than in the Bronze Age. However, fourteen of these seventeen individuals were *Chalcoides* sp which feeds on leaves of willow (*Salix*) and poplar (*Populus*) whereas the Bronze Age species were more diverse and between them needed a wider range of ecological niches. As explained below, it is likely that willow trees grew in the vicinity of the Roman water holes and ponds, which resulted in the abundance of *Chalcoides* sp. and if they are excluded, the rest of the beetles would suggest a very open landscape.

Samples 789/A/14 and 605/A/7 contained many willow (*Salix*) capsules, and while some species of willow would certainly be able to flourish on the third gravel terrace it is a genus which tends to be regarded as indicative of wet conditions. Willows may well have become established on the edges of the waterholes or in some of the partly silted Iron Age or earlier Roman ponds. There was very little evidence for other tree or shrub species apart from elder (*Sambucus nigra*), and whether or not they had been planted, it seems likely that the willows would have been favoured for a variety of practical uses.

The animal bones add rather little to this picture, there was only one deer bone, but the presence of single bones of badger and pine marten may suggest (if they were not redeposited from earlier periods) that woodland or scrub habitats were not very far distant. However, badgers for example would readily establish a sett in silted up scrubby waterholes or hedgerows and field banks in otherwise relatively open conditions.

### *Grassland*

The pollen evidence suggests that grassland continued to be important as part of the general background, though evidence of disturbed ground or arable and habitats in which umbellifers flourish (often as ruderal weeds) increased. The range of taxa in the grassland group decreased compared with the earlier of the sample from the Bronze Age waterhole, but was much the same as the later one.

If nettles are included in the disturbed ground and arable group, rather than as grassland, the proportion of pollen from grassland taxa halved (from 80% to 40%). Within certain other groups accounting for a significant proportion of the grassland group, such as hawkbits and dandelions (Compositae) there is further scope for a shift from grassland to disturbed and arable margin or disturbed communities, in which

case 'grassland' taxa could be seen reduce from at least 70% in the Bronze Age samples to 25% in the Roman ones. These shifts could have been even more marked if some of these taxa with mixed habitat preferences did reflect grassland and animal poaching in the Bronze Age, but disturbed ground and arable margins in the Roman period.

This would certainly be the conclusion indicated by the beetles and waterlogged seeds. On the evidence of these groups, grassland was probably only a minor part of the non-wooded Roman environment. The percentages of dung beetles, at 2.3%, and Elateridae/ Scarabaeidae with larvae that feed on roots in grassland at 1.0%, are very low. Dung beetles of the genera *Geotrupes*, *Aphodius* *Coicbopterus* and *Onthophagus* made up only 2.3% of the total terrestrial Coleoptera, the corresponding values for other Roman sites in the region being Farmoor, 21.0%, Appleford, 9.8% and Barton Court Farm, 16.1% (Robinson 1981, 280). By this period grazed grassland thus seems to have become relatively unimportant at Mount Farm and there is certainly no evidence from dung beetles that cattle were brought to the ponds to drink.

The possible meadowland species were not abundant and could have been derived from other habitats, but it is possible that some meadowland had survived from the relatively light grazing in the Bronze Age, or they may reflect deliberate hay-making in the Roman period (Lambrick and Robinson 1988).

#### *Arable and Bare Ground*

As indicated above, the indications of the presence of arable and bare ground from the pollen evidence are somewhat ambiguous. With regard to cereals themselves, in this work 40 $\mu$  has been used as the size threshold to distinguish pollen grains of cereals from those of grasses. On this basis there is only a rather marginal increase in the proportion of 'cereal' to 'grass' pollen in the Roman sample as compared with the later Bronze Age ones.

From the beetles and waterlogged seeds, arable can be inferred as having probably been significant in the immediate vicinity of the waterholes, partly on the basis of the very limited evidence of grassland and woodland, but also on the presence of some Carabidae which prefer bare or cultivated ground. Unfortunately it is difficult to obtain direct evidence from coleoptera about the presence of arable, but the value of 2.1% for certain Carabidae of bare/ cultivated ground out of the total terrestrial coleoptera seems relatively high.

The evidence of the carbonised plant remains suggest that a number of changes took place in the weed record in the Roman period indicating changing soil chemistry or areas under cultivation.

#### *Aquatic Habitats*

From the pollen evidence, the overall proportion of wetland pollen from the Roman sample remains similarly limited to the Bronze Age ones, generally reflecting the small water bodies from which the samples were obtained.

The disarticulated remains of most of a watervole suggests that there may have been some links with nearby streams flowing into the Thames or Thame.

From the evidence of the seeds, rushes may have grown in moist areas around the ponds but only 674/B/4 had evidence of a significant flora in the pond itself. The sample contained numerous seeds of red goosefoot (*Chenopodium rubrum*) and cress (*Rorippa cf islandica*). These two species frequently occur together, growing on areas of mud or moist ground which only has standing water during the winter (Clapham et al 1962, 173-4). Perhaps the pond was full in winter but during the height of the summer was reduced to a small circle of water, only a few centimetres deep in the centre, surrounded by a dense stand of *C. rubrum* and *R. islandica* on the exposed mud. Such conditions may have resulted in the poor preservation of organic remains in sample 674/B/4. Preservation was better in the other two Roman samples and there is no reason to believe that Water Hole 789 and Pond 605 dried up seasonally. All three of these features had a few small water beetles living in them but they did not contain rich aquatic faunas.

#### *Human Activity*

From the pollen evidence a significant increase in the proportion of nettle (*Urtica* sp.) pollen between the Bronze Age and Roman periods (from 13% and 6% in the Bronze Age samples to 37% in the Roman one) is consistent with other evidence of higher levels of human activity.

Compared with the Bronze Age, there was also a rise in the percentage of some groups of Coleoptera which are able to take advantage of human settlements. The Lathridiidae, a group which tends to occur in 'sweet compost' including old straw and wet thatch where they feed on moulds, had risen to 9.5% of the terrestrial coleoptera. This value is similar to the results obtained from other Roman occupation sites in the region, (Robinson 1981, 279). *Anobium punctatum*, the woodworm beetle was absent from the Bronze Age samples but made up 3% of the Roman terrestrial Coleoptera. It is a species renowned for invading structural timbers although it can also inhabit naturally occurring dead wood. There were two species of cerambyoid beetle in sample 605/A/7, *Physmatodes alni* and *Anaglyptus mysticus*, both of which start tunnelling under the bark of dead hardwoods. As neither has been recorded from willow (*Salix*) which was abundant in this context, it is possible that they emerged from fences of a wood stack on the site, for instance of oak logs, a host they share (Hicken 1975, 255, 260) though they might have flow to the site from distant woodland.

In the absence of many dung beetles from the general *Geotrupes*, *Aphodius* etc the presence of accumulations of foul smelling plant material is mainly suggested by some of the smaller sphaeridimae and Oxytelinae (*Cercyon*, *Anotylus* etc) which made up 6.4% of the Roman terrestrial coleoptera. Seeds of some species which thrive on different types of neglected ground in settlements were relatively numerous, including henbane (*Hyoscyamus niger*), black horehound (*Ballota nigra*), hemlock (*Conium maculatum*), elder

(*Sambucus nigra*) and stinging nettle (*Urtica dioica*). Some of these species favour soil aerated with nutrients from decayed organic material others tend to grow at track sides.

Fronde fragments of bracken (*Pteridium aquilinum*) were present in sample 674/B/4. Bracken has been recovered from several sites of Iron Age to Saxon date on the gravel terraces and was probably collected and brought from areas with acid soils off the gravels - the closest to Mount Farm being the lower greensand beds only 5km away north of Clifden Hampden and Culham.

### *Early to middle Saxon*

#### *Trees and Shrubs*

As compared with the Roman period the levels of tree and shrub pollen in samples from the Saxon well F82 had dropped even further, from just over 3% to less than 1.5%. There is also little evidence from beetles or seeds for the presence of woodland or scrub in the vicinity of the site at this period, wood and tree dependent insects in particular being completely absent.

Sample 82/21 + 19 contained a few thorny twigs, some leaf abscission pads and some bud scales of hawthorn or plum (*Crataegus* or *Prunus*), but this was the only evidence of any scrub on the site. Hazel nuts were present in both of the Saxon wells, but they had perhaps been brought to the site for consumption. As in the Roman and Bronze Age samples, none of the ants are species which require woodland or tree stumps for their nest sites.

While in theory the virtual absence of evidence for trees and woodland might be taken to reflect increased clearance in the Saxon period, it seems more likely to reflect maintenance of a very open landscape that had been established by the end of the Roman period. It is not known exactly what impact the late Roman Oxfordshire pottery industry had on woodland in the area, but it may be noted that the nearby Golden Balls kiln site, which was principally concerned with making late Roman colour coat wares, probably reached peak production some time later than the sample from the Roman waterhole at Mount Farm. Petra Day's (1991) analysis of the pollen sequence at Sidlings Copse, also not far from other areas connected with the pottery industry, showed that tree pollen was at its lowest in the Roman period.

Clearly a constant supply of wood was required for pottery making, and this is as likely to have maintained or even increased woodland resources as diminish them. While increased woodland management or selective removal of more established trees to provide fuel would have reduced the proportion of trees in flower, the lack of any indication of recovery by the Saxon period at Mount Farm may indicate that clearance of woodland for agriculture had by then been very extensive, perhaps a long-lasting legacy of the thriving late Roman economy locally.

### *Grassland*

As compared with Roman grassland, the Saxon pollen record indicates rather more grassland and less disturbed or arable usage though this was still quite a significant element (see below). In broad terms of habitat groups, the pollen spectrum is rather similar to the later of the two late Bronze Age samples, but in terms of species composition the grassland appears to have been less diverse and with fewer taxa characteristic of old grassland - as would be expected if there had been a reversion from arable.

The species of dung beetles particularly associated with animal droppings in the field were more abundant than in the Roman period and, at 6% of the total terrestrial coleopteran, suggest that pasture was present. However it was certainly not the only component of the non-wooded landscape, as partly borne out by the relatively limited diversity of grassland species. Unfortunately this also means that no further details can be given about the character of any pasture that was present on the gravel terrace.

### *Arable and Bare Ground*

The pollen evidence indicates less arable and disturbed ground overall than in the Roman period, but the ratio of cereal to grass pollen is greater, increasing from 7% to 13% of total grass and cereal pollen.

The arable type weeds indicated both by pollen and by their seeds included both species which would thrive under the dry conditions of the gravel terrace and species of wetter soils.

The appearance of corn spurrey (*Spergula arvensis*) and sharp increase in sorrel (*Rumex acetosella*) in the carbonised plant remains in the Saxon period suggests that some very acid soils had come under the plough – perhaps the lower Greensand towards Nuneham Courtenay and Culham – and the reappearance of a number of damp ground taxa suggests an encroachment on yet wetter ground (presumably beyond the edge of the gravels). This could be related to changes in plough technology (see below).

### *Aquatic Habitats*

From the pollen, seeds and invertebrate evidence, the water in the two Saxon wells does not seem to have supported a significant fauna or flora apart from some water fleas (Branchiopoda). A single bone of otter suggests only that they may have frequented nearby streams and rivers.

### *Human Activity*

In the Saxon pollen sample levels of nettles (*Urtica* sp.) and other weeds potentially associated with human activity are lower than in the Roman sample. The presence of otter among the animal bones may also suggest that human activity was not very intensive, though it is possible that an animal had been caught for its fur.

There is little evidence from the waterlogged plant and invertebrate remains for the presence of a permanent settlement in the vicinity of the wells. Synanthropic beetles and beetles which can invade structural timbers were absent. Seeds of perennial (and biennial) weeds which tend to grow around occupation sites were largely absent. For instance, of the five species noted above as being well represented by their seeds in the Roman deposits, only stinging nettle (*Urtica dioica*) was present in the Saxon samples: seven seeds in samples 82/21 + 19 and more in sample 43/A/22. By contrast, the highest number of *U dioica* seeds in a Roman samples from Mount Farm was 889, the lowest 207.

Only the Lathridiidae which made up 6% of the Saxon terrestrial coleoptera and the coleoptera of foul organic material approached the level of abundance they had reached on the site in Roman times. By themselves, they do not indicate the presence of an occupation site. Conversely, as was remarked for the Bronze Age, the frequency of coleoptera which tend to be associated with human settlement can be very low on Iron Age type sites even when buildings were present, and this may also apply here.

## **FOOD PROCUREMENT AND FARMING By Mark Robinson and James Greig with Bob Wilson and Martin Jones**

### *The Nature of the evidence*

The animal bones provide clear evidence of a small number of wild species that were hunted, and of the usual range of domestic animals that were raised to provide meat, dairy products and a wide range of secondary animal products from wool to hides and bones. They also provide limited evidence of the use of draught animals, most likely to have been used for ploughing, though also for pulling carts.

The carbonised plant remains and a few impressions on pottery provide the main evidence for the cereals cultivated in the various periods at Mount Farm and the associated weed species give some indication of arable husbandry practices.

The only additional information about cereals given by the waterlogged remains is to confirm the presence of hulled wheat in the early Saxon period (it is possible that some of the sparse Saxon carbonised material was redeposited). However, the waterlogged plant remains also provide much better evidence than the carbonised seeds for the cultivation of non-cereal crops.

### *Wild food resources*

Charred hazelnut shells (*Coryllus avellana*) are abundant in the Neolithic and Beaker pits, as is typical of the period (Godwin 1975; Jones 1980; Moffett et al 1989; Moffett 2004) Although not present in every sample, they significantly outnumber fragments of cereals where they do occur (see below). A number of the Neolithic and Beaker period samples also contain charred seeds of wild grasses, vetches and black bindweed

(*Polygonum convolvulus*). This limited range of wild species differs markedly from the abundance of arable weeds in many later prehistoric samples, and seems to reflect a bias towards wild plants with relatively large edible seeds, which might or might not have been growing with the cereals. As noted below, crop plants are a quite minor component of the earlier prehistoric charred plant remains in numerical terms, and the charred plant remains may represent a mixture of collected food plants, both 'wild' and 'cultivated.' However, it is rather doubtful how far such remains really reflect the range or proportions of plant foods consumed rather than some sort of more symbolic reference to them.

As is typical for the Thames valley, hunting, mainly for deer, is reflected in the Neolithic to Beaker period bone assemblages, but thereafter declined to a very low level. Some of the other wild species represented might conceivably have been eaten, but there is no indication of this and in any case would have contributed very little to the diet.

The fill of the late Bronze Age well F162 contained charred tubers of onion couch grass (*Arrhenatherum elatius* subsp. *Bulbosum*) which have been recovered from a number of Bronze Age sites in England and it was suggested (Jones 1978b) that these might have been a gathered foodstuff. But it is worth noting that the waterhole cut the ring ditch of a barrow and another possibility is that this grass had been redeposited in the waterhole having originally been collected and used as tinder for funerary pyres (Robinson 1988; Moffett 1999). However, this grass is also characteristic of ungrazed or very lightly grazed grassland and does not withstand heavy grazing, so another possibility is that the waterhole provided an ungrazed niche where the grass had got burnt accidentally.

For later periods it is by no means evident whether some other potentially useful edible wild plants were eaten, or even grown as crops: for instance seeds of wild turnip (*Brassica rapa*), parsnip (*Pastinaca sativa*) and carrot (*Daucus carota*) were identified from several of the Bronze Age to Saxon waterlogged samples, but they were not abundant and there is no reason to suspect they had been cultivated – nor necessarily that their leaves or roots were collected for consumption. In view of the general absence of evidence for woodland or scrub from the Saxon pollen and macroscopic plant remains (eg only a single grain of hazel pollen), it is possible that the hazel nuts from the samples had been brought to the site for consumption.

### ***Animal husbandry***

#### *Species Representation*

Animal husbandry during the early to late Neolithic periods was probably chiefly related to management of pigs, cattle and sheep, perhaps in a semi-wooded environment. At 69% the proportion of pigs is unusually high for Upper Thames Neolithic sites, but this is from only a very small sample of 26 identifiable bones.

During the Bronze Age grassland dominated the landscape (see above) and on the basis of the animal bones, pastoral management of cattle appears to have been very

important though this might be a distorted picture if the bone assemblage from Ring Ditch F101 is connected with some sort of special consumption associated with funerary or other non-domestic activity.

In the later periods animal husbandry remained a key part of a mixed economy with an increasing abundance of sheep until the end of the Iron Age and then more cattle in the later Roman and Saxon periods.

Not unusually, pig, horse and dog were present in small numbers among the late Bronze Age to Saxon groups, the abundance of horse gradually increasing to become most evident in the Roman and Saxon groups. The radius of a donkey, *Equus asinus* was recovered from a Romano-British context. Goat was found among Saxon and other undated sheep remains but was not conspicuous. Domestic fowl and goose occurred during the Roman and Saxon periods but were not common. Probably not eaten but cared for, domestic cat was present during the Saxon period.

#### *Husbandry strategies*

Too few animal bones were recovered for the periods before the Iron Age to deduce anything about husbandry objectives; thereafter the relative proportions of the main domestic species, coupled with age and sex data and some pathology provides some indication of animal management (see main report Figs 43, 44, 45).

Iron Age husbandry involved a relatively large, increasing proportion of sheep, with a high slaughtering rate of lambs and hoggets and probably of male sheep. The kill off pattern may indicate that dairy products from sheep were very useful and that need for wool was less critical. Nevertheless, again compared to cattle, any dairying of sheep would appear to have made a smaller contribution to the overall yield from the pastoral economy.

High proportions of cows among the mature Iron Age cattle suggest a concern with breeding stock (probably for meat) was very important and that dairying was also significant. To these ends a high proportion of cattle, apparently mainly bulls and steers, were slaughtered relatively young, while allowing a significant number of cows to reach maturity for breeding and milk. Considering potential meat yield from all the domestic species, it would have been greatest from slaughtered cattle.

Grazing of sheep is thus likely to have been subsidiary to the requirements and importance of cattle, and was probably directed mainly at maintaining the flock to provide wool and skins and milk from the ewes and meat from lambs and older beasts to supplement other food. The lambs and hoggets tended to be killed in late spring and summer before crops were harvested and when dairy products were perhaps being processed and stored for the autumn and winter.

In the Romano—British period the slaughtering of sheep followed a similar pattern to the Iron Age, while that of the cattle indicates that they were kept longer and killed somewhat older. At Barton Court Farm Villa there were statistically significant

differences between the slaughtering pattern of sheep and that of the 3rd to 5th century AD animals where older sheep (and cattle) were more common (Wilson 1986). The economy of Barton Court Farm probably reflects the Romanised pattern, albeit not a villa of the highest prosperity or status. The marketing of young sheep or export of wool from there is inferred.

At Mount Farm, if anything, continuity of celtic sheep husbandry and very limited marketing would be deduced for the 1st to 3rd centuries A.D. The limited evidence of killing animals at an older age and the suggested increased representation of draught oxen may indicate that cattle husbandry showed a greater response to Roman changes that may have been quite small and slow, but nonetheless seems a significant difference from the continuity of celtic sheep husbandry reflecting a variety of factors: the greater size of cattle meant they were the most important species, they became relatively more abundant than sheep at this time, and the changes in herd structure probably reflect the greater involvement of oxen in arable farming. An increase in arable farming in turn implies decreased pastoralism and less reliance on maintaining large numbers of sheep and cattle, but especially of sheep – as is indicated by the percentages of bones. Thus cattle became more important in the economy than sheep, but the implication that relatively fewer sheep were present needs to be qualified by recognising that this may also be related to the relative efficiency of Roman and Iron Age farming and the actual acreages of available pasture.

Animal husbandry in the Saxon period may largely have been a continuation of Romano British practices, but the small number of bones available means that this supposition cannot be substantiated in the same way as for earlier periods.

*Evidence of form and breeds of domestic animals (see main report Fig 45)*

In respect of the character of domestic species, a few Bronze Age bones indicate larger cattle than those present in the Iron Age. The Iron Age cattle included small horned and polled individuals of small size. Most of the individuals represented were females and a mean withers height of 1.09m was estimated from their metatarsals. Male cattle were comparatively few, a separation between the bones of intact or castrated animals was difficult to make. Romano British cows were rather taller than the Iron Age cows but appear far less well represented in the herd – as reflected in the animals that were eaten - but the figures are comparable to Barton Court Farm Villa where an even balance of cows and steers or bulls is evident (Wilson 1986). The form of Saxon cattle and their herd structure can scarcely be described except that they included larger horned beasts than those represented by the Iron Age bones (one Iron Age skull lacked any horns).

Sheep were present, but not common in pre-Iron Age assemblages. Amongst the Iron Age sheep, one skeleton of a ewe had very small horns, though most sheep probably bore larger ones. In general the sheep at Mount Farm were relatively small boned, and although there are few bone measurements for them, there is no obvious increase in

robustness in the Roman period like that noted for the 3rd to 5th century AD at Barton Court Farm villa (Wilson 1986). The apparent lack of change may be related to the Mount Farm sample mostly spanning an earlier period (from the 1st to 3rd centuries A.D.), but it could alternatively be explained by cultural factors and the different nature of these two sites in the Roman period – Barton Court growing into a small villa; Mount Farm showing relatively little sign of Roman acculturation and development.

As might be expected, some modern sheep skeletons discovered on the site show considerable differences in morphology with the remains from the earlier periods: they are very robustly boned and polled individuals.

### *Crops and Cultivation*

Between Neolithic and Saxon periods, there is only patchy evidence of cultivation activity but rather more of the crops that were grown and changes in their husbandry. Six species of cereal are in evidence, and there are some clear variations in the quantity and proportion of their occurrence through time, and of the occurrence of other crops and the conditions in which they grew.

Despite the good deal of discussion that has taken place over the quantification of carbonised cereal evidence, no fully satisfactory method has been devised. Here the simple arithmetic ratios between seeds of different taxa are presented (see main report Fig 47) with the cautionary note that these exhibit at best, the general trend, which may not be directly translated into areas of cultivation of particular crops at particular times. In the discussion of these general trends, the overall time span of the site will be subdivided into three broad periods, the first comprising the Neolithic and Bronze Age, the second including the Iron Age and earlier Roman period, the third comprising late Roman and Saxon period. These subdivisions are intended to bring out periods of continuity and change.

### *Direct and Indirect Evidence of Cultivation*

The only direct physical evidence of cultivation of the site itself comes from the parallel ard marks on the edge of the ring ditch F101 and the overlying ploughsoil and other cultivation soils trapped in the hollows left by the Bronze Age Ring Ditch and waterhole, the latter possibly reflecting a long sequence of alternating natural and plough-induced erosion and sedimentation. The parallel ard marks are an unusual survival in the Thames valley, though cross-ploughed ard marks have been recorded beneath the South Oxfordshire Grims Ditch at Crowmarsh (Cromarty et al 2006, 163, fig 5.4). Reynolds (1995) argued that ard marks such as these may have been made when land was being broken into cultivation rather than routine ploughing.

Both in the Iron Age and Roman periods the incidence of pathological metatarsi of oxen provide further evidence of cultivation. Although the numbers are tiny, the greater incidence of these bones in the Roman contexts is broadly consistent with more intensive cultivation in the Roman period than during the Iron Age, which seems

evident from other indicators.

*Neolithic and Bronze Age crops and crop husbandry* (see Appendix 19, Table A19:3)

Emmer wheat (*Triticum dicoccum*), and naked six-row barley (*Hordeum vulgare* var. *nudum*) are in evidence throughout the earlier prehistoric period. Bread wheat (*Triticum aestivum* - the name *T. aestivocompactum* was formerly used by archaeobotanists) may be present but this is not definite. Hulled six-row barley occurs in samples of uncertain date from F343 with an unexplained early Mesolithic radiocarbon date, but the sample is more likely to be late Neolithic or early Bronze Age.

It was noted at the time of the original analysis that overall this is consistent with the national record (Godwin 1975), though Hillman (1981a, b) pointed out how flimsy this record was, and that *T. aestivum* is only known in the British Neolithic from a few grain impressions. While there is now a great deal more evidence for earlier prehistoric crops and their husbandry, the overall picture has remained broadly similar with charred cereal remains occurring only in very low numbers and often outweighed by hazelnut fragments. But what is now becoming clearer is that within this generally low level of cereal remains there is actually much variation.

Amongst the nine early Neolithic to Beaker period features from which carbonised food plant remains were found at Mount Farm, there were 73 cereal grains, two chaff fragments, 1065 hazelnut fragments and 34 leguminous seeds that may have been collected food. Moreover, while cereal grain was found in all nine of these features, the hazelnuts came from only three. This is comparable with a scatter of nine early Neolithic pits dated to 3630-3370 cal BC found on a pipeline NE of South Stoke, which produced 80 cereal grains, no chaff, over 2650 hazelnut fragments and 7 miscellaneous weeds (Huckerby and Druce in Timby et al 2005, 296-9, table 34). But at St Helens Avenue Benson only two cereal grains were recovered from the entire fills of 25 small early to middle Neolithic pits and postholes, two of which were similarly dated to c 3630-3377 cal BC (Robinson in Pine and Ford 2003, 170). At Gravelly Guy nine grains and a possibly intrusive rachis were recovered from 14 late Neolithic and Beaker pits (Moffett 2004, 422-8). At Drayton six earlier prehistoric pits (three of them Beaker period) produced only 3 fragments of cereal caryopsis, along with 119 hazelnut fragments and 6 other wild plant seeds (Robinson in Barclay et al 2003, 168-9).

Within a very general pattern of low occurrence of cereals (and especially chaff) and the high incidence of hazelnuts in the earlier prehistoric period, the consistent presence of a modest number of charred cereal grains at sites such as Mount Farm and South Stoke makes the evidence of crop husbandry relatively abundant compared with their virtual absence on some other Thames Valley sites. However, the extremely low level of chaff and weeds associated with arable cultivation is consistent among all these sites, as is the absence of a wider range of miscellaneous arable weeds. Moffett and others (Moffett et al 1989; Moffett 2004) have suggested that this reflects a form of crop-growing and processing that was much smaller in scale and much less directly associated with

settlement than became the norm in later prehistory. It may be reasonable to suppose not only that cereals were grown on a small horticultural scale, but also that their harvesting and processing was more akin to the collection of wild plant food sources than the kind of crop processing associated with larger scale arable farming. However, this limited diversity (or perhaps selectivity) of charred plant remains also makes it rather uncertain how far they truly reflect the economic and dietary use of plants or their growing conditions.

No significant charred crop remains came from the middle to late Bronze Age contexts, including the cremations and the oval hollow packed with charcoal and burnt stones (F164). The only waterlogged crop remains identified from the middle to late Bronze Age waterhole F162 were a few wheat glume fragments, possibly of emmer.

#### *The Iron Age and earlier Roman period crops* (Appendix 19 Tables A19:1 and A19:2)

It is unfortunate that there is not more evidence for the middle to late Bronze Age transition because the Iron Age samples show a marked departure from the earlier prehistoric pattern. No Iron Age waterlogged material was found.

As found elsewhere (Lambrick with Robinson 2008) naked barley was no longer in evidence, and spelt wheat (*Triticum spelta*) made a substantial appearance. Throughout the Iron Age, and more particularly in first couple of centuries AD, spelt wheat increased at the expense of other species of wheat, and to some extent and the expense of barley. By the second century AD 70% of identifiable cereal grains are wheat and all that can be identified to species are ascribed to *T. spelta*.

Rye was found in context F3/a/1, one of the later fills of a heavily recut early Roman ditch, but it is not possible to determine accurately the date of the grain itself. Each of these trends is compatible with the national record (Godwin 1975).

#### *Middle to late Roman crops* (Appendix 19, Table A19:1 and A19:2)

The two cereals that dominated the charred plant remains through the Iron Age and Roman periods were joined by the reappearance of Bread Wheat (*Triticum aestivum*) later in the Roman period, which is consistent with the known national record (Godwin 1975). The following crop species were identified from the Roman waterlogged samples: spelt wheat (*Triticum spelta*); flax/linseed (*Linum usitatissimum*); coriander (*Coriandrum sativum*); celery (*Apium graveolens*); and opium poppy (*Papaver somniferum*).

It is possible that the flax had been grown on the clay slope rather than the gravel terrace. This reinforces the view that the relatively frequent occurrence of carbonised seeds of *E S Palustres* sp. amongst the charred cereal remains of Iron Age and Roman date indicates that the site was obtaining some of its grain from fields off the gravel terrace.

It is possible that the celery and the opium poppy were not in fact cultivated. All four non-cereal species are familiar from Roman sites elsewhere (Godwin 1975, 129, 167,

223-4; Robinson 1981, 275; Booth et al 2007) and can be put to a variety of uses. Flax and opium poppy seeds can be pressed for oil, the residues being suitable for animal feed. Seeds of opium poppy, coriander and celery all have their culinary uses as flavourings. Flax stems can, of course, be retted for their fibres and the swollen petioles of celery are edible.

The flax and perhaps the opium poppy would have been suitable for arable cultivation, but all the non-cereal crops might equally have been grown under horticultural conditions. Only the flax is likely to have been grown on the scale approaching that of the cereals but unfortunately it is impossible to assess their relative importance. Interestingly, a silicula fragment of gold of pleasure (*Camelina* sp.) was also discovered. This weed is particularly associated with flax cultivation (Dimbleby 1978, 84) and it is even possible that *Camelina* sp. was itself cultivated as an oil crop.

Sample 789/A/14 contained one carbonised and 229 waterlogged seeds of celery (*Apium graveolens*). It is a plant which tends towards the coastal in its natural distribution and the inland localities from which wild celery is known do not include the 10km national grid square within which the site falls (Perring and Walters 1962, 158; Preston et al 1968), but was once present at Clifden Hampden and still occurs near Marcham where there is a brackish spring (Killick et al 1998, 190). Wild celery is unlikely to have colonised the soil of the gravel terrace as it requires wet or marshy, usually rather rich soil, but it might have found a suitable habitat around the Shadwell spring nearby, or some of the ponds. But the abundance of the seeds and the presence of a charred one make it more likely that it was grown for its petioles (leaf stalks) or its aromatic seeds, not merely a weed growing unnoticed along the water's edge of a neglected pond. It is probable that very good celery beds could have been created using the deep, moist soil in the hollows of backfilled Iron Age ponds or the partly silted early Roman ditches. Perhaps there were extensive market garden plots around the site.

The single seeds of *Coriandrum sativum* and *Papaver somniferum* in sample 605/A/7 represent other species which would have been suited to market garden cultivation, though *P. somniferum*, could also have grown as a weed.

#### *Saxon crops* (Appendix 19, Table A19:1 and A19:2)

Both naked barley and rye become evident in the Saxon period. While all the identifiable wheat grains from Saxon contexts may be ascribed to bread wheat (*T. aestivum*), glume bases of *T. spelta* are also present. It is possible that a small number of carbonised glume bases may have been redeposited, along with some sherds of Iron Age and Roman pottery, from earlier periods, but the presence of waterlogged *T. spelta* glumes of Saxon date (see below) are most unlikely to be redeposited, and therefore confirm the continuation of spelt cultivation in the Saxon period.

The following Saxon crop species or food plants were identified from the waterlogged samples: wheat (*Triticum* sp.), barley (*Hordeum* sp.), flax/linseed (*Linum usitatissimum*),

field or broad bean (*Vicia faba*) and more doubtfully, an apple pip (*Malus sylvestris*). Sample 82/21+19 contained a little wheat and barley chaff. Interestingly, the wheat glume bases were probably emmer, and a reappearance of this variety of wheat in the early Saxon period has since been recognised at a number of sites (Booth et al 2007). On a multi-period site such as Mount Farm, some redeposited carbonised remains can be present and it is therefore useful for this record to be based on waterlogged material.

As compared with the Iron Age and Roman samples, the complete absence of seeds of spikerush (*Eleocharis S. Palustres* sp.) from any of the waterlogged samples, suggests that this species either did not grow on the gravel terrace at all (which is what could be expected from its ecology) or was rare. This could indicate reduced general cultivation of wetter ground off the gravel terrace. However, the cultivation of flax (*Linum usitatissimum*) evidently continued from the Roman period as flax capsules were identified from both of the Saxon samples, though the flax associated weed gold of pleasure (*Camelina* sp.) was not recorded.

Bean threshing debris, in the form of stem and pod, (fragments of field or broad bean *Vicia faba*, was very abundant in sample 43/A/22. This was the first major find of *Vicia faba* from a pre-medieval context in the Oxford region. It is possible that the bean stem and pod fragments in sample 43/A/22 were not merely discarded threshing debris but had been brought to the site as animal fodder. The pod fragments were sufficiently tough to suggest that the beans had been harvested dry rather than as a green vegetable (which is confirmed by the presence of the stem fragments). The dried beans could have been for human consumption or to provide winter fodder for animals.

Because of potential susceptibility to insect pests and lodging, there has been some question about whether *Vicia faba* is suitable as an arable field crop in ancient times or might only have been cultivated as a garden vegetable (Green 1981), but beans were a successful arable crop in the Colchester area prior to the use of insecticides (Young, 1813, 158-60) and it is not known exactly how tall ancient varieties of celtic or field bean grew. Some of the coleoptera in the group used to suggest the presence of meadowland can also be pests of peas and beans but their numbers were low, so neither bean fields nor hay meadows seem to have been a major part of the Saxon landscape.

The various species which might have been cultivated under horticultural conditions on the site during the Roman period were absent, but a single seed from sample 43/A/22 was tentatively identified as apple (*Malus sylvestris*), but it is unknown whether or not it was from a cultivated crab apple tree.

### *The ecology of arable fields*

Together with the economic plants, seeds of a wide range of wild species are present in the carbonised assemblages, especially from the first phase of the Iron Age onwards. The figures for frequency and diversity of weeds shown in Appendix 19 Table A19:2 and main report Fig 47 illustrate the considerable diversification of weed species in the middle of the first millennium BC which is a well-recognised feature of changing

agricultural practice and the establishment of permanent fertilised fields.

The more plentiful assemblages of Iron Age and later date fall more comfortably into the assemblage types described by Knörzer (1971) and later authors (Hillman, 1981b), which are thought to reflect different aspects of the harvesting and processing of grain crops. Changes in wild plant composition from the Iron Age onwards are therefore regarded as reflecting changes in the arable landscape coupled with a variety of crop processing stages. The following discussion begins with what the most abundant wild plant taxa indicate before turning to the inferences that may be drawn from the occurrence of other species.

Grasses (Graminae) and leguminous weeds (Leguminosae) commonly account for between 25 and 50 per cent of the weed seeds by number, so any numerical analysis of change must proceed with them, taking account also of other groups which are ecologically complementary.

Leguminous weeds (eg vetches) fix atmospheric nitrogen through nodes on their roots and can therefore tolerate nitrogen poor soils. At Mount Farm there is a steep rise in the presence of these weeds from the early Iron Age through to the early Roman period, which is then reversed in the second century AD and in the Saxon period (see main report Fig 47). This is more or less matched by an opposite trend in the occurrence of species of the genus *Chenopodium* which prefer nitrogen-rich soils (Clapham et al 1962). These complementary trends thus fit well with indicating changes in soil nitrogen. It is interesting to note that a rise in leguminous weeds was also apparent between the early Iron Age and the 3rd century AD at the Ashville site (Jones 1978b), and to a slight extent for the early to middle Iron Age at Yarnton (Pelling and Stevens in Hey and Timby forthcoming) while at Gravelly Guy the proportion of leguminous weeds remained fairly static during the early to middle Iron Age before seeing a substantial rise in the late Iron Age and early Roman periods (Moffett 2004, 445). But at the late Iron Age and Roman farm at Barton Court Farm there was no evidence of such a change (Miles 1986, 41; Jones 1986).

In the case of Ashville the trend was explained in terms of soil nitrogen levels: being able to utilise atmospheric nitrogen, legumes have a selective advantage where soil nitrogen is low, and therefore flourish. On this basis the rise in leguminous weeds at Mount Farm would be explained in terms of ever-diminishing soil nitrogen, until the process was reversed in the later Roman period. But as a general trend, Lambrick (1992) noted that the marked increase in leguminous weeds in the late Iron Age and early Roman period did not seem to fit very well with evidence of early Roman manuring (which ought to have slowed down or checked loss of fertility), and at Yarnton the model has also been questioned, suggesting that other factors including autumn or winter sowing could be involved (Pelling in Hey et al forthcoming; Stevens 2003; Stevens in Hey and Timby forthcoming).

Amongst the grasses at Mount Farm, there were regular fluctuations in the figures,

which is unsurprising as the grass family as a whole contains a wide variety of ecological types. However, the most abundant taxon, *Bromus* sp. shows an overall decline through time (see main report Fig 47). This steady decline is paralleled at the Ashville site and at Barton Court Farm and may be related to an increasing depth of ploughing (Jones 1978; 1986; 1988b). It is in the late Roman period that ploughs fitted with coulter and asymmetrical shares (implying mould boards) are first in evidence (Rees 1979). The all-time low of grasses in the genus *Bromus* in the Saxon period at Mount Farm may indicate that deeper ploughing could be the explanation both of the restored overall fertility of the soil and the cultivation of new soil types, which is suggested by the appearance in the Saxon period of corn spurrey *Spergula arvensis* and a sharp increase in sorrel *Rumex acetosella* amongst the carbonised seeds. These taxa suggest that some distinctly acidic soils (perhaps the lower greensand towards Nuneham Courtenay and Culham) may have come under the plough.

At Ashville it was noted that spikerush (*Elocharis palustris*) substantially declined between the middle and late Iron Age and that a number of other damp ground taxa, sedges (*Carex* sp.), mint (*Mentha* sp.) and blinks (*Montia fontana*. Subsp. *Chondrosperma*) disappeared completely. Their similar behaviour at Mount Farm is evident (see main report Fig 47) as is the tendency for these taxa to reappear in the later periods not represented at the Ashville site. This reappearance may however be paralleled by the late Roman assemblages from Barton Court Farm, in which seeds of damp ground species are quite abundant, as also at Abingdon Vineyard (Stevens 1996).

The changes in the occurrence of damp-ground weeds at Ashville were explained in terms of changing landscape organisation whereby arable fields and areas of unfavourably damp ground were somehow distanced from one another. In a more general consideration of crop production in the British Iron Age Jones (1981; 1988) suggested that this might have been connected with an improvement in field drainage in the late Iron Age which kept pace with continuing arable expansion on more water retentive soils until at least the 3rd century AD, after which damp ground species occur in carbonised cereal assemblages.

Subsequent work suggests a rather more variable picture, but includes physical evidence of Roman expansion of arable onto the floodplain at Drayton and Yarnton provided by ard marks and/or ploughsoils containing pottery indicative of manuring (Lambrick 1992; Barclay et al 2003, 110-5; Hey and Timby forthcoming). But at Gravelly Guy there was no evidence of changes in relation to damp ground, which is consistent with the idea that the early Iron Age organisation of arable and pasture land round Stanton Harcourt remained unaltered until the second century AD (Lambrick and Allen 2004, 479-83).

The reappearance of a number of damp ground taxa in the Saxon period at Mount Farm may either suggest an encroachment onto yet wetter ground (presumably beyond the edge of the gravels), or perhaps the silting up of ditches round arable plots through lack of maintenance.

The waterlogged evidence for the ecology of where crops were grown is more limited and in particular does not offer the same opportunity to track trends. Most of the arable weed seeds from waterlogged contexts were from species such as prickly poppy (*Papaver argemone*) which would have flourished in the dry somewhat gravelly sandy loam that formed the Iron Age to modern ploughsoil on the gravel terrace. Seeds of weeds which prefer wetter or acidic soils were not common. However, some of the crops like the flax might have been grown on other soils and brought to the site for processing. The characteristic damp ground species stinking mayweed (*Anthemis cotula*) seeds in the later Roman and Saxon deposits that contained evidence of flax growing could have been brought to the site with the flax capsules and may suggest that the flax was grown on the clay slope at the edge of the terrace. An alternative explanation might be that poaching of the soil on the gravel terrace caused rainwater puddles to accumulate and that they lasted long enough into the spring for quick-growing plants of wet places to establish themselves. Blinks (*Montia fontana* ssp. *Chondrosperma*) is another plant that might be favoured by such conditions and its seeds were present in both Saxon samples. But as we have seen, both species have also been recorded amongst the carbonised seed assemblages, both from Mount Farm and other sites on the Thames terraces, and an association with crop-growing conditions is thus very plausible.

### Conclusions

The diverse weed flora in evidence from the Iron Age onwards permits more definite conclusions to be drawn about crop husbandry than is possible for earlier periods. In general, the evidence from Mount Farm both parallels and complements evidence from the Ashville site. The general trends in the Upper Thames Valley suggest a progressive intensification of arable agriculture, especially in the late Iron Age and early Roman period, reflected in more autumn sowing and/or depleting soil nitrogen levels, investment in ditched enclosure of land, and bringing unfavourably damp ground under the plough.

It has been suggested that these trends might be part of a more general escape from the constraints of existing agricultural methods, and part of the explanation for this could be related to changes in plough technology (Jones 1981; 1988). But as more sites with long sequences of occupation are analysed, the detailed picture is becoming more variable and complex. Changes are not uniform in either chronology, or in some cases character, and some trends can be interpreted in different ways. There is also increasing realisation that social issues played an important part (Lambrick 1992; Lambrick with Robinson 2008). Nevertheless, the evidence from Mount Farm fits with the broad conclusion that arable agriculture was being intensified in the later Iron Age and Roman period.

## **ENCLOSURES, FIELDS, PADDOCKS AND TRACKWAYS By George Lambrick**

The ditches which bound enclosed areas and tracks are among the most familiar features of this type of site, but there are recurrent problems of interpretation since the surviving ditches and gullies are often only partial indications of boundaries formed by stock-proof hedges or fences that have left little or no trace. Moreover, the ditches often seem to represent only part of the full layout of enclosures, which were completed by above ground features. Some imagination thus has to be used to fill out the rather incomplete picture presented by the excavated evidence and air photographs. The digging or recutting of ditches often only reflects periods of more intensive maintenance of existing enclosures and may destroy evidence of when they were originally laid out. This can account for why some ditches seem to respect others which had silted up and become invisible two or three centuries earlier.

It is unfortunate that some complex areas of intersecting ditches at Mount Farm had been damaged by excessive topsoil stripping or were outside the area of quarrying. The interpretation presented is therefore not definitive.

### **Middle Bronze Age**

The two pairs of parallel ditches (F317, F320, F290, F298) were dug converging at right angles on the eastern side of the large ring ditch, F101. The function of the ditches is not immediately clear. F317 and F320 were flat bottomed and their fill gave no indication of the position of any accompanying bank, nor of any recuts. F294 and F298 were much shallower (indeed F294 was mostly visible only as a stain in the gravel) but F298 had clearly been recut in places though it petered out to the south west where, like F294 it was only traced as a stain. The two pairs of ditches converged almost precisely at right angles, and their orientations were almost exactly NW-SE and SW-NE. The distance between each pair varied between 2.0 and 2.5 metres. It is unclear whether the two pairs were originally dug at the same time because the junction of F317 and F294 was too shallow for a definite relationship to be seen. The resistivity survey did not suggest an area of compaction between the ditches as it did for the Roman trackways and while crop marks show F317 and F320 extending beyond the excavated area to the SE and F298 similarly to the NE, they soon fade away and there is no positive indication of other parts of the ditch system. Nor was there any clear evidence of subsidiary features: the only exception might be F278, a short length of NS ditch somewhat similar in character to the less well preserved parts of the main ditches, but there is no particular reason to associate this with the other ditches.

Locally the extent of the undated but probably Bronze Age example at Northfield Farm is relatively clear from cropmarks (Baker 2002) and various other examples are known in the area, including Dorchester, Radley, Appleford Sidings and Crowmarsh (Whittle et al 1992; Mudd 1995; Booth and Simmons forthcoming; Ford et al 2006).

## Late Bronze Age to Early Iron Age

The upper fill of waterhole F162 presented a varied sequence of deposition which has tentatively been ascribed to variations in the intensity or type of landuse (see main report). Indisputable evidence of arable comes from the ploughsoil and its underlying ploughmarks in the tops of ring ditch 101 (see main report Fig 26). Presumably crops were protected from animal interference, but it is unlikely that the supposed middle Bronze Age enclosure system survived into this period, because the barrow, which was clearly a focal point in the layout, was already being ploughed over and the alignment of the ploughmarks themselves bears no relation to either of the Bronze Age paired ditches.

## Early to Middle Iron Age

### Pens

A combination of stratigraphic, spatial and dating evidence suggests that the small pen-like enclosures marked by various lengths of curving or penannular gully, pre-date the larger ditched paddocks or fields of the later middle Iron Age. From the spatial relationships with the earlier Iron Age pits, it is possible that the spaces they demarcated were used as pens before they were defined by gullies dug into the subsoil.

There appears to have been an arc of three groups of enclosures defined by penannular or curvilinear gullies in the main areas excavated (see main report Figs 27, 35). Of these the southern most group was the most fragmentary and least susceptible to more detailed interpretation. The group in the area of ring ditch F101 appears to have been a straightforward pair of circular enclosures with little recutting (various other intersecting gullies are mostly more likely to belong to the next main phase). The easternmost group consisted of three elements in which one episode of recutting is evident in F275/279/375 and possibly in F263/264, while F200/203 exhibits at least three, possibly four recuts.

### Paddocks

The overall impression is of a rather haphazard development of paddocks and enclosures used predominantly for pastoral farming, possibly of a more intensive kind than in the previous phase. While there is evidence of a good deal of settlement activity in some areas, its extent need not have been confined to the excavated area and may well not have been a primary concern in the layout of the enclosures.

Hedges or banks with fences may explain similar spacings between some ditches and gullies and why the lines of some ditches were respected by new ones apparently not dug until substantially after their predecessors had filled up. For instance the line of F5 (the recut of F4) is respected c 2m to the north by a Roman ditch (F3), which closely follows its somewhat sinuous line. It is reasonable to suggest that there was an intervening bank, fence or hedge, which the Roman ditch respected, but on the opposite

side of it from F5, having been dug on the outside of the enclosure instead of inside it. Since F5 was cut by F131 (in turn cut by F3) it must have been this barrier rather than F5 itself that F3 respected. A growing hedge is perhaps suggested by the sinuous line of F5 compared with its predecessor F4 and the deviation in F3 from where it meets F206 (long since silted up) might be because of excessive growth in a hedge. Intriguingly, there is possible evidence for this hedge in a gully, F56 running parallel to F5 which in one section had an irregular pockmarked bottom, which might have been caused by root action (see main report Pl 8). This phenomenon was also noted in another gully, F131.

The existence of a similar hedge or a bank and fence alongside F505 may also be postulated from various spatial relationships. Some explanation of the survival of a boundary along that part of F505 thought to have been destroyed by F50 is required if any sense is to be made of their layouts. Since there is very little evidence of major ditch maintenance in the late Iron Age (see below) it is quite plausible that F50 was dug along the outside of a hedge used as the southern boundary of the F3 enclosure. This would originally have been outside the ditch of the F505 enclosures, and if so F50 would have had to be dug through the hedge or bank, which might account for the slight deviation in its line just west of its junction with F505.

### **Late Iron Age and Roman Enclosures and Trackways**

The main late Iron Age and early Roman enclosure ditches (F3, F50, F51 and more definitely F513, still butt-ending east of F605) developed out of the middle Iron Age layout and continued to be maintained into the second century (see main report Figs 28, 36, 37, 38). The overall pattern of enclosures expanded (though their detailed development to the north and east is unclear) and probably from the late Iron Age onwards as part of this development two trackways were established on the west and east sides of the site.

The western trackway (formed by F501 with F23 and F51 with F3) splayed out to the north west, perhaps creating a funnelled entrance which is a common feature of layouts where herds and flocks animals are collected from relatively open areas to be led through enclosed fields. In broad terms this lasted till the third century when configuration changed (see below).

The development of the eastern trackway was not established in detail, but can to some extent be inferred from the sequence of recutting of the western side of the trackway (F797, F754 etc). The cropmarks indicate that modifications to the adjacent enclosures sometimes created re-entrant angles in the line of the trackway boundaries on both sides. This is comparable with similar features in other trackways, notably those in the Northfield Farm cropmark complex (Baker 2002, Fig 4d) which may be the positions of gateways, and here would suggest access to the enclosure from the south, implying that the main settlement may have been in that direction.

The provision of two trackways so close together is comparable with Appleford, where a more complete picture of the layout is known from cropmarks (Hinchliffe and Thomas 1980, 12-16, 40-1, 62-6, figs 3, 15, 25). Like Appleford, the Mount Farm tracks may have converged to the south of the site. Although this cannot at present be established directly, it appears that in the later Roman period the western track may have been diverted to join up with the eastern one (see below). Other trackways show up as cropmarks to the east and south of Mount Farm, so these may be part of a more complicated network of tracks giving access to enclosed fields and/or leading through them to more open land.

In both cases the ditches tended to be recut towards the centre of the track. This was also noted at Appleford and was attributed to the gradual erosion of banks on the outer edges of the ditches obscuring the previous ditch centre (Hinchliffe and Thomas 1980, 62). A similar process can be seen in the outward movement of recuts in ditch F3, and perhaps may also reflect the possible influence of thick growing hedges beside the ditches.

No detailed excavation of long lengths of heavily recut ditch was undertaken, and it is therefore uncertain how thorough each clearing out was. There is some suggestion, however, that it was fairly haphazard: where the western side of the east driveway was fairly thoroughly excavated, there was a bewildering variety of small recuts, often butt-ending and there was difficulty in following any recut through the entire length of ditch available. At the junction of F3, F50, and F51 a similarly complicated pattern was found: many recuts seemed to butt end at the junction and there was no evidence that the three ditches were ever all cleared at once.

### **Later Roman Changes**

By the later second or third century AD most of the recutting of the main elements of the enclosure ditches seems to have lapsed, except in specific areas (see main report Fig 39). The western side of the eastern trackway continued to be redefined, and in the southern part of the site there was some reorganisation. The western trackway was cut across obliquely by F504, which turned east into F534 and F537 (though it might possibly have also continued south). These ditches were themselves recut several times. It is not clear if F610 and F513 (or perhaps just hedges on the same lines) still survived to form a trackway across the area of former waterholes (F537 cut the upper infill of waterhole F674). If so it would have created a rather awkward narrow corner, and it is perhaps more likely that the trackway ceased to exist with F504 and F534/F537 creating a new boundary to an enlarged field to the north.

While ditches F504 and F534/F537 appear to mark a more radical change in the layout of the enclosures and trackway on the western side of the site, but the eastern trackway probably continued in use as before.

As ditches silted up during the Roman or later periods, wild animals appear to have

burrowed into their fills. Several large groups of water vole and other rodent bones accumulated as well as remains of frogs and snails. The presence of badger and fox bones also suggests animal intrusion into features when the site was less intensively used.

### **Saxon**

There is no direct evidence of enclosures being created or their ditches recut after the later Roman alterations in the southern part of the site, but the boundaries assumed to have been part of the Roman layout may nevertheless have lasted as hedges well into the Saxon period, in much the same way as the enclosure layout had survived from the middle Iron Age until the first century AD.

The position of the wicker-lined well F82 close to the centre of the area enclosed by F3 and F50 may not be coincidental and the survival in some form of the line of ditch 3 is suggested by the possibility that there was a medieval plough headland along its line. In the Saxon cemetery 1.2 km to the south at Wally Corner, the graves clearly respect the lines of Roman ditches, as though the boundaries survived in some form (Boyle et al 1995, fig 6). The survival of Roman enclosure boundaries into the Saxon period is also evident locally at Barton Court (Miles 1986, 17-19, fig 13).

### **Discussion**

The uncertainties about the form and use of the mid to late Bronze Age double-ditched enclosures and the hint of a fenced field associated with the early Iron Age ploughmarks provide tantalising glimpses of the organisation of landuse at the beginning of the later prehistoric period without allowing firm conclusions about the full character of enclosure and landuse patterns, though the indications fit with evidence from other sites in the Upper Thames region (Lambrick with Robinson 2008).

While the spatial and stratigraphic evidence for the form and use of the later enclosures suggests the presence of hedges or perhaps fences, this is not obviously borne out by the waterlogged biological evidence. The presence of hedges of thorn scrub was not directly indicated from waterlogged plant remains (even *Prunus*/*Crataegus* type thorny twigs were absent), and while the two species of cerambycid beetle from F605/A/7, and the numerous woodworm beetles might have lived in fences, other habitats, woodpiles and structural timbers of buildings are at least as likely (see above).

The very evident continuity in the survival and gradual evolution in the layout of the enclosures at Mount Farm from the middle Iron Age to the later Roman period is also noteworthy, though perhaps not unique (Oxford Archaeology 2004; Hinchliffe and Thomas 1980; Allen 1990; Coleman and Hancock 2004). Other sites such as Gravelly Guy, Ashville and Yarnton (Lambrick and Allen 2004; Parrington 1978; Hey and Timby forthcoming) exhibit comparable continuity of settlement location and activity, but without such enclosures.

The Roman trackway-with-paddocks type of layout is common in the region (Lambrick and Robinson 1979; Hinchliffe and Thomas 1980; Baker 2002; Booth et al 2007), though in this case the origins of the layout seem relatively early.

At Mount Farm it is not clear that the use of the enclosures remained as unchanged as their layout. Compared with these other sites there is rather more evidence for quite significant shifts in farming production (see below). Access to waterholes in the southern area seems to have been a constant characteristic of the field system, and this may reflect at least some pastoral use throughout the period.

### **WATER SUPPLY By George Lambrick with Mark Robinson and James Greig**

Natural water resources were available in the form of streams, within a few hundred metres to the north, east and west. A spring that is important enough to have a name, Shadwell spring, lies only about 200m to the east (see main report Fig 1). Any of these natural sources of surface water could have been used at any period in the site's history.

The site's underlying geology, a bed of gravel resting in a saucer of clay, also gives rise to a perched water table which it was easy to exploit by digging ponds, waterholes and wells which needed to be only c. 2m deep. The unusually high water table seems to have been exploited by digging ponds, waterholes and wells more or less continuously from the late Bronze Age onwards.

### **Late Bronze Age**

The earliest waterhole on the site was F162 dating to the middle to late Bronze Age. It is described in the main report. The fairly considerable original depth of water would have meant that this process of artificially induced erosion could have gone on quite a long time before the waterhole became unusable – how long would have depended on how much of the year the hole was in use and whether animals were allowed to use it (see main report Fig 24).

### **Iron Age**

In the early Iron Age the Bronze Age waterhole became filled in and ploughed over. From some point probably in the early Iron Age a series of ponds started to be dug in the southern part of the site (see main report Pl 9). Good preservation by waterlogging did not occur in them and it is possible that they were not deep enough to contain water throughout the year. The lack of good preservation also means that no samples were available to indicate their usage.

### **Pond F661/2**

The profile of the bottom of this pond and the lowest layers of its infilling suggest that it was recut at least four times before being allowed to silt up (see main report Fig 34).

The recuts moved progressively northwards and seem to have been dug from quite a low level - the hole was not as deep as F162 and silting would have made it unusable at an early stage of silting and infilling. It appears that the clearing out process was achieved mainly by cutting the steep sides of the pond back, so that by the latest cut its northern edge was not only steep but substantially undercut. The layers of backfilling slope up gently to the south, over the earlier recuts, but their southern end was destroyed by a late Iron Age or Roman recutting (F661 / 1). The pattern of recutting suggests that there would always have been access for animals, but given the complexities of the recuts and the limited area excavated this cannot be certain. It is not clear how long this pond remained in use - with constant clearing it may have been a substantial length of time; perhaps not the whole of the early Iron Age, but other unexcavated ponds nearby may be its predecessor or successors.

### **Pond F676**

One neighbouring pond (F676) is clearly middle Iron Age, with the same sort of uneven profile and cross-bedded fills characteristic of being frequently cleared out, though the sequence is unclear. Its depth was similar to F661, and likewise was not deep enough for the water supply to have been sufficiently permanent to preserve organic material. As with F661, there was a contrast in the steepness of one side (this time the south) compared with the others, but the details of possible animal access are unclear (see main report Fig 34). The upper filling of this pond, by then a fairly shallow hollow, contained late Iron Age or early Roman material.

### **Late Iron Age and Roman**

#### **Pond F661**

As noted above, Pond F661 was probably originally dug in the early part of the Iron Age, but the filling of its latest recuts contained Roman pottery (see main report Fig 34).

#### **Pond F605**

F605, situated just west of the Iron Age ponds, was probably originally dug in the mid-first century. Once more many recuts were discernible (at least seven) and in places the same contrast of steep sides and shelving layers of backfill are visible, despite the complications caused by so much recutting (see main report Fig 34). It is again likely that provision was made for animals to reach the water. The infill of the latest cut of F605 was possibly early second century.

#### **Pond F674**

Pond F674 was dug in the area of its long-since filled-in Iron Age predecessors. This pond did not finally fill up till the third century, and since it showed little sign of

recutting (see main report Fig 34) this may also be roughly when it was first dug, though it is also possible that it had been maintained more assiduously, obviating the need for periodic redigging. It is possible that some other pond was in use between the time when F605 ceased to be viable and F674 was excavated (several other large dark marks are visible on the air photographs in this area – (see main report Pl 1).

### **Waterhole F789**

In the eastern part of the site, cutting through the west side of the trackway, there was another deep hole apparently dug to obtain water (F789). This was smaller in area than the large ponds and had very steep sides all round, much more in the character of a well (see main report Fig 40). It had no lining, and had been recut, presumably because of unrestrained silting and slumping of the sides.

This waterhole probably contained water throughout the year. Aquatic beetles were not nearly as numerous in it as in the Bronze Age pond but the Crustacea (water fleas etc) remained present. While this water hole was clearly not designed for the animals' own use, this does not mean that it was not primarily for agricultural purposes. Its position on the western edge of the driveway may have been intended to allow access from both the track and the adjacent paddock or field. Although it could have been used as a domestic water supply, no particular concentration of features with domestic debris or traces of buildings were found nearby; however, the relatively high proportion of fineware pottery and a concentration of querns from its upper filling after it went out of use suggests domestic activity in the vicinity.

### **Saxon**

#### **Well F82**

The wicker lining of well F82 was probably inserted when the pit was dug with the space between it and the pit sides being filled in with fine loamy soil (L82/11 to L82/14). The stratification clearly showed that the lining had originally extended 0.5m above the surviving wickerwork (see main report Fig 42). After silting and some slumping from the sides of the well (L82/7-8, L82/10, L82/16-22) the remaining hollow filled up with loamy layers, mostly with little gravel but some occupation debris. Being more of a shaft, this well appears to have contained fewer aquatic insects and crustaceans than any of the earlier ponds and water holes.

#### **Well 43**

The remains of the tub (see Appendix 12) were covered by organic silt, (L43/22-23) largely confined to the tub's original outline (see main report Fig 42). This silt deposit was covered and surrounded by fine loam (L43/14). A stakehole, with the bottom of the stake in situ extended through this layer, adjacent to the well lining. This may

originally have acted as a support for people to catch hold of when filling their buckets. Further layers of loamy infilling with some gravel slippage from the sides (L43/2 to 43/12) covered this, and were cut by a smaller pit containing much burnt clay material (not in situ) together with loomweights and a small amount of pottery.

The tub was almost certainly in very poor condition when it was re-used - the position of the upper band resting immediately on the lower is most unlikely to have resulted from collapse after the soil had been filled in around the tub to create the well. The split in the upper end of the larger stave may also be an indication of the condition of the tub when it was consigned to reuse as a well lining.

### **STORAGE AND PROCESSING OF ANIMAL AND CROP PRODUCE By George Lambrick, Martin Jones and Bob Wilson**

Although storage requirements can be quite specific, the storage of most commodities would leave no archaeological trace at all, apart from post-built structures, pits and ceramic containers. At Mount Farm some medium to large pits might have been used for storage of seed grain or other commodities at various periods – even though their shape and /or size might have made them less effective than classic chalkland Iron Age pits for which grain storage has been most fully investigated (Reynolds 1995). However, most of the pits at Mount Farm were probably too shallow and wide to be very effective for storage of grain, and storage of other commodities is difficult to substantiate, though occasional clay linings might indicate use of open pits as tanks (see Table 5 in the main report for averaged maximum and minimum dimensions for datable pits at Mount Farm).

#### **Neolithic to late Bronze Age**

Of the earlier prehistoric Mount Farm pits, F160 dating to the early Neolithic had the most suitable size and shape to be used for storage (steep sided, rounded bottom originally probably about 1.1m in diameter and about 0.7 to 0.75m deep – see main report Fig 17). But its contents (fine flintwork, antler and charred plant remains) and its position exactly between two posts of an oval post setting or building also make it one of the stronger candidates for having been dug specifically to bury selected debris. The other earlier prehistoric pits are mostly much smaller (none with a projected depth of more than 0.6m) and seem much less likely to have been dug for storage (Fig A1:1).

None of the Neolithic and Beaker artifacts provide clear evidence of storage in ceramic or wooden vessels, baskets or bags, though there are a number of bone awls suitable for use in basketry or leather-working.

There is no clear evidence of storage in the middle to late Bronze Age, and it is not even clear that the site was actually inhabited at this period, though a large bucket urn used for cooking might perhaps have doubled as a storage container.

## Iron Age

Although as noted above and in the main report, no entirely clear-cut structures have been recognised at Mount Farm, the amount of occupation debris from the site makes it likely that there were houses which would have provided a range of storage facilities.

The dimensions of the Iron Age pits at Mount Farm suggest two distinct size ranges, possibly explicable in terms of function, with the larger, deep pits making plausible grain silos, while the functions of the smaller and more intermediate ones remains more debatable. However, no such division in the size of pits is evident at other Iron Age sites in the region with much larger numbers of pits, so any distinction is inconclusive (Lambrick with Robinson 2008).

Seven early Iron Age pits (F326, F608, F652, F655, F671, F678 and F685), two middle Iron Age pits, and one other Iron Age pit stand out as being 1.1m to 1.4m deep (main report, Table 6). They have projected volumes from 2 to 4.5 cubic metres, which is comparable with other pits assumed to be for grain storage on the Thames gravels (Lambrick with Robinson 2008). The apparent decline in the number of large pits in the middle Iron Age at Mount Farm appears to precede the more usual decline noted for the late Iron Age elsewhere (Parrington 1978; Lambrick and Allen 2004, 112-7; Hey and Timby forthcoming).

Pit F652, for which pottery suggests an early Iron Age date but a radiocarbon determination suggests was middle Iron Age, contained several articulated animal limbs, mostly cattle but also other species (see main report Pl 9, Fig 33). One possible interpretation is that this pit was used for storing joints of meat that went bad or were never recovered: the skeletal elements present and the details of the butchery are consistent with this (see Appendix 16) and relatively short-term underground meat storage may be feasible especially if the meat is first salted or smoked to counteract decay and wrapped to avoid contamination. But keeping meat on the hoof until it is required, or hanging smoked or salted in a building or a container would seem more satisfactory. Other explanations of this deposit in terms of refuse disposal may therefore be more likely, whether as merely disposing of ordinary butchery debris, or perhaps the remains of some special feasting or other ritual activity (Wilson 1992; 1996; 1999). Other instances of articulated limbs in pits are less distinctive, and even less likely to represent storage of meat.

The large pits unlike most of the smaller ones, had fills with varied layers of different soils, but again this must reflect their ultimate fate, and need not indicate anything about their original use (Lambrick and Allen 2004, 114-7). Most of the other Iron Age pits at Mount Farm were shallow ones with projected original depths of c.0.3 to 0.75m deep. These were not obviously dug for storage, but two flat-bottomed pits (F325; F585) that were quite shallow (0.2m – 0.3m as dug from the surface of the gravel originally perhaps up to 0.6m – 0.75m) had undercut profiles that are often regarded as being typical of storage pits.

Three pits had remnants of pale greenish or brownish yellow clay linings. F514 and F563 were 0.9 and 1.0m in diameter 0.6m and 0.4m deep as excavated (originally about 0.9m and 0.7m) with flat to rounded bases and steeply sloping sides. In the case of F659 the lining was a layer within the fill of a round bottomed pit – perhaps even being a lining of a recut that would have been similar to the other two pits. These may be temporary tanks for storing water – or perhaps cooking in hot water (see below).

A noticeable feature of some pits on the site (but not very consistently observed) was the presence of concreted gravel underneath them: this was analysed in the case of F100 (see Fisher 1978 in archive) but with no firm conclusion: since the same phenomenon was observed at the bottom of some gullies it seems unlikely to be associated with the original function of the features.

Other storage facilities can be assumed but solid evidence is very limited. Pottery vessels would have been used for relatively small scale domestic storage and a few very large Iron Age pots and jars were found which may have been primarily for storage, or at least doubled as containers when there were not being used as pitchers or for cooking etc. These included both closed- and open-mouthed vessels.

## **Roman**

Mount Farm is rather unusual in that pits were more common in the Roman period than in the middle and late Iron Age, but it is very doubtful if below-ground storage of seed grain or other commodities continued (Allen 2000). Some other methods of storage are also in evidence, including the odd clay lined pit possibly used as a tank, and use of pottery is indicated by large storage jars, a bottle and a lid (see Appendix 6). No pieces of amphorae were found.

## **Saxon**

Again, no structural evidence for storage was recovered for the Saxon period, especially as no grubenhauser or cellared buildings with possible under floor storage facilities were located.

An interesting find, was part of a stave-built tub or barrel reused as the lining of a redug well or waterhole (see above, main report Figs 42 and 77). Before it was reused as a well lining the tub or barrel could have been used for storing various commodities. Its construction, probably with straight vertical or slightly splayed sides formed of staves bound by wooden bands suggests an open tub rather than a barrel, and may imply that the vessel was used for short-term rather than long-term storage. It may well have been used for water (or other liquids) and this would have prevented drying out and shrinkage of the staves which would have weakened the structure of the vessel. But evidence of dowel holes in one of the staves and a few dowels along the length of the binding hoops (not just where their ends were joined together) may indicate that the hoops had worked loose and needed repair. If the tub had ceased to be watertight, it

could still have been used for dry storage.

### **Processing of Produce**

The animal bones and carbonised plant remains provide evidence of butchery and crop processing in the early stages of food preparation, and the quern stones are evidence of conversion of grain to flour. Some of the artefacts are indicative of other aspects of processing farm produce.

#### *Cereals and other plant food*

The consideration of how carbonised seed assemblages reflect different stages and processes in grain preparation has advanced since the original analysis of the Mount Farm material (eg Hillman 1981; Moffett 2004) and is still a matter of debate (eg Stevens 2003; Van der Veen and Jones 2007). The Mount Farm material has not been fully reanalysed.

Apart from the charred remains of chaff and grain itself, the principal evidence for the preparation of processed grain for consumption is the presence of querns for grinding cereal crops. A fine saddle quern was found low in the fill of waterhole F162 which might be later Bronze Age or early Iron Age, but otherwise the Iron Age site is remarkably devoid of quern stones or fragments, with only a very few undiagnostic pieces of suitable stone types occurring as fragments found amongst burnt stones. As burnt stones were not systematically collected and screened it is possible that other fragments were missed, but even so the absence of more querns is rather unusual, since even predominantly pastoral sites like Mingies Ditch, Farmoor and Watkins Farm, all produced quern stones or rubbers, and not surprisingly, they were reasonably common in the Iron Age at Ashville, Gravelly Guy and Yarnton.

There are many more quern stones from the late first to second century Roman deposits at Mount Farm, and a few fragments from Saxon deposits, though these could be redeposited from earlier periods, along with some Iron Age and Roman pottery found in the same features.

#### *Butchery*

For the earlier prehistoric period implements associated with butchery (as well as for other uses processing plant materials), include flint scrapers, knives and fine saws which could have been used for a variety of purposes in processing animal carcasses for food, and a wide variety of other uses (hair and skins, leather, thongs, bags, and bone and antler implements). No knives were found in Iron Age and later contexts, but their use is clearly indicated by cut marks on bones.

The most interesting evidence of butchery was mainly from Iron Age contexts and a few Roman ones in the southern area of the site. These deposits consisted of articulated limb bones and segments of backbone, chiefly of cattle, some of horse, and one instance

of sheep. The articulation of the skeletal elements and butchery marks on the bones suggest that large carcasses were often dismembered into large portions. Commonly, the limbs were detached from the ribcage and pelvis but sometimes the hind limb was disjointed further between the femur and the tibia.

Since the bones were articulated, the butchery marks around the carpal and hock joints cannot indicate further disjoints, and this confirms suggestions elsewhere (Wilson 1978) that similar marks on scattered bones resulted from the removal of skin as far as these joints (see main report Fig 48). Cut marks on other bones show that skinning sometimes proceeded as far as the hooves of cattle.

The remaining cut marks and absence of any charring on the upper limb bones indicate that meat was removed for cooking before deposition of the bones. It is possible that some articulated remains were deliberate symbolic deposits, but if so, the cut marks would suggest that these bones were not deliberate deposits of actual joints of meat (see below.)

The carcasses of Iron Age and Roman sheep appear to have been skinned around the legs between the midshafts of radius and tibia or around the metapodials. This contrasts with the 19th to 20th century skeletons which show skinning around the hooves and cranium and suggests an even greater utilisation of the skin than previously.

### *Dairy produce*

The relatively high incidence of cows among the Iron Age cattle bones is indicative of dairying, and this may have included sheep milk as well. A possible explanation of a number of Iron Age bowls with holes in the bottom is that they were used in cheese making, and this might also explain the incidence of lime scale on both the inside and outside of a few of these vessels, though this is not the only possible explanation of this (see below, cooking residues).

The incidence of cows in the late Iron Age and Roman period is less marked, but with more specialised pottery forms being available in this period, the presence of two pieces of cheese presses may be noted. Another group of objects that might conceivably have been used in preparation of dairy products are several thick clay slabs, which could have been used as weights (perhaps in small wooden tubs) for pressing curds to make cheese. However, they could also have acted as griddle plates in cooking (see below).

## **THE CHARACTER OF DOMESTIC OCCUPATION, RUBBISH DISPOSAL AND ACTIVITY AREAS** By George Lambrick with Martin Jones and Bob Wilson

### **Earlier Prehistoric**

From the early / middle Neolithic to the Bronze Age the character of domestic activity is revealed principally by the scatter of small pits containing a variety of flints, the odd

bone artefact, a few sherds of pottery, animal bones, charred remains of food plant and charcoal. The character of occupation and aspects of agriculture and crafts are discussed in the main report, with some details in Appendices 3, 4, 16, 18 and 19.

### **Late Prehistoric**

The investigation of refuse assemblages on this site was something of a methodological trial, but incorporated specific aims in trying to elucidate various points of the Iron Age settlement's activities and wider aspects of its economy and internal organisation. Some further details are to be found in Appendices 5, 8, 9, 10, 16, 18 and 19.

### ***Background and aims***

At the time of the excavation and initial post excavation analysis at Mount Farm, a number of studies were seeking to characterise domestic rubbish to see whether distinct kinds of activity could be discerned. Some of these sought for example to see whether it was possible to distinguish between initial food preparation (butchery etc), the cooking of meals and their consumption. Various claims were made that such distinctions could be made, and the issue was examined for the Iron Age settlement at Mount Farm. The results were summarised in a paper about the interpretation of late prehistoric pottery assemblages (Lambrick 1984, 167-9) and a slightly fuller version of the results is presented here. Much of the analysis was undertaken by Martin Lawler, who was an inservice trainee in the early 1980s.

Four specific questions were examined: first, in what ways do rubbish assemblages on this type of site reflect the activities with which the settlement was concerned? Secondly, is it possible to detect spatial or chronological differences within this pattern to tell us something of the organisation and development of the settlement? Thirdly, is it possible to characterise the type of refuse from a site in a general way to compare whole settlement assemblages as an indication of economic and social status? Fourthly, on a purely methodological level, what are the sampling requirements for this type of approach, and what are the most obvious problems?

This section is mainly concerned with patterns of rubbish disposal and the activities and organisation which generated it (the first two of the questions outlined above). Three different approaches to the material were adopted: the first was to try to correlate the characteristics of different types of rubbish within individual assemblages; the second was to compare general distributions of different categories and types of rubbish around the site; the third, only partially covered here and more generally under other sections of the report, was to characterise the material more broadly. The results for some of issues were reported previously (Lambrick 1984) and some other analyses which proved relatively fruitless and are not reported here, but results are available in the archive.

Various issues related to the sampling procedures adopted at Mount Farm have been published elsewhere (Jones 1978a; Lambrick 1984), but one of the factors identified as

needing to be taken into account in interpreting results was how the character of domestic refuse around a settlement (and hence what it may indicate about the activity of the inhabitants) can be influenced by patterns of degradation and redeposition, as well as by the primary and secondary sources of refuse. This is therefore considered before discussing the wider spatial patterns.

### *Degradation and Redeposition*

In terms of pottery, issues of sherd size and redeposition at Mount Farm were examined by Lambrick (1984, 164-9) with the broad conclusion that while redeposition may distort and mask the picture, any clear differences that do show through are liable to be more rather than less significant. Furthermore, while pottery can be a valuable indicator of both degradation and redeposition, this does not imply that all the different kinds of refuse in a deposit (eg animal bones) must have been subject to the same depositional processes. As already discussed, this is particularly relevant in considering the apparent discrepancy between the ceramic and radiocarbon dates for the contents of pit F652. The characterisation of whole refuse assemblages purely on sherd size, as at Segsbury (Lock et al, 2005), is thus of doubtful validity.

At Mount Farm, the animal bones were also examined in terms of degradation as has since become common practice (Wilson 1996). Well preserved bones include a higher proportion of vertebrae and small skeletal elements. Loose teeth, and fragments of mandible and shafts of tibia and radius are more common among degraded bones. Based on these findings, an index of bone degradation was calculated from the skeletal elements of sheep. This showed that bones deposited in the pits were preserved best and were less degraded than, respectively, bones from the ditches and from the waterholes. While not exceptionally preserved, the bones were much less degraded than those at Mingles Ditch, where it was shown that bone degradation is greatest in shallow deposits and least in deep ones. It showed that vertical variability of degradation is generally greater than that in the horizontal plane (Wilson R 1993).

Some horizontal variability was found at Mount Farm, but this appears a less important factor than the depth of burial and context type, but this is not simple. Pits such as F652, probably preserve bones dumped or placed directly in them better than ditches of the same depth because of greater access to bones in ditches by scavenging animals and weathering agents. But other degradation and reworking can occur before final deposition of bones, and this may be evident for the northern area where debris from the Iron Age pits was similar to that of the roughly contemporary ditches F200, F203 and F206. However the waterhole deposits, mainly in the southern area showed the highest degree of degradation and since bones buried below the permanent water table are usually well-preserved, this must have occurred prior to final burial. Trampling of debris around (and possibly in) the waterhole may be the explanation for this. Similar degradation of bones is expected for exposed surfaces around huts and hearths. Overall therefore, both the bones and pottery (Lambrick 1984, 167-9) can provide

indications of the extent to which refuse has been reworked or derived from different background levels of degradation. Although at the level of individual deposits this can be complex, more general differences in activities generating the refuse can be detectable as long as systematic biases are taken into account.

### *Characterising Rubbish*

#### *Background*

At the time of the excavation and initial post excavation analysis at Mount Farm, a number of studies were seeking to explore the nature of structured deposition in terms of characterising domestic rubbish to see whether distinct kinds of activity could be discerned. For example, some studies sought to see whether it was possible to distinguish between initial food preparation, the cooking of meals and their consumption (eg Halstead et al 1978). Various claims were made that such distinctions could be made, and the issue was examined for the Iron Age settlement at Mount Farm (Lambrick 1984, 167-9). There has been much discussion subsequently (eg Hill 1995) about the cosmological and other attributes of so-called 'special deposits,' but this has tended to emphasise non-utilitarian explanations rather than the complex interplay of both utilitarian and 'special' factors that determine the character of assemblages (cf Lambrick and Allen 2004).

The recognition that cosmological and social factors influence the character of late prehistoric refuse does not invalidate the possibility that many assemblages may simply reflect ordinary domestic activities. However, in attempting any characterisation it is important that underlying assumptions are valid. For example what is 'fineware' pottery? The assumption that fine-grained fabrics, or even burnished pottery could functionally be regarded as 'fineware' or 'tableware' is only partly borne out by the analysis of cooking residues at Mount Farm. This suggests that burnished pottery was commonly used in cooking though largely restricted to processes involving heating water. A further complication is that the proportion of burnished ware in assemblages partly correlates with period and different areas in the site.

Halstead et al (1978) sought to use different skeletal elements to distinguish between 'butchery', 'kitchen', and 'table' debris, but their approach was of doubtful validity: no division was made between upper and lower limbs - an obvious distinction between some of the best and some of the poorest meat-bearing parts of any meat-producing animal, and undue emphasis was placed on the relevance of ribs as probable 'table' debris, without consciously allowing sufficiently for differential preservation factors.

Carbonised plant remains was a third common element of refuse considered at Mount Farm, though analysis was limited to the relatively small number of contexts where samples were taken which also had adequate samples of pottery and bone. The taphonomic complexities of carbonised remains present further caveats about how

much can be discerned about the origins of such remains (eg Moffet 2004).

### *Method and Results*

In each category of refuse a simple twofold characterisation can be adopted: for pottery, burnished ('tableware?') vs. non-burnished ('kitchenware?'); for bones, head and foot ('butchery') vs. body and upper line ('food'); for carbonised plant material, cereal grains ('arable produce') vs. weeds and chaff ('waste'). The proportions of these were plotted for each feature in three simple graphs but no clear correlations emerged (Lambrick 1984, 167-9, fig 11.2). The variability in the characteristics of the other features may be seen from the table below.

**Table A1:1 Rubbish characteristics of selected contexts**

Context	% Burnished Pot	% Grain	% Food Bones
Ditch 525	Very high	Lowish	Very low
Pit 655	High	High	Low
Pit 608	High	Low	High
Ditch 257	High	-	Middling
Waterhole 677	High	-	Middling
Ditch 545	Middling	-	High
Pit 138	Lowish	Very High	Middling
Pit 142	Low	Very High	Very low
Waterhole 661/2	Low	Very low	Middling
Gully 116	Low	Middling	High
Layer 106	Low	-	Low
Pit 63	Low	-	High
Pit 127	Low	Middling	-

This suggests that rubbish was derived from various, but often distinct sources and tended to get mixed together when it was disposed of - and perhaps more particularly when it became mixed with soil already containing rubbish. A clustering of points in the centre of the graphs would be a sign that the refuse had got so mixed up as to lose most of its distinctive characteristics, and some contexts do tend to occur fairly centrally in each graph, suggesting that they are deposits containing well-mixed rubbish. There is no positive indication from sherd size that this is attributable to redeposition, although that is possible.

### *Spatial Variations in Settlement Activity*

It was found that relative (ie more qualitative) measures were more useful than purely quantitative analyses, allowing the occurrence of different types of artifact to be compared without being too reliant on uniform samples or the vagaries of degradation and redeposition.

The kinds of material considered to look for differences in activity across the settlement were craft-related artefacts (loomweights, slag and bone objects); pottery usage (cooking residues and burnished pottery); animal bones and butchery (proportion of cattle; proportion of head and foot bones); and cereals (purity of grain versus chaff and weeds). Where possible, in order to reduce systematic biases, distinctions were made by period and sometimes feature type as well as between the northern and southern areas of settlement.

For the Iron Age generally there was a noticeable bias towards more loomweights and slag coming from the northern area but more bone artifacts from the south (see Table A1:2).

**Table A1:2 Distribution of craft-related artefacts**

<b>Northern Area</b>	<b>Loomweights<sup>+</sup></b>	<b>Slag<sup>*</sup></b>	<b>Bone Artifacts</b>
EIA	5	-	5
E/MIA	2	1	2
MIA	22	20	3
<b>Total</b>	<b>29</b>	<b>21</b>	<b>10</b>

<b>Southern Area</b>	<b>Loomweights<sup>+</sup></b>	<b>Slag<sup>*</sup></b>	<b>Bone Artifacts</b>
EIA	-	1	5
E/MIA	4	-	-
MIA	2	6	13
<b>Total</b>	<b>6</b>	<b>7</b>	<b>18</b>

+ 'Loomweights' also include one spindle whorl.

\* Slag recorded by find spots.

+ Bone artifacts all types.

Split by period, the trend is much more pronounced for the Middle Iron Age than the earlier Iron Age, for which there are relatively few craft associated finds. There are again quite strong biases related to type of feature and period, but analysed by type of feature within each broad period the same differences between north and south emerge - again most strikingly for the exclusively middle Iron Age ditches.

A parallel comparison between the northern and southern areas of occupation was made between the proportion of fineware (burnished pottery) and cooking residues in the ceramic assemblages. The proportions were calculated both as a direct percentage of the total pottery from each area and as an average of the individual context percentages. In the latter case, where possible, long ditches such as F206 and F200/203 were divided up according to their separate sections as excavated, so as to maintain a moderately even spread of samples across the site. Contexts of uncertain date were excluded, and the possible bias caused by the correlation between period and feature-

type was tested by calculating the figures for middle Iron Age pits and waterholes separately. There is rather more distinction in the incidence of burnished pottery in the northern and southern areas than there is of cooking residues (Table A1:3).

**Table A1:3 Distribution of burnished pottery and cooking residues**

<b>Burnished Sherds</b>	<b>EIA Pits /Waterholes</b>	<b>MIA Ditches</b>	<b>MIA Pits/ Waterholes</b>
Northern Area	10% (Av 12%)	19% (Av 16%)	–
Southern Area	14.6% (Av 17%)	26% (Av 25%)	24% (Av 27%)

<b>Cooking Residues</b>	<b>EIA Pits/ Waterholes</b>	<b>MIA Ditches</b>	<b>MIA Pits/ Waterholes</b>
Northern Area	11% (Av 11%)	5% (Av 8%)	-
Southern Area	10% (Av 10%)	3% (Av 2%)	10% (Av 8%)

A similar approach was used for the animal bones, the results of which are set out below. The proportion of cattle bones is given as a percentage of the identifiable cattle and sheep bones only; the proportion of head and foot ('butchery') bones, is the incidence of these skeletal elements in relation only to upper limb and body bones, excluding ribs. For the most part these show very little difference, the high figure for cattle bones in early Iron Age deposits in the southern area being due to some particularly rich 'special' deposits (Table A1:4)

**Table A1:4 Distribution of Animal Bones**

<b>Cattle</b>	<b>EIA Pits Etc</b>	<b>MIA Ditches</b>	<b>MIA Pits Etc</b>
Northern Area	41% (Av 39%)	49% (Av 49%)	-
Southern Area	77% (Av 76%)	42% (Av 46%)	55% (Av 54%)

<b>Head And Foot</b>	<b>EIA Pits Etc</b>	<b>MIA Ditches</b>	<b>MIA Pits Etc</b>
Northern Area	43% (Av 37%)	41% (Av 40%)	-
Southern Area	43% (Av 41%)	40% (Av 37%)	-

Finally the same was done for the carbonised material, using a simple percentage measure of the purity of grain in the samples. It is less clear that these are significant (Table A1:5)

**Table A1:4 Distribution of burnished pottery and cooking residues**

<b>Grain</b>	<b>EIA Pits Etc</b>	<b>MIA Ditches</b>	<b>MIA Pits Etc</b>
Northern Area	50% (Av 55%)	55% (Av 54%)	-
Southern Area	38% (Av 37%)	-	-

## Roman

The distribution of artefacts was not studied in such detail for the Roman period as for the Iron Age (for basic data see Appendices 6, 8, 9, 10, 16, 18 and 19). Overall, the evidence of Romano British settlement at Mount Farm suggests it was a very ordinary farm, not well-developed in terms of social status or prosperity. The relatively low occurrence of oyster shells and bird bones compared with those of Barton Court Farm Villa or Dorchester do not indicate much status or prosperity, but it does appear that the management of cattle was close to the Romanised pattern elsewhere.

The limited range of pottery (mainly standard local pots, jars and bowls, with few more specialised forms or imports) includes only 2% of specialist and finewares sherds, a figure which places Mount Farm firmly in a group of rural settlement sites at the lower end of the spectrum in terms of the quality and diversity of pottery assemblages (Booth 2004, 50, fig. 2, see also Henig and Booth 2000, 173, fig. 6.11), which for comparable sites ranges from a mere 0.2% at Old Shifford to 4.8% at Hatford. Early Roman sites with higher fine and specialist ware levels are for the most part either nucleated settlements or higher status rural settlements such as the likely 'proto-villas' at Barton Court Farm and Appleford Sidings with levels in the 15-20% range (Booth 2004, 45-6). The low status of the Mount Farm settlement is further indicated by the absence of coins (with one unusual exception) and the scarcity of many other Roman artefacts.

## FOOD PREPARATION AND COOKING By George Lambrick

While the remains of crops, the bones of animals and objects such as querns and cutting implements provide good evidence of what was eaten and how it was prepared for storage and cooking, the ways in which food was cooked is mainly indicated by the pottery and some other classes of finds. Although this evidence provides only a partial picture, it is nonetheless useful in throwing some light on modes of living.

### Burnt Stones and Possible Cooking Pits

The use of very hot stones for cooking food in small pits, tanks or portable containers (hides, pots etc) is a well-documented and remarkably efficient method of cooking with a variety of applications, allowing boiling, steaming and roasting either in the ground or using other containers such as hides, hollow logs or pots (O'Kelly 1954).

No burnt stones or obvious cooking pits were recorded from Neolithic and Beaker contexts, but in the middle Bronze Age, a hollow full of charcoal and fire-shattered quartzite pebbles (F164) adjacent to waterhole F162 in the top of the ring ditch F101 might have been rake-out from a cooking fire. This is nowhere near on the scale of the large deposits of burnt stone associated with Irish fullacht feidh cooking places (O'Kelly 1954) nor other burnt mounds such as that at Green Park (Brossler et al 2006). It is more comparable to numerous other small pits and hollows on middle and late Bronze Age settlements such as Knights Farm or Yarnton (Bradley et al 1980; Hey et al forthcoming;

Lambrick with Robinson 2008).

The volume of the deposit as found was roughly two cubic metres, but probably decidedly less than a cubic metre if it was actually burnt stone, though it had also been truncated by prehistoric and later ploughing. O'Kelly (1954) showed that different amounts of stone might be used for different types of cooking: half a cubic metre would boil a large leg of lamb; less was required to roast it. This would suggest that if the deposit here does represent a cooking place, only quite modest sized meals were prepared. Although there was some horizontal layering in the deposit (the charcoal and stones being denser at the bottom), there is no evidence of how many episodes of use and reuse the burnt material might represent.

The association of this deposit with cooking is by no means certain. There was no great concentration of animal bones (though the bones in the upper fills of F101 could be contemporary) and no carbonised grain was found. But nor was there any slag or burnt human bone to suggest a metalworking or funerary use. But other burnt mound deposits have been interpreted as having had other uses such as saunas and for cloth processing (Hodder and Barfield, 1991; Denvir u.d.), and if the adjacent waterhole was still extant these are also plausible explanations of the deposit.

The common occurrence of burnt stones in Iron Age rubbish deposits was noticed here as on many occupation sites of this period, and are generally interpreted as having been used as a standard means of cooking. Their presence was not quantified, but there were no obvious major concentrations like the Bronze Age one already discussed, nor were there any obvious gaps in the distribution, though more subtle variations might have been detected had there been more careful quantification. Both burnt limestone and quartzite pebbles were used. A few possible quern fragments were also noted as having been burnt (see Appendix 13).

Small pits with traces of clay lining are quite common on Iron Age settlements and could conceivably have been for cooking with boiling water or simply keeping cooking pits free of contamination of sand and gravel. Others are sometimes scorched by burning which may or may not be associated with cooking. A few examples of such pits were found at Mount Farm, variously early to late Iron Age or Roman in date, but they were not noted as being associated with concentrations of burnt stones.

Amongst the few pits with evidence of in situ burning, the low level of scorching and absence of slag makes it very unlikely that they were metal working hearths, but a variety of other craft or domestic uses is possible. A shallow pit dated to the later 1st century AD, excavated in 1933 (Pit S), contained much burnt stone and other burnt debris and part of the bottom of the pit was burnt red. It seems possible that this pit was connected with cooking, but only a patch of the base of the pit itself was burnt and about half the pottery was redeposited Iron Age material, which may suggest that the burnt debris was derived from elsewhere.

## Hearths, ovens and cooking plates

Hearths may be inferred from the pattern of cooking residues on some of the pottery which suggests the application of direct heat (see below), but unlike Mingies Ditch, where both internal and external hearths were found (Allen and Robinson 1993), any in situ hearths at Mount Farm would have been destroyed by centuries of ploughing.

Some fragments of burnt clay from Iron Age contexts may be from hearths or ovens rather than daub or loom weights, but none could be identified positively. In the late Iron Age and Roman period several pieces of fired clay slabs were found. These so-called 'Belgic bricks' are rather different from the roughly circular clay slabs, some with a flange or low rim were found in early and middle Iron Age contexts at Gravelly Guy (Lambrick and Allen 2004, 384-6), but are fairly common on late Iron Age and Roman sites in the region, though their function is uncertain (Hey 1995, 136-8; Booth and Hayden 2000, 318; Booth and Symonds 2004, 344-5; Biddulph 2005). They may be associated with cooking or food preparation – for example heated up their heat-retentive thickness would mean they could have worked well as griddle plates, and those with a dished surface would be suitable for a fairly liquid pancake or batter mixture. Other uses might be for drying small quantities of grain, herbs or other foodstuffs. Suggestions of differential wear on a few may indicate that they could have formed part of floors, perhaps as hearth slabs which could have been kept clean for various heating purposes.

Roman pits F19 and F340+341 produced lumps of clay with one smooth surface fired hard, varying through the body of the clay to an unfired, unfinished state. This material seems likely to be the redeposited remains of the bottom of an oven or furnace partly sunk into the ground. The firing was not high enough to be the result of metal working, and though slaggy material was present, on analysis it was clearly not metal working slag (see Appendix 13). Kilns are known in the area (see Introduction) but there were no obvious indications of pottery making such as wasters or in situ remains of kilns and stokeholes. It thus seems most likely that this material came from domestic ovens.

## Cooking Residues on Pottery

For the Iron Age pottery an analysis was carried out to establish what could be learnt from macroscopic examination of cooking residues consisting of sooting, thick charred deposits (characterised as 'burnt stew'), limescale and leaching. Details are given in Appendix 5. It was found that a wide range of vessel sizes were used in cooking, including some small bowls pots and with capacities of 0.6 litres or less, but there is no positive evidence from limescaling or thick carbonised residues for the exact use of large pots over c.2 litres.

Pots for cooking relatively solid food (?thick soups and stews) were used low on an open fire, and were almost exclusively unburnished coarseware jars and pots. Some coarseware vessels used for cooking had both limescale and carbonised residues,

indicating some unsurprising diversity in the use of pots.

A significant proportion of vessels associated with heating water were burnished fineware bowls, which occasionally were decorated, but the absence of burnt residue on such vessels suggests that they were not usually used to cook more solid food such as stews. A few small bowls with limescaling extending through holes in their bases could either reflect a double cooker arrangement or perhaps straining curds in cheese making.

Occasional differential leaching of the inside of pots with calcareous temper could result either from boiling relatively acidic fruit or vegetables, or just the physical wear and tear of cycles of soaking and drying and mechanical abrasion from stirring during cooking or from serving contents.

At Claydon Pike Jones (2007, 48-9) found that between a third and half of middle Iron Age pots and jars had external sooting and / or internal burnt residues, but only 10-20% of bowls had cooking residues. Some types of vessel were seldom used for cooking. Like Mount Farm most pots used for cooking at Claydon Pike were small to medium pots and jars (perhaps 0.5 to 6 litres), though sooting was noted on two very large vessels (up to 30 litres). Like Mount Farm, the general conclusion was that people usually prepared and consumed food in small family groups, but preparation and consumption of food may occasionally have happened on a more communal scale.

At Gravelly Guy and Yarnton less correlation was found between fine- or coarse-wares and types of cooking residue, but unlike Mount Farm, the distinction of 'wares' was based more on fabrics, not finish (Lambrick and Allen 2004, 278; Hey and Timby forthcoming). This suggests that any distinction between 'fineware' and 'coarseware' vessels should be made on the basis of finish (and perhaps form), not fabric.

For the late Iron Age and Roman periods cooking residues were less common, perhaps because the quality of the mainly wheel-thrown, higher fired pottery was rather better and less likely to retain such deposits. From the point of view of vessel function, the late Iron Age and earlier Roman pottery reflected a position similar to the early / middle Iron Age, with a restricted range of storage jars, cooking pots and some quite well finished necked jars and bowls, but very few fineware vessels that would be regarded as separate 'table ware'. This gradually changed in the second century in that pots were made in rather finer wares, but it was only late in the site's history that it saw much specialist fineware (see Appendix 6 Roman Pottery report)

## **PERSONAL ORNAMENTS AND CRAFTS By George Lambrick with Alistair Barclay, Philippa Bradley, Lisa Brown, Paul Booth, Joy Browning, and Chris Salter**

### **Personal Ornaments** (Appendix 9, 10)

A small number of objects that can be regarded as personal items of ornament, toiletry or dress were found, and it should be noted that some of the craft-related objects

referred to below, such as fine flint knives and scrapers, and antler combs may well have been objects of personal value or minor status as well as having functional uses.

In the earlier prehistoric period the fine flint knife with the middle Neolithic burial F602 should probably be regarded as an object of status if not ornament (see main report Fig 15, no. 2; but the clearest example of personal ornaments is the pair of pierced boars tusks found with the Beaker burial of a woman is (see main report Fig 16, nos. 4, 5). One of them was found by the waist of the woman and but it is not clear if this is any indication of how they were worn. The almost identical radiocarbon determinations for the both the skeleton and one of the tusks suggest that they were contemporary objects, not ancient heirlooms.

Amongst the Iron Age objects, a broken copper alloy finger- or toe-ring, a fragment of a possibly jet ring or bracelet and an antler strap union are the most obvious personal ornaments (see main report Fig 50 nos. 2, 4, and 8), though this might also include fragments of charred and polished antler (possibly representing 'plaques', combs or other objects) were found in Ditch F505, along with one of the antler combs (see main report Fig 51 nos. 3, 6). The blackened surface of these objects might be accidental but their polished finish suggests that they may have been deliberately charred before being polished to achieve a shiny black decorative finish.

Amongst the Roman objects there were a small number of fibula brooches (three of copper alloy, two iron), an ear scoop from a standard toiletry set, and a small fragment of a possible shale bracelet (see main report Fig 52 nos 1 to 4, 5, Fig 53 no. 7). All are typical personal objects for Roman rural settlements in the region.

## Crafts

No definite *in situ* remains of structures directly connected with manufacturing activities (such as kilns, furnaces, loom settings etc) were identified, but the finds illustrate both crafts practised by the occupants of the site, and those carried out elsewhere whose products were used at Mount Farm. The following brief notes reflect some more detailed observations in the specialist reports.

### *Flint-working* (Appendix 3)

The majority of the flint has good flaking qualities. A small quantity of Bullhead flint (Shepherd 1972) included 21 very similar pieces from early Neolithic pit F160 that may be from the same nodule though no refits could be found. Some poorer quality material that flaked poorly may have been collected from the local river gravels.

Debitage clearly dominates the assemblage but a relatively high proportion of retouched forms were recovered. All elements of the reduction sequence are represented and the assemblages spans the Neolithic to Bronze periods, the most diagnostic pieces being arrowheads.

The flint from the early Neolithic features (including pits 38, 160) has been carefully

worked (Figs 11, 12). These deposits contain both burnt and worn pieces implying that they are domestic debris. Only two cores were recovered from these pits. The early Neolithic flintwork exhibits typical use of a soft-hammer flaking technique.

There was little diagnostic late Neolithic, Beaker or early Bronze Age flintwork, but some of the flints from middle Bronze Age contexts (F101, F164) exhibit typical late characteristics of relatively crude working, reuse of a multiplatform core and denticulated removals from a crude scrapper (Figs 23, 25). This fits well with other evidence for the relative sophistication of Neolithic and early Bronze Age flintwork compared with much cruder, opportunistic exploitation of flint in the period when metal was becoming more widely used (Ford et al 1984)

### *Bone working* (Appendix 9, 10)

The groove-and-splinter technique, already a well-established method of producing blanks from which finished objects could be made, is evident at Mount Farm from the early to middle Neolithic onwards (see main report Figs 11 no. 9, Fig 12 no. 13, Fig 25 no.7). The groove-and-splinter technique continued to be used in the Iron Age and in addition, bones were often split longitudinally and then ground down to create the shapes and surfaces required. From this period onwards bones were also worked with metal knives saws and drills to cut pieces to the desired shape and sometimes decorate them (see main report Fig 50 no. 8, Fig 51 nos. 1 to 3).

Some bones were used pretty much 'as found,' distinctive only for the patterns of wear and polish resulting from their use (eg see main report Fig 50, no. 12, Fig 51 no. 4). Others were simply drilled, tapered or sharpened to points and blades (see main report Fig 50 nos. 9 to 11, 13 to 15). Only a few, almost all of antler, were fully carved, shaped and polished (see main report Fig 50 no. 8, Fig 51 nos. 1 to 3, 5, 6). A few had been burnt and polished, apparently to produce an aesthetically pleasing shiny black surface.

The objects from the Late Iron Age and Roman contexts are less varied and do not present any significant new techniques (see main report Fig 53 nos. 2, 3, 6, 9 to 11). With more metal tools and objects widely available there was probably less reliance on making bone implements for many everyday tasks.

Antler was selected for objects where high tensile strength was needed such as an early to middle Neolithic rake or pick in F160, the possible late Bronze Age handle blank from F162, and the Iron Age combs and strap union. Specific bones from particular species were recurrently selected for other types of implement.

### *Textiles leather and basketry* (Appendices 3, 8, 9, 10)

In early Neolithic pits F160 and F38 scrapers, serrated and retouched flakes were an important component of the flint assemblages indicating that various processing tasks, including hide working, were being undertaken. A range of late Neolithic and Bronze Age knives and scrapers suggest similar usage (see main report Figs 11, 12, 15, 16, 23). Bone points or awls made both from split bones and small round bone shafts were

recovered from early to middle Neolithic, late Neolithic, Beaker and late Bronze Age contexts (see main report Figs 11, 12, 16, 25) which are most likely to have been used in hide working or basketry.

The Iron Age settlement produced a large broken copper alloy needle or bodkin (from early Iron Age pit F75) and a fairly typical range of bone implements that are perhaps most likely to have been used for textiles, leather and basketry, though their exact usage is uncertain. These include so-called 'weaving combs', polished and grooved sheep metapodia, a variety of points, awls and bladed points and a number of pierced bones that may have been used as bobbins or similar objects (see main report Figs 50, 51). Other bone implements perhaps associated with textiles, hide or basketry crafts include polishing and burnishing tools and pointed rib blades.

A typically late Bronze Age pyramidal clay weight and over 40 fragments of typically triangular Iron Age 'loomweights' were recovered (see main report Fig 69), which may be evidence of weaving, though these objects have alternatively been interpreted as 'oven bricks' (Cunliffe and Poole 1991). Slightly surprisingly, no spindle whorls were found.

The range of late Iron Age and Roman objects related to textiles, hides and basketry are more limited and in most respects add nothing to the earlier Iron Age evidence, perhaps indicating a general conservatism of domestic crafts, but perhaps also less reliance on home production. Although a range of bone points and blades were found, there were no spindle whorls.

### *Ceramics (Appendices 4, 5, 6, 7)*

The small number of earlier prehistoric sherds of various periods in the Neolithic and Bronze Age exhibit a fairly typical range of fabrics, most of which would have been produced locally, but there is no particular reason to suppose that they were made at Mount Farm (Appendix 4).

The late prehistoric pottery is made from a variety of predominantly local fabrics, suggesting several different sources in the surrounding area (Appendix 5). Some fabrics such as those containing malmstone and fine glauconitic sand from the Upper Greensand almost certainly come from sources within 4-5km of the site but are nonetheless in the minority and for example nothing like as common as the incidence of malmstone in the late Bronze Age and early Iron Age pottery from the carpark excavations on Castle Hill Little Wittenham which is more or less situated on the geological source of the material (Hingley 1980). Although changing fabric preferences were influenced as much by fashion as technology and geography, the differences between Mount Farm and Castle Hill do suggest that production was very localised for some wares. On site production is certainly a possibility, and may be reflected in the chaff impressions on some sherds (see Appendix 19), but there were no obvious cases of firing damage that might positively indicate this (cf Lambrick with Robinson 2008). However on-site manufacture of other ceramic objects may be indicated by a possible

unfired triangular loomweight and semi-fired lumps of clay in one middle Iron Age pit (see main report Pl 10; cf Allen and Robinson 1993, 43 and pl 12; Lambrick and Allen 2004, 118, 336). In the late Iron Age and through the Roman period similar fabrics were used to make soft-fired flat slabs c. 2-4cms thick (sometimes known as 'Belgic bricks'). These have very smooth upper surfaces and often dense plant impressions from crop processing debris on their base, and may well have been produced on site (Appendix 8).

There was no evidence of late Iron Age and early Roman pottery production at Mount Farm (Appendix 6), but sources of the grog-tempered fabrics are assumed to be local. By the early 2nd century the pottery-producing site at Allen's Pit only 1km from Mount Farm was producing white mortaria in the mainstream Oxford tradition, as well as reduced coarse wares (Harden 1936, 83-94). Although the majority of the output from this site may have been later, it could well have been a source for coarse wares used at Mount Farm. A few butt beaker sherds may be from a probable local production site somewhere in the Abingdon/Dorchester area (Timby *et al.* 1997), and a handful of mica-coated sherds may be from the early 2nd century kilns at Lower Farm, Nuneham Courtenay (Booth *et al.* 1993, 138).

The sources of the Saxon pottery, made from predominantly sandy and/or organic tempered fabrics that are likely to be local. A number of sherds containing malmstone indicate the use of clays close to the Upper Greensand beds that outcrop south of the Thams at Little Wittenham.

### ***Metalworking (Appendix 14)***

Evidence of metalworking comes from iron-working slag mainly from middle Iron Age contexts (73% by weight). Four kinds of slag were originally recorded, as shown in Table A14:1. The presence of fairly low quantities of slagged clay and low density and glassy slags suggest the existence of metal working furnaces or hearths carrying out blacksmithing on a modest scale.

The vast majority of the material (73% by weight) is of middle Iron Age date, and the few pieces that are not come from later contexts with significant amounts of redeposited (or potentially redeposited) middle Iron Age pottery. It is therefore at least possible that all the evidence of metal working on the site is actually of middle Iron Age date.

There is also a notable degree of concentration of the material in particular areas of the site. In the main northern area of excavation the slag was concentrated around the main west-facing penannular enclosure (Ditches 200 and 203, sections J and M) with small items up to 50m away (F263, and the later features F131, F50). In the southern area the slag was concentrated in the vicinity of another penannular enclosure (Gully 539 being one terminal of it with Ditches 505 and 506 immediately adjacent and the later Waterhole 661 cutting them).

The overall pattern fits with the evidence at Gravelly Guy, where the metal working debris was concentrated in more restricted areas than other craft-related debris

(Lambrick and Allen 2004, 339, 344, fig 8.3).

### ***Saxon coopering (Appendix 12)***

The remains of a Saxon tub or barrel reused as a lining for a well came from F43 in the salvage are west of the main site. The only parts that survived were two wooden bands whose overlapping ends were joined by wooden dowels, and two fragmentary staves, one with a rebate for the base (see main report Fig 77). As found *in situ* the diameter of the hoops were both 0.8m and there was no sign of tapering in the staves, indicating that it was a straight-sided tub or barrel, being too big for a bucket. The methods used to make the vessel reflect standard coopering techniques – the staves are chamfered to ensure a tight fit, a rebated groove had been cut to take the base, and the wooden hoops were fairly broad and thin to allow both flexibility and strength. The carefully chamfered ends of the hoops were slightly thicker and carefully lap-jointed and dowelled to ensure a good joint. Stave-built vessels are known from at least the Iron Age onwards and the basic techniques for making them were established early and have not changed much since.

**EXCHANGE** By George Lambrick with Alistair Barclay, Philippa Bradley, Lisa Brown, Paul Booth and Fiona Roe**Earlier Prehistoric**

There is little indication of imported flint: most seems to be locally derived, the outwash from the chalk providing a moderately good source of raw material. The better quality flint, particularly the blades in F602, seem to be from the chalk

The evidence for exchange from the Neolithic to Bronze Age deposits at Mount Farm is limited. The leaf-shaped arrowhead (see main report Fig 12 no. 7) is sufficiently fine and large to have been an item of exchange and much the same applies to the middle Neolithic blades from grave 602. The latter, particularly the finest of them, were almost certainly made from chalk flint, but there is no evidence of mined flint. The assemblages vary in their sources and the stages of work represented by the knapping debris. Some like 906 are dominated by gravel flint, others like 343 contain good quality flint perhaps brought from elsewhere.

Three pieces of pottery are most likely to have been obtained by exchange - the Ebbsfleet bowl, the Beaker and the Collared urn (Appendix 4). The beaker is perhaps the least likely of these, being somewhat crude and almost undecorated but for random finger nail impressions. Other pottery may have been acquired too, but there is no positive indication from the fabrics that they originated elsewhere (the flint gritting is calcined flint probably derived from waste modules of burnt flint obtained for other purposes rather than indicating an origin on the chalk).

**Iron Age**

The evidence of Iron Age exchange is more useful, at least in the sense that the occupation debris excavated is more likely to represent a settlement assemblage, and includes a wider range of objects likely to have been obtained by exchange, though even so the range is limited.

These include a number of stone objects (see Appendices 9 and 13). The saddle quern from the infill of the middle to late Bronze Age waterhole (F162) – and so possibly of early Iron Age date – is from the lower calcareous grit which outcrops c 5 km away at Sandford (see main report Fig 25, no. 8, Appendix 13). Other fragments of this type of stone came from early Iron Age pit F541 and middle Iron Age ditch F200/203. Other stones brought to the Iron Age settlement include a fragment of nearby Lower Greensand (possibly a quern) from early Iron Age pit F671, and a piece of quartzitic sandstone of uncertain origin from middle Iron Age ditch F200. A number of pieces of burnt limestone that were retained are from Portland or Corallian beds which occur c 2.5km to 8km from the site.

A tiny fragment of jet, possibly from a bracelet, from F200/203 (see main report Fig 50 no. 4) is evidence for the most distant exchange link, having originated at least as far

away as Whitby. This is the only evidence for any objects of non-local exchange reaching the site. It is unique to the region and a most unusual find in southern Britain, where objects made of shale from Kimmeridge on the Dorset coast are much more common (eg at Gravelly Guy – Lambrick and Allen 2004, 368 Fig 8.8).

Another commodity which probably reached the site by exchange is iron, which may well have been obtained locally as scrap. There are pieces of iron plate with rivets from F505, and less certainly stratified, fragments of small bars or nails from F206 and L106 (see main report Fig 50 nos. 5-7). The slag from the site, including pieces from F505 and F206 is probably all from smithing operations, including welding, rather than smelting of ore (Appendix 9). The two bronze objects from F106 (see main report Fig 50 nos. 2, 3) may have been obtained as complete objects.

It is almost impossible to determine how much pottery was made on a purely domestic basis, but it is sometimes suggested that a wide variety of fabrics is evidence of flourishing exchange (eg Bradley and Ellison 1975). In the Upper Thames Valley significant contrasts have been noted in the variety of pottery fabrics from essentially similar sites on similar geology, as in the case of Mingies Ditch (Wilson D 1993) where the vast bulk of the pottery is remarkably uniform in fabric and generally of much poorer quality than the pottery at nearby sites, notably Watkins Farm (Allen 1990) and Gravelly Guy (Duncan et al 2004).

The range of clay sources may have been much more limited for those sites than for Mount Farm, but the very low level of burnished and decorated pottery (which in the case of Mingies Ditch contrasts strongly with nearby Gravelly Guy and Watkins Farm) also seems to bear out a possible distinction between sites such as Mount Farm with a noticeable diversity of pottery fabrics and finishes, of which a significant proportion may have been obtained by exchange, and sites like Mingies Ditch where the majority was probably made on site.

This is not to say that the Mount Farm pottery was not made locally. The fabrics strongly suggest that it was, and that the wide range of locally available clay sources were fully exploited. The sandy wares are dominated by material probably derived from the local gravels. A few sherds of coarser sand may include Lower Greensand which is available from around Culham, but the most distinctive sandy ware is characterised by very fine glassy quartz and black glauconitic grains which is comparable to Upper Greensand. This fabric occasionally occurs with pieces of flint or shell and rounded pieces of what appears to be Malmstone (see below). Alluvial loamy clay from Benson is superficially comparable and it seems likely that the pottery was made from this type of outwash deposit. Sources are likely to have been 7km or 8km away just across the Thames or the Thame.

Well rounded non-calcareous white sandstone inclusions occurred abundantly in another sandy fabric (again occasionally mixed with the odd piece of flint or shell) is probably Malmstone. This fabric is abundant in pottery from late Bronze Age and early

Iron Age occupation layers on Castle Hill, Little Wittenham just across the river from Dorchester which is adjacent to a field called 'Malmstone Field' and which is situated on a Malmstone outlier of the chalk (Hingley 1980). Again the well-rounded shapes of the pebbles may suggest that an outwash deposit was being exploited.

Alluvial deposits seem to be more specifically represented by the fairly fine wares with a wide mixture of inclusions, including organic matter and, most characteristically, very fine fragments of non-fossil aquatic and other snail shells. These are likely to derive from the use of nearby fresh water alluvial clay.

Other shelly fabrics are variable: the calcareous gravel abundant at Mingies Ditch and Claydon Pike is not common here. It is more likely that shelly fabrics may be derived either from shell-rich outcrops of Kimmeridge or Gault clay or possibly from the addition of tempering from crushed limestone, perhaps from Portland or Corallian beds 2.5km to 8km to the north.

## Roman

The extent to which the minor settlement at Mount Farm was meshed into the local exchange network in the Roman period is rather doubtful. Typically for a low status farming settlement, there are only a few brooches and other personal objects (see main report Fig 52), and it is not until quite late on in the sequence that even local fineware pottery becomes at all common on the site (Appendix 6). The only coin, an unusual semis of Nero (c.65 AD) that would be more at home on a military site (Appendix 11), is possibly evidence for contact between the inhabitants of the site and the nearby Roman garrison at Dorchester, but the lack of any other coins suggests that they were not fully embedded in the money economy.

The small fragment of a possibly shale ornament and the querns are of some interest indicating quite a wide range of sources (Appendix 13). These probably reflect Dorchester's connections with some pieces of Lodsworth stone from the south, a piece of Hertfordshire Pudding stone from the east, several examples of Old Red Sandstone from the west; and various pieces of Culham Greensand and Lower Calcareous Grit from local sources to the north and west. These are generally typical of the wider pattern of the principal sources of quernstones in the Thames valley, but lack internationally traded lavas and sources to the north of the Thames valley such as Derbyshire and the Midlands found on some higher status sites (Booth et al 2007).

In addition to local farm tracks like those at Mount Farm there were many other minor roads that linked in to the main north-south route between Alchester, Dorchester and Silchester. For example the clear pattern of roads in the vicinity of Long Wittenham (Baker 2002) - would have provided links with other locally important places such as Abingdon and Frilford. Another heads north-east past the Queensford Mill cemetery up the valley of the Thame. It is soon lost, being known only from cropmarks, but it is correctly aligned to veer east along the ridge towards Thame and Aylesbury. A more

southerly route east can be seen as a branch of the Lower Ickneild Way joining the Silchester road at the dog-leg just south of Dorchester (Henig and Booth 2000).

### **Saxon**

It is clear from cemetery sites like Wally Corner that the Saxon community was linked into well-established and very extensive trading networks for prestige objects, but the character of more local exchange to supply domestic needs is less clear. The quantity of pottery and other objects of Saxon date at Mount Farm is too limited to reveal much in this respect, though it is of some interest that the pottery fabrics include a few sherds containing Malmstone which outcrops locally just across the river at Castle Hill Little Wittenham.

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