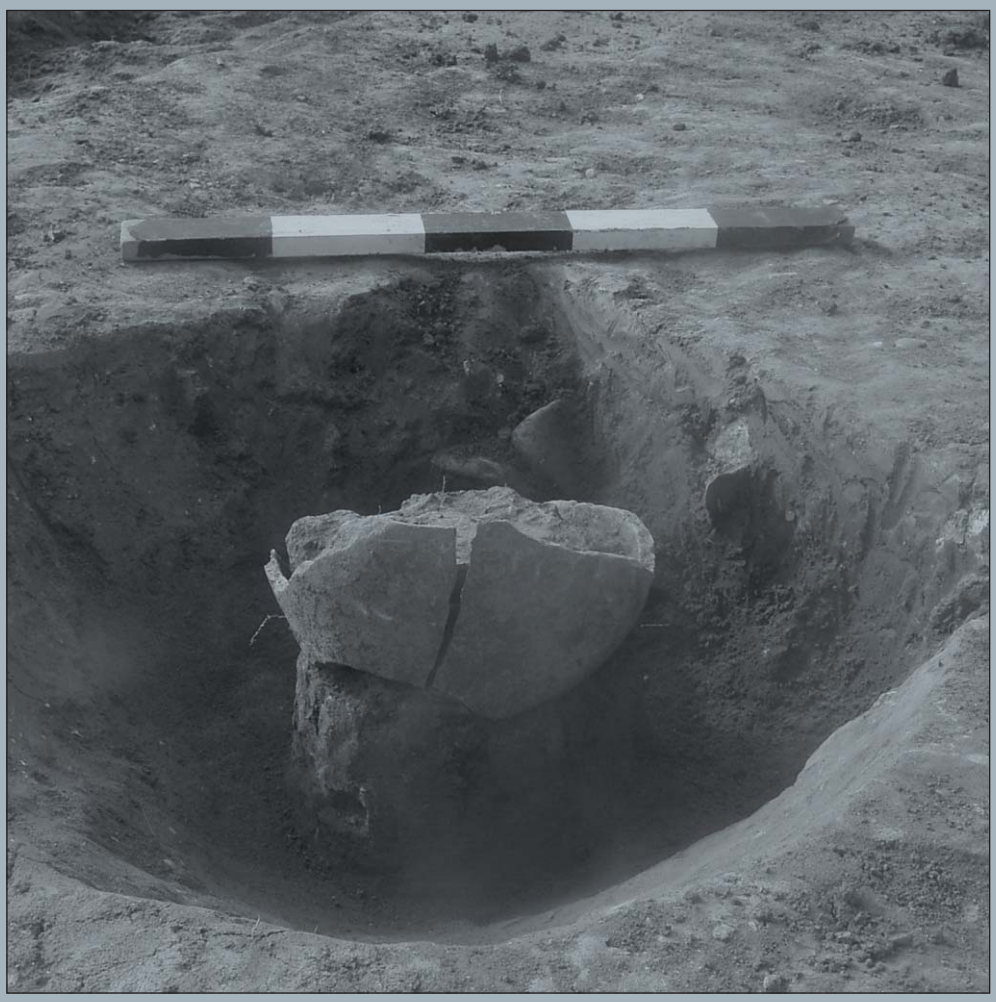
making sense of heritage

Site 28
A453 Widening Scheme
M1 Junction 24 to A52 Nottingham
Nottinghamshire

Charred Plant Remains

By Sarah F. Wyles



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Charred Plant Remains

Sarah F Wyles
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Introduction

A total of 41 samples were taken from features mainly of Romano-British date during the excavation and were processed for the recovery of charred plant remains. A selection of nine of these samples for full analysis was made on the basis of the assessment. One of these selected samples was from Phase 1 Boundary ditch 1267, seven were from Phase 2 pits and one from undated ditch 1337.

Methods

The samples were processed using standard flotation methods with the flot collected on a 0.5mm mesh. For the nine samples selected for analysis samples all identifiable charred plant macrofossils were extracted from the flots, together with the 2mm and 1mm residues. Identification was undertaken using stereo incident light microscope at magnifications of up to x40 using a Leica MS5 microscope, following the nomenclature of Stace (1997) for wild species and the traditional nomenclature as provided by Zohary and Hopf (2000, Tables 3, page 28 and 5, page 65), for cereals. The results are presented in Table 1.

Results

Phase 1

The sample from ditch 1227 group 1267 was dominated by cereal remains, in particular glume bases of hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*). These were mainly those of spelt wheat (*Triticum spelta*) but a few glume bases of emmer wheat (*Triticum dicoccum*) were also identified. Spelt wheat glume fragments from ditch 1267 were dated to cal. AD 86-239 (1844±27 BP, SUERC-50611). The presence of barley (Hordeum vulgare) was represented by a barley rachis fragment.

The small weed seed assemblage included seeds of vetch/wild pea (Vicia/Lathyrus sp.), grass vetchling (*Lathyrus* cf. *nissolia*), blinks (*Montia fontana* subsp. *chondrosperma*), knotgrass (*Polygonum aviculare*), bedstraw (*Galium* sp.), brome grass (*Bromus* sp.) and heath grass (*Danthonia decumbens*).

Phase 2

Cereal remains were the predominant component of all the analysed assemblages from Phase 2 features, in particular in samples from pit 1082, part of structure group 1393, from pit 1355, part of structure group 1394, and pit 1325 part of structure group 1393. In all cases the chaff elements significantly outnumbered the grain fragments. The most numerous identifiable grains were those of hulled wheat grains although barley grains were present in all of the assemblages. The predominant chaff element was glumes of hulled wheat, with the majority of the identifiable glumes being those of spelt wheat. Nevertheless there were relatively low numbers of emmer wheat glume bases recorded in all of the assemblages. Spelt wheat glume fragments from pit 1355, part of structure group 1394, were dated to cal. AD 242-385 (1732±29 BP, SUERC-50610). Other chaff elements present included barley rachis and oat (*Avena* sp.) awn fragments.

A fragment of celtic bean/pea (*Vicia faba/Pisum* sp.) was noted from pit 1082, part of structure group 1393. There were also a few fragments of hazelnut (*Corylus avellana*) shell recovered from pit 1080, part of structure group 1393, and from pit 1325 part of structure group 1393. The small numbers of triangular capsule fragments recorded in the assemblages from pit 1082, part of structure group 1393, pits 1343 and 1355, part of structure group 1394, and pit 1325, part of structure group 1393, maybe from flax (*Linum usitatissimum*) capsules.

The weed seed assemblages were generally dominated by seeds of oats and brome grass, vetch/wild pea and docks (*Rumex* sp.). There were also smaller numbers of seeds of stinking mayweed (*Anthemis cotula*) and medick/clover (*Medicago/Trifolium* sp.). Seeds or capsules of buttercup (*Ranunculus* sp.), goosefoot (*Chenopodium* sp.), fathen (*Chenopodium album*), orache (*Atriplex* sp.), blinks, corncockle (*Agrostemma githago*), redshank/pale persicaria (*Persicaria lapathifolia/maculosa*), knotgrass, black bindweed (*Fallopia convolvulus*), sheep's sorrel (*Rumex acetosella*), brassica (*Brassica* sp.), runch (*Raphanus raphanistrum*), common hemp-nettle (*Galeopsis* cf. *tetrahit*), ribwort plantain (*Plantago lanceolata*), field madder (*Sherardia arvensis*), bedstraw, oxeye daisy (*Leucanthemum vulgare*), scentless mayweed (*Tripleurospermum inodorum*), sedge (*Carex* sp.), rye-grass/fescue (*Lolium/Festuca* sp.), meadow grass/cat's-tails (*Poa/Phleum* sp.) and heath grass were occasionally present in the assemblages.

Grass stem or rootlet fragments were noted in the assemblages, those of general monocots and in five cases including those of probable heather type (cf. Ericaceae). There were also a few heather (*Erica* sp.) capsules in two of the assemblages and tuber fragments in a number of them.

Undated
The assemblage from undated ditch 1337 was again dominated by cereal remains, in particular hulled wheat remains. Like the assemblages from the Phase 2 features, spelt wheat glume bases was the predominant of the identifiable chaff element although those of emmer wheat were also present. Barley was relatively more numerous than in the other assemblages. There was also a triangular capsule fragment within the assemblage.

The weed seed assemblage was dominated by seeds of oats and brome grass with seeds of goosefoot, orache, docks, vetch/pea, medick/clover, henbane (*Hyoscyamus niger*), narrow-fruited cornsalad (*Valerianella dentata*), stinking mayweed and scentless mayweed. There were also a few grass stem or rootlet fragments.

Discussion
Spelt wheat is the predominant cereal within these samples although barley and emmer wheat were also present. Typically spelt wheat is the dominant wheat over much of England during the Romano-British period (Greig 1991). Emmer wheat was recorded, together with spelt, in a number of other assemblages from Romano-British deposits from sites in the vicinity such as the Margidunum Hinterland (Sevens 2014) and Dunston's Clump (Jones 1987: Monckton 2006).

In all of the assemblages glumes outnumbered grains, indicative of the charring of waste derived from the dehusking of hulled grain (Hillman 1981; 1984). The Phase 1

and Phase 2 assemblages appear to be indicative of crop-processing waste from when the crops had been harvested, threshed and winnowed, and coarse and fine sieved in preparation for drying prior to storage as semi-clean grain or spikelets. The presence of rachis fragments of barley is more typical of threshing and winnowing waste than waste from stored spikelets. A number of the smaller seeded weed species, such as stinking mayweed, scentless mayweed and oxeye daisy, would also have been removed by coarse sieving, as they often remain as seed heads (cf. Hillman 1981, 1984: Jones 1984).

There is no evidence for signs of germination on the any of the grains nor were any coleoptiles or acrospires recovered in the assemblages, which might have suggested malting processes taking place in this area of the site. It maybe that the stone structure within pit 1325, part of structure group 1393 was used for drying the grain before storage. The fuelling of such features by the processing of sheaves on site rather than in the fields was suggested from some assemblages seen at the Margidunum Hinterland (Stevens 2014). It is possible that these early stages of crop processing were taking place on this area of the site during the Late Romano-British period.

The assemblage from the undated ditch is also dominated by hulled wheat glumes, in particular those of spelt. The larger seeded weed species are predominant in the relatively small weed seed assemblage and this assemblage is likely to be more indicative of those recovered from crops stored as semi-cleaned grain or in spikelet form.

The weed seeds are generally those recovered from grassland, field margins and arable environments. However the presence of roots and stems of grasses and heather, and tubers could be the result of collecting and burning turfs. It is notable that very little wood charcoal was recovered from these deposits. The burning of turfs may also account for the presence of some small heath species such as heath grass in some of the samples. Some charred assemblages from other sites in the locality, such as Margidunum Hinterland (Stevens 2014), were heavily dominated by such stem and rootlet material. The high numbers of cereal remains and small quantities of stem and rootlet material in the assemblages from this site would appear to indicate that the weed seed assemblages were generally associated with the crops rather than with turfs.

There is an indication from the Phase 2 weed seed assemblages of the exploitation of the heavier clay soils, as shown by the presence of stinking mayweed, and wetter environments, as favoured by blinks as well as the drier lighter soils. The use of heavier clay soils for cultivation was also seen at Margidunum Hinterland during this period (Stevens 2014). This is a change from the Phase 1 assemblage where there is no indication that these heavier clay soils were under cultivation.

The weed seed assemblage from the undated ditch has similarities to those from the Phase 2 period, with indications of the use of heavier clay soils as well as the drier lighter soils for growing crops. There is also the indication, as shown by the presence of henbane of the possible use of some sandier soils as well.

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Table 1 Charred Plant Remains of Site 28

Phase		Phase 1	Phase 2							Undated
Group		Boundary ditch	Structure		Structure			Pit containing stone structure		
Group Number		1267	1393		1394			1393		
Feature type		Ditch	Pits		Pits		Pit	Pit	Pit	Ditch
Cut		1227	1080	1082	1343	1355	1136	1325	1325	1337
Context		1228	1079	1081	1352	1354	1137	1326	1326	1336
Sample		14	29	30	40	41	32	8	31	36
Vol (L)		15	10	20	20	20	10	15	20	20
Flot size		40	80	80	90	100	70	175	180	25
Cereals	**Common Name**									
Hordeum vulgare L. *sl* (grain)	barley	-	4	6	6	4	2	27	10	14
Hordeum vulgare L. *sl* (rachis frag)	barley	1	-	4	1	4	3	15	8	5
T. cf. dicoccum (Schübl) (glume base)	emmer wheat	2	2	3	2	5	2	3	2	3
Triticum spelta L. (glume bases)	spelt wheat	15	20	70	50	66	27	110	45	63
Triticum spelta L. (spikelet fork)	spelt wheat	-	1	-	-	2	-	3	1	-
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	1	35	34	29	30	20	60	30	32
T. dicoccum/spelta (spikelet fork)	emmer/spelt wheat	2	2	25	24	57	17	46	27	10
T. dicoccum/spelta (glume bases)	emmer/spelt wheat	58	31	1220	395	946	141	1598	796	270
Cereal indet. (grains)	cereal	7	60	70	40	70	30	64	45	80
Cereal frag. (est. whole grains)	cereal	3	40	67	32	38	40	35	20	35
Other Species										
Ranunculus sp.	buttercup	-	-	-	1	-	-	-	-	-
Corylus avellana L. (fragments)	hazel	-	1 (<1 ml)	-	-	-	-	-	1 (<1 ml)	-
Chenopodiaceae	goosefoot family	-	-	-	-	-	-	-	1	-
Chenopodium sp.	goosefoot	-	8	-	6	1	-	2	-	6
Chenopodium album L.	fathen	-	5	-	-	-	-	-	-	
Atriplex sp. L.	oraches	-	2	-	20	-	-	2	-	1

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Montia fontana subsp. *chondrosperma (*Fenzl) Walters	blinks	2	-	-	1	1	-	-	-	-
Agrostemma githago L.	corncockle	-	-	1	-	-	-	-	-	-
Persicaria lapathifolia/maculosa (L.) Gray/Gray	redshank/pale persicaria	-	1	-	-	-	-	-	-	-
Polygonum aviculare L.	knotgrass	1	-	-	-	1	1	3	1	-
Fallopia convolvulus (L.) À. Löve	black bindweed	-	1	1	-	1	-	-	-	-
Rumex sp. L.	docks	-	7	4	7	9	4	4	8	5
Rumex acetosella group Raf.	sheep's sorrel	-	-	3	-	-	-	-	-	-
Brassica sp. L.	brassica	-	-	-	-	1	1	1	1	-
Raphanus raphanistrum L.	runch	-	-	1	2	2	-	1	1	-
Erica sp. capsule	heather	-	-	-	1	-	cf . 1	-	-	-
Cf. Erica (stem/roots)		-	6	-	7	4	-	6	4	-
Prunus spinosa/ Crataegus monogyna (thorns/twigs)	hawthorn/sloe thorns	-	1	-	-	-	-	1	-	-
Vicia L./*Lathyrus* sp. L.	vetch/pea	4	7	5	12	12	4	11	9	6
Vicia faba/Pisum	celtic bean/ pea	-	-	1	-	-	-	-	-	-
Lathyrus cf. nissolia L.	grass vetchling	1	-	-	-	-	-	-	-	-
Medicago/Trifolium sp. L.	clover/medick	-	3	2	4	6	1	3	4	5
Hyoscyamus niger L.	henbane	-	-	-	-	-	-	-	-	1
Galeopsis cf. *tetrahit*	common hemp-nettle	-	-	-	-	-	-	-	1	-
Plantago lanceolata L.	ribwort plantain	-	-	-	1	2	-	-	-	-
Sherardia arvensis L.	field madder	-	-	-	1	-	-	1	-	-
Galium sp. L.	bedstraw	1	-	1	-	-	-	1	-	-
Valerianella dentata (L.) Pollich	narrow-fruited cornsalad	-	-	-	-	-	-	-	-	1
Anthemis cotula L. (seeds)	stinking mayweed	-	2	8	4	2	4	2	3	2

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Context		1228	1079	1081	1352	1354	1137	1326	1326	1336
Sample		14	29	30	40	41	32	8	31	36
Anthemis cotula L. (seed head)	stinking mayweed	-	-	1	-	-	-	-	-	-
Leucanthemum vulgare Lam.	oxeye daisy	-	cf. 1	-	2	3	-	1	-	-
Tripleurospermum inodorum (L.) Sch. Bip.	scentless mayweed	-	-	2	-	1	-	-	1	2
Carex sp. L. trigonous	sedge trigonous seed	-	1	-	-	-	-	-	-	-
Lolium/Festuca sp.	rye grass/fescue	-	-	-	1	-	1	3	-	-
Poa/Phleum sp. L.	meadow grass/cats'-tails	-	-	-	3	2	-	1	2	-
Avena sp. L. (grain)	oat grain	-	-	8	3	4	5	10	6	18
Avena sp. L. (awn)	oat awn	-	-	85	6	10	2	21	45	2
Avena L./*Bromus* L. sp.	oat/brome	-	2	18	11	13	12	10	7	21
Bromus sp. L.	brome grass	1	-	4	2	4	3	4	1	8
Danthonia decumbens (L.) DC.	heath grass	3	-	-	1	-	-	-	-	-
Monocot. Stem/rootlet frag		4	2	17	2	2	25	6	4	2
Parenchyma/Tuber		2	-	2	-	2	2	2	4	-
Triangular capsule frag		-	-	1	2	1	-	1	-	1
Tuber		-	-	-	-	1	-	1	-	-

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