Chapter 14: Clifton Meadow & The Thames Floodplain Archaeological Sequence

INTRODUCTION

Excavations were carried out on Clifton Meadow, land belonging to the Northmoor Trust alongside the Thames, to examine a series of cropmarks visible in the adjacent fields belonging to Northfield Farm, part of Oxfordshire SAM 180. These cropmarks included a field system on a north-west alignment probably cut across by a Roman trackway (Figs 14.1 and 14.2). Excavations of part of the Northfield Farm complex in 1977 had established that shallow gullies on the same north-west alignment were cut by the trackway ditches, but had failed to find any dating evidence for them (Gray 1977). Subsequent examination of the cropmarks had suggested that they might be of Middle Bronze Age date (Yates 1999; Baker 2002), but this had not been substantiated.

AIMS

The aims of the work were as follows:

To aim to trace the north-west field ditch and the Roman trackway through geophysical survey to the edge of Clifton Meadow and, if possible, into it, to establish as full a picture of the system as possible.

To excavate and date the north-west field system, and if possible, to trace this onto the floodplain, where preservation of the feature from ploughing was likely to be better, and where waterlogged environmental remains might survive to provide the environment at the time.

To do the same for the Roman trackway, in order to see if a surface to the trackway could be found, and to establish the environment around the trackway both during and possibly after its use.

It was also hoped to expose a long alluvial sequence, and to date this using the trackway and the earlier system as fixed points, supplementing them with radiocarbon dates on material through the sequence where possible.

GEOPHYSICAL SURVEY
by A. D. H. Bartlett

Magnetometer survey using both a Bartington machine belonging to R Ainslie and the Geoscan machine was used at the north end of Northfield Farm to trace the ditches of the trackway and the earlier field system northwards to the edge of the field (Figure 14.1). Trenches 11 and 12 were then laid out in line with the surveyed ditches just within Clifton Meadow. Further magnetometer and resistivity survey was then carried out within Clifton Meadow north of Trench 12, partly to test the response obtainable from magnetometer and resistivity surveys on alluvial ground (see

methodology given in Chapter 5). This showed a number of north-south linear features (e.g. W), which appeared to represent a northward continuation of the trackway (T). A 60m square block here was surveyed both with Bartington and Geoscan magnetometers. The Bartington version is shown, with a 30m square of Geoscan data projecting to the north. The same linear features were detected also by a resistivity survey of this area (as shown on Figure 14.1). Further survey to the north was prevented by the presence of a recent pond, by the increasingly thick vegetation cover and by the evidence of an auger transect running north, which indicated a deepening of the alluvial sequence not far north. The continuation of the trackway was subsequently confirmed by Trenches 20 and 21 dug further to the north.

Subsequently an additional area of magnetometer and resistivity survey was carried out in the field immediately west of Clifton Meadow, in an attempt to trace the north-west aligned field system ditch further north. This was unsuccessful, but shows a broad east-west negative anomaly (no. 6 on Figure 14.1), possibly indicating a former watercourse or silted channel. There may also be a north-south linear feature visible in this plot.

STRATIGRAPHIC NARRATIVE

Geology and Topography

Northfield Farm and the adjacent areas sit upon gravel terrace deposits of the first and second terrace. The ground is fairly flat, but south of Clifton Meadow and in the field to the west drops slightly close to or at the field edge onto the meadows beyond, which were therefore believed to lie on the alluvial floodplain. All of the land belonging to Northfield Farm and to Mrs Bowditch on the west is cultivated; Clifton Meadow itself is used as traditional meadowland.

Trench 11

Trench 11 measured 3.6 m by 10.3 m and was excavated in the very corner of Clifton Meadow in the hope of catching the northwest-southeast aligned ditch traced by geophysical survey continuing from the cropmark field boundary. The ditch (11008) was found within the trench (Fig. 14.3, Section 11005); it measured 1.7 m wide and 0.54 m deep. There were five fills, all probably due to natural silting, particularly alluviation, but the ditch did not contain any waterlogged deposits. No finds of any kind were recovered from the ditch, which therefore remains undated.

The excavation also revealed five shallow features (11003, 11006, 11015, 11017 and 11019) cut into the natural gravel (11022) (Fig. 14.3). These features were irregular in form, measuring between 0.4 m and 1.7 m wide with depths that varied from 0.1 m to 0.23 m. The fills of these features were sterile clayey silts, and they were probably either tree-throw holes or hollows within the gravel.

The features were sealed by topsoil (11000) and by two layers of alluvium (11001 and 11002). The upper alluvial deposit (11001) was 0.1 m thick and contained fragments of post-medieval ceramic building material. The lower deposit, measuring 0.3 m thick, sealed all the archaeological features in the trench and came down directly onto natural gravel, so may have been reworked by ploughing.

Trenches 12, 20 and 21

The geophysical survey traced the ditches from the gravel terrace to the edge of Clifton Meadow (see Bartlett 2005). Trenches 12, 20 and 21 lay across the line of the trackway ditches beyond the limit of the cropmarks (Fig. 14.3). It was hoped that waterlogged environmental remains would be recovered from the trackway ditches and would contribute to an understanding of the Roman landscape at the time the trackway was in use.

Trench 12

Trench 12 was excavated on Clifton Meadow, immediately north of the limits of the geophysical survey, and measured 27 m by 3.6 m (Fig. 14.1). Unexpectedly the excavation came down onto gravel terrace deposits at relatively shallow depth (0.36-0.46 m), showing a very gradual fall-off to the terrace. The excavation exposed three parallel ditches on a north-south alignment (Fig. 14.3: 12003, 12034 and 12016). A fourth ditch (12036), on the same northeast-southwest alignment as the prehistoric field system, was exposed in the eastern half of the trench, and the trench was extended to obtain the relationship between 12036 and 12016.

Prehistoric

Ditch 12036 was investigated in two places, and had a shallow, U-shaped profile 0.7 m wide and 0.24 m deep (Fig. 14.4). There were two fills at the terminal, and three brown or grey sandy silts further along. There were no finds, but the ditch was cut by the eastern ditch of the Roman trackway (12036). At the south-west end the ditch terminated near a large pit (12024), which was 1.54 m in diameter and 0.4 m deep. It contained three fills, sandy silts ranging in colour from light orange-brown to mid olive-brown. There were no finds from the pit, but this was cut by the western Roman trackway ditch 12034. Both the pit and the ditch were sealed by a layer of clayey silt around 0.2 m deep (12002), apparently before the Roman trackway ditches were dug, and so are most likely prehistoric.

Roman

Layer 12002 that covered ditch 12036 appeared to have been cut by Roman ditches 12034 and 12016 (Fig. 14.4). This soil directly overlay the gravel elsewhere along the trench, and may therefore have been reworked by ploughing. The two Roman ditches formed part of a probable trackway, traced from further south. To the west of these two ditches, and running approximately parallel, lay a third Roman ditch (12003). Continuations of two of these ditches were also detected in Trench 20.

The ditches were all filled with sterile layers of alluvial silts. The westernmost, ditch 12003, ran just east of north, and measured 1.3 m wide and 0.4 m deep. It contained three deposits of sandy silt, which ranged in colour from mid brown to green-brown. Further east lay ditch 12034, the western trackway ditch. This ditch ran on a slightly different alignment, just west of north, and was 1.8 m wide and 0.4 m deep, with gently sloping sides and a rounded base. It contained from two to four silts or clayey silts, varying in colour from orange-brown to greenish-brown silts. There

were no finds. This ditch was also visible in Trench 20 (20019) and possibly Trench 21 (21004).

Some 10 m to the east, trackway ditch 12035 ran parallel to 12034 just west of north and truncated earlier ditch 12036 in the northern extension of the trench (Fig. 14.4). Ditch 12035 was of two phases. The original cut (12015) (Fig. 14.4, Section 12002) measured 0.38 m wide and 0.44 m deep and contained a single deposit of mid brown silty sand. If the section is to be believed, there may have been some alluviation sealing the ditch before it was recut as a slightly larger ditch, (2016) (Fig. 14.4, Section 12002), 1.24 m wide and 0.68 m deep, with a flatter base than the U-shaped profile of the original cut. The recut contained a more complex sequence of fills, comprising four green- or grey-brown sandy silts, but there were no finds. This ditch was also picked up some *c*. 100 m further north in Trench 20 (20031).

Ditches 12034 and 12035 both cut the natural (12022) and the soil overlying it (12002), but the relationship between ditch 12003 and this soil was indistinct. All of the features were overlain by an upper layer of alluvium (12001) and topsoil (12000). No artefacts were recovered from any of the alluvial layers.

Trench 20

The trackway ditches were traced for a further 60 m north of Trench 12 using magnetometer and resistivity survey. Auguring was also carried out at 10 m intervals to examine the deposits for deeper sequences of alluvium; these were found 80 m north of Trench 12. Trench 20 (Figs 14.3 and 14.4, Section 20003) was excavated in line with the trackway, but far enough north to be within a deeper sequence of alluvium.

Trench 20 was excavated (largely by machine) through a sequence of alluvial deposits to a depth of 0.75-0.8 m. At this point the deepest deposit exposed was a sterile orange-brown sandy clay, which was overlain by a thick layer of yellowish-brown clay 20003 = 20011. Both trackway ditches were cut from the top of this layer; thin layers of gravel and silt dug out of the ditches were found on the inner side of the trackway (20002) and were labelled 20026 east of the west ditch and 20028 west of the east ditch, perhaps forming banks. The ditches were thus 0.55 - 0.60 m deep, some 0.2 m deeper than the same ditches as they crossed Trench 12. The eastern trackway ditch, part of group 12035, was here numbered 20031. It measured 1.82 m wide, with steeply sloping sides and a slightly rounded base. Ditch 20019, part of the western ditch group 12034, measured 1.2 m wide with a very similar profile. The gap between the two upcast banks was approaching 5 m, and although specks of gravel were visible on the surface of 20003 in places between them, it is clear that the trackway was not surfaced at this point, nor did the section show any trace of wheel ruts or other marks upon the trackway surface.

The basal fills of both ditches were brownish-black silty peats containing lenses of clay; in the eastern ditch the peat was relatively clean on the west side (layer 20014), while on the east it also contained stones, gravel and calcareous flecks (layer 20013). This might suggest that erosion was more from the outside than the inner trackway side of the ditch. Closer examination of the organic layer 20014 has shown that it consisted of three separate peat units, with lenses of alluvial clay in both the lowest and highest of these (see Macroscopic Plant Remains, below). A similar depth of dark brownish-black silty peat (layer 20018) was found in the western ditch 20019. As illustrated it might appear that the ditches were cut from higher up the sequence,

but this would not explain the upcast from the ditches; the alluvial layer 20007 was deposited when the ditches, particularly 20031, had largely silted but were still choked with growing vegetation, so that the alluvium was kept largely out of the ditches themselves. Subsequent clay alluvial layers like 20009, 20017 and 20004 were deposited when the vegetation had finally died down, and probably at a higher level. It is possible that when fluctuations in the water table led to the decay and shrinkage of the uppermost organic fills, these overlying alluvial layers slumped into the top of the ditch. Alternatively, the deposition of layer 20007 either side of the ditches meant that when the vegetation died down, there remained a shallow ditch through which water could flow and silt accumulate. The different colours of the alluvial sediments over the ditch and to either side is also in part the result of differential chemical leaching.

There were no artefacts, but waterlogged seeds from the base of the ditch (layer 20014) gave a radiocarbon date of 80-250 cal AD (Poz-12533: 1835±30). The alluvium was capped by 0.2 m of topsoil (20000).

Trench 21

Trench 21 was excavated by machine 30 m north of Trench 20 to look for a continuation of the trackway ditches (Fig. 14.3). The trench was only excavated to a depth of 1 m, bottoming on a compact orange-brown clayey gravel 21003. It was overlain by a blue-grey gleyed clay 21002, which was interrupted by a band of sandier clay some 3.5 m from the east end of the trench. This was approximately in line with the western trackway ditch (12035), and it is just possible that this was the last vestiges of the ditch running out as the floodplain deepened. It was however undated, and may have been unrelated.

WATERLOGGED PLANT REMAINS *by Gareth Tye*

Introduction

Excavations on Clifton Meadow, situated in the first gravel terrace of the Thames floodplain, revealed a Roman trackway ditch 20031 containing waterlogged peat deposits covered by alluvium (see Plate 14.1 and Fig. 14.4). A sediment monolith column was taken through the ditch and was sampled for macroscopic plant remains in order to ascertain the nature of the floodplain and surrounding landscape during the Roman period. To date, few waterlogged sites of Roman age have been studied in the Upper Thames (Parker and Chambers 1997; Parker 2000).

Methods

In the laboratory, the core was described and then sub-sampled for both physical and plant macrofossil analysis. Physical analyses included the bulk density, moisture content and loss on ignition (LOI) at 550º C for 2 hours, following the procedure of Bengtsson & Enell (1986). Results are presented graphically (Figure 14. 5).

Sub-samples of 50 cm^3 of sediment were taken at selected intervals from the waterlogged peat and prepared for extraction by disaggregation using deionised water.

The seeds were extracted using the methods described by Mannion (1986a) and Wasylikowa (1986) with a fine brush under a low power Motic SMZ-140 series light microscope. Seeds were refrigerated in glass vials filled with deionised water to prevent drying.

All plant macrofossil remains were identified using the British seed reference collection, Oxford University Museum of Natural History. Results from both the physical and plant macrofossil analysis were presented using the software program C^2 (Juggins 2003). The seeds were classified and presented in the plant macrofossil diagram (Fig. 14.6) according to their habitats. Plant nomenclature follows that of Clapham et al. (1989).

Results

The sediment monolith recovered was 1.16 m in depth. Based on descriptions made in the laboratory, a total of eight separate lithostratigraphic units were identified (see Table 14.1). Units were then combined into zones, based on the sediment origin, for the purposes of discussion.

Sediment stratigraphy

Zone 1 - Silts (Unit 1)
Zone 1 extends from the base of the ditch to 112 cm, is dark brown in colour and has a fine, silty texture. The zone exhibits and increasing bulk density, along with a decreasing moisture content and organic content (see Fig. 14. 5). When the core was sub-sampled for macrofossils, it was also apparent that this zone had a high gravel concentration.

Zone 2 - Organics (Units 2, 3 and 4)
Zone 1 is overlain by the waterlogged organic deposits from 112-72 cm. Zone 2 is a brown peat with a sandy, fibrous texture that is characterised by a comparatively high organic and moisture content, and a low bulk density (Fig. 14.5). The zone can be split into three units.

Unit 2 spans from 112 to 100 cm and contains a diffuse band of light grey alluvial peat (silty texture) from 111-105 cm. This section corresponds to a low organic and moisture content, while bulk density shows a slight increase. This band of alluvial peat is not homogeneous but diffuse, indicating that accumulation of the organic material continues (Fig. 14.5), but that the ditch is starting to silt up.

In Unit 3 (from 100 to 90 cm) the sediment is a more homogeneous dark brown peat, with a sharp upwards increase in organic content (Fig. 14.5). This is mirrored by the moisture content, while bulk density decreases.

Unit 4 spans from 90 to 72 cm and is characterised by a lighter brown, more herbaceous peat. It does have a lighter brown/grey alluvial peat band from 88 to 82 cm, but it is unclear whether this represents a break in accumulation. The band does, however, coincide with a sharp decrease in organic and moisture content and an increase in bulk density (Fig. 14.5). The organic and moisture content then recover,

but start to decrease again towards the top of this unit (80-72 cm). This corresponds to a diffuse switch from the organic zone to the alluvium zone.

Zone 3 - Alluvium (Units 5 and 6)
There is a distinct change, though gradational, between the peaty organics of zone 2 and the alluvial clays in zone 3. Zone 3 (72 to 38 cm) is a band of silty textured, dark grey alluvium (Unit 5) with orange mottling from 2 to 38 cm (Unit 6). This zone is related to a decrease in organic content, a decrease in moisture content and an increase in bulk density (Fig. 14.5).

Unit 5 is an homogeneous alluvium, while Unit 6 has an orange mottled appearance. This evidence indicates that the accumulation of Unit 6 coincided with fluctuations in the water table, resulting in oxidation and reduction, which caused the mottled appearance.

Zone 4 - Subsoil and Topsoil (Unit 7 and Unit 8)
Zone 4 spans from 38 cm to the surface of the trench, and comprises the subsoil and topsoil. The organic content shows a slight increase through Unit 7, but remains low, corresponding to a decreasing moisture content and bulk density.

Topsoil extends from 22 cm to the trench surface. As expected, this unit has more fibrous, herbaceous matter and shows a varied physical composition.

Plant macrofossil results

The plant macrofossil analysis was undertaken on the whole of the sediment monolith, but visible remains were only preserved between 116 and 74 cm (Zones 1 and 2). This corresponds with the silts and waterlogged peat deposits (Plate 14.1 and Fig. 14.5). The results are presented in Figure 14.6 and show changes in the abundance of flora with depth. A full species list is presented in Table 14.2. Overall the preservation was excellent except for the uppermost few samples, which showed some signs of deterioration, so selective preservation may be present in these samples. For the purposes of discussion, the zones have been split into their constituent units.

Unit 1 - Silts (116-112 cm)
The basal unit is dominated by seeds of the aquatic and marshland species *Nasturtium* cf. *aquatica* (water cress) and *Mentha* cf. a*quatica* (water mint). Both species are indicative of moving water in the ditch, with the water mint growing beside the water.

The only tree and shrub seeds present in the monolith occur in this unit, one *Salix* (Willow) bud and one *Rubus fruticosus* (blackberry) seed. This is insufficient evidence to suggest that trees were a major component of the landscape, although limited numbers may have grown close to the ditch. The scarcity of tree and shrub seeds in the monolith may be explained by accelerated forest clearance during the Iron Age and Roman periods (Parker 2000).

There is a strong grassland component to this unit. Notable seeds are those of *Lychnis flos-cuculi* (Ragged Robin), *Filipendula ulmaria* (Meadowsweet) and *Hypericum* sp. (St Johns-wort); all indicate a wet, open meadow environment.

Unit 2 - Organics (112-100 cm)
Unit 2 is characterised by an overall decline in the aquatic species *Nasturtium* cf. *aquatica* (water cress), which coincides with a slight increase in marshland species such as *Mentha* cf. *aquatica* (water mint), *Carex* sp. and *Epilobium* sp. (Willow herb). This switch from moving water species to those that prefer more stagnant water relates to the filling in of the ditch, shown by an increase in organic content and a diffuse band of alluvial peat between 111 cm and 105 cm.

There are now low numbers of disturbed ground species in this unit. A peak at 108-106 cm also corresponds to peaks in the seeds of grassland and pasture habitats (Fig. 14.6). The grassland species are dominated by *Prunella vulgaris* (Self Heal), *Linum catharticum* (Fairy flax) and *Lychnis flos-cuculi* (Ragged Robin). This flax is the wild species, not the cultivated form. The presence of seeds of *Ranunculus* sp. (Buttercup) is indicative of wet meadows and pastures. *Rhinanthus* sp. (Yellow Rattle) is also present in this unit, and is thought to be diagnostic of hay meadow environments (Baker 1937).

Unit 3 - Organics (100-90 cm)
Unit 3 sees the continued decline and final disappearance of the aquatic seeds (Fig. 14.6). Marshland species also show a slight decline through this unit. There is little evidence of disturbed ground, while pasture shows a slight increase with the presence of *Rumex* sp. and *Rumex conglomeratus* (Sharp Dock). These seeds are indicative of damp grassy places and waste ground.

The highest concentration of seeds in this unit represents the grassland habitat, which peak at 96-94 cm (Fig. 14.6). The highest counts were for the damp environment species *Lychnis flos-cuculi* (Ragged Robin) and *Myosotis* sp. (Forget-me-not). Another notable species is *Linum catharticum* (Fairy flax), which is indicative of grassland.

Unit 4 - Organics (90-74 cm)
Between 90 and 84 cm there is a sharp decrease in organic material and moisture content, with an increase in bulk density (Fig. 14.5). This corresponds to a diffuse layer of lighter sediment, possibly alluvial peat, from 86-80 cm. During this sequence there were low seed counts for grassland, pasture and disturbed habitat species (Fig. 14.6). Marshland species show an opposite trend, increasing during this period.

The species that were present include *Rumex* sp., *Rumex conglomeratus* (Sharp Dock), *Lychnis flos-cuculi* (Ragged Robin) and *Prunella vulgaris* (Self Heal). All are indicative of damp meadows and pastures.

The marshland species are once again dominated by *Mentha* cf. *aquatica* (water mint) and *Carex* sp. Other seeds present include those from *Juncus* sp. (Rush) and *Valeriana* sp. All grow in damp marshy places or by streams and ponds.

Discussion

Evolution of the ditch

After construction, the ditch would have had water moving through it. This is indicated by high percentages of Nasturtium cf. aquatica (water cress), which grows in flowing water, in the lowest unit. The ditch then started to fill in it organic matter and various episodes of alluviation. This is shown in Fig. 14.6 by a decrease in the number of aquatic seeds, and an increase in marshland species towards the top of the sequence, such as *Mentha* cf. *aquatica* (water mint), *Carex* sp. (sedges) and *Epilobium* sp. (Willow herb). Two possible episodes of alluviation were found in Zone 2, with alluvial peat bands from 111-100 cm and 88-82 cm. Both these episodes coincide with low organic and moisture contents, and with increases in bulk density (Fig. 14.5). Seeds from the lower of these episodes have been dated by radiocarbon assay to 80-250 cal AD (see Table 14.4 below, Poz-12533: 1835±30).

The mechanism for the alluviation is unclear. Robinson and Lambrick (1984) suggest that ploughing and burning during the Roman period exposed soils to erosion. The expansion of arable practices onto heavier soils, the introduction of ditch drainage and improved ploughs could also explain flooding and alluviation in the Roman period.

A carbonised Carex sp. (sedge) seed was identified at 108-106 cm, which falls within one of the two alluvial peat bands. The presence of a single seed seems inadequate to explain the alluviation in the ditch. No other seed evidence indicates that arable or cultivated crops were present on this part of the floodplain, or that disturbed ground was a significant component of the local landscape.

The onset of renewed flooding, alluviation and raised water tables can also be correlated to forest clearance during the Iron Age and Roman period (Parker 2000). Evidence for clearance comes from the pollen records at Sidlings Copse (Day 1991). The absence of woodland species throughout most of the sediment monolith supports this, suggesting that the episodes of ditch alluviation occurred as the result of flooding.

The Floodplain Environment

The results from the investigation of the waterlogged biological remains from Clifton Meadow suggest that the Roman landscape was very open with little wood or scrub vegetation. The results also indicate landscape management, with evidence of hay meadow species such as *Rhinanthus* sp. (yellow rattle), which is thought to be confined to this environment (Baker 1937). There is also evidence for grassland, along with episodes of light grazing (Fig. 14.6). The absence of cereals suggests that no cultivation took place in the immediate vicinity of the ditch, which is in keeping with the idea that the floodplain in the Upper Thames Valley was used primarily for grazing and hay meadows, while arable was restricted to the upper, drier terraces (Young 1986). This management of the landscape during the Roman period was in contrast to the nature of Iron Age occupation, which as a result of climate deterioration was characterised by increased grazing and agricultural intensification (Miles 1986).

Comparison with other sites in the region

Results from the trackway ditch show some similarities to those from other Roman deposits on the first gravel terrace in the Upper Thames Valley. Waterlogged remains

from Watkins Farm, Northmoor, indicate a similarly open environment with little evidence of woodland and scrub (Robinson 1990). Limited evidence for this at both sites comes from the remains of Rubus Fruticosus (Blackberry) seeds and Salix sp. (Willow) buds. Both sites also have strong grassland elements, with the seeds identified here being very comparable to those at Watkins Farm.

Roman deposits at both Farmoor (Lambrick and Robinson 1979) and Appleford (Robinson 1980) indicate a similarly unwooded landscape to that at Clifton Meadow, with species indicative of grazing and hay meadow environments present at all three. The settlements at Farmoor and Appleford, however, had strong arable components, with cultivated crop seeds such as Triticum spelta (spelt wheat) and Linum usitatissimum (flax) present. Although the origin of these seeds was not clear at Appleford, Robinson suggested that they would have been grown in fields close to the site, whereas the results from Clifton Meado do not support arable cultivation in the immediate vicinity. Linum catharticum (Fairy flax) was found, but it is the wild variety.

POLLEN *by Adrian Parker*

The pollen from trench 20 corroborates the plant macrofossil work carried out on the same deposit sequence. A total of six samples were prepared using the standard techniques outlined in Moore *et al.* (1991). The pollen residues were stained with safranin and mounted in glycerol jelly. Slides were scanned for their pollen content and preservation made using a Nikon Eclipse E400 light microscope under bright light with phase contrast being used for critical determinations. The pollen nomenclature is based on Clapham *et al.* (1989).

Pollen was well-preserved in the lower half of the core (Table 14.3). The uppermost two samples analysed (20cm and 40cm) contained low numbers of poorly preserved grains.

All of the samples were dominated by herb pollen characteristic of open conditions with a background of low trees and shrubs. The samples show a general infilling of the ditch, initially with open water colonised with *Alisma plantago-aquatica*. Plant macrofossils of *Alisma plantago-aquatica* were also present along with Nasturtium *aqauaticum*. However, pollen form the latter species was not present. The surrounding landscape pollen assemblage is indicative of floodplain haymeadow/grassland with *Rhiananthus, Prunella, Plantago media*, Ranunculaceae, *Rumex* spp. and Compositae Liguliflorae present. Evidence for damp grassland/marsh elements include *Cerastium*, Caryophyllaceae (*Lychnis flos-cuculi* seeds were present), Cyperaceae and *Mentha aquaticum*. The plant macrofossil evidence, reported previously, suggest that these marshland elements are likely to be derived largely from the infilling of the ditch itself though some of the sum may have also been derived from the floodplain grassland/haymeadow itself.

Tree and shrub pollen is low throughout the sequence accounting for a maximum of 8% and 6% respectively. The tree and shrub pollen suggest some remnant *Quercus* trees in the landscape along with *Alnus* and the occasional *Salix*, which are likely to

have been present on the floodplain or riverbank. Scrub elements are indicated by the presence of *Crateagus* t. and *Rubus* t. pollen and the seeds of *Rubus fruiticosus* agg.

It is likely that the ditch infilled quickly and its existence was short-lived.

RADIOCARBON DATING

One sample from context 20014 at the base of ditch 20031 was submitted to the Poznan Radiocarbon laboratory for accelerator mass spectrometry (AMS) dating Table 14.4). The determinations have been calibrated using OxCal v3.10 and atmospheric data from Reimer *et al*. (2004).

The date falls within the earlier half of the Roman period, and is entirely consistent with the late 1st-2nd century AD Roman date for the trackway suggested by Margaret Gray's excavations at Northfield Farm (Gray 1977, 15).

ARCHAEOGEOPHYSICAL SURVEYS IN THE STUDY AREA *by Alister Bartlett*

Introduction

The geophysical surveys described in this report represent one component of a project established to investigate the history and development of the landscape and environment within a study area between Little Wittenham and Long Wittenham, Oxfordshire.

One aim of the project was to encourage involvement in archaeological research by local archaeological groups, who have participated both in the geophysical surveys and subsequent excavations. The geophysical fieldwork undertaken in 2004-5 was carried out by a group of volunteers including members of the Abingdon Archaeological Society and others, under the direction of W. Horsfield. Subsequent data processing and the preparation of this report has been undertaken by Bartlett-Clark Consultancy, Specialists in Archaegeophysics, on behalf of Oxford Archaeology.

The report includes results from surveys carried out from 2002 to 2006. The first of these was a magnetometer survey of Castle Hill carried out by the Centre for Archaeology at English Heritage in 2002 (Payne 2002; see Chapter 2). This covered accessible ground within the interior of the hill fort, part of which has also subsequently been investigated by resistivity. A survey on the southern slope of Round Hill was carried out by Geophysical Surveys of Bradford on behalf of the Time Team television programme in 2003 (GSB Prospection 2003; see Chapter 5). This survey used Bartington magnetometers. During 2004 surveys around Hill Farm and Round Hill were carried out by the volunteers from the Northmoor Trust (see Chapter 5), and further magnetometer surveys were undertaken by a variety of contributors at Clifton Meadow and to the south, within and west of Northfield Farm (see Chapter 14).

Additional survey was undertaken in the summer of 2005. This work included additional magnetometer coverage at Hill Farm, Little Wittenham (see Chapter 8), surveys to test for the presence of a Roman road to the west and south of Paradise

Wood (see below), and a survey at College Farm, Long Wittenham (see Chapter 12). The College Farm survey forms part of an archaeological investigation of the site of the new Neptune Wood, and so has also been reported on separately to meet the requirements of the planning process for the proposed woodland. The various surveys, with their dates, are identified on figure 14.7.

Archaeological Background

The study area for the project extends across some 9 sq km taking in the parish of Little Wittenham, and much of Long Wittenham. It includes the area immediately surrounding Castle Hill and Round Hill, Little Wittenham, and extends to the north and north west as far as the River Thames.

Much of this area is low lying farmland, which has yielded numerous cropmarks (Fig. 1.3). Some of the geophysical surveys in this area (such as that west of Northfield Farm) were undertaken to validate the cropmark evidence, and others (like that at Clifton Meadow) to extend the cropmark evidence. A series of surveys were carried out on the southern part of the gravel terraces (see below), where cropmark evidence was scant, in an attempt to see if this genuinely reflected an absence of archaeology.

Until 2003 the cropmarks in the southern part of the study area away from the gravel terrace were less informative. They appeared to show a rectilinear enclosure on the north east side of Round Hill, and some limited additional features to the south of Hill Farm. Limited magnetometer surveys carried out in 1995 (Price 1995; see Fig. 1.2) to the south of Round Hill and south east of Hill Farm confirmed the presence of enclosures and trackways in these areas, where there have also been Roman and Saxon surface finds. In 2003, much more extensive cropmarks were identified in the field south of Hill Farm by Time Team, and were provisionally interpreted as trackways linking two large Middle Iron Age enclosures. The more extensive recent geophysical surveys in these areas (see Chapters 5 and 8) have considerably expanded on these findings, have clarified the cropmarks, and have identified numerous features not visible as cropmarks.

Various Roman and Saxon findings suggested the presence of archaeological remains including a Roman building perhaps 200m south west of the entrance to the hill fort, and this area was investigated further by Time Team in 2003 (GSB Prospection 2003; Chapter 5). Field walking by the Northmoor Trust in the 1990s had indicated a further spread of prehistoric and Roman finds to the south of the Castle Hill car park, suggesting that the 2004-5 surveys have not yet exhausted the archaeological potential of the area.

Geology

The geology of the Study Area is described in Chapter 1 (Fig. 1.4). The magnetic properties of the soils across each geological component of this terrain appear to be generally favourable for magnetometer surveying, and particularly so on the gravel terrace deposits. Some geological influences and effects are visible in the survey response, as will be noted below.

Survey Procedure

The greater part of the 2004 magnetometer surveying work was carried out by the volunteer fieldworkers using a pair of Geoscan FM256 magnetometers. The survey followed standard procedures, with the magnetometers mounted on a carrying frame, and readings collected (at 25cm intervals) along a pair of lines 1m apart for each transect walked by the operator. Transects were usually 30m in length, but were shortened in some parts of the survey to 26m. This allowed the operator to take shorter paces, and so made it easier to match the pacing to the timed sound signal produced the magnetometer trigger device, particularly on soft ground.

The survey was located by reference to a temporary site grid of 30m squares set out by surveyors from Oxford Archaeology. Subsequent data processing, as is usually the case with magnetometer data, included treatment to adjust for irregularities in line spacing caused by variations in the instrument zero setting (by fitting a zero mean baseline to each line), and slight linear smoothing. Additional 2D low pass filtering was applied to the grey scale plots to reduce background noise levels. This was done using either the Geoplot package, or in-house software at Bartlett-Clark Consultancy.

A number of sample areas were also surveyed in 2004 using alternative equipment for comparative purposes, as indicated on figure 14.7. These included two areas at Northfield Farm surveyed by R. Ainslie (of Abingdon Archaeological Society) using Bartington Grad 601 magnetometers (Fig. 14.1). These have a 1m separation between the fluxgate detector coils, and should therefore be rather more sensitive, particularly to features at greater depth, than the 0.5m Geoscan instruments. R. Ainslie also surveyed various sample areas by resistivity. A further sample block (of 3.2 ha) at Northfield Farm was surveyed by Bartlett-Clark Consultancy using Bartington magnetometers * the survey on the southern slope of Round Hill carried out by Geophysical Surveys of Bradford on behalf of the Time Team television programme in 2003. This survey used Bartington magnetometers (Figs 14.7-9).

The plans incorporate additional grey scale plots, as supplied to Oxford Archaeology, showing the results of the 2002 English Heritage survey on Castle Hill (Fig. 2.1, done with Geoscan equipment), and the survey on the southern slope of Round Hill carried out by Geophysical Surveys of Bradford on behalf of the Time Team television programme in 2003 (Figs 5.1 and 5.2). This survey used Bartington magnetometers. Figure 13.1 shows results from an additional resistivity survey carried out by R. Ainslie at the Manor House, Little Wittenham in 2003-4.

All the surveys are presented in this report in the form of grey scale plots (in which dark shading represents high readings). Figures 5.2 and 14.8 show the full survey coverage at Hill Farm and Northfield Farm respectively, together with cropmarks. The more detailed plans, which show the results in sections at 1:2000 scale, are distributed through this report to accompany the various areas of excavation. Thus the Castle Hill survey will be found in Chapter 2, the surveys below Round Hill in Chapter 5, those around Hill Farm in Chapter 8, those at Neptune Wood, Long Wittenham in Chapter 12, that at Little Wittenham Manor in Chapter 13 and those at Clifton Meadow at the start of Chapter 14. Trenches dug by Oxford Archaeology during 2004 are also shown on the 1:2000 plans. The surveys not linked to excavation are described and illustrated below.

Results

Surveys at Northfield Farm (Figs 14.8 and 14.9)

A number of sample areas were surveyed in the vicinity of the Northfield Farm cropmark complex. The westernmost field contains cropmark ring ditches and rectilinear enclosures, and gave particularly distinct magnetic anomalies. There is a generally good correspondence between the survey findings and cropmarks, although the survey shows rather more detail, and the cropmarks are offset to the north of their correct locations. One circular cropmark feature (Q on figures 14.8-9) was not confirmed by the survey.

An adjacent area to the north was surveyed by Bartlett-Clark Consultancy using Bartington equipment. This survey detected strong parallel linear features (R on figures 14.8-9), possibly indicating field drains, or perhaps part of an enclosure, but few other clearly identifiable findings. A further survey to the east confirmed the presence of linear features corresponding to cropmark trackways (S and T), but relatively few other features. The anomalies at T are again more clearly visible in the inset plot of the area surveyed with Bartington magnetometers by R. Ainslie, but are also detectable in the adjacent Geoscan data. The linear feature S fades towards the north of the magnetometer survey, but was located in the trench in the adjacent field to the north.

Erratic strong disturbances at U may well be natural effects corresponding to a change in soil or ground level at the boundary of the alluvial flood plain. A weaker east-west linear feature (V) could perhaps correspond to the line of a former boundary.

Surveys at Neptune Wood and Paradise Wood, Long Wittenham

Magnetometer surveys were carried out in three areas adjacent to and to the south of Paradise Wood by the Northmoor Trust volunteers in March 2005, followed by a further survey (by the volunteers and Bartlett-Clark Consultancy) at Neptune Wood (part of College Farm) in August 2005. A more detailed separate report on the Neptune Wood survey is given in Chapter 12.

The surveys around Paradise Wood were located to test for the possible southern continuation of a road or track which is clearly visible as a cropmark extending some 2km north through the Northfield Farm cropmarks, and which must therefore be of Roman or earlier date. The ancient road is clearly visible as a cropmark to the north of the present Long Wittenham to Little Wittenham road, but not to the south of this road in the area investigated by the survey.

A road or track is unfortunately a difficult target for a magnetometer survey (because road metalling is unlikely to be detected), although side ditches may sometimes be identified. The survey in fact detected numerous linear markings. It is not impossible that some of these (e.g. around BB as labelled on figure 14.10 and 11) could relate to the road alignment, but this question would need to be investigated further by trenching (or perhaps resistivity surveying). The overall parallel pattern visible in the survey plots must, however, result from cultivation. It could in part indicate traces of medieval ridge and furrow, but could also be recent. No similarly

aligned linear markings are visible in the two sample blocks surveyed to the south of Paradise Wood (figure 14.12).

Conclusions

The survey results have confirmed that magnetometer surveying can be productively applied in all parts of the proposed study area. Findings of potential archaeological interest have been obtained in all the areas investigated. These include the alluvial soils of Clifton meadow, the gravel terrace at Northfield Farm, and the chalk and Greensand around Hill Farm.

The strongest and most distinct magnetic anomalies were obtained from the cropmark features on the gravel terrace at Northfield Farm. Conditions here are clearly ideal both for cropmark formation and for magnetic detection, but the surveys appear to have provided a rather more detailed response than the cropmarks. The survey also locates features accurately without the rectification errors inherent to aerial photography.

The survey response on the chalk and Greensand around Hill Farm and Round Hill has indicated the presence of both of archaeologically dense, and of less productive areas (e.g. to the east and west of Hill Farm, and to the south and north of Round Hill respectively). These variations could in part indicate actual differences in the concentrations of archaeological features, but may also relate to differing depths of overburden. The Time Team survey on the south side of Round Hill was also done with Bartington instruments, which are likely to be rather more sensitive than the Geoscan gradiometers used elsewhere.

Archaeological features have been found to the west of Hill Farm, but these are largely confined to a strip immediately adjacent to the farm, where magnetic disturbances made it difficult to disentangle the survey results. Soil conditions around Hill Farm appear to be generally satisfactory for magnetometer surveying, and more so than for cropmarks. The survey findings in the field to the south east of Hill Farm in particular have significantly expanded on the cropmark evidence, and have confirmed the presence of previously unrecorded features and enclosures.

The 2005 magnetometer surveys at Paradise Wood and College Farm detected a number of archaeological features, although the significant variation in the depth of overburden at College Farm has clearly limited the extent of cropmark features, and has also limited their detectability. Linear cultivation effects were seen at both sites, together with settlement remains, some of which were confirmed by trenching, at College Farm.

One further conclusion is that the volunteer survey has in general been very successful, and owes much to the willing efforts of all concerned. There are, however, occasional squares where, as is inevitable from an extensive survey carried out by volunteers of varying experience, the results may be of uneven quality, and might benefit from a second survey.

FIELDWALKING

Introduction

A total of 50.8 ha was fieldwalked at six locations across the Long and Little Wittenham parishes, representing *c* 6.13 % of the total Study Area (828 ha). The fields that were walked were those available within the agricultural cycle, which on some farms provided very little window of opportunity between harvesting and planting. Restrictions on access due to weather affecting soil conditions also reduced what could be achieved within the available seasons. The fields that were walked do however represent a cross-section of the local topology and geology, as well as providing a fairly even spatial distribution. Fields 1, 3, 4 and 5 were also selected as they were known cropmark sites.

Soil conditions

The state of the fields varied considerably. Within Field 1, both the small field south-west of Hill Farm and all of the larger field west of the track leading south from the farm had only been surface cultivated prior to walking, and the same was true of Fields 2 and 4. The part of field 1 south and east of Hill Farm was ploughed. Fields 3, 5 and 6 had all been ploughed.

Fieldwalking methodology

A regular grid was established in each field with transects at 10 m intervals; collection units were spaced at 20 m along each transect. Finds were collected from a two metre wide strip along the transect, providing 20% surface collection across any given field. All artefactual material was collected, bar animal bone and clearly recent materials, such as plastics and pieces of agricultural equipment.

The fieldwalking was carried out by local volunteers supervised by a professional archaeologist. In the first season transects were walked by pairs of volunteers, and wherever possible volunteers without previous experience were paired with an experienced fieldwalker. Each volunteer walked up one side of the transect, and then crossed over to rewalk the area covered by their partner. In later seasons, and when walkers were more experienced, each transect was walked by a single person.

Each collection unit was allocated a unique context number. The collection units were digitised as points in AutoCAD. The point was positioned in the centre of the collection unit; each point was tagged with the unique number allocated to it. The finds were recorded onto Microsoft Access databases. The database and spatial data were queried, and plots produced, using ArcGIS 9.

A metal detector was used in field 1, resulting in the recovery of a number of metal artefacts that were allocated to the collection units. The metal detector was however not used methodically across the field and the spatial distribution of artefacts cannot be taken as representative.

Post-excavation methodology

Finds were washed, marked and boxes in accordance with Oxfordshire Museum Services guidelines. All materials were retained, bar post-medieval ceramic building materials. The pottery and ceramic building material was spot-dated by Paul Booth.

The prehistoric, Roman, Saxon and Medieval pottery and Roman ceramic building materials was submitted for the production of detailed reports, presented below; the post-medieval pottery and ceramic building materials was not catalogued as it did not fulfil the projects research aims, but distribution plots were produced. Likewise, other post-medieval materials, such as clay pipe and glass are not reported in detail.

Summary of the fieldwalking results

A summary of the results for each field will be presented below followed by specialist reports on the material recovered. Dating is primarily derived from pottery spot dates and lithic industries although other artefacts have been used where appropriate.

Period summaries, integrating evidence from SMR and NMR data, are provided in Chapter 15.

Field 1

Field 1 is situated to the west of Castle Hill and the to South of Round Hill and Hill Farm. A total 21.2 ha was walked amounting to 1060 collection units. The topography of the field is slightly variable, the northern half of the field is relatively level, with a gentle dip to the south, whilst the southern half of the field dips towards the south at a steeper gradient.

This field produced little evidence of Mesolithic or Neolithic activity, despite the proximity of the field to the early Neolithic Plain Bowl associated pit at Hill Farm, a previously identified fieldwalking scatter immediately to the east of Hill Farm and the light scattering of Mesolithic and Neolithic flint identified in excavations on Castle Hill in 2003.

The flintwork that was recovered from Hill Farm dated from the Bronze Age and concentrated to the north of the field on the elevated and level ground close to Hill Farm. A scatter of late Bronze Age or early Iron Age pottery and middle Iron Age pottery covered a similar distribution area.

The field was also the focus of scatter of Roman pottery and ceramic building materials. The vast majority of this material was again concentrated on the higher level ground to the north of the field, with a particular concentration to the south east of Hill Farm. The Roman pottery included a small number of 1st century AD sherds scattered across the northern half of the field, whilst later Roman sherds concentrated to the north eastern corner of the fieldwalked area.

The Roman ceramic building materials also concentrated in the north eastern corner of the fieldwalked area. The building materials comprised fragments of tegulae, imbrices, a possible brick fragment and five tessera of cut down tile (supplemented by two stone tessera). A scatter of small Greensand blocks was also observed in this area, but they were not collected as they were unworked. This range and concentration of building materials probably indicate the presence of a roofed structure close to the south eastern corner of Hill Farm. Three Roman coins and a fragments of Lava rotary quern was also recovered from this field.

Medieval and post-medieval pottery was spread across the field, with an increased concentration close to Hill Farm. Three hammered silver coins spanning the medieval period were also found.

Field 2

Field 2 is situated on the gravel terrace *c* 1 km to the west of Hill Farm. The site is relatively flat, but further the south the land rises steeply towards Hill Farm. A total of 8.3 ha, amounting to 415 collection units was walked. No cropmarks have been identified in this field, indeed the field is quite removed from the nearest cropmark sites to the north.

Earlier prehistoric periods are represented by a small number of struck flints, that whilst not forming a distinct scatter, clearly demonstrate some activity in the area. The flint assemblage includes a few Mesolithic or early Neolithic flakes and blades, but the bulk of the assemblage was late Neolithic to early Bronze Age; two flint knifes appeared to belong to the latter date. A hammerstone, for the production of flint tools, was also found.

The Iron Age is represented by only two sherds of pottery. A small stone object identified as a possible pottery burnisher has tentatively been dated to the later prehistoric period.

The Roman pottery assemblage is relatively sparse and lacked any closely dateable sherds. A single piece of Roman ceramic building material was recovered. The Saxon period is represented by a single pottery sherd. A light scatter of medieval pottery is also present. In addition, a general scatter of post-medieval pottery and ceramic building materials was recovered.

Field 3

Field 3 is situated to the north of the Long Wittenham parish close to Clifton Hampden. The field is located on the edge of the flat gravel terrace although the northern *c* 100 m of the field dips gently towards the floodplain. The site contains cropmarks of various barrows and a field system aligned NW-SE; the latter is presumed to date from the late Bronze Age. A total of 10.5 ha, amounting to 525 collection units, was walked.

The field contained a significant flint assemblage, including a number of pieces dating from the late Mesolithic. Flintwork of Neolithic to early Bronze Age date was also represented including a distinctive Beaker plano-convex knife. No prehistoric pottery was found.

A fragment of human skull was found, but the location of its recovery did not relate to any of the ring ditches present in the cropmarks and geophysical survey. Given the proximity of the site to prehistoric and Roman settlement it would be unwise to suggest a date for the bone.

A light scattering of Roman pottery, with an emphasis on the later Roman period was recovered. A few fragments of Roman ceramic building materials were also recovered, but these are too sparse to represent anything other than a light background scatter, perhaps reflecting the peripheral location of this field to the Roman activity at Northfield Farm. There is relatively little post-Roman activity on Field 3. Saxon pottery was absent and the medieval and post-medieval pottery and tile was relatively sparse in comparison to that from other fields.

Field 4

Field 4 is located on the flat gravel terrace south of Long Wittenham. An area of 5.46 ha (273 collection units) was walked. Various cropmarks have been observed in the field including a trackway and enclosure, presumed to be Roman, and other sub-rectangular features, thought to be Saxon sunken-featured buildings (SFBs).

The fieldwalking exercise produced a small assemblage of flint including the occasional Mesolithic tool, although the bulk of the assemblage was dated to the Neolithic to early Bronze Age on the basis of technological traits. A large 25 g sherd of an Early Bronze Age biconical urn was also recovered. The size and condition of this sherd suggests that it has probably only been ploughed out in recent years.

Field 4 also contained a scatter of Roman pottery, with a slight increase in the density of sherds towards the north of the field. Four later Roman sherds were identified in the northern half of the field and no diagnostic early Roman sherds were found indicating a late Roman emphasis. A large fragment of a Roman rotary quern was found in the north western corner of the field. The six pieces of Roman ceramic building material represent a general low density scatter similar the background density across the majority of the study area.

The recovery of five Saxon sherds is significant as Saxon pottery generally survives poorly in the topsoil and is also difficult to locate. The Saxon sherds in Field 4, none of which were decorated, probably indicate domestic activity nearby. Pits or waterholes were found at Trafalgar Wood in the field to the east. To the west of the field an extensive Saxon cemetery was excavated in the 1860s.

The quantity of medieval and post-medieval pottery and CBM is consistent with a general scatter from the nearby settlement at Long Wittenham. There is no evidence at the material relates to structures on the field itself.

Field 5

Field 5 is located on the gravel terrace to the north of Little Wittenham. The field is relatively flat and level, but the eastern edge of the fieldwalked area drops significantly onto a lower gravel terrace. The field contains a complex series of undated cropmarks including pits and enclosures. In total 3.1 ha was fieldwalked, representing 155 collection units.

The field contained a scatter of flintwork, with a slight concentration to the northern edge of the field. The flint assemblage contained a couple of possible Mesolithic blades, but the majority of the flakes appeared to date from the later Neolithic or early Bronze Age. The only diagnostic artefact was an early Bronze Age barbed and tanged arrowhead. A hammerstone was also found.

Sherds of prehistoric pottery were also recovered, including one of late Bronze Age or early Iron Age date and a number of sherds dated broadly to the Iron Age.

A relatively dense scatter of Roman pottery was identified across the entire area fieldwalked, amounting to an average of 1.9 Roman sherds per collection unit. The diagnostic sherds in the assemblage had an early Roman emphasis (1st century AD), but a small number of later Roman sherds were also recorded, indicating continuing Roman activity in the area. The scatter of early Roman sherds correlates well with the cropmarks and perhaps can be taken to broadly indicate their date. Two small fragments of Roman ceramic building materials were also recovered; the low number of fragments indicates that these did not derive from a substantial tiled building in the area fieldwalked.

Three sherds of Saxon pottery were recovered, indicating that some Saxon activity was taking place on or close to the site. The medieval pottery assemblage is relatively sparse. The distribution of post-medieval ceramics and building materials is typical and probably represents a manuring from Little Wittenham.

Field 6

Field 6 is located to the north of Long Wittenham. The field is adjacent to the river, occupying a relatively elevated area of the gravel terrace. In total 2.24 ha was walked, amounting to 112 collection units. No cropmarks are known from this field.

The field contained a dense scatter of flintwork that appears to be multi-period in date. Elements of a blade-based industry, probably of late Mesolithic date were mixed with flints that could only be broadly assigned a late Mesolithic or Neolithic date and with a large number of flakes that appear to belong to a middle or later Bronze Age flake-based industry.

The Iron Age was represented by a single pottery sherd. Likewise, the Roman pottery assemblage was rather meagre, with no diagnostic sherds; no Roman ceramic building materials was found. It therefore appears that there was comparatively little activity in this field during these periods.

The medieval and post-medieval pottery assemblages was also comparatively sparse compared to other fields in the area.

ARTEFACTS FROM FIELDWALKING

Assessments of the finds and environmental remains are presented here; full tables and further details will be found in the archive.

General introduction to the pottery *by Paul Booth*

All the pottery from fieldwalking was scanned by the writer and numbers of sherds were recorded for each collection unit under broad chronological headings: prehistoric, Roman, Anglo-Saxon, medieval, post-medieval and uncertain. Prehistoric and medieval pottery was then separated out for recording by different specialists. Material in the 'uncertain' category (some 156 sherds) consisted principally of abraded oxidised fragments which could have been have Roman or post-medieval or (in some cases) medieval date. Neither this nor the post-medieval pottery was examined further. The pottery was in variable condition, but surfaces were often abraded and characteristic features such as the slip on Oxfordshire colour-coated wares could be completely absent. In some cases the glaze on post-medieval sherds was largely eroded away and it is certain that in other cases the glaze was entirely lost.

All ceramic building material was similarly scanned and noted in terms of fragment count by broad period, using the headings Roman, medieval, post-medieval and uncertain. Detailed examination of fabrics was not undertaken. Attribution of material to period was on the basis of a combination of the superficial appearance of the fabric and characteristics of form, particularly the thickness of flat fragments. There was a general presumption that ceramic building material was of post-medieval date unless it could be demonstrated otherwise. On this basis none of the material was confidently assigned to the medieval period and a relatively small proportion of the total ceramic building material assemblage was identified as Roman.

Prehistoric pottery *by Emily Edwards*

Introduction

A total of 82 sherds (599 g) were recovered from field walking (Table 14.6). This mainly comprised early to middle Iron Age pottery although a small proportion was identified as being late Bronze Age and a single decorated rim sherd was identified as belonging to an early Bronze Age Biconical Urn (4168, P1). The majority of this pottery was recovered from field 1 (adjacent to Hill Farm), where find spots clustered in areas of prehistoric features identified by geophysical survey, parts of which were sampled during the 2004 excavations. A small collection was also recovered from Field 5, two were recovered from Field 2 and single sherds from Fields 4 (P1) and 6.

Methodology

Fabrics were coded using OA standard codes to denote inclusion types: A; sand, B; fragments of Greensand, C; calcareous (chalk or limestone), D; voids, F; flint, Pfe; ferruginous pellets, S; shell, IND; indeterminate. Each fabric has been examined microscopically using a binocular microscope (x 20) and differentiated according to the size and type of major inclusions. Size range for inclusions: 1 = <1 mm fine; 2 = 1-3 mm fine-medium and 3 = 3 mm < medium-coarse. Small crumbs were not assigned to a fabric type.

Quantification was by sherd count, weight and minimum number of vessels (based on rims and other diagnostic pieces). Percentage of rim present was also measured where possible.

Fabrics

As the condition of the pottery was largely poor, dating relied on identification of fabrics. The fabrics were compared to diagnostic material recovered from excavations carried out by OA within the immediate area of Hill Farm, Little Wittenham and Castle Hill. Those fabrics containing flint, which is not a local material, were all identified as being either late Bronze Age or earliest Iron Age in date. A breakdown of the material by fabric is given in Table 14.7 below

Forms

Form was identifiable in two cases; the upright squared Biconical Urn rim (P1) decorated with vertical cordon was recovered from field 4 and a Greensand tempered everted early Iron Age rim (130 mm, 5 %) was recovered from field 5. The remainder of the assemblage consisted of plain body sherds weighing between 1 and 25 g (average 7.6 g).

Discussion

A large proportion of the pottery was recovered from Field 1, which correlates with other evidence of activity at Hill Farm. Excavations during 2004 and 2005 recovered early Neolithic, early, middle and late Bronze Age and early and middle Iron Age pottery associated with pits and the gullies and postholes of roundhouses.

Field 2 and 6 yielded very small quantities of prehistoric sherds, which were identified according to fabric.

The Biconical rim sherd from Field four was grog tempered and decorated

with a vertical cordon (P1). As the edges of the sherd were very fresh, the condition good and the size of the sherd larger than average, it is most likely that this find was the result of very recent ploughing of an early Bronze Age feature. There are various early Bronze Age find spots within the locality although not within this field; aerial photographs have indicated round barrows both to the west of Northfield Farm and to the east of Long Wittenham. Fieldwork has identified little additional information with the exception of two twisted cord decorated Collared Urn sherds, which were recovered from features within Castle Hill. These early Bronze Age vessel types are recovered within the Upper Thames Valley relatively infrequently, in comparison with Beakers, rendering any such evidence within Field 4 of some significance.

Aerial photographs of Field 5 have so far revealed Roman features; the 12 small, broken and abraded sherds of late Bronze Age to middle Iron Age pottery recovered from the field walking increase the possibilities of some level of earlier activity within this field.

Roman pottery (Figures 14. 16, 14.17) *by Paul Booth*

Roman methodology

The Roman pottery was recorded in terms of broad ware group, using the standard codes of the Oxford Archaeology Roman pottery recording system (OA 1992-2004; Booth et al 1993, 135-137). Individual fabrics, particularly those belonging to some of the fine and specialist ware groups, were noted in some cases although, as already indicated, loss of surfaces means that some fabrics such as Oxfordshire colour-coated ware (fabric F51) will be under-represented in the record. In a few cases sherds with no colour-coat but in the distinctive forms of the F51 range were recorded as fabric OF, probable examples of F51. Specific vessel types (eg in terms of the Oxfordshire typologies of Young (1977)) were noted where possible, but for the most part rim sherds, where present, were assigned to generalised vessel classes (eg jar, bowl, dish etc). These data remain in archive.

Fabrics

The fine and specialist ware groups present were samian ware (S), fine (mainly colour-coated) wares (F), mortaria (M), white wares (W) and white-slipped wares (Q). Amphorae were absent from this assemblage. The major coarse ware groups were late Iron Age/early Roman 'Belgic type' wares (E), oxidised coarse wares (O), reduced coarse wares (R), black-burnished type wares (B) and calcareous (shell-tempered) wares (C). A number of sherds were in such condition that their attribution to any one of these groups was uncertain, so they were recorded as unclassified, accounting for 6.4% of the total Roman sherds.

Samian ware sherds were scarce and usually very small. Most were probably of Central Gaulish origin, but a single probable South Gaulish sherd was identified in Field 5. Fine wares were dominated by certain or probable Oxfordshire products, which accounted for all but six of these sherds. The non-Oxfordshire sources represented were the Nene Valley (three sherds from Field 1), the New Forest (one sherd from Field 4) and uncertain (one sherd each from Fields 1 and 3). Mortaria were entirely Oxfordshire products. Two white mortarium sherds came from Field 1, while the fabric of the remainder is uncertain - the absence of surfaces means that it was

almost impossible to distinguish between white-slipped and red colour-coated fabrics. In either case a late Roman date is indicated, however. The sparse white and white-slipped ware sherds are also likely to have been Oxfordshire products, but attribution of small sand-tempered white ware sherds even to broad period can be problematic so the source(s) of the white wares identified here cannot be regarded as certain.

Coarse wares, and indeed the assemblages as a whole, were dominated by reduced (R) fabrics, which had a very wide chronological range but relatively few component elements which are closely dateable. These fabrics were particularly important in Field 5, where they accounted for 75.8% of all sherds. This probably reflects a chronological aspect of the area (see further below) - an early Roman bias here being indicated by the concentration of E wares, which comprised a further 14.5% of the total sherds, a much higher proportion than in any other part of the Wittenhams area. Indeed these wares were apparently totally absent from Fields 2, 3, 4 and 6. Oxidised wares were much more widely, but thinly distributed. They included both early and late Roman fabrics. Black-burnished wares formed a minor component of the overall assemblage, but included probable local or regional imitations as well as sherds more confidently assigned to the Poole Harbour BB1 production centre. Occasional sherds of shell-tempered ware were not certainly of Roman date, although this is likely. Such fabrics were current in the region both in the early and late Roman periods and their presence here cannot be used as a detailed chronological indicator.

The occurrence of sherds in the different ware groups by field is shown in Table 14.8

Spatial variation

The distribution of fabrics across the different fields of the project area does suggest some variation in the chronology of activity in these areas in the Roman period. As already mentioned, E wares, the most chronologically specific of all the ware groups, being confined effectively to the 1st century AD, concentrated particularly in Field 5. This field also had an above average representation of reduced coarse wares. This is a recognised characteristic of early Roman assemblages in the region - the proportion of reduced wares tends to decrease with the passage of time (eg Booth 2004, 42). Together these features suggest a strong late Iron Age and early Roman emphasis in activity in Field 5, although late Roman activity was not completely absent since five colour-coated sherds did occur in this field, mainly towards its northern margin, perhaps suggesting a focus of later Roman activity to the north of the field.

A smaller quantity of E wares, and a lower representation of reduced coarse wares, were features of the material from Field 1. This was the largest assemblage from the Wittenhams fieldwalking but, in view of the considerably greater size of the area covered, it represents a significantly less dense spread of material than that seen in Field 5; 1060 stints (collection units) in Field 1 yielded 379 sherds, an average of 0.4 sherds per stint, while the corresponding figure for Field 5 is 1.9 sherds per stint (see Table 1). The pottery in Field 1 did, however, concentrate markedly in the northern part of the field, and particularly in its north-eastern corner, so here the densities of material were more nearly equivalent to those seen in Field 5. The contrast in Roman pottery density in the parts of Field 1 to east and west of the track running south from Hill Farm is quite notable. This may be explained in part by different fieldwalking conditions in these areas, but it is notable also that while E

ware sherds are relatively evenly distributed between these two areas fabric F51, the principal ceramic marker of the late Roman period, occurs almost exclusively east of the track and not to the west. This certainly suggests a concentration of later Roman settlement in the former area, which is slightly more elevated than areas to the west and south which lie on downward slopes.

Fields 3 and 4 produced very similar, small assemblages, although of different densities as there were twice as many collection units in Field 3 as in Field 4. Both fields lay close to cropmark complexes but Field 4 was more clearly associated with cropmark features of Roman rather than earlier date. In Field 3 the principal concentration of Roman pottery lay in the north of the field away from the known cropmarks and close to the edge of the gravel terrace. In both fields distinctive early Roman pottery was completely absent and Oxfordshire colour-coated wares and mortaria were relatively well-represented, occurring mainly in the northern part in Field 4. Both assemblages thus appear to have a late Roman bias. The representation of reduced wares, very roughly about half of the total sherds from each field, is also consistent with a later Roman date (see above), although this cannot be demonstrated by detailed examination of the individual sherds.

Fields 2 and 6 produced very small, low density assemblages, that from Field 2 containing a high proportion of unassigned sherds. Little can be said about either group, except that they lack particular chronologically diagnostic material, whether of early or late date. Both may reflect areas peripheral to locations of more intensive activity in this widely-utilised landscape.

Ceramic building material (Fig. 14.21) *by Paul Booth*

Some 119 fragments of ceramic building material, the great majority from Field 1, were identified as certainly or probably of Roman date. The Roman fabrics were generally less sandy than those of later date, but occasional fragments apparently of secure Roman form were found in quite sandy fabrics. This was particularly the case in Field 4, where three of the six fragments were noted as being in sandy fabrics. The absence of evidence for Roman tile production in the region means that there is little information on the potential range of tile fabrics in use, nor have major assemblages from settlement contexts in the area (such as that from Barton Court Farm (Miles 1986)) been examined from this point of view.

The Field 1 assemblage of 105 pieces contained 38 fragments attributed to tegulae, 17 from imbrices, a single probable brick fragment (34 mm thick and at least 165 mm wide) and 5 large tesserae of cut down tile (these last were supplemented by two stone tesserae from the same area). There were no recognisable box flue or other tile types and the remaining fragments were of undiagnostic form. The distribution of these fragments broadly mirrors that of the Roman pottery, being concentrated most markedly in the north-east corner of the field just east of Hill Farm. This area produced the greatest concentration of diagnostic late Roman pottery and it is possible that the latter material indicates the date of the structure from which the tile derived. From other indications it is clear that the structure lay within this area close to the south-east corner of the farmyard of Hill Farm. This would place the building roughly 250 m west of the one partly examined by Rhodes (1948) which also produced roof tile, bricks and cut down tile tesserae (Wessex Archaeology 2004, 22).

The Roman tile from the other fields is too sparse for its significance to be clear. The two fragments from Field 2 are probably one each of tegula and imbrex, and further tegula fragments came from Field 3. As already mentioned, the small

group from Field 4 was notable for fragments in sandy fabrics, two of which may have been from bricks (29 mm and 32 mm in thickness), and a single further brick fragment, but in a more typical relatively sand free fabric, came from Field 5.

Saxon and Medieval pottery (Figures 14.18-20)
by Paul Blinkhorn

Introduction

The Saxon and Medieval sherds identified in the initial sort (see above) were characterised by fabric (see below). A summary of the fabrics by field is presented in Table 14.9 below.

Early-Middle Anglo-Saxon (AD 450-850)

F1: Chaff-tempered. Moderate to dense organic voids up to 5 mm, rare to sparse sub-rounded quartz and/or calcareous material up to 1 mm.

F2: Sand and chaff. Moderate to dense sub-rounded quartz up to 1 mm, sparse organic voids up to 5 mm.

Saxo-Norman and later

The medieval pottery was recorded utilising the coding system and chronology of the Oxfordshire County type-series (Mellor 1984; 1994). The alphanumeric prefix codes are those used in the database and Table 14.9.

F200: OXAC: Cotswold-type ware, AD975-1350.
F202: OXBF: North-East Wiltshire Ware, AD1050 – 1400.
F300: OXY: Medieval Oxford ware, AD1075 – 1350.
F352: OXAM: Brill/Boarstall ware, AD1200 – 1600.
F404: OXCL: Cistercian ware, 1475-1700.
F425: OXDR: Red Earthenwares, 1550+.
F405: OXST: German Stonewares, late 15th century+.
F443: OXFM, Staffordshire White-glazed English Stoneware, 1730 – 1800.
F1000: Miscellaneous 19th - 20th century wares.

Post-Roman ceramic building material

Large quantities of post-medieval ceramic building material was recovered during fieldwalking. This material was briefly scanned after processing. Due however to the ubiquitous occurrence of this material, and the lack of distinctive variations within it, it was not recorded. In Field 1 this material was discarded after preliminary scanning had identified and extracted the Roman tile, and had established that no medieval ceramic building material was present.

The Struck Flint (Figure 14.14) *by Hugo Lamdin-Whymark*

Introduction

A total of 629 struck flints was recovered from fieldwalking six fields in the Little and Long Wittenham parishes. The flintwork assemblage includes material dating from the Mesolithic to late Bronze Age, distributed in varying quantities across the landscape. This report will characterise the flint assemblage from each field before presenting a broad framework for the use and exploitation of the Little and Long Wittenham parishes based on the recovered lithic resource.

Methodology

The lithic assemblage has been quantified and characterised typologically. Dating has been attempted where possible, using typologically diagnostic forms and broad technological attributes (for example Ford 1987; Pits and Jacobi 1979). During the initial analysis additional information on condition (rolled, abraded, fresh and degree of cortication), and state of the artefact (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (e.g. Bamford 1985, 72-7; Healy 1988, 48-9; Bradley 1999, 211-277). The assemblage was catalogued directly onto a Microsoft Access database. A printout of the catalogue will be deposited with the archive; where possible a digital copy will be deposited.

Quantification

A total of 629 struck flints was recovered from the fieldwalking exercise. The flint assemblage from the site is shown in Table 14.10. A total of 5.3% (33 flints) of the assemblage was burnt and 23.6% (146 flints) was broken. The proportion of broken flints is under-represented due to the exclusion of post-depositional edge-damage, such as plough damage, that may have obscured genuine breaks.

Provenance

Flintwork was recovered in varying quantities from all of the fields walked. The lowest density of flintwork was in field 1 to the south west of Castle Hill. On the gravel terrace fields (2-5) the general background levels of flintwork was slightly more elevated, but only in Field 6 was a particularly high density of flintwork recorded (Table 14.11).

Raw material and condition

The raw material included flints varying in colour from grey and light brown through to dark brown. Where present, the cortical surface of the flint flakes was generally thin and abraded, indicating the raw material originated from a derived context, such as the flint river gravels available on the river Thames downstream south of the Goring Gap. Three distinctive flakes of flint originating from the Bullhead Bed at the base of the Reading Beds, were recorded in Field 3. This flint is commonly encountered on Neolithic, particularly later Neolithic sites, and is again available to

the south-east.

The condition of the flintwork was poor, as is typical for assemblages recovered from the plough zone. Post-depositional edge-damage was present on a large number of the flints including numerous asymmetric notches formed by the plough (Moss 1983). The flints recovered from field 1 were, however, in a considerably worse condition than those from the other fields. No obvious explanation for this is apparent. The surface condition of the flintwork is also variable between the fields. The majority of flints exhibit no surface cortication, but some of the flintwork in Fields 1 and 4 exhibit a light, mid to dark orangey brown iron staining. In addition, some of the flintwork in Fields 3 and 6 exhibited a light to heavy white surface cortication.

Storage and curation

The majority of the struck flints are bagged individually; the burnt unworked flint is bagged by context. The flintwork is adequately boxed and bagged for long-term storage and curation.

The Assemblage

The assemblages recovered will be considered by field below.

Field 1

The assemblage of flint recovered from the fields south east of Castle Hill contains few diagnostic artefacts to assist in the dating of the assemblage, so the dating is largely reliant on broad technological trends. The vast majority of the flint assemblage is composed of flake material, generally of relatively broad and thick proportions with little platform preparation, although a couple of thin and narrow flints were present. This technology is most typical of middle-late Bronze Age industries, perhaps with a couple of earlier flints, possibly of Neolithic to early Bronze Age date; one fine parallel-sided blade may be earlier still, dating from the Mesolithic or early Neolithic. Exceptionally few cores were recovered, suggesting little flint production in this area, and the tool assemblage was limited to scrapers. The limited number and range of tools is again perhaps an indication of a later prehistoric assemblage. A gunflint was also recovered; the flint is small (21 mm by 15 mm - roughly 3/4" by 1/2") identifying it as 'fine pocket pistol' flint (de Lotbiniere 1984, 63) (336 - Figure 14.24 No.6).

Field 2

Field 2 again contained a small assemblage of flintwork with few diagnostic flints. The flake material was, however, distinctly thinner than the material in field 1 and more pieces exhibited platform-edge abrasion, indicating relatively careful flaking techniques. A few of the blades appeared to be the product of a finer blade-based industry, possibly of Mesolithic or early Neolithic date, but overall the percentage of blades (blade/bladelet/blade-like flakes) to flakes was exceptionally low at 4.3% indicating the majority of the flintwork did not derived from a blade-based industry. Given the core preparation and careful flaking, a later Neolithic to early Bronze Age date is most appropriate.

The retouched assemblages comprised three scrapers, two backed knifes and a

gun flint. Two of the scrapers were manufactured on flakes and the third on the distal end of a blade which has subsequently been burnt and broken (1052 - Figure 14.24 No.1). There is little intrinsically datable about the flake-based scrapers and only a broad Neolithic-Bronze Age date may be suggested; the scraper on a blade is most probably Mesolithic. The two knives both exhibited relatively invasive, low-angle flaking (1004 - Figure 14.24 No.3). The retouch is most reminiscent of early Bronze Age workmanship. The gunflint is relatively substantial, measuring 32 mm by 19 mm (3/4" by 1 1/4") and would have been used in a carbine (de Lotbiniere 1984, 52) (1196 - Figure 14.24 No.8).

Field 3

Field 3 has a broad variety of flake material and a good range of retouched tools. The flake material includes the highest proportion of blade and blade-like flake material (12.9%) of any of the fields, however, the assemblage is clearly mixed as it contains diagnostic artefacts of Mesolithic to late Neolithic/early Bronze Age. The blade component is relatively distinctive and clearly represents the product of a blade-based industry. The blades are generally relatively small and narrow, and often parallel-sided, showing careful systematic preparation and flake removal. This technology is characteristic of the Mesolithic, and given the limited size of the product, a later Mesolithic date is most probably. The presence of a proximal micro-burin from microlith production confirms the presence of Mesolithic material.

The bulk of the flake material is relatively thin and appears to have resulted from careful reduction, with many pieces exhibiting platform-edge abrasion. Some of this flake material may belong with the Mesolithic assemblage, but some certainly belongs to the increasingly flake-based industries of the Neolithic to early Bronze Age. The cores represented were all aimed at flake production, with one single platform, four multi-platform examples and a fragmentary example; these probably fall in the latter date range. A fragmentary flint hammerstone was also recovered indicating some on-site production.

A broad range of retouched tools was recovered from field 3, representing 9.7% of the total assemblage, a high proportion. The assemblage includes five scrapers and three edge-retouched flakes, none of which were particularly diagnostic, but their manufacture on relatively thin flakes perhaps suggests a date between the Mesolithic and early Bronze Age. A small (40 mm x 15 mm by 5 mm thick) but finely retouched plano-convex knife, characteristic of Beaker flintwork, was found in transect 3449 (Figure 14.24 No.4), and exhibited considerable plough damage. Given that the knife was found in a field with a barrow, it is possible that may represent a plough-disturbed grave good. A fabricator (strike-a-light) of an unusually broad form was recovered from transect 3025 (Figure 14.24 No.2). The fabricator had been manufactured by coarse bifacial flaking on a frost-shattered fragment of gravel flint, and both sides exhibited the typical heavy abrasion from use against Iron Pyrites. In addition, two pieces with miscellaneous retouch were identified. One exhibited coarse retouch forming a small rod, similar in form to many fabricators, but did not exhibit any of the characteristic wear. The second piece was a broken flake with edge retouch or plough damage that created the appearance of a chisel arrowhead, but the item could not be identified with confidence. A round-backed English strike-a-light measuring c 1 1/4" square (34 mm by 31 mm) was found in transect 3327 (de Lotbiniere 1984, 36; fig. 20) (Figure 14.24 No.9)

Field 4

A small assemblage of flint was recovered from field 4. The flint was similar in character to the material recovered from field 2 to the south. The assemblage was largely composed of relatively thin, well-prepared flakes with a single blade represented. The recovery of a core rejuvenation tablet stands testimony to the careful preparation and maintenance of cores. The retouched component comprised a single scraper and a retouched flake. The dating of this small flint assemblage is difficult, but apart from the odd possible Mesolithic flint the majority of pieces probably date from the Neolithic to early Bronze Age, most probably in the latter half of that date range.

Field 5

Field 5 contained a small assemblage of flintwork similar to fields 2 and 4. A couple of heavily corticated blades may represent a Mesolithic component to the assemblage, but no diagnostic artefacts were identified. The remaining material was predominately composed of flakes which date from the Neolithic to early Bronze Age. The retouched flints comprised two scrapers and a barbed and tanged arrowhead (5072 - Figure 14.24 No.5), the latter dating to the early Bronze Age. The arrowhead exhibits fine invasive flaking on both the dorsal and ventral surfaces, but unfortunately both barbs are broken and it is not possible to identify the original form using Green's categories (1980).

Field 6

Field 6 contained the highest density of flintwork and a total of 202 flints was recovered. The flint assemblage does not, however, appear to form a coherent assemblage and it appears that flintwork from several periods is represented. A reasonable proportion of blades were identified in the assemblage and the technology employed in their production clearly distinguished them from the flake material. The blades were relatively short, but were well prepared; some exhibited parallel sides and blade scars on the dorsal surface. The reduction techniques employed are indicative of a later Mesolithic industry. A large flake had also been prepared to remove a crested blade, but was abandoned before the removal was made (tested nodule); such a reduction technique is typical of Mesolithic blade industries. A well prepared, multi-platformed prismatic flake core was also recovered, but can only be dated broadly to the Mesolithic or Neolithic. The other cores recovered were aimed at flake production and could not be reliably dated, bar a discoidal core that most probably dates from the later Neolithic. The flake debitage derives from a flake based industry, most probably of a middle or late Bronze Age date.

The retouched assemblage comprised six end scrapers, one end and side scraper, a broad notch, and one simple edge-retouched flake. None of these tools are closely dateable, but a broad Mesolithic to early Bronze Age date may be suggested, although some may also be associated with the middle to later Bronze Age flake material. In addition, two gunflints were found. A small irregular example, measuring 20 mm by 15 mm (3/4" by 1/2"), was for use in a pocket pistol and probably represents a second manufactured on the distal end of the flake, whilst a larger square example measuring 22 mm by 21 mm (5263 -Figure 14.24 No.7) (c 3/4" by 3/4") is a 'super pocket pistol' flint (de Lotbiniere 1984, 62-63).

Conclusions

The flint assemblage recovered from fieldwalking various fields across the Long and Little Wittenham parishes represents a relatively small body of material and limited sample of the entire area. The assemblage is, however, large enough to allow dating on broad technological attributes, assisted by the presence of the occasional diagnostic artefacts, and for the observation of general patterns of activity across the study area.

The most distinct pattern is between the field 1, on elevated ground to the south-west of Castle Hill, and the fields down on the gravel terrace. In field 1 flintwork was relatively sparse in comparison to the gravel terrace, and it is particularly noteworthy how little of the assemblage was of an early prehistoric date, the majority of the assemblage dating to the middle to later Bronze Age. It is, however, clear from the early Neolithic pit at Hill Farm and associated residual flints in Iron Age features, and the diagnostic Mesolithic and early Neolithic flints from Castle Hill, that there was activity during earlier prehistory, but it did not leave a significant scatter of flint across the more elevated part of the Wittenhams' landscape.

The gravel terrace presents a different story. The general density of material is considerably higher than encountered near Castle Hill. A light scatter of Mesolithic, probably later Mesolithic, flint was present in fields 2, and 5 whilst fields 3 and 6, which are situated close to the river, contained a significantly higher number of Mesolithic flints. A concentration of Mesolithic flintwork was noted on the SMR (15412) to the north of the long Wittenham parish in a similar riverside location to the denser scatters observed in the fieldwalking, again further supporting the presence of increased levels of Mesolithic activity close to the river bank. Two tranchet axes have also been found at Northfield Farm (SMR 9784 and 3174).

The early Neolithic activity has proved particularly elusive in the fieldwalking exercise. No diagnostic artefacts were identified and where a broad date of Neolithic to early Bronze Age date has been suggested, late Neolithic or early Bronze Age artefacts have been recovered. This is not to say that early Neolithic material in not present in the assemblage, but that it is distinctly under-represented and clearly does not follow the same pattern as the Mesolithic activity.

Neolithic to early Bronze Age flintwork forms a good spread across the gravel terrace. The Beaker period was comparatively well represented by diagnostic flint artefacts, with a plano-convex knife in field 3, a barbed and tanged arrowhead in field 5 and two further knives in field 1 with retouch reminiscent of Beaker flintwork. The plano-convex knife in field 3 may represent a grave good associated with a barrow identified in the geophysical survey.

Later prehistoric flintworking does not appear to be widely distributed on the gravel terrace. The technological attributes of the flintwork in field 6 suggest that a significant proportion of this concentrated scatter may be middle to late Bronze Age. Given the light scatter of middle to late Bronze Age flintwork scattered across field 1 close to a known area of late Bronze Age settlement, it is perhaps possible that in the middle to late Bronze Age flintwork is confined to domestic foci rather than spread across much of the landscape.

The post-medieval gunflints were used in various-sized pistols and rifles, but provide little insight into the activities of the period. The gunflints and the strike-a-light are, however, intrinsically interesting and serve to link the relatively recent history of the area to prehistory through the valuable properties of flint for the creation of sparks and fire when used in conjunction with steel, or as in the past Iron Pyrites, a technology not surpassed until the industrial revolution.

WORKED STONE FROM FIELDWALKING
by Fiona Roe

Introduction

Seven objects of worked stone have been catalogued and are summarised in Table 14.12. The burnt stone amounted to 138 fragments, which are summarised in Table 14.13 and further described in the archive. It is possible to suggest generalised dating for the objects, some of which correspond to finds from the excavations described above, while others are likely to be of later date.

Facetted pebble

A quartzite pebble with worn facets at either end (1091) has two possible interpretations. It could be an earlier prehistoric flint knapping tool, by analogy with similar artefacts found at the Eton Rowing Lake, Buckinghamshire (Lamdin-Whymark, in prep) and at Yarnton, Oxfordshire (Roe, in prep (c)). Alternatively it may have been used for whetting. Similarly worn artefacts found in Iron Age contexts at Beckford, Worcestershire have been tentatively interpreted as whetstones (Roe in prep (b)) and as few identifiable whetstones were found during the Wittenhams excavations, this seems the most likely explanation for this tool. Another of these facetted tools was found locally, in a middle Bronze Age waterhole at Appleford Sidings (Roe, in prep (d)).

Hammerstone

Part of a quartzite hammerstone (5138) is similar to others from the excavations at the Wittenhams. Five came from the settlement below Castle Hill, with another find from Hill Farm, so the likelihood is that this seventh example relates to Iron Age activity in the area.

Polisher

The polisher (1182) is a quartzite pebble with a well worn, smooth surface and it is smaller than most examples of this type, being only 54 mm in length. A similarly worked pebble was found in the settlement around the hillfort (Chap 6). A suggested purpose for such pebbles with shiny worked surfaces is as burnishing tools, probably used on pottery.

Querns

Two rotary quern fragments were found, both made from materials typical of Roman sites in the area. A piece of upper stone made from Niedermendig lava from the Rhineland (2100) has a raised rim round the edge on the upper surface, a feature characteristic of Roman lava querns. This quern material has often occurred on Oxfordshire Roman sites, including some weathered crumbs from nearby Northfield Farm at Long Wittenham (Gray 1970 & Oxfordshire County Museum Store, Standlake). The second segment of rotary quern (4204) is again part of an upper stone. It was around 390 mm in diameter and was made from Upper Old Red

Sandstone quartz conglomerate from the Forest of Dean/Wye valley area. This is another quern material frequently found on Roman sites in Oxfordshire and although an Iron Age date for the quern is not impossible, it is more likely that it relates to Roman activity in the area. Other quern fragments made from the same variety of stone came from a Roman context on Castle Hill excavations (Chap 3) and as an unstratified find made during the settlement excavations (Chap 6). Upper Old Red Sandstone also occurred on the Roman site at Northfield Farm, Long Wittenham (Gray 1970 & Oxfordshire County Museum Store, Standlake).

Whetstones

The two whetstones are probably Post Medieval in date as both the fragments come from examples that have an elongated, tapered form not known amongst Medieval or earlier whetstones. One of them (1214) was made from the Devonshire Batts, a variety of Upper Greensand found in the Blackdown Hills south of the Somerset/Devon border, where it was quarried specifically for whetstones and widely distributed (Ussher 1906, 40**).** The identity of the stone used for the other whetstone (902) is less certain, but it appears to be another form of greensand.

Burnt stone

The burnt stone from fieldwalking amounted to 139 fragments. As with the burnt stone from the excavations, all the materials could have been collected locally, with large proportions of flint and quartzite fragments. However there is a considerably lower proportion of chalky greensand from the fieldwalking, but the low number of these finds could be explained by the fact that this relatively soft variety of stone would not have survived well in ploughsoil.

Metalwork *by Ian Scott*

This assemblage was derived from field-walking and metal detecting and comprises 64 fragments. Much of the material comprises melted and other lead waste and miscellaneous pieces, and copper alloy waste (n=24). There are also six modern buttons (n=6), a lead soldier. An interesting piece is what appears to be a part of a cast copper alloy rat's tail, presumably from a model or statuette of a rat. Most of the material is undateable and none of it is of any real interest.

Roman coinage *by Paul Booth*

Four late Roman copper alloy coins were recovered from metal detecting in Field 1. Two of the coins were recovered whilst the fieldwalking exercise was undertaken, and two coins were found close to Trench 15 in the 2004 excavation season (see Table 14. 14). All were unstratified and in poor condition, to the extent that none could be precisely identified. Three of the coins can be assigned to the later 3rd century, although none is closely identifiable. The other coin is of 4th century date, assignable to the major period of minting of the House of Constantine, from AD 330-346. The reverse type, Urbs Roma, is very common in this period.

Medieval and post-medieval coinage *by Hugo Lamdin-Whymark*

Three silver hammered coins and copper alloy coin were recovered from metal-detecting in field 1. The copper alloy coin is exceptionally worn, and therefore only identifiable as a halfpenny of Charles II to William IIII. The silver hammered coinage consists of a cut long cross penny of Henry III or Edward I (1247-1279) (context 877), a worn and clipped groat of Henry VII (1485-1509) from close to Trench 15 excavation near Hill Farm and an Edward III penny in fair condition, probably of the treaty period (1361-9) (Mitchell and Reeds 1996 No.1612) from context 716.

The coins span the medieval and post medieval periods with no concentration around any date, perhaps reflecting activity throughout the medieval and post-medieval period.

Other finds *by Hugo Lamdin-Whymark*

A quantification of glass, clay pipe, slag and oyster shell is presented in Table 14.15. Summaries of the materials are presented below; detailed analysis of the materials were not undertaken as they failed to address any of the research aims:

Glass
The glass was scanned for Roman or Medieval shards, but none was identified. The majority of the material was readily identifiable as post-medieval, mostly 20th century.

Clay pipe
The clay pipe assemblage mainly consisted of broken stem fragments. Very few bowl fragments were identified and those present appeared to be of later post-medieval date; no 16th-18th century pipes were identified.

Slag
A small assemblage of slag was recovered from field 3. The slag assemblage did not contain any diagnostic elements that can assist in dating. The assemblage was not considered further.

Oyster shell
A small assemblage of Oyster shell was recovered during the fieldwalking exercise. Oyster shell is commonly recovered on Roman sites, but is not intrinsically datable. The majority of the Oyster shell was recovered among the scatter of Roman pottery and building materials in Field 1.

Human bone *by Ceridwen Boston*

A single weathered fragment of human cranial vault was recovered from the ploughsoil in Field 3 during fieldwalking (Collection unit 3426). The fragment is fairly undiagnostic but appears to be part of the frontal bone. Sutures are completely unfused, indicating a young age. Indeed, the small cross-sectional thickness of the bone (3.5 mm) suggests that this was part of the cranium of a child.

PALAEOENVIRONMENTAL EVIDENCE FROM A PEAT FLUSH IN LITTLE WITTENHAM WOOD *by Adrian Parker*

Introduction

The Upper Thames valley has numerous calcium-rich springs and seepages which have led to localised development of peat and calcareous tufa deposits (Parker and Goudie, 1999). The site is of importance as it is situated at the foot of Castle Hill offering insight into the Bronze Age and Iron Age landscape. Within the Upper Thames region there are very few palaeoenvironmental sequences spanning these periods (Parker, 2000).

The peat deposited has developed at the juxtaposition of Upper Greensand and Gault Clay at the foot of Castle Hill. The slope is covered with broadleaved woodland today, with disturbed open woodland/grassland along the river itself.

Materials and Methods

The core site (SU 573931) lies at base of the steep slope of Castle Hill adjacent to the River Thames. The core was recovered using a Russian pattern corer (Jowsey, 1966) and the stratigraphy is shown in Figure 14.25.

The calcareous nature of the sediments at Wittenham and the potential for modern root penetration presented problems using conventional radiocarbon dating. Therefore, accelerator-dating on selected, non-aquatic, plant macrofossils was required. The AMS ^{14}C dates are shown in Table 14.16 and were calibrated ages were determined using Calib 5.01 (Stuiver and Reimer 1993).

The carbonate content was determined by calculating the weight loss after treatment with 10% dilute HCl, whilst the organic carbon content was determined using loss-on-ignition (Ball, 1965). Magnetic susceptibility measurements were made using a Bartington Instruments MS2 magnetic susceptibility meter coupled with a MS2B sensor.

Subsamples of $1cm^3$ of sediment were taken at selected intervals. Owing to the calcareous and siliceous nature of the sediments the pre-treatment for palynological analysis included HCl and HF digestions as well as the standard KOH and acetolysis techniques. In clay rich sediments 'fine-sieving' (aperture 5µm) was introduced into the sample preparation procedures (Cwynar et al.. 1979). The residues were suspended in glycerol jelly. Pollen was counted using a magnification of x400 with x1000 oil immersion and phase contrast being used for critical determinations. Pollen was counted until a minimum of 300-500 grains total land pollen (TLP) attained. This resulted in counts frequently exceeding 1000 grains per sample. Gramineae pollen grains were counted as Cereal-type if the length exceeded 44µm and the annulus width was greater than 10µm (Andersen 1979). The taxonomic nomenclature for vascular plants follows Clapham et al. (1987).

Bulk samples for study of plant macrofossils and molluscs were sliced every 2cm and soaked in distilled de-ionised water, and an ultrasonic bath was used occasionally

when clays would not disperse readily. The samples were stirred gently and washed through a 355μm and 56μm sieve. The material was identified under low power microscopy. The taxonomic nomenclature for molluscs followed Kerney and Cameron (1979).

Results

Sediment Stratigraphy

The stratigraphy and physical properties are shown in Figure 14.25. A total depth of 250cm of sediemt was recovered. Unit a (250-200cm) comprised silty clay, with a high bulk density and low organic content. At the base of Unit 1 (200-182cm) there is a peak in bulk density and a relatively high LOI value (62%). A steady decline in bulk density is apparent throughout the sequence. Units 3 and 4 (170-100cm) consists predominantly of marl/tufa deposits, and commences with a period of high magnetic susceptibility and carbonate content. Significant increases are also seen in both moisture content and particularly LOI which reaches a peak of 78% at 140cm and corresponds with a rise in carbonate content and a significant decline in magnetic susceptibility. Notably, LOI falls to a Iow value (6%) at 120cm. The tufa deposit is overlain by a very humified peat sediment from 100cm in Unit 5 to 64cm. Unit 6 (64-26cm) is silt/clay rich and displays increases in both bulk density and carbonate content, along with decreases in moisture content and LOI. Finally, this is overlain by humified peat sediment (Unit 6), which shows in particular increases in LOI and moisture content, with a corresponding decline in bulk density.

Macrofossils

Figures 14.26 and Tables 14.17 and 14.18 show the plant and molluscan macrofossil results. Zones 1-3 and 6-7 contained well-preserved plant and molluscan remains, whilst zones 4 and 5 contained a few horizons with good preservation. No macrofossil remains were present in zone a. In Zones 1 -3 plant marsh and aquatic taxa were represented by the presence of *Glyceria maxima, Carex* sp., *Caltha palustris*, *Apium nodiflorum* and *Mentha aquatica*. In zone 2 marsh taxa replace aquatic taxa suggesting slightly drier conditions. Some woodland/scrub elements are present suggesting at least inter mittent or open tree and scrub vegetation represented by *Sambucus nigra, Rubus fruiticosa* and *Populus* sp. Zones 2 and 4 contained disturbed ground taxa including *Rumex conglomeratus, Chenopodium* alba and *Polygonum aviculare*. The molluscan evidence supprts the plant macrofossil record with evidence for some woody cover and episodes of disturbance around the marsh with phases of open water. Woodland species including *Discus rotundatus*, *Aegopinella nitiudula* and *Nesovitrea harmonis* appear at intervals in between open ground species including *Trichia hispida* and *Vallonia* sp.

Zone 4 contained only three horizons in which plant and molluscan remains were preserved. Both lines of evidence suggest open ground conditions prevailed with the presence of *Trichia hispida, Rumex conglomeratus* and *Urtica dioica*. Zone 5 show evidence for both disturbed ground but with some shrub/woody elements. In zone 6 preservation is much better and shows disturbed open ground conditions being replaced by increasing elements of woodland as represented by *Discus rotundatus* and *Oxycilus cellariu*s.

Pollen
The pollen results are shown in Table 14.19 In unit (a) at 240cm preservation was sparse but did contain *Betula, Pinus* and *Corylus* pollen. Whilst the count is not sufficient to yield a count of statistical reliability it does suggest an early Holocene environment.

At the base of zone1 (200cm) tree and shrub pollen are represented by the presence of *Quercus, Tilia, Fraxinus, Alnus, Corylus* and *Rubus*. Open ground conditions are are highlighted by the presence of Gramineae, Cyperaceae, Ranunculaceae and Rumex. Marsh and emergent aquatic elements are represented by Umbelliferae and *Mentha aquatica*.

In zone 3 (160cm) Tree and shrub pollen values are low and represented by Quercus and Corylus. NAP dominated with Gramineae, Cyperaceae, *Rumex, Plantago lanceolata*, Chenopodiaceae, Caryophyllaceae, Compositae Liguliflorae and *Polygonum aviculare* t. Aquatic and spore taxa include *Mentha, Equisetum, Iris* and Filicales

Zone 4 (120cm) shows an open environment with low tree pollen values represented by Quercus and Alnus and a single grain of Tilia. Shrub pollen includes low values of Salix and Corlyus. The sample is dominated by Non-Arboreal Pollen (NAP) dominated by Gramineae and lower levels of Cyperaceae, Chenopodiaceae, Rumex and Urtica.

Zone 5 (80cm) shows a fairly open environment with an increase in tree and shrub pollen values including *Quercus, Alnus, Corylus, Prunus* and *Sambucus* . Non-Arboreal Pollen (NAP) includes Gramineae, Chenopodiaceae, *Rumex, Polygunum aviculare* t., *Urtica*, Umbelliferae and Caryophyllaceae.

In Zone 6 (40cm) the pollen assemblage shows and increase in woodland taxa including *Quercus, Fraxinus, Acer, Pinus* and *Fagus*. Shrub taxa include *Alnus, Salix, Corylus, Sambucus* and *Rubus*. NAP is dominated by Cyperaceae and Gramineae with some *Urtica, Rumex, Filipendula, Plantago lanceolata,* and *Polygonum aviculare* t. present. Aquatic taxa included *Mentha aquatica* and *Iris pseudochorus*.

Discussion
The basal silt/clay deposit is likely to represent a period of early Holocene slope wash deposits (undated) underlying the main organic sediment unit. Sparse pollen in this unit indicates birch, pine and hazel were present. The onset of organic accumulation began during the Late Bronze Age/Early Iron Age and the lower units (1-3), 2550 - 2335 BP, indicate a period of fluctuating environment in the vicinity of Castle Hill. The molluscan and plant macrofossil remains suggest several phases of clearance, disturbance and slope wash interspersed with short-lived periods of increased wood/scrub cover and stability reflected by phases of partial scrub/woodland regeneration. Such events are likely to relate to the clearance of the regional woodland mosaic from the middle Bronze Age. Pollen evidence from the Upper Thames valley has shown that clearances began in the early Neolithic and were largely related to monument sites often close to river confluences. These sites tended

to remain open with grassland persisting and some scrub development. However, upland sites such as Ascott under Wychwood, Hazleton North and Waylands Smithy underwent clearance prior to construction followed by later woodland regeneration.

In the Trench 14 midden samples, the micromorphological work by Perez suggested worm sorting and the concentration of bunter pebbles derived from colluvial processes on Castle Hill from middle?/late Bronze Age activity. Phytolith work indicated grassland with some inflorescence bracts derived from cereals. Evidence for an open landscape with grassland is supported by abundant animal bone remains including cattle, goat and sheep. Unit 1406 was dated to 2680±35 BP and these data suggest that the landscape was already open prior to the onset of the peat deposit at the foot of Castle Hill. The snail samples from the late Bronze Age hilltop enclosure ditch on Castle Hill, however, show a predominance of woodland snails in their lower fills, which span the period 1000-800 cal BC. The molluscan evidence may be interpreted in several ways: some of the snails may indicate the environment of the hilltop at the time the enclosure was constructed, incorporated residually into the ditch from the upcast bank, or they could indicate only partial clearance of the hilltop, or possibly a phase of woodland regeneration soon after the ditch was dug. This evidence, however interpreted, shows the continuing presence of woodland on the hilltop contemporary with the earliest dated peat deposit.

The regional pollen diagram from Spartum Fen, located in the catchment of the River Thame, which enter the Thames at nearby Dorchester, and from Sidlings Copse, nr Oxford, both shows widespread deforestation from the middle Bronze Age (Day, 1991; Parker, 2000). Organic environmental sequences from non-fluvial environments spanning late Bronze Age and Iron Ages are rare in the Upper Thames valley (Parker, 2000). Evidence for these periods tends to be restricted to sites located on the floodplain of the Thames and its tributaries. For example, Late Bronze Age pollen and plant macrofossil evidence are available from Eight Acre Farm, Abingdon (Parker, 1995b, Robinson, 1995), which indicated an open landscape. At Mount Farm, Dorchester a landscape of lightly grazed grassland with some thorn scrub was indicated by plant waterlogged and invertebrate remains from a late Bronze Age pond (Robinson, 1984). At Mingies Ditch, on the lower Windrush floodplain, alder woodplain was being cleared in the late Bronze Age and some mixed scrub survived into the Iron Age (Allen and Robinson, 1993). Pollen and insect evidence indiacated that the gravel terrace was however grassland. At Stanton Harcourt, also in the Windrush valley, palaeochannel sediments showed that floodplain clearance was largely cleared by 910-790 cal BC (Barclay et al., 1995).

The onset of flooding, alluviation and raised water tables occurred from c.2500 yr BP in the Upper Thames region (Robinson & Lambrick, 1984; Robinson & Wilson, 1987). These can be correlated with accelerated forest clearance and agricultural intensification in the catchment. In a number of areas, major phases of alluviation occur significantly later than clearance (Parker 2000). Pollen evidence shows that major clearance took place during the middle Bronze Age from 3300 yr BP in the Upper Thames valley (Day 1991, Parker 2000, Parker 2007). A similar pattern occurred in the Severn and Avon valleys (Shotton, 1978; Parker and Chambers, 1997) but this is dated to the late Bronze Age. There was greatly accelerated erosion and alluvial sedimentation between 2000 and 3000 BP (Brown, 1987) which has been

related to the sowing of autumn crops (Shotton, 1978).

Bell and Walker (1994) suggest that intensive Iron Age activities rather than climatic change were responsible for alluviation. However, Macklin and Lewin (1991) see river alluviation in Britain as climatically driven but culturally blurred.

During the early Iron Age human activity at the site had become considerable with the building of a large hillfort enclosure with a ditch, bank and rampart system (Chapters 3 and 11). The continuing clearance of woodland was most likely related to the increased use of timber to build a rampart palisade, as well as the need for grazing areas. This extensive land usage is reflected in the data with increases in bulk density and magnetic susceptibility suggesting instability and slope wash into the site. Throughout this time period there is also a definite suggestion of pastoral land use and also disturbed ground within the macrofossil data. The pollen evidence suggests open conditions with evidence for pasture/grazing on the floodplain of the Thames. During the Iron Age there is evidence that many floodplain areas in the Upper Thames became overgrazed and developed species poor grassland, which were seasonally waterlogged. Indeed, the macrofossil remains from Trench 20 on the floodplain itself indicated species poor-overgrazed conditions. However, during the Roman period evidence for floodplain grassland management was evident with the development of hay meadow.

The Iron Age period also coincided with a deterioration of the climate with Lamb (1977; Anderson *et al*., 2007) suggesting that annual temperatures may have fallen by 2°C, whilst the increased precipitation that also occurred is possibly evidenced by high magnetic susceptibility values, caused by increased alluviation in the river valleys and colluvial slope processes following the construction of the hillfort at the site. Similarly, the pollen record shows that with the exception of relatively little *Alnus* and small numbers of *Fraxinus,* herbaceous pollen types dominated the area and in particular *Gramineae*. It should be noted that a number of wild grasses have large pollen grains that may fall within the size-class categories for cereal types, e.g. *Agropyron repens* and *Glyceria maxima* so there can be a problem with identification (Edwards and Whittington, 1997). Whilst the pollen evidence does suggest some cereal cultivation was taking place (zones 3 and 4) it should be noted that plant macrofossil remains of *Glyceria maxima* were found between 198-164cm.

The decline in carbonate content, decrease in bulk density and increase in moisture content at 100cm may reflect the fact that most of the activity at the site took place during the earlier phases of the Iron Age. This supports the current archaeological evidence from Castle Hill and the surrounding settlement, where the scale of activity appears to have been reduced towards the end of the Iron Age, perhaps implying that part of the population moved when the valley fort at Dyke Hills was built.

There is a break in the sequence at c.100cm depth. This may be due to several factors. The first is that sediment accumulation slowed down and ceased to continue owing to a fall in the water table. This may be related to a period when the hillslopes were overgrown between the late Roman and the late medieval periods, thus reducing runoff. The second is that erosion truncated the sequence before a later phase or re-accumulation. When sediment accumulation re-commenced the landscape was open

and dominated by grassland/wet meadow. In the uppermost unit woodland is present as suggested by all proxies. The increase in bulk density between 60-40cm may be related to increased slope wash during the Little Ice Age. The peak in LIA cooler conditions is centred on AD 1700. This period of neoglaciation in the Northern Hemisphere was characterised cooler conditions and increased mass movement processes.

The rise in woodland in zone 7 relates to the planting of woodland in the past 200 years. At Spartum Fen, located 10 km to the north of the site in the valley of the R. Thame, a tributary of the Thames, woodland regeneration is noted from around AD 1300 with an increase in the pollen frequencies and concentrations of *Betula*, *Quercus* and *Salix* amongst others, suggesting woodland regeneration (Parker, 1995). Such change may reflect a change in land use, as for example a move away from local grazing and cultivation and/or the development of carr and carr woodland on the site. The planting woodland in the Upper Thames region during the past 200 years has also been noted in the pollen record from Wytham Woods, nr Oxford (Hone *et al*., 2001).

Conclusions

In conclusion, the deposit is late-Holocene in age with three phases of deposition. The first was a phase of early Holocene, though undated, sedimentation of clay-silt rich material. The next phase of sedimentation did not commence until the Late Bronze Age (2550±35 BP) and it is likely that this corresponding to a rise in the water table due to the removal of regional woodland. The landscape showed progressive clearance and the development of open ground conditions and phases of slope wash on Castle Hill. It is likely that this corresponded with phases of constructional activities during the Late Bronze Age and Iron Age associated with the hillfort. Sedimentation ceased c. 2000 BP (late Iron Age). A renewed phase of organic sediment accumulation began c. 400 BP and may have been associated with wetter conditions associated with the Little Ice Age. Woodland became re-established on Castle Hill in the past 200 years.

RADIOCARBON DATING

Five samples taken from selected seeds were submitted to the Poznan Radiocarbon laboratory for accelerator mass spectrometry (AMS) dating (Table 14.16). The determinations have been calibrated using OxCal v3.10 and atmospheric data from Reimer *et al*. (2004).