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Crop processing and burnt grain in Roman Croydon

JOANNA TAYLOR, LISA GRAY, IMOGEN POOLE, MALCOLM LYNE, LISA YEOMANS, JOHN BROWN, BARRY BISHOP, HILARY MAJOR and KEVIN HAYWARD

In advance of the redevelopment of land adjacent to 17 St Andrew's Road, Lower Coombe Street in the London Borough of Croydon, archaeological investigations were undertaken by Pre-Construct Archaeology between February and April 2005. Evidence showed that 1st century gravel quarry pits, possibly associated with the construction of the nearby London–Portslade road, had been re-used during the late 1st and early 2nd centuries. Large quantities of carbonised grain and chaff from the pits indicated that grain processing, in particular the parching of wheat, took place in the vicinity of the site during this time. During the 2nd/3rd centuries grain processing ceased and new boundaries were established. Ceramic building material retrieved from late 3rd/4th century dumping suggested that a well-appointed 1st/2nd century building, presumably located nearby, was demolished at this time. The cultural material as a whole indicated that there was an increase in activity in the area during the late 3rd/4th centuries, possibly as a consequence of new trade contacts. The abundant evidence for agricultural activity, coupled with the sizeable quantities of cultural material retrieved, strongly attested to the existence of a Roman settlement in the South Croydon area, located adjacent to the London–Portslade road.

Site location

The site was located on the southern side of Lower Coombe Street, London Borough of Croydon (centred on TQ 32263 64886) and was divided into two separate areas of investigation by St Andrew's Road (figs 1 and 2). The land to the east, Area A, had until recently been used as a car park, while to the west, Area B contained 20th century buildings once occupied by an upholstery works. As no significant archaeological deposits were found during the evaluation of Area B, this report is concerned exclusively with the archaeological results from Area A (hereafter called 'the site'). The ground level at the time of excavation ranged between 46.90 and 46.30m OD.

Geographic and topographic background

Croydon is situated on the southern edge of the London basin at the base of the North Downs, within the valley of the river Wandle. A short distance to the south, a natural break in the Downs would have provided an important gap in the landscape, facilitating movement and communication.

The geology of the area comprises Upper Chalk, which forms the hills of the North Downs and dates to *c* 80 million years ago when a shallow sea covered the area. It was sealed by sandy sediments (Thanet Beds), shelly sandy clays (Woolwich and Reading Beds), rounded pebbles (Blackheath Beds) and dark grey silty clays (London Clay) (Askew 2003). This diverse geology would once have supported a variety of vegetation, from beechwood and grassland on the chalk to the south, heath and pine woodland on the sands, and mixed oak woodland on the clays to the north (Gent 1991, fig 1).

Archaeological and historical background (fig 1)

Evidence of prehistoric activity has been recovered from a number of archaeological investigations in the vicinity. Mesolithic and Neolithic flint tools found at St Peter's Road, Church Road and Park Lane suggest that nomadic hunter-gatherer groups were seasonally

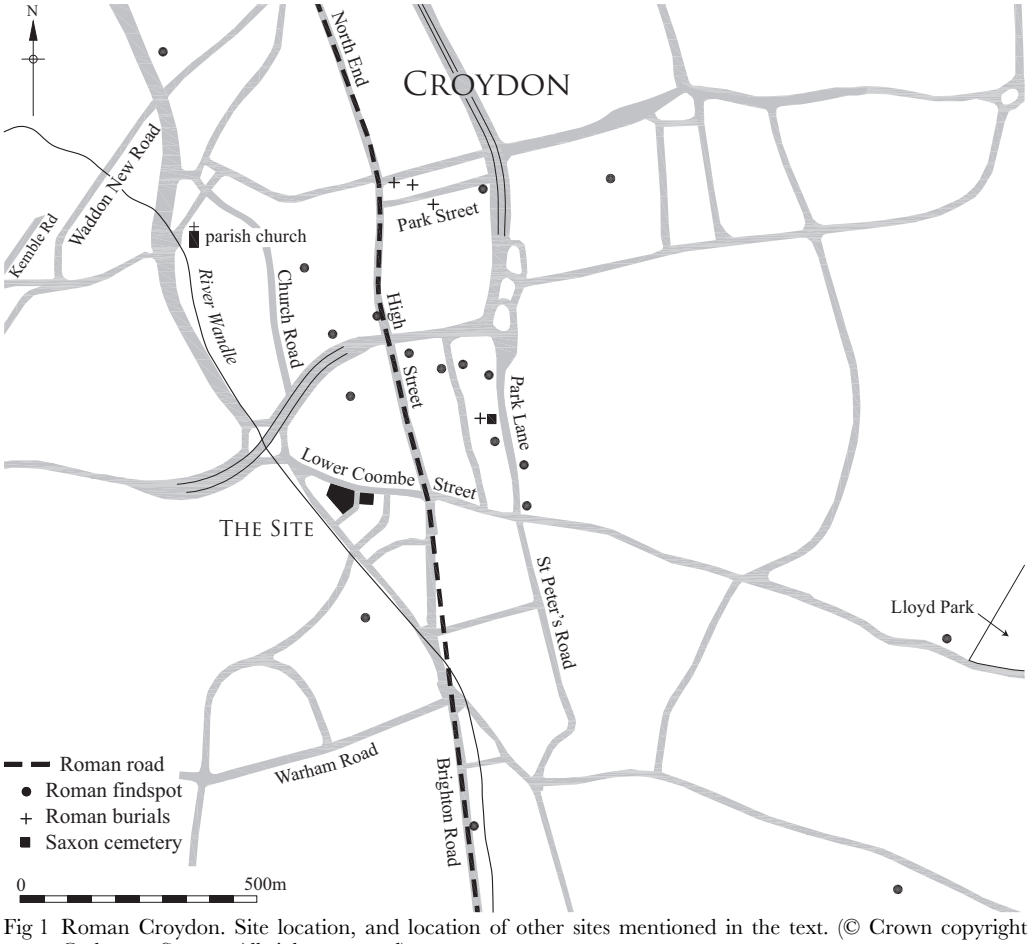


Fig 1 Roman Croydon. Site location, and location of other sites mentioned in the text. (© Crown copyright Ordnance Survey. All rights reserved)

exploiting the fertile banks of the Wandle, and Bronze Age evidence, in the form of pits and gullies, has been found at Purley Way (Tucker 1996, 13–15) and at a number of other possible settlement sites along the Wandle Valley. To date, however, little evidence of Iron Age exploitation of the area has been found, although a Late Iron Age settlement may have been in existence prior to the Roman conquest.

Although its actual position has yet to be established, the London–Portslade Roman road is thought to lie a short distance to the east (Margary 1955, 113–15), along the line of North End and High Street. Modern Croydon lies *c* 16km to the south of central London and it is possible that this was the site of a roadside settlement (Bird 1987; 2000; 2004a, 65; 2004b, 67) that thrived as a consequence of good communication routes to London and the south coast, as well as a river connection, via the Wandle, to a nearby villa at Beddington, 2.5km to the west of the site. A large number of artefacts, including pottery, coins and jewellery found to the north of Lower Coombe Street, may have derived from this settlement (Bird *et al* 1989, 185; Howe *et al* 2000, 202–3; Jackson *et al* 1997, 220; 1999, 241; McKinley 2003, 6).

Excavations at 15–17 Brighton Road (Potter 1994, 234–6), to the south of Lower Coombe Street, uncovered ditches containing Roman pottery and a mid-4th century coin hoard. The latter may help to define the southern edge of the settlement, given that such finds were often buried beyond established settlement boundaries. The general absence of Roman deposits

from excavations at 91–93 Waddon New Road (Clough 2003), 1a Kemble Road (Duckering 2002), 2–8 Park Lane and 29–31 Park Street (Proctor 1999; Wooldridge 1999) and 12 Warham Road (Brown 1992) may further define the north-western, northern and southern limits of the settlement, while the excavation of possible boundary ditches at Lloyd Park to the east (Bell 2001, 258; Brown 2001, 260) may indicate the eastern limit of the field systems associated with the settlement (Hayden 2001, 262).

The name Croydon is thought to have originated from the Saxon *Crogedena* (AD 809), meaning 'valley where wild saffron (crocus) grows' (Ekwall 1991, 134), and it is possible that crocus production began here in the Roman period (Bird 1996, 225). A 5th/6th century Saxon cemetery was discovered in the 1890s at Edridge Road, and additional evidence of Saxon occupation is known from excavations at 82–86 Park Lane (McKinley 2003) and historical references dating to the 9th and 10th centuries (Drewett 1970, 206). The distribution of Saxon finds suggests that a Late Saxon settlement was located in the vicinity of the parish church, close to a water supply and with agricultural areas beyond.

From the medieval period until the late 19th century, the study area was one of open ground within a sparsely occupied landscape. Maps from the latter half of the 19th century indicate that the site had been developed with a mixture of tenements, gardens and yards by this time. The site remained largely unchanged until the mid-20th century, when the tenements were demolished in the 1960s and subsequently replaced by a car park during the 1970s (Askew 2003). With the exception of boreholes inserted in 2004, the archaeological sequence remained relatively undisturbed until the aforementioned evaluation took place in 2005.

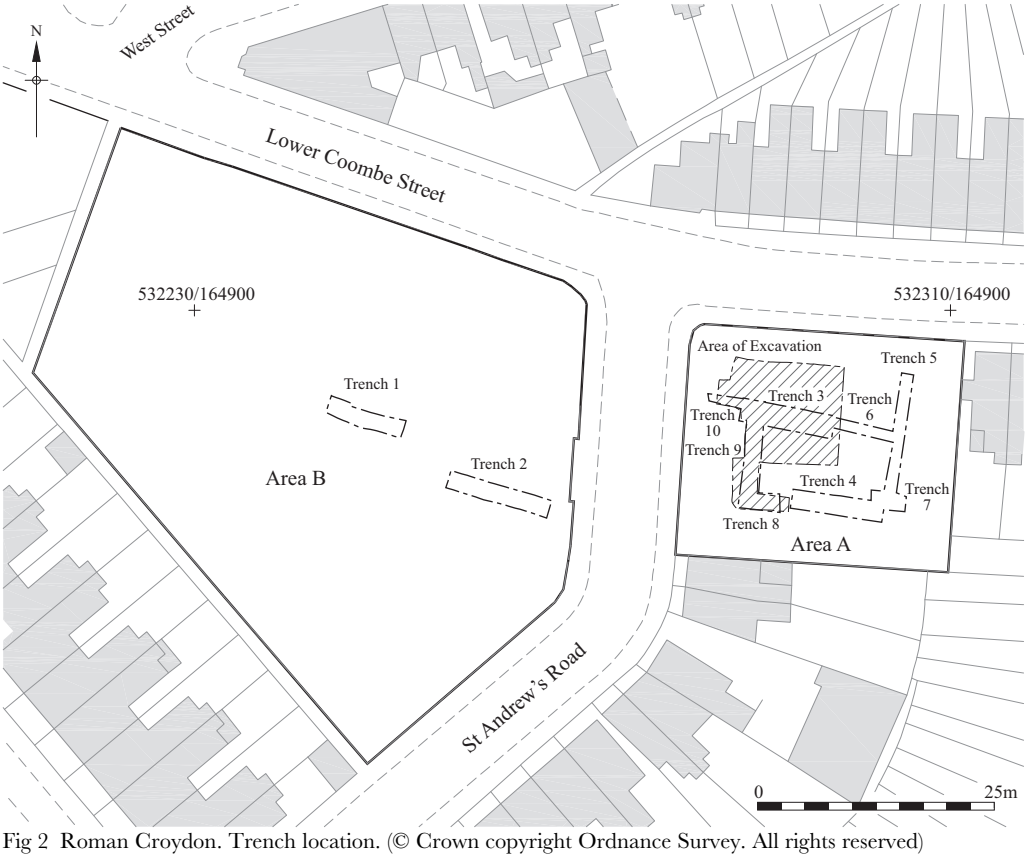


Fig 2 Roman Croydon. Trench location. (© Crown copyright Ordnance Survey. All rights reserved)

Project background

In 2003 an archaeological assessment report, commissioned in support of a planning application, advised that the site had a high to moderate potential for post-medieval, Roman and prehistoric survival and a moderate to low potential for the Saxon and medieval periods (Askew 2003). Consequently, English Heritage, as archaeological advisors to the local planning authority, requested that an archaeological evaluation of the site be undertaken to confirm this potential and to advise on the need for further archaeological mitigation (Bradley 2005a). Pre-Construct Archaeology was commissioned to undertake this work in February 2005 (Taylor 2005a).

As a consequence of the findings of the archaeological evaluation, further evaluation was undertaken in Area A to determine the extent of the archaeological features that had been found. Subsequently, Pre-Construct Archaeology undertook an archaeological excavation in the north-west corner of Area A between March and April 2005 (Bradley 2005b; Taylor 2005b). The complete archive comprising artefactual material and written, drawn and photographic records is held at the London Archaeological Archive and Research Centre and can be accessed under the site code LCS05.

Methods

Mechanical excavation was undertaken under archaeological supervision to the top of the surviving archaeological horizon. All subsequent excavation was by hand. Archaeological features were excavated sufficiently to allow their form, nature and, where possible, date to be ascertained. All organic deposits were bulk sampled and column samples were taken from targeted features.

The two phases of archaeological evaluation in Area A confirmed that archaeological deposits and features of Roman date were concentrated in the southern, central and northern parts of the site (trenches 3, 4, 8, 9 and 10). As no remains were found in the north-east corner (trenches 5, 6 and 7), together with the fact that the southern part of Area A, evaluated by trench 4, had already been designated for preservation *in situ,* no further archaeological work took place in these areas (Taylor 2005b). Thus, the subsequent area of excavation, measuring 139m², was confined to the north-west corner of Area A and incorporated evaluation trenches 3, 8, 9 and 10.

Evidence

ARCHAEOLOGICAL FEATURES AND DEPOSITS

All the features pre-dating the post-Roman period had been cut into the uppermost natural horizon: a yellowish-brown, sandy gravel that is believed to have formed part of the eastern side of the Wandle Valley terrace. The gravel was encountered at between 45.60 and 45.70m OD and showed little variation across all areas of the excavation.

PREHISTORIC (PHASE 2)

A small number of struck flints, comprising a mixture of flakes, blades, blade-type flakes and conchoidal shatter, were recovered from both the surface of the natural gravel and residually in later contexts. Although indicative of Mesolithic or Neolithic activity, most of the struck flints were found to be highly abraded and had probably moved some distance from their original place of deposition.

MID-1ST CENTURY (PHASE 3A)

Cut into the natural horizon were four gravel quarry pits (89, 114, 115 and 147). Pit 89 was sub-ovoid in plan and measured 5.00m north–south by 5.30m east–west with gradually

sloping edges and a flat base, and was 0.70m deep (fig 3). A representative section through its fills was excavated (fig 4).

Two separate (gravel) pits (114 and 147), were located to the north-west and south of pit 89. While their full dimensions could not be recorded, as they had either been disturbed by later intrusions or extended beyond the limits of excavation, they were clearly smaller and shallower than pit 89, with neither being deeper than 0.25m. To the north-east of pit 89,

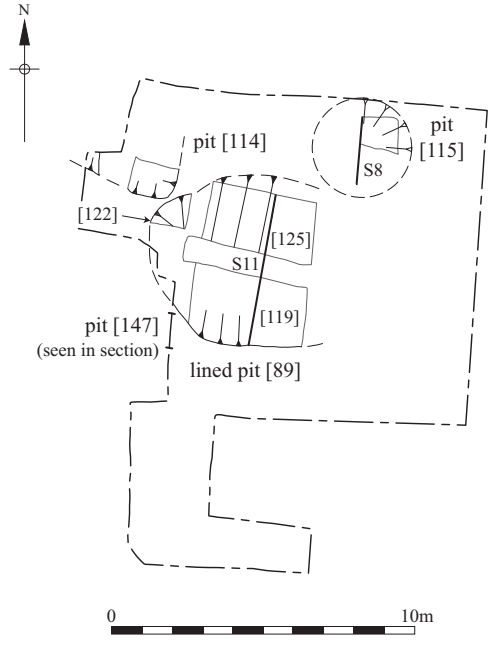
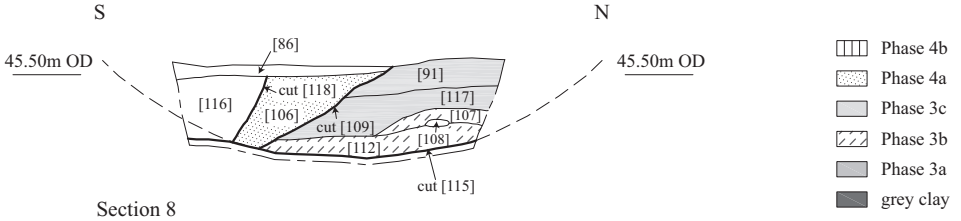
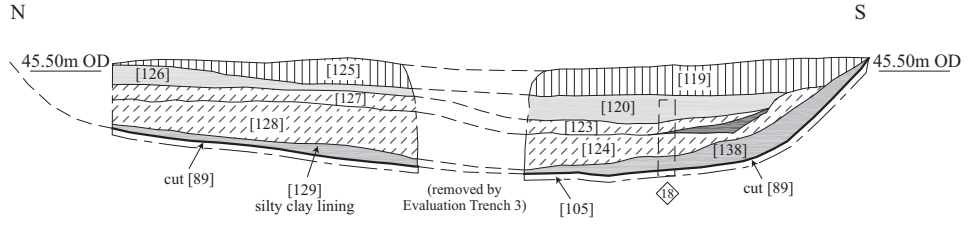


Fig 3 Roman Croydon. Phase 3a features.



Section 8
East facing section through pit [115]



Section 11
West facing section through pit [89]

Fig 4 Roman Croydon. Sections through gravel pits 89 and 115.

was pit 115, which again was only partly excavated in order to sample its fills. These were found to be similar to those from pits 89, 114 and 147, suggesting that their construction and subsequent infilling were contemporary. Unlike in the smaller pits, however, the base and sides of pit 89 were lined with a moderately compacted, silty clay, 0.10m thick, which possibly had been applied as some form of waterproofing. The analysis of pottery from the upper fills of these pits indicated that they had gradually silted up from the mid-1st century onwards, which suggests their initial excavation occurred a very short time after the Roman conquest – perhaps as early as AD 50.

MID–1ST/EARLY 2ND CENTURY (PHASE 3B)

Within pit 89 were a number of fine, black, moist, silty organic fills, over 0.30m in depth (fig 4), containing unabraded pottery and ceramic building material (CBM) dating to *c* AD 50–120. Among the finds from the lower fills were a fine bronze lion's head fitting (fig 7) and two fragments of sandstone quern

Pits 115 and 147, while not lined, also contained very similar fills to pit 89. Date ranges of between AD 60–80 and AD 90–105 for pottery retrieved from their fills implied that the pits had remained open during the late 1st/early 2nd centuries. The pottery and CBM from pit 114 were somewhat later than the above, dating respectively to AD 100–150 and AD 170–230. All the fills appeared to have accumulated in standing water.

EARLY 2ND CENTURY (PHASE 3C)

Sealing the lower fills of pits 89 and 115 were mixed deposits of silty gravelly sand that contained sizeable quantities of pottery dated to AD 70–120+ and AD 90–150 respectively, small amounts of carbonised cereals, and other charred organic material (fig 4). A fragment of human skull was also retrieved from one of the fills and probably represents a residual piece of bone from earlier land use. Unfortunately, the skull fragment was too small to allow either the sex or age of the individual to be ascertained (Yeomans 2005, 68).

2ND/3RD CENTURY (PHASE 4A)

Truncating the uppermost fill of pit 115 was a V-shaped ditch (109/111) that traversed the entire excavation area from east to west. Measuring 2.30m in width, its grey, clayey silt fill was found to contain a sizeable quantity of cleanly broken and abraded pottery sherds, with a deposition date of between AD 170 and 250. To the south were two curvilinear gullies (95 and 101), and three postholes (97, 99 and 103), containing blackish-grey, sandy gravelly fills. While none could be securely dated, it is presumed that they post-dated the construction of the pits and probably related to the change in land use implied by ditch 109/111 (fig 5).

4TH CENTURY (PHASE 4B)

Sealing the earlier fills of pit 89 at a height of 45.64m OD was a blackish-brown, gravelly sand containing the remains of a variety of pottery vessels, including imported wares with a date range of AD 300–400. Several mid-1st/2nd century comb-scored box-flue tiles, two fragments of *opus spicatum* and a fragment of moulded stone were also retrieved from the upper fills, indicating that a well-appointed building, possibly with a hypocaust, may once have stood nearby.

A widespread dumped layer, found throughout both the main area of excavation and evaluation trenches 5, 6 and 7, sealed this horizon at a level of 45.99m OD. While few finds were retrieved, the deposit appeared to belong to the same phase of dumping as that of the upper fills of pits 89 and 115.

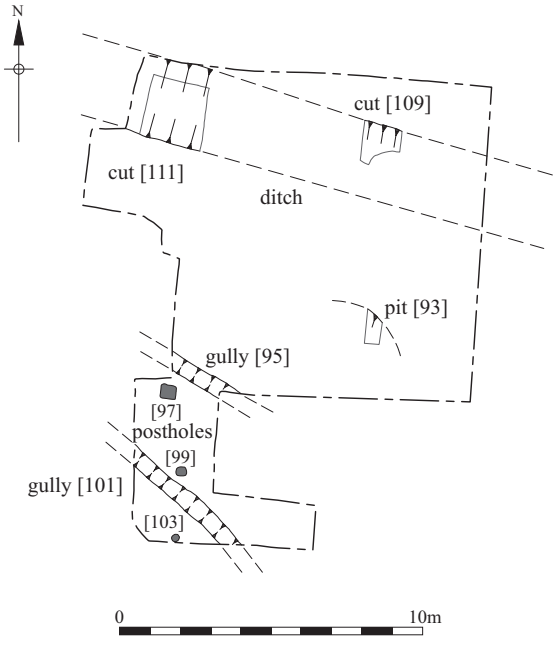


Fig 5 Roman Croydon. Phase 4a features.

Some animal bone came from the Phase 4b deposits, including a red deer metacarpal and a fragment of antler from the upper fill of 89. While this would indicate some form of antler working in the vicinity, the relative paucity of animal bone from this phase suggests that the settlement from which these finds derived was some distance away. Unlike those from Phase 3b, none of the Phase 4b finds exhibited signs of having been deposited in standing water.

POST-ROMAN (PHASE 5)

Cutting into ditch 109 was a heavily truncated pit 118 containing a greyish-brown, silty clay fill. In addition to a small assemblage of abraded 4th century pottery, two sherds of Early Saxon pottery were found in the upper fill of 89. The early deposits on site were sealed at 46.42m OD by a mid-brownish/black silty gravel (136, 137, 140 and 141) that contained very little cultural material and formed a clear and noticeable break in the stratigraphy of the site.

Plant remains, by Lisa Gray

INTRODUCTION

Seven soil samples were taken for archaeobotanical analysis in order to answer specific research questions concerning Roman crop processing, agricultural practice and grain storage (Green *et al* 2005). All came from the features interpreted as Phase 3b and 3c gravel quarry pits.

METHODS

The seven bulk samples were processed with the 'flot' collected in a 300μ mesh and the 'residue' collected in a 1mm mesh. Five of the larger samples were sub-sampled due to their richness. Samples <10> and <15> were fully analysed. The plant remains were examined

using a binocular microscope with magnifications of between x10 and x40. Charred remains were counted. Fragments of unidentifiable grain were given estimated levels of abundance as follows: + =1–10, ++ =11–50, +++ = 51–150, ++++ = 150–250 and +++++ = >250. Identifications were made using modern reference collections and reference manuals (eg Beijerinck 1947) to species level where possible and genus and family where diagnostic features were less clear. For the identification of charred cereal grains and chaff, modern reference material was used together with reference guides (eg Charles 1984; Jacomet 2006). Nomenclature for taxa was taken from Stace (1997) and Jacomet (2006).

RESULTS

For both Phases 3b and 3c the charred remains consisted of grain, chaff and seeds. To allow comparisons to be made, the percentages of selected taxa types and groups were calculated. Table 1 shows the results of the data analysis.

TYPE AND QUALITY OF PRESERVATION

All the plant macrofossils analysed had been preserved by charring. Plant remains have been observed ethnographically to become charred during parching, sterilisation of a weed-infested, or diseased, grain store, use as tinder or kindling or simply through accidentally falling into the fire while cooking (Hillman 1981, 139–40).

PHASE 3B: EARLIER ROMAN

Chaff and seeds dominated the charred assemblages, none of which contained fully cleaned grain. Wheat grains (*Triticum* spp.), were most abundant followed by barley (*Hordeum* spp.), rye (*Secale cereale* L.) and oat (*Avena* spp.). Preservation varied, so identification to species was often not possible with many grains in fragments and some distorted. The wheat grains were mostly glumes. Spelt (*Triticum spelta*) was the most frequent with smaller quantities of grains resembling emmer (*T. dicoccum*) and bread/club wheat (*T. aestivum* L. s.l.).

The barley included both hulled and naked grains, all of which were straight and could be the remains of a crop of two-rowed barley (Jacomet 2006, 39). Observations of cereal grain sieving in traditional farming communities in Greece by Glynis Jones revealed the tendency for the twisted grains of six-rowed barley to be sieved out and not form part of the cleaned product (Jones 1996, 181). No barley chaff was observed, so a clearer identification is not possible.

The rye and oat grains formed a small proportion of the cereal assemblage and were less easy to distinguish as they were mostly poorly preserved, in fragments, or mixed with many large grass seeds that were very difficult to separate.

A small number of the wheat, barley and oat grains had sprouted. Sample <13> from context 112 appeared to contain a large number of wheat tail grains.

Table 1 Relative percentages of charred remains and grain type by context/sample/phase

	113/10/3b	13/1/3b	124/17/3b	123/16/3b	112/13/3b	107/11/3b	120/15/3c
Grains	51%	24%	56%	5%	46%	18%	56%
Chaff	47%	65%	27%	95%	28%	79%	27%
Seeds	2%	11%	17%	0%	26%	3%	17%
-Wheat	53%	89%	66%	70%	77%	88%	71%
-Barley	27%	0%	22%	10%	10%	12%	20%
-Rye	7%	11%	12%	5%	5%	0%	0%
-Oat	13%	0%	0%	15%	15%	0%	9%

Chaff dominated the samples from contexts 13, 107, 113 and 123. Only wheat chaff had survived, which consisted of glumes and glume bases and a smaller amount of spikelet forks. Most had morphological characteristics identifying them as spelt. The remainder resembled emmer.

Seeds of cultivated ground, wasteland and grassland were present in all the samples, ranging in size from the smallest, mouse-eared chickweed (*Cerastium* sp.) to grain-sized seeds such as brome (*Bromus* spp.). Grass seeds were the most frequent.

PHASE 3C: LATER ROMAN

This sample closely resembled those from Phase 3b although, in this case, grains were present in a slightly higher proportion than seeds and chaff. The grains were dominated by emmer and spelt and accompanied by smaller quantities of barley and oat. The barley grains were too poorly preserved to determine whether they were naked, hulled or from two- or six-rowed barley, while the oat grains and two emmer grains were sprouted. The chaff consisted of glumes and glume bases displaying morphological characteristics of spelt and emmer.

Some seeds, particularly those of stinking chamomile (*Anthemis cotula* L.), were observed in this but not the Phase 3b samples. As in Phase 3b, these seeds were from plants of cultivated ground, wasteland and grassland.

INTERPRETATION

Possible reasons for charring of the plant macrofossils

Charring is a process that preserves, alters or destroys the features that allow identifications and interpretations of plant remains to be made. Experimental work carried out on the effects of different types of charring on the chaff and grains of emmer, spelt, bread wheat and six-rowed barley established that grains tended to survive charring, whereas chaff did not, and that bread wheat and barley carbonised first, often being distorted or destroyed in the process with spelt grains surviving most intact (Boardman & Jones 1990, 1, 4). It was also observed that a clean grain sample was not necessarily the result of human activity and that a sample dominated by glume bases did not result from differential preservation, because grains survive charring better than glumes (*ibid*, 10).

Samples from both phases contained glume bases, spikelet forks, intact grains and distorted grains. Such assemblages were observed by Boardman and Jones (1990) to occur when cereals were charred slowly in reducing conditions at low temperatures (*ibid*, 8). These assemblages resemble those described by Hillman (1981, 10) as being 'threshed spikelets charred during parching and, in wet areas, accidental burning of spikelet stores'. They may have been accidentally charred during a fire, charred during parching prior to storage or intentionally burnt during the sterilisation of storage pits. The latter two possibilities are likely because this type of event or activity could easily span Phases 3b and c.

Roman crop processing

By comparing these samples with observations made in ethnographic studies of cereal processing (cf Hillman 1981; 1984; Jones 1982), the samples from both phases appear to be the fine cleanings from the later stages of cereal processing because they still contain heavier glume fragments (less likely to be winnowed away) and seeds the same size as the grains. The presence of cleaned grain, some with lemmas and paleas fused to the grain, suggests that these samples were ready for storage or fine cleaning.

Table 2 Charred plant macrofossils in samples

			Phase	3b	3b	3b	3b	3b	3b	3c
			Sample	10	1	11	13	16	17	15
			Context	113	13	107	112	123	124	120
			Processed sample vol (ml)		900	35	550	1000	1500	
			% Sub-sampled	100	10	25	5	10	5	100
Scientific name	Common name	Plant part	Habitat/ Use code							
Triticum dicoccum	emmer	grain	FI	–	–	–	–	–	–	1
T. dicoccum	emmer	grain	FI	–	–	–	–	–	2	–
T. cf. *dicoccum*	?emmer	grain	FI	–	2	6	–	2	–	–
T. cf. *dicoccum*	?emmer	sprouted grain	FI	–	–	–	–	–	–	2
T. cf. *dicoccum*	?emmer	spikelet fork	FI	–	–	–	3	–	–	–
T. cf. *dicoccum*	?emmer	glume bases/glumes	FI	1	–	–	138	–	–	23
T. spelta	spelt	grain	FI	4	–	10	77	13	9	4
T. spelta	spelt	1 grained/tail grain	FI	–	–	–	–	–	10	–
T. spelta	spelt	sprouted grain	FI	–	–	9	–	–	4	–
T. spelta	spelt	spikelet fork	FI	–	–	9	2	24	45	–
T. spelta	spelt	glume bases/glumes	FI	22	–	–	44	980	292	19
T. cf *spelta*	spelt	grain	FI	–	3	–	2	–	6	–
T. cf *spelta*	?spelt	spikelet forks	FI	–	27	–	–	–	–	–
T. cf *spelta*	?spelt	glume bases/glumes	FI	–	120	120	–	–	–	–
T. dicoccum/spelta	emmer/ spelt	glume bases/glumes	FI	–	–	194	–	–	–	–
T. dicoccum/spelta	emmer/ spelt	sprouted grain	FI	–	1	–	–	–	–	–
T. dicoccum/spelta	emmer/ spelt	grain	FI	–	–	–	–	–	1	–
T. aestivum L. s.l.	bread/ club wheat	grain	FI	–	–	12	20	5	–	4
T. cf. *aestivum* L.	bread/ club wheat	grain	FI	4	–	–	20	6	22	1
T. spelta/aestivum	spelt/ bread/ club wheat	grain	FI	–	–	–	–	–	5	–
Triticum sp.	wheat	poorly preserved grain	FI	–	2	3	42	+	++	20
Triticum sp.	wheat	poorly preserved tail grain/1 seeded grain	FI	–	–	–	45	2	–	–
Triticum spp.	wheat	poorly preserved chaff fragments	FI	–	+	–	–	–	–	–
Triticum spp.	wheat	poorly preserved glume bases	FI	–	–	16	–	–	–	–
cf. *Secale cereale*	?rye	poorly preserved grain	FI	1	1	–	6	2	11	–
Hordeum sp.	barley	naked grain	FI	–	–	–	–	–	–	–
Hordeum sp.	barley	poorly preserved straight grain	FI	–	–	–	13	–	–	–
cf. *Hordeum* sp.	?barley	naked straight grain	FI	–	–	–	–	1	–	–
Hordeum sp.	barley	hulled straight grain	FI	–	–	6	4	3	7	–
Hordeum sp.	barley	hulled straight sprouted grain	FI	–	–	1	–	–	3	–
Hordeum sp.	barley	naked straight grain	FI	2	–	–	–	–	3	–
Hordeum sp.	barley	poorly preserved grain	FI	1	–	2	32	–	–	7
Hordeum sp.	barley	sprouted grain	FI	–	–	–	–	–	–	–
Hordeum sp.	barley	naked straight grain	F!	–	–	–	7	–	2	–
cf. *Hordeum* sp.	?barley	hulled straight grain	FI	1	–	–	–	–	3	–
cf. *Hordeum* sp.	?barley	poorly preserved grain	FI	–	–	–	–	–	2	2
cf. *Hordeum* sp.	?barley	hulled straight sprouted grain	FI	–	–	–	–	–	–	–
Avena sp.	oat	grain	AFI	2	–	–	–	6	–	1
Avena sp.	oat	sprouted grain	AFI	–	–	–	–	–	–	3

Table 2 (contd)

Scientific name	Common name	Plant part	Phase / Sample / Context / Processed sample vol (ml) / % Sub-sampled / Habitat/ Use code	3b 10 113 100	3b 1 13 900 10	3b 11 107 35 25	3b 13 112 550 5	3b 16 123 1000 10	3b 17 124 1500 5	3c 15 120 100
cf. *Avena* sp.	?oat	sprouted grain	AFI	–	–	–	–	–	–	–
Avena/Hordeum/ Secale/Triticum	indeterminate cereals	grain fragments	FI	+	+++	++	++	–	–	+++
Avena/Hordeum/ Secale/Triticum	indeterminate cereals	culm node	FI	–	–	1	–	–	–	–
Avena/Hordeum/ Secale/Triticum	indeterminate cereals	grain	FI	–	–	–	51	–	26	–
Avena/Hordeum/ Secale/Triticum	indeterminate cereals	awn fragment	FI	–	–	–	–	–	–	2
Avena/Hordeum/ Secale/Triticum	indeterminate cereals	stem fragment	FI	–	–	–	–	1	–	–
Silene alba/noctiflora	campion	seed	ABC	–	–	–	–	–	1	–
Cerastium sp.	mouse ear	seed	ABD	–	–	–	–	–	–	1
Chenopodium rubrum L.	red goosefoot	seed	AB	–	–	–	–	–	–	1
Vicia cf. *tetrasperma*	smooth tare	seed	D	–	2	–	–	–	–	–
Polygonum persicaria L.	redshank	seed	ABEH	–	1	–	–	–	–	1
Rumex acetosella L.	sheep's sorrel	seed	AD	–	–	–	–	–	–	1
Rumex crispus L.	curled dock	seed	BC	–	1	–	–	–	–	3
Anthemis cotula L.	stinking chamomile	seed	ABGH	–	–	–	–	–	–	9
cf. *Festuca* sp.	fescue	seed	CDEF	–	–	5	–	–	–	–
Lolium sp.	rye-grass	seed	AB	–	14	–	–	–	16	3
Lolium/Festuca sp.	rye-grass/ fescue	seed	BCD	–	–	–	157	–	–	–
Bromus sp.	brome	seed	ABD	–	8	8	20	4	34	2
Avena/Bromus sp.	aot/brome	seed	ABCDFI	1	–	–	–	–	–	–
Poaceae indet.	indeterminate grasses	poorly preserved seed	ABCDEF HI	150	–	17	–	+	–	8

Key:

Phase
- 3b Earlier Roman
- 3c Later Roman

Habitat
- A weeds of cultivated ground
- B weeds of arable and disturbed ground
- C woods, scrub, hedgerows
- D grassland
- E damp or marshy ground
- F edible wild
- G medicinal
- H modern
- I cultivated

Abundance
- \+ 1–10
- ++ 11–50
- +++ 51–150
- ++++ 150–250
- +++++ 250

Agricultural practice

In proportion and type, all the cereals resemble those commonly found on Romano-British sites (Alcock 2001; Green 1981; Jones 1981). The information that these assemblages can provide about the way specific crops were grown is limited because they are full of mixed grain and associated weeds, making it impossible to link weed seeds with particular crops (Jones 1990, 92). It has also been observed that threshing a variety of crops in the same area would result in mixed grain waste and, if crop rotation were carried out, subsequent crops would contain cereals self-seeded from the previous year (Moffett 1986, 3).

Even between phases, the weed seeds are not diagnostic of particular types of agricultural conditions as all the species can be found in both open grassland and cultivated ground. The Phase 3b weed seeds belong to plants preferring open grasslands, while those from brome (*Brome* sp.) and fescue (*Festuca* sp.) prefer calcareous soils. The Phase 3c seeds are similar with the addition of stinking chamomile *(Anthemis cotula* L.) and sheep's sorrel (*Rumex acetosella* L.). While both prefer open ground, stinking chamomile can indicate poor soil whereas sheep's sorrel is more indicative of a nutrient-rich soil. This illustrates the problem of inferring any useful information about arable ecology from samples containing such mixed crops.

Grain storage

The presence of a small number of semi-clean germinated grains suggests that they may have been prepared for storage. Their charring could be the result of burning in a corn drier – a necessity in wet areas to prevent germination and insect attack (van der Veen 1989, 303). Archaeological evidence for corn driers is rare and ethnographic evidence records the channelling of heat through 'a permeable floor surface such as straw, wooden slats, sacking, hair cloth, wire frames, or pieces of cast-iron plates on which the grain is put' (*ibid*, 314). In the examples that van der Veen cites, the cereal assemblages are similar to those found at Lower Coombe Street, with a majority of spelt or barley and a small number of germinated grains, but not enough to suggest deliberate malting of the grain. The process was more likely to have been the 'drying or parching of spoiled grain' (see reference to Tiddington, van der Veen 1989, 311).

CONCLUSION

It is possible that these plant remains are evidence for a corn drier having been in operation at this site. These mixed cereal and seed assemblages could have come from crops from many fields in the area and this is reflected in the weed flora in Phase 3c where the seeds of sheep's sorrel and stinking chamomile are known to prefer very different soil conditions.

Charcoal remains, by Imogen Poole

METHODS

Two charcoal samples from Phase 3b were analysed in order to identify the taxa present in each sample. The material was prepared using standard techniques (Gale & Cutler 2000) and examined with an Olympus BX41 microscope using epi-illumination with magnifications of up to x400. Material was identified from three planes of section whenever necessary. Descriptions in relevant literature, such as Schweingruber (1990), were consulted as an aid to identification. Material categorised as 'unidentifiable' could not be assigned with confidence to a specific taxon due to small size and/or quality of anatomical character preservation. When a genus is represented by a single species in the native British flora it is named as the most likely origin of the wood although it must be noted that wood anatomy alone is often not enough to secure identification to individual species. Classification follows that of Tutin *et al* (1964–80).

RESULTS

The results of the identifications are summarised below. *Quercus* (oak), with smaller amounts of Maloideae and *Corylus* (hazel), dominated both samples.

Table 3 Charcoal identifications

Sample number	Context number	Phase	Packet number	Taxon	Number of fragments	Additional information
1	13	3b	1	*Quercus*	5	stem wood
			2	*?Quercus*	7	stem wood, 2 fragments with tyloses
			3	*Corylus*	1	stem wood
			4	unidentifiable	3	stem wood
			1	Maloideae	3	twig wood
			2	?*Quercus*	8	stem wood, 2 fragments with tyloses, one fragment round wood
			3	*Quercus*	4	stem wood
			4	unidentifiable	8	2 pieces very friable
17	124	3b	1	*Quercus*	36	stem wood, 18 fragments with tyloses, 3 fragments >1cm
			2	unidentifiable	25	stem wood, 1 fragment with tyloses, 10 friable
			3	?Aesculus	1	
			4	?Quercus	22	stem wood, 3 fragments with tyloses, 1 friable fragment

Roman pottery, by Malcolm Lyne

INTRODUCTION

The excavations recovered a small assemblage of Romano-British pottery amounting to 695 sherds (16.582kg), the majority of which can be dated to the early 2nd century or to the Late Roman period. A full listing of this material can be found in the excavation assessment (Lyne 2005, 45–56), while this report concentrates on a general description of ceramic supply to the site. It should be noted that percentages in this report refer to quantification by sherd count.

PHASE 3B: EARLY ROMAN

Despite the fact that only a very small quantity of pottery was recovered from the fills of pit 89 (86 sherds, 1.453kg) and pit 114 (48 sherds, 3.830kg), it does give a reasonable indication of the pottery supply to the site in the late 1st and early 2nd centuries and can thus inform a study of the impact of *Londinium's* post-Boudiccan expansion on settlements in its hinterland (Perring 1991, 49–56).

The pottery from pit 89 reflects the supply available from a number of local and regional producers in the period AD 60–120. Kilns located in and around London produced a variety of fabrics including Verulamium Region grey and white wares, Highgate Wood fabrics B and C, and fine mica-dusted fabrics (17.4% by sherd count). Samian vessels (Dr 18 and Dr 37) from La Graufesenque were probably also traded through *Londinium* and formed a substantial proportion of the assemblage (12.8%). However, the largest group of pottery came from kilns in the Alice Holt/Surrey area (22.1%) (fig 6, no 1) with local products, possibly manufactured nearby at Keston (Cooper & Parfitt 1991), close behind (20.9%) (fig 6, no 2). Unsourced sandy grey wares were also important (12.8%) and the remainder of the assemblage is accounted for by BB2, Early Roman sandy wares and other fabrics of minor significance. Three fragments from a Pompeian red platter are also present (fig 6, no 3).

Pit 114 produced a slightly different pottery assemblage. The presence of 21 sherds from a Dressel 20 olive oil amphora with its rim and neck deliberately removed accounts for almost half of the pottery from this feature. Other pottery, including samian vessels (Dr 18/31) from Martres-de-Veyre and Central Gaul, sherds of a Highgate Wood C jar and fragments of a G238 mortarium point to an early 2nd century date as does a sherd from a small Dorset BB1 jar.

Essentially the Early Roman pottery from this site reflects an economy very closely aligned with that of *Londinium*. The bulk of its pottery, including the Alice Holt/Surrey wares and samian, was probably traded via this settlement (Davies *et al* 1994). The Dressel 20 amphora, if it reached the site loaded and was not simply re-used, indicates access to imported commodities.

PHASES 3C AND 4A: *c* AD 100–150 AND *c* 150–250/70

There was little pottery from Phases 3c and 4a (46 sherds, 1.244kg and nineteen sherds, 0.371kg respectively). The groups basically illustrate the rise of the BB2/Thameside producers in the 2nd century (Monaghan 1987). The quantities of pottery, however, are small enough to suggest a decline in activity during this period.

PHASE 4B: *c* AD 250/70–400+

The upper fills of pit 89 produced an interesting assemblage of late 3rd and 4th century pottery. Small quantities, including unabraded fragments from Moselkeramik and North Kent Fine Ware beakers, suggest that this material began to accumulate in the 3rd century. However, the vast bulk is of 4th century date and the presence of Portchester D/Overwey vessels (5.5% by sherd count) implies a deposition date for much of it of post AD 330. Almost half the assemblage comprised various Alice Holt/Farnham ware vessels (45%) (fig 6, no 6) and the Oxfordshire kilns provided another 15% in red-slipped vessels and smaller quantities

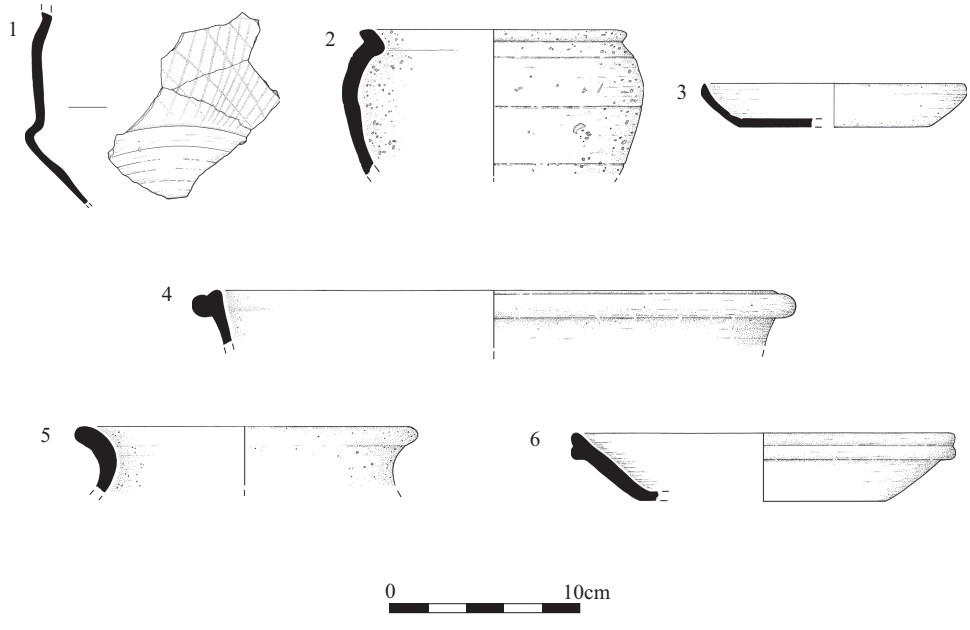


Fig 6 Roman Croydon. Pottery illustrations.

of mortaria (1.4%). Late Roman grog-tempered wares were present in small quantities (4.2%) and the remainder comprised potentially residual fabrics.

The small size of this group meant that quantification by Estimated Vessel Equivalents was not possible, which makes comparison with other Late Roman groups problematic. However, if proper caution is exercised and it is noted that like-for-like is not being compared, then this group can be placed beside others of similar date. Comparison with the Late Roman group from the Billingsgate bathhouse in London (*c* AD 350–400+) would indicate that the Lower Coombe Street group has a relatively high percentage of Alice Holt/Farnham and Portchester D wares (Symonds & Tomber 1991). This, in part at least, may be due to the shorter geographical distance between Croydon and Alice Holt, although it does not explain the strong showing of Oxfordshire wares that were presumably transported down the Thames and then out of London. The assemblage is too small to press these comparisons far but it certainly represents a late 4th century group and the presence of two Early Saxon sherds is a tantalising hint that activity continued into the post-Roman period.

The Portchester D/Overwey ware is also worth considering in a little more detail. Two subtle variations within this fabric were discernible: there was a coarsely sanded variant and a much finer version (five and three sherds respectively) (fig 6, nos 4–5). The latter is most common in East Sussex and occurs at Truleigh Hill north of Shoreham, Bishopstone and at other sites in late 4th century assemblages (Lyne 1994, 186–91). Some of the coarser wares are known to have originated from the Overwey kilns (Clark 1950) and at Alice Holt; however, their distribution is more suggestive of itinerant potters setting up kilns around the edge of the Weald. One such production centre may have been located somewhere north of Brighton (Lyne 1994, 474) and connected to the Croydon area by the London–Portslade Road.

CONCLUSIONS

The pottery from this site is essentially of two groups: from the early 2nd century and the mid–late 4th century. This implies a hiatus in activity during the intervening period, although it is uncertain whether this was a local phenomenon or part of a wider pattern. The early group points to close economic connections with *Londinium*, and the consequent prosperity brought to the area by an expanding population and the consequent increased need for agricultural commodities. The later groups also point to long-distance trade connections, some of which at least were probably articulated through London. The presence of Anglo-Saxon pottery in the late group is tantalising and might hint at continuity of activity through the 5th century.

Animal bone, by Lisa Yeomans

INTRODUCTION

The excavation produced a relatively small faunal assemblage. The preservation of the bone was moderate to good with some dark-stained material having remained in waterlogged conditions for long periods. This animal bone was preserved in a better condition than the rest of the material.

METHODOLOGY

The bone was recorded to species/taxonomic category where possible, and to size class in the case of unidentifiable bones such as ribs, fragments of longbone shaft and the majority of vertebral fragments. Recording followed established techniques whereby details of the element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic, including natural and anthropogenic, modifications to the bone, were registered.

Table 4 Number of identified specimens (NISP) values by phase. (Numbers given in brackets were from environmental samples)

	Phase		
Species/animal size class	3b	4a	4b
Horse (*Equus caballus*)	8	8	6
Small-medium equid (*Equus* sp.)	2	1	2
Cattle (*Bos taurus*)	30	28	17 (1)
Red deer (*Cervus elaphus*)	—	1	—
Large cervid	—	1	—
Pig (*Sus scrofa*)	—	1	2
Sheep/goat (*Ovis aries/Capra hircus*)	4 (2)	9	4 (2)
Sheep (*Ovis aries*)	1	1	—
Dog (*Canis familiaris*)	—	—	1
Human	—	1	—
Total	47	51	35
Indeterminate (horse/cattle size)	43 (3)	55 (2)	41 (1)
Indeterminate (pig size)	6	5	1
Indeterminate (sheep/goat/dog size)	1 (4)	7 (3)	2 (3)

RESULTS

Most of the animal bone derived from the infill of the gravel quarry pits that had formed as the pits developed into ponds, explaining the presence of the dark-stained bones typically found in waterlogged deposits. Not all the Phase 4a bones were stained, however, suggesting that the upper pit fills were drier than those below.

Horse, cattle and sheep/goat were the main animals represented in both Phases 3b and 4a. Some of the smaller equid bones may have been donkey but the majority was probably horse. The environmental samples taken indicate that there was a bias against the smaller animals in the hand-recovered assemblage, but both methods recovered bones from adult animals, so young animals do not appear to be under-represented. No bird bone was recovered, which is slightly surprising given that the other environmental evidence indicated a habitat ideal for waterfowl, although this may be the result of the contextual source of the assemblage. The mammal bone seems to indicate that areas of land around the site had been used for the keeping of cattle, horse and sheep. Although the sample size was not large, anthropogenic modifications to the bone were absent.

The contrast between a high incidence of horse and an absence of pig bones (which are often kept close to settlements and fed on domestic refuse) shows that the faunal assemblage is not typical. A small amount of bone seems to have become incorporated into the ponds as they naturally silted up but this was not a large-scale occurrence. Some bone-working may have taken place, however. One piece of waste from 119 (Phase 4a), the distal shaft of a red deer metacarpal, appeared to have been sawn through with cuts initiated from many sides with the central portion of the bone then snapped. From the same phase a small piece of antler was also recovered but it was too small and fragmented to confirm that it was waste from antler working.

Ceramic and stone building materials, by John Brown and Kevin Hayward

INTRODUCTION

The majority of the assemblage comprises Roman ceramic building materials. The remainder consists of stone building materials and worked stone fragments of probable Roman date which, in conjunction with some of the tile forms, appear to indicate the former presence of a well-appointed Roman building in the vicinity of the site.

METHODOLOGY

The building materials were examined using the London system of fabric classification, examples of which can be found in the archives of Pre-Construct Archaeology and the Museum of London. The fact that much of the Croydon material came from features that at one time had been waterlogged meant that many fabrics were stained and thus difficult to identify. Some fabrics, therefore, appeared superficially different from archived examples. After analysis common fabric types were discarded, while type samples and unusual pieces or uncommon fabrics were kept for the archive.

DISTRIBUTION

Phase 3b: mid-1st to early 2nd centuries

Roman brick (non-diagnostic) and roof tile (*imbrex*) were recovered from the fills (113, 123, 127 and 146) of early Roman gravel pits. Fabrics included Hertfordshire group and London group 2815, indicating that a building may have been constructed somewhere in the vicinity between AD 50 and 120. Non-local stone building materials were also represented by a squared block of worked flint and fragments of glauconitic white malmstone similar to Reigate Stone. Furthermore, later Hertfordshire-type fabrics and fabric 2459b material were recovered from 121, both of which date to between the second half of the 2nd century and the first half of the 3rd century AD.

Phase 3c/4a/4b: 2nd to 4th centuries

The majority of the assemblage came from fills 88, 90, 119, 120, 125 and 126 of the earlier pit cut 89, indicating that this feature had remained open for some time. Most of the material was abraded and was probably residually deposited. Several fragments of scored box-flue tiles from fill 119, probably from a hypocaust, and two *spicatum* bricks from fill 125, were further evidence of a well-appointed structure in the vicinity. All the material was of mid-1st to mid-2nd century date, with the exception of some brick fragments in fabric 2459b from fill 88. From fill 126 came three fragments of glauconitic malmstone, one of which (wsn1) was from a moulded stone. A deposition layer (2) contained later Hertfordshire fabric 3060b dating from AD 170 to 230.

Lithic material, by Barry Bishop

INTRODUCTION

The excavations recovered six struck flints and 249g of burnt flint fragments from a variety of contexts, none of which was likely to be prehistoric in date and the material can therefore be regarded as residually deposited.

BURNT FLINT

The flint was variably burnt but all to the degree that it had changed colour and become 'fire-crazed', consistent with burning in a hearth. All of the material was recovered from Romano-British gravel pits, later used as dumps, and it presumably represents the deposition of hearth waste, possibly emanating from cereal processing.

STRUCK FLINT

Six struck pieces were recovered. One, an undiagnostic conchoidally shattered chunk, was recovered from an undated posthole, while the others came from contexts datable to

Table 5 Quantification of lithic material by context

Context	Flake	Blade	Blade-like flake	Conchoidal shatter	Burnt (no)	Burnt wt (g)
005	1	–	–	–	–	–
045	–	–	1	–	–	–
085	2	–	–	–	–	–
102	–	–	–	1	–	–
105	–	1	–	–	–	–
113	–	–	–	–	5	88
119	–	–	–	–	2	88
123	–	–	–	–	9	73

Romano-British or later contexts where they had presumably been residually deposited. The struck pieces exhibited a high degree of edge chipping and abrasion, consistent with their presumed residuality.

RAW MATERIAL

All the pieces consisted of flint that had become mineral-stained to a brown/yellow colour. Cortex, where present, was of a slightly rolled and weathered chalky form, with some pieces also exhibiting ancient thermal scars. These were likely to originate from the North Downs chalk, but had become displaced by fluvial action and incorporated into gravel deposits, such as those identified at the site.

TECHNOLOGY, TYPOLOGY AND DATING

None of the pieces was typologically diagnostic, although on technological grounds the blade and blade-like flake would be most consistent with Mesolithic or Early Neolithic industries. The flakes can be less certainly dated and could have been manufactured any time from the Mesolithic to Bronze Age.

DISCUSSION

The burnt flint most probably represents the disposal of hearth waste from the Romano-British settlement thought to have been located nearby. The struck flint may have been manufactured over a long period of time. Owing to the size of the assemblage and lack of diagnostic pieces, very little can be concluded about the nature of the prehistoric activity represented by the struck material, although it most likely derives from short-term visits by transient groups, rather than more intensive settlement. The area along the North Downs dip-slope, especially between Carshalton and Croydon, is notable for its intensity of prehistoric remains, with Mesolithic and later Bronze Age activity being particularly well represented, and this assemblage is likely to reflect that use of the wider landscape.

Small finds, by Hilary Major

A small number of Roman metal and stone finds were recovered, but the size of the assemblage is too small to provide insights into the nature of the site, although all the objects would fit happily into a domestic assemblage.

The finds from early Roman contexts comprise a copper-alloy hairpin, three iron nails, two hobnails and two fragments of lava quern. Brooches, which are very common on early Roman sites, even in small assemblages, are absent. The hairpin has a button-and-cordon head, and belongs to Cool's Group 6, which dates to the second half of the 1st century to

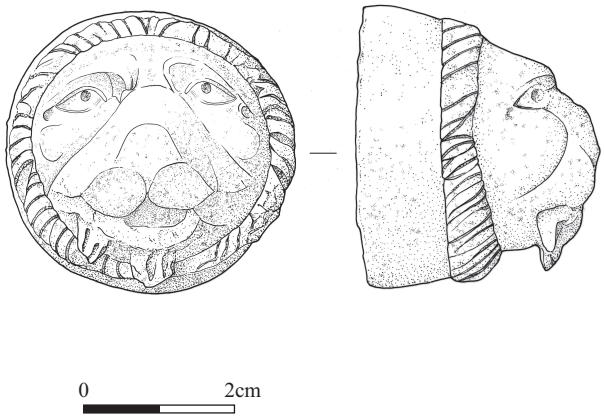


Fig 7 Roman Croydon. Lion's head mount.

the early 2nd century (Cool 1990, 157; very similar to fig 5, no 3). The fragments of lava quern were both from pit 89, one from an upper stone with a low, wide kerb, the other from a lower stone.

The finds from later Roman contexts include an incomplete copper-alloy needle, a lion's head mount (fig 7), iron nails, at least one knife fragment, and two quern fragments – one lava and one sandstone. The sandstone quern is an unusual form with a collar around the hopper. The only other Roman querns of this form known are made from Millstone Grit or similar stone. There are examples from Derby (Dool 1985, 218, no 66), Winterton (Stead 1976, 229, no 232), Dalton Parlours, West Yorkshire (Buckley & Major 1990, nos 57 and 60), and Castleford (Buckley & Major 1998, 245, no 12), although the collar on most of these is not very pronounced. The dating is variable; the Castleford quern is from a 1st century context, whereas the Dalton Parlours examples are probably 3rd or 4th century.

The lion's head mount is fairly well modelled for the type, though now in rather poor condition. Lion's head bosses such as these were commonly used as box fittings, although this one is relatively long, and may have had a different use, possibly as a pole tip or a furniture mount.

Site discussion

PREHISTORIC

In keeping with other sites in the Croydon area (Bell 2001, 247) the worked flints, of possible Mesolithic or Neolithic date, were all residual, being found either within later deposits or from the interface of the natural gravels and Roman dump layers. Their abraded condition suggests that they had moved some distance from their original point of deposition and thus the focus of the prehistoric community that had produced them was clearly not located within the study area. Furthermore, the absence of any prehistoric cultural material or features, with the possible exception of an undated tree-throw hollow, seems to confirm that the site was not utilised during the prehistoric periods.

ROMAN: MID-1ST CENTURY

The earliest features on the site were a number of gravel pits that were subsequently re-used, with the consequence that it is impossible to confirm with certainty their original date of excavation. However, as their primary fills have been dated to between AD 50 and 120, they

are likely to have been excavated during the first decades of the Roman occupation. Two possible functions for these features can be considered: they may relate to the construction of the London–Portslade road, which is thought to have been located a short distance to the east of the site, or the gravel may have been destined for small-scale building projects associated with the putative Roman roadside settlement at Croydon. Whichever is the case, the quarry pits indicate use of the site soon after the Roman conquest.

ROMAN: MID-1ST/EARLY 2ND CENTURY

By the late 1st century the quarry pits had started to become waterlogged and to fill up with deposits containing large quantities of carbonised grain and chaff. It is possible that this material may simply represent rubbish disposed of in the open pits; however, the lining of at least one of the pits seems to indicate that the feature had been deliberately waterproofed. If correct, this may have been an attempt to maintain a water supply during the parching of grain, perhaps as a means of controlling fire. However, as no comparisons have been found in the archaeological or ethnographic record to confirm that water-filled pits were integral to the parching of grain, it may simply be that the pits were primarily used as watering holes for farm stock at certain times of the year and for grain processing at others (Applebaum 1966, 101).

While no evidence was found to indicate where the spelt wheat was parched, archaeological remains of 'corn driers' elsewhere have produced environmental assemblages similar to those at Croydon (Monckton 1999a; 1999b), suggesting that parching was carried out in the vicinity. It has been proposed that waste material produced during parching was collected for use as kindling and animal feed, while fine dust cleanings were swept away (Hillman 1984, 33–4) and so the carbonised organic deposits within the pits are most likely to represent repeated sweeping of fine shavings, lost seeds and chaff.

While barley, rye and oats were also present in the assemblage, they occurred in significantly lower proportions, suggesting that the main crop was spelt, which had either become contaminated by other species (Hillman 1982, 139–40) or rotation was being practised to maintain the quality of the soil (Percival 1976, 109). However, it is possible that free-threshing crops were grown in equal amounts but are under-represented in this assemblage owing to an absence of parching when processing (Green 1981, 133–4). The presence of a number of sprouted wheat, barley and oat grains in the lower fill of pit 89 may indicate that malting was being undertaken or, more likely, that a wet summer had occurred prior to the parching of the grain (Hillman 1982, 139).

The environmental evidence also suggests that the processing of wheat had become more successful through time with the relative percentage of grain to chaff, eg lost grain, reducing from an initial 46–56% to between 18 and 25% by the end of Phase 3b. Environmental evidence indicates that a mixture of cultivated ground, wasteland and grassland occupied the area in which the crops were grown with stray seeds accounting for between 17 and 26% of the assemblage in the lower silt fills. By the end of Phase 3b the relative percentage of wild seeds within the assemblage had dropped to 3% or less, suggesting that either the crops were being threshed before being brought on site or that the area was becoming better managed, (eg weeding) (Hillman 1982, 137).

While the site is likely to have been some distance from the main settlement, the cultural material retrieved gives some insight into the economic and social status of the local population. It has been noted that *Londinium*'s post-Boudiccan prosperity extended to its satellite settlements and indeed pottery assemblages from the site do seem to suggest that the economy of the Croydon area was closely aligned with that of *Londinium* during the late 1st and early 2nd centuries. Many of the local, regional and imported wares in the Phase 3b deposits would have been traded through *Londinium* and it is probable that agricultural surpluses generated by the local economy provisioned this trade (Fulford 1982, 406). Excavations at Beddington villa, a short distance to the north-west of Croydon and

accessible from the river Wandle, also yielded cultural assemblages indicative of trade contacts with *Londinium*. However, no known roads pass near the villa and it is possible that this trade with *Londinium* was conducted via the Wandle (Howell 2005, 52) and, potentially, Croydon.

Some 200 years before the Roman invasion, a farming manual written by Marcus Porcius Cato (2004) listed the criteria for a successful agricultural settlement:

> Take care that you choose a good climate, not subject to destructive storms, and a soil that is naturally strong. If possible, your farm should be at the foot of a mountain, looking to the South, in a healthy situation, where labour and cattle can be had, well watered, near a good sized town, and either on the sea or a navigable river, or else on a good and much frequented road. Choose a place which has not often changed ownership, one which is sold unwillingly, that has buildings in good repair.

Many of these points, including Croydon's position on the well-drained edge of the Wandle Valley, adjacent to the road connecting Portslade with London, and with a river route to the nearby villa at Beddington, could apply to the Croydon area during the mid-1st and early 2nd centuries AD (Burnham & Wacher 1990, 44; Williamson 1988, 76).

ROMAN: 2ND CENTURY

While the re-used quarry pits survived into the late 2nd century, alterations in the environmental and cultural assemblages recovered from the later fills suggest changes in activity took place at this time. Indeed the Phase 3c pit fills were mixed in composition and represent dry discard, indicating that the pits no longer provided a water source. It is possible that they had become unviable owing to the amount of silting that had taken place during grain processing, a factor that would have been particularly pertinent had the primary purpose of the re-used pits been as waterholes for livestock. The continued presence of charred grain and chaff in the Phase 3c fills, however, indicates that, despite the drying up of the pits, grain processing continued.

ROMAN: 2ND/3RD CENTURY

During the late 2nd and 3rd centuries a significant change took place with the final abandonment of earlier features and the establishment of new spatial boundaries. The deliberate backfilling of the former quarry pits with low-grade material containing no cereal, ash or charcoal implies that grain processing had ceased.

They were replaced by an east–west aligned ditch, two curvilinear gullies and a small number of postholes, the purpose of which may have been to contain livestock. While these features are not necessarily indicative of human settlement, they do, in addition to the lack of charred grain, represent a change of land use during the 2nd/3rd century. The reduced quantities of waste material deposited during this period may simply indicate that rubbish was being disposed of away from the site; however, it is also possible that the reduction relates to a decline in activity. If these alterations in land use do reflect a decline in activity during the 2nd/3rd century, it is possible that the shift may reflect wider economic and political changes within the Roman Empire at the time (de la Bédoyère 1993, 54–5; Neal 1978, 48).

While the fragment of residual human skull in the fill of pit 115 was too small to allow a suggestion of sex or age, its presence may be of significance for it could indicate that a cemetery existed in the vicinity prior to the 2nd century. While Roman burials are known to the north-east at 82–90 Park Lane, they are dated to the late 4th century (McKinley 2003, 12–13) and at present the location of a 1st/2nd century cemetery remains unknown.

ROMAN: LATE 3RD/4TH CENTURY

The ditch, gullies and postholes were short-lived and from the late 3rd century onwards they were sealed by a widespread dump layer that may have been deposited to improve the fertility of the ground (Jones 1981, 112). While no features dating to this period were found, the cultural material recovered from the dump layer suggests there was an increase in activity within the vicinity, particularly during the mid-4th century. The pattern is also paralleled at Beddington villa, where coin analysis has pointed to a similar increase in activity during the late 3rd century (Howell 2005, 45). Pottery from Lower Coombe Street indicates that trade contacts with *Londinium* and the south coast were flourishing, and this may have facilitated an upturn in activity in the area.

POST-ROMAN

Excavation of a substantial Early Saxon cemetery at Park Lane does seem to indicate an unbroken sequence of occupation from the late 4th century to the 5th/6th centuries in Croydon. However, with the exception of two sherds of Early Saxon pottery and a pit containing abraded 4th century pottery, no definite finds or features dating to the Saxon, medieval or early post-medieval periods were retrieved from the site. When this negative evidence is considered in conjunction with the widespread layer of homogenous dark brown silty gravels, it seems evident that a break in land use occurred at the end of the Roman/early post-Roman period.

CONCLUSIONS

The excavations at Lower Coombe Street, while limited in scope, have provided one of the first opportunities to examine a sequence of activity during the Roman period in Croydon. After an initial phase of gravel extraction in the post-conquest period, it appears that the site was utilised for grain processing, possibly interspersed with animal husbandry, throughout the latter half of the 1st century and into the 2nd century. By the end of the 2nd century, a social and economic decline had apparently begun, which continued throughout the 3rd century, possibly as a consequence of political tensions on the Continent. Trade contacts with *Londinium* and the south coast were, however, revived during the 4th century, before activity eventually declined at the end of the Roman/early post-Roman period.

Unfortunately, the excavations at Lower Coombe Street were unable to establish the location of the roadside settlement, although it is unlikely to have been very far away. Nevertheless, the information collected by these excavations will be invaluable in informing any discussion on the early development of Croydon, and future investigations in this area will undoubtedly refine and expand upon the Roman and Saxon sequences obtained so far.

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