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**Technical Report: Plant remains from a Roman well fill at
Hayton, East Riding of Yorkshire (sitecode: KINCM 1995.2010)**

by

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Summary

A single sample from a fill in a Roman well at a site near Hayton was examined for plant remains. It yielded a fairly diverse flora, mainly represented by well preserved 'waterlogged' fossils. These pointed to an area in which there was probably some neglect of formerly disturbed conditions and to the disposal of material which probably included litter from livestock housing. Within the latter, or as a separate component, may have been turves from peatland, likely to have been brought some distance.

Keywords: HAYTON; EAST RIDING OF YORKSHIRE; ROMAN; PLANT MACROFOSSILS; WELL

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Introduction

Plant remains were examined from a single 5 kg subsample from a sample from Context 1177, the fill of a Roman timber-lined well excavated at a site near Hayton (this was material processed initially for insects and described palaeoentomologically—by Kenward (2008)—to whose report reference can be made regarding subsample processing).

Results and discussion

The residue had a volume of about 1100 cm³, of which about 300 was chalk and flint gravel with a little building material in the >4 mm fraction, and 350 cm³ fine mineral material in the <4 mm. The remaining 450 cm³ comprised organic debris including wood fragments (amongst which were bark and twigs and some wood chips to 15mm, including some which were identified as ash, *Fraxinus*). Preservation of plant material by anoxic waterlogging was good, some moss shoots still retaining a green coloration (as often noted in deposits of this kind). The wood chips were noted as being rather better preserved than the other wood fragments and the latter were sometimes ‘holed’ (by woodworm?, cf. Kenward 2008) and often exhibited a little vivianite (blue iron phosphate mineral concretion). This suggests the non-chip wood fragments had undergone a degree of decay before being deposited in the well whilst the chips came from a separate source and were relatively ‘fresh’ when discarded. Together with ‘waterlogged’ material, there was a small component of plant material preserved by charring: these included some extremely well preserved hulled barley grains and a fragment of free-threshing wheat rachis, but the cereals were otherwise rather eroded. Amongst the waterlogged remains were a few well preserved fragments of wheat chaff: free-threshing wheat rachis and ?spelt wheat glume.

As the list in Table 1 shows, quite a wide range of taxa were represented by fruits and seeds, the more frequently occurring largely being weeds of disturbed soils, with a conspicuous component of taxa indicative of neglected land rather than frequently disturbed ground—the kinds of communities which develop where occupation pressure is reduced or in those parts of an occupation site away from the heaviest traffic (e.g. edges of paths, neglected corners of farmyards). The most obvious taxa in this category were stinging nettle (*Urtica dioica*), docks (*Rumex* sp(p).), cow parsley (*Anthriscus sylvestris*), hemlock (*Conium maculatum*), and burdock (*Arctium* sp(p).). Two further taxa are typical of this ‘edge’ community and often found together with cow parsley in roadside vegetation: rough chervil *Chaerophyllum temulentum* and upright hedge-parsley (*Torilis japonica*), a group noted quite often from assemblages of plant remains of late Iron Age to Romano-British date and perhaps reflecting the development of a particular kind of land management (involving hedges, perhaps represented by the twigs and by the thorns of hawthorn and blackthorn, *Crataegus* and *Prunus spinosa*?) that was not prevalent at earlier times. Some ‘cornfield weed’ taxa may have arrived with crops, particularly in cereal straw.

How the remains arrived in these fills is obviously of some interpretative significance. There is a tendency to assume that these fruits and seeds blew into the opening from nearby vegetation, or arrived there through disposal of soil or cleared vegetation into the well. Perhaps both mechanisms operated. Certainly the presence of unusual numbers of very well preserved parachuted fruits of

dandelions (*Taraxacum*) and of several other taxa with wind-dispersed fruits (including field maple, *Acer campestre*) would be consistent with the first of these routes (although also easily accounted for if fresh vegetation carrying recently ripe seed had been thrown into the well).

Although vegetation of the kind described above seems the most likely to have been prevalent in the vicinity of the well at the time the fills formed, some other materials clearly formed part of the fill deposits. Most surprising, perhaps, in view of the location of the site on an apron of chalk gravel at the foot of the Yorkshire Wolds, were the remains of heather, *Calluna vulgaris*, of which there were moderate numbers of uncharred shoot fragments and traces of capsules and flowers as well as charred shoot tips. Some other material may well have been charred root/basal twig fragments of this plant. This last is frequently recorded in the region in assemblages in which the remains of burnt peat or heathland turves are thought to be present (cf. Hall and Huntley 2007, 213-18: notably material from a Roman site on the Wolds, near Goodmanham, evaluated by Hall *et al.* 2000). The traces of uncharred fruits of heath grass, *Danthonia decumbens*, and of charred 'root/rhizome' (not identified further but very likely sedge or grass) may also have arrived in heathland turves. Traces of bracken (*Pteridium aquilinum*) stalk, leaves of cross-leaved heath (*Erica tetralix*) and fruits of ?tormentil (*Potentilla* cf. *erecta*) may represent further material from areas where calcareous soils were masked by acid drift. The rather few mosses do not add much here—they are a rather nondescript group, though *Hylocomium splendens* is not inconsistent with an origin in heathland. The *Erica tetralix* leaves point more to wet acid peatland than do the others so perhaps some peat *per se* was present (traces of fragments to 10 mm, tentatively identified as charred peat, were noted).

In connection with turves, the abundance of nutlets of bristle scirpus, *Scirpus setaceus*, in the well fill at Hayton is intriguing. This plant, a denizen of the muddy margins of shallow ponds and short turf in other damp places, has been considered by Hall (2003) to be another likely indicator of turves, although their habitat is totally different from the heathland plants just mentioned. It may be, as argued by Hall (*op. cit.*), that they represent part of the buried seedbank of heathland turves from areas in which former bristle scirpus stands have become overgrown by heathland grasses and heather. The presence of traces of blinks (*Montia fontana* ssp. *chondrosperma*) seeds is consistent with this.

One further possible material, and one frequently encountered on Roman sites with good waterlogged preservation, is hay, represented here by some grassland taxa such as seeds of yellow-rattle (*Rhinanthus*) and stipules of meadow vetchling (*Lathyrus pratensis*), though not particularly strongly so. Maybe the heathland, grassland (turves and hay) and cornfield (straw) components arrived en bloc as stable cleanings?

Lastly mention must be made of the relatively sparse remains of plants likely to represent human activity and occupation. There were, as mentioned above, traces of some cereals, both charred and uncharred, with charred barley grains the only material present in larger concentrations. Traces of walnut (*Juglans regia*) and hazel nut (*Corylus avellana*) nutshell and of linseed (*Linum usitatissimum*) seed fragments, are the only other remains likely to have been used for human food. The record of beet (*Beta*) is one of several for the period in the region; this native coastal plant was perhaps by this time in use as a vegetable though we have only the remains of fruits as a proxy for this.

Overall, the results of this analysis agree rather well with those for the insects (Kenward 2008) in that there was evidence for local and more distant habitats and some indications of the presence of litter from livestock.

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Table 1. Complete list of plant remains and some other components of the residue from the subsample of Context 1177 from Hayton. All material was preserved by anoxic 'waterlogging' unless otherwise indicated. All mosses were represented by leaves and/or leafy shoot fragments.

Nomenclature and taxonomic order follow Tutin et al. (1964-80) for vascular plants and Smith (1978) for mosses. Abundance (A) is presented using a four-point semi-quantitative scale from 1—one or a few fragments or individuals (or a very small component of the original sample volume) to 4—abundant remains or a large component of the sample volume. Key to abbreviations: ch—charred; dim—dimension; fgts—fragments; lf—leaf; max—maximum.

Name	Vernacular	Parts	A	Notes
<i>Pteridium aquilinum</i> (L.) Kuhn	bracken	stalk fragment(s)	1	maximum dimension 25 mm
<i>Juglans regia</i> L.	walnut	nutshell fragment(s)	1	maximum dimension 20 mm
cf. <i>Betula</i> sp(p).	?birch	bud(s) and/or bud-scale(s)	1	
<i>Corylus avellana</i> L.	hazel	twig fragment(s)	1	max. length 50 mm by width/diameter 10 mm
		nut(s) and/or nutshell fragment(s)	1	maximum dimension 10 mm
<i>Urtica dioica</i> L.	stinging nettle	achene(s)	2	
<i>U. urens</i> L.	annual nettle	achene(s)	2	
<i>Polygonum aviculare</i> agg.	knotgrass	fruit(s)	2	
<i>P. persicaria</i> L.	persicaria/red shank	fruit(s)	1	
<i>Rumex</i> sp(p).	docks	flowering stem fragment(s)	1	
		fruits with some perianths/segments	2	
<i>Beta vulgaris</i> L.	beet	fruit fragment(s)	1	
<i>Atriplex</i> sp(p).	oraches	seed(s)	1	
<i>Montia fontana</i> ssp.				
<i>chondrosperma</i> (Fenzl) Walters	blinks	seed(s)	1	
<i>Stellaria media</i> (L.) Vill.	chickweed	seed(s)	3	
<i>S. neglecta</i> Weihe in Bluff & Fingerh.	greater chickweed	seed(s)	1	
<i>Cerastium</i> sp(p).	mouse-ear chickweeds	seed(s)	1	
<i>Silene alba</i> (Miller) Krause in Sturm	white campion	seed(s)	1	
<i>Ranunculus</i> Section <i>Ranunculus</i>	meadow/creeping/bulbous			
	buttercup	achene(s)	2	
<i>R. sardous</i> Crantz	hairy buttercup	achene(s)	1	
<i>Thalictrum flavum</i> L.	common meadow rue	achene(s)	1	

Name	Vernacular	Parts	A	Notes
<i>Papaver rhoeas</i> L./ <i>P. dubium</i> L.	field/long-headed poppy	seed(s)	1	
<i>Fumaria</i> sp(p).	fumitories	seed(s)	1	
<i>Coronopus squamatus</i> (Forskål) Ascherson	swine-cress	fruit(s)	1	
<i>Brassica rapa</i> L.	'turnip'	seed(s)	1	
cf. <i>Raphanus</i> sp(p).	?radishes	seed(s)	1	a single specimen
<i>Raphanus raphanistrum</i> L.	wild radish	seed(s)	1	
<i>Potentilla</i> cf. <i>erecta</i> (L.) Rauschel	?tormentil	achene(s)	1	
<i>Crataegus</i> sp(p).	hawthorns	twig fragment(s) with thorn(s)	1	
<i>Prunus spinosa</i> L.	sloe	thorn(s)	1	
<i>Vicia</i> sp(p).	vetches, etc.	charred seed(s)	1	maximum dimension 2 mm
<i>Lathyrus pratensis</i> L.	meadow vetchling	stipule(s)	1	
<i>Medicago lupulina</i> L.	black medick	pod(s) and/or pod fragment(s)	1	
Leguminosae	pea family	calyx/calycies	1	
		flower(s) and/or petal(s)	2	
<i>Linum usitatissimum</i> L.	cultivated flax	seed fragment(s)	1	
<i>Linum catharticum</i> L.	purging flax	seed(s)	1	
		capsule(s) and/or capsule fragment(s)	1	
<i>Euphorbia helioscopia</i> L.	sun spurge	seed(s)	1	
<i>Acer campestre</i> L.	field maple	fruit(s) (samara(e))	1	
<i>Hydrocotyle vulgaris</i> L.	marsh pennywort	mericarp(s)	1	
<i>Chaerophyllum temulentum</i> L.	rough chervil	mericarp(s)	1	
<i>Anthriscus sylvestris</i> (L.) Hoffm.	cow parsley	mericarp(s)	2	
<i>Oenanthe</i> cf. <i>lachenalii</i> C. G. Gmelin	?parsley water-dropwort	mericarp(s)	1	
<i>Aethusa cynapium</i> L.	fool's parsley	mericarp(s)	1	
<i>Conium maculatum</i> L.	hemlock	mericarp(s)	2	including fragments
<i>Torilis japonica</i> (Houtt.) DC.	upright hedge-parsley	mericarp(s)	1	
Umbelliferae	carrot family	mericarp(s)	1	
<i>Erica tetralix</i> L.	cross-leaved heath	leaf/leaves	1	
<i>Calluna vulgaris</i> (L.) Hull	heather, ling	shoot tip(s)	1	
		charred shoot tip(s)	1	
		shoot fragment(s)	2	maximum dimension 5 mm
		flower(s)	1	

Name	Vernacular	Parts	A	Notes
<i>Calluna vulgaris</i>		capsule(s)	1	
cf. <i>C. vulgaris</i>	?heather, ling	charred root and/or basal twig fragment(s)	2	maximum dimension 15 mm
<i>Fraxinus excelsior</i> L.	ash	fruit fragment(s)	1	
		wood chips	1	maximum dimension 15 mm
cf. <i>F. excelsior</i>	?ash	bud(s) and/or bud-scale(s)	1	
<i>Menyanthes trifoliata</i> L.	bogbean	seed(s)	1	fragment(s) only
<i>Galium aparine</i> L.	goosegrass, cleavers	epicarp (fruit skin)	2	
<i>Galium</i> sp(p).	bedstraws, etc.	fruit(s)	1	
<i>Ajuga reptans</i> L.	bugle	nutlet(s)	1	
<i>Lamium</i> Section <i>Lamiopsis</i>	annual dead-nettles	nutlet(s)	1	
<i>Prunella vulgaris</i> L.	selfheal	nutlet(s)	1	
<i>Hyoscyamus niger</i> L.	henbane	seed(s)	1	
<i>Rhinanthus</i> sp(p).	yellow rattles	seed(s)	1	
<i>Plantago major</i> L.	greater plantain	seed(s)	1	
<i>Sambucus nigra</i> L.	elder	seed(s)	1	including fragments
<i>Anthemis cotula</i> L.	stinking mayweed	achene(s)	1	
<i>Arctium</i> sp(p).	burdocks	achene(s)	2	including fragments
<i>Carduus/Cirsium</i> sp(p).	thistles	achene(s)	1	
<i>Centaurea</i> sp(p).	knapweeds, etc.	involucral bract(s)	1	
		achene(s)	1	
<i>Hypochoeris</i> sp(p).	cat's ears	achene(s)	1	
<i>Sonchus asper</i> (L.) Hill	prickly sow-thistle	achene(s)	2	
<i>S. oleraceus</i> L.	sow-thistle	achene(s)	1	
<i>Taraxacum officinale</i> sensu lato	dandelions	achene(s)	2	
<i>Juncus bufonius</i> L.	toad rush	seed(s)	1	
<i>Juncus</i> sp(p).	rushes	seed(s)	1	
Gramineae	grasses	waterlogged caryopsis/es	1	
Gramineae/Cerealia	grasses/cereals	waterlogged culm node(s)	1	
Gramineae/Cerealia	grasses/cereals	charred culm fragment(s)	1	
Cerealia indet.	cereals	charred caryopsis/es	1	
cf. <i>Poa annua</i> L.	?annual meadow-grass	caryopsis/es	1	
<i>Bromus</i> sp(p).	bromes, etc.	charred caryopsis/es	1	

Name	Vernacular	Parts	A	Notes
<i>Triticum spelta</i> L.	spelt wheat	charred glume-base(s)	1	
cf. <i>T. spelta</i> L.	?spelt wheat	waterlogged glume-base(s)	1	
<i>Triticum</i> cf. <i>spelta</i> L.	?spelt wheat	charred spikelet fork(s)	1	
<i>T.</i> cf. <i>aestivo-compactum</i>	?bread/club wheat	charred caryopsis/es	1	
<i>Triticum</i> sp(p).	wheats	waterlogged spikelet(s)/spikelet fragment(s)	1	
		waterlogged (free-threshing) rachis fragments	1	
		charred free-threshing rachis fragment(s)	1	
<i>Triticum/Secale</i>	wheat/rye	waterlogged caryopsis/es	1	
<i>Hordeum</i> sp(p).	barley	charred caryopsis/es	2	
		charred rachis internode(s)	1	
<i>Danthonia decumbens</i> (L.) DC.				
in Lam. & DC.	heath grass	caryopsis/es	1	
cf. <i>Sparganium</i> sp(p).	?bur-reeds	fruit(s)	1	a single specimen
<i>Scirpus setaceus</i> L.	bristle club-rush	nutlet(s)	3	including many fragments
<i>Eleocharis palustris</i> sensu lato	common spike-rush	nutlet(s)	1	
<i>Carex</i> sp(p).	sedges	nutlet(s)	2	
Mosses				
<i>Bryum</i> cf. <i>capillare</i> Hedw.			1	
<i>Amblystegium</i> cf. <i>varium</i> (Hedw.) Lindb.			1	
<i>A. riparium</i> (Hedw.) Br. Eur.			1	
<i>Calliergon cuspidatum</i> (Hedw.) Kindb.			1	
cf. <i>Brachythecium</i> sp(p).			1	
<i>Eurhynchium praelongum</i> (Hedw.) Br. Eur.			1	
<i>Eurhynchium</i> sp(p).			1	
<i>Hypnum</i> cf. <i>cupressiforme</i> Hedw.			1	
<i>Hylocomium splendens</i> (Hedw.) Br. Eur.			1	

Other components of the residue

Material	A	Notes			
amphibian bone	2		fly puparia	1	
bark fgts	1	maximum dimension 50 mm	herbaceous detritus	2	
bast fgts	1	maximum dimension 5 mm	herbaceous detritus (ch)	1	
beetles	1		Heterodera (cysts)	1	
brick/tile	1	maximum dimension 5 mm	leaf ab pads	1	
bud-scales	1		mortar/plaster	1	maximum dimension 40 mm
chalk gravel	3	maximum dimension 35 mm	oyster shell fgts	1	very decayed, max. dimension 40 mm
charcoal	1	maximum dimension 10 mm	?peat fgts (ch)	1	maximum dimension 10 mm
coal	1	maximum dimension 5 mm	?pteridophyte root fgts	1	
dicot lf fgts	1		root/rhizome fgts	1	max. dimension 5 mm
dicot lf skeletons	1		root/rhizome fgts (ch)	1	maximum dimension 5 mm
dicot stem fgts	1		sand	2	
earthworm egg caps	2		slug shells	1	
eggshell fgts	1	maximum dimension 4 mm	snails	2	
fine plant detritus	2		twig fgts	1	max. length 30 mm by width/diameter 5 mm
fish bone	1	maximum dimension 10 mm	unwashed sediment	2	maximum dimension 4 mm
flint gravel	2	maximum dimension 45 mm	wood chips	2	maximum dimension 15 mm
			wood fgts	2	v dec, max. dim. 35 mm