APPENDIX 16

CHARRED AND WATERLOGGED PLANT REMAINS, AND NON-STRUCTURAL WOOD FROM ROMAN CONTEXTS

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The material from the northern Lanes comprised a mixture of whole-earth samples, bulk samples processed on site, and bags of wood fragments, all collected during excavations in the early 1980s. Analysis of the botanical samples and the wood was completed between 1994 and 1996, with the discussion and references updated in 2012. As a result, it has to be assumed that some degradation had occurred during the 17 years in storage, and the present interpretations must remain tentative.

Initially, trenches were phased individually, but subsequently a concordance of phasing for the site as a whole was produced (in May 1997; *Ch 1*). The phases were grouped into broad time periods of pre-Roman, early Roman (late first to mid-second centuries), the second half of the second century), and late Roman (third/fourth centuries), and these broad divisions have been used throughout.

On-site and Laboratory Methodology

The samples were collected during the early stages of botanical investigation and, as a result, no single systematic strategy or method of processing was followed. During the 1990s, wet-sieved samples were processed in the laboratory, being sieved to 500 μm and stored wet; bulk samples were floated on site, with flots retained variously at 2 mm, 1 mm, and 500 μm. These, too, were stored wet and subsequently all were resieved in the laboratory, to 500 μm. All material was examined under a Wild M3 stereo-microscope at magnifications up to x50. Fruits, seeds, and some vegetative material, including bryophytes where abundant, were identified by comparison with modern reference material held at the then Biological Laboratory, Department of Archaeology, University of Durham. Charred remains were counted, but a five-point scale was used for waterlogged remains: with 1 = one or two items; 2= up to about ten items; 3= up to about 50; 4= some hundreds; and 5= some thousands.

Wood fragments were frozen, and transverse, radial-longitudinal, and tangential-longitudinal sections were cut as necessary, in order to enable identification to species. Diameters were taken from complete roundwood, and rings counted from thin hand-cut sections. Wood was classified into roundwood, chips, chunks, boles, planks, and so on, using the same categories as in the southern Lanes (Huntley 1992; 2010).

The macrofossil data were all coded numerically, by sample, using a unique sequential numbering system to enable direct statistical comparison with other sites, especially the southern Lanes, at a later stage. Data were tabulated and manipulated using PHYTOPAK (Huntley *et al* 1981) and subsequently transferred to Excel® for graphical representation. DECORANA (Hill 1979a) and TWINSPAN (Hill 1979b) were used as analytical programs and, again, output files were exported to Excel® for graphical output.

Results

In total, 156 samples were analysed (152 of charred and waterlogged plant remains and four wholly of wood; Table 86), from 117 contexts. These comprised 119 wet-sieved and 37 floated samples, together with four larger plastic sacks of waterlogged wood fragments, mostly woodchips that were probably generated by on-site finishing of structural timbers during the construction of a large, early Roman timber building (Period 4A, ***1560***; *Ch 2, p 29*). Full details of the samples analysed are presented in the archive report (Huntley 2012).

The matrix components

Charcoal was present in over 80% of the samples (Table 87), with sand/mineral fragments at almost 100% in the wet-sieved material, and wood at nearly 90% in the floated material. A range of materials, including unburnt and calcined mammal bone, insect fragments, monocotyledonous remains, fly puparia, worm egg-cases, clinker/cinder, and amorphous organic material, was each recorded in about 20% of samples, and the remaining categories, industrial waste, hammerscale, fish bone, small mammal bone, and so on, were generally

present in less than 10% of the samples. Interestingly, fly puparia and earthworm egg-cases were much more common in the floated material, although this might have been expected to be the case in the wet-sieved material. It is presumed that the different volumes of processed samples may have had an effect on this, although context type may also be of relevance. For example, these categories could be more common in soils, or pit fills, than in other contexts. Both categories obviously contain a lot of air once the soft organic internal tissue has rotted away, and thus they float easily. Overall, therefore, both types of sample were essentially charcoal with mineral and wood, plus a more limited variety of other materials.

In terms of the variation of matrix with context type, gully fills followed the overall sample pattern, consisting principally of mineral, charcoal, and wood, although samples varied widely. This variation did not appear to correlate with the method of processing used. In comparison, ditch fills (all floated) showed a great preponderance of sand and gravel, with some wood and charcoal, but a relatively low occurrence of other organic components. This suggests that the ditches were, by and large, kept clean, with no significant dumps of rubbish being deposited within them. Deposits, again all floated samples, produced more evidence of earthworm egg-cases than anything else, with clinker/cinder the next most abundant component. Although other materials were widely distributed through the samples, they were rarely abundant. The high levels of worm egg-cases would probably suggest biologically active soil being incorporated into, or formed from, these deposits.

Organic components, whilst present, are not abundant overall, which might imply that they were never present in any quantity, or, more likely, that they have decayed naturally. This might well suggest that the seed assemblage could be likewise biased. The fills within Period 11D well *226* (*Ch 4, p 119*) present a much richer pattern, although, again, there are sharp differences between the individual samples, suggesting some well-defined layers of organic rubbish and others of a more mineral (or decomposed) nature. Other context types were not common enough for this type of analysis to be valid.

The pre-Roman deposits had rather less-varied matrices, which reflects their origin as old ground surfaces with minimal evidence for human activity. Clinker/cinder and industrial waste became more abundant in the later periods, and may comprise material related to industrial activity in the general vicinity. This later material also has the widest range of components, with more evidence for disposal of organic rubbish (mammal bone, fly puparia, and insect fragments are all common) and may be related to the running down and abandonment of activity on the site.

The charred plant remains

As is often the case, concentrations of charred remains were rather low, with more than 80 of the samples containing none at all (Table 88). One sample produced a concentration of 198 fragments per litre, but these were predominantly heather. Most samples typically produced less than ten items per litre.

As is expected in a charred assemblage, cereals were the most commonly occurring taxa, although remains of charred heather were also quite common. With the exception of hulled barley grains, no single charred

		% occurrence				median counts			
		Pre-Roman	Early Roman	Later Second Century	Late Roman	Pre-Roman	Early Roman	Later Second Century	Late Roman
Total samples analysed		**5**	**33**	**84**	**30**	**5**	**33**	**84**	**30**
Polygonum aviculare	knotgrass			1		-	-	1	-
Polygonum lapathifolia	pale smartweed	20				1	-	-	-
Stellaria media	common chickweed			1	7	-	-	2	1
Thlaspi arvense	field penny-cress				3	-	-	-	1
Avena grain	oat	20		4	3	1	-	2	2
Cerealia undifferentiated		20	<1	4	7	1	2	2	1
Hordeum hulled	barley		3	11	13	-	1	1	1
Hordeum indeterminate	barley	20				1	-	-	-
Triticum (hexaploid)	wheat		<1	5		-	1	2	-
Triticum aestivum grain	bread wheat			4		-	-	1	-
Triticum spp grain	wheat			1		-	-	1	-

Table 88: Charred plant remains present

taxon occurred in more than 10% of the samples, most occurring in only 1-2%. In terms of the numbers of charred items, most taxa had mean counts of one or two items only, with heather twigs (*Calluna vulgaris*), spelt (*Triticum spelta*), and barley (*Hordeum* sp) grains having mean counts of 12, four, and five respectively. Spelt wheat and six-row barley were definitely present, as evidenced from their chaff fragments. Oat (*Avena*) grains and a few of probable bread wheat (*Triticum aestivum*) were also recorded. The former may have

		% occurrence				median counts			
		Pre-Roman	Early Roman	Later Second Century	Late Roman	Pre-Roman	Early Roman	Later Second Century	Late Roman
Triticum spelta	spelt wheat		<1	7	17	-	1.5	3	1
Lens culinaris	lentil		<1			-	1	-	-
Vitis vinifera	common grape vine		<1		3	-	1	-	1
Gramineae 2-4 mm	grass		<1	2	7	-	1	1.5	1
Leontodon sp	hawkbit		<1			-	1	-	-
Plantago lanceolata	ribwort plantain			2	7	-	-	1	3
Potentilla erecta-type	common tormentil				7	-	-	-	1
Calluna vulgaris flowers	heather			1	3	-	-	1	1
Calluna vulgaris twigs	heather		<1		33	-	2	-	5
Calluna vulgaris wood	heather		<1	7	13	-	2.5	1.5	1
Erica tetralix leaf/shoot	cross-leaved heath				7	-	-	-	1
Pteridium aquilinum	bracken				3	-	-	-	1
Danthonia decumbens	heath-grass				3	-	-	-	1
Brassica campestris	turnip			1		-	-	1	-
Lapsana communis	nipplewort				3	-	-	-	1
Raphanus raphanistrum pod	wild radish		<1	2		-	1	1	-
Rumex obtusifolius-type	broad-leaved dock		<1	2		-	1	1	-
Culm nodes				1		-	-	1	-
Hordeum six-row rachis internode	barley				3	-	-	-	1
Hordeum rachis internode	barley			4		-	-	1	-
Triticum glume	wheat			2		-	-	1.5	-
Triticum spelta glume	spelt wheat		<1	7	3	-	1	1	1
Triticum spelta spikelet	spelt wheat				3	-	-	-	1
Corylus avellana nut fragment	hazel		<1	2	3	-	1	1.5	1
Prunus spinosa	blackthorn			1		-	-	1	-
Rosa prickle	rose			1		-	-	1	-
Caltha palustris	marsh marigold				3	-	-	-	1
Carex (lenticular)	sedge			1	7	-	-	1	1
Eleocharis palustris	spike-rush		<1	1		-	1	1	-
Juncus	common rush			2	3	-	-	1	1
Ranunculus flammula	lesser spearwort				3	-	-	-	1
Bromus spp grain	brome			12	7	-	-	1	1
Gramineae <2 mm	grass		<1	4	10	-	1	1	1
Legume <4 mm	pea			1		-	-	1	-
Legume >4 mm	pea			1		-	-	1	-
Polygonaceae undifferentiated	knotweed	20				1	-	-	-
Umbelliferae undifferentiated	carrot/parsley family				3	-	-	-	1

Table 88: Charred plant remains present (cont'd)

been weeds (wild oats), however, rather than from a cultivar, as the diagnostic floret bases were absent. The bread wheat grains were short, broad, and deep, and could reflect either a local crop or a traded commodity.

A few grape pips (*Vitis vinifera*) and a lentil (*Lens culinaris*) certainly indicate traded goods, whilst the remaining taxa predominantly represent ruderal and grassland communities. Both of the latter could be expected to include some components of an arable crop in the Roman period, although they could equally represent the periodic clearance of weedy vegetation growing around the site, or the disposal of animal bedding/ dung by burning; the very small quantities, however, might argue against the latter. The heather and some of the associated acid-loving herbs seem likely to reflect their use as roofing, whilst some the sedges and more wet-demanding taxa might have been used as flooring.

		% occurrence				median scores			
		Pre-Roman	Early Roman	Late Second Century	Late Roman	Pre-Roman	Early Roman	Late Second Century	Late Roman
Total samples analysed		**5**	**33**	**84**	**30**	**5**	**33**	**84**	**30**
Agrostemma githago	common corncockle		3	11	27	-	1	1	1
Anthemis cotula	stinking chamomile				3	-	-	-	1
Aphanes arvensis	field parsley-piert		<1	4	3	-	1	1	1
Chenopodium album	fat-hen		<1	21	37	-	1	2	1
Fallopia convolvulus	black bindweed	20	<1	10	3	1	1	1	1
Fumaria cf *officinalis*	common fumitory			1		-	-	1	-
Fumaria spp	fumitory			2		-	-	1	-
Galeopsis tetrahit	common hemp-nettle		<1	12	20	-	2	1	1
Polygonum aviculare	knotgrass	20	<1	20	13	1	1	1	1
Polygonum lapathifolium persicaria	pale smartweed/ redshank		<1	6	3	-	1	1	1
Polygonum lapathifolium	pale smartweed	20	3	23	23	5	1	1	1
Polygonum persicaria	redshank	20	<1	17	3	2	1	1	1
Stellaria media	common chickweed		3	27	33	-	1	1	1
Thlaspi arvense	field penny-cress			4		-	-	1	-
Torilis cf *arvensis*	common hedge parsley				3	-	-	-	1
Urtica urens	small nettle		<1	21	13	-	1	1	1
Valerianella dentata	narrow-fruited cornsalad		<1			-	1	-	-
Avena periderm	oat				3	-	-	-	1
Cerealia/large Gramineae	cereal/large grass		<1	6	17	-	1	1	1
Anethum graveolens	dill		<1	8		-	1	1	-
Chamaemelum nobile	chamomile				3	-	-	-	1
Coriandrum sativum	coriander			7	10	-	-	1	1
Ficus carica	fig		3	17	13	-	1	1	1
Linum usitatissimum	cultivated flax		5			-	2	-	-
Olea europaea	olive			1		-	-	2	-
Papaver somniferum	opium poppy				10	-	-	-	1
Petroselinum cf *crispum*	parsley		<1			-	1	-	-
Vitis vinifera	grape vine			4		-	-	2	-
Achillea millefolium	yarrow			2		-	-	1	-
Bellis perennis	common daisy			1		-	-	1	-

Table 89: Waterlogged plant remains present

		% occurrence				median scores			
		Pre-Roman	Early Roman	Late Second Century	Late Roman	Pre-Roman	Early Roman	Late Second Century	Late Roman
Campanula rotundifolia	harebell		<1			-	1	-	-
Carex flacca	blue sedge				3	-	-	-	1
Chrysanthemum leucanthemum	ox-eye daisy				3	-	-	-	2
Clinopodium cf *ascendens*	common calamint				3	-	-	-	1
Gramineae 2-4 mm	grass		5	17	17	-	1	1	1
Leontodon autumnalis/hispidus	autumn/rough hawkbit			4	7	-	-	1	1
Leontodon taraxacoides	lesser hawkbit		<1	2		-	1	1	-
Linum catharticum	fairy flax		8	11	20	-	2	1	1
Nepeta cataria	catnip			1		-	-	1	-
Pastinaca sativa	parsnip			1		-	-	1	-
Potentilla erecta-type	common tormentil-type	20	<1	30	37	3	1	1	1
Rhinanthus minor aggregate	yellow rattle		3	8	13	-	1	1	1
Rumex acetosa	common sorrel		<1		3	-	1	-	3
Scabiosa columbaria	small scabious				3	-	-	-	1
Calluna vulgaris floret bases	heather			1		-	-	1	-
Calluna vulgaris flowers	heather		<1	4	27	-	2	1	1
Calluna vulgaris shoots/twigs	heather			4	23	-	-	1	1
Hypericum pulchrum	slender St John's wort			2		-	-	1	-
Pteridium aquilinum frond fragment	bracken		3	7	23	-	1	1	1
Vaccinium myrtillus	bilberry			1	3	-	-	1	3
Aethusa cynapium	fool's parsley			4		-	-	1	-
Anthriscus caucalis	burr chervil				3	-	-	-	1
Atriplex spp	saltbush		<1			-	1	-	-
Atropa belladonna	deadly nightshade			1		-	-	1	-
Brassica spp	cabbage family				3	-	-	-	1
Cardaria draba	hoary cress			1		-	-	1	-
Conium maculatum	hemlock			8	10	-	-	1	1
Galium aparine	cleaver			1		-	-	1	-
Heracleum sphondylium	hogweed			1	3	-	-	1	1
Hyoscyamus niger	henbane		<1	11	13	-	1	1	1
Lapsana communis	nipplewort		3	5	3	-	1	1	1

Table 89: Waterlogged plant remains present (cont'd)

		% occurrence				median scores			
		Pre-Roman	Early Roman	Late Second Century	Late Roman	Pre-Roman	Early Roman	Late Second Century	Late Roman
Potentilla anserina	silverweed		<1	1	10	-	1	1	1
Raphanus raphanistrum	wild radish			2	3	-	-	1	1
Raphanus raphanistrum pod fragment	wild radish		<1	19	13	-	1	1	1
Reseda luteola	weld			2	3	-	-	1	1
Rumex acetosella	sheep's sorrel		3	15	23	-	1	1	1
Rumex obtusifolius - perianth	broad-leaved dock		<1	15	10	-	1	1	1
Rumex obtusifolius-type	broad-leaved dock		<1	23	27	-	1	1	1
Silene alba	white campion		<1	1		-	1	1	-
Silene vulgaris	bladder campion				3	-	-	-	1
Sonchus asper	prickly sow-thistle			7	7	-	-	1	1
Taraxacum officinale aggregate	dandelion			1		-	-	1	-
Urtica dioica	common nettle		<1	27	20	-	1	1	1
Triticum spelta glume	spelt wheat			5	20	-	-	1	1.5
Triticum spikelet fork	wheat				3	-	-	-	1
Alnus glutinosa	alder		3			-	1	-	-
Alnus glutinosa 'cone' fragments	alder		3			-	1	-	-
Betula spp	birch			1	3	-	-	1	1
Corylus avellana nut fragment	hazel	20	5	14	13	2	1	1	1
Fragaria vesca	wild strawberry		<1		3	-	1	-	1
Ilex aquifolium	holly			1		-	-	1	-
Ilex aquifolium leaf	holly			2		-	-	1	-
Malus/Pyrus	crab apple		<1	1		-	1	2	-
Potentilla sterilis	barren strawberry				3	-	-	-	1
Prunella vulgaris	self-heal		<1	10	23	-	1	1	1
Prunus domestica institia	damson plum		<1	2		-	1	1	-
Prunus spinosa	blackthorn		3	6		-	1.5	1	-
Rosa prickle	rose		<1	1		-	1	1	-
Rubus fruticosus	blackberry		<1	12	3	-	1	1	1
Sambucus niger	elder		<1	4	3	-	1	1	2
Solanum nigrum	black nightshade			2		-	-	1	-
Sorbus sp	whitebeam			1		-	-	1	-
Ulex europaeus	gorse				3	-	-	-	1
Apium graveolens	celery			4	20	-	-	1	1

Table 89: Waterlogged plant remains present (cont'd)

		% occurrence				median scores			
		Pre-Roman	Early Roman	Late Second Century	Late Roman	Pre-Roman	Early Roman	Late Second Century	Late Roman
Carex (lenticular)	sedge	20	3	36	40	1	1	1	1
Carex (trigonous)	sedge		3	37	37	-	1	1	1
Carex hostiana-type	tawny sedge	20	<1	1		1	3	1	-
Carex rostrata	bottle sedge	20	<1	14		1	2	1	-
Eleocharis palustris	common spike-rush		<1	12	10	-	1	1	1
Filipendula ulmaria	meadowsweet			2	10	-	-	1	1
Hydrocotyle vulgaris	marsh pennywort		<1	1	7	-	1	2	1
Isolepis setaceus	bristle club-rush			1		-	-	1	-
Lycopus europaeus	gypsywort			2		-	-	1	-
Montia fontana spp chondrosperma	water-blink			10		-	-	1	-
Peucedanum officinale	hog's fennel			1		-	-	1	-
Potentilla palustris	marsh cinquefoil		<1	1		-	2	1	-
Ranunculus flammula/cf *flammula*	lesser spearwort		<1	12	33	-	1	1	1
Ranunculus sceleratus	celery-leaved buttercup		<1	7	3	-	1	1	1
Scirpus lacustris	true bulrush			1		-	-	1	-
Sphagnum spp	moss		5	7	20	-	1.5	1	1
Stellaria alsine	bog stitchwort				13	-	-	-	1
Stellaria cf *palustris*	marsh stitchwort				7	-	-	-	1
Stellaria graminea	common stitchwort		<1	15	13	-	1	1	1
Cerastium fontanum	common mouse-ear			2		-	-	1	-
Cerastium fontanum holosteoides	common mouse-ear chickweed			1		-	-	1	-
Cerastium spp	mouse-ear chickweed		<1			-	1	-	-
Chenopodium spp	goosefoot family			2		-	-	1	-
Chenopodium/ Atriplex	goosefoot/saltbush family			2		-	-	1	-
Cirsium spp	thistle		3	5	10	-	1	1	1
Gramineae <2 mm	grass		5	14	17	-	1	2	1
Hypericum cf *perforatum*	Tipton's weed			1	3	-	-	1	1
Indeterminate				1		-	-	3	-
Juncus spp	rush family				3	-	-	-	1
Lamium undifferentiated	deadnettle		<1	2		-	1	1	-
Legume pod fragments	pea family		3			-	1	-	-
Mentha-type	mint-type		<1	1		-	1	1	-

Table 89: Waterlogged plant remains present (cont'd)

		% occurrence				median scores			
		Pre-Roman	Early Roman	Late Second Century	Late Roman	Pre-Roman	Early Roman	Late Second Century	Late Roman
Orthotrichum spp	bristle-moss			1		-	-	2	-
Peucedanum/ Pastinaca	wild parsnip			1		-	-	1	-
Polytrichum commune	common haircap moss			1	3	-	-	1	1
Ranunculus repens-type	creeping buttercup-type	20	3	35	40	2	1	1	1.5
Umbelliferae undifferentiated	carrot/parsley family				3	-	-	-	1
Viola spp	violet		<1	2	7	-	1	1	1

Table 89: Waterlogged plant remains present (cont'd)

The waterlogged assemblage

Waterlogged material was recovered from the majority of the samples, but, as with the charred remains, many of the taxa occurred only occasionally and in small quantities (Table 89). High levels of occurrence do not necessarily imply abundance; for example, bilberry (*Vaccinium myrtillus*), sorrel (*Rumex acetosa*), and grape (*Vitis vinifera*) have moderately high median scores, but low occurrence scores, indicating only that when they are present, they are abundant. Sedges (*Carex*) and buttercups (*Ranunculus*) are both common and abundant, as is frequently the case in waterlogged assemblages from northern England (Hall and Huntley 2007, 210).

Cereals

Cereal remains preserved by waterlogging are usually rare on urban-type sites (Hall and Huntley 2007), and this is the case with the northern Lanes. The more robust fragments, such as the chaff from spelt wheat, survive in a few samples. Whilst such material might well represent the remains of straw used as bedding, or chaff used as animal feed, no deposits are dominated by straw remains, or, at least, such material has not survived.

Other food plants (exotics)

Exotics include only non-native species, and the presence of their seeds almost certainly indicates trade from further south or, more likely given the species, from the southern part of the Roman Empire. Figs (*Ficus carica*) are present in 13.5% of the samples, and are the most abundant exotic, although 21 pips do not represent much fruit, given that a single fruit can contain more than 800 (Greig 1996, 27)! Grapes and olives would have been eaten as fruit, whereas the other species, including dill and coriander, are generally used to add flavouring (Greig 1991, 311). The camomile may just have been used as a tisane and the flax as oil (linseed). In any case, none is particularly abundant and it must be concluded that food debris is not a significant aspect of these sites, even though there were many pits and wells, and it seems to imply that these features were not used for the disposal of domestic rubbish or faecal material to any large extent. As many of these seeds are quite robust, they are likely to have survived if originally present, even though more delicate material may have been lost post-depositionally.

Ecological habitats represented

Each taxon identified has been assigned to a single ecological category, although this is probably somewhat simplistic, as many taxa can occur in several habitats. Nonetheless, they tend to prefer one of the major ecological categories, and the assignment allows comparison with other sites.

Arable weed taxa (waterlogged)

Most of the arable weeds recorded are denizens of well-manured and slightly damp, but free-draining, soils, with only the corn cockle (*Agrostemma githago*) being common on drier soils. Corn cockle is, in fact, quite rare on Roman sites in the North (Hall and Huntley 2007), preferring soils in the warmer south-eastern parts of Britain, and is more or less extinct today. Whilst the majority of these weedy taxa could have grown amongst cereal crops, they would have been equally at home amongst vegetables, or in small garden plots (Stace 2010).

Grassland taxa

These taxa reflect a variety of grasslands, ranging from quite calcareous turf (*eg* wild parsnip (*Pastinaca sativa*) common on shell sands behind dunes today), to acidic sandy soils (*eg* sorrel (*Rumex acetosa*)), and the edges of acidic heathlands (*eg* tormentil-type (*Potentilla erecta*)). Of these, only the latter is reasonably abundant, probably deriving from material collected from heathland itself, for example as roofing turf. The moderate amounts of yellow rattle

(*Rhinanthus minor*) may imply an element of hay, since it is a very characteristic element of classical hay-meadow flora.

Heathland
Heathland taxa are predominantly represented by remains of heather (*Calluna vulgaris*, including wood, twigs, leafy shoots, and flowers, although none is particularly abundant. The St John's wort (*Hypericum*) was quite likely to have been growing amongst somewhat grassy heathland, and to have been brought to the site amongst the heather. Bracken (*Pteridium aquilinum*) is also common on freely draining acidic soils, although it prefers a mineral substrate, whereas heather will tolerate either mineral or organic soils. Both are likely to have been used as bedding, with the heather also used as a possible roofing material (Letts 2000, 16). Bilberry (*Vaccinium myrtillus*), whilst a native of dry heathland, produces edible berries and presumably, at the Lanes, reflects an aspect of the local diet. Whilst only present in two samples, its average score is 2, which indicates that it was quite abundant in those contexts.

Ruderals
Ruderals, plants of waste but disturbed ground, were the third most common group represented (after arable weeds and wet-ground taxa). Whilst some may have been brought to the site, others, no doubt, grew opportunistically in odd corners and on patches of waste ground in and around the buildings. Plants such as stinging nettles (*Urtica dioica*) indicate quite high levels of nutrients, possibly reflecting some organic rubbish left lying around to decay. Most are at least biennial, and therefore must indicate reasonably long-term waste ground, allowing them to fruit successfully. Most, too, are tall plants, suggesting that these places were not heavily trampled, although silverweed (*Potentilla anserina*) grows mostly at the edges of paths and will withstand quite high levels of trampling (Stace 2010).

Belladonna (*Atropa belladonna*), henbane (*Hyoscyamus niger*), and hemlock (*Aethusa cynapium*) have been used widely as pain relievers (and poisons; Grieve 1973), but they are present in such low quantities that it seems most likely that they represent part of the natural ruderal flora, rather than reflecting any deliberate collection and/or use.

Woodland and scrub
A selection of woodland and scrub plants is represented; most, however, are from edible fruits, and it is suggested that they mainly reflect a dietary element. Alder (*Alnus*) and birch (*Betula*) probably relate to the timber and brushwood being used on the site, as might the holly, although there is a possibility that this was used as a fodder.

Wet ground
Along with the arable weeds, plants of wet ground are common at the northern Lanes, which is normally the case on archaeological sites with waterlogged preservation. Many of the taxa are sedges (*Carex* spp) and associated herbs from fen-rich meadows, with a second group more characteristic of the muddy edges of streams and ponds. The former, it may be argued, were deliberately brought onto the site as animal feed, or as flooring, or arrived via the dung of animals grazed in fen locations. The second group could reflect vegetation growing along the sides of drainage features within the site, but are probably more likely to represent material brought in casually when people or animals return from watering places, for instance in mud on their feet. The wild celery (*Apium graveolens*) falls into the latter category, but could also represent a deliberately collected element in the diet, sought for flavouring.

Broad/unclassified
The broad group includes seeds which cannot be identified closely either because of poor preservation, or because of similarity between species, and hence they have a range of possible habitats. It also includes one or two taxa which do not 'fit' easily elsewhere, for example hair moss (*Polytrichum commune*), which can be found in woodlands, edges of grassland, and some heath situations (A J E Smith 1978). Buttercups are another, in that the *Ranunculus repens*-type group includes three species with reasonably distinct ecological niches, but also reflects a general grassy community (Stace 2010), the differences relating mainly to soil moisture. Other than the buttercups and grasses, none is particularly common or abundant.

Multivariate analyses
An ordination of the data produced remarkably homogeneous plots. The first two axes of variation separated out the one or two very different samples, as usual, but whereas axes 3 and 4 normally produce interpretable groups, this was not the case for the assemblages from the northern Lanes. There are no obvious similarities in samples from the same trenches, and no clear spatial patterns across the site. Whilst, if investigated at the level of feature type, a few gullies form outliers, there are no obvious patterns. Equally, there are no obvious patterns between chronological periods.

The classification of the data produced similarly uninformative results. As these analyses deal with the individual samples, it has to be concluded that, although some centuries of occupation are represented by a variety of feature types, in terms of the surviving plant remains, nothing very different happened across the site.

Discussion

The samples from all the trenches have been grouped together by broad period, the full data being available in the archive report (Huntley 2012). In some instances, information relating to invertebrates from the samples (*Appendix 15*) has been included.

Pre-Roman Activity (Periods 1-2)

Three of the five samples in the pre-Roman group were uninformative, being barren. Despite the fact that ploughmarks were recorded (Period 1), and thus some cultivation was being undertaken (*Ch 2, p 21*), none of the samples from Period 1 produced an interpretable assemblage. During Period 2, however, a dark soil covered the site (*Ch 2, p 22*), probably the remains of a turf line or buried soil representing the old ground surface in the immediate pre-Roman period. Although patchy, and given a variety of context numbers at different times, the descriptions of the deposit remain quite consistent (homogeneous dark brown to grey silty loam or silty clay). Only one of the three samples analysed produced evidence; the dominance of minerals and the lack of organic material would be in accord with its identification as an old ground surface. A bulk sample from LAL D, at the north-west corner of the site, produced quite a large and rich flot, with the seeds recorded indicating strong associations of broken/cultivated ground with some grassland elements (tormentil and a few sedges). This would be in accord with some, albeit limited, human activity.

Early Roman Activity (Periods 3-5)

Thirty-seven samples from features pertaining to the first Roman occupation of the site were analysed, including four that were entirely wood. The activity comprised the excavation of a substantial ditch (Period 3), probably representing part of an early Roman camp, which was subsequently allowed to fill, was levelled, and then built over by a complex of large timber buildings (*Ch 2*), of which three principal phases (Period 4A, ***1560***; Period 5A, ***1993***; Period 5B, ***1994***) were recorded.

Given the few plant remains present, samples from the base of the Period 3 ditch almost certainly represent inwash from its sides. These deposits were subsequently overlain by a thin layer described as brushwood, although the seed element suggested local standing water and nutrient-enriched conditions. One flot from this layer, however, was almost entirely wood, being twigs of hawthorn-type, a few of which were charred or part burnt, with the occasional rose prickle. The wood seems to have been deliberately cut, and it may even have been the remains of hedge trimmings. It may represent material gathered from local bushes to drop into the bottom of the ditch, although to what purpose remains puzzling. The overlying layers were thought possibly to represent the remains of a turf line within the ditch (*Ch 2, p 25*), an hypothesis which is supported by the abundance of monocotyledonous fragments, sedge, and grass seeds. One whole fruit head of harebell (*Campanula rotundifolia*) was an unusual find, suggesting that it might, therefore, have been turf cut from sedge-rich communities, rather than the more typical short grassland turves.

The Period 3 ditch was deliberately infilled and the site levelled to facilitate the construction of Building ***1560*** in Period 4A (*Ch 2, p 29*). Samples from deposits immediately above the possible turf line within the ditch yielded much wood-rich waste, including roundwood, slats, planks, offcuts, and shavings, over which clays were spread to level off the whole area. It is highly likely that this debris was generated during the construction of ***1560***, since the construction trenches for some of the walls of this structure also contained a great deal of very similar woodworking waste (*below*).

The clay levelling deposits that filled the upper part of the Period 3 ditch, and which also spread across much of the area subsequently occupied by Building ***1560*** (*Ch 2*), contained further wood/twig fragments, together with charcoal and small amounts from a wide variety of other matrix components. Small quantities of industrial waste, in the form of white spatter, were also recorded, as were both unburnt and calcined mammal bones. A few heather shoots, a few hulled barley grains, and a few lentils were also present as charred plant remains. Waterlogged taxa were not abundant, and generally reflected evidence from the site as a whole, namely sedges, with grass, buttercups, chickweed, and nettles. The presence of legume flowers fosters an interpretation which would include the incorporation of hay or forage within the deposit. Thus, evidence seems to suggest that this was not simply a deposit of clean clay, but incorporated other material.

The four sacks of wood samples recovered from the construction trenches of Building ***1560*** essentially comprise woodworking debris, mostly oak. It varied from small chips from shaping timbers, to offcut blocks, wedges, quarter-section and tangentially split pieces, through to large fragments of joints (either offcuts or broken during construction). One block of oak had clearly been used and reused on a number of occasions, with evidence of numerous chops, cuts, and punch marks on both sides. The rings seen on one radially cut block, 105 mm long, showed absolutely no curvature at all, suggesting its origin in a very large

tree. Curvatures and ring counts from some beam ends indicate trees at least 120 years old, but no bark or sapwood survived. In some areas, there were quite a few fragments of ash (*Fraxinus*), including the rotten remains of an asymmetric tenon, and there were also moderate numbers of alder fragments. These may have been used as scaffolding rather than building material. Considered together, the wood gives the impression of having originated in building construction, and quite a few fragments had chamfered or bevelled edges, all carefully cut at *c* 45º. The plank fragments were perhaps offcuts from laying a floor, or shingling a building, as they were of two distinct thicknesses.

The floors of Building ***1560*** were mostly clean (*Ch 2*), with samples producing very few seeds. One of the rooms (R2) was, however, very different, with a rich assemblage containing plenty of sedge nutlets, tormentil achenes, and both barley and wheat grains, plus grass and spike-rush seeds from the charred component. An obvious interpretation is that sedges were laid on this floor as a covering, and that they were kept reasonably fresh, as no insects or fly puparia were present (*Appendix 15*). The building was ultimately destroyed by fire (Period 4B), although evidence from the associated samples was limited to burnt and part-burnt clay (?daub), with a small amount of highly fragmentary wood charcoal.

Other deposits and pits belonging to the early Roman period were also sampled, most being rather undiagnostic in their plant remains. However, one of the soils that accumulated over the fire debris sealing the remains of Building ***1560***, at the north-west corner of the site (LALD *1376*, Period 4C; *Ch 2, p 41*), produced large numbers of stinging-nettle seeds, sedge nutlets, and, in particular, blackberry pips. Sloes and figs were also quite common, with single occurrences of apple pip and elderberry, and a few fragments of hazelnut shells. This must suggest a moderately strong dietary element, although all these types are quite woody and resistant to decay, and less robust evidence could have been lost. Sloe stones and charred grape pips were recorded elsewhere, whilst the invertebrate fauna in a shallow, Period 4C pit (*1501*; fill *1357.01*; LALD) was dominated by grain pests, with denizens of open-textured foul matter being common. This was interpreted as 'surely a dump of stable manure' (*Appendix 15, p 694*). The plant remains from the same deposit comprised a mixture of bracken stems, small and twiggy wood, plus some sand and charcoal, with very few seeds. The matrix could, however, have been from bedding.

Later material from this period relates to two construction phases (Periods 5A, 5B) of an extensive complex of timber buildings (*Ch 2*), although few of the samples contained many plant remains. There is limited evidence of mixed ruderals and soil, and some evidence for high levels of nutrients, but these are of little interpretative value. Mineral concretions were moderately common in some samples, possibly suggesting periods of wetting and drying. One construction trench (*1283*), for the east wall of Period 5B Structure ***1572*** (*Ch 2, p 46*), contained moderate numbers of tiny fragments of conifer charcoal, along with large amounts of grass caryopses, and, in particular, seeds of purging flax (*Linum catharticum*), as well as a selection of the more usual sedges, buttercups, and chickweed. The indications are that it was an essentially grassy deposit, possibly hay, as yellow rattle (*Rhinanthus minor*) was recorded, but with a calcareous influence evidenced by the purging flax (Stace 2010); as this is a denizen of slightly more open communities, it was not likely to have been dense grassland.

Mid-late Second-century Activity (Periods 6-10)

Eighty-four samples associated with activity broadly datable to the second half of the second century were analysed. The earlier parts of this period were characterised by an extensive build-up of dark soils (Period 6; *Ch 3*) and samples showed typically poor preservation, given the rather robust seeds that dominated the assemblages, for example dill, henbane, and hemlock. Even the shallow pits and slots cut through these layers were not rich in plant remains, although both seeds and invertebrates suggest a hay component could have been present.

Numerous gullies were later cut across the site (Period 7), some of which were probably covered or plank-lined drains. Samples from them provided evidence for nutrient-enriched soil, hay, with some food debris, and considerable amounts of twiggy brushwood. Nearly all of the gullies contained a mixture of materials, although most had quite limited assemblages. One of the north-south gullies (*1921*), adjacent to a contemporary timber building (***1995***; *Ch 3, p 55*), produced a moderate number of charred seeds, with hulled barley, oat, spelt, hexaploid wheat grains, and chaff from both barley and spelt. A few charred weed seeds were recorded, as well as one fragment of a large legume, probably a pea or Celtic bean. The suite of waterlogged seeds was varied and abundant, with large numbers of docks and buttercups, and moderate numbers of chickweed and sedge nutlets. Figs, sloes, and corncockle fragments probably suggest a small element of dietary material.

Another fill of this gully produced huge numbers of fly puparia (*Appendix 15*). Waterlogged seeds were also very abundant, with thousands of dock perianths and nutlets, as well as large numbers of buttercups, radish pod fragments, chickweed, and sedge nutlets.

Occasional fragments of cereal straw and possible rotted bracken stems were also recorded, although there were no frond fragments of the latter. The straw incorporated both nodes and spelt glumes. Otherwise, the seeds suggest a mixture of soil and grassland, with hints of calcareous grassland. Evidence for food plants was restricted to one sloe stone and a few fragments of corncockle.

It would seem that stable waste may well have formed an important component of the fills of many of these gullies. On the north side of the site (LAL C), Period 7 features were relatively minor (*Ch 3*), with gullies producing rather more of a ruderal assemblage, for example large numbers of seeds of fat-hen, although a small amount of byre waste/dung is indicated. Blackberry pips could add further to an interpretation of waste ground, although they may reflect casual dispersal by birds, or faecal material. This perhaps suggests rather less intensive activity in this part of the site.

Building ***1995*** was demolished in Period 8A (*Ch 3*), and two gravelled lanes were laid out across the central part of the site, both reasonably soundly constructed. A gully (*1196*; *Ch 3, p 62*), between the lanes and aligned parallel with them, yielded a suite of plant remains that give a slight suggestion of grassland, possibly hay, with some indication of cultivation. Part of the assemblage was burnt, and a small amount of industrial waste was also recorded.

Quite a few of the pits associated with Periods 8A and 8B were sampled. Most had a number of taxa related to herb-rich fen communities, which could well represent disposal of flooring/bedding material or hay, with the classic yellow rattle of traditional hay meadows present in moderate amounts. Other pit fills gave a suggestion that woody debris had been thrown in, followed by some soil and bedding, or flooring, but the soil could have filtered down from above. Others produced very few plant remains, making it most likely that these deposits were highly humified, and had rotted away over time. None of them produced strong evidence for faecal material, and, in fact, many of them were rather characterless or highly mixed.

Period 9 (*Ch 3*) saw some variation in the plant remains. A sample from a deep pit in the east of the site (KLA B *1204*) produced seeds that were almost entirely from food plants, and were also generally large and robust. Olives, one with flesh still adhering, sloes (charred and uncharred), damson, hazelnut shell, blackberry, dill, and radish, as well as vast numbers of grape and fig pips, all attest to the presence of food debris, probably faecal material. Many of the figs were cracked, and the fragmentary nature of the grape pips, apple/pear pips, and rowan seeds suggest passage through a digestive tract. Moderate numbers of fly puparia were recorded (*Appendix 15*), and suggest rotting organic material lying around for some time. Whilst the seeds clearly represent food, there are no small or delicate elements, like, for instance, bran, present, and therefore differential preservation remains a possibility. The invertebrate assemblage likewise would not be out of place in a cess pit (*Appendix 15*).

Other assemblages from Period 9 may represent deposits of stable or byre waste, with some evidence for open ground and ruderal taxa. One notable deposit (*1234*), an external soil in KLA B, towards the south-east corner of the site, in addition to containing wood, amorphous organic mat**e**rial with some mosses and insect fragments, and grassland to wet-ground taxa, with a few indications of ruderal communities, also produced a large amount of quite thick, shiny, platy, organic material, most likely to be the remains of holly leaves (A Hall *pers comm*), which may have reached the site as fodder. The invertebrate report also notes holly (*Appendix 15*), and the insect fauna suggests stable manure and open-ground taxa with litter.

At this time, conditions for preservation were poor in some of the trenches, their fills comprising highly humified soils containing large numbers of fungal resting spores. There were also considerable amounts of clinker, cinder, and white spatter-type industrial waste in gully fills, many of which otherwise contained few seeds, if any. There was a creamy coating over most of the material, and the mammal bone, both unburnt and calcined, was highly comminuted (abundant in the 1 mm fraction). Whether this was the result of specific conditions, or had some different origin, remains unclear. In the north-west corner of the site (LAL D), all of the earlier deposits were sealed by an accumulation of dark organic soil (*1100*, *1132*) across the whole trench (*Ch 3, p 70*). This was very heterogeneous, with wood and charcoal chunks, a few twigs, bone, straw, fly puparia, and insects, with plenty (in terms of the northern Lanes) of charred cereal grains. Hulled barley and spelt wheat were well preserved. This, plus the angular, rather than rounded, nature of the charcoal, suggests that the material was buried rapidly after deposition. Waterlogged seeds were abundant and varied, with the usual sedges, buttercups, and tormentil all abundant. Figs, coriander, and the occasional sloe provide limited evidence for diet. Plants of open ground, as well as grassland taxa, were quite common. Although indicative of soil, these layers are clearly different from other soils on the site, being not nearly as well-rotted.

Period 10 saw yet more extensive accumulations of soil on some parts of the site, which effectively sealed the underlying material, whilst in other areas timber buildings were constructed within probable

properties or building plots extending back from Roman Scotch Street (*Ch 3, pp 70-9*). The lack of seeds, but abundance of fungal resting spores, suggest that some, at least, were biologically active soils at the time. Other layers had moderate assemblages of plant remains, mostly suggesting a damp grassland community, with little or no evidence for ruderals or soil/cultivation indicators. These may, of course, represent stable/byre waste being spread around, and consequently being in various states of rotting/composting. Pits and gullies associated with these accumulations tended to have rather poor preservation, and several samples produced small amounts of calcined bone and industrial spatter. Cobbled areas produced samples with broad spectra of matrix components, but rather few seeds. One sample recorded up to ten or so fragments of fish bone, which is highly unusual for Carlisle, indeed, for any Roman site in the North (Huntley and Stallibrass 1995). Some were small vertebrae, others flakes of head bones, all from small fish. They were associated with a small element of food debris, including dill, blackberry, and fig, along with some charred wheat grains. A few other pits had hints of faecal material in the form of bran, but the lack of seeds precluded any more definitive interpretation.

A timber structure (***474***) was erected during Period 10B in the northernmost of the building plots (LAL C; *Ch 3, p 81*). To its south and west, layers and lenses of sandy organic deposits sealed earlier pits and gullies. One of these layers (LAL C *334*), although highly organic, produced a few sedge nutlets only, but the moderate amounts of clinker were interesting in that they presumably reflect the burning of coal. Numerous fragments of comminuted bone and some white globular 'blobs' of industrial waste were also recorded. Other layers were simply dumps of rotting/rotted organic material, with some of those at the edges of a well-used and often repaired metalled path (Period 10C, *200/237; Ch 3, p 85*) containing large numbers of nettle, and some chickweed. Clearly these indicate some nutrient enrichment, possibly via run-off from the lane.

Later Roman Activity (Periods 11-12)

Thirty samples were analysed from deposits associated with later Roman activity (*Ch 4*), when a substantial, multi-roomed stone building (***2000***) was erected within one of the properties (Period 11A), and was subsequently enlarged (Period 11B). It was associated with cobbled yards and paths/lanes, but no plant remains were seen in those deposits sampled. A hypocaust (R11) was added later still (Period 11C). Not surprisingly, the samples from this comprised burnt material (daub and charcoal, with burnt mammal bone, small mammal bone, and considerable amounts of clinker), but only the occasional badly preserved charred cereal grain was recovered. The main inference is that coal was probably used for quite a lot of the fuel. More cobble surfacing was laid down around the building and a stone-lined well (*678*) was inserted to the west during Period 11C (*Ch 4, p 112*). Charred heather was common in one of the fills of the well, and was accompanied by a large number of moss fragments, including *Mnium punctatum, Dicranum scoparium, Polytrichum juniperinum* ('flowering'), cf *Isopterygium elegans*, and cf *Barbula convoluta*. The first two of these are indicators of a woodland community, but the remainder are more suggestive of soils or bare ground (A J E Smith 1978). Charred plant remains, whilst not abundant, were present, and included oat grains and the chaff of barley and spelt wheat. Large numbers of charred heather shoots were recorded, but no heather flowers. There were also burnt stems of *Juncus*. The waterlogged taxa were dominated by weed seeds and some ruderal taxa, notably fat-hen, nettles, docks, and chickweed. Waterlogged spelt glumes and cereal straw were also moderately common.

Samples from a second stone well (*226*), inserted into the building plot to the north of Building ***2000*** during Period 11D (*Ch 4, p 119*), showed alternating layers of highly organic material (*eg 232.16-21*), interspersed with more mineral deposits. The uppermost layer was, like the fill of well *678* in the adjacent building plot, rich in charred heather, and also charred rushes, as well as the typical suite of waterlogged seeds of weeds and ruderals, perhaps incorporating roofing or flooring material, whilst another layer produced moderate amounts of charred grain and waterlogged straw. The burnt material might well represent efforts to dispose of debris from a fire. It is interesting to note that this upper layer had a reasonable correlation between taxa preserved by charring and waterlogging, suggesting that one type of material was being disposed of after having been partially burnt.

Other Period 11 pits/wells produced rather more evidence for stable/byre waste, with small elements of faecal material. The later pits tended to produce almost no organic material. Their matrix components included charcoal, calcined mammal bone, a little possible fish bone, and some probable industrial spatter, although in very small quantities. The contents of one pit (*210*; *Ch 4, p 93*), however, from the early part of this period (11A), can be described with confidence as containing much faecal material. The bulk of the matrix comprised lumps of cream and shiny material, looking rather like concreted platelets of bran. Even the fine fraction contained no loose bran. Some considerable numbers of seeds were recorded, and none was charred. The majority were from edible plants (bilberry, celery, fig, opium poppy, and particularly large numbers of highly fragmentary pieces of corncockle (*Agrostemma githago*)). The lack of loose bran fragments may simply relate to

the slight mineralisation of the deposit, and the fact that much still remains in tight concretions.

Building ***2000*** appears to have gone out of use, at least for 'formal' occupation, by the middle of the third century (at the end of Period 11C), although there seems to have been some continued occupation, perhaps in the form of 'squatters' (Period 11D-12; *Ch 4, p 130*). None of the samples analysed from this phase produced any seeds or, indeed, any organic material at all. To the north, within the northernmost building plot, several phases of timber buildings were erected during Period 11 (*Ch 4*), with the latest (***1569***) being constructed during Period 11D. These structures were associated with metalled areas and external soils that yielded few preserved plant remains. During the fourth century, the whole of the plot available for investigation was covered with a gravelled surface (Period 11E), which was itself sealed by an extensive build-up of dark soils and sandstone rubble (Period 12). None of the samples associated with these phases contained plant remains.

Discussion

The over-riding impression gathered from the burnt and waterlogged plant remains is that the area of the northern Lanes was generally either kept clean of domestic rubbish for much of the Roman period, or that preservation conditions were such that plant remains did not survive to any great extent. The latter is undoubtedly true in some cases, but it would otherwise seem that moderate cleanliness was the order of the day. Delicate remains, which would have rapidly disappeared under adverse conditions, have survived to some degree.

Remains of food (rubbish or faecal matter) are rare, and restricted to a few contexts, suggesting that this was not a particularly densely inhabited area. A small assemblage of the 'Roman faecal suite' was present, indicating similarity of diet to that of the military within the fort (Caruana in prep a; in prep b; Zant 2009). In this it compares well with the southern Lanes (Huntley 2010), where such aspects were even rarer. Nonetheless, there was the occasional deposit of food debris from locally procured foods, and bilberries, for example, seem to have been popular in one sample.

As with many urban sites, wet and grassland taxa are the most abundant types, and have come to be interpreted as either stable manure or floor coverings (Kenward and Hall 1997). Whilst either is possible at the northern Lanes, there are no huge concentrations which might have suggested dense stabling or domestic occupation. Even the pits and wells were not filled with organic material alone, although there may have been some differential preservation, as evidenced by the partially mineralised nature of some of these deposits. It may be that the water-table varied through time within these features.

The general nature of the deposits varies from that of the adjacent southern Lanes, being slightly more restricted in nature, and considerably less organic. Given the close proximity of the sites, this is felt unlikely to reflect taphonomic processes, but to represent a genuine difference between the nature of occupation and activity between the two sites. The archaeology itself reinforces this idea, in that substantial timber (*eg* Building ***1560***) and stone-built structures (*eg* Building ***2000)*** are, at times, seen at the northern Lanes, whilst the southern Lanes was always dominated by rather smaller, timber-built, structures (McCarthy 2000).

In general, charred plant remains were rare and concentrations were low. This is normal for most Roman military sites in the North, where only the occasional context has high values (Hall and Huntley 2007). If larger bulk samples had been available, then perhaps more material would have been recovered, but concentrations are unlikely to have differed greatly, unless the contexts were especially heterogeneous. Hulled barley and spelt glumes were the most commonly recorded, again the norm for the Roman North (Hall and Huntley 2007; Huckerby and Graham 2009; Huntley 1997; 2000a). Some wheat grains were present, but nothing in sufficient quantity to suggest more than casual discard. Associated charred remains were the expected weedy taxa, plus a very few charred lentils and grapes. Burnt heather remains could reflect the disposal of old roofing or bedding material but, again, amounts were very low and give little indication of utilisation in a specific context. All of the charred material probably simply reflects usage in and around the site, the oft quoted 'background assemblage'.