SITE 874

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The plant remains from Kirkby Thore, Cumbria

(grid ref. NY 637 257)

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Introduction

In 1983 a small scale excavation was carried out at this site as part of the Unit's Vici Assessment Project. The excavation aimed to sample a field to the North of the Roman Fort in advance of a planning application for housing development. The field lay on the opposite side of the Fort to the present village which is situated over the remains of the vicus. Six trenches were put in, all of which produced archaeological features of either Roman or Medieval date.

As the purpose of the excavation was largely exploratory, it was decided that the sampling strategy for the plant remains should be a random one, in order to collect a representative sample of the archaeological features encountered. Thus, a 10% random sampling strategy was applied, which resulted in eleven samples, five dated to the Roman period, and six to the Medieval period.

During post-excavation work, however, it became clear that the pottery assemblage from most of the Medieval deposits contained both Medieval and residual Roman pottery. Unfortunately, it is not possible to detect whether the plant assemblage in these deposits is equally made up of Medieval and Roman material, as, unlike pottery, seeds of different chronological periods show no morphological differences. The problem of residuality is common to many excavations, and the only realistic solution is to rule out from the botanical analysis those deposits that contain residual material. At this particular site it meant the loss of five out of the six samples from the Medieval period. The implications of this problem for any future work on the site are discussed below

Consequently, this report discusses the plant remains from five deposits of Roman date (late first - second century A.D.) and one of

Medieval date. The results of the other five samples are merely listed in a table, and are not (cannot be) incorporated in the discussion. A description of the contexts, dating evidence and volume of the samples is given in Table 1. Table 2 gives the results of the Roman and Medieval samples, and Table 3 lists the results from the deposits that contained residual material.

The samples were processed in the usual way: after they were air-dried, manual water flotation was applied, using a 0.5 mm mesh sieve. The flots were then dried and sorted under the microscope.

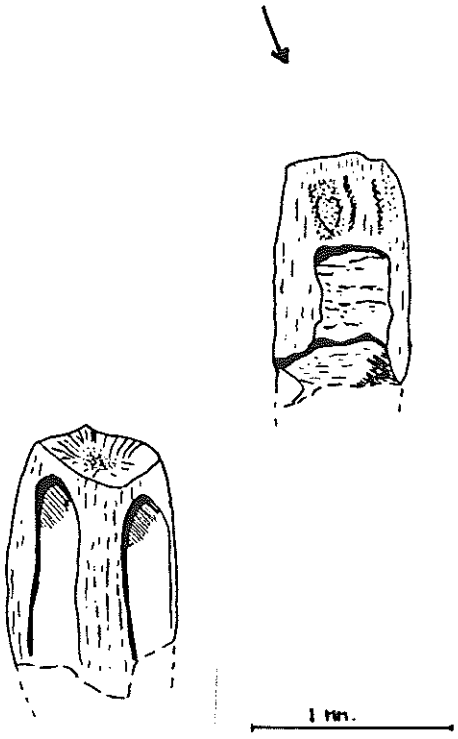
Results

All samples contained plant remains; on average there were 73 seeds per sample. Evidence for four cereal crops was found: barley, oats, wheat and rye. Barley and oats were present in roughly similar quantities. Most of the grains of barley were badly preserved, but some hulled and asymmetrical grains were found, suggesting that 6-row, hulled barley, Hordeum vulgare,was present. A reliable distinction between wild and cultivated oat grains can only be made on the basis of the morphology of the floret bases. If these are not present as is the case here, it is not possible to make the distinction, hence the identification of Avena sp, oats in general. The few wheat grains were badly preserved, but the shape of one or two of them was suggestive of spelt wheat. Unfortunately, the glumebases were equally badly preserved, but again there was the suggestion that some spelt characteristics were present. However, none of the material could be confidently identified to spelt wheat, and consequently, the identification was left at Triticum sp., wheat. Rye, Secale cereale, was represented by one rachis internode in the Roman samples, and by one rachis internode and one grain in the Medieval sample. The only other crop plant in the samples was a pulse, not further identified, represented by a number of small, undiagnostic fragments. In the Medieval sample one field pea, Pisum sativum, was found. The only wild food plant found was hazelnut, Corylus avellana, in the form of three shell fragments.

Only a very small quantity of cereal chaff was found in the samples, glumebases of a hulled wheat were the most common type encountered. It appears that the chaff elements of barley, oat and rye are under represented, a feature often recognised in other carbonised plant assemblages.

A considerable range of herbaceous species was present in the samples, many of them common arable weeds. Their habitat requirements or preferences can give us useful information about the soil types used, see below.

It is worth making a note on the presence of Tripleurospermum maritimum, spp. maritimum in deposit 053, even though this deposit contained residual material. It is rarely possible to identify Tripleurospermum maritimum to its subspecies level. The distinction between Spp. maritimum and Spp. inodorum is based on the shape of the oil glands, positioned at the top of the outer face. In spp. maritimum the oil glands are elongated in shape, while in Spp. inodorum they are rounded or circular (Clapham et. al. 1962, Kay 1969). In carbonised seed assemblages the species is regularly found, but in most cases the spongy tissue and the oil glands have burnt away during carbonisation. In this particular case, however, the spongy tissue was preserved and it is just possible to recognise one oil gland, which appears to be elongated in shape (see drawing), hence the identification as Spp. maritimum.



Spp. maritimum is found in coastal areas, on dunes, shingle beaches, rocks, cliffs etc., while Spp. inodorum is a widespread weed of arable and waste land. As such, the occurrence of Spp. maritimum at Kirkby Thore, far away from the coast, is somewhat surprising. The occurrence of a similar phenomenon in Germany was interpreted as evidence for trade contact with the coastal area (Willerding 1981). In this German case, however, the suggested trade contact was corroborated by other imported goods. In the case of Kirkby Thore no such evidence is present, and as the Tripleurosperum achene was found in a residual context, and thus cannot be dated, it is not possible to put any interpretation on this find.

Discussion

Probably the most interesting feature of the Roman assemblage is the fact that as much as four cereal species were present in the samples, and that the cereals as a group make out quite a large proportion of the total assemblage, i.e. 50%. This might be interpreted as an indication that cereal grains were not a sparse commodity on the site, but were probably present in relatively large numbers, a feature often associated with settlements producing cereal crops (Jones, forthcoming).

It is interesting that the two most common cereal crops are barley and oats, two species generally regarded by the Romans as of inferior quality, associated more with animal fodder than with human food. It was wheat, and especially spelt wheat, with which in the Roman period good quality bread was associated. Rye bread is traditionally regarded as the bread of the poor (Chambers & Jones 1984). The exact timing of the start of rye cultivation in this country is still poorly understood. The presence of rye in this second century A.D. context is as such important.

Both oats and rye are usually associated with areas of marginal cereal cultivation, as they can tolerate acid and infertile soils (Jones 1981). The presence of these types of soils near the settlement is confirmed by the fact that weed species indicative of these conditions were found in the assemblage.

The weed species provide information about three soils characteristics : moisture, Ph. and nitrogen levels. As far as moisture is concerned, there is no evidence for extreme conditions, neither dry nor damp indicating species were found. Concerning the Ph. of the soils, several species were characteristic of weakly acid to acid soils (Rumex acetosella, Spergula arvensis, Chrysanthemum segetum, Sieglingia decumbens), while there were very few species prefering neutral soils (eg. Stellaria media). The nitrogen requirements of the weed species suggest the presence of two groups of soils, one poor in nitrogen (Rumex acetosella, Vicia/lathyrus Sieglingia decumbens, Chrysanthemum segetum, Carex sp.), and one rich in mineral nitrogen (Stellaria media, Urtica urens, Spergula arvensis, Polygonum persicaria, Chenopodium album). Thus, the weed species suggest that the soils used were well drained, and had a fairly low Ph, ranging from weakly acid to acid. But within these both poor and rich soils could be found.

Only a few brief comments can be made about the Medieval sample : the same four cereal crops were present as in the Roman deposits. The range of herbaceous species is fairly small, and contains several species which prefer acid soils (Carex pilulifera, Spergula arvensis, Calluna vulgaris). Interesting is the presence of Centaurea cyanus and Agrostemma githago, both arable weeds often associated with rye cultivation (Godwin 1975, Willerding 1981).

Unfortunately, the nature of the 1983 excavation (a number of narrow trenches across the field) prevented a good understanding of the archaeological features found. It could only be established that a number of subsoil cut pits and ditches of Roman date were present. The nature of the settlement remains unclear. The character of the, admittedly small, botanical assemblage, however, would suggest that the inhabitants of the site might have been actively involved in cereal production.

Future work

The assemblage available from the Roman deposits is certainly of sufficient quality and interest to suggest that if further work at the site were to be carried out, further sampling for plant remains should be carried out as well. The sampling strategy should remain a random one, but could be associated with a small element of judgement sampling. It may be necessary to increase the sampling proportion, and details like this need to be discussed before further excavation takes place.

The Medieval deposits are more problematic, as so many of them contained residual Roman material. No form of sampling strategy could do away with this problem, and the sampling proportion would have to be increased dramatically to ensure a reasonable number of samples. From the point of view of the botanical analysis it is, therefore, probably not worth pursuing the Medieval deposits on this site.

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Table 1 Sample information

Context		Volume in litres	Dating evidence	
023	fill of curving ditch/foundation trench	23.5	Roman sherds and tile	Roman period
038	pit fill	27	Roman pottery, 2nd Century A.D.	
043	fill of shallow ditch	25	Roman pottery, 2nd Century A.D.	
088	primary fill of ditch	28	Sealed by deposit containing pottery in the range of 85 - 165 A.D.	
095	fill of ditch, part of fort defences	26	5 sherds of Roman pottery in the range of 80 - 190 A.D.	
077	layer at butt end of the shallow wall foundation	24.5	9 Medieval sherds	Medieval
006	Medieval lynchet	26.5	Medieval and Roman pottery in the ratio of 2 : 1	Medieval with residual Roman material
014	fill of wide shallow ditch	23.5	2 sherds of Medieval pottery, but higher fill of same feature contained both Med. and Roman sherds.	
053	Medieval lynchet	24.5	Medieval and Roman pottery in the ratio of 1 : 3 (Roman both 2nd & 4th Cent. A.D)	
062	fill of wall robbing trench	26.5	3 Medieval sherds, but same context in adjacent trench contained 4 Medieval and 2 Roman sherds.	
101	Narrow "V" shaped trench	26	1 Medieval sherd and frag. of Roman tile	

Table 2 Results from samples of Roman and Medieval date

	Roman					Medieval
Context	023	038	043	088	095	077
Species:						
Hordeum sp. (barley)	2	12	10	4	13	14
Avena sp. (oats)	5	10	10	1	10	7
Triticum sp. (wheat)	1	1	1		3	4
cf. Secale cereale (rye)						1
Cerealia indet	8	17	16	14	27	21
Glumebases Triticum sp.	2	1	7			
Rachis internode Triticum sp.	1		1			
Rachis internode Hordeum sp.			2		2	
Rachis internode Secale cereale					1	1
Rachis internode indet					1	
Pisum sativum (field pea)						1
Large pulses, fragm.			4		1	2
Corylus avellana (hazelnut), fragm.					3	
Stellaria media (common chickweed)	12	7	2			
Stellaria sp.					1	
Agrostemma githago (corn cockle)			1			
Silene alba/vulgaris (campion)			1			
Chrysanthemum segetum (corn marigold)	1					
Centaurea cyanus (cornflower)						1
Spergula arvensis (corn spurrey)				2		15
Urtica urens (annual nettle)	1	3				
Rumex acetosella (sheep's sorrel)	2				1	
Rumex sp.		3	2			
Polygonum persicaria (red shank)			1		1	
Polygonum lapat/pers.		1				
Polygonum sp.			1			
Chenopodium album (fat hen)		1				
Chenopodium sp.		5			1	1
Plantago lanceolata (ribwort plantain)		6	6	1		
Prunella vulgaris (self-heal)		1				
cf. Potentilla	1					
Viola sp. (violet)	1					
Veronica arvensis /chamaedrys (speedwell)	1					
Vicia cf. tetrasperma (tare)						1
Vicia/lathyrus (vetch)		1			2	
Trifolium cf. repens (white clover)		4				
Leguminosae indet, small		2	2			
Carex pilulifera (pill headed sedge)						1
Carex hostiana-type			1			
Carex sp.	1	1			1	2
Calluna vulgaris (leaves) (heather)						3
Bromus sp. (brome grass)		3				
Sieglingia decumbens (heath grass)			2			
Very small grasses	4	16	2		1	1
Gramineae indet (grasses)	4	9	2	1	1	3
Culmbases grasses	1					15
Indet		3	8	1	4	11
Total	48	107	82	24	74	105

Table 3 Results from samples of Medieval deposits containing residual Roman material

Context	006	014	053	062	101
Species:					
Hordeum sp. (barley)	22	1	15	3	3
Avena sp. (oats)	33	1	15	2	1
Triticum sp. (wheat)	4		4		
Cerealia indet	46		51	4	10
Glumebase Triticum sp.	1			1	
Rachis internode Hordeum sp.	1			2	
Rachis internode Secale cereale	2		1		
cf.Culmnodes Cereals				2	
Chaff fragm. indet			1		
Corylus avellana (hazelnut) fragm.			4		
Stellaria media (common chickweed)	2				
Stellaria sp.			2		
Agrostemma githago (corncockle)			1		
Chrysanthemum segetum (corn marigold)			1		
Tripleurospermum maritimum (scentless mayweed)	1		2		
Tripleurospermum maritimum, spp. maritimum (")			1		
Anthemis cotula (stinking mayweed)			1		
Ranunculus repens (creeping buttercup)	1				
Euphrasia/Odontites				1	
Spergula arvensis (corn spurrey)			3		
Rumex acetosella (sheep's sorrel)	5		4		
Rumex sp.	1				
Polygonum persicaria (red shank)	1		1	1	
Polygonum lapat/pers.			2		
Chenopodium album (fat hen)			1		
Chenopodium sp.		1	1		1
Chenopodiaceae indet				2	
Vicia/lathyrus (vetch)	2		17	1	
Leguminosae indet, small				1	
Carex pilulifera (pill-headed sedge)	2			2	
Carex sp.			2	5	
Carex flava-group					1
Scirpus setaceus (bristle scirpus)				1	
Calluna vulgaris, (heather)	5		1	27	
Very small grasses				2	
Gramineae indet. (grasses)			15	4	
Culmbases grasses	6		1	10	1
Indet	8		9	10	1
Total	143	3	156	81	18