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Paxcroft Wiltshire: The charred plant remains from excavations in 2014

Stacey Adams

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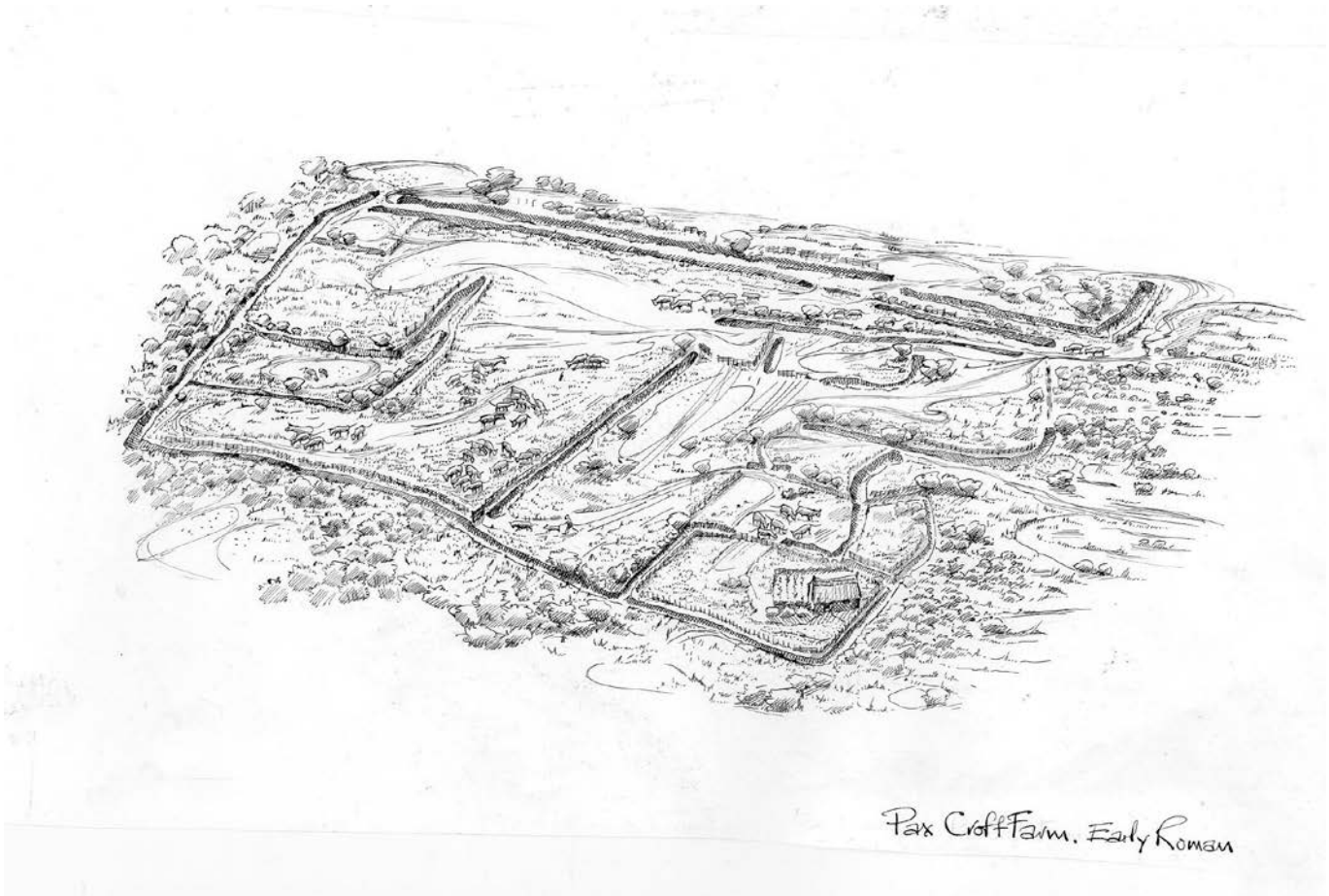

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PAXCROFT, HILPERTON, WILTSHIRE

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SUMMARY
This report details investigations on the charred charred archaeobotanical material from excavations at the 1st and 2nd century AD Romano-British enclosure at Paxcroft, Wiltshire. A total of 30 environmental samples were taken from features during excavations in 2014, five of which were analysed. Results indicate domestic-scale crop processing of glume wheat, including spelt (*Triticum spelta* L.), carried out on a day-to-day basis as and when needed. The assemblage was largely dominated by arable weeds and likely represents crop processing waste. The site was short-lived and the lack of permanent structures indicates that it was perhaps intended to be so.

CONTRIBUTORS
Stacey Adams

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ARCHIVE LOCATION
The archaeobotanical samples and digital archive are held at Fort Cumberland, Portsmouth

DATE OF ANALYSIS
2016

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INTRODUCTION

Iron Age and Romano-British features at Paxcroft were excavated in 2014 as part of the National Archaeological Investigation Survey (NAIS) Lowland Pilot (RaSMIS 6303; Roberts 2015a). The aim of the survey was to enhance the archaeological record in the West Wiltshire area by identifying and recording heritage assets in order to inform on future protection and management (Last 2013). Excavation followed a National Mapping Programme (NMP) assessment accompanied by extensive geophysical surveys (Linford *et al* 2015), and was conducted in order to enhance the limited knowledge of Iron Age and Romano-British enclosures within the study area. The investigation also aimed to address the validity of site interpretations based on aerial photography, particularly in distinguishing archaeological and geological features. Five trenches were excavated over two distinct activity areas: Paxcroft South and Paxcroft North. Two trenches were located within the southern area of the study site, focused on the enclosure boundaries and internal crop mark features, predicted to be prehistoric in origin. The other three trenches were located to investigate the relationship between a suspected Romano-British enclosure and associated field systems in a field in the northern part of the study site. One of the Paxcroft North trenches revealed features of geological origin only. Finds and pottery from the Romano-British features indicate a 1st and early 2nd century AD date. A comprehensive sampling programme was employed to recover archaeobotanical material and other biological remains in order to help characterise the nature of the occupation and use of the site. Data from plant remains is limited from the West Wiltshire area in the Iron Age and Romano-British period, and the collection of archaeobotanical material is a research priority for the area. Excavation results are presented in Roberts (2015a).

SAMPLING

The sampling strategy at Paxcroft followed the 2011 English Heritage guidelines for Environmental Archaeology (Campbell *et al* 2011) (and was aimed at meeting the two principal aims of the project: to date the features and to determine the character of the sites. The objectives for the recovery of plant remains were:

- To understand the arable economy throughout the occupation of the sites
- To examine the disposal of plant remains
- To contribute to the understanding of the relationship between the Romano-British enclosure and its associated field systems

A total of 30 flotation samples was taken. Samples were 40 litres in volume, unless contexts were smaller in which case they were sampled in their entirety. Twelve flotation samples were collected from the southern site (Trenches 1 and 2), the other 18 samples derived from the northern Trenches, 4 and 5. No samples were collected from the natural geological sequence encountered within Trench 3. Two additional samples were coarse-sieved in order to optimise artefact and animal bone recovery: <55607> from Paxcroft South and <55708> from Trench 4, Paxcroft

North. Four specialist samples were recovered for the study of non-marine molluscs, all of which derived from Trench 1 in the southern area of the site.

The flotation samples were processed on site by mechanical flotation with a 0.25mm mesh for the collection of flots and a 0.5mm mesh for the residue. Dried residues were sieved through a stack of 2mm and 4mm sieves. The >4mm fraction was sorted in its entirety and 25% of the 2-4mm was sorted for environmental remains (charcoal, hazelnut shell fragments, bones, molluscs) and finds.

LABORATORY METHODS

The dried flots were initially assessed by Pelling (2015) to determine their potential for informing on the diet and economy of the site. The Iron Age samples from Trenches 1 and 2 all contained fewer than 25 plant items each, and were not deemed adequate to inform on the nature of the site. Five samples of Romano-British origin were selected for analysis from Trenches 4 and 5, all of which contained >25 charred plant remains (Table 1). Three samples were from Trench 4: one sample from pit fill (95020) and two from ditch fills (95025) and (95038). Two samples from Trench 5 derived from ditch fills (95007) and (95011). The samples were sorted and identified using a stereoscopic microscope at magnifications up to x50. All charred plant remains were retrieved during sorting, and identification was based on gross morphology and surface cell structure. The modern reference collection held at Fort Cumberland and relevant identification manuals(Anderberg 1994; Cappers *et al* 2006; Jacomet 2006) were consulted where appropriate. Nomenclature follows Stace (1997) for wild species and Zohary and Hopf (2000; tables 3 and 5) for cereals. No sub-sampling was necessary as part of the analysis and the samples were sorted in full. Grain was quantified on the basis of whole grains or minimum number of grains based on the presence of embryo ends. Chaff part is given (glume bases, rachis segment, culm node or awn fragment). All other items were recorded as minimum number of seeds, nutlets or fruits, where fragmented seeds or half seeds (particularly in the case of the Fabaceae) were estimated to the nearest whole number. For the ratios in Figure 1 chaff items include glume bases (where one spikelet fork equals two glume bases) only (awns and culm nodes were excluded) and the weed category consists of identified weed seeds only.

RESULTS

The plant remains recovered from the Paxcroft excavations were preserved through charring and consisted of cereal grain and chaff, and weed seeds. Quantifiable remains were not present in significant numbers, with only one sample, from ditch fill 95011 (Trench 5) producing more than 100 items. No collected wild plants or imported food plants were recognised within the samples. The legumes recovered do not appear to have been of cultivated varieties.

The overall preservation of the cereal remains was poor; 72% of the grain was indeterminate. The poor preservation was largely uniform throughout the samples and may be attributed to prolonged or repeated charring process and/ or post-depositional mechanical processes, such as weathering and trampling.

There was no discernible difference between the Phase 1 (1st century AD) and Phase 2 (2nd century AD) samples.

Cereals

Identifiable grain was predominately of wheat (*Triticum* sp.), with several grains belonging to a hulled variety (*Triticum dicoccum/ spelta*). Chaff predominantly consisted of spelt wheat (*Triticum spelta*) glume bases suggesting that the grain was also of this species. A single spelt wheat type grain was positively identified from ditch fill (95011). The presence of emmer wheat (*Triticum dicoccum*) within the grain assemblage cannot be ruled out due to the morphological similarities between the grains of spelt and emmer, although no positive identifications were made. A small number of rounded wheat grains within two of the samples raise the possibility of free-threshing wheat. Charring experiments by Braadbaart (2008) have demonstrated the degree to which hulled wheat can distort to take on the appearance of bread wheat (*Triticum aestivum*) during the charring process. The presence of such grains within a Romano-British assemblage should therefore be treated with caution, particularly as bread wheat does not appear to have been widely cultivated until the Saxon period (see Van der Veen *et al* 2013). Other chaff within the assemblage consisted of indeterminate cereal culm nodes and straw fragments from ditch fill (95038).

Single barley grains were identified from ditch fills (95007) and (95011) and pit fill (95020). No barley rachis was recovered from the flots preventing the grain from being attributed to the two- or six-row variety. No other cultivated species were identified.

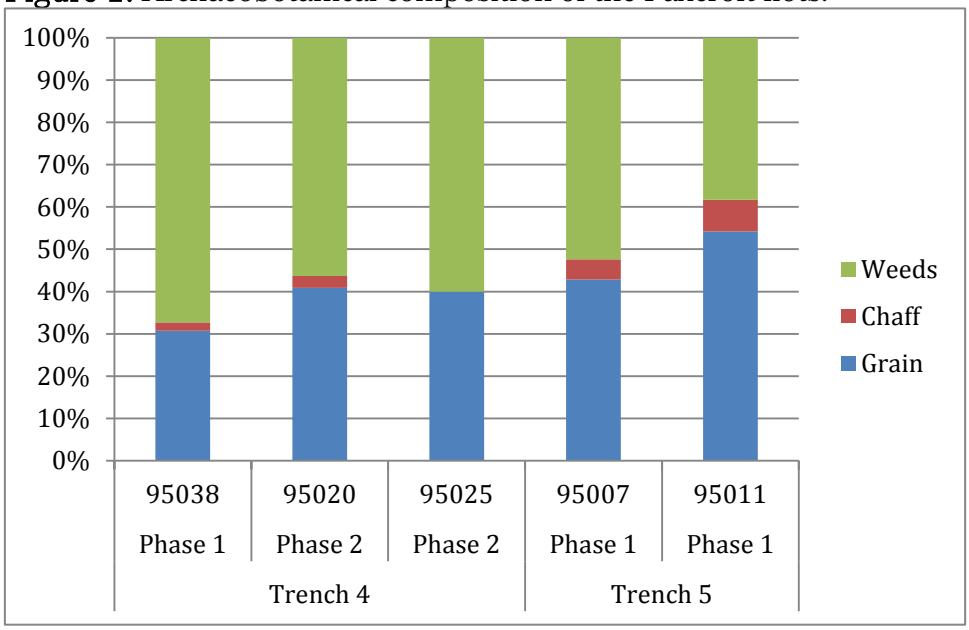
Wild Species

The wild species identified at Paxcroft are predominantly of taxa which occur both as arable weeds of cultivated fields, and on disturbed ground in ruderal habitats or within settlements and consequently interpretation of arable conditions is tenuous. Henbane (*Hyoscyamus niger*), a single seed of which was identified from ditch fill (95011), is both poisonous and narcotic (Clapham *et al* 1987; 367) and potentially problematic if it is consumed, although as a common weed of settlement sites it may well have not been associated with the cereal crop. The presence of fat hen (*Chenopodium album*) and field pennycress (*Thlaspi arvense*) could indicate that the cereal crop was spring-sown (Häfliger and Brun-Hool 1968-1975; Salisbury 1961; 193-4; van der Veen 1992; 215), although again may be settlement weeds, while the recovery of sheep's sorrel (*Rumex acetosella*) is suggestive of somewhat acidic soils.

Composition of the Samples

The flots from Trenches 4 and 5 are similar in composition, although the abundance of plant items within them differs. The relative percentage of cereal grain, chaff items and weed seeds are given in Figure 1 (chaff excludes awns and culm nodes, weed seeds excludes indeterminate items). The samples tended to contain more weed seeds than cereal grain, the only exception being ditch fill (95011) where grain outnumbered the weeds. Chaff was poorly represented in all samples.

Figure 1: Archaeobotanical composition of the Paxcroft flots.



Wheat dominated the flots, accompanied by sporadic inclusions of barley and occasional oat (*Avena* sp.). Chaff remains, predominantly spelt wheat glume bases, were infrequent within the deposits and completely absent from the ditch fill (95025). The presence of large numbers of weeds in proportion to grain is suggestive of cereal processing waste, whilst the absence of chaff is likely related to poor preservation during burning. The composition of the Paxcroft samples is therefore interpreted as indicative of the disposal of small-scale processing waste, conducted on a day-to-day basis as and when needed.

The pits and ditches investigated in Trench 4 contained other archaeological material such as animal bone, pottery and fired clay and daub. The ditch fill of (95038) also contained a metal artefact. This differs dramatically from Trench 5 which contained no other finds. The varying composition of the fills of the features from these two areas of the enclosure may represent different refuse disposal strategies for material across the site.

Paxcroft and Other Romano-British Enclosures

The purpose and function of the Romano-British enclosure at Paxcroft is largely uncertain. The site contains no distinctive household structures, suggesting that the

enclosure may not have functioned as a settlement and could, for example, have been related to stock control or other non-domestic activity. Meadows (2002, 103), however, states that early Romano-British households in the south can often be regarded as 'households without houses', represented archaeologically by pits, gullies, enclosure ditches and occasionally post-holes and house-slots. Such a description is applicable to Paxcroft as a settlement. The low frequency of plant remains is consistent with domestic-scale agriculture, probably a part of a mixed-farming system, rather than a specialist arable production centre, or it could be the result of cereal products and by-products not entering fires, for example if they were being used for animal feed. The domestic nature of the pottery and metalwork, along with the small assemblage of sheep/ goat bones, attest to a small scale, domestic character.

A similar lack of discernible domestic structures was recorded at the contemporary enclosure site at Kellaways Farm, also excavated as part of the NAIS project (Roberts 2015b). Cereal remains from Kellaways were, conversely, abundant in comparison to Paxcroft and included high frequencies of chaff (Adams 2017). A number of germinated grains and coleoptiles (sprouting embryos) were present in the Kellaways samples suggesting the presence of fairly intensive malting activities, with cereal chaff utilised as fuel. Although similar site types, it would appear that the internal activities practiced at Paxcroft and the Kellaways Romano-British enclosure were very different.

The Romano-British enclosure at Figheldean, Wiltshire (Hinton 1999), also similar in character to Paxcroft, was more comparable in terms of a limited archaeobotanical assemblage, with few cereal remains and no evidence of sprouted grain. Both sites originated as small-scale agricultural enclosures in the Iron Age, and may therefore reflect a continued occupation and activity. The absence of notable cereal remains may reflect a more pastoral farming tradition, or a small scale mixed farming system in which much of the crop processing by-products were used as animal feed and did not therefore enter fires and were consequently not charred. In contrast, Kellaways (Adams 2017), which had no earlier origin, may have been constructed as a specialist enclosure developed specifically for crop processing or malting.

CONCLUSION

Excavation of the 1st and 2nd century AD Romano-British enclosure at Paxcroft resulted in a modest cereal assemblage within which spelt wheat, barley and oats were identified. A small assemblage of seeds of wild plant taxa is likely to include both arable and settlement weeds. The limited archaeobotanical evidence is consistent with the absence of domestic structures recorded within the enclosure (Roberts 2015a), and suggests that arable activity was practiced on a small scale only, and that the enclosure may have been more associated with stock rearing.

The Paxcroft enclosure can be compared within similar 1st and 2nd century Romano-British enclosures elsewhere in west Wiltshire and their interpretation as 'households without houses' (Meadows 2002; 193). The enclosures at Paxcroft and Figheldean, both of which have Iron Age origins and have produced only limited evidence for cereal processing and production, differ from the seemingly more specialist enclosure at Kellaways. This latter site was established in the 1st or 2nd century AD, possibly as a specialist cereal processing centre. The occupants of the more domestic enclosure of Paxcroft may have simply continued their small-scale agricultural regime of the Iron Age. Whilst the enclosures founded in the Romano-British period, while constructed in on a similar scale and layout, may have supported a more specialist, industrial scale of production, perhaps fuelled by higher population or the more developed market economy of the *Pax Romana*.

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			Trench 4		Trench 5	
	Phase	**Phase 1**	**Phase 2**	**Phase 2**	**Phase 1**	**Phase 1**
	Context Number	**95038**	**95020**	**95025**	**95007**	**95011**
	Feature	**Ditch fill**	**Pit fill**	**Ditch fill**	**Ditch fill**	**Ditch fill**
	Sample Number	**55715**	**5011 (subsample of <55702>)**	**55705**	**55714**	**55711**
	Sample Vol (l)	**40**	**40**	**30**	**38**	**37**
Cereal Grain						
Triticum spelta L.	Spelt wheat grain	-	-	-	-	1
Triticum dicoccum/ spelta	Emmer/ spelt wheat grain	2	1	-	1	3
Triticum sp.	Wheat grain	3	4	-	1	10
Triticum sp.	Wheat, rounded grain	-	1	-	-	2
cf. *Triticum* sp.	cf. Wheat grain	-	-	-	-	1
Hordeum vulgare L.	Barley grain	-	1	-	1	1
Avena sp.	Oat grain	1	-	-	-	1
cf. *Avena* sp.	cf. Oat grain	1	-	-	-	-
CEREALIA indet.	Indeterminate grain	9	22	10	6	39
	Total Grain	**16**	**29**	**10**	**9**	**58**
Cereal chaff						
Triticum spelta L.	Spelt wheat, glume base	-	1	-	1	6
Triticum dicoccum/ spelta	Emmer/ spelt, glume base	1	1	-	-	2
Avena type	Oat-type awn fragment	1	3	-	-	-
Cereal size	Culm node	2	-	-	-	-
Cereal size	Culm (straw) fragments	2	-	-	-	-
	Total quantifiable Chaff (glume bases only)	**2**	**0**	**1**	**1**	**8**
Wild/ Weed Seeds						
Chenopodium album L.	Fat hen	5	7	-	-	2
cf. *C. album*	cf. Fat hen	-	1	-	-	-
Atriplex prostrata-type	Spear-leaved orache-type	-	1	-	-	-
Atriplex sp.	Oraches	2	1	2	4	6
CARYOPHYLLACEAE indet	Pink family	-	1	-	-	-

			Trench 4		Trench 5	
	Phase	**Phase 1**	**Phase 2**	**Phase 2**	**Phase 1**	**Phase 1**
	Context Number	**95038**	**95020**	**95025**	**95007**	**95011**
Stellaria media-type	Common chickweed-type	1	1	-	1	1
POLYGONACEAE indet	Knotweed family	-	1	-	-	1
Polygonum aviculare-type	Common knotgrass-type	1	-	-	-	-
Fallopia convolvulus (L.) Á Löve	Black bindweed	3	-	-	-	-
Rumex acetosella L.	Sheep's sorrel	-	-	-	1	1
Rumex sp.	Docks	2	1	-	-	3
Thlaspi arvense L.	Field penny-cress	-	-	1	-	-
FABACEAE indet	Pea family (large seeded)	-	1	-	-	-
FABACEAE indet	Pea family (small seeded)	-	-	-	-	1
Trifolium-type	Clover-type	3	1	2	1	-
Vicia/ Lathyrus sp	Vetches/Tares (small-seeded)	-	-	2	-	1
APIACEAE	Carrot family	-	-	-	1	-
Hyoscyamus niger L.	Henbane	-	-	-	-	1
SCROPHULARIACEAE indet	Figwort family	-	-	-	-	-
Euphrasia/ Odontites sp.	Eyebrights/ Bartsia	2	-	2	1	1
Galium sp.	Bedstraw	1	-	1	1	-
POACEAE indet	Grass family, large seeded	1	6	-	-	11
POACEAE indet	Grass family, small seeded	11	17	5	-	12
Lolium/ Festuca-type	Tufted grass/ Fescues	3	1	-	-	-
Indet.	Indeterminate wild	-	6	1	-	1
	Total Weeds	**35**	**40**	**15**	**11**	**41**
Charcoal (>4mm/ 2mm)		+/-	-	-	+/-	+/-
Molluscs (non-marine)		+	-	-	+	+
Ceciloides sp. (burrowing molluscs)		+	-	-	-	-

Table 1: Plant remains from Romano-British contexts at Paxcroft (+ = present).