The Archaeology of the Cleeve–Didcot Pipeline, South Oxfordshire, 1989

By STEVE FORD

with contributions by WENDY CARRUTHERS, ANNETTE HAZELL, JULIE LOVETT and DAVID RICHARDS

SUMMARY

Watching brief and excavation along the line of a water pipeline located and examined a number of previously unknown archaeological sites, mainly of Iron Age and Roman date. One site, a pit group, appears to be the first examination of a non-hillfort Middle Iron Age site on the Berkshire Downs. It produced amongst other things a relative wealth of faunal and carbonised plant remains, allowing comparisons to be made with similar sites on the chalklands of Wessex and the river gravels of the Oxford region.

ACKNOWLEDGEMENTS

We are grateful for the help given by several individuals and organisations: Gwil Bere; Mike Hall of Thames Water; Jan Harding; Leigh Torrance; Professor John Allen, Professor Richard Bradley, Professor Michael Fulford of Reading University; members of South Oxfordshire Archaeological Group and Wallingford Historical and Archaeological Society; Murphy Pipelines Ltd. The finds have been deposited with Oxford Museum service.

INTRODUCTION

This Thames Water pipeline runs for 11.5 km. from Cleeve just outside Goring in the Thames valley (SU6182) to the A4130 at Hadden hill east of Didcot (SU5490) (figs. 1 and 2). The pipeline crosses a number of major geological and topographical features. Its southern end starts on the chalk scarp of the Chilterns, which makes up the side of the Thames valley. Where it crosses the Thames, the eastern (northern bank) side lies on gravel and alluvium, whereas the western side immediately rises onto the foothills of the Berkshire Downs chalk scarp. The tops of the hills and ridges which are a part of the scarp proper are covered with clay-with-flints and other superficial deposits, whereas no such material was observed on outlying hills such as Lollingdon Hill. The stretches northwards from Aston Tirrold are generally low-lying, with gravel and alluvium as base and with peat-filled channels. This area corresponds with a relict course of the Thames. Finally the northern extremes rise onto the upper greensand.

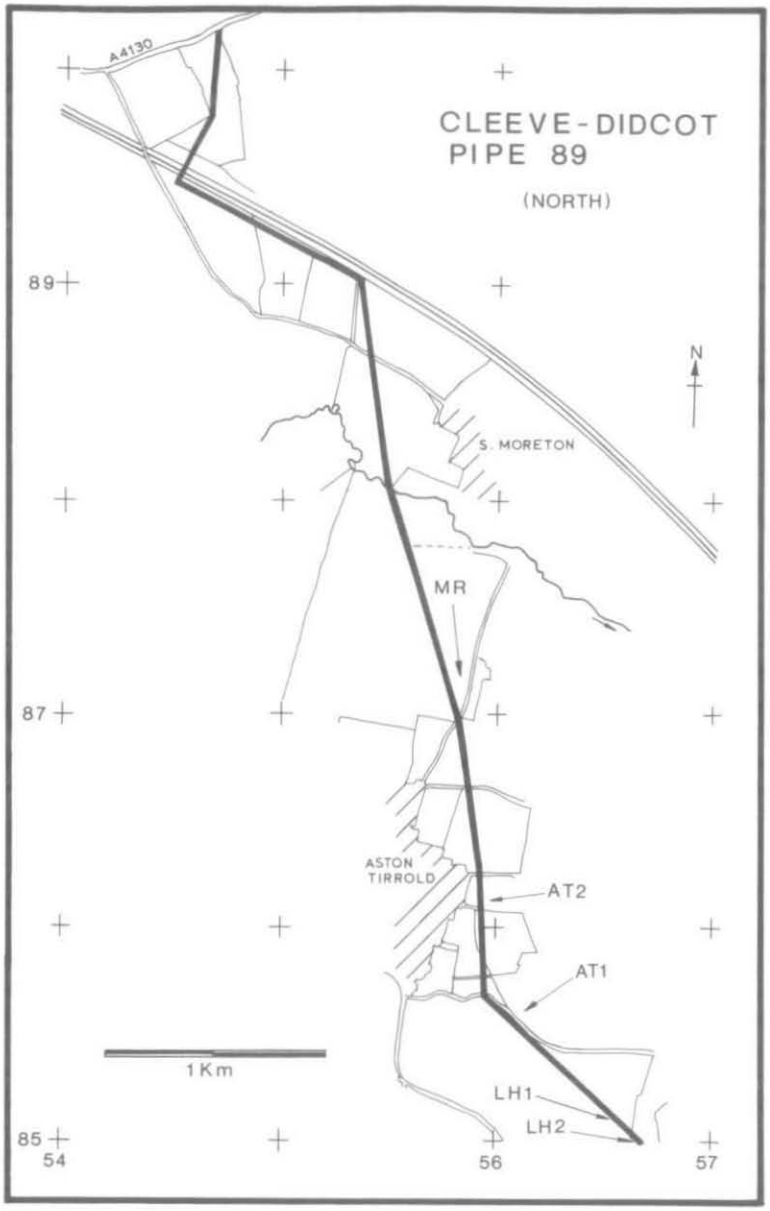

Fig. 1. Location of pipeline and sites referred to in text (north section).

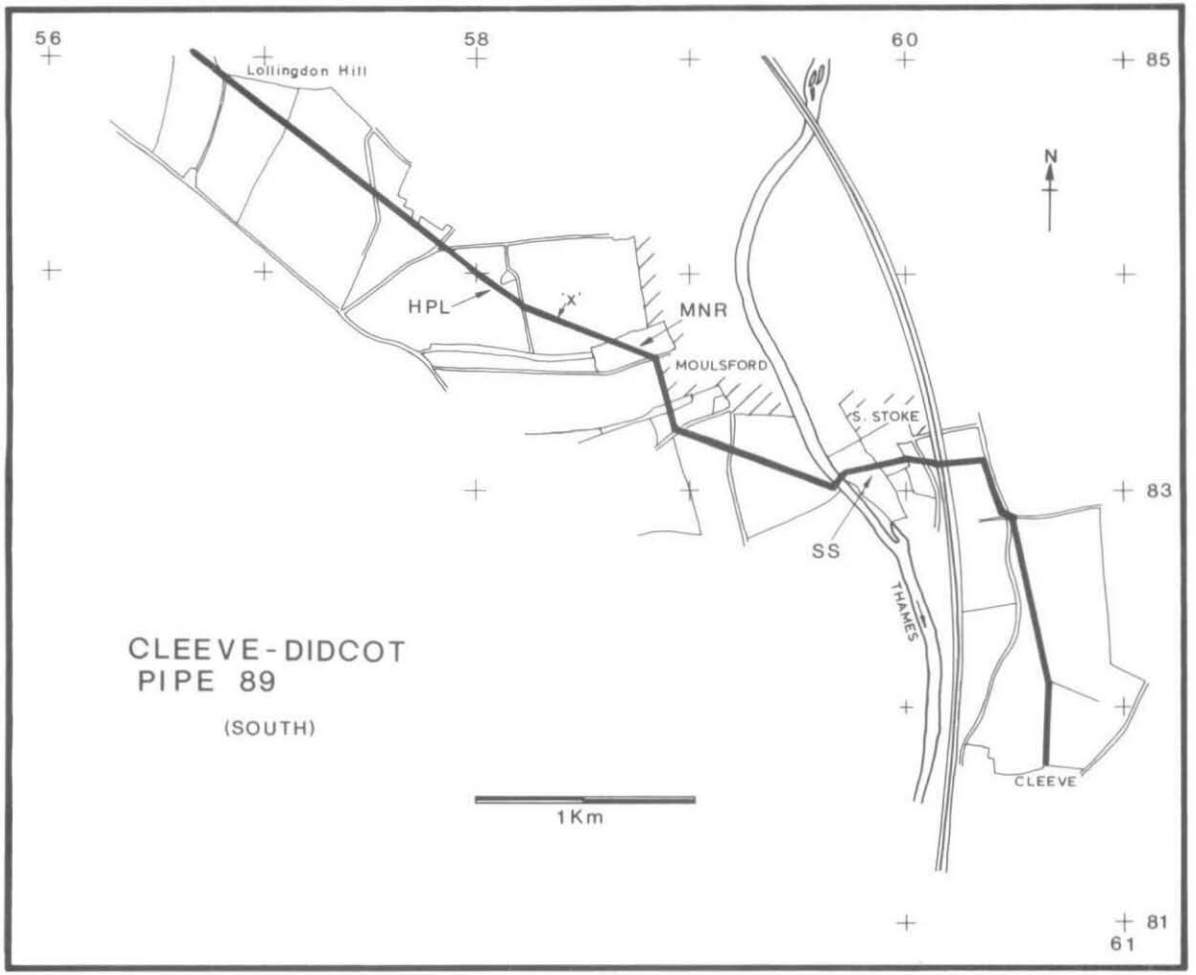

Fig. 2. Location of pipeline and sites referred to in text (south section).

The work was carried out in a number of self-contained stages. An initial survey comprised searching the 18-m. wide topsoil-stripped surface for features, and the spoilheap for finds. Even at best, conditions for recognising archaeological features were not ideal. The topsoil was not stripped with archaeological survey in mind, and frequently resulted in smears of topsoil remaining. The action of the bulldozer churned up most of the surface as soon as the topsoil was removed. Some areas were searched more thoroughly when significant numbers of artefacts were found on the spoil heaps.

Five sites were eventually examined. Three of these were initially discovered from finds on the spoilheaps. A further two previously recorded sites which were bypassed by the pipeline showed up as finds on the spoilheaps. No features were seen in the easement, although in the case of Aston Tirrold 1, *c.* 0.2 m. of colluvium was present, and several features of probable archaeological significance were observed in the pipe trench. Two possibly Mesolithic sites showed up as concentrations of flints on either the spoil heaps or on the stripped surface.

The aims of the excavations were principally to record and dig those archaeological features certain to be destroyed by the pipe trench, and where possible, to establish the nature of the site in order to put the excavated features into context. The first site to be dug posed a number of problems. First, there were a large number of features on or very close to the expected line of the pipe trench. Second, as the site was on clay with flints, substantial damage to many other features was probable (and resulted), caused by the passage of machinery. Fortunately, good weather prevailed when the pipe trench was finally dug and damage was relatively minimal.

HALFPENNY LANE (SU 581839)

The site lies on slightly sloping land just to the south of the flat ridge top. The chalk ridge here is capped with a considerable thickness (over 2 m.) of clay with flints. The site provides an extensive view over the Thames valley.

The main components of the site were at least 44 pits, 13 postholes/stakeholes, and chalk spreads. The plan in fig. 3 mainly shows only those features visible after the topsoil strip. Relatively small areas were hand cleaned. More pits were certainly present in areas obscured by topsoil and areas already damaged by the contractors' traffic. Conditions were sufficiently good to suggest that fig. 3 generally reflects the main distribution of the larger features. Further occupation debris of Roman date and possible chalk floors were recognised further down the hill where conditions for recognising subsoil features were poorer. No large features were apparently threatened by the actual pipe trench, although one and possibly two features were subsequently recorded.

The frequent surface occurrence of Roman pottery suggested that the site was of Roman date. Excavation showed that Roman features were present, but the main bulk of the features were Middle Iron Age.

THE MIDDLE IRON AGE PITS (Figs. 5 and 6)

The pits fall into a number of distinct categories which are typical of the Iron Age.[1] The most common type was circular or near circular in plan with vertical or undercut sides (e.g. pit 4). The diameters were between 0.9 and 1.4 m. with depths ranging from 0.2 to 0.6 m. Usually the deepest pits had the smallest diameters. The fills were

[1] B. Cunliffe, *Iron Age Communities in Britain* (1974), 180.

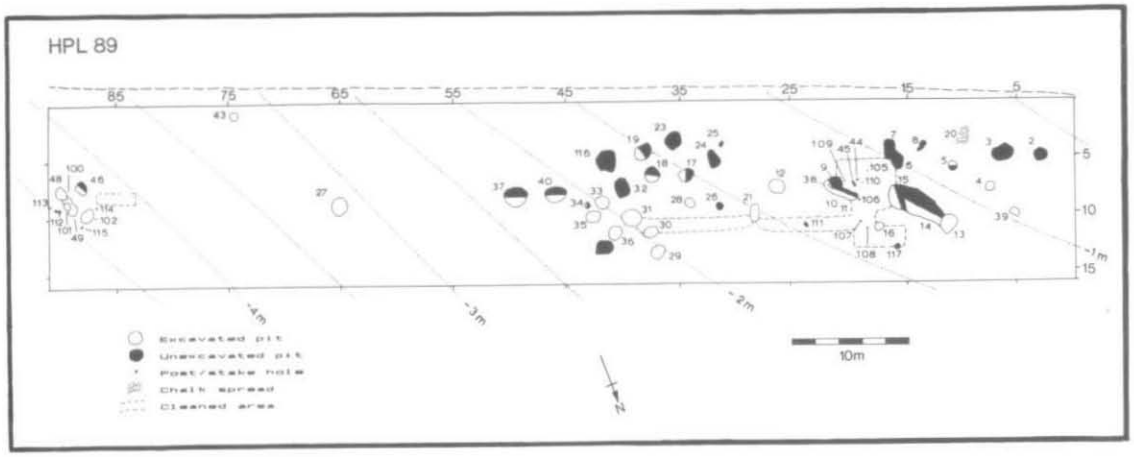

Fig. 3. Halfpenny Lane. Plan of features.

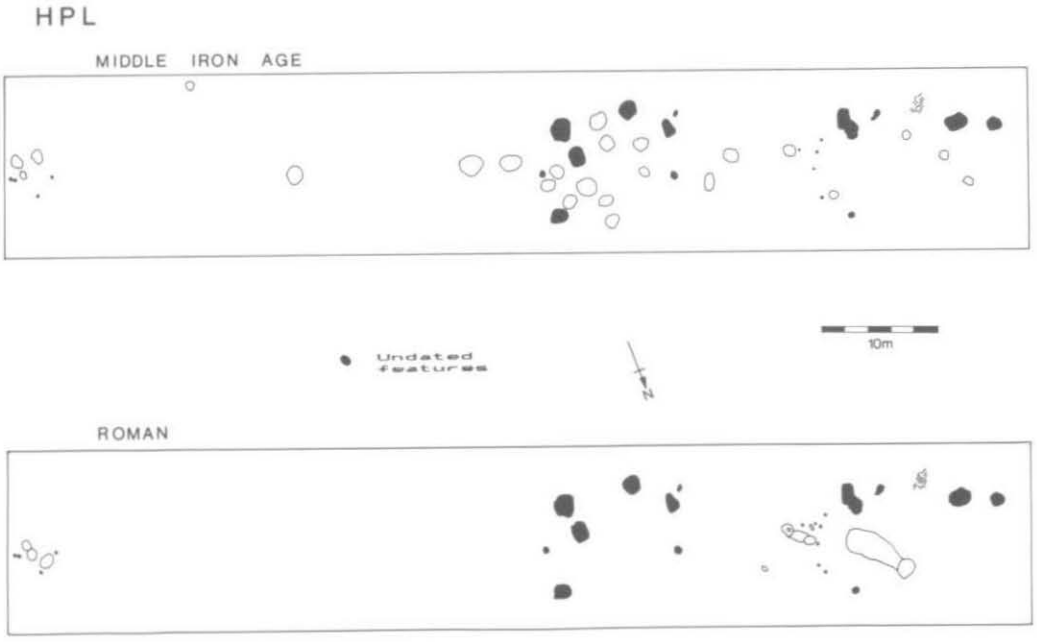

Fig. 4. Halfpenny Lane. Locations of Iron Age, Roman and Undated features.

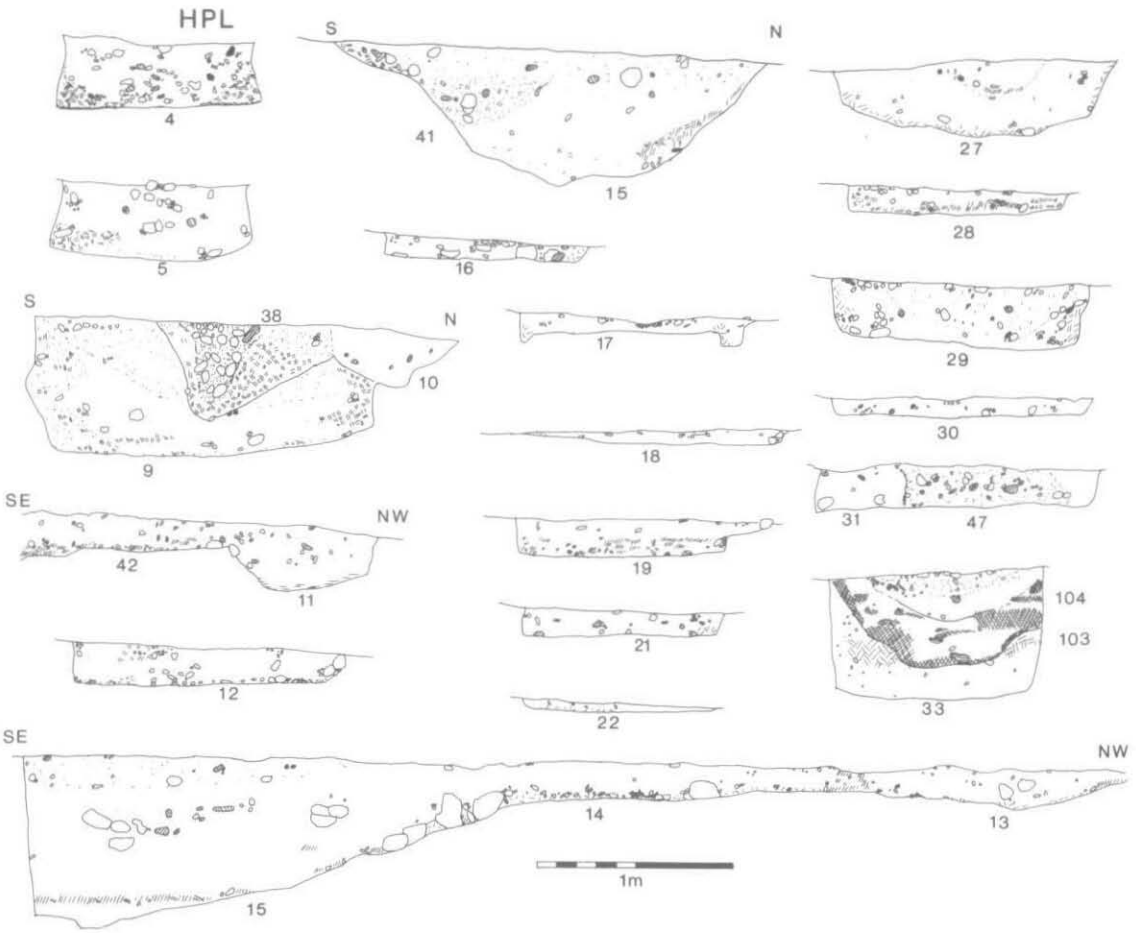

Fig. 5. Halfpenny Lane. Sections of features.

fairly consistent and apparently of one phase. Occasionally recuts were recognised but were essentially of the same nature as the originals. Pit 33 differed in that it had been recut twice by bowl-shaped cuts, the first of which (103) contained large quantities of charcoal.

A second category comprised small and medium bowl-shaped profiles ranging from 0.6 m. diameter and 0.25 m. deep to 1.3 m. diameter and 0.4 m. deep. One large pit of Roman date was oval in plan, 0.9 m. deep with one dimension exceeding 2 m. (F14).

The final category comprised a series of very shallow flat-bottomed pits about 1 m. in diameter but less than 0.1 m. deep. A number of other circular patches *c.* 0.4 m. diameter were only 20–30 mm. deep and are not thought to be archaeological.

Why there should be such variation in pit profiles is unknown. It was considered that the wide shallow pits may have had superstructures around them but no such features were observed. It has been suggested that the smaller/shallower pits may be an early form.[2]

The Middle Iron Age pits occurred in three groups: a diffuse low-density group to the west, a compact high-density group in the middle, and a small group of three to the east. Two isolated pits were also found. The Roman pits occurred in only two areas, coincident with the Middle Iron Age groups to the west and east.

[2] Cunliffe, op. cit. note 1, 178.

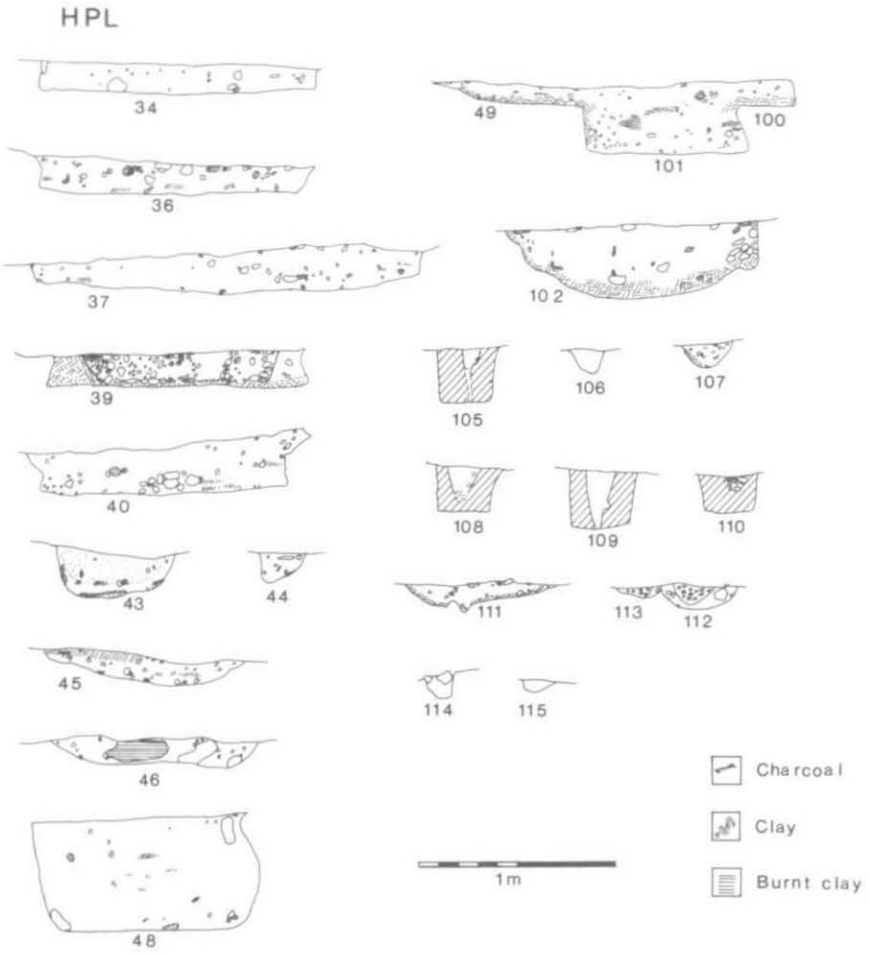

Fig. 6. Halfpenny Lane. Sections of features.

POSTHOLES AND STAKE HOLES (Fig. 6)

Of the 13 post/stake holes including the dubious examples, no more than five could be dated to Roman times. These only occurred in the vicinity of the west pit group. One, possibly two, of the postholes may have been pulled out and backfilled by cobbles (e.g. F38 and F110).

POTTERY

a) Prehistoric

Chronology: It was clear at an early stage of the excavation that several periods were represented with seemingly continuous activity from the Late Bronze Age through to late Roman. With little vertical stratigraphy to provide a relative sequence, the phasing of the site relies upon the characteristics of the pottery. The problems of dating

TABLE 1: HALFPENNY LANE SITE, PREHISTORIC POTTERY, FABRIC ANALYSIS

Fabric (brief description)		Number	(%)	Mean Sherd Weight (g)
1	Sand (coarse)	316	(53)	16.7
2	Sand (fine, dense)	26	(4)	9.1
3	Sand (medium)	23	(4)	8.4
45	Grog/shell	1	(<1)	4.0
49	Sand (coarse)	2	(<1)	8.0
50	Sand (rare)	2	(<1)	5.5
52	Sand (fine, dense)	118	(20)	10.5
53	Grog/ochre/sand	9	(2)	12.1
58	Sand/grog/ochre (soft)	5	(1)	14.6
80	Flint (medium)	9	(2)	11.6
81	Flint (dense, small)	15	(3)	7.1
82	Sand/flint	19	(3)	9.2
84	Flint/sand/vesicular	1	(<1)	3.0
86	Flint/sand (rare)	13	(2)	5.8
87	Shell (fine)	1	(<1)	2.0
89	Shell/grog	4	(1)	14.0
90	Shell	10	(2)	7.0
91	Shell/sand	6	(1)	9.5
92	Chalk/sand	13	(2)	8.6
98	Vesicular	1	(<1)	280.0
99	Chalk/sand/ochre	1	(<1)	4.0
TOTAL		595		

the individual components of multi-phased sites especially of Iron Age date have been well summarised,[3] with problems of largely undiagnostic material, longevity of old styles and residuality being prominent.

Three aspects were considered when dating features, namely (1) presence of highly diagnostic elements; (2) sherd size and the extent to which pottery and other material is primary or secondary refuse; (3) fabric analysis. Several features were intercutting and providing stratigraphic dating evidence. However, this usually comprised Roman features cutting other Roman or Prehistoric features. In the few instances of wholly Prehistoric intercutting features, no fine tuning of the pottery chronology was produced.

Fabrics: Some five tempering agents were recognised, namely sand, shell, flint, chalk, ochre/grog. With clear variations in size, density, combinations, and sherds with no obvious deliberate inclusions, some 22 fabrics were defined. It can be seen (table 1) that sandy fabrics, in particular fabric 1, are dominant, accounting for 73% of the total recovered.

It has been pointed out[4] that shelly ware is a common Early Iron Age fabric in the Upper Thames region, and it has been graphically shown how shelly ware decreases in importance at Ashville.[5] On the Berkshire Downs flint tempering is dominant in Late Bronze Age assemblages such as at Beedon,[6] Weathercock Hill,[7] and on an

[3] G. Lambrick, 'Pitfalls and Possibilities in Iron Age Pottery Studies – Experiences in the Upper Thames Valley', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Southern Britain* (Oxford. Univ. Archaeol. Comm. monograph 2, 1984), 72–88.

[4] R. Hingley, 'Excavations by R.A. Rutland on an Iron Age Site at Wittenham Clumps', *Berks. Archaeol. Jnl.* lxx (1979), 34.

[5] Lambrick, op. cit. note 3, p.174.

[6] J.C. Richards, 'The excavation of a Late Bronze Age Settlement and Ditch at Beedon Manor Farm, Berkshire', in P.D. Catherall, M. Barnett and H. McClean (eds.), *The Southern Feeder. The Archaeology of a Gas Pipeline* (1984), 56–70.

[7] M. Bowden, S. Ford and V. Gaffney, 'A Late Bronze Age Artefact Scatter on Weathercock Hill', *Berks. Archaeol. Jnl.* (forthcoming).

outlying hill at Wittenham Clumps.[8] A similar emphasis was evident at the slightly later Late Bronze Age/Early Iron Age site at Wallingford.[9] As table 1 shows, flinty and shelly fabrics only constitute 7% and 4% of the total, and these figures include categories of flint/sand or shell/sand. These fabrics appear to be a relatively minor component of the total assemblage. On a feature-by-feature basis these figures are more variable. For the very small assemblages figures approaching 50% are recorded for these fabrics, but for the larger groups values under 20% are the norm. The total figures also show that the predominant sandy fabric (1) has the greatest mean sherd weight. Again, on a feature-by-feature basis fabric 1 almost invariably has the highest mean sherd weight, only usually surpassed in the very small assemblages.

Except in one or two instances then, the fabric analysis suggests that the majority of the prehistoric features are probably later than the Late Bronze Age/Early Iron Age.

Highly diagnostic elements: Figs. 7 and 8 illustrate all the distinctive decorated sherds along with the range of vessel forms.

The Late Bronze Age/Early Iron Age is represented by several sherds with the very common trait of finger tip/nail decoration on rims or shoulders (e.g. fig. 7, nos. 8, 16, 17, 27; fig. 8, no. 8). This trait continues into the Middle Iron Age. Much more distinctive are the incised geometric patterns of lozenges etc., some with white inlay (e.g. fig. 7, nos. 24, 28), with parallels at e.g. Rams Hill.[10] Rather more unusual is the vessel with stamped decoration (fig. 7, no. 5), which can be paralleled at Blewburton Hill.[11] Angular vessel form and probably expanded rims (e.g. fig. 7, nos. 15, 13) are also traits of the Late Bronze Age/Early Iron Age.

The majority of the other illustrated pottery, comprising globular bowls and jars, is relatively undiagnostic, other than falling broadly within a general Middle Iron Age tradition. Many of the vessels can be paralleled at sites such as Ashville and Farmoor.[12] One distinctive class of Iron Age pottery apparently absent from this assemblage are saucepan pots. These vessels see their northern limit of distribution in the vicinity of the Upper Thames, but are fairly well represented at Blewburton Hill.[13] Several base sherds and simple upright rims could come from vessels with a saucepan-pot form, but without certainty. Saucepan pots tends to be dated towards the end of the Iron Age,[14] perhaps implying a chronological dimension here, yet the large Ashville assemblage which spans the whole of the Iron Age has only a single vessel approaching this type.[15]

Homogeneity: Very few of the excavated pits produced substantial quantities of large sherds such as in pit 4 or recut 104 (pit 33). It is consequently difficult to assess the extent of residuality in some pits with the distinctive decorated EIA sherds or the high proportion of sherds with shell/flint fabrics. There are therefore few grounds for suggesting that any Early Iron Age features have been dug.

The consensus of the evidence thus points to a Middle Iron Age date, e.g. 5th–2nd century BC, for these pits.

b) Roman by ANNETTE HAZELL

A total of 262 sherds were found from the nine pits and five postholes excavated, along with a few tile fragments. A small amount of material was found unstratified within the easement, and pressed into the top of some of the Middle Iron Age pits. These finds included four tile fragments (one an imbrex, one a tegulae and two decorated floor tiles). Some of the smaller features are only tentatively dated from small sherds.

Grey wares comprise 48% of the total assemblage. Of this general category sherds with a coarse sandy fabric comprise 18%, and 31% are tempered with either fine sand or mica. It is difficult to date and source these vessels closely but the types and fabrics fall within the repetoire of the Oxford kiln sites.[16] The rather more distinctive

[8] R. Hingley, op. cit. note 4.

[9] 'Archaeological Notes', *Berks. Archaeol. Jnl.* lviii (1960), 55–58.

[10] R. Bradley and A. Ellison, *Rams Hill* (British Archaeological Reports BS xix, 1975), e.g. fig. 3:6, nos. 43, 53–58.

[11] D.W. Harding, *The Iron Age in the Upper Thames Basin* (1972), plate 58, H, J.

[12] M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring Ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxon) 1974–76* (CBA res. rep. xxviii, Oxford Archaeol. Unit rep. 1, 1978); G. Lambrick and M. Robinson, *Iron Age and Romano-British Riverside Settlements at Farmoor, Oxfordshire* (CBA research report xxxii, 1979).

[13] Harding, op. cit. note 11.

[14] e.g. Cunliffe, op. cit. note 1.

[15] Parrington, op. cit. note 12, 73.

[16] C. Young, *The Roman Pottery Industry of the Oxford Region* (BAR xxxxiii, 1977).

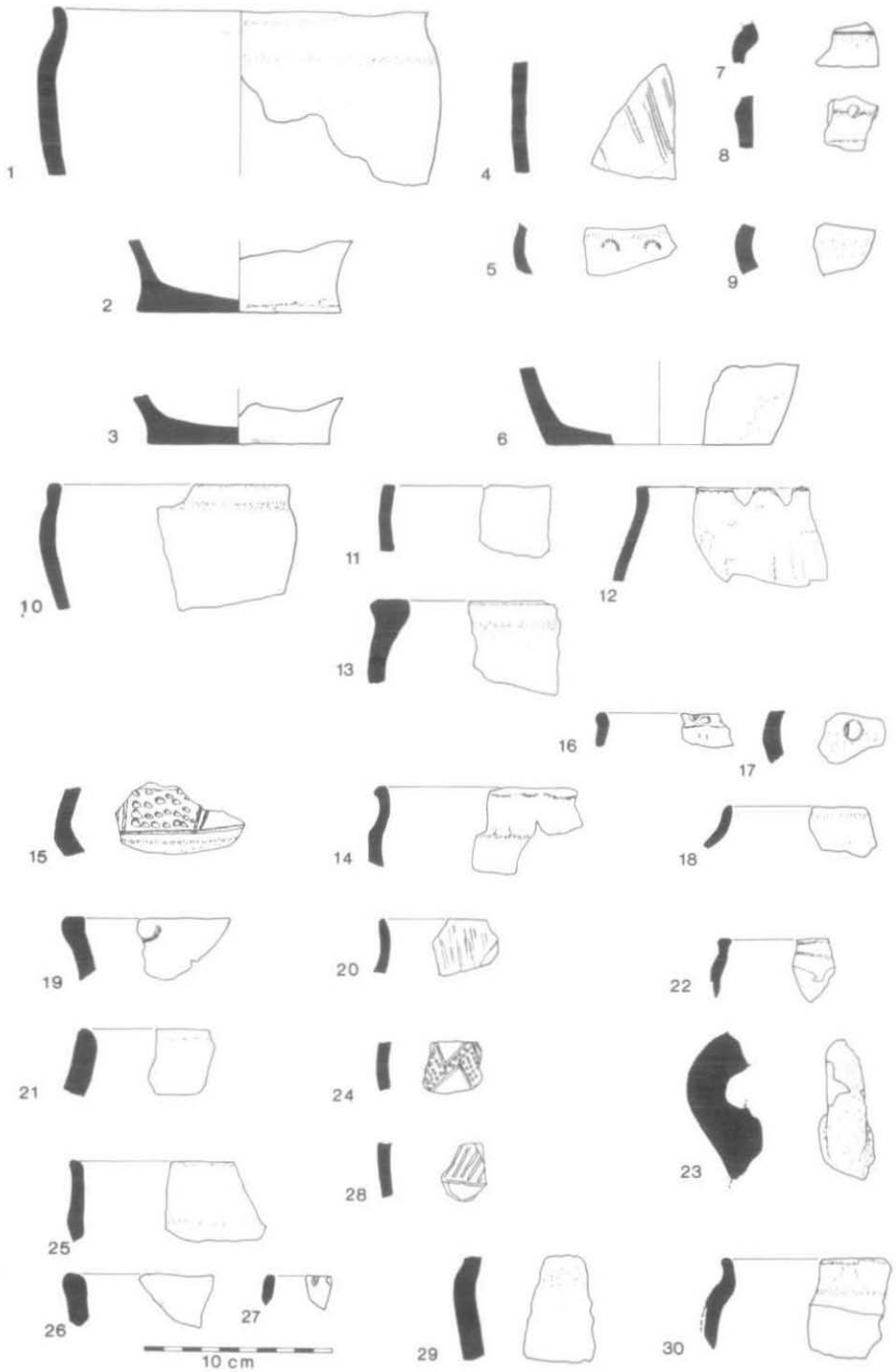

Fig. 7. Halfpenny Lane. Prehistoric Pottery. 1–9 Pit 4 (050); 10–13 Pit 5 (051); 14–15 Pit 12 (059); 16–17 Pit 9 (058); 18 Pit 21 (064); 19–20 Pit 27 (078); 21 Pit 31 (076); 22–23 Pit 29 (075); 24 Pit 35 (077); 25–27 Pit 33 (157); 28 Pit 36 (081/087 top); 29 Pit 37 (083); 30 Pit 39 (074).

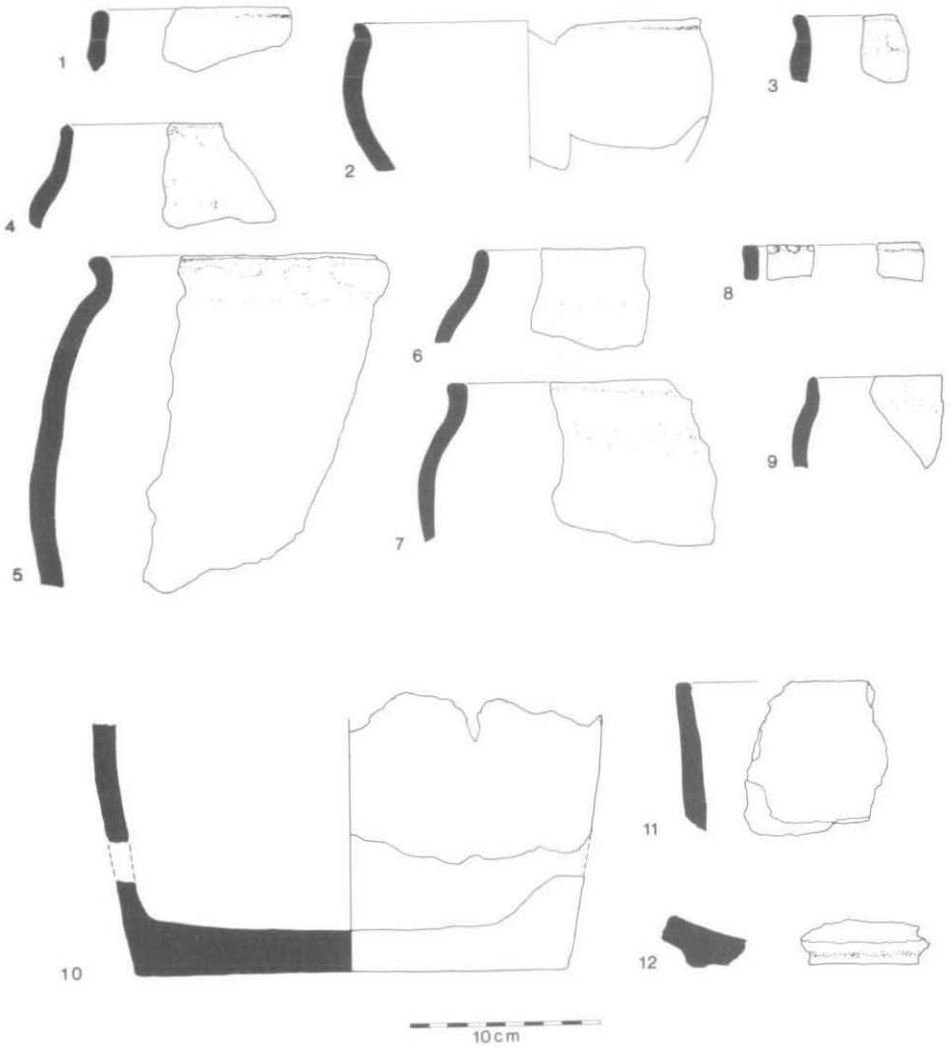

Fig. 8. Halfpenny Lane. Prehistoric pottery. 1 Pit 40 (097); 2–3 Pit 48 (151); 4 Pit 101 (158); 5–9 Pit 104 (096); 10–12 U/S.

products of the Oxford-region kilns, namely red (with a little white) coloured coated vessels and white ware, comprise 24% and 3% respectively. Some of these products allow the features to be dated more closely to the 3rd–4th centuries AD.[17]

Sherds with a black sandy fabric (12%) are probably from good local copies of black burnished ware. Positively identified black burnished ware accounted for 3%. Grog tempered sherds (5%), S. Gaulish Samian (1%) and shell tempered sherds (4%) make up the remainder.

[17] Ibid.: for example forms M19.3 and C.100.3 from F14; forms C52.1, WC7.3 from F13; forms C. 100.7 and C.100.9 from F15.

Fig. 9. Halfpenny Lane. Bone objects. 1 F12 (059); 2 F5 (051).

BONE TOOLS (Fig. 9)

Two sheep metapodials from Pit 5 (051) and Pit 12 (059) are 'waisted' and shiny from wear. This type of tool is fairly common on Iron Age sites such as Danebury, Ashville and Farmoor.[18] They are thought to be connected with spinning or weaving.

STRUCK FLINT

Only a small amount of struck flint was recovered totalling 47 pieces. This comprised 32 flakes; 4 cores and core fragments; four spalls; 3 possible broken blades; two obliquely blunted microliths; a broken polished flint axe; and a possible denticulate scraper. Several pieces are clearly residual and there is no evidence either way to decide if the remainder is similarly residual.

[18] L. Sellwood, 'Objects of Bone and Antler', in B. Cunliffe, *Danebury. The Excavations 1969–1978: the Finds* (CBA research report lii, 1984), 371–396; Parrington, op. cit. note 12, fig. 61; Lambrick and Robinson, op. cit. note 12, fig. 29.

METALWORK by DAVID RICHARDS

(A fuller report is deposited with the site archive)

All metal finds except a small bronze stud from F104 were either unstratified or recovered from Roman contexts. One iron object (an agricultural tool) came from pit 102. Pit 13 produced a radiate sized bronze coin, Pit 14 a bronze bracelet and Pit 15 a bronze spoon. An unidentified bronze object was unstratified.

SPINDLE WHORL

A broken fragment of a stone spindle whorl came from pit 5 (051).

LOOMWEIGHTS

Nine pits (4, 21, 29, 33, 35, 40, 48, 104) contained fragments of loomweights ranging from 2 g. to 560 g. Most were badly fragmented. For the clay weights, inclusions usually comprised small quantities of sand and sometimes grass. Apart from the chalk weight from pit 33, the remainder where sufficiently intact appear to be of triangular form.

FIRED CLAY

Nine pits (19, 27, 48, 49, 37, 102, 104) also contained fragments of fired clay usually totalling less than 40 g. However the latest recut of pit 33 (104) contained several lumps of poorly fired clay totalling nearly 2 kg. This material may have been accidentally burnt. Considerable quantities of charcoal were found in this and the earlier recut (103).

DAUB

14 pits (12, 19, 21, 27, 31, 33, 35, 36, 37, 39, 40, 48, 100, 104) produced daub ranging from 5 g. to over 200 g.

FOREIGN STONE identified by PROFESSOR J.R.L. ALLEN

Six items were found and were inspected with a hand lens.

1) F39 (074). Rotary quern fragment (131 g.). Medium grained quartzitic sandstone. Carboniferous, possibly millstone grit.

2) Unstratified. Rotary quern fragment (830 g.). Medium/coarse grained quartzitic sandstone. Carboniferous.

3) Pit 104 (096). Rotary quern(?) fragment (2.4 kg.). Well sorted granular cemented quartzite. Uncertain origin, possibly from the Greensand.

4) Pit 5 (051). Stone fragment (513 g.). Same as 3.

FAUNAL REMAINS by JULIE LOVETT

The site produced a relatively small collection of 700 bones including all chips and rib fragments. Of these 587 are Middle Iron Age and 113 Roman. The bone was very fragmentary and only 37% and 57% respectively was identifiable to both species and element (Table 2).

The species present were cattle, sheep, pig, horse, red deer and post-cranial bones from an unidentified small mammal or mammals. Goat was not differentiated from sheep, but the presence of goat was attested by the occurrence of one horn core. No bird bones were present despite a programme of sieving.

TABLE 2: HALFPENNY LANE. THE TOTAL FRAGMENT AND EPIPHYSIS ONLY CALCULATIONS

	Total Fragments M.I.A.	Total Fragments Roman	Epiphysis Only M.I.A.	Epiphysis Only Roman
Cattle	87	38	27	19
Sheep	107	4	42	1
Pig	16	3	5	2
Horse	6	15	3	10
Deer	1	0	1	0
Un.s.m.	2	0	2	0

Un.s.m. = Unidentified small mammal.

TABLE 3: HALFPENNY LANE. THE PERCENTAGE OF BONE PER M.I.A. PIT

Feature No.:	4	**5**	9	12	16	**17**	**18**	**19**	21	27	28	29	30	31	33	35	36	**37**	39	**40**	43	**46**	47	48	101	103	104
Percentage:	13	8	4	2	5	0	1	1	1	2	4	3	1	4	5	5	5	2	1	3	4	0	0	6	2	3	14

Bold Type = Half excavated pits.

The Middle Iron Age sample

The larger bone collection came from 24 of the 27 pits. Table 3 shows the percentage of bone which was produced by each of these features. Five pits were only half excavated and therefore the numbers are only representative of half of the expected bone from the pit.

The reason for the variation in quantity of bone from the features is uncertain, but the size of the pits does not appear to be related to the amount of bone deposition. The largest producers of animal bone were the relatively small pits F4 and F104.

Two pits (F16 and F39) each contained an almost complete skull, both of which were crushed by the passage of machinery. F39 contained an adult cattle skull along with a piece of red deer antler and an unidentifiable bone fragment. F16 contained the skull of an adult horse and some cattle and sheep bones. These may represent ceremonial deposits which were not uncommon during the Iron Age, and at Danebury 11% of the pits contained skulls.[19] Unlike at Danebury, however, no articulated limbs were recovered from Halfpenny Lane.

Representation of the species

The species present in order of frequency were: sheep, cattle, pig, horse, unidentified small mammal and red deer (Table 2). The calculations were made using total fragments (excluding skull and rib) and epiphysis only (counting elements with an epiphysis present, or if unfused, a fusion surface and mandibles with teeth). Calculations by minimum number of individuals were not used owing to the small numbers involved.

The greater occurrence of sheep over cattle and pig has been noted as a more common husbandry practice on downland sites.[20] Although there is still a fairly high proportion of cattle in the collection, which attests to their importance in the economy, the immediate environment is perhaps less well suited to the dietary requirements of cattle than sheep. The latter do not need particularly good-quality grass, for example, nor access to water on the same scale as cattle. Other sites on chalk downland such as Old Down farm (periods 5 and 6), Danebury and Gussage All Saints show a similar dominance of sheep bones over cattle bones.[21]

[19] A. Grant, 'Animal Husbandry', in Cunliffe, op. cit. note 18, 496–548.

[20] A. Grant, 'Animal Husbandry in Wessex and the Thames Valley', in Cunliffe and Miles, op. cit. note 3, 102–19.

[21] M. Maltby, 'Animal Bone', in S. Davies, 'Excavations at Old Down Farm, Andover', *Proceedings of the Hampshire Field Club and Archaeological Society*, xxxvii (1981), 81–163; Grant, op. cit. note 19; R. Harcourt, 'The Animal Bones', in G. Wainwright, *Gussage All Saints. An Iron Age Settlement in Dorset* (Dept. of environment archaeological reports, x, 1979), 150–60.

TABLE 4: HALFPENNY LANE. REPRESENTATION OF ELEMENTS FOR THE M.I.A. SAMPLE

Element	Cattle	Sheep/goat	Pig	Horse	Red Deer	Unident s. mam
Horn Core/antler		1			1	
Skull	5		1	1		
Upper orb						
Lower orb	1	1	1			
Occip cond	1					
Atlas						
Axis						
Vert	3	1				
Sternum						
Max	2	1				
Mand	17	12				
Teeth	14	13	5	3		
Scap P						
Scap D	2	1				
Scap blade	5	1	2			
Hum P	1		1			c
Hum D	1	5				
Hum S	3	3	1			
Rad P	3+cc	4	1			
Rad D	1	2				
Rad S	1	7				
Ulna P		3	1			
Ulna D						
Ulna S	2	3				
Metac P		5		c		
Metac D		1				
Metac S		2				
Carpal/tarsal						
1st Ph		1				
2nd Ph			1			
3rd Ph						
Pelvis + acet	1	3				
Pelvis body	2	1				
Sacrum	2					
Fem P	1	2				
Fem D		2				
Fem S	3	4				
Patella						
Tib P	1					c
Tib D	1	3		1		
Tib S	2	16	1			
Fibula						
Metat P	3+cc	1	1			
Metat D		1				
Metat S	5	5	1			
Astrag	1					
Calc	2	1				

Unident s.mam. = Unidentified small mammal. c = complete, both epiphyses present. p = proximal. d = distal. s = shaft.

TABLE 5: HALFPENNY LANE. THE UNFUSED ELEMENTS IN THE M.I.A. SAMPLE

Element	Cattle	Age	Sheep	Age	Pig	Age	Unident s. mam
Scap D	f	7–10 mths					
Hum P	1	<3.5–4 yrs					
Hum D			1	<10 mths			1
Rad P			1	<10 mths			
Rad D	3	<3.5–4 yrs					
Ulna P			2	<3 yrs	1	<3–3.5 yrs	
Metac D			1	<18–24 mths			
2nd Ph P					1	<1 yr	
Fem P	r	3.5 yrs	2	<2.5–3 yrs			
Fem D			1	<3–3.5 yrs			
Tib P	1	<3.5–4 yrs					
Metat D	1	<2.25–3 yrs	1	<20–28 mths			

< = younger than. mths = months. yrs = years. f = fusing. r = fusion line still visible. p = proximal. d = distal. s = shaft.

The only clear evidence for goat was a horn core from F4. This had been chopped horizontally roughly two thirds of the way down its length, presumably to utilise either the horn or the core or both.

Pig was the least frequently occurring of the three main species as on other Iron Age downland sites. As these animals are normally associated with woodland usage, their rarity here may indicate the limited occurrence of woodland in the vicinity.

A small proportion of horse was present, comprising the skull from pit F16, two fused long bones and three teeth.

Table 5 shows all of the unfused or fusing elements in the sample along with the corresponding approximate ages. Thirteen out of 21 cattle elements were fused, and were all among the earlier fusing epiphyses which are not particularly helpful for estimating age. More epiphyses were present for sheep and 27 out of 36 were fused, again all earlier fusing except three. These indicate that the animals were older than three to three and a half years at death. For pig three out of five epiphyses were fused, suggesting an animal older than three and a half years.[22]

Estimating age by mandible-wear was not possible owing to the lack of mandibles except for two from sheep. These indicated one mature and one immature animal. The instances of sheep younger than one to two years old may indicate natural mortalities, although other explanations have been offered for the presence of such young animals at Danebury.[23]

Few bones were complete enough to allow measurement, but those that were fall within the range of Iron age sizes. (Table 6).

There were no obvious butchery marks on the bones, but some were burnt. Almost all of these were sheep bones with the exception of part of a red deer antler from F39, and a cattle vertebra from F104. The vast majority of bone from the latter feature was of sheep and indeed most was burnt. This is not surprising considering the other evidence for burning in this feature.

Disease was not in evidence, and the only size of injury was the very slight extra bone growth on a cattle metatarsal from F4. There were five instances of gnawed bone, three from F4 and two from F29.

The Roman sample

The Roman sample (Table 7) was much smaller than that of the Middle Iron Age and only a few comments are in order. There were certain contrasts between the two phases in terms of representation of species, the main

[22] Fusion ages after I.A. Silver, 'The Ageing of Domestic Animals', in D. Brothwell and E. Higgs (eds.), *Science in Archaeology* (1969), 283–302; Bone measurements after A. Von Den Driesh, *A Guide to the Measurement of Animal Bones from Archaeological Sites* (Peabody museum bulletin 1).

[23] A. Grant, op. cit. note 19.

TABLE 6: HALFPENNY LANE, FAUNAL REMAINS
MEASUREMENTS FROM THE M.I.A. SAMPLE

Element	Cattle	Element	Sheep	Element	Pig	Element	Horse
Hum Gl	206	Hum Db	27.3	Rad Pb	25	Metac Sd	29.8
Hum Sd	25.1	Hum Dd	23.7	Rad Pd	17.2		
Hum Pb	45.7	Rad Pb	25.1				
Hum Pd	44.2	Rad Pd	12.8				
Hum Db	56.7	Rad Db	23.2				
Hum Dd	30.5	Rad Dd	16.1				
Rad Pb	70.6	Metac Pb	21.2				
Rad Pd	34.4	Metac Pd	15				
Metat Sd	23.1	1st Ph GL	29.5				
Metat Pb	45.7	Tib Db	20.8				
Metat Pd	39.8	Tib Db	21.4				
Metat Db	47.2	Tib Db	22.1				
Metat Dd	28	Tib. Dd	15.5				
		Tib Dd	15.8				
		Tib Dd	16.7				
		Calc GL	44.1				

MEASUREMENTS FROM THE ROMAN SAMPLE

Element	Cattle	Element	Horse
Horn Core Bc	207	1st Ph Gl	90
Horn Core Ld	74.8	Metat Gl	272
Horn Core Sd	50.3	Metat Sd	33.3
Metac Db	63.2	Metat Pb	51.2
Metac Db	63.3	Metat Pd	46.3
Metac Dd	32.3	Metat Db	50
Metac Dd	31.7	Metat Dd	37.8

Coding for measurements:

Gl = greatest length
Sd = smallest diaphysis
Sl.C = thickness of the neck
B.c = Horn core basal circumference
Horn Core Sd = smallest basal diameter
Pb = proximal breadth
Pd = proximal depth
Db = distal breadth
Dd = distal depth
Horn Core Ld = largest basal diameter

TABLE 7: HALFPENNY LANE. REPRESENTATION OF ELEMENTS FOR THE ROMAN PERIOD

Element	Cattle	Sheep/Goat	Pig	Horse
Horn Core	2			
Skull				
Lower orb				
Occip cond				
Atlas	1			
Axis				
Vert	1		2	
Sternum				
Max				
Mand	2			1
Teeth	7	1		8
Scap P				
Scap D				
Scap blade				
Hum P				
Hum D				
Hum S				
Rad P	2			
Rad D				
Rad S				
Ulna P		1		
Ulna D				
Ulna S				
Metac P	3			
Metac D	5			1
Metac S	3			
Carpal/tarsal				
1st Ph				1
2nd Ph				
3rd Ph				
Pelvis + acet	3			2
Pelvis body		1		1
Sacrum	1			
Fem P				
Fem D	1			
Fem S	1		1	
Patella				
Tib P				
Tib D				1
Tib S		1		
Fibula				
Metat P	1			1+c
Metat D				1
Metat S	2	1		
Astrag				
Calc	3	1		

c = complete, both epiphyses present. p = proximal. d = distal. s = shaft.

differences being the apparent fall in the proportion of sheep relative to cattle, and the increase in horse even over sheep and pig. This was not a result of one or two larger deposits, with the bone coming from several features, and seems therefore to represent a general trend despite the small sample. Only one gnawed cattle calcaneum was found in F13.

Conclusion

The animal bone collection from Halfpenny Lane was a result of domestic refuse dumping in both the Middle Iron Age and Roman periods. The exception to this was the apparently ritual deposits of cattle and horse skull which has parallels on other Iron Age sites such as Danebury.[24]

Little could be said about the Roman sample due to its small size, but one feature of King's comparative work on Roman assemblages[25] is worth noting. King points to a number of sites where there has been a long history of occupation, and where sheep numbers have decreased while cattle numbers increased. This appears to have occurred here in the Roman collection relative to the Middle Iron Age phase. It is suggested[26] that this was due to increased exploitation of woodland in Roman times, but one might have expected an increase and not a decrease in the numbers of pig.

The Other Sites

The limited excavation of the other pipeline sites precluded useful analysis of the bones recovered. The usual range of domestic species was noted. The only point of interest was the recovery of a human ulna, vertebra and phalanges from ditch 19 on the Moulsford North Road site.

THE CARBONISED AND MINERALISED PLANT REMAINS by WENDY J. CARRUTHERS

Soil samples were taken from selected features during the excavation for the recovery of plant remains. Sample sizes, which were generally around 10 litres, are given at the bottom of the full species list in the archive.

The samples were subjected to manual flotation and the flots were recovered in a 250μ meshed sieve. After being dried and bagged the flots were passed on to the author for sorting and identification.

Results

Fifteen Middle Iron Age pits were sampled, of which five were deep, vertical-sided pits and ten were shallower, bowl-shaped pits. One Roman bowl-shaped pit and a Roman ?post-hole were also sampled. All of the samples examined contained carbonised plant remains, the concentration varying from 1.2 fragments per litre for the ?post-hole to 24.2 per litre for a Middle Iron Age pit-fill (151, F48). Eight of the eighteen samples also contained small numbers of mineralised plant remains in the flots.

The carbonised remains were generally in a good state of preservation, but many of the cereals could only be identified as 'indeterminate cereals' because of distortion and fragmentation. The mineralised remains were amber-coloured and possessed the characteristics of calcium phosphate-replaced remains as given by Green.[27]

The presence of Late Bronze Age/Early Iron Age pot sherds in six of the Middle Iron Age pits sampled indicated that there was some degree of residuality within the deposits. As the overall percentage of redeposited pot was low (*c*.2–3%) this is unlikely to have affected the results dramatically. However, since none of the taxa are exclusive to the Late Bronze Age/Early Iron Age it is impossible to know to what extent this has affected the plant remains, and the possibility of residuality should be borne in mind.

Table 8 presents the results of the analysis in a summarised form. The full lists are given in the archive. A triangular scattergram was drawn in order to present the results from the carbonised pit assemblages in a form which was directly comparable with results from other Iron Age sites, such as Danebury.[28]

[24] Ibid.

[25] A.C. King, 'A Comparative Survey of Bone Assemblages from Roman Sites in Britain', *Bulletin of the Institute of Archaeology*, xv (1978), 207–232.

[26] Ibid.

[27] F.J. Green, 'Phosphate Mineralisation of Seeds from Archaeological Sites', *Jnl.Arch.Sci.* vi (1979), 279–84.

[28] Martin Jones, 'The Plant Remains', in Cunliffe, op. cit. note 18, 483–95.

TABLE 8: HALFPENNY LANE. THE CARBONISED AND MINERALISED PLANT REMAINS

[ ] = mineralised no brackets = carbonised

Taxa	habitat	MIA deep pits	bowl pits	Roman features
Triticum cf. *dicoccum* Schübl, (cf. emmer caryopses)		1	1	-
T. dicoccum Schübl, (emmer glume bases)		1	1	-
T. cf. *spelta* L, (cf. spelt caryopses)		-	1	-
T. spelta L, (spelt glume bases)		125	39	4
T. spelta L, (spelt spikelet forks)		2	1	-
T. dicoccum/spelta (emmer/spelt caryopses)		22	24	6
T. dicoccum/spelta (emmer/spelt glume bases)		241	113	24
T. dicoccum/spelta (emmer/spelt spikelet forks)		22	16	-
T. dicoccum/spelta (emmer/spelt awn fragments)		-	1	-
Triticum sp. (wheat caryopsis)		-	1	-
Hordeum vulgare L, emend, (6-row hulled barley)		3	1	4
Hordeum sp, (hulled barley)		13	23	17
Hordeum sp, (barley rachis fragment)		13	2	2
Avena sp, (oat caryopses)		-	1	-
Avena sp, (oat awn fragments)		18	38	2
NFI cereals		96	116	32
Anagallis arvensis L, (scarlet pimpernel)	CD	-	2	1
Atriplex hastata/patula (orache)	CD	-	1	-
Bilderdykia convolvulus (L.)Dumort, (black bindweed)	AD	3	1	2
Brassica cf. *rapa* (cf. wild turnip)	ABD*	-	125	-
Brassica sp./*Sinapis* sp.	ACD	[2]	[4]	-
Bromus sect. *Bromus* (chess)	ADG	28	3	-
Bupleurum rotundifolium L, (thorow-wax)	Ac	-	-	1
Carex sp. (sedge)	GM	[3]1	[4]	-
Caryophyllaceae NFI		-	[1]1	-
Centaurea cf. *scabiosa* L, (cf. greater knapweed)	GHR	-	1	-
Chenopodium album L, (fat hen)	CDn	3	4	-
Chenopodium sp./*Atriplex* sp.	CD	[1]1	[1]5	5
Cladium mariscus (L.) Pohl. (saw sedge)	BM	3	1	-

TABLE 8: HALFPENNY LANE. THE CARBONISED AND MINERALISED PLANT REMAINS

[ ] = mineralised no brackets = carbonised

Taxa	habitat	MIA deep pits	bowl pits	Roman features
Corylus avellana L., (hazel-nut shell fragments)	HSW	9	14	-
Cruciferae NFI		-	1	-
Cyperaceae NFI		-	7	-
Euphrasia sp./*Odontites verna* (eyebright/red bartsia)	CD	2	-	2
Fumaria sp. (fumitory)	CD	-	2	-
Galium aparine L. (cleavers)	DH	12	20	37
G. cf. *palustre* (cf. marsh bedstraw)	BM	2	3	-
Galium sp.		-	2	-
Gramineae gen. et sp. indet. (grass)	CDG	14	14	4
Hippocrepis comosa L. (horse-shoe vetch)	Gcd	1	2	-
Hyoscyamus niger L. (henbane)	Dn	2	[1]	-
Lithospermum arvense L. (corn gromwell)	AD	[2]1	[6]2	1
Medicago lupulina L. (black medick)	GR	19	10	5
Medicago sp./*Trifolium* sp.	DGR	5	13	8
Papaver dubium/hybridum (poppy)	AD	[1]	[6]1	-
Pimpinella saxifraga L. (burnet saxifrage)	Gc	[2]5	-	1
Plantago lanceolata L. (ribwort plantain)	G	-	1	-
Polygonum aviculare agg. (knotgrass)	DR	1	7	1
Polygonum sp.		1	3	5
Potentilla sp. (cinquefoil)	DGHM	3	1	-
Ranunculus acris/bulbosus/repens (buttercup)	DG	4	1	-
Rubus sp. (blackberry/raspberry)	HSW	-	1	-
Rumex acetosella agg. (sheep's sorrel)	CEGa	-	1	-
Rumex sp. (dock)		6	8	3
Sherardia arvensis L, (field madder)	AD	1	1	-
cf. *Stachys* sp. (woundwort)		[1]	-	-
Stellaria media (L.) Vill, (chickweed)	CD	[4]1	15	2
Trifolium sp. (clover)	DG	3	3	-
Tripleurospermum maritimum (L.) Koch, (scentless mayweed)	AD	3	-	-
Urtica dioica L. (stinging nettle)	DGHWn	-	1	-

TABLE 8: HALFPENNY LANE. THE CARBONISED AND MINERALISED PLANT REMAINS

[ ] = mineralised no brackets = carbonised

Taxa	habitat	MIA deep pits	bowl pits	Roman features
Urtica urens L. (small nettle)	CD	-	-	1
Vicia cf. *cracca* L. (cf. tufted vetch)	GS	-	1	-
Vicia sp./*Lathyrus* sp. (vetch/tare)		2	2	3
	TOTAL	[16]693	[23]660	173
	total volume sieved (litres)	60	117	11

Habitat preferences: A = arable; B = bankside, ditches; C = cultivated; D = disturbed; E = heath; G = grassland; H = hedgerows; M = marsh; R = waysides; S = scrub; W = woodland; a = acidic soils; c = calcareous soils; d = dry soils; n = nitrogen/phosphate-rich soils; * = cultivated.

Discussion

1. Middle Iron Age pits

(a) The carbonised remains: The Middle Iron Age pit assemblages were composed of cereal grains, chaff fragments and weed seeds in varying proportions (fig. 10). As is typical for Iron Age sites in southern England, spelt (*Triticum spelta*) appears to have been the dominant cereal. Although many of the glume bases recovered could not be identified beyond emmer/spelt because of the poor state of preservation, it is probable that the majority were from spelt ears. The evidence for emmer was slight, amounting to two probable grains and two glume bases. Results from nearby sites such as Ashville Trading Estate and sites in Wessex reviewed in a paper by Green indicate that emmer was of minor importance in the Iron Age in southern England.[29]

Barley accounted for *c.* 6% of the grain identified. Few twisted grains were recovered to confirm the identification of 6-row barley but this may to some extent have been because of the poor state of preservation. It is probable that all of the barley was of the hulled 6-row variety (*Hordeum vulgare* L.emend.) since this is the predominant type found on other sites from the Late Bronze Age onwards.

Oat awn fragments were widespread but not numerous. As they are easily recognised due to their twisted form, and a single awn can break up into many fragments, it is likely that they were over-represented in the results. As only one wild/cultivated oat grain was recovered these remains probably indicate the presence of a weed rather than a crop plant.

The habitat information indicates that the weed assemblages consisted primarily of weeds of arable or cultivated/disturbed land, suggesting that these seeds originated as crop processing waste. The range of weed species recovered was generally typical of many Iron Age assemblages, containing such arable weeds as chess (*Bromus* sect. *Bromus*), field madder (*Sherardia arvensis* L.) and scentless mayweed (*Tripleurospermum maritimum* (L.)Koch). Seeds from grassland and hedgerow taxa (e.g. ribwort plantain (*Plantago lanceolata* L.), black medick (*Medicago lupulina* L.) and hazel-nut shell fragments (*Corylus avellana* L.) may have been deposited in other types of domestic waste such as hearth sweepings, burnt bedding hay or food waste. Some of these taxa can also grow along field margins and headlands.

The soil types indicated by the weed assemblages include calcareous grassland (*Pimpinella saxifraga* L.) and nitrogen or phosphate-rich soils (*Chenopodium album* L., *Hyoscyamus niger* L., *Urtica dioica* L.), as may be expected in an area of human activity on chalk downland. Also present were seeds of wetland plants, such as sedges (*Carex*

[29] Martin Jones, 'The Plant Remains', in Parrington, op. cit. note 12, 93–107; F.J. Green, 'Iron Age, Roman and Saxon Crops: the Archaeological Evidence from Wessex', in Martin Jones and Geoffrey Dimbleby (eds.), *The Environment of Man: the Iron Age to the Anglo-Saxon Period* (BAR lxxxvii, 1981), 129–53.

sp.), saw sedge (*Cladium mariscus* (L.)Pohl.) and cf. marsh bedstraw (*Galium* cf. *palustre*). Although sedges may also grow in dry grasslands, saw sedge is a typical reedswamp plant on neutral or alkaline soils which may form dense stands. It is said still to be cut for litter in East Anglia.[30] These seeds may have originated from plants cut from the nearby reedswamp margins of the River Thames and been transported to the site as bedding or flooring material.

Although some of the pits were steep-sided, undercut and relatively deep, indicating their possible use as storage pits, none of the assemblages had the composition of a processed crop like that found in a pit at Danebury.[31] The nature of the pit fills (see bone report) indicated that the pits had been backfilled with domestic rubbish. The presence of burnt crop-processing waste rather than the stored crop supported this interpretation. A number of other Iron Age sites in southern England including Winnall Down, Winchester, Easton Lane, Winchester and Brighton Hill South, Basingstoke have produced primary pit fills that were rich in chaff fragments and weed seeds.[32] In such cases it has been suggested that a burnt pit-lining or burnt tinder from the firing of pits was present. Intact burnt primary fills were not present at Halfpenny Lane, but this type of layer could have been mixed in with other waste when the pits were re-used for the disposal of rubbish.

No specific differences were observed between the deep pit assemblages and those from the shallower, bowl-shaped pits. It appears that a similar range of burnt waste materials had been deposited in both types of pit. The only notable occurrence was a number of cf.wild turnip seeds (*Brassica* cf.rapa ssp. *campestris*), a plant possibly grown or gathered for its swollen roots or oil-rich seeds. These were recovered from two adjacent shallow pits (F35 and F104). A large number of wild turnip seeds were also recovered from a pit on the Late Bronze Age site at Potterne.[33]

The carbonised remains can be compared with assemblages from other Iron Age sites by means of the triangular scattergram (fig. 10). Sites where the results have been examined in this way include Ashville, Mount Farm, Smith's Field and Claydon Pike in the upper Thames Valley, and Danebury, Hampshire, Thorpe Thewles, Cleveland and Hengistbury Head, Dorset.[34] By comparing diagrams for the Upper Thames Valley sites Jones was able to explain the patterns in terms of producer and consumer sites.[35] It was suggested that sites containing large quantities of carbonised grain were likely to be producer sites, where large quantities of grain were being handled. Smith's Field and Claydon Pike on the first gravel terrace produced primarily weed seeds and the environmental evidence indicated a primarily pastoral economy.[36] Ashville and Mount Farm on the better-drained second gravel terrace produced larger quantities of carbonised cereal caryopses indicating an arable economy. The site at Halfpenny Lane a few miles downstream from Mount Farm is located on higher ground on calcareous clay-with-flint. Such fertile, well-drained soils would be well suited for growing arable crops. The samples did not contain large amounts of grain but were most like the Danebury and Hengistbury Head deposits – distributed around the centre of the scattergram, indicating a variety of activities across the site.

(b) The mineralised plant remains: A small number of calcium phosphate-replaced seeds were recovered from some of the flots of the Middle Iron Age pit samples. As most mineralised remains are too dense to be recovered by flotation it is possible that some of this material had been lost in the processing. However, in the author's experience of mineralisation on other Iron Age sites, the residues have produced few additional remains. On such sites the usual signs of mineralisation, such as concretions on pot and bone, are absent and the mineralised plant remains are sparse.

[30] Richard Fitter, Alastair Fitter and Ann Farrer, *Collins Guide to Grasses, Sedges, Rushes and Ferns of Britain and Northern Europe* (1984).

[31] Jones, op. cit. note 28.

[32] M.A. Monk, 'The Plant Economy', in P.J. Fasham, *The Prehistoric Settlement at Winnall Down, Winchester* (Hants. Field Club Mono. ii, 1985), 112–16; Wendy J. Carruthers, 'The Carbonised Plant Remains', in P.J. Fasham et al., *The Archaeological Site at Easton Lane, Winchester* (H.F.C.M. vi, 1989), 131–4; Wendy J. Carruthers, 'The Iron Age Plant Remains', in P.J. Fasham and G. Keevil, *Brighton Hill South Heritage Project, Basingstoke* (H.F.C.M., forthcoming).

[33] Vanessa Straker, pers. comm.

[34] Ashville, Mount Farm, Smith's Field and Claydon Pike, all in Martin Jones, 'Archaeobotany Beyond Subsistence Reconstruction', in Graeme Barker and Clive Gamble, *Beyond Domestication in Prehistoric Europe* (1985); M. van der Veen, 'The Plant Remains', in D.H. Heslop, *The Excavation of an Iron Age Settlement at Thorpe Thewles, Cleveland, 1980–1982* (CBA Research Report lxv, 1987), 93–99; Sandra Nye and Martin Jones, 'The Carbonised Plant Remains', in B. Cunliffe, *Hengistbury Head, Dorset. Vol. 1: The Prehistoric and Roman Settlement, 3500 BC–AD 500* (Oxford Univ. Comm. Arch. Mono. xiii, 1987), 323–28.

[35] Jones (1985), op. cit. note 34.

[36] Ibid. 118.

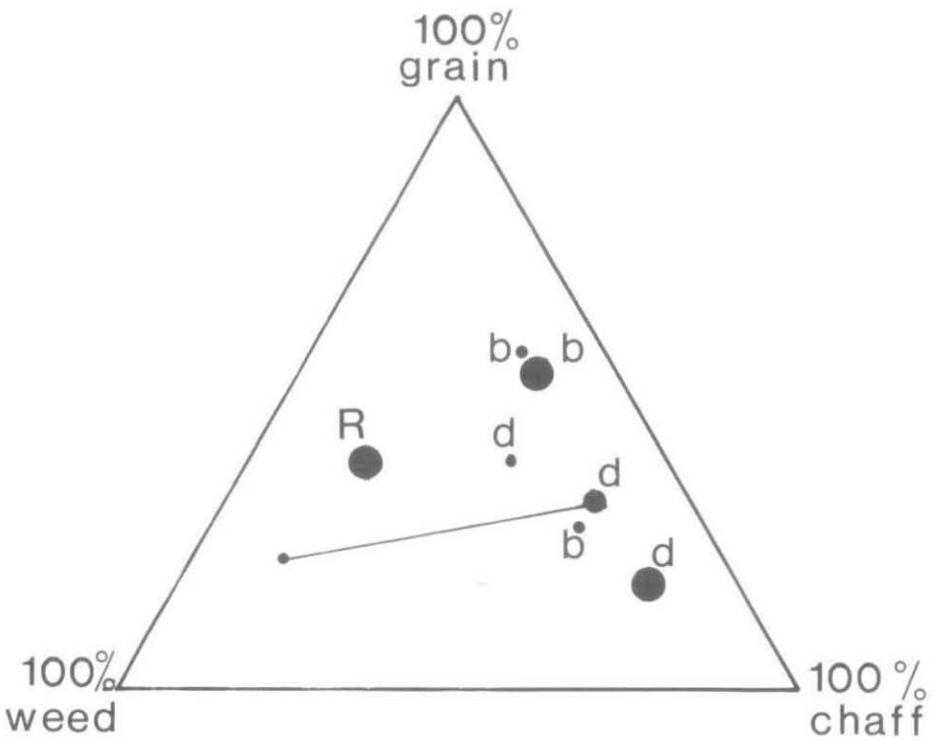

Fig. 10. Halfpenny Lane. Triangular scattergram showing percentage composition of carbonised remains of the larger pit assemblages.

• 0–5 fragments per Litre of soil; ● 6–10 fragments per Litre of soil; ● 11–30 fragments per Litre of soil; R = Roman bowl shaped pit; b = Iron Age bowl shaped pit; d = Iron Age Deep pit.

Mineralised plant remains have recently been noted on an increasing number of Iron Age sites in southern England, including Maiden Castle, Brighton Hill South, Basingstoke and Lains Farm, Andover.[37] The taxa represented in all of the cases cited were primarily weeds of arable or disturbed land, in particular *Brassica* sp./*Sinapis* sp., poppy (*Papaver dubium/hybridum*) and corn gromwell (*Lithospermum arvense*).

It is not easy to explain the presence of these remains in Iron Age rubbish deposits as the precise mechanism for preservation by mineralisation is not yet known. Calcium phosphate-replaced remains are primarily recovered from deposits associated with faecal material, such as cess pits and garderobes. Roman and medieval faecal deposits are usually characterised by the presence of bran fragments and mineralised fruit remains. Such remains have not yet been recovered from Iron Age pit deposits, but allowing for differences in diet it is possible that some of the seeds (such as the brassicas) were consumed, either deliberately or accidentally as crop contaminants. However, the presence of large numbers of mineralised seeds in a Late Bronze Age midden at Potterne, Wiltshire[38] has suggested that mineralisation can also occur in other highly organic waste deposits. The midden assemblage at Potterne contained a very similar range of taxa to those in the pits at Halfpenny

[37] Maiden Castle, Martin Jones pers. comm.; Brighton Hill South, Carruthers, op. cit. note 32; Wendy J. Carruthers, 'The Carbonised and Mineralised Plant Remains', in P. Cox and P. Bellamy, *The Investigation of the Prehistoric Landscape along the Route of the A303 Road Improvement between Andover, Hampshire and Amesbury, Wiltshire, 1984–1987* (Hants. Field Club Mono., forthcoming).

[38] Wendy J. Carruthers, 'The Mineralised Plant Remains', in A. Lawson and C. Gingell, *Excavations at Potterne, Wiltshire* (forthcoming).

Lane, i.e. many arable/disturbed land weeds and some nitrophilous taxa such as henbane (*Hyoscyamus niger*) and Chenopodiaceae. The interpretation of this material, therefore, remains in question until further work on mineralisation is undertaken.

II. Carbonised plant remains from the Roman features

The range of carbonised plant remains recovered from the Roman pit and post-hole was similar to that from the Middle Iron Age samples. Although some taxa were absent, such as positively identified emmer, hazel-nut shell and some of the nitrophilous weeds (e.g. fat-hen (*Chenopodium album*), henbane (*Hyoscyamus niger*)), these observations are of less significance once the size of sample is taken into account. More notable perhaps is the high occurrence of cleavers (*Galium aparine*) in the Roman pit sample, a persistent arable weed and indicator of autumn sowing.[39] The calcicole arable weed thorow-wax (*Bupleurum rotundifolium*) and small nettle (*Urtica urens*) were the only additional species recorded. The small amount of data recovered from these features would suggest that there were no major changes in the range of crops cultivated between the Middle Iron Age and Roman periods except a probable cessation of growing emmer, as was the general trend in later periods. However, as the number of samples was very low, it is possible that some additional cultivated taxa were missed in the sampling.

Acknowledgements

I am very grateful to Vanessa Straker and Martin Jones for providing me with details of their unpublished work.

HALFPENNY LANE SUMMARY

Mesolithic

A small amount of blade and blade-like struck flint was found in the excavations, including two oblique blunted microliths. The quantity of material was not large and no subsoil features could be attributed to this period. As controlled collection of the flints was not carried out, it may not be possible to determine if the finds reflect a small, transient Mesolithic site, or merely off-site loss in a well-frequented location. Field-walking at North Stoke on the opposite side of the Thames Valley revealed a Mesolithic settlement pattern in which the large, dense sites were located on the valley floor with much smaller, ephemeral sites and/or off-site loss on the higher ground.[40] The finds here fit this pattern. One other feature of these finds is their coincidence with a clay-with-flints outcrop. This is a consistent pattern for areas of Hampshire and Dorset and possibly Buckinghamshire.[41] It has not yet been demonstrated for Berkshire and North Hampshire, but this now seems a more distinct possibility.

Neolithic

Another unexpected find was the blade of a broken and re-used polished flint axe in (Middle Iron Age) pit 29. No other contemporary finds occurred.

[39] P.J. Reynolds, 'Deadstock and Livestock', in R. Mercer (ed.), *Farming Practice in British Prehistory* (1981).

[40] S. Ford, 'Flint Scatters and Prehistoric Settlement Patterns in South Oxon. and East Berks.', in A. Brown and M. Edmonds (eds.), *Lithic analysis and later British Prehistory* (BAR clxii, 1987), 101–36.

[41] e.g. J. Arnold, M. Green, B. Lewis and R. Bradley, 'The Mesolithic of Cranborne Chase', *Proceedings of Dorset Nat. Hist. and Archaeol. Soc.* cx (1988), 117–126; M. Farley, 'Excavations at Low Farm, Fulmer, Bucks. 1: the Mesolithic Occupation', *Records of Bucks.* xx (1978), 601–616.

Late Bronze Age/Early Iron Age

Some of the more distinctive pottery from the site belongs to this period, including the partly restorable vessel found as a lump on the spoilheap (fig. 8, 10–12). Despite this, pottery of this period appeared to contribute little to the total site assemblage, and no features could confidently be assigned to the Late Bronze Age/Early Iron Age. There is no doubt that a site of this period is present at or close by the excavated areas.

Middle Iron Age

The unenclosed pit group has the distinction of being the first Middle Iron Age site found on the Berkshire Downs other than the hillforts. The limited extent of the site discovered here still suggests a possibly quite large and/or long-lived site perhaps commencing in the Late Bronze Age. The Late Bronze Age/Early Iron Age phase of the site is only represented by unstratified finds and residual items in Middle Iron Age and Roman pits.

The site here may provide some insight into the apparent absence of Middle Iron Age sites elsewhere on the Berkshire Downs, in contrast to those of Late Bronze Age/Early Iron Age date. First, deposition of Middle Iron Age rubbish appears to have made more use of abandoned storage pits compared with, for example, the earlier use of middens as suggested for Weathercock Hill.[42] Secondly, the predominance of sandy fabrics makes their pottery difficult to distinguish from later periods during fieldwalking, particularly if coincident with Roman sites. As stated in the introduction, this site was initially regarded as of Roman date from stray finds. Secondly, as the evidence so far stands, typical Middle Iron Age sites on the Wessex chalklands are usually enclosed.[43] The unenclosed site here is more comparable with the dense unenclosed Iron Age settlement on the Upper Thames gravels.[44] A number of enclosures including banjo enclosures are recorded for the Berkshire Downs.[45] None as yet have been excavated but presumably some are Middle Iron Age in date. As appears to be emerging for other periods (e.g. the Late Bronze Age on the Kennet and Middle Thames gravels),[46] it may be that unenclosed sites are the most common form of settlement, rendering them much less susceptible to discovery by e.g. aerial photography.

The bone assemblage with its emphasis on sheep is fairly typical for downland sites, and with the evidence for weaving (loomweights, spindle whorl and bone tools) shows that cloth production was a relatively important activity. Cattle, however, form a significantly high percentage of the total bone count. Compared to Grant's synthesis, the total assemblage has a profile more in keeping with low-lying sites.[47] As Grant shows[48] medium/high proportions of cattle can be found in downland settings. Clearly the

[42] Bowden et al., op. cit. note 7.

[43] B. Cunliffe, 'Iron Age Wessex: Continuity and Change', in Cunliffe and Miles, op. cit. note 3, 12–45.

[44] NB. R. Hingley, 'Towards Social Analysis in Archaeology: Celtic Society in the Iron Age of the Upper Thames Valley', in Cunliffe and Miles, op. cit. note 3, 72–88.

[45] J.C. Richards, *The Archaeology of the Berkshire Downs* (1978).

[46] R. Bradley, S. Lobb, J. Richards and M. Robinson, 'Two Late Bronze Age Settlements on the Kennet Gravels: Excavations at Aldermaston Wharf and Knight's Farm, Burghfield, Berks.', *Proc. Prehist. Soc.* xxxxvi (1980), 217–296; S. Lobb, 'The Excavation of a Late Bronze Age Settlement at Furze Platt, Berkshire', *Berks. Archaeol. Jnl.* lxx (1979), 9–17.

[47] Grant, op. cit. note 19, 105.

[48] Ibid. fig. 7.3.

characteristics of the local environment are a major factor in the exact emphasis of husbandry practice. One reason for the high proportion of cattle here may be the proximity of the Thames Valley and the potential for lush grazing on riverside meadows. The botanical study produced evidence showing exploitation of wetlands with the presence of species such as saw sedge, which may have been cut for bedding or flooring (see below). The two pits (F16 and 39) contained complete, but crushed skulls of a horse and cow respectively. The careful placing of material in old storage pits is fairly common on Iron Age sites, as for example at Danebury.[49]

The presence of pits, presumably for grain storage, does of course provide graphic evidence of the importance of arable production. The botanical data show that spelt was the dominant cereal species with a little emmer. Barley accounted for 6%. Oats were present but probably as weeds, and wild species such as hazelnut are also represented. No particular processing activity dominated the assemblages.

Not having an extensive site plan creates some uncertainty as to where wider parallels for the site lie. Mention has already been made of the frequency of unenclosed sites in the Upper Thames Valley in contrast to the enclosed sites on the Wessex chalkland.[50] Sites largely or wholly represented by pit groups appear to be a feature of the Early Iron Age as at Farmoor and Ashville.[51] By the Middle Iron Age, at these and other sites such as Claydon Pike, a dominant feature is penannular gullies/ditches.[52] As yet the site at Halfpenny Lane is only represented by a pit group.

Roman

The features discovered here appear only to be a small fragment of a large late Roman site which may continue for some way down the hill, as evidenced by the large amount of Roman pottery on the spoilheaps, and an 'occupation layer' surviving in the stripped surface. One, possibly two, features were observed in the sides of the pipe trench on the hill slope. A few of the finds in the excavated area, namely an imbrex, tegulae and decorated floor tiles, suggest a building of some significance near by.

MOULSFORD NORTH ROAD (SU 587836)

The site of Moulsford North road is on the gently sloping chalk forming the lower side of the Thames Valley. Two areas of *c.* 20 × 10 m. and 10 × 5 m. were hand cleaned to reveal a ring gully, pits, post holes and a ditch (fig. 11). The ring gully, which had been redefined at least once, had a diameter of 16 m. and enclosed only two small pits or post holes (unexcavated). This diameter would be large for a ring gully surrounding a house and is perhaps more likely to be a small enclosure adjacent to a settlement area as at Farmoor.[53] The first phase of the gully (13, 20?) contained a few sherds of Late Iron Age/early Roman date (1st century BC/1st AD). The recut (14, 17?, 10) produced pottery more clearly of Roman date.

[49] Cunliffe, op. cit. note 43.
[50] Hingley, op. cit. note 44.
[51] Lambrick and Robinson, op. cit. note 12; Parrington, op. cit. note 12.
[52] T. Allen, D. Miles and S. Palmer, 'Iron Age buildings in the Upper Thames region', in Cunliffe and Miles, op. cit. note 3, 89–101.
[53] Ibid.; Lambrick and Robinson, op. cit. note 12.

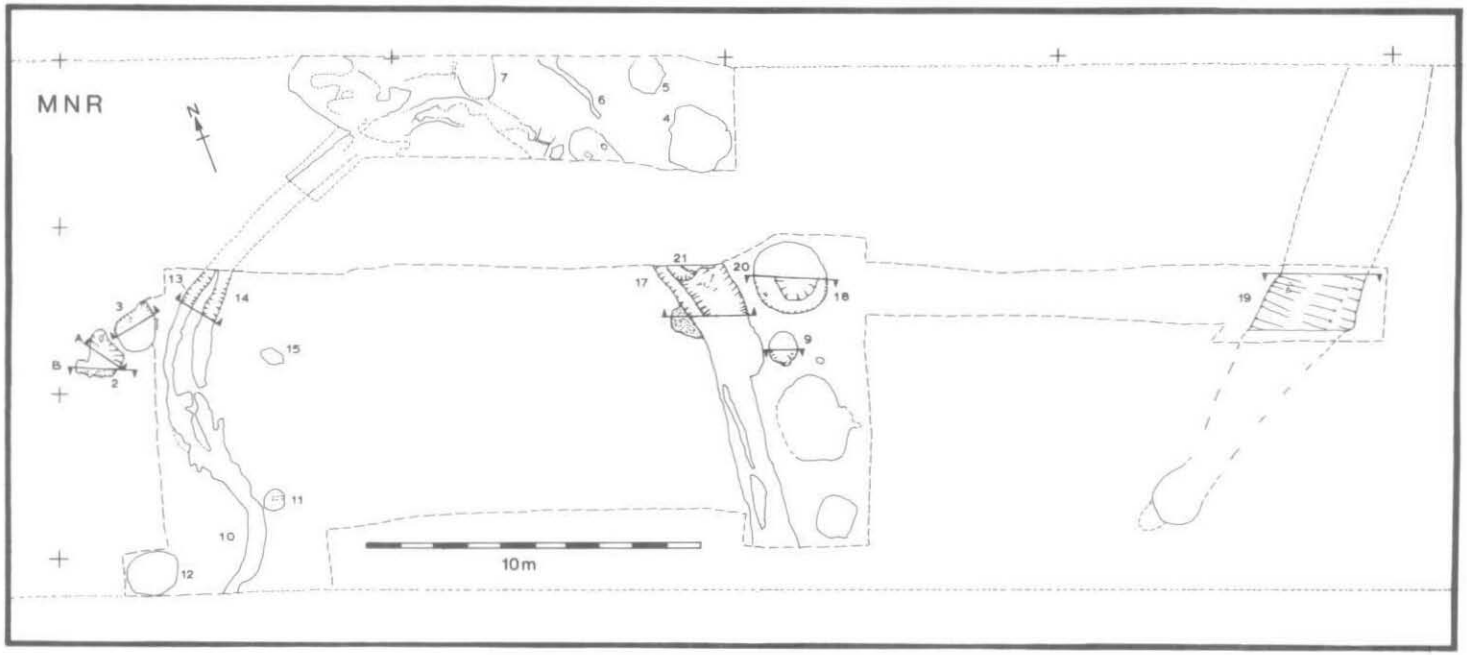

Fig. 11. Moulsford North Road. Plan of features.

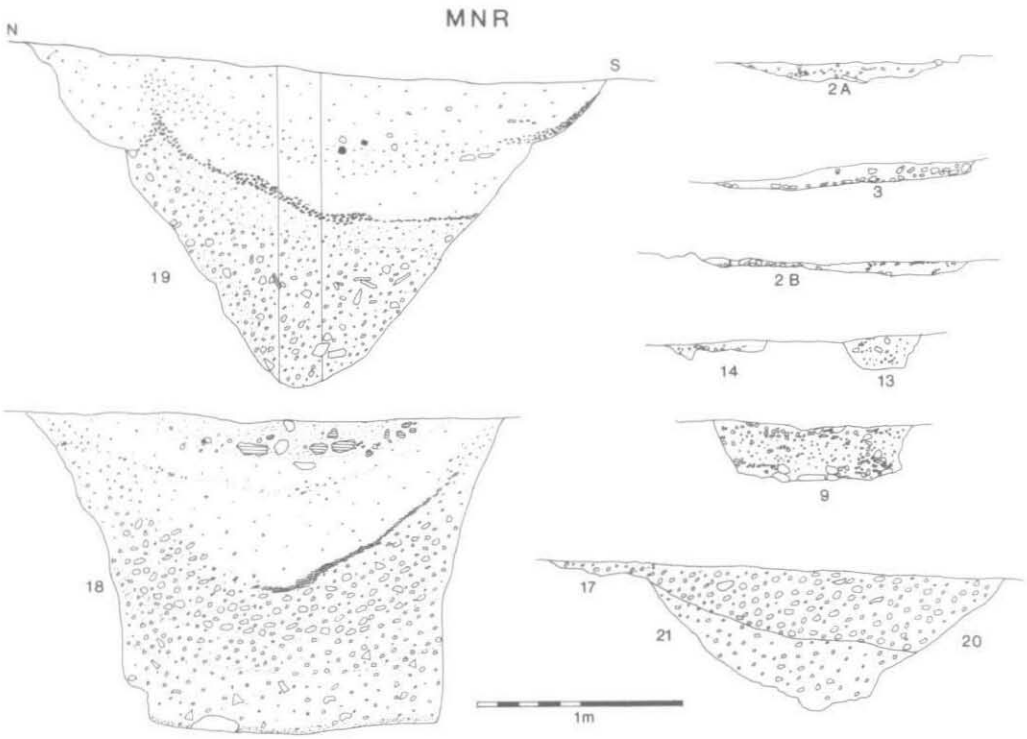

Fig. 12. Moulsford North Road. Sections.

Around the margins of the ring gully were at least ten pits, of which four were excavated. Pits 2 and 3 were very ephemeral even allowing for substantial erosion. As with the ring gully two phases were represented, with pit 2 being clearly of 1st or 2nd century Roman date, whereas pit 3 is less securely of Late Iron Age date. In marked contrast pit 18 was 1.6 m. deep and 2.4 m. across at the surface. It originally would have had a flat base and near-vertical sides. Pottery finds were not abundant but in all cases were of Late Iron Age date. A few sherds occurred on the very base of the pit. Pit 9 was half sectioned but was undated. Pit 7 was unexcavated but produced a single sherd of Late Iron Age pottery from the cleaned surface layers.

The final feature of interest was a ditch (19), 1.6 m. deep and possibly recut (fig. 12). It was thought initially to be an enclosure ditch, but after a careful search of the surrounding areas, no other ditch could be located. Without further excavation it was not possible to record accurately the southern extent of this feature but it certainly terminates in the vicinity of the site. Partially enclosed sites of Late Bronze Age date are known, such as Down farm, Woodcutts,[54] but in this case a linear earthwork seems a more likely explanation. Although numerous bones were recovered, including some human, relatively few sherds were found. No certain Roman pottery occurred securely stratified in the ditch below the old turf line (070) but again the sherds were of Late Iron Age/early

[54] Arnold et al., op. cit. note 41.

Roman date. This suggests that the feature is broadly contemporary with the first phase of the site, i.e. Late Iron Age.

Two other linear ditches are recorded in the locality, occupying a similar setting. The short length of substantial earthwork forming the Streatley Grims Ditch (SU 595795) is undated but probably of later Prehistoric or Roman date.[55] On the opposite side of the Thames the much longer Mongewell Grims Ditch has been shown to be of Middle/Late Iron Age date.[56] The evidence of these three earthworks alone is very tentative, but a pattern may be emerging of localised Late Iron Age territorial boundaries being defined by linear ditches.

POTTERY

The small quantity of pottery recovered produced a limited range of fabrics and diagnostic pieces. There are no apparent breaks in the ceramic sequence spanning the 1st century BC to the 1st/2nd century AD.

For the assemblage as a whole, the most common fabric (27%) is tempered with very fine sand (fabric 54). A large proportion of this has a reduced body and the inclusions appear to derive from the greensand. Coarse sandy fabrics (e.g. fabric 1), dominate the Middle Iron Age assemblage at Halfpenny Lane (above) but account for only 12% of the total here. Grog tempered fabrics are also important, accounting for 26% of the total. Sandy grey wares of Roman date (both fine and coarse sand) account for 20%. One minor Roman fabric of note is represented by hard sherds tempered with dense medium-sized flint. Most appear to come from the same vessel as illustrated (fig. 13, no. 12).

Some of the early vessels show features consistent with manufacture or finishing on a wheel.

Diagnostic vessels

The range of diagnostic vessels is shown in fig. 13. It shows sherds consistent with a Late Iron Age/early Roman date (1st century BC–1st century AD), such as a probable saucepan pot (fig. 13, 3), butt beaker (fig. 13, 8), and a pedestal urn(?) (fig. 13, 7, 9).

The Roman vessels (e.g. fig. 13, nos. 11, 12) span the 1st–2nd centuries AD.

FIRED CLAY

A few fragments of fired clay, probably early forms of brick, came from the upper layers of ditch 19.

STONE

A fragment (234 g.) of siliceous tuff or chert, possibly drilled. From F14 (060). Unknown source.

LOLLINGDON HILL SITE 1

LH1 lies on chalk on the gentle north-west slope of Lollingdon Hill (SU 565851). The main feature of the site comprised a terrace or terraces cut into the chalk, within which was preserved a rammed chalk floor (figs. 14, 15). The floor was predominantly constructed of chalk lumps with large flint nodules in irregular settings. Quantities of iron slag, bones, teeth and pottery were incorporated within the floor and some at least were incorporated as a part of the original construction. The floor appeared to be

[55] S. Ford, 'Linear Earthworks on the Berkshire Downs', *Berks. Archaeol. Jnl.* lxxi (1982), 1–20.
[56] J. Hinchliffe, 'Excavations of Grims Ditch, Mongewell 1975', *Oxoniensia*, xl (1975), 122–135.

TABLE 9: MOULSFORD NORTH ROAD SITE. POTTERY

Fabric (brief description)		Number	(%)	Mean Sherd Weight (g)
1	Sand (coarse)	15	(12)	17.3
11	Oxford White ware	1	(<1)	2.0
12	Oxford Colour coat	2	(2)	4.0
20	Grey ware (micaceous)	2	(2)	4.5
44	Grog	28	(22)	19.1
45	Grog/shell	5	(4)	11.6
50	Sand (rare)	10	(8)	15.1
51	Grey ware (fine sand)	12	(10)	19.5
53	Grog/ochre/sand	1	(<1)	11.0
54	Greensand	24	(19)	17.2
55	Sand/chalk/flint (fine, rare)	3	(2)	32.0
59	Grey ware (coarse sand)	14	(11)	7.9
79	Flint (medium hard)	8	(6)	10.9
90	Shell	1	(<1)	5.0
Total		126		

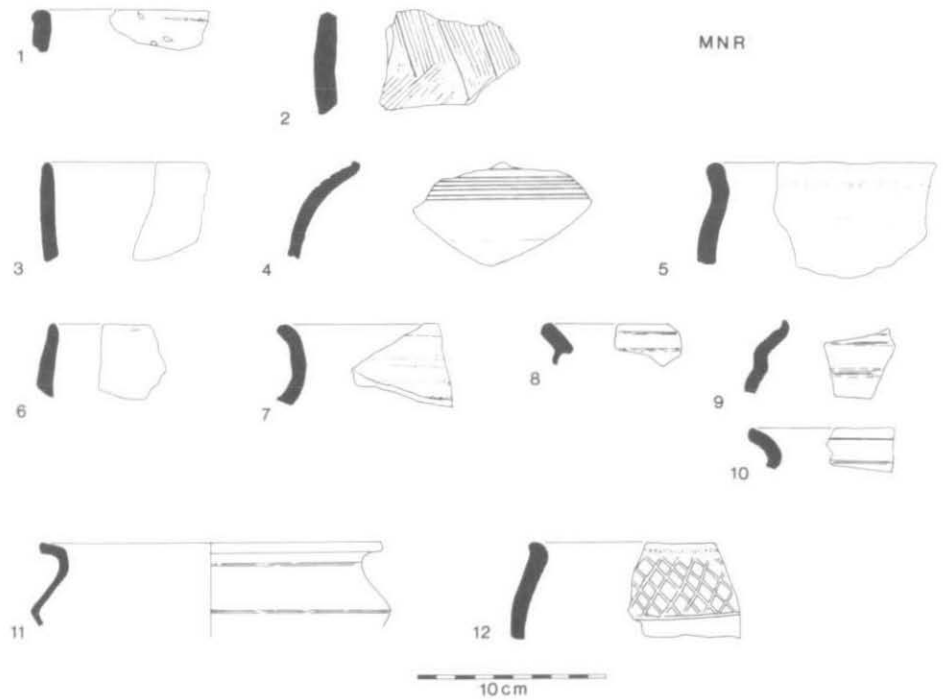

Fig. 13. Moulsford North Road. Pottery. 1 Pit 3 (051); 2 Pit 18 (061); 3–5 Pit 18 (062); 6–7 Ditch 19 (068/069); 8 Ditch 19 (069/070); 9 Ditch 19 (072); 10 Ditch 19 (071/072); 11 Pit 2 (050); 12 Gully 10 (058).

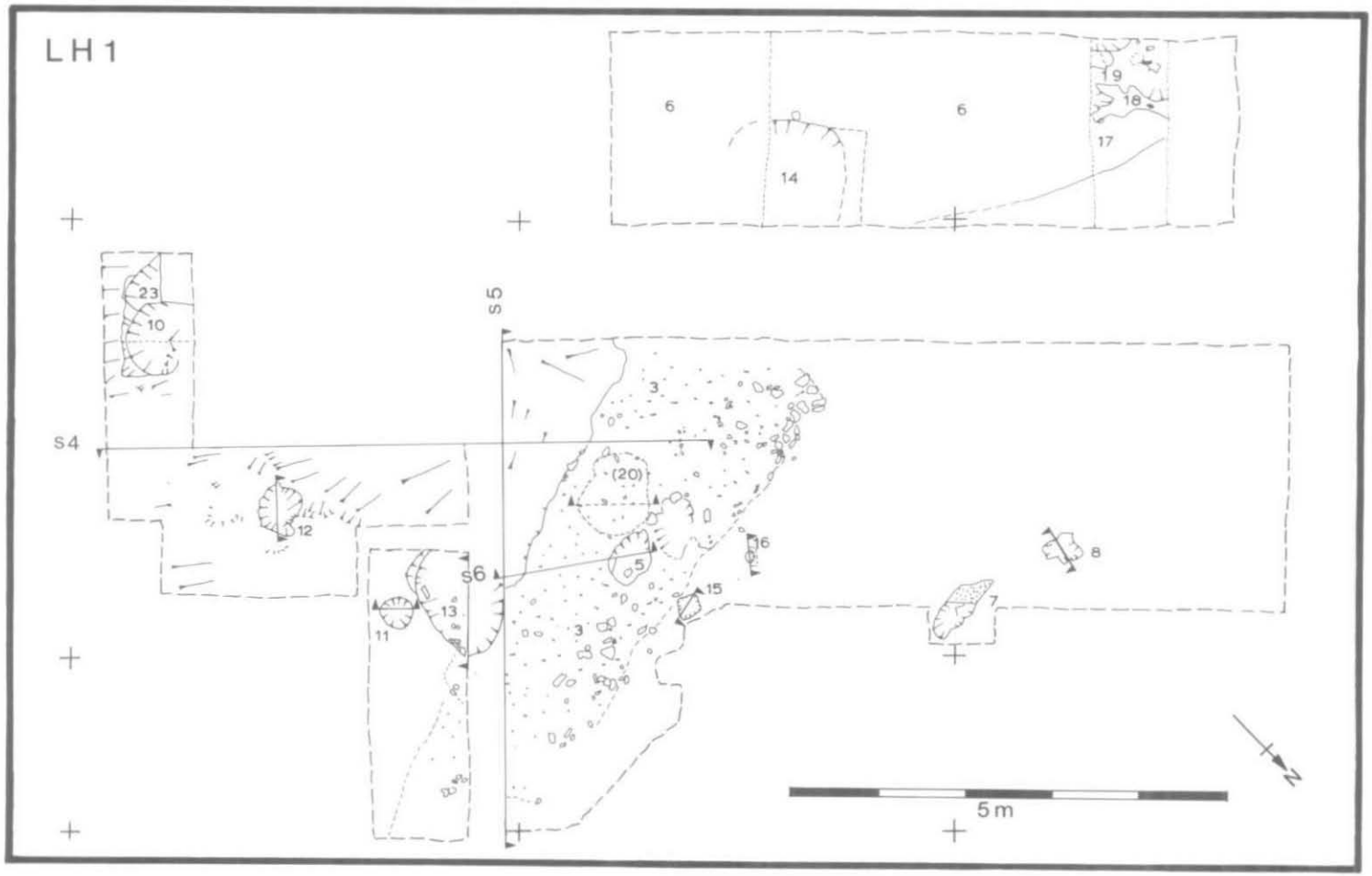

Fig. 14. Lollingdon Hill site 1. Plan of features.

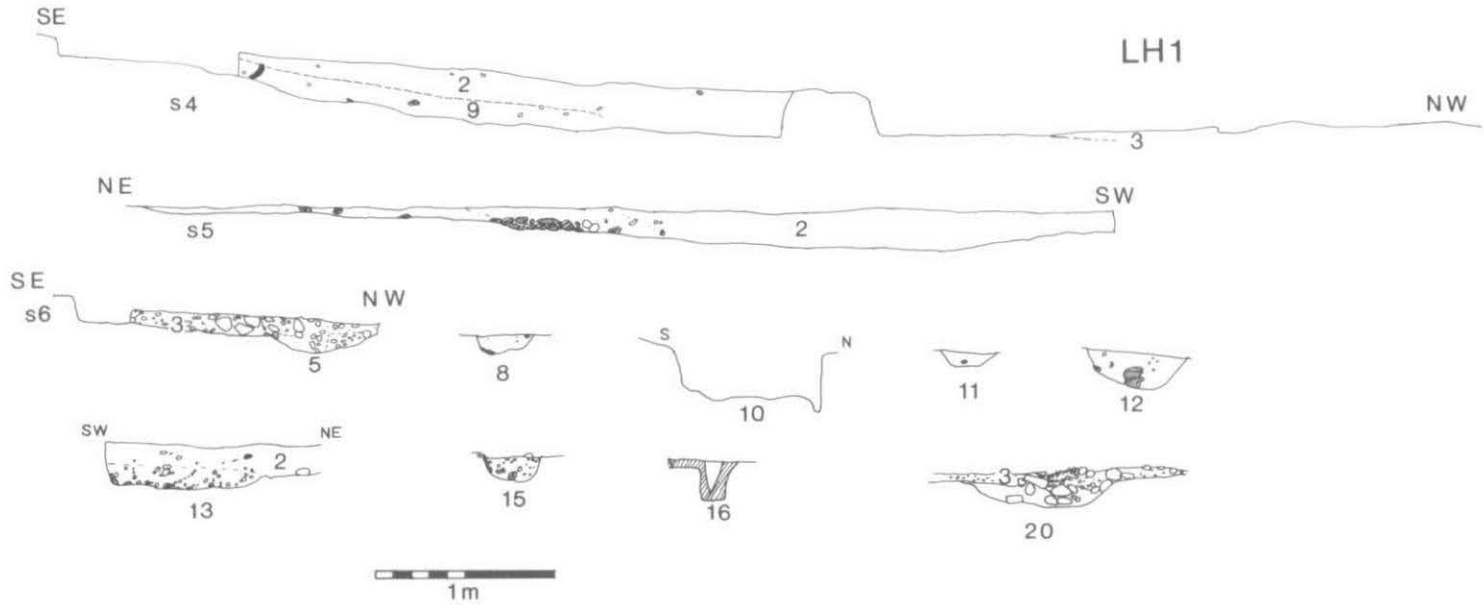

Fig. 15. Lollingdon Hill site 1. Sections of features.

rectangular, *c.* 5 × 2 m., although the western end was largely inaccessible and the east probably truncated by ploughing. There are few indications of what if any structure covered this floor but further excavation may reveal more post holes such as F15.

This floor was not the original phase of activity on the site. The floor was removed along the line of the actual pipe trench and this revealed at least one pit, a charcoal patch, two spreads of slag and a possible stake hole. A few other post holes and small pits were recorded.

POTTERY by A. HAZELL

215 sherds were found but with 161 coming from the layers (2, 9 and 6) overlying the main structural features. Grey wares again dominate the assemblage with 19% tempered with coarse sand and 22% tempered by fine sand. Oxford colour-coated ware accounts for 31%. Vessels such as a mortaria and a bowl provide the best evidence to date the site to the 3rd–4th centuries AD.[57] A few sherds of poppy head beaker and S. Gaulish Samian are residual. Local copies of black burnished ware accounts for 13%. 'Real' black burnished ware accounts only for about 1% and shelly fabrics about 3%.

DAUB

Quantities of daub were found, some as large blocks retaining a zig-zag impression of the wattlework.

STONE

A pounder/rubber (1.52 kg.) of fine grained shelly sandstone. Cretaceous, lower greensand origin? (F13).

METALWORK by D. RICHARDS

A quantity of iron work was found comprising a knife; four possible knives; a leather clip; a chisel or gouge; two unidentified objects; and 15 nails. Most came from either on, above, or in the chalk floor.

1.9 kg. of slag was found from a variety of features, mostly hearth slag from smithying. Some, though, appears to be bloomery slag, and with fragments of vitrified lining and partly reduced ore suggest ironworking other than local smithying.

LOLLINGDON HILL SITE 2 (SU 56668502)

Only a small amount of work was done on this site, as little was apparently threatened by the pipe trench. The site lay towards the top of the north-west slope of Lollingdon Hill, again on chalk. It comprised a group of at least eight pits, a possible gully and a few possible postholes (fig. 16). Only three features were dug. F4, thought initially to be a ditch, was shown to be wide and shallow and is almost certainly a negative lynchet. It is visible on aerial photographs. It contained medium quantities of bone and Roman pottery. F2 was a small bowl-shaped pit cutting a natural hollow at its north-west end. Features 8 and 9 were discovered subsequent to the cutting of the pipe trench. The remains of F8 were dug and revealed either a small pit or ditch terminal. There was not enough time to investigate F9 but after reinstatement of the spoilheap a small gully was found. It is probable that this gully, F8 and F9 could all be part of the same feature.

Assuming that all the pits are of Roman date, the group is too far removed from LH1 to be regarded as a part of the same site. It should therefore indicate another site.

[57] Young, op. cit. note 16, types 22.5 and 51.3.

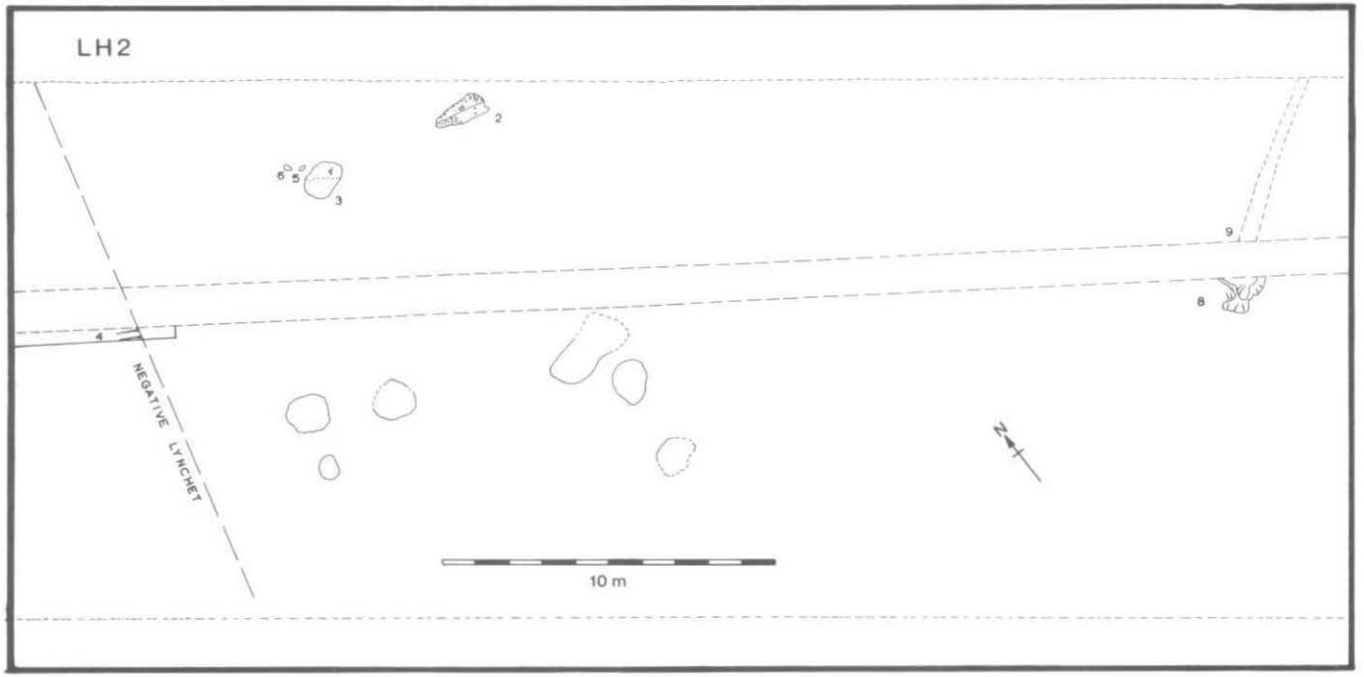

Fig. 16. Lollingdon Hill site 2. Plan of features.

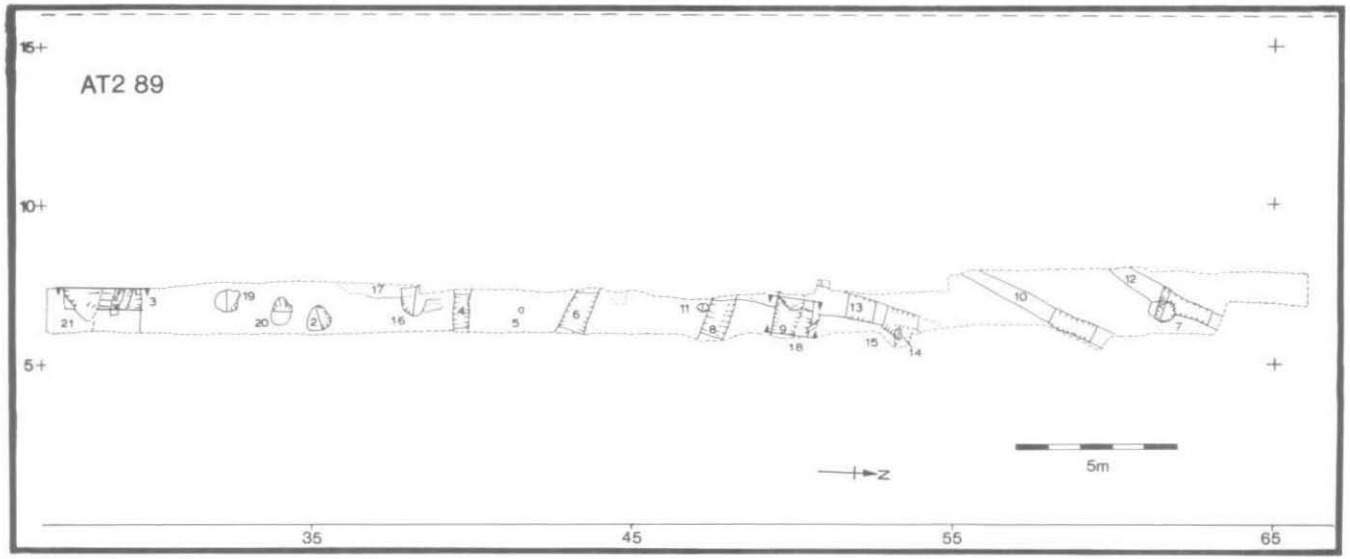

Fig. 17. Aston Tirrold site 2. Plan of features.

POTTERY by A. HAZELL

142 sherds were found with 103 from pit 2. Grey wares dominated the assemblage (41% fine sand, 33% coarse sand). Oxford colour-coated ware accounts for 5% and allows the site to be dated to the 3rd–4th centuries AD. The only other feature of note is six residual sherds of Rhenish ware from the same vessel.

METALWORK by D. RICHARDS

An iron knife came from the lynchet F4 and a nail stem from F8.

ASTON TIRROLD SITE 2

Aston Tirrold 2 (SU 55938612) was located on clayey alluvium overlying basal deposits of the chalk sequence. The site was on a flat area of low-lying land defined by an old peat-filled stream meander. It was on marginally higher ground than land further to the east. Waterlogging, deep rutting from contractor's traffic and the clayey subsoil made working conditions difficult. Only a strip immediately threatened by the pipe trench was cleaned and examined (fig. 17). Further features are, of course, possible north or south of the cleaned area, but detailed examination of the spoilheap and easement suggested that the main focus of activity within the confines of the pipeline was located.

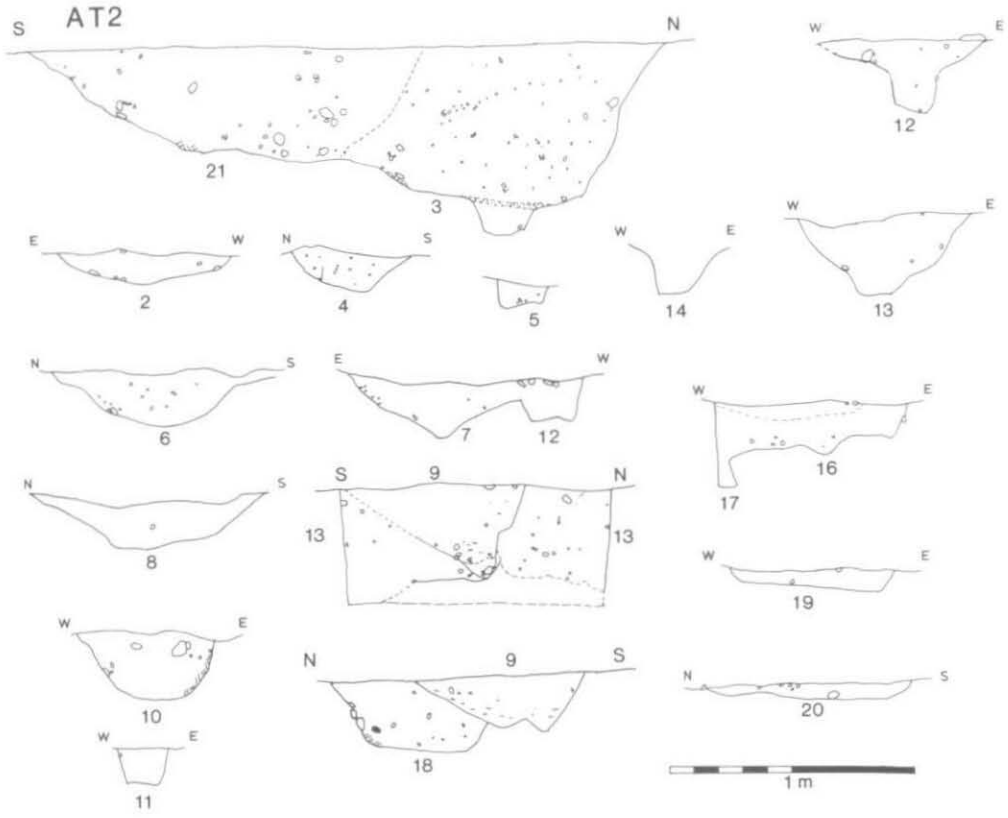

Fig. 18. Aston Tirrold site 2. Sections of features.

The main component of the site comprised seven gullies and a ditch. Four of the gullies and the ditch are approximately aligned and perpendicular to the other three gullies. Some of the gullies may join up to form part of a rectilinear pattern, although at least three phases of gully digging were recognised. Several post holes were found along with a few very shallow pits. Ditch 3 was slightly unusual in that its base was waterlogged, preserving a few twigs.

It is difficult to interpret the exact function of the site with such a small area sampled. It was thought initially that the cleaned area had just clipped the corner of a multi-ditched enclosure, but there are several arguments against this interpretation. The gullies would be unusually small for an enclosure feature with which the main parallels are drawn.[58] Some gullies are clearly successive. The nearby location of the old river channel to the east is probably the limit of the site, and the enclosure would have to fit into an uncomfortably cramped area. Ditch 3 is a better candidate for an enclosure ditch. The preponderance of linear features similarly suggests that it is not a main focus of habitation, but perhaps property boundaries or drains related to a main focus to the west.

POTTERY by A. HAZELL

Only 114 sherds were recovered indicating a date of the 1st and 2nd centuries. As at the other sites the fabrics were predominantly grey wares (fine 45%, coarse 21%). There were 13 sherds of Oxford colour-coated ware (11%) and two sherds of S. Gaulish Samian (1%).

METALWORK

One nail stem from F7 (057); 7g. of Iron slag from F10 (060) and 10 g. from F9 (059).

FIRED CLAY

One brick fragment from F4 (054).

THE CARBONISED AND WATERLOGGED PLANT REMAINS by WENDY J. CARRUTHERS

A 200 ml. soil sample was taken from waterlogged silt at the base of ditch 3 for the recovery of plant remains. The sample was gently disaggregated in warm water and poured through a stack of sieves ranging in mesh size from 2 mm. down to 250 μ. The residues were washed through with clean water and sorted in water under a dissecting microscope.

Results

The sample contained fragments of wood, anaerobically preserved insect fragments, and carbonised and waterlogged plant macrofossils. The botanical remains are listed in table 10.

Discussion

The recovery of over 500 anaerobically preserved plant macrofossils from just 200 ml. of sediment indicated that the deposit had remained waterlogged throughout its history. The predominant species, elder (*Sambucus*

[58] e.g. R. Hingley and D. Miles, 'Aspects of Iron Age settlement in the Upper Thames Valley', in Cunliffe and Miles, op. cit. note 3, 52–71, fig. 4.2.

TABLE 10: ASTON TIRROLD SITE 2. THE CARBONISED AND WATERLOGGED PLANT REMAINS
< > = waterlogged no brackets = carbonised + = present but not quantified

Taxa	habitat	ditch fill 66
Triticum spelta L. (spelt caryopses)		2
Triticum spelta (spelt glume bases)		4
cf. *T. spelta* (cf. spelt awn fragment)		1
T. dicoccum/spelta (emmer/spelt caryopses)		1
T. dicoccum/spelta (emmer/spelt glume bases)		2
NFI cereals		2
Agrostemma githago L. (corn cockle)	A	<1>
cf. *Acer* sp. (cf. maple)	HSW	<1>
cf. *Arum maculatum* L. (cf. lords and ladies)	HW	<1>
Atriplex hastata/patula (orache)	CD	<2>
Bryonia dioica Jacq. (bryony)	HS	<7>
Carex sp. (sedge)	GM	<2>
Chenopodium album L. (fat hen)	CDn	<1>
cf. *Chaerophyllum temlulentum* L. (cf. rough chervil)	GH	<1>
Cirsium sp./*Carduus* sp. (thistle)	DGMR	<2>
Conium maculatum L. (hemlock)	d	<1>
Eleocharis subg. *Palustres* (spike-rush)	MP	<1>
Gramineae (grasses)	CDG	<3>
Juncus sp. (rush)	GMPR	<+>
Lapsana communis L. (nipplewort)	DHR	<1>
Papaver somniferum L. (opium poppy)	*	<9>
Parnassia palustris L. (grass of Parnassus)	Md	<1>
Polygonum aviculare agg. (knotgrass)	ADR	<1>
Ranunculus acris/bulbosus/repens (buttercup)	DG	<1>
R. sceleratus L. (celery-leaved crowfoot)	P	<1>
Rubus fruticosus agg. (blackberry)	EHSW	<40>
Rumex sp. (dock)		<11>
Rosa sp. (rose thorns)	HSW	<16>
Salix sp. (willow fruit capsules)	BHMSW	<5>
Sambucus nigra L. (elder)	RSWn	<256>
Silene sp. (campion)		<1>
Solanum dulcamara L. (woody nightshade)	DHW	<1>
Stachys sylvatica L. (hedge woundwort)	DHW	<7>
Stellaria media (L.)Vill. (chickweed)	CD	<4>
Tripleurospermum maritimum (L.) Koch (scentless mayweed)	AD	<1>
Urtica dioica L. (stinging nettle)	DGHWn	<140>
U. urens L. (small nettle)	CD	<1>
Vicia cf. *cracca* (cf. tufted vetch)	GS	1
	Total	13<519>
	volume sieved	200ml

Habitat preferences : A = arable; B = bankside; C = cultivated; D = disturbed; E = heath; G = grassland; H = hedgerows; M = marsh; P = ponds, ditches; R = roadsides; S = scrub; W = woodland; d = damp soils; n = nitrogen/phosphate-rich soil; * = cultivated

nigra L.), was present as seeds and small fragments of twig. The recovery of several other scrub and hedgerow taxa, e.g. willow (*Salix* sp. fruit capsules), rose (*Rosa* sp. thorns), bryony (*Bryonia dioica* Jacq. seeds), suggested that the ditch had run alongside a hedge or area of scrub or open woodland. In total, scrub/hedgerow taxa accounted for 68% of the waterlogged plant remains, including herbs such as woody nightshade (*Solanum dulcamara* L.), hedge woundwort (*Stachys sylvatica* L.) and cf.lords and ladies (cf.*Arum maculatum*) which may grow in shaded hedgerows or woodlands. The absence of seeds from other typical hedgerow species such as hawthorn or hazel could be explained by the hedge being regularly cut. However, since elder seeds were so numerous and

no hawthorn thorns were present the interpretation of scrub or open woodland is perhaps more likely. The recovery of willow capsules suggests that a wetland scrub may have existed along the nearby old river channel. Elder is particularly indicative of nitrogenous and disturbed soils. The bark, leaves and fruits each produce different dyes and the fruits can be consumed.

31% of the ditch assemblage was from weeds of disturbed or cultivated soils, although this figure includes stinging nettle (*Urtica dioica* L.) seeds which were responsible for 27% of the total. Stinging nettles can grow in a variety of disturbed habitats, particularly in soils that are rich in phosphates. As the natural habitat of stinging nettles is woodlands their presence does not necessarily indicate cultivation or human disturbance. Weeds more reliably associated with cultivation only accounted for about 3% of the assemblage. These included the arable weeds corn cockle (*Agrostemma githago* L.), scentless mayweed (*Tripleurospermum maritimum* (L.)Koch) and knotweed (*Polygonum aviculare* agg.). The presence of carbonised cereal grains, however, does suggest that arable cultivation occurred in the area. Spelt wheat (*Triticum spelta* L.) caryopses and glume bases were present as well as emmer/spelt and cf. tufted vetch (*Vicia* cf. *cracca*). The latter might have been a weed or cultivated fodder crop. The recovery of spelt wheat would be consistent with the proposed dating of 2nd century AD, as spelt was the predominant cereal grown throughout the Iron Age and Roman periods in southern England. Corn cockle, which was present as a waterlogged seed, makes its first appearance in Britain on Roman sites. Vetches are also commonly found in Roman assemblages. The carbonised remains were too few in number to determine whether processed grain or crop processing debris was represented.

Several waterlogged seeds of the introduced plant opium poppy (*Papaver somniferum* L.) were recovered from the ditch sediment. This species is not uncommon on Roman sites, particularly where faecal remains are present. It was probably used for culinary purposes or as an oil seed crop. It is possible that faecal remains were deposited in the ditch, in which case some of the elder and blackberry (*Rubus fruticosus* agg.) seeds could also have originated from this source. However, no bran fragment or imported fruit remains were found to confirm this suggestion. These seeds are more likely to represent a crop or weed, as opium poppies can become naturalised in southern Britain and grow as a weed on cultivated and waste land.

The remaining 2% of seeds were from plants of damp soils and ditches. Plants such as celery-leaved crowfoot (*Ranunculus sceleratus* L.) and spike-rush (*Eleocharis* subg. *Palustres*) are typical of still to slow-flowing, shallow water such as might have been present in the ditch. It is perhaps surprising that a greater percentage of semi-aquatic species was not recovered from the primary ditch sediment, as the local vegetation type often dominates ditch assemblages. It is possible that the growth of semi-aquatic ditch species was restricted by periodic phases of drying out, although the good state of preservation of the remains indicates that the sediment has remained waterlogged over the latter centuries.

CONCLUSION

As with other linear developments such as motorways, this pipeline has led to the discovery of a considerable density of archaeological sites. It again serves to emphasise how few sites are actually recorded and shows how misleading are apparently blank areas on sites and monuments records.

The fieldwork has been fortunate in locating an unenclosed Middle Iron Age pit group which has provided valuable information for comparison with other sites in the region. The nature of this site goes some way to suggesting why so few Middle Iron Age sites are recorded for the Berkshire Downs in comparison to those of Late Bronze Age/Early Iron Age or Roman date.

The Society is grateful to Thames Water for a grant towards the publication of this paper.