

Cambourne New Settlement

Iron Age and Romano-British settlement
on the clay uplands of west Cambridgeshire

Volume 2: Specialist Appendices

Web Report 13

Charred plant remains, *by Chris J. Stevens*



Cambourne New Settlement

Iron Age and Romano-British Settlement on the Clay Uplands of West Cambridgeshire

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Volume 2: Specialist Appendices
Part 1. Artefacts
Part 2. Ecofacts

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Charred Plant Remains

By Chris J. Stevens

All samples were processed by standard flotation methods. The flots were scanned and the plant taxa extracted and identified, following the nomenclature of Stace (1997).

North Caxton Bypass

Sixteen bulk samples were taken, processed and assessed, and five subsequently analysed for charred plant material (**Table Charred Plant Remains 1**). Four came from three Romano-British pits and a ditch. The final one came from a post-hole associated with a possible Middle–Late Bronze Age roundhouse.

Results

Phase 1, Middle–Late Bronze Age

The possible Bronze Age roundhouse contained a few remains of hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*), but no weed seeds.

Phase 3, mid–late Romano-British (mid–late 2nd–late 4th century)

Only the sample from pit 30181 contained any substantial remains, comprising mainly glume bases of which it is probable that most are of spelt wheat (*Triticum spelta*), although a few were identifiable as emmer (*Triticum dicoccum*). Grains of hulled wheat were relatively scarce and no remains of barley were identified. Also no germinated grains or coleoptiles were recovered.

Weed seeds were scarce in all but the samples from pit 30171 and pit/possible hearth 30181. These comprised of seeds of docks (*Rumex* sp.), perennial rye-grass (*Lolium perenne*), oats (*Avena* sp.), and brome grass (*Bromus* sp.). More interesting species included those of field madder (*Sherardia arvensis*), self-heal (*Prunella vulgaris*), and red bartsia (*Odontites vernus*), all of which may be seen as more indicative of the cultivation of dry to moist calcareous soils. More unusually there were high numbers of seeds of cinquefoil (*Potentilla* sp.) within pit/hearth 30181 that, while occurring on several other sites, were never found in such quantity.

Discussion

The high amounts of glume bases as with the other sites indicate that most of the charred evidence comes from the dehusking of hulled wheat, probably mainly spelt, perhaps as they were taken from storage. It is notable that weed seeds were more abundant in the pit samples, and that small seeds made up a large proportion of these. It is possible that the seeds of cinquefoil may have come from a single charred seedhead that can be similar in size to spikelets. The seeds of wild species in general indicate that the spelt wheat came from crops cultivated on predominately drier, probably neutral to calcareous soils, although as with other sites, such fields probably extended into wetter areas

Table Charred Plant Remains 1. North Caxton Bypass

	<i>Phase</i>	<i>1</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>3C</i>
	<i>Period</i>	<i>Bronze Age</i>	<i>RB</i>	<i>RB</i>	<i>RB</i>	<i>RB</i>
	<i>Group</i>	<i>30092</i>	<i>30171</i>	<i>30169</i>	<i>30214</i>	<i>30181</i>
	<i>Feature</i>	<i>roundhouse</i>	<i>pit</i>	<i>pit</i>	<i>ditch</i>	<i>pit</i>
	<i>Cut</i>	<i>30080</i>	<i>30171</i>	<i>30169</i>	<i>30047</i>	<i>30181</i>
	<i>Context</i>	<i>30081</i>	<i>30170</i>	<i>30168</i>	<i>30048</i>	<i>30180</i>
	<i>Sample</i>	<i>31003</i>	<i>31008</i>	<i>31012</i>	<i>31007</i>	<i>31009</i>
	<i>Vol. size (l)</i>	<i>10</i>	<i>10</i>	<i>10</i>	<i>10</i>	<i>9</i>
	<i>Flot size (ml)</i>	<i>25</i>	<i>15</i>	<i>10</i>	<i>15</i>	<i>20</i>
<i>Cereals</i>						
<i>Triticum</i> sp. (grain)	wheat indet.	-	1	-	-	-
<i>Triticum dicoccum</i> (glume base)	emmer wheat	-	-	-	-	2
<i>Triticum dicoccum</i> (spikelet fork)	emmer wheat	-	-	-	-	1
<i>Triticum spelta</i> (glume bases)	spelt wheat	-	-	-	-	10
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	2	-	-	2	13
<i>T. dicoccum/spelta</i> (glume base)	emmer/spelt wheat	-	18	-	4	343
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	1	2	-	-	14
<i>Triticum aestivum</i> s1 (rachis frg.)	free-threshing wheat	-	-	-	1	-
Cereal indet. (cereal)	unidentified grains	-	-	-	-	8
Cereal frags (est. whole grains)	cereal grains	-	3	2	2	3
Cereal indet. (basal rachis)	cereal indet.	1	-	-	-	-
<i>Species</i>						
<i>Ranunculus</i> sp. subg <i>Ranunculus</i> arb	buttercup	-	-	-	1	-
<i>Urtica urens</i>	small nettle	-	-	-	-	1
<i>Atriplex</i> sp.	orache	-	-	-	1	-
<i>Fallopia convovulus</i>	black bindweed	-	-	-	-	1
<i>Rumex</i> sp.	dock	-	2	-	-	7
<i>Rumex</i> cf. <i>crispus</i>	curled-leaved dock	-	1	-	-	-
<i>Rubus</i> sp. (thorn)	bramble thorn	-	-	-	-	cf.1
<i>Potentilla</i> sp.	cinquefoil	-	-	-	-	50
<i>Vicia</i> sp.	vetch	-	1	-	-	2
<i>Trifolium</i> sp.	clover	-	1	-	1	5
<i>Prunella vulgaris</i>	self-heal	-	-	-	-	1
<i>Odontites vernus</i>	red bartsia	-	3	-	-	-
<i>Sherardia arvensis</i>	field-madder	-	-	-	-	8
<i>Carex</i> sp. (trig)	sedge triangular	-	1	-	-	-
Poaceae (culm node)	grass culm node	-	1	cf.1	1	-
<i>Lolium perenne</i>	perennial rye grass	-	5	-	-	6
<i>Phleum/Poa</i> sp.	cat's tail/meadow grass	-	1	-	-	8
<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i>	onion couch grass	-	cf.1	-	1	-
<i>Avena</i> sp. (grain)	oat grass	-	1	-	-	-
<i>Avena</i> sp. (awn)	oat awn	-	-	-	-	1
<i>Avena/Bromus</i> (grain)	oat/brome grass	-	-	-	-	2
<i>Bromus</i> sp.	brome grass	-	1	-	-	-
Parenchyma	soft plant tissue	-	-	-	-	1

Lower Cambourne

Three-hundred and thirty-three bulk samples were taken, processed, and assessed, and 53 of these chosen for subsequent analysis (**Table Charred Plant Remains 2**). One sample (from ditch 49) was very rich in hulled wheat glumes and spikelet forks. For this sample glume after fractionation glume bases were counted in a one-third sub-sample of the 500 μ m sieve and a one-third of those in the 1 mm fraction. Estimates were then calculated by multiplying this count by five.

Four of the samples analysed came from post-holes related to a possible Phase 1, Middle–Late Bronze Age roundhouse (487). Three samples are certainly of later Iron Age date (Phase 2A), of which two came from drip-gullies (1370, 1343) and one from a four-post structure (5688). A further two samples came from a working hollow (5443) and a ditch (5237) and are also dated to the later Iron Age (Phase 2B). These five samples are the only ones that are reasonably certain to be of later Iron Age date while many of the remaining 31 probably extend into the post-Conquest period (Phases 2C and 2C–3A). These break down into three samples from Phase 2C and 28 samples that fall within the general range from the 1st century AD to the mid–late 2nd century (Phases 2C–3A).

Eleven samples come from Phase 3, later Romano-British contexts, spanning the mid/late 2nd–4th century. Two of these samples, associated with pit 1001, are very late Romano-British, of 4th century date, possibly extending into the Early Saxon period. The final two samples are from pit 5249 and ditch 5728 assigned to the Early Saxon period, although both also contained reasonable quantities of Romano-British pottery.

Results

Phase 2A/B, later Iron Age

The later Iron Age samples (Phase 2A–2B) contained few cereal remains, comprising mainly unidentified glume bases and grains of emmer or spelt (*Triticum dicoccum/spelta*). Of the few identifiable glume bases most were of emmer (*Triticum dicoccum*). No remains of barley were recovered from these samples.

The samples contained very few weed seeds, with large seeded species such as buttercup (*Ranunculus acris/repens/bulbosus*), vetches/wild pea (*Vicia/Lathyrus* sp.), plantain (*Plantago lanceolata*), and brome grass/oats (*Avena/Bromus* sp.), while one sample from the drip-gully contained quite high numbers of seeds of perennial ryegrass (*Lolium perenne*). Seeds of ecologically specific species were relatively scarce, although buttercup is often associated with farming of wetter soils.

Phases 2C–3A, Late Iron Age/early Romano-British–mid/late 2nd century AD

The transitional, Phases 2C to 3A, samples were generally the richest in plant remains. There are still occasional remains of emmer wheat although spelt dominates most of the assemblages. Remains of spelt glume bases are particularly common in many of the samples, the earliest being from Phase 2C, ditch 252. The most notably rich samples are from ditch 1200, 1077 and ditch 657. Many of these samples also contained high numbers of cereal coleoptiles indicative of brewing.

Other crops included several specimens of ‘celtic’ bean (*Vicia faba* var. *minor*) in particular from enclosure ditch 1356. It is notable that this same sample contained more fragments of hazelnut (*Corylus avellana*) and grains of barley than seen in any of the other samples. It also had many thorns of sloe/hawthorn (*Prunus spinosa*/*Crataegus monogyna*). Fragments of hazelnut were still common in several of the other samples dated to this period.

As with other assemblages from the Cambourne excavations, the samples were dominated by large seeded species and those that by virtue of appendages, bracteoles and pods may be considered grain-sized. In the former group we can include buttercup (*Ranunculus acris/repens/bulbosus*), knotgrass (*Polygonum aviculare*), black bindweed (*Fallopia convolvulus*), vetches/wild pea (*Vicia/ Lathyrus* sp.), cleavers (*Galium aparine*), oats (*Avena* sp.), and brome grass (*Bromus* sp.), in the latter group docks (*Rumex* sp.), black medick (*Medicago lupulina*), and sedges (*Carex* sp.). Possibly included in this latter group are seeds of orache (*Atriplex* sp.), that although small in size are released in grain sized bracteoles and common within the samples. Of other smaller seeds, red bartsia (*Odontites vernus*) was present in many of the samples, along with cat’s-tail (*Phleum* sp.) and annual meadow grass (*Poa annua*).

Also of interest is that three samples of this phase, post-hole (1010), drip-gully 1095, and ditch 1109, all produced seeds of stinking mayweed (*Anthemis cotula*), a species associated with the cultivation of heavy clay soils.

Phase 3, mid–late Romano-British (mid–late 2nd–late 4th century)

In the later 2nd–4th century Romano-British samples, emmer wheat is almost entirely absent and there is generally little barley, meaning that the samples are dominated by glumes and grains of spelt wheat. It is also notable that, in these later samples, no glume rich samples were present, with the exception of perhaps that from oven 1417. Cereal coleoptiles, were also generally absent from these later samples with the exception again of that from 1417.

Of other crops a single seed of beet or beetroot (*Beta vulgaris*) from the later Romano-British enclosure ditch 1046 may possibly come from plants cultivated for their roots or leaves. Fragments of hazelnut were still relatively frequent in several of these later Romano-British samples.

The range of weed seeds was similar to the preceding period, although black bindweed (*Fallopia convolvulus*) and stinking mayweed (*Anthemis cotula*) were absent. While seeds of clover (*Trifolium* sp.), red bartsia (*Odontites vernus*), and to a slightly lesser extent annual meadow grass (*Poa annua*)/cat’s tail (*Phleum* sp.) and sedges (Cyperaceae) were relatively more frequent.

Two samples were potentially dated to the Early Saxon period. The samples both contained very few charred remains, but glume wheats were present. While dated remains of hulled wheats are known from the earlier Saxon period (Pelling and Robinson 2000) given the amount of Romano-British pottery within the context a Romano-British rather than Saxon date is considered more likely.

Discussion

There are few differences seen between the possible Late Bronze Age, Iron Age, and the Romano-British samples, although it appears that emmer became progressively less common. There is little indication of any change in the crops cultivated, with spelt wheat being the most dominant in the Romano-British period. The major change would appear to be the scale with high numbers of glumes in several of the 2nd–3rd century Romano-British samples perhaps suggesting that dehusking was carried out in bulk. The presence of germinated grains and high numbers of coleoptiles also suggests that either grain was less well stored during the Romano-British period or that it was deliberately malted.

The general impression, as with many of the sites, is that crops were stored as semi-clean spikelets after the majority of smaller weed seeds had been removed. In terms of differences in the weed seed composition it is notable that both seeds of clover (*Trifolium* sp.) and black medick (*Medicago lupulina*) were only represented in Romano-British samples, along with species of wetlands, such as marsh bedstraw (*Galium palustre*), sedges (*Carex* sp.), and spikerush (*Eleocharis palustris*). This may though be due to the poorer nature of the Iron Age assemblage.

Several species are more indicative of the cultivation of drier calcareous soils, although few are very common within the samples. Such species included two more unusual finds of small scabious (*Scabious columbaria*). There were also occasional seeds of stinking mayweed (*Anthemis cotula*), although this only occurred in three samples. This species is seen as indicative of the cultivation of heavier clay soils, and its appearance has been associated with improved ploughing technology usually within the later Romano-British period (Jones 1981), although earlier examples can be cited (Stevens 2006).

Poplar Plantation

Thirty-six bulk samples were taken, processed and assessed, and six chosen for full analysis (**Table Charred Plant Remains 3**). All came from Phase 2, later Iron Age features. Four came from drip-gullies (72140, 72314, 72145, 72146), one from a driveway ditch (72005), and one from gully 72236.

Results

The samples contained very few remains in general. Only those from gully (72236) and drip-gully (72317, context 72315) contained any cereal remains. While barley (*Hordeum vulgare* *sl*), grains and grains of free-threshing wheat (*Triticum aestivum* *sl*) were recovered no remains of hulled wheats emmer or spelt (*Triticum dicoccum/spelta*) were identified. Interestingly remains of hazelnuts (*Corylus avellana*) and sloe (*Prunus spinosa*) were more common in the samples than remains of cereals. At least two more samples from drip-gullies seen in the assessment also contained fragments of hazelnut (72018, 72301, 72020, 72118). Fragments of parenchyma (soft plant tissue) were also abundant, and given that these are often highest in samples with hazelnut shell may be part of the charred inner kernal.

Discussion

The absence of hulled wheats emmer or spelt (*Triticum dicoccum/spelta*) given their presence on the other sites in both the Iron Age and Romano-British periods, as well as generally in the region from the Middle–Late Bronze Age, is of some interest. While only a few grains of probable free-threshing wheat (*Triticum aestivum* *sl*) were present, this cereal is generally absent from the Iron Age and the Romano-British period (van der Veen and O'Connor 1998). It is possible that such remains are intrusive from later periods or possibly reworked. The reasonably high quantities of both hazelnut fragments and sloe are also unusual for the Iron Age, being more characteristic of Neolithic and earlier Bronze Age. The remains may then indicate one or a combination of two different possibilities. The first is that they represent an unusual localised deviation from usual economic practice. Such a contrast may be due to such reasons that the site represents a temporary encampment, and that cereals were not processed here. Although if contemporary with the other sites, it would seem unlikely that such temporary settlement would exist given the close proximity to the other sites. The other possibility is that they represent intrusive and reworked elements, and the absence of glume chaff is because the settlement was relatively short lived.

Table Charred Plant Remains 3. Poplar Plantation

<i>Phase</i>		2A	2A	2B	2B	2B	2B
<i>Period</i>		<i>M/LIA</i>	<i>M/LIA</i>	<i>M/LIA</i>	<i>M/LIA</i>	<i>M/LIA</i>	<i>M/LIA</i>
<i>Feature</i>		<i>droveway</i>	<i>RH</i>	<i>RH</i>	<i>RH</i>	<i>RH</i>	<i>gully</i>
<i>Group</i>		<i>ditch</i>	<i>gully</i>	<i>gully</i>	<i>gully</i>	<i>gully</i>	
<i>Cut</i>		72005	72314	72140	72145	72146	72236
<i>Context</i>		72407	72317	72317	72124	72127	72236
<i>Sample</i>		72408	72315	72139	72126	72129	72235
<i>Vol. size (l)</i>		74025	74018	74033	74020	74022	74034
<i>Flot size (ml)</i>		9	10	9	9	10	10
		10	30	15	10	60	45
Cereals							
<i>Hordeum vulgare</i> sl. (grain)	barley	-	-	-	-	-	1
<i>Triticum</i> sp. (grain)	wheat	-	3	-	-	-	5
<i>Triticum dicoccum</i> (glume base)	emmer wheat	-	-	-	-	-	-
<i>T. dicoccum</i> (spikelet fork)	emmer wheat	-	-	-	-	-	-
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	-	-	-	-	-	-
<i>T. dicoccum/spelta</i> (glume base)	emmer/spelt wheat	-	-	-	-	-	-
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	-	-	-	-	-	-
<i>Triticum spelta</i> (glume base)	spelt wheat	-	-	-	-	-	-
<i>T. spelta</i> (spikelet fork)	spelt wheat	-	-	-	-	-	-
<i>Triticum aestivum</i> sl. (grain)	free-threshing wheat	-	1	-	-	-	3
Cereal indet. (cereal)	unidentified grains	-	2	-	-	cf.1	2
Cereal frgs. (est. whole grains)	cereal grains	-	5	-	-	-	-
Species							
<i>Corylus avellana</i> (shell fragments)	hazelnuts	-	-	13	-	10	8
<i>Atriplex</i> sp.	orache	-	-	1	-	-	-
<i>Prunus spinosa</i> (stone frg)	sloe/buckthorn	-	-	-	1	1	-
Parenchyma frags	soft plant tissue	1	1	24	18	4	4
Pottery w/chaff or plant material	chaff temper in pot	-	+	-	-	-	-

Mill Farm

Twenty-two bulk samples were taken, processed and assessed, and seven chosen for analysis (**Table Charred Plant Remains 4**). Two samples came from a possible Phase 1, Middle–Late Bronze Age hearth (40219) and one from a Phase 1 ditch (40270). Three further samples came from Phase 3 Romano-British enclosure ditches and one from a Romano-British well (40116). The glume bases from ditch 40117 were counted from a sub-sampled of one-third of the 500µm to 1 mm fraction, then multiplied by three to provide an estimate.

Results

Phase 1, Middle–Late Bronze Age

The Bronze Age hearth samples contained relatively few remains, and were the only samples from this site to produce grains of barley (*Hordeum vulgare s/l*), albeit single specimens within each of the samples. The remaining Bronze Age sample did not produce any remains of cereals, but did contain numerous fragments of hazelnut (*Corylus avellana*).

Phase 3, mid - late Romano-British (mid–late 2nd–late 4th century)

The samples from the Romano-British features were far richer, especially those from the enclosure ditches. Remains of glume bases were very high, with relatively little grain recovered. Remains of emmer chaff were present in small quantities within the richer samples. No remains of germinated grains or coleoptiles were found.

Weed seeds were generally poorly represented, and with the exception of one sample from ditch 40024 that contained little other than glume bases, they were outnumbered by finds of grain. The species present were mostly either large seeded, for example knotgrass (*Polygonum aviculare*), vetches/wild pea (*Vicia/ Lathyrus* sp.), oats (*Avena* sp.), and brome grass (*Bromus* sp.), or those species that might be considered grain sized by virtue of appendages, or by virtue of being released in grain-sized seed pods or bracteoles, for example, perennial rye-grass (*Lolium perenne*), docks (*Rumex* sp.), black medick (*Medicago lupulina*), and orache (*Atriplex* sp.). Few of the species are ecologically distinct, although black medick (*Medicago lupulina*) is commoner on drier, calcareous soils.

Discussion

The high amounts of glume bases in the Romano-British samples indicate that most of the charred evidence for this period comes from the dehusking of hulled wheat, predominately spelt. The richness of the samples suggests that such operations may have been conducted in bulk, as semi-clean spikelets were taken from storage. While some cereal remains were present in the possible Bronze Age hearth, there is some suggestion that wild foods, such as hazelnut, may have continued to form an important element of the diet. There is also some indication that this continues into the Iron Age (Poplar Plantation). Some spelt wheat (*Triticum spelta*) was identifiable in the Bronze Age hearth, but also barley (*Hordeum vulgare s/l*), which was absent from the Romano-British deposits.

Table Charred Plant Remains 4. Mill Farm

<i>Phase</i>		<i>I</i>	<i>I</i>	<i>I</i>	<i>3A</i>	<i>3A</i>	<i>3A</i>	<i>3B</i>
<i>Period</i>		<i>Bronze Age</i>			<i>Romano-British 1st-2nd C.</i>			<i>RB</i>
<i>Feature</i>		<i>hearth</i>		<i>ditch</i>		<i>enc. ditch</i>		<i>3rd/4th C.</i>
<i>Group</i>		<i>40219</i>		<i>40311</i>	<i>40015</i>	<i>40018</i>	<i>40024</i>	<i>40016</i>
<i>Cut</i>		<i>40219</i>		<i>40270</i>	<i>40031</i>	<i>40117</i>	<i>40062</i>	<i>40116</i>
<i>Context</i>		<i>40221</i>	<i>40220</i>	<i>40268</i>	<i>40033</i>	<i>40119</i>	<i>40063</i>	<i>40114</i>
<i>Sample</i>		<i>42018</i>	<i>42019</i>	<i>42026</i>	<i>42001</i>	<i>42007</i>	<i>42003</i>	<i>42013</i>
<i>Vol. size (l)</i>		<i>10</i>	<i>10</i>	<i>10</i>	<i>8</i>	<i>10</i>	<i>5</i>	<i>4</i>
<i>Flot size (ml)</i>		<i>50</i>	<i>60</i>	<i>4</i>	<i>15</i>	<i>40</i>	<i>5</i>	<i>25</i>
Cereals								
<i>Hordeum vulgare</i> sl. (grain)	barley	1	1	-	-	-	-	-
<i>Triticum dicoccum</i> (glume base)	emmer wheat	-	-	-	4	4	-	-
<i>Triticum dicoccum</i> (spikelet fork)	emmer wheat	-	-	-	6	3	-	-
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	1	-	-	6	95	2	5
<i>T. dicoccum/spelta</i> (glume base)	emmer/spelt wheat	1	4	-	750	est.4500	28	50
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	-	-	-	-	-	-	41
<i>Triticum spelta</i> (glume base)	spelt wheat	1	-	-	420	570	125	120
<i>Triticum spelta</i> (spikelet fork)	spelt wheat	-	-	-	-	25	-	-
Cereal indet. (cereal)	unidentified grains	-	1	-	1	5	-	-
Cereal frgs. (est. whole grains)	cereal grains	-	-	-	6	30	4	4
Species								
<i>Corylus avellana</i> (shell fragments)	hazelnuts	-	-	34	-	-	-	-
Chenopodiaceae (indet. seed)	goosefoot family	-	-	-	-	-	1	-
<i>Atriplex</i> sp.	orache	-	-	-	2	-	-	-
<i>Polygonum aviculare</i>	knotgrass	-	-	-	-	1	-	-
<i>Rumex</i> sp.	dock	-	1	-	-	2	-	-
<i>Rumex</i> cf. <i>crispus</i>	curled-leaved dock	-	-	-	-	1	-	-
<i>Vicia</i> sp.	vetch	-	-	-	-	1	-	1lg
<i>Medicago</i> sp.	medick	-	-	-	1	1	-	-
<i>Trifolium</i> sp.	clover	-	-	-	1	-	-	-
Poaceae (indet. seed)	grass	-	1	-	-	-	-	-
<i>Lolium</i> sp.	perennial rye grass	-	-	-	5	12	-	-
<i>Avena</i> sp.	oat grass	-	-	-	-	13	1	3
<i>Avena</i> sp. (wild floret base)	wild oat grass	-	-	-	-	2	-	-
<i>Avena</i> sp. (awn)	oat grass	-	-	-	-	17	-	-
<i>Avena/Bromus</i> (grain)	oat/brome grass	-	-	-	-	3	-	-
<i>Avena/Bromus</i> (floret base)	oat/brome grass	-	-	-	-	17	-	-
<i>Phleum</i> sp.	cat's tails	-	-	-	1	2	1	-
<i>Bromus</i> sp. bud.	brome grass	-	1	-	-	3	-	-
Lymnaea						5		

Knapwell Plantation

Thirty-six bulk samples were taken, processed and assessed, and 15 were chosen for further analysis (**Table Charred Plant Remains 5**). Ten came from features phased to the later Iron Age (Phase 2): five from pits (60280, 60417, 60189), three from ditches (60169, 60313, enclosure ditch 60141), and two from roundhouse drip-gullies (60245, 60321). A further sample came from a probable Later Iron Age pit (60186), while another came from an unphased pit (60479). Three samples came from Phase 3, mid-late 2nd–3rd century Romano-British features comprising a gully (60376), a pit (60231), and an enclosure ditch (60142).

Results

The finds from Iron Age and Romano-British samples were very similar, although it is notable that the Romano-British samples were far richer in glume bases. The main cereal represented was spelt wheat, although occasional glumes of emmer wheat were present. It was notable that the unphased sample contained equal proportions of spelt and emmer glumes. Glumes generally outnumbered grain, and in all but one Romano-British sample by over ten to one. Barley was represented only as single grains within phases. Cereal coleoptiles (the germinated embryos) were present in only one Romano-British sample. Small fragments of hazelnut (*Corylus avellana*) were present in most of the Iron Age samples, but absent from the Romano-British ones. The Iron Age samples also had finds of sloe (*Prunus spinosa*) and crab-apple (*Malus sylvestris*).

Weed seeds were infrequent, but outnumbered grains in a few samples. Most of the seeds were of larger seeded species, redshank (*Persicaria maculosa/lapathifolia*), black bindweed (*Fallopia convolvulus*), knotgrass (*Polygonum aviculare*), vetches/wild pea (*Vicia/ Lathyrus* sp.), oats (*Avena* sp.), and brome grass (*Bromus* sp.). Other seeds included species, which by virtue of releasing seeds with appendages may be considered grain-sized. These included docks (*Rumex* sp.), perennial rye-grass (*Lolium perenne*), and possibly also orache (*Atriplex* sp.). A single possible seed of corncockle (*Agrostemma githago*) is of some interest given that this species is a probable Roman introduction.

Discussion

The samples appear to represent similar cultivation and processing activities within both periods. The high proportion of glumes can be associated with the dehusking of spelt wheat stored as generally semi-clean spikelets. That the Iron Age samples contained generally fewer glumes than the Romano-British samples might suggest emmer was more prevalent within this period. Similarly, even though few grains of barley were recovered, the Iron Age samples had fewer grains in general than the Romano-British samples, and this might suggest that barley was more common during the Romano-British period. Additionally, finds of wild species might indicate more reliance on foods collected from the wild than seen in the Romano-British period. The higher proportion of glumes in Romano-British samples might indicate that such activities were conducted in bulk. One sample from enclosure ditch (60144) differed in that it was not only suggestive of smaller scale activities, but also the high

proportion of weed seeds, especially of smaller seeded species, might suggest the crop was stored relatively unprocessed.

Species indicative of the cultivation of drier calcareous soils, black medick (*Medicago lupulina*), fool's parsley (*Aethusa cynapium*), field madder (*Sherardia arvensis*), and corn gromwell (*Lithospermum arvense*), were also present in both periods, although slightly better represented in the Romano-British samples. Sedge seeds indicative of the cultivation of wetlands were also present from all periods.

Table Charred Plant Remains 5: Knapwell Plantation

Period	2A	2A	2A	2A	2A/B	2A/B	2A/B	2A/B	2A/B	2A/B	2A/B	2A/B	2A/B	2A/B	2	3A	3B	3
Feature	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	M/LIA	?	RB C1-2	RB C2/3-4	RB
Group	ditch	ditch	ditch	roundhouse	gully	pit	pit	pit	pit	pit	pit	pit	pit	pit	pit	enc. ditch	enc. ditch	gully
Cut	60479	60169	60313	60245	60321	60280	60799	60799	60799	60417	60800	60800	60800	60141	60800	60231	60140	60235
Context	60480	60171	60547	60340	60588	60280	60417	60417	60417	60417	60189	60189	60189	60144	60186	60231	60142	60376
Sample	62047	62019	62053	62041	62058	62021	62060	62061	62061	60554	62056	62057	62057	62014	62042	62051	62012	62048
Vol. size (l)	8	10	10	8	10	7	10	10	10	7	10	10	10	8	10	8	10	10
Flot size (ml)	10	30	15	60	15	15	15	15	20	15	25	15	15	30	10	5	10	10
Cereals																		
<i>Hordeum vulgare</i> sl. (grain)	1	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-	-
<i>Triticum dicoccum</i> (glume base)	5	-	-	-	4	1	-	-	-	-	-	-	-	2	-	-	-	-
<i>Triticum dicoccum</i> (spikelet fork)	-	-	-	-	1	-	-	-	-	-	1	-	-	1	-	-	-	-
<i>Triticum spelta</i> (glume bases)	5	4	-	-	-	-	-	-	-	-	2	-	-	5	-	23	24	53
<i>Triticum spelta</i> (spikelet fork)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>T. dicoccum/spelta</i> (grains)	4	2	7	3	1	3	-	-	-	-	9	-	-	10	-	-	7	14
<i>T. dicoccum/spelta</i> (spikelet fork)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
<i>T. dicoccum/spelta</i> (glume base)	12	-	34	-	19	18	2	8	15	4	15	4	36	2	101	200	275	-
Cereal indet. (cereal)	2	-	5	4	5	2	3	3	-	3	-	3	5	2	-	10	10	-
Cereal frgs. (est. whole grains)	2	1	3	1	-	-	1	-	-	9	4	2	2	2	2	5	5	-
Cereal. (coleoptile)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Cereal indet. (culm node)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Species																		
<i>Ranunculus</i> sp. subg. <i>Ranunculus</i> arb	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Corylus avellana</i> (shell fragments)	2	4	-	-	3	1	-	1	-	-	3	-	-	4	-	1	-	-
Chenopodiaceae (indet. seed)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Chenopodium polyspermum</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Chenopodium ficifolium</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	6	-	-	-	-
<i>Chenopodium album</i>	-	-	-	-	-	2	1	2	1	-	-	-	-	1	-	-	-	-
<i>Atriplex</i> sp.	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-
<i>Agrostemma githago</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Persicaria lapathifolia/maculatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Fallopia convolvulus</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
<i>Polygonum aviculare</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Rumex</i> sp.	-	-	-	-	-	2	1	2	1	-	-	-	-	-	-	-	-	-
<i>Rumex</i> cf. <i>crispus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Brassica</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Potentilla</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Prunus spinosa</i> (stone frg)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Prunus/Crataegus</i> sp. (thorns)	-	-	-	-	-	-	-	1rg**1f	-	-	-	-	-	1	-	-	-	-
<i>Malus sylvestris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Crataegus monogyna</i> (stone)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Vicia/Lathyrus</i> sp.	2	-	1	-	-	-	-	-	2	-	2	-	-	6	-	-	2	-
<i>Medicago lupulina</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Trifolium</i> sp.	-	-	-	-	-	-	-	-	-	1	1	1	1	10	-	-	1	-
<i>Anthus cyaniptus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lithospermum arvense</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lamium</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Prunella vulgaris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Plantago lanceolata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
<i>Sherardia arvensis</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-
<i>Triplurospermum inodorum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Carex</i> sp. (triq)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Carex</i> sp. (flat)	1	-	1	2	-	2	-	-	-	1	1	1	1	6	-	-	-	-
Poaceae (culm node & interculms)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae (basal culm node)	2	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	1	7
<i>Phleum/Poa</i> sp.	-	-	-	-	3	2	-	-	-	1	4	-	-	8	-	-	-	-
<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i>	-	-	-	-	-	-	-	-	-	1	5	1	-	5	-	-	-	-
<i>Avena</i> sp. (grain)	-	-	2	-	-	-	-	-	-	2	2	-	-	1	-	-	-	-
<i>Avena/Bromus</i> (grain)	-	-	1	2	1	2	-	-	-	1	-	-	-	1	-	-	-	-
<i>Bromus</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Seed indet. (<2mm)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seed indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
unidentified seed	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-

*rg=rodent gnawed

Jeavons Lane

Sixty-nine bulk samples were taken, processed and assessed, and 14 chosen for full analysis (**Table Charred Plant Remains 6**).

Two samples were from unphased features (Phase 0): tree-throw hollow 80075 and pit 80494, while hearth 80039 and enclosure ditch 80233 were phased to the later Iron Age (Phase 2). The tree-throw hollow for reasons discussed below could be possibly Neolithic–Iron Age, while the sample from the unphased pit (80494) is more in keeping with a Romano-British date. Ten samples came from securely dated Phase 3, mid–late 2nd–late 4th century Romano-British features; four from enclosure ditches 80122, 80134, and 80883, five from four pits, and one from spread 80111.

The sample from Romano-British pit 80830 was rich in glumes and it was necessary to estimate their number. The glumes were counted from one-tenth of the 500µm and one-sixth of the 1 mm fraction, the resultant figures were then multiplied by 10 and six times respectively to give a final estimate. The remainder of the fractions was sorted and small weed seeds extracted, identified and counted.

Results

Grains and glumes of hulled wheat dominated all the samples except that from the tree-throw hollow (80075). In all but one of these features (pit 80692) glumes outnumbered grain, in many (including the unphased pit 80494) numbering ten times that of grain. While occasional glumes of emmer wheat (*T. dicoccum*) were recovered, spelt (*T. spelta*) was the most dominant crop represented. Remains of barley were only recovered from two samples. Germinated grains and coleoptiles (the germinated detached embryo) were also recovered from a number of samples, most specifically the highly glume rich sample from pit 80830, but also the unphased pit 80494, while no such remains were present in the Iron Age samples. The sample from the tree-throw hollow (80074) contained no cereal remains at all, but did contain 15 fragments of hazelnut (*Corylus avellana*) shell. Fragments of sloe (*Prunus spinosa*) were recovered from two samples, but may be associated with thorns of this same species or with fruits and thorns of hawthorn (*Crataegus monogyna*).

Weed seeds were generally outnumbered by cereal grains in all but the unphased pit (80494). Most were of larger seeded species, such as oats (*Avena* sp.), vetches/wild pea (*Vicia/ Lathyrus* sp.), or those that are grain sized by virtue of appendages, bracteoles, and seedpods eg, docks (*Rumex* sp.), medick (*Medicago* sp.), and perennial rye-grass (*Lolium perenne*). Smaller seeds included those of goosefoots (*Chenopodium* sp.), orache (*Atriplex* sp.), clover (*Trifolium* sp.), and annual meadow grass (*Poa annua*) and/or cat's-tail (*Phleum* sp.).

At least one sample from enclosure ditch 80120 contained indications of remnants of plant material preserved by waterlogging and semi-mineralisation. These comprised several seeds of duckweed (*Lemna* sp.) and fragments of elder (*Sambucus nigra*).

Discussion

The predominance of glumes and especially their number suggest that most of the charred assemblages derive from the dehusking of grains of spelt wheat probably stored within their spikelets. Similarly the range of weed seeds and proportion of weed seeds suggests that these were stored in a relatively clean condition. One exception was the unphased pit (80494) that contained quite high numbers of small seeds of both clover and grasses also had several charred rootlets, stems, and nodes of grasses. This might suggest the presence of waste from earlier processing stages, or perhaps the burning of uprooted grassland vegetation. The high presence of germinated grains or coleoptiles might suggest malting was taking place on the site during the Romano-British period, and certainly the presence of such remains in pit (80494) suggests a Romano-British date for this feature.

Of the species present seeds of wetland, marsh bedstraw (*Galium palustre*), sedges (*Carex* sp.), and spikerush (*Eleocharis palustris*) indicate the cultivation of fields that may have been subject to some flooding. Several of the species are quite indicative of drier, usually lighter calcareous soils, including ribwort plantain (*Plantago lanceolata*), red bartsia (*Odontites vernus*), self-heal (*Prunella vulgaris*), black medick (*Medicago lupulina*), and corn gromwell (*Lithospermum arvense*). Of some interest were also seeds of stinking mayweed (*Anthemis cotula*) that is taken as indicative of the cultivation of heavier clay soils. The overall impression is that the samples come from crops grown on a reasonably wide variety of different soil types.

High numbers of hazelnut shells in tree-throw hollows (and other features) are characteristic of Neolithic sites in general and have been recorded in tree-throw hollows from other sites in the Cambridgeshire area (Stevens 1997c). However, hazelnut remains have also been noted to be common in the Later Bronze Age (Mill Farm) and Iron Age samples (Knapwell, Poplar Plantation) at Cambourne.

Broadway Farm

Fourteen bulk samples were taken, processed and assessed, and four chosen for further analysis. (**Table Charred Plant Remains 7**). Two came from the later Iron Age (Phase 2) enclosure ditches, one from a tree-throw hollow associated with the eastern enclosure ditch, and another from a curvilinear gully.

Results

Phase 2, later Iron Age

The samples had very few cereal remains, most of which came from either the tree-throw hollow or the gully. These comprised glume bases from hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*), and occasional cereal grains of which only one could be identified as hulled wheat. Weed seeds were also very poor, with single seeds of large seeded species, buttercup (*Ranunculus acris/repens/bulbosus*), cleavers (*Galium aparine*), oats (*Avena* sp.), and brome grass (*Bromus* sp.). That from enclosure ditch 50082 (group 50103) also contained fragments of grass roots and stems.

Discussion

As with many of the later Iron Age samples from the other sites the assemblage was generally poor. While such remains probably derive from similar processes to the Romano-British samples, namely the processing of semi-clean spikelets, the absence of remains might suggest short-live occupation or less intensive than seen for later periods. The presence of buttercup, probably suggests, as with later periods, the cultivation of wetter soils. However, given the sparse number of remains there is little other information.

Table Charred Plant Remains 7. Broadway Farm

		2a/b	2a/b	2a/b	2a/b
<i>Period</i>		<i>MIA</i>	<i>MIA</i>	<i>MIA</i>	<i>MIA</i>
<i>Feature</i>		<i>tree</i>	<i>gully</i>	<i>enc. ditch</i>	
<i>Group</i>		<i>hollow</i>	50007	50103	50100
<i>Cut</i>		50011	50043	50082	50061
<i>Context</i>		50072	50044	50081	50062
<i>Sample</i>		51011	51005	51013	51009
<i>Vol. size (l)</i>		9	8	8	10
<i>Flot size (ml)</i>		100	10	10	10
Cereals					
	spelt/emmer				
<i>Triticum dicoccum/spelta</i> (grain)	wheat	1	-	-	-
<i>Triticum dicoccum/spelta</i> (glume base)	spelt/emmer				
	wheat	1	4	-	-
Cereal frgs. (est. whole grains)	cereal grains	2	2	-	1
Species					
<i>Ranunculus</i> sp. subg <i>Ranunculus</i>					
arb	buttercup	-	-	1	-
<i>Galium aparine</i>	cleavers	1	-	cf. 1	-
Poaceae rootlet indet.	grass root	-	-	13	-
Poaceae corm/rhizome indet.	grass roots	-	-	3	-
<i>Avena</i> sp. (grains)	oat	1	-	-	-
<i>Bromus</i> sp.	brome grass	-	-	1	-
Parenchyma	soft plant tissue	-	-	1	-

Little Common Farm

Thirty-four samples were taken, processed and assessed, and 14 chosen for subsequent analysis (**Table Charred Plant Remains 8**). Thirteen were from Phase 2, later Iron Age features, the other from ditch 90232 of post-medieval, possibly modern date. However, this differed little from the other samples examined, suggesting the reworking of earlier material. It might be noted that the mollusc assemblage also produced an assemblage less in keeping with the proposed post-medieval or modern date of the deposit (Allen, below, 205–6). Most of the samples came from enclosure ditches and other ditches, a few though came from drip-gullies, while three came from pits.

Results

Most cereal remains recovered were of hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*). Many glume bases were badly degraded and unidentifiable; however, while only spelt glumes (*Triticum spelta*) were identified in several of the samples, glumes of emmer wheat (*Triticum dicoccum*) dominated in a number of others. While grains of barley (*Hordeum* sp.) never outnumbered wheat, over half of the samples contained a few such grains. For most samples glumes outnumbered grains but only in one (ditch 90529) did they outnumber grains by more than ten to one. Several samples contained fragments of grass roots, stems, and culm nodes. No germinated coleoptiles or grains were identified. A single rachis of free-threshing wheat (*Triticum aestivum* sl) was also recovered.

Occasional hazelnut (*Corylus avellana*) fragments were present in several samples. A number also contained thorn fragments and possible stones of hawthorn (*Crataegus monogyna*) and sloe (*Prunus spinosa*), as well as possibly dogwood (*Cornus sanguinea*).

Larger seeded weed species dominated most of the samples: brome grass (*Bromus* sp.), oats (*Avena* sp.), bindweed (*Fallopia convolvulus*), knotgrass (*Polygonum aviculare*), cleavers (*Galium aparine*), and vetches/wild pea (*Vicia/Lathyrus* sp.). Seeds of perennial rye-grass (*Lolium perenne*) and docks (*Rumex* sp.) were also quite common. Of smaller seeds most were of fat-hen (*Chenopodium album*) or orache (*Atriplex* sp.), while several of cat's-tail (*Phleum* sp.) and/or annual meadow grass (*Poa annua*) were also identified.

Discussion

The relatively high presence of emmer providing an impression of equal importance alongside spelt in the Iron Age is of some interest and a number of sites in the area have shown a similar pattern (Stevens 1998; Bower 2000; Murphy 2003; Ballantyne 2004). The range of weed species suggests some cultivation of wetter soils e.g. seeds of sedge (*Carex* sp.), alongside the cultivation of drier and perhaps more calcareous soils, e.g. black medick (*Medicago lupulina*), red bartsia (*Odontites vernus*), self-heal (*Prunella vulgaris*), and ribwort plantain (*Plantago lanceolata*).

Great Common Farm

Four bulk samples were taken, processed and assessed, and three from Phase 3, Romano-British features subsequently analysed (**Table Charred Plant Remains 9**). Two of the samples came from ditches (group 10092), the third from a pit (10034). The sample from ditch 10100 was very rich in hulled wheat glumes and spikelet forks. For this sample glume bases were counted in one-tenth sub-samples of the 500µm and 1 mm sieve fractions respectively. Estimates were then calculated by multiplying this count by 10.

Results

Phase 3, Romano-British (mid-late 2nd-late 4th century)

The sample from ditch 10100 was rich in glume bases, with relatively little grain by comparison, while the other two also contained many more glumes than grain. Most of the glumes were of spelt wheat (*Triticum spelta*), although occasional glumes, spikelet forks, and grains of emmer wheat (*Triticum dicoccum*) were present. Barley (*Hordeum vulgare* s.l.) was less well represented, with only single grains present. Numerous cereal coleoptiles (the germinated root/sprout) were recovered from the two richer samples.

The main weed seeds were of oats (*Avena* sp.), perennial rye-grass (*Lolium perenne*), and docks (*Rumex* sp.). The sharp edges and smooth seed coat on some of the well preserved charred specimens of dock are characteristic of curled-leaved dock (*Rumex crispus*), while two floret bases with horse-shoe scars suggest that most of the oat grains are of wild rather than cultivated species. Seeds of orache (*Atriplex* sp.) were also present from ditch (10100), in reasonably high numbers. Other seeds included some larger sedge seeds, occasional seeds of thistle (*Cirsium/Carduus* sp.), medick (*Medicago* sp.), buttercup (*Ranunculus acris/repens/bulbosus*), clover (*Trifolium* sp.), and brome grass (*Bromus* sp.). Also of significance was a single seed of stinking mayweed (*Anthemis cotula*).

Discussion

While weed seeds outnumbered grains in two of the samples, the glume-rich sample contained large numbers of weed seeds compared to grain. While larger seeds did not always dominate the samples, seeds of both docks (*Rumex* sp.) and perennial rye-grass (*Lolium perenne*) both have appendages that mean they are difficult to separate from the grain. While seeds of orache (*Atriplex* sp.) are generally classified as small, it should be noted that the bracteoles that enclose the seed are often grain-sized (c. 3–4 mm). For this reason it is probable that the samples represent the waste from the cleaning of spikelets, and given the high numbers probably in bulk. The high numbers of coleoptiles indicate that a reasonable proportion of the spelt grain had probably germinated in the spikelets prior to being pounded and the glumes separated. The presence of sedges and buttercup suggest the cultivation of wet, perhaps occasionally flooded, fields. Stinking mayweed might indicate the cultivation or that at least some fields extended onto heavier clay soils, although such seeds may be intrusive from later occupation.

Table Charred Plant Remains 9. Great Common Farm

<i>Phase</i>		3	3	3
<i>Period</i>		<i>Romano-British</i>		
<i>Feature</i>		<i>pit</i>	<i>ditch</i>	
<i>Group</i>		10034	10092	10092
<i>Cut</i>		10034	10108	10100
<i>Context</i>		10035	10109	10099
<i>Sample</i>		11003	11001	11004
<i>Vol. size (l)</i>		10	10	10
<i>Flot size (ml)</i>		20	50	225
Cereals				
<i>Hordeum vulgare</i> sl. (grain)	barley	cf.1	-	1
<i>Triticum</i> sp. (grain)	wheat indet.	2	1	-
<i>Triticum dicoccum</i> (grain)	emmer wheat	1	-	-
<i>Triticum dicoccum</i> (glume base)	emmer wheat	6	6	est.45
<i>Triticum dicoccum</i> (spikelet fork)	emmer wheat	10	2	est.3
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	28	10	-
<i>T. dicoccum/spelta</i> (glume base)	emmer/spelt wheat	1500	170	est.13,500
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	25	-	est. 95
<i>T. dicoccum/spelta</i> (germianted grain)	emmer/spelt wheat	-	-	-
<i>T. dicoccum/spelta</i> (tail grain)	emmer/spelt wheat	-	-	4
<i>Triticum spelta</i> (glume base)	spelt wheat	400	65	est.17,000
<i>Triticum spelta</i> (spikelet fork)	spelt wheat	2	-	est. 160
<i>Triticum aestivum</i> sl. (grain)	free-threshing wheat	-	2	-
<i>Triticum aestivum</i> sl. (rachis frg.)	free-threshing wheat	-	-	-
Cereal indet. (cereal)	unidentified grains	11	-	-
Cereal frgs. (est. whole grains)	cereal grains	5	3	-
Cereal. (coleoptile)	germinated sprout	7	-	91
Cereal (basal rachis)	cereal indet.	-	-	-
Species				
<i>Ranunculus</i> sp. subg <i>Ranunculus</i> arb	buttercup	2	-	1
<i>Corylus avellana</i> (shell fragments)	hazelnuts	1	-	-
<i>Chenopodium</i> sp.	goosefoot	-	-	1
<i>Atriplex</i> sp.	orache	-	1	30
<i>Rumex</i> sp.	dock	-	-	5
<i>Rumex</i> cf. <i>crispus</i>	curled-leaved dock	2	-	51
<i>Raphanus raphanistrum</i> (capsule)	runch	-	-	1
<i>Anagalis arvensis</i>	scarlet pimpernel	-	-	1
<i>Aphanes arvensis</i>	parsley piert	cf.2	-	-
<i>Lathyrus pratensis</i>	grass-pea	-	-	cf.1
<i>Medicago</i> sp.	medick	-	-	1
<i>Trifolium</i> sp.	clover	1	-	1
<i>Anthemis cotula</i>	stinking mayweed	-	-	1
<i>Cirsium/Carduus</i>	thistle	-	-	1
<i>Cirsium/Carduus/Centaurea</i>	thistle/knapweed	-	-	2
<i>Carex</i> sp. (flat)	sedge flat seed	-	-	1
<i>Carex</i> sp. (trig)	sedge triangular	-	-	1

<i>Phase</i>		3	3	3
<i>Period</i>		<i>Romano-British</i>		
<i>Feature</i>		<i>pit</i>	<i>ditch</i>	
<i>Group</i>		10034	10092	10092
<i>Cut</i>		10034	10108	10100
<i>Context</i>		10035	10109	10099
<i>Sample</i>		11003	11001	11004
<i>Vol. size (l)</i>		10	10	10
<i>Flot size (ml)</i>		20	50	225
Poaceae (basal rootlet)	grass root	1	-	-
Poaceae (culm node)	grass culm node	-	-	2
Poaceae (grain indet. >3mm)	large grass seed	-	-	-
<i>Lolium/Festuca</i> sp.	rye grass/fescue	-	1	-
<i>Lolium perenne</i>	perennial rye grass	35	-	56+2spks
<i>Phleum/Poa</i> sp.	cat's tail/meadow grass	-	-	-
<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i>	onion couch grass	-	-	-
<i>Avena</i> sp. (grain)	oat grass	4	-	25
<i>Avena</i> sp. (awn)	oat awn	1	3	8
<i>Avena</i> sp. (floret base)	oat floret base	-	1	-
<i>Avena</i> sp. (wild floret base)	wild oat floret base	-	-	2
<i>Avena/Bromus</i> (grain)	oat/brome grass	2	-	12
<i>Bromus</i> sp.	brome grass	-	3	1
Seed indet.	unidentified seeds	-	-	-

The Grange

Sixty-two bulk samples were taken, processed and assessed, and 12 subsequently analysed (**Table Charred Plant Remains 10**). Eleven came from Phase 3 mid–late 2nd–late 4th century Romano-British features, four from enclosure ditches, four from drip-gullies associated with roundhouse structures, and three from pits. A further unphased, probable Phase 2C–3A, Late Iron Age–early Romano-British sample, came from a possible tree-throw hollow or pit (20095).

Results

In all but one sample (pit 20784) remains of hulled wheats emmer or spelt (*Triticum dicoccum/spelta*) predominated. All the samples with the exception of that from pit 20784 were richer in glumes than grain. This feature contained grains only of barley (*Hordeum vulgare* s.l.), and a few grains of barley were also recovered from the other pits. Spelt wheat (*Triticum spelta*) appears as the dominant cultivated crop, although occasional remains of emmer (*T. dicoccum*) were present in other features, in particular the possible tree-throw (20095). Remains of celtic bean (*Vicia faba* var. *minor*) were recovered from ditch 20638, along with high numbers of garden pea (*Pisum sativum*), seeds of which were also recovered from two of the pits. No coleoptiles or germinated grains were seen.

Weed seeds are dominated by large seeded species, such as black bindweed (*Fallopia convolvulus*), knotgrass (*Polygonum aviculare*), vetches/wild pea (*Vicia/ Lathyrus* sp.), oats (*Avena* sp.), and brome grass (*Bromus* sp.). Other seeds included those which by virtue of appendages may be considered grain-sized, remaining with the spikelets or grain until the final stages of processing. These included docks (*Rumex* sp.), perennial rye-grass (*Lolium perenne*), and possibly also orache (*Atriplex* sp.). Other species of interest were seeds of spikerush (*Eleocharis palustris*), sedge (*Carex* sp.), and bristle club-rush (*Schoenoplectus lacustris*), all wetland species. Ditch 20638 also contained corms of onion couch grass (*Arrhenatherum elatius* ssp. *bulbosum*).

Discussion

All the samples were glume-rich, indicative of waste from the separation of glumes after pounding. That grain and large weed seeds predominated in the samples would suggest waste from the processing of grain stored as semi-clean spikelets. Seeds of wetland species indicate the cultivation of such soils, while ribwort plantain (*Plantago lanceolata*), fool's parsley (*Aethusa cynapium*), and red bartsia/eyebright (*Odontites vernus/Euphrasia* sp.) are more commonly associated with calcareous rather than acidic soils. It also should be noted that this was the only site that produced evidence for cultivated pea, while bean was only present on this site and Lower Cambourne. That the sample contained several tubers of false-oat grass and other grass roots may suggest that the peas (*Pisum sativum*) had been harvested by uprooting.

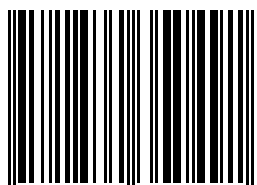
Twelve excavations were carried out by Wessex Archaeology within the Cambourne Development Area. Situated on the clay uplands west of Cambridge, which have seen little previous archaeological investigation, the results presented here are important in demonstrating the ebb and flow of occupation according to population or agricultural pressure.

Short-lived Bronze Age occupation was followed in the Middle Iron Age by small farming communities with an economy based on stock-raising and some arable cultivation. The Late Iron Age seems to have seen a recession, perhaps partly due to increased waterlogging making farming less viable.

From the mid-1st century AD new settlements began to emerge, possibly partly stimulated by the presence of Ermine Street, and within a century the area was relatively densely occupied. Several farmsteads were remodelled in the later Romano-British period, though none seems to have been very prosperous.

Dispersed occupation may have continued into the early 5th century at least, followed by a hiatus until the 12th/13th century when the entire area was taken into arable cultivation, leaving the ubiquitous traces of medieval ridge and furrow agriculture.

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Report 23

