

A ROMAN CROP-PROCESSING SITE AT CAMPBELL PARK CANALSIDE, MILTON KEYNES

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Illustrations by Joan Lightning and Mike Trevarthen

Archaeological open-area excavation was undertaken between May and August 2017 in advance of the development of Campbell Park Canalside, Milton Keynes. The earliest remains were parts of a late Iron Age–early Roman rectilinear field system. In the mid-1st century AD a new field system was laid out, along with several enclosures, which appeared to be part of the periphery of a farmstead whose core probably lay to the south-east beyond the excavation area. During the mid-2nd to later 3rd centuries the enclosures were further developed and became the focus for relatively intensive crop-processing activities, featuring two drying ovens and two stone surfaces. Spelt wheat was by far the best-represented cereal in a rich assemblage of charred plant remains. Few features characteristic of domestic settlement were revealed, although the modest pottery, metal artefact and animal bone assemblages along with the presence of two infant burials do indicate settlement in the vicinity. By the 4th century additional enclosures had been established and it is likely that crop-processing activity continued, albeit on a smaller scale.

INTRODUCTION

Outline planning permission (04/00586/OUT) was granted for a major, mixed-use development on c.8ha of land within the Campbell Park grid square in central Milton Keynes. The potential for part of the site to contain late Iron Age and Roman archaeological remains was established through a trial-trench evaluation (Albion Archaeology 2007). Albion Archaeology was subsequently commissioned by Crest Nicholson to undertake an open-area excavation within their Campbell Park Canalside development. The fieldwork took place between 31st May and 26th August 2017.

SITE LOCATION & GEOLOGY

The c.0.8ha excavation area was situated to the east of Overgate and west of the Grand Union Canal (NGR SP 8680 3945), c.1km west of the river Ouzel (Figs 1 & 2). It occupied a slight plateau and slope on the south side of Campbell Park at a height

of 74–88m OD. The underlying geology is Boulder Clay over Oxford Clay. At the time of the fieldwork the site comprised fields of pasture.

ARCHAEOLOGICAL BACKGROUND

Two major rivers, Great Ouse and Ouzel, flow through the Milton Keynes area; they and their tributaries have provided a focus for human activity since early prehistory. By the early–middle Iron Age a range of different topographic settings were being exploited, although a broadly riverine distribution still prevailed (Williams 1993, 8). The Iron Age communities adapted to the local environment with a cattle-based economy that utilised the flood plains; at Pennyland, evidence for cattle rearing was dominant (Williams 1993, 8), although the presence of storage pits highlighted the importance of cereal cultivation.

The Roman period saw the continued practice of a mixed agrarian economy at a range of settlement types, from small farmsteads, such as Woughton

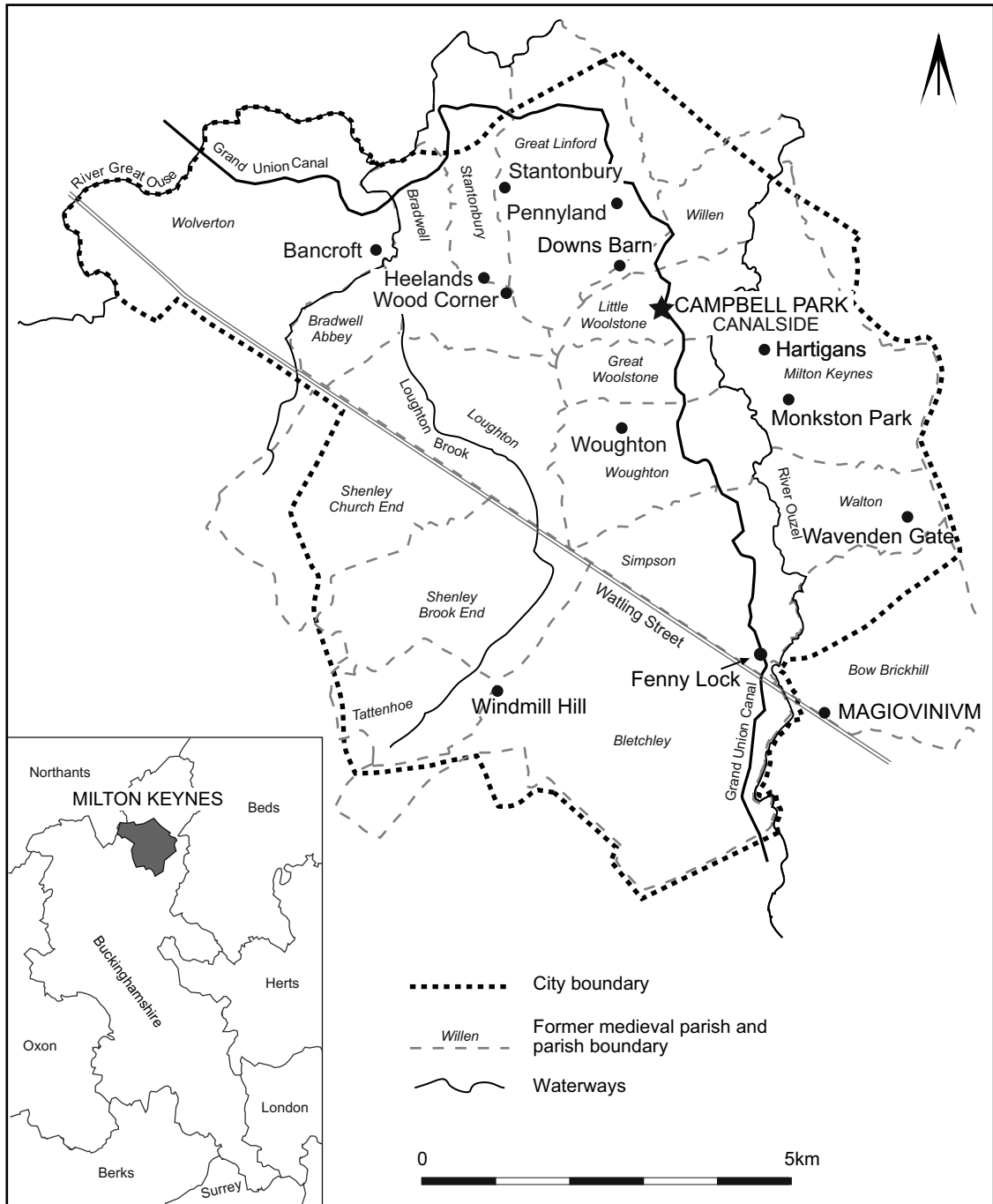


FIGURE 1 Location of Campbell Park Canalside and other sites mentioned in the text

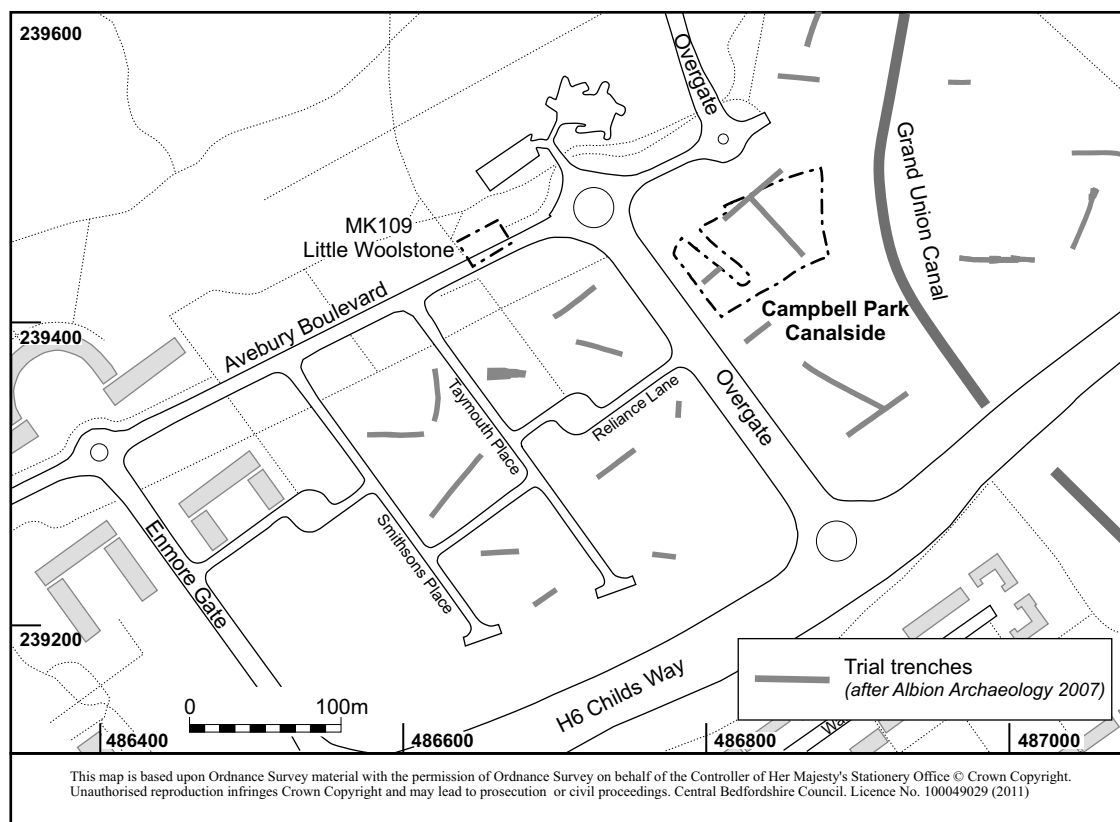


FIGURE 2 Location of excavation area and 2007 trial trenches

and Wood Corner, to small but substantial ‘villa’ establishments, such as Stantonbury and Bancroft (Zeepvat 1993, 11). By the 3rd century there was a fairly even spread of settlements in the Milton Keynes area, set no more than 2km apart (Zeepvat 1987a, 12). Trade between settlements and markets was facilitated by a comprehensive road network that developed after the conquest; it comprised arterial routes such as Watling Street (A5) and smaller local route-ways (Zeepvat 1993, 11). At the same time the development of regional centres provided focal points for trade and commerce, such as the small town of *Magiovinium* established to the south-east of Fenny Stratford on Watling Street.

The immediate archaeological background to the 2017 excavation was provided by a number of excavated Iron Age and Roman sites in the vicinity, as well as the find-spots of artefacts and building debris recorded by the Milton Keynes Historic Environment Record. The first definitive

evidence for settlement comprised a middle Iron Age, enclosed farmstead, c.700m to the north-west (Newbould 2011). Late Iron Age–early Roman activity was known from Reserve Site 5, Downs Barn, c.800m to the north (Last 2001), whilst 1st- to 4th-century ditches containing domestic debris were discovered c.170m to the west at MK109 Little Woolstone (Zeepvat 1987b, 79–82).

STRUCTURE OF THIS REPORT

Analysis of the contextual data recorded during the excavation led to the definition of six chronological Phases (1–6). Within each phase, individual features were assigned to Groups, e.g. G1, which might consist of a concentration of pits and their fills, or the ditches that formed an enclosure. Associated Groups, such as an enclosure and its internal structures, pits, hearths, etc. were assigned to Land-use Areas, e.g. L10. Each major modification

to the layout of the site was designated as a Site Landscape, e.g. SL1.

The results of the excavation are presented below by phase, incorporating a summary of the ecofactual and artefactual data-sets. The latter are presented in more detail in a separate online report (Albion Archaeology 2018) that also describes the specialists' analytical methodologies. The site is then discussed as a whole, with broad conclusions presented at the end. Pottery fabrics are listed in accordance with the Milton Keynes Type Series (Table A1, after Marney 1989); details are presented in Appendix 1. Catalogued 'other artefacts' are prefaced with OA; otherwise they are identified by the registered artefact (RA) number issued on site. Associated (animal) bone groups are prefaced with ABG; details are presented in Table 3 and their locations are marked on the relevant phase figure.

RESULTS

The excavation identified evidence of land-use from the late Iron Age–early Roman period (Phase 1) to the modern period (Phase 6) (Fig. 3). The most extensive remains related to three phases of Roman activity (Phases 2–4), including intensive crop-processing, evidenced by drying ovens and stone surfaces. Later periods were represented by the less significant remains of a medieval open-field system (Phase 5) and a modern field boundary (Phase 6). The Phase 1–4 remains form the focus of this report.

An area in the south-east corner of the site, L34, remained flooded or heavily waterlogged during the excavation and most likely represents a natural hollow that had gradually silted up over a long period of time (Figure 3). Features from all phases of activity truncated it, whilst some 'disappeared' into it, suggesting the silting process continued throughout the Iron Age and Roman periods. It is possible that this area was flooded at certain times of the year.

LATE IRON AGE–EARLY ROMAN FIELD SYSTEM (PHASE 1)

Overview

The earliest evidence comprises the ephemeral remains of a field system SL1 (Fig. 4). Contemporary activity in the vicinity includes domestic

enclosures at Reserve Site 5, Downs Barn (Last 2001), c.800m to the north-west.

A small pottery assemblage and the absence of charred plant remains and animal bone suggest that domestic activities, such as food preparation and consumption, were carried out beyond the excavation area (Table 1). However, the absence of this data is consistent with contemporary sites in the vicinity, such as Reserve Site 5, Downs Barn (Baxter 2001).

Material Culture & Dating

by Jackie Wells

Consistent with the peripheral location of field system SL1, only a small assemblage of grog-tempered late Iron Age and sand-tempered early Roman coarseware pottery (13 sherds, 142g) was recovered from Phase 1 features, mainly from pits within enclosure L1. All were highly abraded and two small everted rims represent the sole diagnostic sherds. The assemblage included both hand-built and wheel-thrown examples. The condition of the pottery was generally poor, with unfavourable soil conditions promoting surface erosion and leaching of calcareous inclusions.

Field System SL1

The identification of field system SL1 was based on two broadly NNW-SSE aligned ditches G6 and G8, arranged either side of a principal, roughly east-west aligned boundary G33. At least four fields, L1–L4, were represented by the ditches. The presence of shorter lengths of ditch (G2, G4, G5, G7, G26, G65, G69 and G70) in fields L3 and L4 suggests that they were sub-divided. The considerable width (0.7–1.1m) of boundary G33 suggests that it was long-lived, although no evidence of maintenance was identified. The other field boundaries were much narrower (0.3–0.7m) and may have been dug to reinforce hedges or fences, although again no evidence for this was identified.

No definitive evidence for domestic activity, such as structures or significant quantities of artefacts, was identified but two pits, G15 and G48, were present on the west side of field L1. They produced a small assemblage of late Iron Age and early Roman pottery but no other evidence suggestive of domestic activity. The larger pit G15 was 0.6m deep, with steep-sloping sides and a flat base.



FIGURE 3 All-features plan

Its profile and depth suggest that it may have been a storage pit (Figure 5, d).

MID-LATE 1ST-CENTURY TO MID-2ND-CENTURY ROMAN FARMSTEAD SL2 (PHASE 2)

Overview

Activity on the site continued unbroken into the mid to late 1st to late 2nd century (Phase 2), as indicated by the pottery sequence, but the Phase 2 activity was represented by a new layout of enclosures and fields superimposed onto the Phase 1

fields (Figs 6 & 7). This new layout conforms to the 'linear complex type' farmstead defined by *The Rural Settlement of Roman Britain* project (Allen & Smith 2016, 33). Its establishment fits with the changing settlement morphology in this region during the later 1st century and into the 2nd century, linked to an increased focus on pastoral farming and/or animal management. In the Milton Keynes area, this is sometimes represented by slight changes in site location or the adoption of a more 'Romanised' layout (Zeevat 1987a, 9). At Wavendon Gate, for example, the late Iron Age settlement was abandoned in the mid-1st century

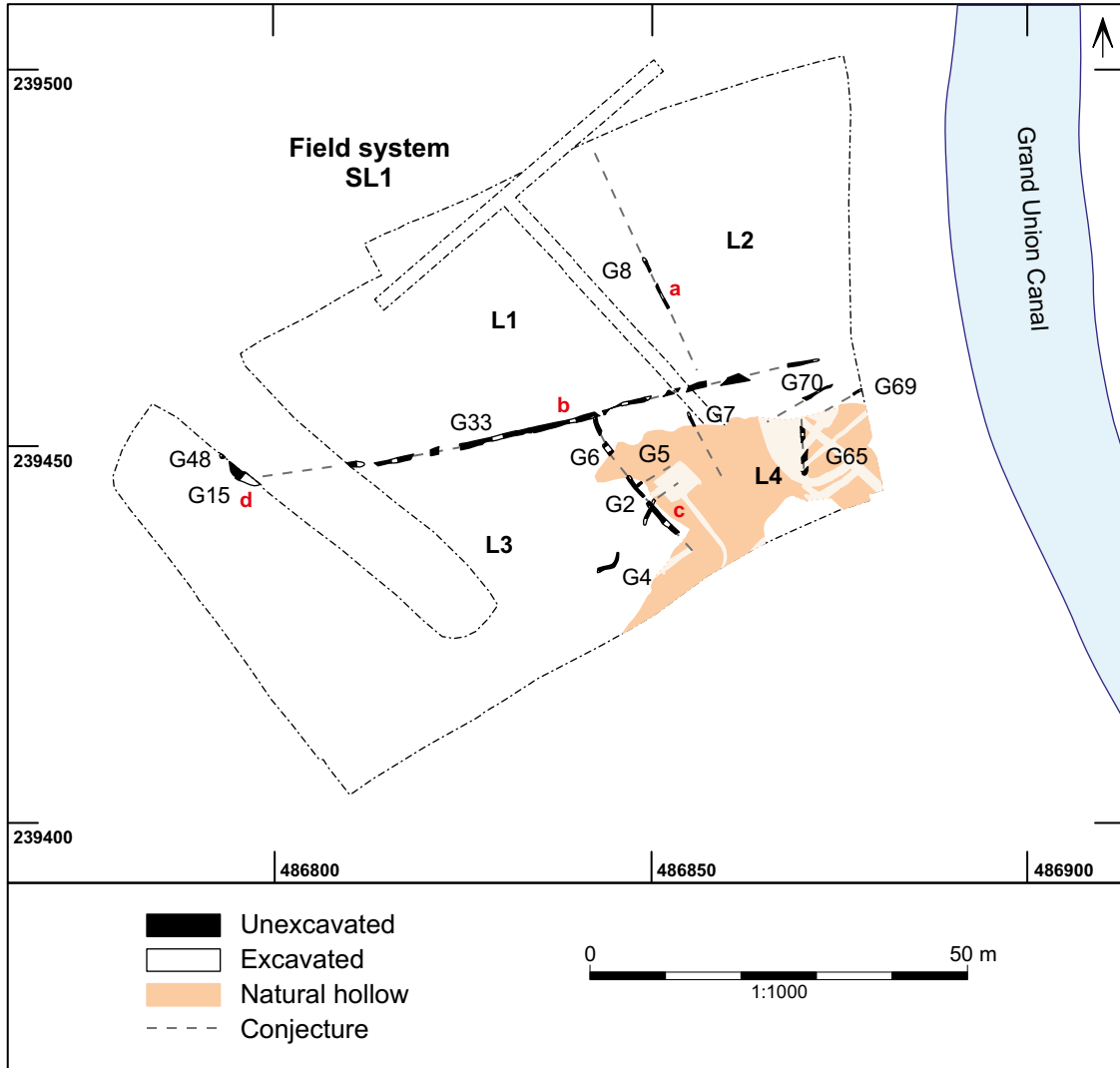


FIGURE 4 Late Iron Age–early Roman field system SL1 (Phase 1)

AD and a new large ditched enclosure was created, partially overlying the earlier activity (Williams *et al* 1996, 83).

Farmstead SL2 was at least 0.4ha in size with most of its constituent ditches extending beyond the excavation area in all directions. No structures were identified but a larger pottery assemblage, animal bone and evidence for cereal-processing indicate the presence of a domestic core in the immediate vicinity (Table 1).

Environment, Plants & Animals

by John Giorgi and Mark Maltby

Phase 2 features produced a small charred plant assemblage comprising mainly hulled wheat, probably mostly Spelt (*Triticum spelta*) on the basis of the identifiable chaff fragments. The richest assemblage was recovered from ditch G2 – equal quantities of grains and chaff and a virtual absence of weed seeds (Fig. 6; sample 35) was suggestive of spelt wheat spikelets dumped into the ditch after

TABLE 1 Finds by phase

<i>Phase</i>	<i>Pottery Sherd:weight (kg)</i>	<i>Animal bone (kg)</i>	<i>Other artefacts (weight kg)</i>
1	13:0.14	–	0.01 fired clay Lead alloy window came (RA43)
2	33:0.33	1.04	0.2 tegula 0.23 tegula, imbrex 1.0 fired clay Limestone quern (OA1) Millstone grit quern (OA3 and OA4) Vessel glass (body sherd OA7) Lava quern (OA2) Late Iron Age coin Radiate coin (AD 260–68) Copper alloy terret ring (OA6), Iron binding (OA5) Iron nail x10
3	340:4.09	28.86	Ferrous slag (71g) 1.0 tegula, imbrex, brick 0.8 fired clay Coins x 21 (AD 260–75 to AD 364–78) Copper alloy bangle bracelet (OA11) Copper alloy nail cleaner (OA12) Copper alloy waste x2 (RA19, OA10) Copper alloy stapled hasp (OA8) Iron ring (OA13) Iron strip fragment Iron nail x4
4	145:2.7	15.84	Lead alloy sheet offcut (OA9)

being accidentally burnt, while being heated to facilitate de-husking or while being dried before storage (Giorgi 2018, 46). No evidence for a drying oven was identified, but it is likely that one existed in the vicinity.

Cattle, sheep/goat, horse and pig are represented in the animal bone assemblage recovered from farmstead SL2, with cattle (55%) being the dominant species of the identified animal bone count, followed by sheep/goat (34%). Cattle have tended to dominate faunal assemblages on Roman sites around Milton Keynes, usually contributing over half of the identified mammal fragments (Maltby 2018, 30). A predominance of cattle was also demonstrated at Wavendon Gate (Dobney & Jaques 1996, 206–7) and MK109 Little Woolstone (Westley 1987, 186–7) (Table 2).

Material Culture & Dating

by Jackie Wells

The quantity of pottery, although larger than that from Phase 1, was still meagre. Early Roman sandy and shelly coarsewares were dominant (twenty-five sherds) with a late 1st- to early 2nd-century Verulamium region white ware jar or flagon base representing the only diagnostic sherd. Residual, undiagnostic late Iron Age grog-tempered wares comprise the remainder of the assemblage. The pottery wares and forms are common and well-represented from excavations in the Milton Keynes environs (Marney 1989).

Farmstead SL2

Farmstead SL2 was represented by at least three

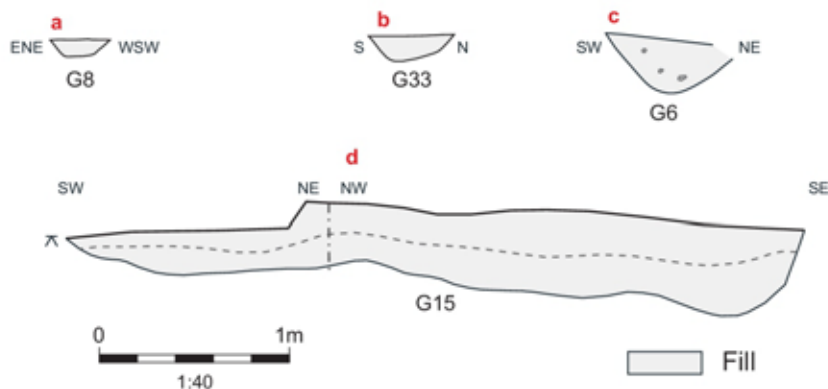


FIGURE 5 Selected sections from FIGURE 4

fields, L5, L6 and L7, to the west and enclosures L8 and L9 to the east. Despite differences in the layout of the fields and enclosures their artefact assemblages were similar, suggesting that neither contained the farmstead's domestic core. Slightly more animal bone was recovered from the fields (462 fragments) compared to the enclosures (348 fragments).

Fields L5, L6 & L7

Fields L5, L6 and L7 were aligned NW-SE. They were defined on most sides by ditches, which extended beyond the excavation area to the north, south and west. The majority of field L5 lay within the excavation area; it was at least 45m wide and 44m long. Fields L5 and L6 were devoid of internal activity but a series of ditches, G25, G26 and G28, in the interior of field L6 suggest sub-divisions.

Entrances were indicated by 4m- and 5m-wide gaps in the eastern boundaries of fields L5 and L6 respectively. Gaps in other ditches are the product of later truncation.

Enclosures L8 & L9

Enclosures L8 and L9 were smaller and different in shape to the fields to the west. Enclosure L8 was rectangular and on the same alignment as the fields, although it was much narrower (c.17m wide). Enclosure L9 was situated immediately west of enclosure L8 and had a more irregular layout. It was only partially revealed but its northern half was circular in shape, perhaps indicating the location of a roundhouse for which no other evidence survived.

Both enclosures were devoid of evidence for internal activity, although the majority of the pottery recovered from this farmstead derived from the ditch of enclosure L9.

MID-2ND- TO LATE 3RD-CENTURY ROMAN FARMSTEADS SL3 & SL4 (PHASE 3)

Overview

Phase 3 saw alterations to the layout of Phase 2 farmstead SL2, although the new enclosures and fields of farmstead SL3 occupied broadly the same area. Farmstead SL3 covered c.0.5ha, extending beyond the excavation area to the north, south and east (Figures 8 & 10). Greater quantities of pottery and 'other artefacts' (Table 1) were accompanied by evidence for increased domestic activity in the form of intensive crop- and animal-carcass-processing. The continued absence of domestic structures and a greater occurrence of pottery in the south-eastern enclosures suggest that the farmstead's core lay beyond the excavation area to the south-east.

The layout of farmstead SL3 evolved during Phase 3, although the overall size of the reorganised farmstead SL4 within the excavation area did not increase. Little variation was observed in either the composition or date of the assemblages from farmsteads SL3 and SL4 (Wells 2018, 16) but there was a noticeable increase in the quantity of artefacts and ecofacts.

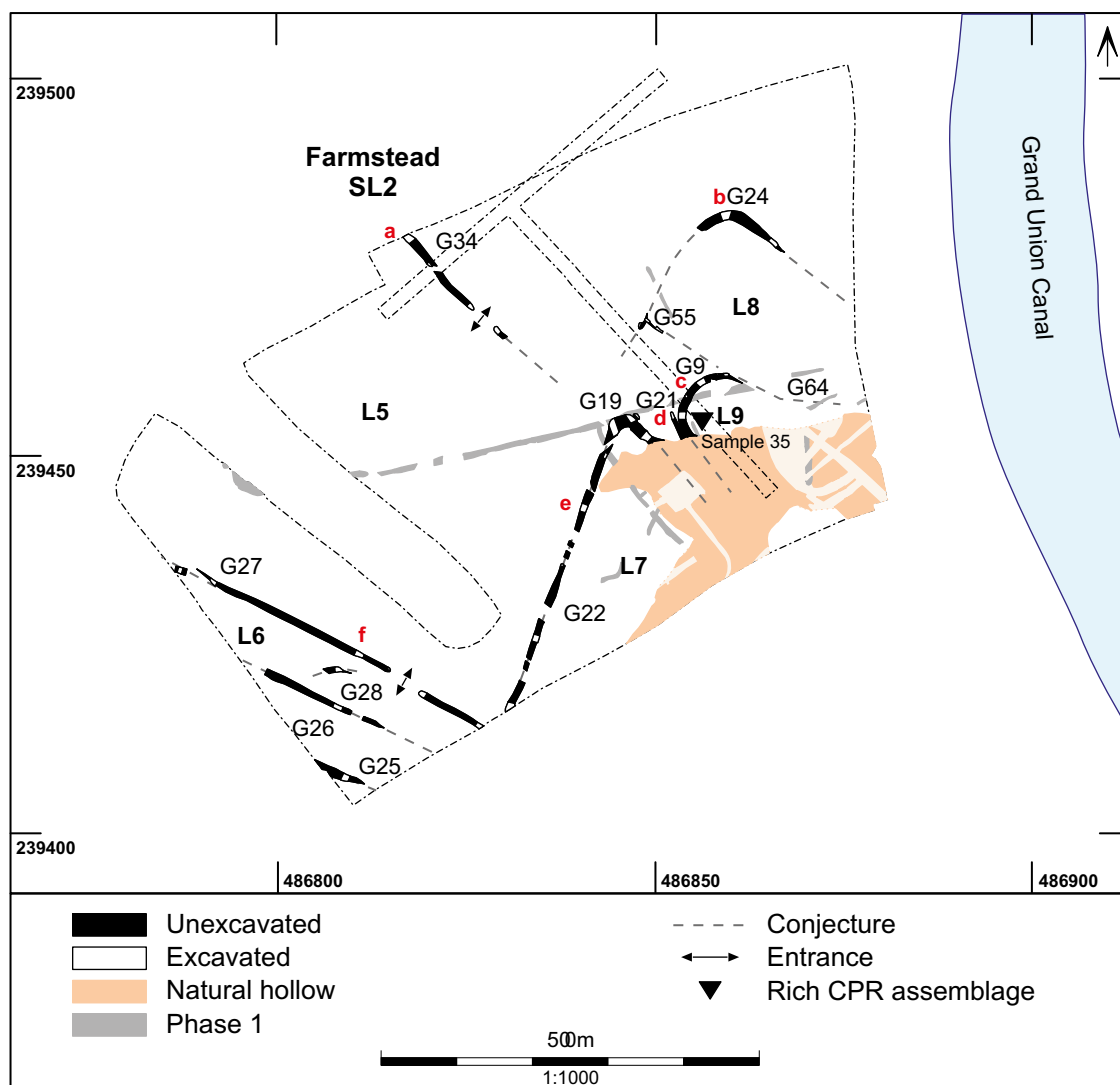


FIGURE 6 Mid- to late 1st-century to mid-2nd-century Roman farmstead SL2 (Phase 2)

Environment, Plants & Animals

by Dana Challinor, John Giorgi and Mark Maltby

Spelt wheat continued to be the main cereal exploited during this phase; other cereals, including emmer wheat (*Triticum dicoccum*), free-threshing wheat (*T. aestivum* type) and barley (*Hordeum vulgare*), were poorly represented. The dominance of spelt wheat on sites in this part of the country has been highlighted by recent research (Lodwick 2017, 26), and includes several Romano-British

sites close by in the Milton Keynes area: Wavendon Gate (Williams *et al* 1996), Windmill Hill (Mynard 1987, 37–9) and Bancroft Villa (Pearson & Robinson 1994, 583). Spelt wheat has excellent baking and milling properties (Jones 1981, 107) and contains the proteins necessary for making a well-risen loaf (Cool 2006, 70). This cereal was also used for a very common gruel known as *puls* or *pulmentus*, not unlike modern Italian polenta (Renfrew 1985, 22) (Giorgi 2018, 67).

Several rich assemblages of spelt chaff and

TABLE 2 Mammal and chicken counts from Roman assemblages in the vicinity of Milton Keynes

	<i>Campbell Park Canalside</i>		<i>Fenny Lock</i>		<i>Bancroft Villa</i>		<i>Windmill Hill</i>		<i>Little Woolstone</i>		<i>Woughton</i>		<i>Stantonbury Villa</i>		<i>Wavendon Gate</i>		<i>Monkston Park</i>	
	<i>Phases 2–4</i>		<i>Phases 6–8</i>		<i>MK105</i>		<i>MK96</i>		<i>MK109</i>		<i>MK297</i>		<i>MK301</i>		–		–	
	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>NISP</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>	<i>NISP</i>	<i>%</i>
Cattle	216	67.1	224	56.9	2391	49.8	98	54.7	444	60.0	200	58.0	720	47.3	1378	66.2	257	54.9
Sheep/goat	42	13.0	113	28.7	1448	30.1	48	26.8	220	29.7	95	27.5	673	44.2	339	16.3	94	20.1
Pig	8	2.5	17	4.3	561	11.7	10	5.6	36	4.9	21	6.1	57	3.7	57	2.7	27	5.8
Horse	54	16.8	34	8.6	293	6.1	11	6.1	22	3.0	19	5.5	47	3.1	265	12.7	90	19.2
Dog	1	0.3	5	1.3	87	1.8	12	6.7	8	1.1	8	2.3	18	1.2	35	1.7	–	–
Cat	–	–	–	–	5	0.1	–	–	–	–	–	–	1	0.1	1	0.0	–	–
Red deer	1	0.3	1	0.3	13	0.3	–	–	9	1.2	–	–	4	0.3	6	0.3	–	–
Roe deer	–	–	–	–	3	0.1	–	–	1	0.1	1	0.3	–	–	1	0.0	–	–
Hare	–	–	–	–	4	0.1	–	–	–	–	–	–	2	0.1	1	0.0	–	–
Fox	–	–	–	–	–	–	–	–	–	–	1	0.3	–	–	–	–	–	–
Badger	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	322	–	394	–	4805	–	179	–	740	–	345	–	1522	–	2083	–	468	–
Chicken	4	1.2	4	1.0	113	2.3	0	0.0	2	0.3	0	0.0	0	0	57	2.7	3	0.6

NISP = number of individual specimens

Totals include bones from sieved samples

Totals exclude bones of small mammals and amphibians

Fenny Lock data adapted from Hamilton–Dyer (2001)

Bancroft villa data adapted from Levitan (1994)

Other Milton Keynes sites data adapted from Field and Westley (1987)

Wavendon Gate data adapted from Dobney and Jaques (1996)

Monkston Park data adapted from Bull and Davis (2009)

Totals from Campbell Park Canalside and Fenny Lock exclude bones in associated bone groups (ABG)

Totals from Monkston Park include unspecified number of bones in ABGs of cattle, sheep, two horses and two dogs

Totals from Wavendon Gate include unspecified number of bones in ABGs of a sheep, four chickens and three horses

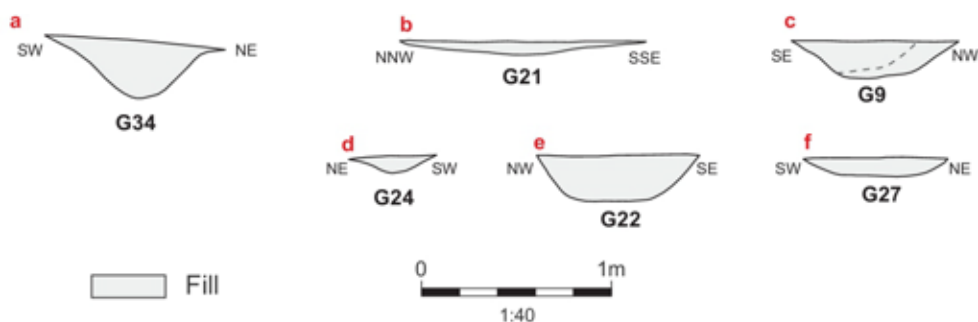


FIGURE 7 Selected sections from FIGURE 6

grains show that the farmstead's crop-processing capacity had increased by this phase, as evidenced by drying ovens and stone surfaces. However, only a small number of quernstone fragments were recovered (see below).

The presence of stinking chamomile (*Anthemis cotula*) indicates the cultivation of calcareous (including heavier) clay soils near the site. The presence of *Carex* (sedge) in a small number of samples may reflect the use of damper areas of ground for growing crops, possibly towards the river Ouzel to the east of the site (Giorgi 2018, 67). Other weed seeds suggest that both fertile and poor land was cultivated around the site – the expansion onto more marginal damp ground may have been a response to over-cropping (*ibid.*). However, spelt can grow on a range of soils, including low-fertile land (van der Veen 1992). As a hardy crop, it was most likely autumn-sown, as suggested by several of the weeds represented in the samples including *Galium aparine* (cleaver) and *Bromus* (brome).

The evidence for the exploitation of animals was similar to Phase 2; cattle were the best-represented species of the identified animal bone assemblage (55%), followed by sheep/goat (34%) (Maltby 2018, 30–40). A marked increase in cattle was noted later in this phase (farmstead SL4) where it formed 62% of the animal bone assemblage, whilst sheep/goat fell to 8%. The higher occurrence of cattle is consistent with other Roman sites in the Milton Keynes area and there seems little doubt that cattle were the mainstay of pastoral farming in this area (Maltby 2018, 30).

Cattle tooth ageing data were limited but suggest that animals were being kept for meat as well as being used as working animals or breeding stock (Maltby 2018, 34). Sheep were most likely being

kept for wool and milk, based on the evidence for sub-adult to elderly individuals (*ibid.*). No evidence existed to suggest that sheep or cattle were being bred at the farmstead during this phase.

Of note was the presence of a large number of cattle ribs and vertebrae, including the relatively high frequency of complete or substantial portions of the larger elements including vertebrae (Maltby 2018, 33). This assemblage may represent processing waste from the early stages of carcass dismemberment, presumably being undertaken close to the excavation area. Evidence for the use of fine knives and heavier blades was also identified on some of the bones, including filleting with a heavy blade – usually found on urban sites and associated with specialist butchers (Maltby 2018, 35).

Pig was barely represented in this assemblage (< 1%) but horse increased during the latter stages of Phase 3 to 16% (excluding two partial horse skeletons) of the animal bone assemblage. The exploitation of birds was represented by three bones of adult chicken and compares with totals recorded on other sites in the vicinity (Maltby 2018, 40). Chickens, which were only introduced to Britain during the Iron Age, have tended to be found in, at most, very small numbers on Roman rural sites (Maltby *et al* 2018).

Evidence for the exploitation of wild species and food sources was almost absent from the site, except for a single red deer metatarsal and hazelnut shell, suggesting that the farmstead's inhabitants rarely hunted. This is consistent with other Roman rural sites in the vicinity; Bancroft villa is the only Roman site from the area which has produced significant numbers of other domestic and wild bird bones, perhaps reflecting its higher status (Maltby 2018, 40).

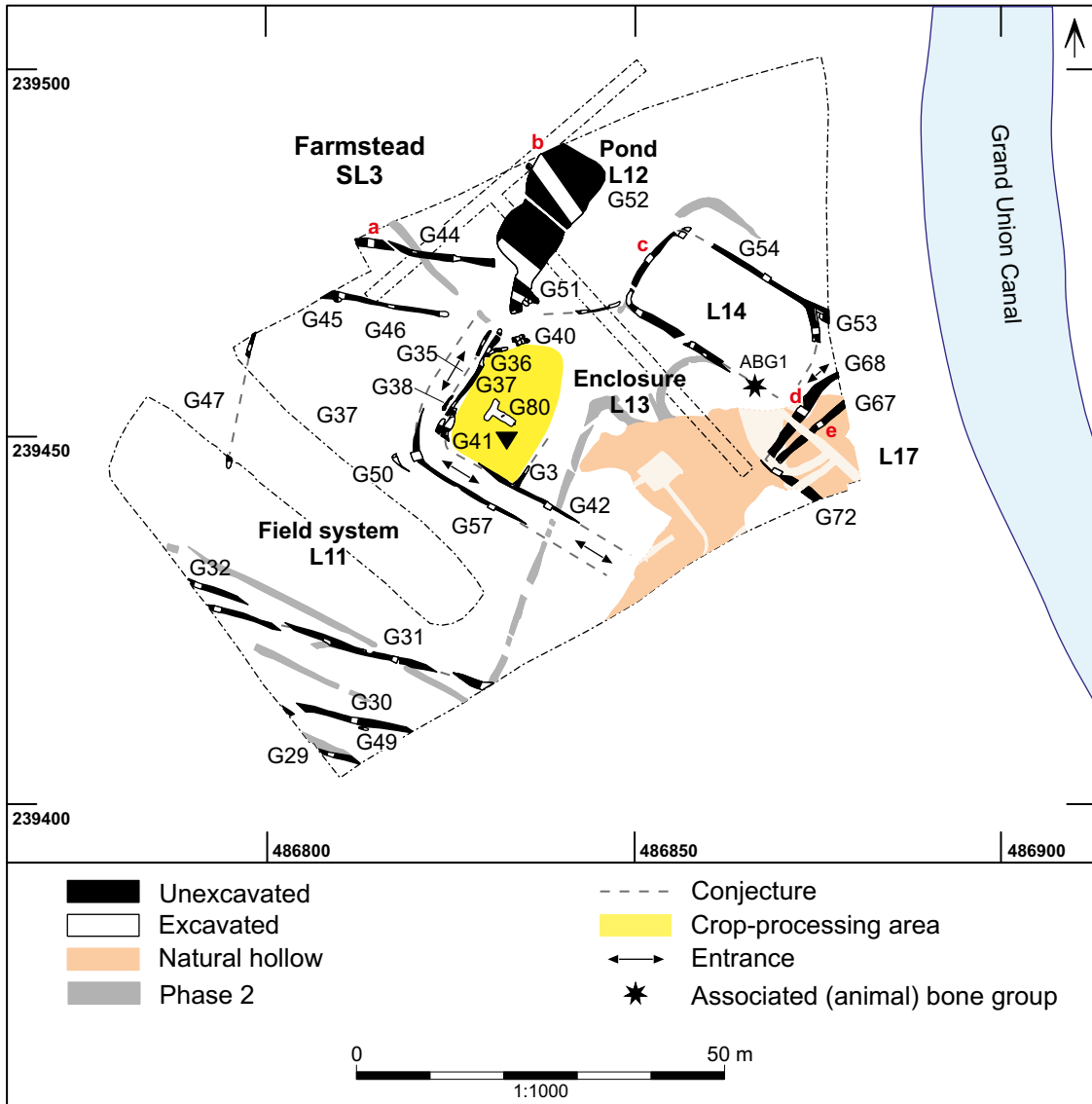


FIGURE 8 Mid-2nd- to late 3rd-century Roman farmstead SL3 (Phase 3)

The local environment almost certainly included agricultural fields and areas of grassland for livestock, with dogwood and cherry type species indicating the presence of hedgerows or scrub near the farmstead. The wood charcoal assemblage implies access to areas of ‘managed deciduous woodlands, cut on cycles of 7–12 years’ (Challinor 2018, 77), whilst the presence of oak heartwood, although limited, also points to mature woodland close-by.

A single red deer bone supports the idea of a mostly open terrain, although it could equally indicate an absence of hunting (see above).

Material Culture & Dating

Holly B. Duncan, Peter Guest and Jackie Wells

The majority of the site’s pottery assemblage (340 sherds, weighing 4kg) derived from Phase

3 features, notably the later farmstead SL4, in particular crop-processing enclosure L20.

In order of prevalence, shell-tempered wares, sandy reduced wares and pink-grogged wares dominate the Roman assemblage, the latter suggesting a mid-/later 2nd-century date. Other datable forms were 2nd–3rd-century Lower Nene Valley colour-coated beakers and a late 1st- to late 2nd-century grey ware poppyhead beaker. The Phase 3 assemblage was well-fragmented; most vessels are represented by less than 100g of sherds, with the largest example weighing only 236g (Wells 2018, 15–16).

Few personal or domestic items were represented in the ‘other artefact’ assemblage and most of the objects relate to grain-processing in one way or another. Amongst the items recovered were a late 3rd-century coin (RA38), an iron binding strap (Fig. 9, OA5) and an imported terret ring of a type in use from the mid-1st century AD to perhaps the 3rd century (Fig. 9, OA6), (Lewis 2015, 76). Terret rings served as rein-guides on vehicles and were probably used with general goods vehicles and wagons, even though they were likely to have been introduced by the Roman army. The presence of millstone grit and lava querns, as well as glass, indicates that the farmstead’s occupants had access to markets and the means to purchase or exchange goods (Duncan 2018, 24).

Farmstead SL3

Farmstead SL3 was represented by new enclosures L17 and L13 – which contained a sub-enclosure with a drying oven (L15) – whilst Phase 2 enclosure L8 was extensively redefined as L14. It is possible that Phase 2 enclosure L9 remained in use, although part of its eastern boundary was truncated by enclosure L14.

Pond L12 was established during this phase adjacent to the northern boundary of the excavation area. Phase 2 fields L5, L6 and L7 were reorganised as field-system L11 to the west.

Enclosures L13, L14 & L17

Three enclosures occupied the eastern and central area of farmstead SL3. Most of enclosures L13 and L14 lay within the excavation area but only part of enclosure L17 was revealed. The enclosures were broadly rectangular in plan and L13 was the largest.

All three enclosures were defined by ditches.

Once established, it appears that the enclosure ditches were not generally maintained through redigging and it is possible that they were soon replaced by hedges or fences. Only the northern boundary of L17 and the south-eastern boundary of L14 appear to have been redug (G68 and G53 respectively).

The north and west sides of enclosure L13 were defined by two parallel ditches, G36, G42 and G57, which in places formed a 3–4m-wide corridor with a narrow opening at the north-east end. The inner ditch G36 was partially redug several times on the same course (G40, G41, G35 and G37) but the corridor was retained. It is not certain that these double ditches were in use concurrently, but it is possible that they were designed to funnel livestock in and out. Funnelled enclosures have been cited by Allen and Smith (2016, 32–3) as a characteristic of linear complex type farmsteads in this region and suggest a primary concern with livestock husbandry. The contemporary use of funnels or ‘races’ for the management and movement of stock was identified at Bedford Academy (Ingham 2017, 122–4, fig. 12), whilst a possible stock corral was also found in association with a 3rd-century enclosure at Magna Park, Milton Keynes (Chapman & Chapman 2017, 32, fig. 23).

Sub-enclosure L15 (within enclosure L13) contained a T-shaped drying oven G80. Activity elsewhere in the farmstead was hinted at by the recovery of the partial remains of a sub-adult sheep hock (Table 3; ABG1) from enclosure L14 (ditch G54), which was ‘... probably discarded as processing waste after separation from the skin and the upper hindlimb’ (Maltby 2018, 37).

Sub-enclosure & T-shaped drying oven L15

Sub-enclosure L15 was situated in the north-west corner of enclosure L13. It was defined on three sides by ditches, with a possible NE-facing entrance. Positioned slightly off-centre was T-shaped drying oven G80 (Fig. 11).

Drying oven G80 comprised a sunken, NW-SE aligned flue, linked to a cross-flue at the north-west end. Its characteristic shape and the presence of a rich charred plant assemblage, oak charcoal and evidence for scorching support its interpretation as an oven, most likely used to dry grain in preparation for storage or milling (Giorgi 2018, 46). These are the most identifiable type of Roman drying oven and are known from a number of sites in

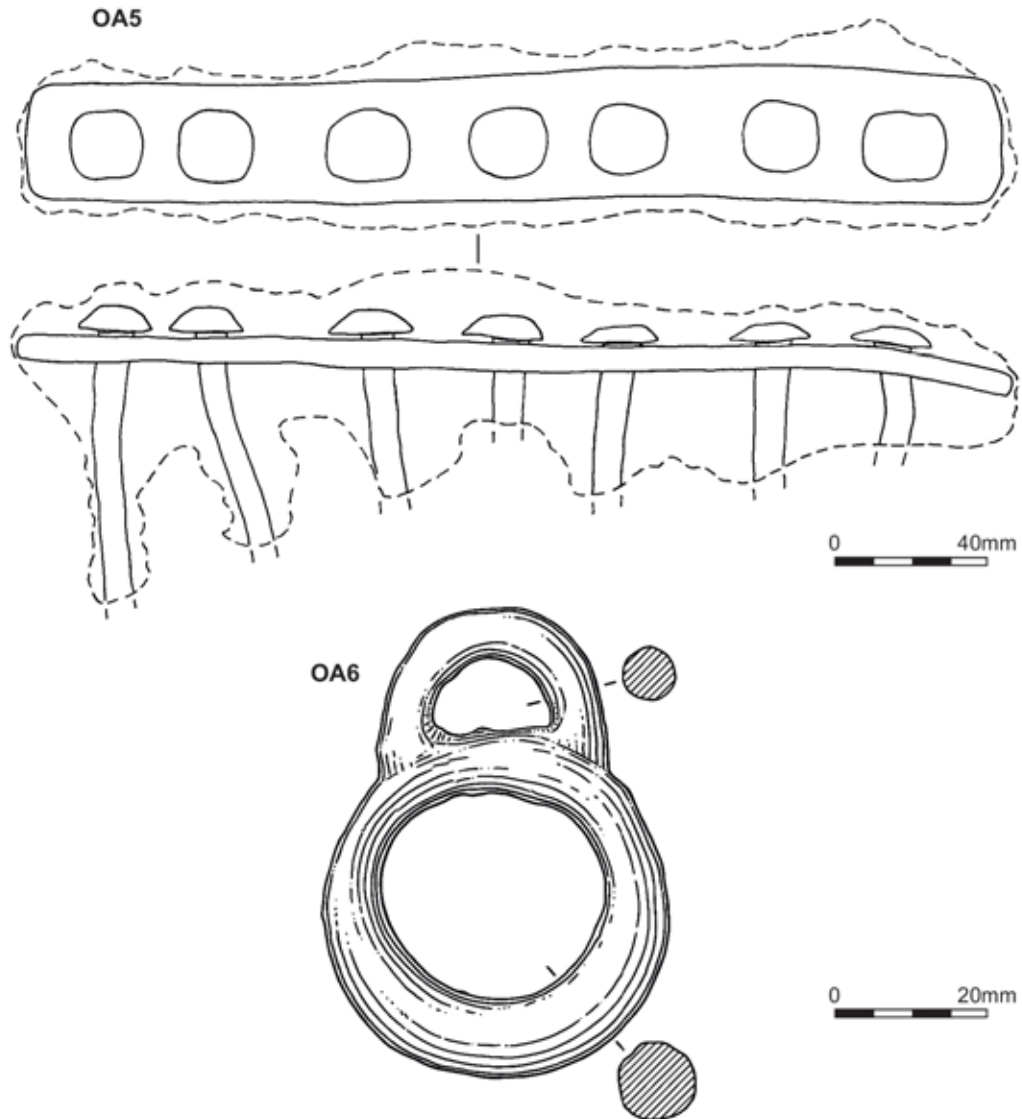


FIGURE 9 'Other artefacts' from Phase 3 farmstead SL3

Milton Keynes, e.g. Bancroft (Williams & Zeevat 1994, 83–7, figs 41 and 45), Heelands (Williams 1987, 43) and Windmill Hill (Mynard 1987, 39).

The main flue of oven G80 was 3.3m long and 0.2m deep, sufficiently long to separate the drying grain from the fire box at its south-east end (Morris 1979, 11). The cross-flue was similar in size. The vertical walls of the oven were 0.3m thick and, like the Heelands and Windmill Hill examples, made of limestone (*ibid.*). A triangular quoin or cornerstone

of Blisworth limestone had also been incorporated into the wall of the oven (Duncan 2018, 20).

The drying oven was backfilled with compact dark brown-grey silty clay, mixed with frequent oak charcoal fragments, burnt clay fragments and burnt stones. A larger quantity of burnt stones at the south-east end of the main flue corresponded to the location of the stokehole.

Three samples from the oven's backfill produced a rich charred plant assemblage (Table 4). It was '...

TABLE 3 Associated (animal) bone groups by phase

Phase	Associated bone group	SL	L	G	Whole or partial?	Species	Comments
3	ABG1	3	14	54	Partial	Sub-adult sheep	4 bones from the hock
	ABG2	4	18	12	Partial	Young adult cow	12 vertebrae, 8 ribs and 2 pelvis fragments
	ABG3			57.01	Partial	Young adult horse	Occipital condyle and 5 cervical vertebrae
4	ABG4	5	25	57.02	Partial	Large adult dog	Cervical and thoracic vertebrae and ribs, right humerus and left pelvis
	ABG5		24	52.02	Partial	Sub-adult cow	9 ribs, 7 cervical and 4 thoracic vertebrae

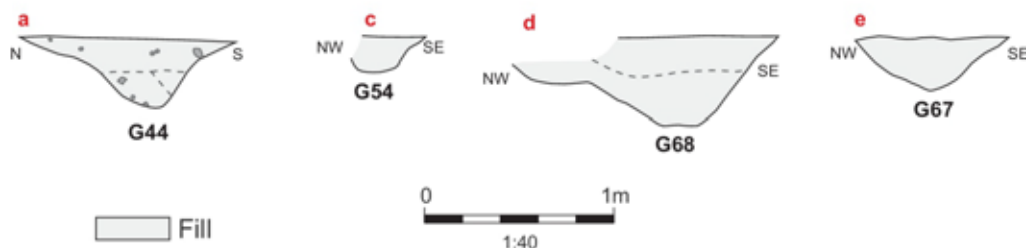


FIGURE 10 Selected sections from FIGURE 8 (scales as shown)

dominated by cereal grains (making up between 69% and 84% of the quantified remains in each sample), smaller amounts of cereal chaff (from 13% to 27%) and very few wild plant/weed seeds (between 1% and 4% of the remains). The very few weed seeds included large-sized wild grass seeds including *Bromus*, often found in almost fully processed cereals because these grain-sized weeds are difficult to separate from the grains other than by hand-sorting. The identifiable grains were mainly of hulled wheat and again probably spelt on the basis of the cereal chaff with no definite evidence for emmer. There were also a few possible free-threshing wheat grains in two of the samples. The dominance of grain and paucity of cereal chaff suggests that these remains mainly represent cleaned and de-husked spelt wheat grains accidentally burnt while being dried in the oven before milling or storage, the chaff and weed seeds (from de-husking and sieving) probably representing the residues of fuel used in the oven' (Giorgi 2018, 46).

The charred plant assemblage recovered from ditch G68 of enclosure L17 differed from those

recovered from oven G80; it was dominated by hulled wheat chaff, mainly from spelt. This material represents the by-product of de-husking and had probably been used as fuel (Giorgi 2018, 47).

Unenclosed activity area L12

A large sub-rectangular pit G52, initially identified during the 2007 trial trenching, lay to the north of enclosure L13 (Fig. 12). Its depth and the presence of horizontal, water-lain deposits indicate that it was probably a pond. Its northern side was much shallower than the southern one, suggesting that it could have been accessible to animals, although no evidence of trampling was apparent.

Field System L11

The western part of the excavation area continued to be utilised as fields during Phase 3, although the boundary alignments had shifted from those of Phase 2. Parts of at least three fields were represented by ditched boundaries that extended beyond the excavation area on all sides. Ditches G29, G30, G32 and G46 could represent shifting bound-



FIGURE 11 Drying oven G80

aries or internal partitions. Internal activity was evidenced by three pits, G45, G49 and G50. Their function is unclear, but it is possible that at least two of them represent remains of fences placed alongside the field boundaries.

Later Alterations SL4 to Farmstead SL3

Substantial alterations were made to the layout of farmstead SL3's enclosures (Figs 13 & 14). These were accompanied by the construction of a new drying oven G81 and two stone surfaces G78 and G79, indicating an intensification of crop-processing activities. It is possible that drying oven G80 (SL3) also continued to operate. Burials were present for the first time – two graves containing the cremated remains of infants in enclosure L20. No changes were made to the layout of field-system L11 during these alterations to the farmstead's enclosures.

The excavated features of farmstead SL4 produced more artefacts and animal bone than the earlier Phase 3 farmstead SL3. Overall, the Phase 3 assemblage was largely utilitarian with few personal or domestic items.

Enclosures L18 & L19

Farmstead SL3 enclosures L13 and L14 were extensively redug as enclosures L18 and L19. Their layout suggests that some of the SL3 enclosure boundaries remained in use, in particular part of the west side of enclosure L14/L19. The corral along the north and west side of L18 was retained and was extended to the south-west. The status of its north-east end is less clear but, depending on the survival of the earlier enclosure ditches in this

TABLE 4 Phase 3 farmstead SL3: frequencies and percentage of grain, chaff and weed seeds in the richer samples (1lith > 100 quantified items)

Group	G68		G80	
Context type	Ditch fill		Drying oven fill	
Sample	13	30	31	32
Grains	99 (10%)	322 (69%)	326 (84%)	292 (75%)
Cereal chaff	844 (90%)	124 (27%)	50 (13%)	92 (24%)
Weed seeds	12 (<1%)	18 (4%)	13 (3%)	6 (11%)
Total no. items	955	464	389	390
Item density	382e	23.2	19.5	19.5

e = estimated item frequency based on sorted fraction



FIGURE 12 West-facing section of pond G52

area, it may have still fed into the interior of enclosure L18.

The only visible entrance into enclosure L19 was via a 3m-wide gap in its south-east boundary, as indicated by a staggered ditch arrangement. No other feasible entrances or causeways were identified, but it is possible that the enclosure boundaries were bridged by, for example, planks.

Evidence for internal activity within these enclosures was slight, represented by four pits G12, G20, G39 and G82. Most were oval, of varying size and largely sterile. The exception was the largest pit G12, which produced an assemblage of animal bone including forty fragments of large mammal bones and five cattle mandibles, two of which were from calves (Maltby 2018, 27). The assemblage included ABG2 (Fig. 13), which comprised twelve cattle vertebrae, eight ribs and two pelvis fragments probably all from the same young adult animal (Table 3) (*ibid.*).

ABG3 (Table 3), comprising the partial remains of a young adult horse, was recovered from the south-west end of enclosure ditch G57.01 (L18),

next to the entrance to the corral. Both ABGs were of young animals and it seems likely from the bone elements represented in ABG2 (vertebrae, ribs and two pelvis fragments) and the evidence for butchery on horse ABG3 that they were debris from carcass-processing.

Crop-processing enclosure L20 & drainage ditches L21

New enclosure L20 occupied the southern part of enclosures L18 and L19 (Figs 15 & 16). It was more irregular in form and was defined by ditch G75, which represented an extensive redefinition of an earlier ditch G74. Access from this enclosure to enclosure L18 was via an entrance on the west side (Fig. 13).

A series of parallel, NE-SW aligned ditches L21 were dug across the southern area of enclosure L20. To the south-west they led into a large pit G58, c.1.2m deep, which had been dug into the underlying natural clay. Part of a cobbled surface on the north-east side of the pit probably served to aid access into what appears to have been a

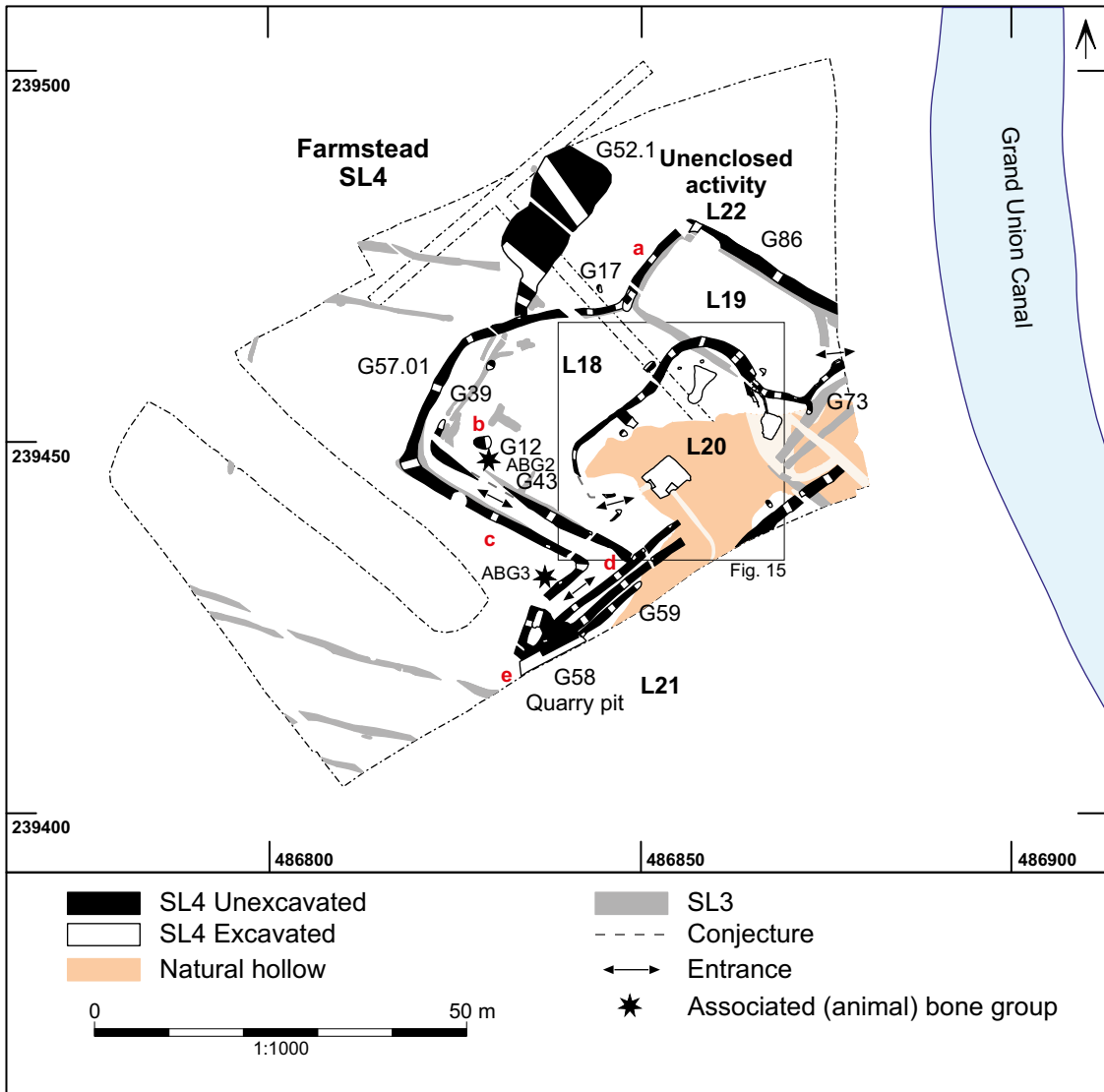


FIGURE 13 Mid-2nd- to late 3rd-century farmstead SL4 (Phase 3)

water-pit or sump. It is possible that the natural hollow in this part of the excavation area held water at certain times of the year and therefore required draining. A fragment of vessel glass (OA7), pottery and over half of the animal bone assemblage from farmstead SL4 (167 fragments/4.32kg) was recovered from this feature.

Activity in the interior of enclosure L20 was represented by drying oven G81 and two stone surfaces, G78 and G79. Two cremated infants had

been buried immediately to the north of the drying oven. Other than noting their position close to the enclosure ditch, little can be said about two small pits, G16 and G18.

Drying Oven G81

Oven G81 differed in layout to the T-shaped drying oven G80 of farmstead SL3 – it had a triangular drying chamber at the north-east end of a much shorter, 2.2m-long flue (Fig. 17). A similar-shaped

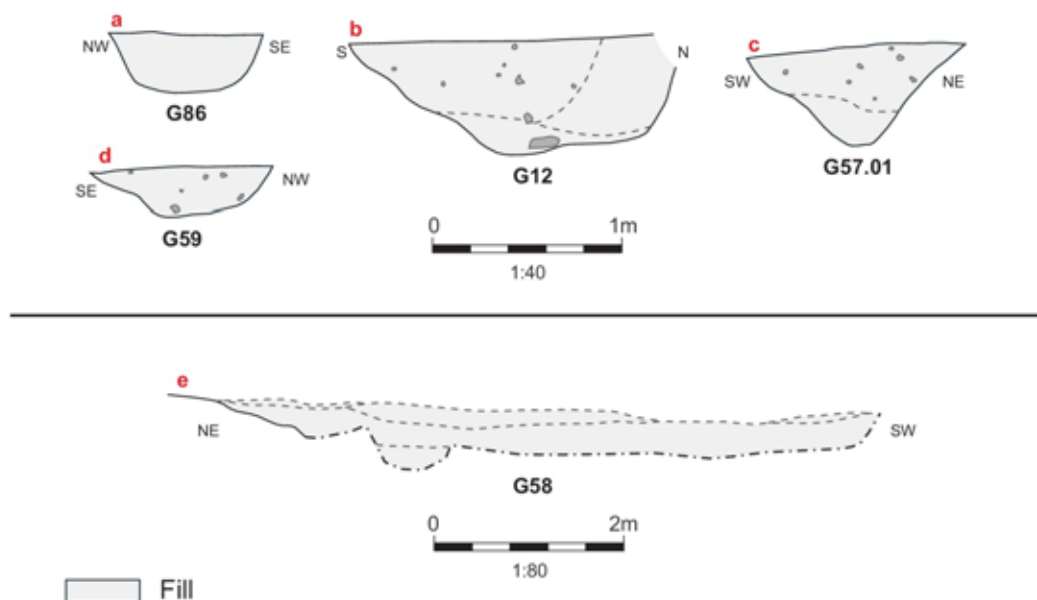


FIGURE 14 Selected sections from Figure 13

drying oven was found at Windmill Hill, c.6km to the south-west (Mynard 1987, 39). Evidence for a circular stoke pit survived at the south-west end of the flue and the fire box was indicated by scorching of the sides and base. The oven walls comprised three courses of limestone and large river-worn cobbles; at 0.4m they were slightly wider than the walls of drying oven G80. A large slab of limestone had been placed at the junction of the flue and the main chamber. A similar arrangement was identified in drying ovens at Heelands (Williams 1987, 43) and Windmill Hill (Mynard 1987, 39) where triangular pillars or a single stone had been placed in the flues. Morris suggested that these additional stones were used as baffles to restrict the flames and channel the heat (1979, 10). Other limestone blocks recovered from the flue and chamber of drying oven G81 are likely to represent the collapsed superstructure.

Drying oven G81 was backfilled with firm dark brown-grey silty clay, mixed with abundant charcoal and small lumps of baked clay. The wood charcoal indicated a greater diversity of taxa than that found in drying oven G80 – predominantly hazel and oak ‘with a range of supplementary taxa: cherry type, dogwood, poplar/willow and ash’. The dominance of oak and hazel is consistent with fuel used in ovens during the Roman

period (Challinor 2018, 77); charcoal from the drying oven at Bridgman Joinery Works, Harrold (Beds.) indicated a strong preference for oak and ash (Gale 2012, 28). Generally, the roundwood used in oven G81 was from young specimens with up to 12 years’ growth. This would ‘produce a short-mid length fire, suitable for raising the heat in a drying oven, without the long-sustained heat provided by larger trunkwood’ (Challinor 2018, 77).

Rich assemblages of cereal grains and chaff were recovered from the stoke-hole, chamber and final infill material (Table 5). ‘The main cereal in all the samples was spelt wheat, while there were small amounts of emmer chaff ... and traces of free-threshing wheat (grain and chaff) ... including evidence for hexaploid bread wheat’. There were also traces of hulled barley (grain and chaff) (Giorgi 2018, 59). Charred plant assemblages recovered from the base of the stoke-hole (sample 26) and chamber (sample 25) were dominated by chaff, with weed seeds, mainly *Bromus*, also present. These remains ‘represent by-products from the de-husking and sieving of spelt spikelets probably being used as fuel in the drying oven’ (*ibid*, 59). Other assemblages from the chamber (samples 19 and 20) and stoke-hole (sample 21) were grain-rich and most likely repre-

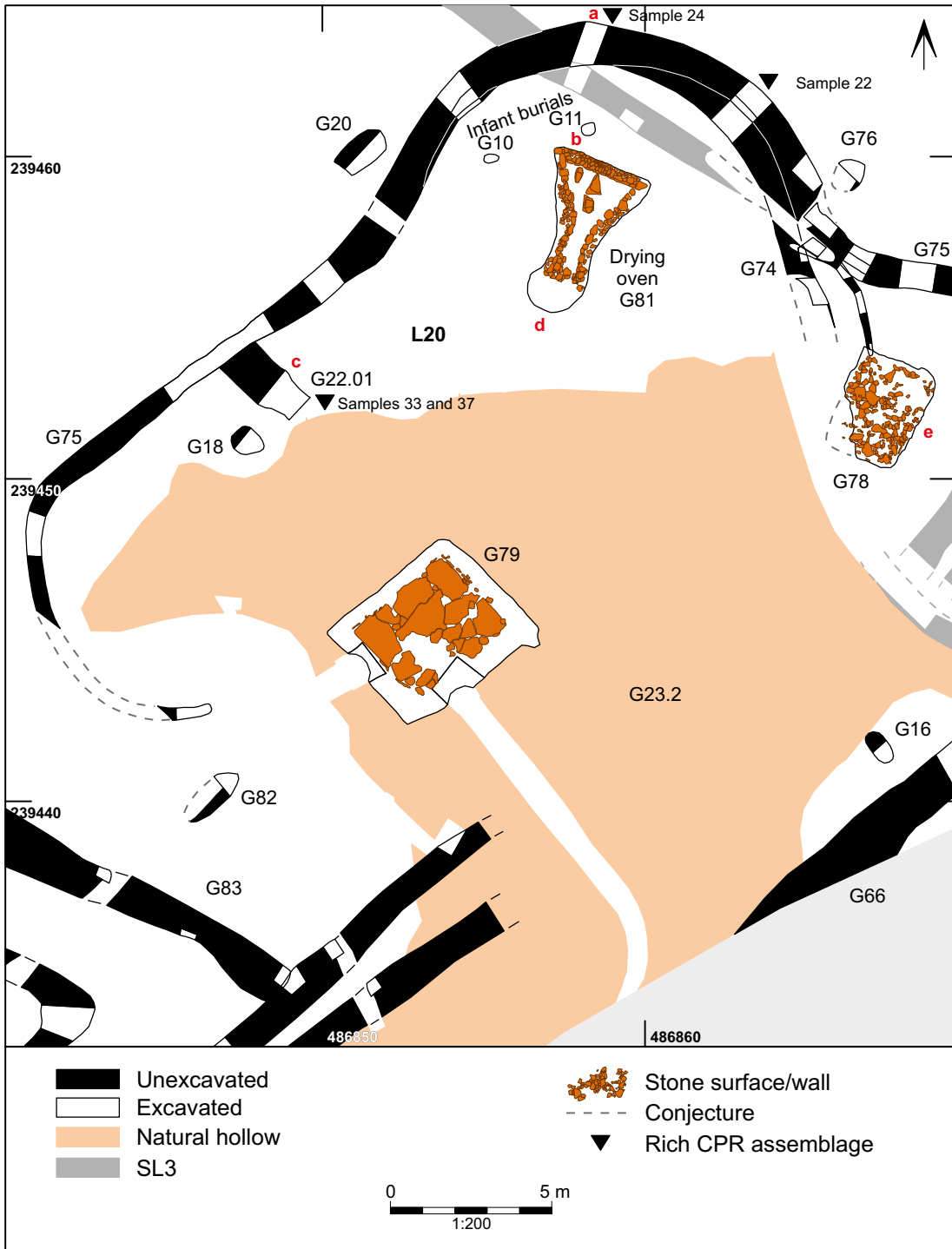


FIGURE 15 Detailed plan of crop-processing area in farmstead SL4 (Phase 3)

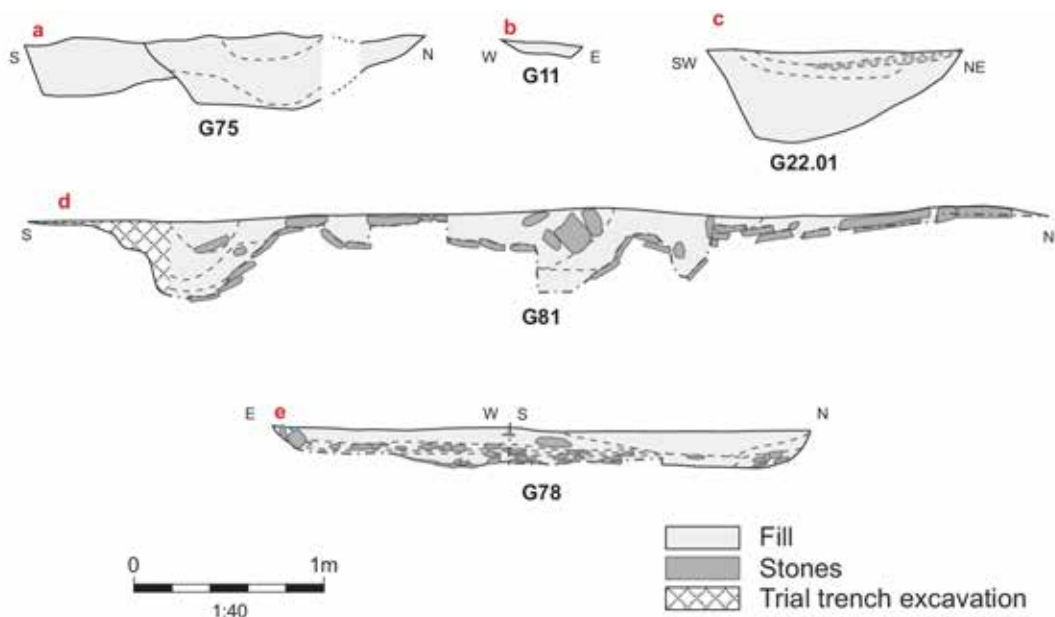


FIGURE 16 Selected sections from FIGURE 15

TABLE 5 Phase 3 drying oven G81 (farmstead SL4): frequencies and percentages of grain, chaff and weed seeds in richer samples (with >100 quantified items)

Context type	Chamber fill (rear)	Chamber fill (middle, base)	Chamber fill (middle)	Stoke-hole fill (base)	Stoke-hole infilling	Drying oven infilling
Sample	19	25	20	26	21	27
Grains	151 (89%)	44 (5%)	222 (87%)	54 (7%)	453 (86%)	150 (26%)
Cereal chaff	8 (5%)	765 (85%)	5 (2%)	546 (70%)	23 (4%)	193 (33%)
Weed seeds	11 (6%)	89 (10%)	27 (11%)	175 (23%)	53 (10%)	242 (41%)
Total no. items	170	898	254	775	529	585
Item density	34e	721.6e	12.7	2,560e	26.5	97.7

e = estimated item frequency based on sorted fraction

sent grains ‘accidentally burnt while being dried in the oven to facilitate milling or before storage’ (*ibid.*, 60).

No pottery and very little animal bone were present in the oven fills, suggesting that the farmstead’s domestic focus was some distance from the crop-processing area.

Rich charred plant assemblages were also recovered from enclosure ditch G75 (samples 22 and 24) and from ditch G22.01 (samples 33 and 37), the latter representing a mostly silted-up Phase 2 ditch

(Fig. 15). The assemblages were dominated by hulled wheat chaff, representing the by-products from the dehussing of spelt probably used as fuel in drying oven G81 (Giorgi 2018, 51). Wood charcoal recovered from these ditches was also consistent with the use of hazel and oak as fuel in the drying ovens (Challinor 2018, 76).

Stone surfaces G78 & G79

Enclosure L20 also contained two rectangular, sunken surfaces, to the south-west and south-east



FIGURE 17 Drying oven G81

of drying oven G80. The more complete was G79, a 4m x 3m paved area of limestone slabs set into a 0.4–0.7m-wide clay lining (Fig. 18). Smaller horizontal limestone fragments suggested that the sides of the feature had also been lined. Surface G78 comprised a 3m x 2.5m area of mostly small limestone fragments set into clay (Fig. 19). The smaller size of the fragments could be due to post-depositional damage, although the absence of a thick clay lining perhaps suggests that it was constructed differently to surface G79. A second layer of limestone fragments was evident in the south-east quadrant and probably indicates an episode of maintenance. A fragment of Millstone Grit (OA4) had been incorporated into the surface.

The disuse of the stone surfaces was indicated by overlying dark grey-black silty clay that was mixed with charcoal of oak, hazel, ash and occa-

sionally field maple. A rich assemblage of chaff, mainly of spelt wheat, was recovered from the layer overlying surface G78 and is suggestive of de-husking waste used as fuel in drying oven G81. The charred plant assemblage from surface G79 was dominated by spelt wheat grains that had most likely been accidentally burnt during drying (Giorgi 2018, 61–63) (Table 6).

Small quantities of pottery, seven sherds (0.22kg) and twenty sherds (0.49kg) were recovered from stone surfaces G79 and G78, respectively. A large animal bone assemblage (105 fragments/7.1kg) dominated by large bones of cattle and horse was recovered from stone surface G79. A terret ring dating from the mid-1st to c.3rd century was found in the disuse fill of G79.

Comparable stone-lined sunken surfaces were discovered at Reserve Site 5 Downs Barn (Last 2001, 68–9), c.850m to the north-west of farmstead SL4, and at Bancroft Roman Villa (Zeepvat 1994, 195–6; fig. 107) (Fig. 1). Further examples are known from Bedfordshire at Bridgman Joinery Works, Harrold (Luke & Preece 2012, 35–7; fig. 17) and Peartree Farm, Bedford (Luke & Barker in prep.) (Fig. 20). The stone surface at Harrold was also located adjacent to a drying oven.

Interpretations of these surfaces include industrial areas (Zeepvat 1994, 195–6), storage bins (Leech 1982, 29), water tanks for soaking grains as part of the malting process (Morris 1979, 17) and threshing floors (*ibid.*, 23), whilst the surface at Reserve Site 5 Downs Barn was ascribed a ritual purpose (Last 2001, 76). Last (*ibid.*) suggested that ‘... the investment in laying a stone surface [for the purposes of threshing] hardly seems justified when flat, beaten earth would probably have been more efficient’.

No significant evidence for malting was identified in the Campbell Park Canalside charred plant assemblage (Giorgi 2018, 72), whereas the assemblages of chaff recovered from several ditches in farmstead SL4 and from stone surface G78 strongly suggest that de-husking was taking place in the farmstead. It is likely, given their proximity to drying ovens, that stone surfaces G78 and G79 were used for crop-processing activities, such as the de-husking of the spikelets by pounding, winnowing and sieving. However, the more substantial construction of stone surface G79 could suggest that it was also used for different crop-processing activities.



FIGURE 18 Stone surface G79



FIGURE 19 Stone surface G78

TABLE 6 Phase 3 stone surfaces G78 and G79 (farmstead SL4): frequencies and percentages of grain, chaff and weed seeds in richer samples (with >100 quantified items)

Group	G78				G79			
	Floor fill NW	Floor fill NE	Floor fill SW	Floor fill SE	Floor fill W	Floor fill S	Floor fill N	Floor fill E
Sample	18	9	10	14	3	2	4	5
Grains	124 (22%)	62 (9%)	42 (7%)	39 (21%)	248 (82%)	134 (81%)	195 (82%)	197 (77%)
Cereal chaff	416 (76%)	594 (90%)	522 (91%)	144 (76%)	38 (12%)	28 (17%)	32 (13%)	43 (16%)
Weed seeds	9 (2%)	4 (1%)	13 (2%)	7 (3%)	18 (6%)	4 (2%)	13 (5%)	19 (7%)
Total no. items	549	660	577	190	304	166	240	259
Item density	220.8e	132.4e	231.2e	9.5	972.8e	132.8e	384e	414e

e = estimated item frequency based on sorted fraction

Infant burials G10 & G11

Burials G10 and G11 were the only human remains recovered from the excavation area. They comprised two small circular graves (0.40–0.50m in diameter and < 0.1m deep), each containing the incomplete and fragmentary remains of infants who had died shortly after birth (Powers 2018, 77). Grave G10 contained the remains of a neonate of more than forty weeks gestation (full-term), whilst grave G11 contained the partial torso of a slightly older infant. Powers has highlighted the occurrence of infant burials in domestic contexts (Millet & Gowland 2015, 178) and states that ‘Where once infanticide was postulated as a likely explanation for finding such individuals in contexts where older children and adults were not present, there is now increasing acceptance that neonates were subject to different, but nonetheless formal or respectful, burial rites’ (*ibid*, 2018, 78).

The two graves were located immediately to the north and north-west of drying oven G81. Similarly, an infant cemetery was positioned immediately adjacent to a corn-dryer at Barton Court Farm, Oxon. (Scott 1990, 30–46), whilst infant remains were found on the threshing floor at Peartree Farm, Bedford (Luke & Barker in prep.). The number of infant burials found in association with corn-drying ovens, hearths and threshing floors was highlighted by Scott, who suggested that their deposition in these locations may have been linked to agricultural rituals (1990, 37).

Unenclosed activity L22

Pond G52.01 and small pit G17 were located to the north of enclosures L18 and L19 in an apparently unenclosed area. G52.01 represents the continued use of the farmstead SL3 water-pit G52. A column sample taken from the pond during the trial trenching indicated that it had probably silted-up gradually, given the dearth of organic remains (Albion Archaeology 2007, 71). It is more than possible that it was still open and water-filled during the lifetime of farmstead SL4. The limited assemblage of pottery and animal bone suggests that these features were not directly associated with the farmstead’s domestic core.

4TH-CENTURY ROMAN FARMSTEAD SL5 (PHASE 4)

Overview

The size and layout of Phase 4 farmstead SL5 were much the same as the preceding Phase 3 farmstead SL4, although a few additional enclosures were created. It is likely that some of the SL4 enclosures remained in use, as did the SL3 fields to the north-west. Several rich charred plant assemblages in ditches and pits strongly suggest that crop-processing was still being undertaken; it is likely that the Phase 3 drying ovens were still in operation (Fig. 21; Giorgi 2018, 63–66).

The Phase 4 pottery and animal bone assemblages were smaller than those of Phase 3 (Table 1). More personal items were recovered, including

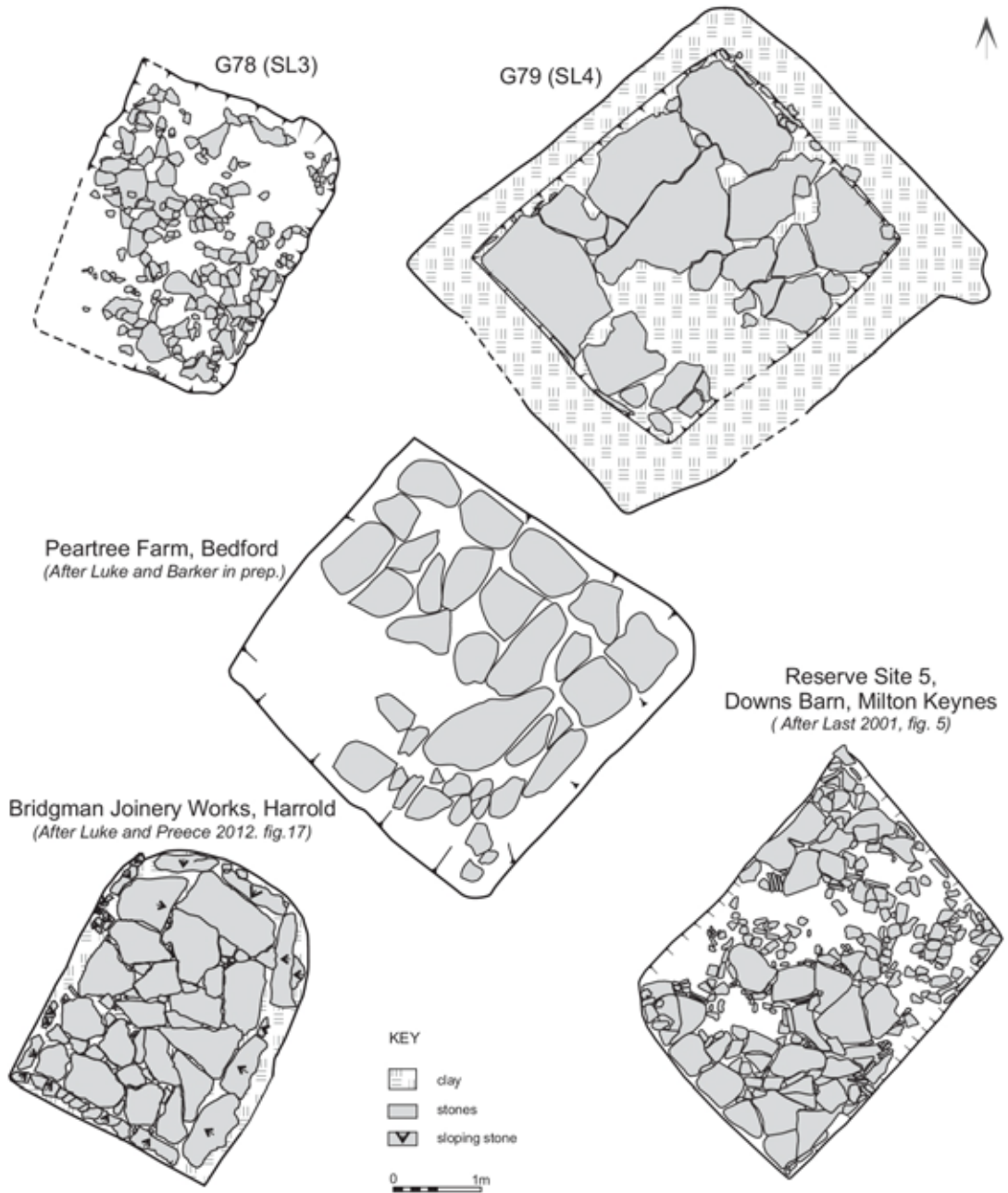


FIGURE 20 Comparative plans of possible crop-processing floors G78 and G79 with others in Milton Keynes and Bedfordshire

a bangle bracelet (OA11) and a toilet implement (OA12), as well as twenty-one coins of mid-3rd- to late 4th-century date. The range of ‘other artefacts’ indicates the ability to purchase goods and access to markets but does not necessarily indicate great wealth (Duncan 2018, 23–24).

Environment, Plants & Animals

by John Giorgi and Mark Maltby

The continued dominance and processing of spelt wheat during Phase 4 was evidenced by assemblages of both chaff and grains recovered from ditches and pits. The high concentrations of material in several Phase 4 samples suggest

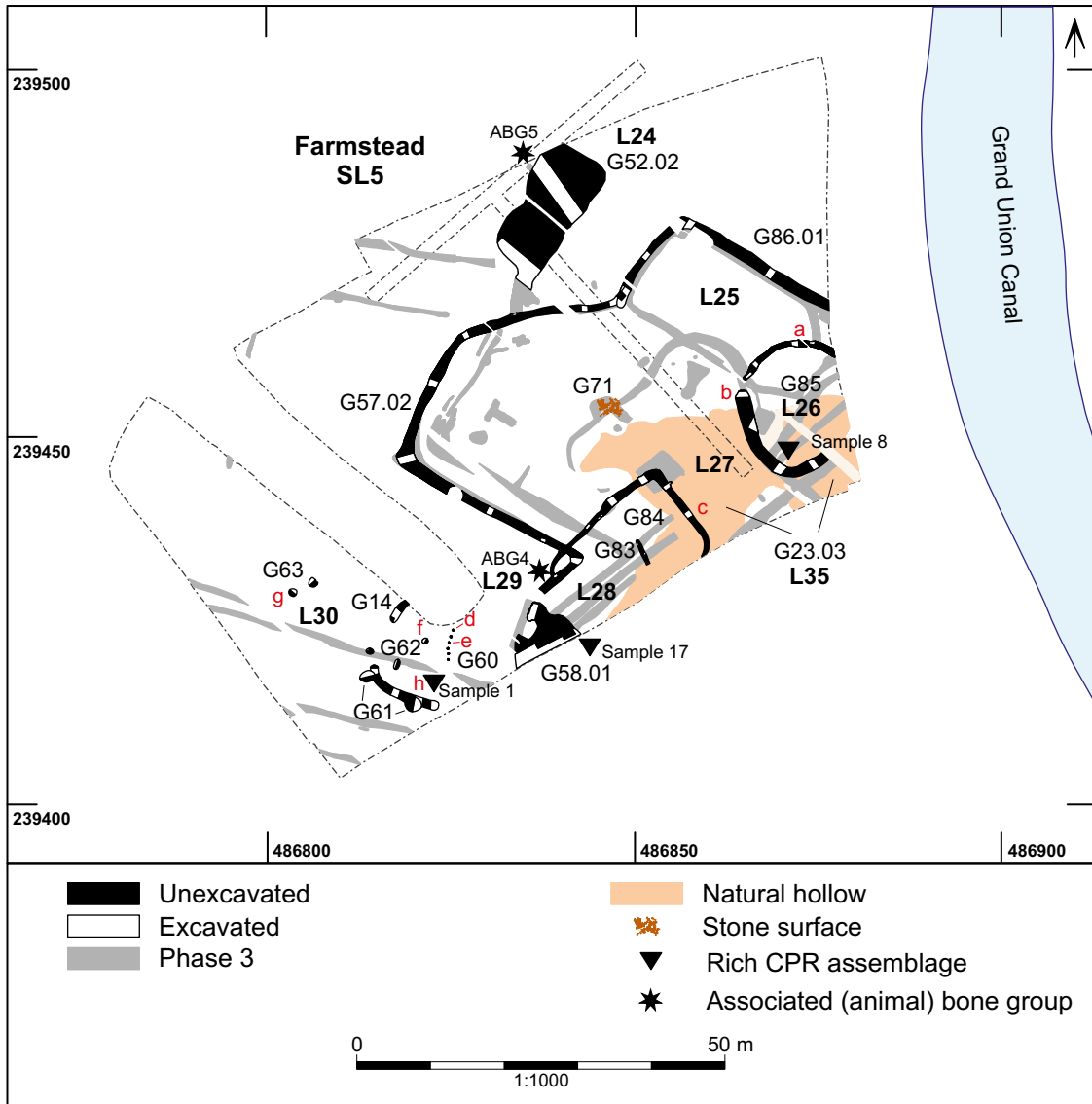


FIGURE 21 4th-century Roman farmstead SL5 (Phase 4)

that large-scale agricultural activities were still underway at this time, including the dehusking of spelt and the drying of the clean grains for storage or milling (Giorgi 2018, 71). No drying ovens were specifically assigned to Phase 4, but the continued use of Phase 3 ovens G80 and G81 is likely; the disturbed remains of another possible crop-processing floor G71 were uncovered.

As with the previous phases, cattle (61%) dominated the Phase 4 animal bone assemblage; only 8% of the identified bone was sheep/goat.

Material Culture & Dating

by Holly Duncan, Peter Guest and Jackie Wells

The Phase 4 pottery assemblage (145 sherds weighing 2.7kg) was approximately half the size of the Phase 3 assemblage. It comprised

shell-tempered wares, sandy reduced wares and pink-grogged wares in comparable proportions to those from the earlier phase. As with the Phase 3 pottery, vessels were represented by less than 100g of pottery. The largest example, deriving from a shelly storage jar, weighs only 283g. A general absence of forms makes precise dating problematic, although the presence of a hemispherical flanged bowl and several sherds from the Oxfordshire industries suggested a later 3rd-century date. Most of the assemblage derived from sub-enclosure L28 and enclosure L29.

'Other artefacts' comprised a higher percentage of personal items, including a copper-alloy bangle bracelet (OA11), a copper-alloy toilet implement (OA12) and a delicate hasp (OA8), appropriate for use on a trinket box (Fig. 22). The lack of querns/millstones probably indicates that milling of grain

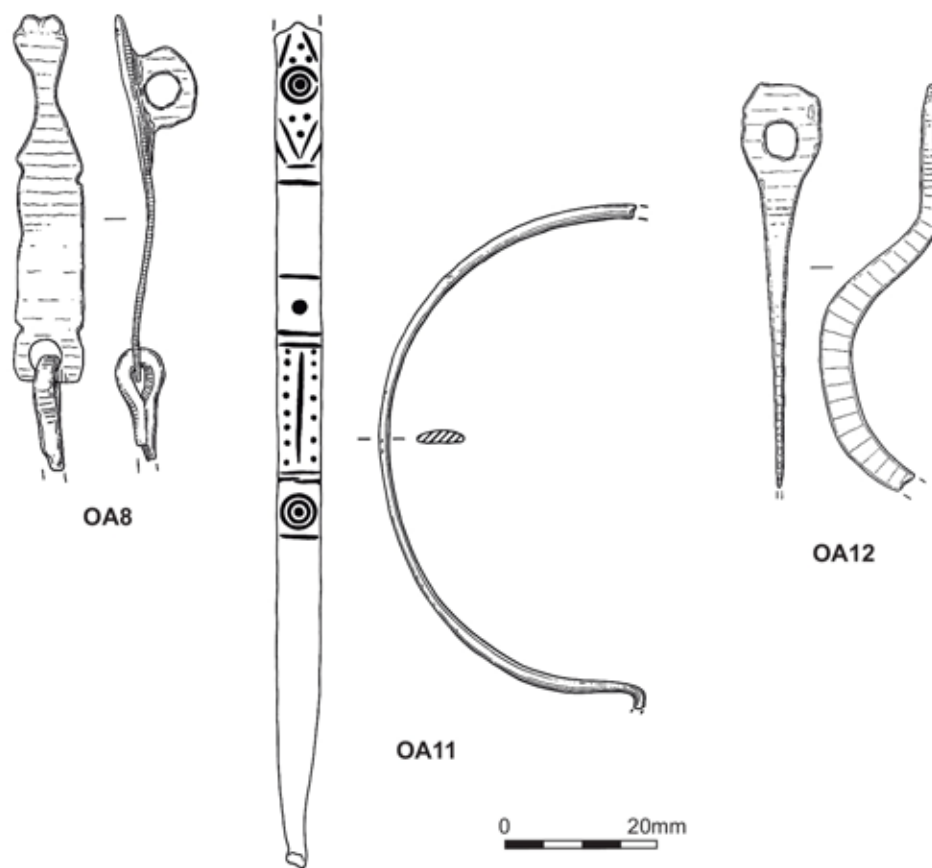


FIGURE 22 'Other artefacts' from Phase 4 farmstead SL5 (scale as shown)

was not carried out in this part of the Phase 4 farmstead (Duncan 2018, 24).

The latest group of coins recovered from Phase 4 deposits were Valentinianic and no coins struck after 378 were identified (Guest 2018, 17). This does not necessarily indicate the abrupt demise of the farmstead in the latter part of the 4th century but the overall decrease in finds may suggest a reduced level of activity. Cessation of coin loss after 378–88 was also noted at Wavendon Gate and Bancroft mausoleum (Zeevat 1996, 100).

Farmstead SL5

The farmstead's principal enclosure L25 represents the continuation of enclosures L18 and L19, which constituted the main elements of Phase 3 farmstead SL4 (Figs 21 & 23). The Phase 3 pond G52 and quarry/water-pit G58 also remained open. Two new internal sub-enclosures L26 and L28 were established; whilst immediately to the west a new, sub-circular enclosure L29 was established, encroaching on former fields.

There was little evidence for activity within the enclosures, except for a possible crop-processing floor in enclosure L25 and pits and a line of posts in enclosure L29.

Enclosure L25 & sub-enclosures L26 & L28

During this episode of farmstead modification, the outer boundary of farmstead SL4's main enclosures

was extensively redug on the same course to form enclosure L25. A possible stone crop-processing floor G71 was established in the centre of enclosure L25. Two smaller sub-enclosures at the southern extent of enclosure L25 indicate that some of the Phase 3 farmstead SL4 ditches were no longer in use.

ABG4 comprises the partial skeleton of an adult dog (Table 3), recovered from the south-west end of enclosure ditch G57.02. 'The humerus had a distal breadth of 34.2mm. This skeleton therefore belonged to quite a large adult' (Maltby 2018, 39).

Possible stone surface G71

G71 comprised a spread of limestone fragments and large river-worn cobbles (Figs 21 & 24). Although most of the stones looked displaced, a line of flat limestone fragments was evident.

Sub-Enclosure L26

Two curvilinear ditches G85 defined a c.15m-diameter, circular enclosure in the south-east corner of enclosure L25. The south-western arm (2m wide and 0.5m deep) was much wider and deeper than the northern arm (0.9m wide and 0.2m deep) (Fig. 23, a & b). A NW-facing entrance was indicated by a 2m-wide gap.

A rich assemblage of mainly cereal chaff, but also fairly good quantities of grain, was recovered from the southern arm of enclosure L26 (Fig. 21;

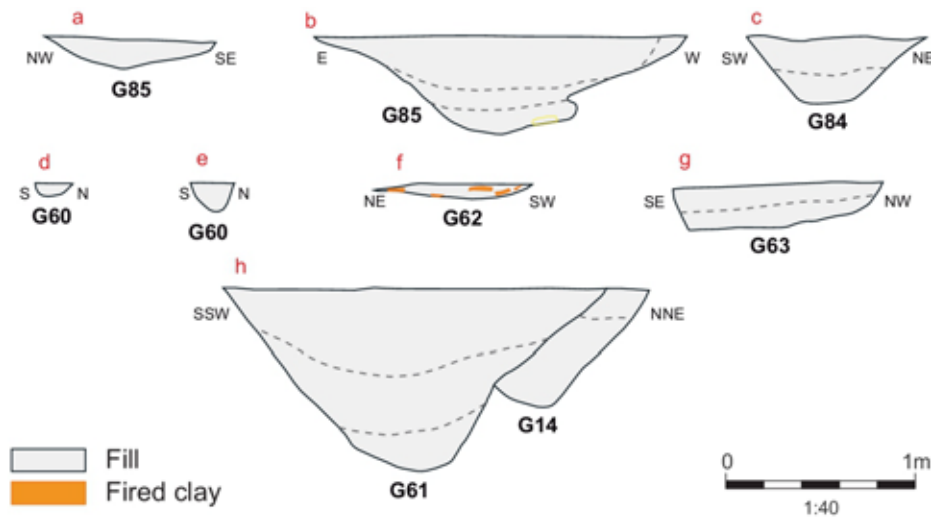


FIGURE 23 Sections from FIGURE 21



FIGURE 24 Possible stone surface G71

sample 8). Spelt was the best-represented cereal, but traces of free-threshing wheat and small quantities of barley were also noted. ‘These charred remains mainly represent the products (grain) and by-products (chaff and weed seeds) from almost fully processed spelt wheat, probably resulting from spikelets being accidentally burnt while being dried before storage or heated to facilitate de-husking, the charred remains in the ditch representing debris from cleaning out the drying oven between uses. The charred plant remains could also represent accidentally burnt grain stored as spikelets, the large weed seeds which dominate the assemblage characteristic of stored cereals’ (Giorgi 2018, 65–66).

Sub-Enclosure L28

The south-west corner of enclosure L25 contained sub-rectangular enclosure L28, defined on two sides by ditch G84. The southern side lay beyond the excavation area. A c.9m-wide gap suggests that the enclosure was open to the west. An internal

partition was indicated by north-south aligned ditch G83.

Although no internal features were identified, evidence for bone-working was recovered from the eastern enclosure ditch – a split and sawn horse metatarsal and a sawn cow tibia (Maltby 2018, 35). A femur of a neonatal calf was also recovered from the same length of ditch; it is the only evidence that cattle were being bred at the farmstead (*ibid*).

Enclosure L29

Sub-circular enclosure L29 was established immediately to the west of enclosure L25 as part of this episode of farmstead reorganisation. It was defined by ditch G14 on at least two sides, with a 6m-wide NW-facing entrance. It is possible that the eastern side was unenclosed, facilitating access to sub-enclosure L28. A central partition was indicated by G60, a 4m-long row of postholes on a north-south alignment.

Internal activity was represented by a cluster of three small pits G62 and the continued silting-up

of the Phase 3 SL4 quarry pit G58, represented here as G58.01. The latter produced a rich assemblage of chaff from the de-husking of spelt (Fig. 21, sample 17), animal bone, pottery and a lead alloy sheet offcut (OA9). Pits G62 were near the NW-facing entrance to the enclosure. They ranged from 0.7m to 1.5m in diameter but were no deeper than 0.2m. Their function is unclear but the presence of burnt stone, fired clay, pottery and animal bone suggests that at some point they were used for the disposal of domestic debris. A rich charred plant assemblage was also recovered from one of the pits (Fig. 21; sample 1); it comprised ‘... fully processed and de-husked spelt wheat ready for use, which may have been accidentally burnt while being dried before milling/storage and/or perhaps in accidents during food preparation’ (Giorgi 2018, 64). The presence of oak charcoal suggests that material from the drying ovens had been deposited in this pit (Challinor 2018, 76).

Unenclosed activity L30 & Pond L24

Two areas of unenclosed activity lay outside the farmstead’s main enclosure: L30 to the west and L24 to the north. Activity focus L30 was defined by two pairs of pits. Pits G61 were dug into the western boundary of enclosure L29; they represent an episode of later Phase 4 activity after the ditch had silted up. They were wider (2–2.1m in diameter) and deeper (1–1.2m) than other pits in this area of the farmstead (Fig. 25) with profiles comparable to Iron Age pits that may have been used for grain storage. Pottery recovered from their fills indicates that they are broadly contemporary with other Phase 4 features.

Pits G63 were situated *c.*20m to the north-west of enclosure L29. They were of a similar width and depth to pits G62 (within the enclosure), but in the absence of any artefacts or ecofacts their function remains unclear.

L24 represents the continued use of Phase 3 SL3 pond G52, represented here as G52.02; by this stage the pond was largely infilled. A small assemblage of pottery was recovered from the upper fills and the presence of cattle vertebrae and ribs, including bone from a sub-adult cow (Table 3; ABG 5), indicate that it was now used for the disposal of waste from the early stages of carcass dismemberment (Maltby 2018, 30). Debris from the final stages of crop-cleaning (including de-husking) and food preparation was also recovered from the



FIGURE 25 One of pits G61

pond, suggestive of small-scale domestic activities taking place in this area of the site (Giorgi 2018, 66).

Sixteen coins were recovered from the uppermost fill (*c.*0.3m deep) of the pond, along with other metal artefacts, comprising a bangle bracelet (OA11), a nail cleaner or toothpick (OA12), an annular ring (OA13) and a piece of copper alloy waste (OA10). Guest (2018, 18) suggested that coin loss on this scale is unusual, especially as quarry pit G58.01 in enclosure L29 produced a comparable range of finds but only one coin. He concluded that these metal items and coins may have been deliberately deposited in the pond, which may have been a place of ‘significance’ to the farmstead’s occupants. In light of this evidence, the sub-adult cow ABG5, which showed no signs of processing, may also represent ‘structured deposition’.

SUMMARY

An overview of the faunal assemblage, charred plant remains, charcoal, pottery and ‘other artefacts’ from Campbell Park Canalside has been provided at the beginning of each phase description and it is clear from this evidence and from the farmsteads’ layout that the site fits a pattern of development and growth consistent with other late Iron Age and Roman examples in Milton Keynes (Williams *et al* 1996, 83).

The earliest land-use in the excavation area was represented by a field system (Phase 1) but the mid-to late 1st century AD (Phase 2) marked the beginning of a period of farmstead development that culminated in a complex of interconnecting enclosures and a livestock corral in the 3rd century. The

western half of the excavation area was continually utilised as fields from Phase 1 onwards, presumably for livestock and/or cultivation. Only in Phase 4 did the enclosures expand into the fields on the western half of the excavation area.

The artefact assemblages (pottery, coins etc.) from each phase of activity increased consistently with the development of the farmstead and the largest assemblage was recovered from SL4, Phase 3. However, the assemblages were generally small and, coupled with the absence of domestic structures, suggest that the farmstead's domestic core lay beyond the excavation area.

An intensification in animal husbandry from the mid- to late 1st century (Phase 2) onwards is implied by the gradual replacement of the Phase 1 field system with enclosures and a livestock corral. The dominance of cattle in the faunal assemblage and a comparatively lower number of sheep/goat is consistent with other Roman sites across Milton Keynes. The measurable limb bones indicate that the cattle were tall by Romano-British standards; Maltby has concluded that a significant part of the assemblage was most likely formed of former plough oxen (Maltby 2018, 36).

By the mid-to late 2nd century (Phase 3), a mixed agrarian economy was being practised by the occupants of farmstead SL2, with good evidence for on-site crop-processing of mainly spelt wheat, as well as a continued focus on livestock (cattle and sheep/goat). On most sites in the Milton Keynes area, evidence for animal husbandry often occurs alongside evidence for cultivation in the form of drying ovens, granaries and threshing floors, e.g. MK96 Windmill Hill (Mynard 1987, 37–9).

Zeepvat (1987, 180) has highlighted that the 'preponderance of cattle and sheep over pigs and the paucity of deer, suggest an open terrain of pasture and arable land, with an abundant water supply and little woodland' in the Roman period. Certainly, the charred plant evidence from Campbell Park Canalside supports the likelihood of arable land in the vicinity of the farmsteads, whilst cattle and sheep/goat indicate grazing land. Pockets of managed and mature woodland were clearly exploited for the fuel used in drying ovens, but presumably also for building materials and animal bedding and fodder. The nearest natural watercourse to the site today is the river Ouzel, c.1km to the west. However, the occupants of the Phase 3 and 4 farmsteads also had access to water

from a pond and possible water-pit. Their appearance is consistent with increased activity during these phases. The pond may also represent further evidence for the presence of livestock in the farmstead.

The status and wealth of the farmstead's occupants is difficult to determine, especially as the excavation area seems to have principally encompassed a peripheral and specialised processing zone. It could be surmised from the dearth of regional and continental imported pottery, 'other artefacts' and the unusual absence of 1st- to mid-3rd-century coins (Guest 2018, 18) that they were low-status farmsteads. This is not necessarily the case, as examples of imported goods from the site, although meagre, suggest that the inhabitants had the means to access markets and purchase goods. Moreover, the appearance of drying ovens and stone surfaces in Phase 3 suggests that the scale of crop-processing was beyond the level of household supply (Lodwick 2017, 61). It is generally considered that drying ovens indicate an increase in arable cultivation and a shift to large-scale processing during the 1st to 4th centuries (*ibid*, 55 & 61).

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Site drawings were digitised by Joan Lightning.

Analysis of the excavated data-sets was undertaken by the following: Dana Challinor (freelance: charcoal), Holly Duncan (Albion Archaeology: 'other artefacts'), John Giorgi (freelance: plant macrofossils), Peter Guest (Cardiff University: coins), Mark Maltby (Bournemouth University: animal bones), Natasha Powers (Allen Archaeology: human bone) and Jackie Wells (Albion Archaeology: pottery and fired clay). Mike Trevarthen (freelance) drew the artefacts; Joan Lightning (Albion Archaeology) prepared the other figures. The photographs were taken by Matt Billings (Fig. 19) and Richard Gregson (Figs 11–12, 17–18, 24–25).

Helen Parslow prepared the project archive for deposition with Buckinghamshire County Museum (accession number AYBCM: 2017.64).

APPENDIX 1: POTTERY TYPE SERIES

TABLE A1 Pottery type series

<i>Fabric Group / Code</i>	<i>Common name</i>	<i>No. sherd</i>	<i>Wt. (g)</i>
<i>Late Iron Age</i>			
Fabric 45	Grogged shelly	2	7
Fabric 46	'Belgic' grogged	40	294
Fabric 47	Local early sand-tempered	3	10
<i>Roman</i>			
Fabric 1a	Shell-gritted	199	3,196
Fabric 2a	Soft pink-grogged	61	1,328
Fabric 3	Local grey sand-tempered	128	1,220
Fabric 4a	Oxford white ware mortaria	2	43
Fabric 6	Lower Nene Valley colour-coated ware	17	150
Fabric 9	Local black sand-tempered	12	108
Fabric 12	Nene Valley grey ware	4	46
Fabric 18	White and pink wares	6	75
Fabric 19/29	Local oxidised sand-tempered	2	48
Fabric 20	Samian ware	4	56
Fabric 24	Oxford colour-coated ware	3	115
Fabric 34	Mica-gilded ware	1	9
Fabric 35	Oxford oxidised ware	3	13
Fabric 41	Orange wares	44	607

BIBLIOGRAPHY

- Albion Archaeology 2007 *Campbell Park and Site G (Newlands), Central Milton Keynes, Milton Keynes: Archaeological Field Evaluation* (Unpubl. Rep. 2007/12)
- Albion Archaeology 2018 *A Roman Crop-processing Site at Campbell Park Canalside, Milton Keynes: Supplementary Archaeological Data* (Unpubl. Rep. 2018/105, Oasis ref. no. albionar1-277434)
- Allen M & Smith A 2016 'Rural Settlement in Roman Britain: Morphological Classification and Overview', in A Smith, M Allen, T Brindle & M Fulford, *The Rural Settlement of Roman Britain*, Britannia Monogr. Ser. **29**, 32–33
- Baxter I 2001 'Animal Bone', in J Last, 'Late Iron Age Features at Reserve Site 5, Downs Barn, Milton Keynes', *Recs Bucks* **41**, 75
- Bull R & Davis S 2009 *Becoming Roman. Excavation of a late Iron Age to Romano-British Landscape at Monkston Park, Milton Keynes*, Museum of London Archaeology Study Series **16** (London)
- Challinor D 2018 'Wood charcoal', in Albion Archaeology 2018, 73–77
- Chapman P & Chapman A 2017 'A Late Iron Age Enclosure and a Roman Drove-way and Enclosures at Magna Park, Milton Keynes', *Recs Bucks* **57**, 1–53
- Cool HEM 2006 *Eating and Drinking in Roman Britain* (Cambridge)
- Croft RA & Mynard DC 1993 *The Changing Landscape of Milton Keynes*, Bucks. Archaeol. Soc. Monog. Ser. **5** (Aylesbury)
- Dobney KM & Jacques SD 1996 'The Mammal Bones', in Williams *et al* 1996, 206–53
- Duncan HB 2018 'Other artefacts', in Albion Archaeology 2018, 19–24
- Gale R 2012 'Charcoal', in M Luke & T Preece, 28–30
- Giorgi J 2018 'Charred plant remains', in Albion Archaeology 2018, 40–72
- Guest P 2018 'Coins', in Albion Archaeology 2018, 17–19
- Hamilton-Dyer S 2001 'Animal bones', in S Ford & K Taylor, 'Iron Age and Roman settlements with prehistoric and Saxon features at Fenny Lock, Milton Keynes, Buckinghamshire', *Recs Bucks* **41**, 79–123 (111–16)
- Ingham D 2017 'Livestock management at Bedford Academy in the 1st century AD', *Beds Archaeol* **27**, 105–135
- Ingham D & Shotliff D (eds) 2012 *Harrold: 5000 Years of Life and Death in a North Bedfordshire Village*, Albion Archaeology Monog. **1**
- Jones M 1981 'The Development of Crop Husbandry', in M Jones & G Dimpleby (eds), *The Environment of Man: the Iron Age to the Anglo-Saxon Period*, Brit. Archaeol. Rep. Brit. Ser. **87**, 95–127
- Last J 2001 'Late Iron Age Features at Reserve Site 5, Downs Barn, Milton Keynes', *Recs Bucks* **41**, 63–77
- Leech R 1982 *Excavations at Catsgore 1970–1973; a Romano-British village*, Western Archaeological Trust Monog. **2**, 29 (Bristol)
- Levitan B 1994 'Vertebrate remains from the villa', in Williams & Zeepvat, 536–49
- Lewis ASG 2015 *Iron Age and Roman-era vehicle terrets from western and central Britain: an interpretive study*, PhD thesis, School of Archaeology and Ancient History, University of Leicester, 273
- Luke M & Preece T 2012 'Evidence for multi-period activity at the former Bridgman Joinery Works', in Ingham & Shotliff, 1–39
- Luke M & Barker J in prep. *A Slice of Life: Neolithic to medieval landscape and settlement evolution along the Bedford Southern Bypass, Bedfordshire*, Albion Archaeology Monog.
- Lodwick L 2017 'Chapter 2: Arable Farming, Plant Foods and Resources', in M Allen, L Lodwick, T Brindle, M Fulford & A Smith, *New Visions of the Countryside of Roman Britain Volume 2. The Rural Economy of Roman Britain*, Brit. Monog. Ser. **30**, 11–84 (London)
- Marney PT 1989 *Roman and Belgic Pottery from excavations in Milton Keynes 1972–82*, Bucks. Arch. Soc. Monog. Ser. **2** (Aylesbury)
- Maltby M 2018 'Animal bone', in Albion Archaeology 2018, 25–40
- Maltby M, Allen M, Best J, Fothergill BT and Demarchi B 2018 'Counting Roman chickens: multidisciplinary approaches to human-chicken interactions in Roman Britain', *J Archaeol Science* **19**, 1003–15
- Millett M & Gowland R 2015 'Infant and Child Burial Rites in Roman Britain: a Study from East Yorkshire', *Britannia* **46**, 171–89
- Morris P 1979 *Agricultural Buildings in Roman Britain*, Brit. Archaeol. Rep. Brit. Ser. **70**, 10–11

- Mynard DC (ed.) 1987 *Roman Milton Keynes. Excavation and Fieldwork 1971–82*. Bucks. Archaeol. Soc. Monog. Ser. **1** (Aylesbury)
- Mynard DC 1987 ‘MK96 Windmill Hill’, in Mynard (ed.), 37–39
- Newbould J 2011 ‘A Middle Iron Age Farmstead at Campbell Park, Milton Keynes’, *Recs Bucks* **51**, 45–62
- Pearson E & Robinson M 1994 ‘Environmental evidence from the villa’, in Williams & Zeepvat, 583
- Powers N 2018 ‘Human bone’, in *Albion Archaeology* 2018, 77–78
- Renfrew J 1985 *Food and Cooking in Roman Britain. History and Recipes* (English Heritage)
- Scott E 1990 ‘A critical review of the interpretation of infant burials in Roman Britain, with particular reference to villas’, *J. Theoretical Archaeol.* **1**, 30–46
- Van der Veen M 1992 *Crop Husbandry Regimes. An Archaeobotanical Study of Farming in Northern England 1000 BC–AD 500*
- Wells J 2018 ‘Pottery’, in *Albion Archaeology* 2018, 14–16
- Westley B 1987 ‘Animal bones’, in Mynard (ed.), 181–191
- Williams RJ 1987 ‘MK137 Heelands Corn Drier’, in Mynard (ed.), 43–45
- Williams RJ 1993 ‘Prehistoric Landscape’, in Croft & Mynard, 5–10
- Williams RJ, Hart PJ & Williams ATL 1996 *Wavendon Gate: a Late Iron Age and Roman Settlement in Milton Keynes*. Bucks. Archaeol. Soc. Monog. Ser. **10** (Aylesbury)
- Williams RJ & Zeepvat RJ 1994 *Bancroft: A Late Bronze Age/Iron Age Settlement, Roman Villa and Temple-Mausoleum*. Bucks. Archaeol. Soc. Monog. Ser. **7** (Aylesbury)
- Zeepvat RJ 1987a ‘Romano-British Settlement in the Upper Ouse and Ouzel Valleys’, in Mynard (ed.), 6–18
- Zeepvat RJ 1987b ‘MK109 Little Woolstone’, in Mynard (ed.), 79–82
- Zeepvat RJ 1993 ‘Roman Landscape’, in Croft & Mynard, 11–13
- Zeepvat RJ 1994 ‘The Villa site (MK105)’, in Williams & Zeepvat, 129–212
- Zeepvat RJ 1996 ‘The Coins’, in Williams et al., 99–102