

The Bars, Chester Assessment of charred plant remains

Client report



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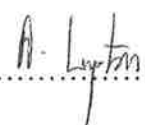
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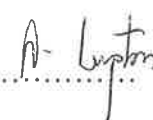
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SUMMARY

Oxford Archaeology North (OAN) was commissioned by Earthworks Archaeological Services to advise on the environmental sampling strategy and to assess the environmental potential of the samples from the excavation at The Bars, Chester. Thirty samples were taken by the excavators and twenty one of these were selected by Oxford Archaeology North for the assessment of charred plant remains. These were processed by flotation and the flots were assessed as to their potential to inform about the economy, environment and development of the site. Some charred plant remains were recorded in all samples although only two samples had any significant quantities. Charred remains from arable plants were very limited although occasional cereal grains were identified in most samples. The assessment demonstrated that there was only a limited potential for further analysis. It is recommended that two Roman samples should be fully analysed for charred plant remains and that the charcoal from a further three Roman samples, two from the banjo furnace (107) and one from Furnace 139, should be analysed to inform about the use of wood in the industrial processes undertaken on the site.

ACKNOWLEDGEMENTS

The samples were processed at Oxford Archaeology North by Chris Ridings. The assessment of the charred plant remains and report writing was undertaken by Elizabeth Huckerby, Alan Lupton edited the report and together with Carol Allen managed the project.

1 INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 An archaeological evaluation was undertaken in April 2001 on the site of the proposed residential development of the former BT Exchange at the Bars, Chester (centring on SJ 4126 6645). The site lies within the eastern suburb of the Roman, medieval and post-medieval town and the general area was considered to hold a high archaeological potential. The evaluation comprised a rapid desk-top survey and the excavation of six trial trenches, which demonstrated the presence of a sandstone cellar probably dating to the post-medieval and an infilled stream bed with an impressive assemblage of Roman finds, including pottery and butchered bone. The evaluation of the site recommended that an environmental sampling strategy should be a key component of the excavation and Oxford Archaeology North (OAN) was asked to undertake this.
- 1.1.2 The site was excavated in the summer of 2002 by Earthworks Archaeological Services. Bulk samples were taken by the excavators following two site visits by the OAN environmental archaeologist.

2 METHODOLOGY

2.1 METHODOLOGY

- 2.1.1 The samples, from 5 litres to 30 litres in volume, were hand floated; the flots were collected on 250 μ mesh and air-dried. The flots were scanned with a Leitz/Wild stereomicroscope, plant material was recorded and provisionally identified. The matrix components were also noted. The data are shown in Table 2.

3 QUANTIFICATION

3.1.1 Thirty bulk environmental samples were taken by the excavators from a number of discrete and well stratified context types including furnace fills, hearths, natural stream and water channel deposits, fills of post-holes and a cultivated soil. Twenty one samples were selected, by the environmental archaeologist at Oxford Archaeology North in consultation with the excavator, for the assessment of charred plant remains. Table 1 shows the context types and number of samples assessed.

Feature type	No of samples	Period
Post-hole	6	
Banjo furnace	2	Roman
Furnace 139	2	2 nd century
Hearth	1	Roman
Cultivated soil	1	Roman/post-Roman
Water channel	4	Roman
Stream fills	5	Roman
Total	21	

Table 1 number of environmental samples assessed from The Bars, Chester

4 RESULTS

4.1 RESULTS see Table 2

- 4.1.1 The flots were between <5ml and 500 ml in volume, with the majority between 50ml and 100ml. All flots demonstrated the preservation of some charred plant material, although most samples contained little evidence of economic crops. Occasional charred cereal grains were recorded in 19 samples and spelt/emmer wheat (*Triticum dicoccum/spelta*), bread wheat, barley (*Hordeum*) oats (*Avena*) and rye (*Secale*), together with indeterminate grains, were identified. A few glume bases from emmer/spelt wheat were recorded in three samples, two from the fills of water channel 116/108 (contexts **42** and **97** samples 4 and 17) and one from the primary fill (context **135** sample 26) of the fire pit of the banjo furnace **107**. The only other food plants identified were hazel nut fragments in sample 30 (the fill of post-hole **155**) and cultivated legumes in samples 11 and 25 (the natural silting of stream 99) which is probably Roman in date and the final fill (context **106**) of the banjo furnace **107**.
- 4.1.2 Charred weed seeds were recorded in some samples with significant values in two (sample 24 context **91**, from the natural silting of stream **99**, and sample 25 context **106** the final fill of the banjo furnace **107**). There were lower values of weed seeds in six other samples. The assemblage of weed seeds included some arable weeds eg poppy (*Papaver*), and taxa from broad ecological categories eg small seeded grasses, bromes grasses (*Bromus*), small legumes, chickweed (*Stellaria media*) and pale persicaria (*Polygonum persicaria*). Some wet ground taxa were also recorded and included sedges (*Carex*) and spike rushes (*Eleocharis*)
- 4.1.3 Low numbers of waterlogged seeds were recorded in some samples and included seeds of hemlock (*Conium maculatum*), a plant of damp and waste ground and henbane (*Hyocyamus niger*), a plant of waste ground especially manured by cattle or rabbits. The seeds from both these plants are quite woody and are often preserved when other taxa do not survive. This suggests that there is some degree of differential preservation of non charred plant remains resulting in a skewed data set.
- 4.1.4 Charcoal was identified in all samples and oak (*Quercus*), some hazel/birch/alder-type (*Corylus/Betula/Alnus*) and other taxa were recorded. Some roundwood was noted and thorns of hawthorn/sloe (*Crataegus/Prunus spinosa*) were identified. The preservation of the charcoal was mixed and the fragments varied in size from greater than 2mm to less than 2mm in size.
- 4.1.5 Mammal bone, both calcined and unburnt, was noted in many of the samples and fish bone was recorded in sample 30 (context **156** fill of a post-hole **155**). Other matrix components recorded included coal, cinder, slag and industrial residues. There was some modern contamination in the form of roots and seeds but this was not severe.

5 DISCUSSION

5.1

DISCUSSION

- 5.1.1 The assessment of the environmental samples for charred plant remains from The Bars, Chester demonstrates that the potential for further analysis is very limited. Charred plant remains that might inform about the economy of the site and the surrounding environment are restricted. There is limited evidence for cereal processing or consumption with low numbers of cereal grains and chaff fragments recorded. Charred weed seeds were identified in a number of samples but, in general, they were not specific to any plant community and came mostly from broad ecological categories. However, some arable weeds and plants from wet/damp ground were noted.
- 5.1.2 Charcoal fragments were recorded in all samples and three Roman samples demonstrated the potential for charcoal analysis. These were samples 25, 26 from the banjo furnace (*107*) and sample 136 from the furnace *139*.
- 5.1.3 Archaeobotanical records from Chester, in particular from Roman contexts, are rare and samples that have been examined are on the whole poor in plant remains either charred or waterlogged. Jacqui Huntley and Allan Hall (pers com) mention a single report from the fortress at Chester with very few charred plant remains but no other reports are cited. More recently Oxford Archaeology North assessed some environmental samples from an archaeological evaluation of the site on the City Road, Chester (OAN 2003) and the potential for further analysis was poor. Therefore, the two samples that have a good potential from the Bars, Chester are important because so little information is known about the diet and environment of Roman Chester.
- 5.1.4 Only two samples were identified as having the potential for further analysis of charred plant remains. The analysis of the charcoal from a further three samples which may be informative about the fuels used in the industrial processes performed in the furnaces. It may also be able to distinguish whether the charcoal came from trees that had been coppiced and, consequently, be informative about possible woodland management from the environs of Chester.

6 RECOMMENDATIONS

6.1 RECOMMENDATIONS

- 6.1.1 It is recommended that samples 24 context **91**, from the natural silting of the stream **99**, and sample 25 context **106**, the fill of the fire pit of the banjo furnace **107**, should be analysed for charred plant remains.
- 6.1.2 It is also recommended that the charcoal from a further three Roman samples (25, 26 and 136), two from the banjo furnace (**107**) and one from the furnace **139**, should be analysed to inform about the use of wood in the industry of the site

7 TIME AND COSTS

7.1 CHARRED PLANT REMAINS ANALYSIS:

7.1.1 Sorting 2 samples for charred plant remains 1 day of a supervisor is required. Analysis and report writing two days of an environmental archaeologist is required.

7.2 CHARCOAL ANALYSIS

7.2.1 Sorting and analysis of 3 samples and report writing 4 days of a charcoal specialist is required.

7.3 MANAGEMENT

7.3.1 One day of OAN manager

8 BIBLIOGRAPHY

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Sample	Context	Feature and description	Sample vol (litres)	Flot description	Plant remains	Potential
1	19	Uppermost fill of hearth 21, Roman	10	Flot 15ml, charcoal 3, medium-small fragments, coal, sand	Cereals 1, bread wheat=undiff cereal, w/ sedge, blinks	Low
4	33=42	Gravel backfill of water channel, Roman	30	Flot 100ml, charcoal 5, larger fragments, poor preservation, tarry, oak+other bone, sand gravel	Cereals 1, oat + undiff, charred weeds 1, incl grass, <i>Chenopodium album</i> and small legume	Low
5	32=54	Cultivated soil, Roman/post Roman	30	Flot 50ml, charcoal 5, small fragments, coal, cinder, sand, gravel, modern contamination	Cereals 2, emmer/spelt fragment, oat, undiff, charred weed seeds 1, small legume, chickweed	Low
6	42=33	Water channel fill, Roman	30	Flot 100ml, charcoal small-medium fragments, engaged with silt, bone mammal+calcined, coal, sand/grave, clay, industrial globules	Chaff 1, Emmer/spelt glume base, hazel nut fragments 1	Low
8	45	Fill of stream 46,	10	Flot 10-15ml, charcoal 5, some larger fragments, hazel/birch type+oak, bone, coal, sand		Low
9	41=85	Uppermost fill of stream 46, natural silt, Roman	30	Flot 75ml, charcoal 5, medium fragments, mammal+small mammal bone, coal cinder, slag, modern contamination	Cereal 1, Bread wheat	Low
11	54=92	Sand deposit in stream 99, natural silt, Roman	30	Flot 175ml, charcoal engrained with silt, oak+other, burnt monocot stems, mammal bone 4, calcined bone, sand/gravel	Cereal 1, emmer/spelt, cultivated legume, charred weed seeds 2-3, incl grass, sedges, <i>Chenopodium album</i> , <i>persicaria</i> sp	Low
13	52	Fill of stream 108=116, cut by channel 98, Roman	30	Flot 200ml, charcoal, large-small, engrained with silt, oak+other, bone mammal, small mammal, and calcined, wood, coal/cinder, sand/gravel, industrial waste	Cereals 2, wheat, bread, spelt/emmer, undiff, charred weed seeds 2, incl poppy, small legumes, <i>persicaria</i> 's, waterlogged henbane	Low
17	97	Fill of main water channel 108=116, cut by channel 98, Roman	10	Flot 50-75ml, charcoal very engrained with silt, bone mammal and calcined, wood, metal working, coal/cinder, sand/gravel, modern contamination	Cereal 1 undiff, chaff 1 spelt glume base, waterlogged daisy and sowthistle seeds	Low
18	88	Fill of main water channel 108=116, Roman	10	Flot 25ml, charcoal very small fragments, bone, sand/silt	Cereal 1, waterlogged henbane seed	Low
22	90	Clay fill of post hole 89	10	Flot <20ml, charcoal 4, small fragments, sand/gravel		None
24	91	Natural silt of stream 99, Roman	30	Flot 400ml, charcoal 5 engrained with silt, bone mammal and small mammal, industrial, metal, coal, sand/gravel	Cereals 3, compact wheat, spelt/emmer, rye, barley and oats, charred weeds, <i>persicaria</i> 's, legumes, waterlogged hemlock	Good
25	106	Final fill of fire pit of banjo furnace 107	15	Flot 175ml, charcoal some round wood, sand/gravel	Cereals 2, poorly preserved bread wheat, part germinated oats, cultivated legume, charred weed seeds 4-5, mixed assemblage	Good
26	135	Primary fill of fire pit of banjo furnace 107	15	Flot 50ml, charcoal 5, hawthorn/sloe thorn, coal, sand/gravel	Cereals 1, bread wheat+undiff, chaff 1, rachis fragment, charred weed seeds 2, mixed assemblage	Low
27	138	Fill of furnace? 139, 2 nd century	15	Flot 75ml, charcoal 4, very small fragments, coal, sand/gravel		None
28	136	Fill of furnace? 139, very truncated possibly 2 nd century	15	Flot 500ml, charcoal 5++++, thorn, mammal bone,	Cereal fragments 1, poorly preserved tarry, some wheat,	None

Sample	Context	Feature and description	Sample vol (litres)	Flot description	Plant remains	Potentia
29	154	Fill of post hole 153	5	Flot <10ml, charcoal 3, small fragments	Cereal 1, undiff	None
30	156	Fill of post hole 155	10	Flot 55ml, charcoal 5, medium fragments, fish bone, sand/gravel, modern contamination	Cereal 1, wheat, hazel nut fragments, charred seeds 2. incl legume <2mm, chickweed, grass	Low
31	158	Fill of post hole 157	5	Flot <5ml, charcoal 2, few very small fragments, sand/gravel		None
32	162	Fill of post hole 161	5	Flot <20ml, charcoal 4, small fragments, bone mammal and small mammal, sand/gravel, modern contamination	Charred weed seeds 1, cleavers (<i>Galium aparine</i>)	None
33	164	Fill of post hole 163	5	Flot <5ml, charcoal 2, small fragments, mammal bone, sand/gravel, modern contamination	Cereal 1, bread wheat	None

Table 2 assessment of charred plant remains from The Bars, Chester. Recorded on a scale of 1 to 5 where 1=rare and 5=very abundant.



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