

Ancient Monuments Laboratory
Report 9/95

PLANT REMAINS FROM THE ROMAN
RIVER EDGE AT BRAYFORD WHARF
EAST (BWE 82), LINCOLN

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Summary

Four samples from Roman and Saxon contexts were taken during excavation of this site, but only one taken from the Roman river edge appeared to have sufficient material to be worth analysis. The plants remains indicated the probable natural vegetation of the river edge and shallows mixed with plants of well-drained disturbed soils, grassland, and woodland edges or hedgerows. Cultivated plants were present in small numbers, including the cereals spelt (*Triticum spelta*) and barley (*Hordeum vulgare*), and some possible garden plants: hemp (*Cannabis sativa*), beet (*Beta vulgaris*), coriander (*Coriandrum sativum*) and celery (*Apium graveolens*).

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Methods

Four samples for plant remains were taken during excavation. It is not known on what basis the contexts were selected for sampling, but it is presumed that at least three of the contexts were waterlogged. The contexts sampled included a late Saxon drain channel (context 13), a layer of Roman/Saxon dumps (context 48 - it was not clear if this context had been waterlogged), a layer of Roman peat (context 17) and a layer of material from the river edge near one of the revetments (context 98).

Most of the material was received already processed by sieving and the resulting flots had been dried. Small samples had been retained unprocessed in sealed bags and were still at least damp even after a decade in storage. Subsamples of the dried flots were used to assess the samples to see if the material warranted further work. Only the sample from context 98, the Roman river edge, appeared to have abundant numbers of seeds and it was decided to concentrate on this sample.

The wet sample from 98 was about half a litre in volume and a significant amount of this appeared to be small stones. Generally waterlogged material is better preserved and more identifiable when kept wet. Wet material, however, is slower to sort and handle than dry material and therefore smaller amounts of material can be looked at. The remaining volume of organic material in the wet sample also appeared to be rather small. For these reasons it was decided to use the large dried flot rather than the small wet sample for analysis. It is possible that some of the species with very fragile seeds may have been lost this way. The mesh size used for processing the flot was 0.5mm. Some delicate material may also have been destroyed by drying or so distorted as to be unrecognisable. Ideally some of the wet material should have been analysed as well for comparison but this was not possible due to lack of time.

The dried flot consisted of 550 ml. of organic material. Due to constraints of time it was not possible to thoroughly sort the whole flot. A subsample of about 6% (36 ml.) was completely sorted and all the seeds counted. The rest of the flot was scanned for further species. A significant number of further species was identified in this way. Their seeds were not counted and no attempt was made to quantify their relative abundance, but this was generally low and some species are represented by only one or two seeds. The list of species is given in Table A. Species found by scanning which were not identified in the analysed subsample are indicated by a '+'.

Discussion

Most of the plants appear to fall into three broad categories. The first category consists of plants of wet ground which are likely to have been growing along the river's edge, the second consists of weedy plants of disturbed ground which could have been either growing nearby on drier ground or dumped as a result of human activity, and the third group of plants were almost certainly deposited as a result of human activity.

Wet ground plants

Plants such as yellow water lily (*Nuphar lutea*), bogbean (*Menyanthes trifoliata*), bur-marigold (*Bidens* sp.), pondweed (*Potamogeton* sp.), duckweed (*Lemna* sp.) and spikerush (*Eleocharis palustris/uniglumis*) could have grown in the river, mostly where the water was fairly shallow and stagnant or slow moving. Other plants such as willow (*Salix* sp.), water-crowfoot (*Ranunculus* subgenus *Batrachium*), meadow rue (*Thalictrum flavum*), blinks (*Montia fontana* ssp. *minor*), meadowsweet (*Filipendula ulmaria*), gypsywort (*Lycopus europaeus*), marsh pennywort (*Hydrocotyle vulgaris*), fine-leaved water-dropwort (*Oenanthe aquatica*), spikerush, and perhaps sedges (*Carex* spp.), and buttercups (*Ranunculus acris/repens/bulbosus*), might have grown near the water's edge.

Disturbed ground plants

Many of the plants are typical of disturbed habitats such as waste ground, gardens, river banks and waysides. This group of plants seems to be the most abundant both in terms of numbers of species and of numbers of seeds. Elder (*Sambucus nigra*), the goosefoots (*Chenopodium glaucum/rubrum* and *C. ficifolium*), stinging nettle (*Urtica dioica*) and henbane (*Hyoscyamus niger*) flourish on nitrogen-rich soils, which many result from deposition of dung and organic wastes. Henbane is now rare but may once have been fairly frequent on nitrogen-rich soils. It was mentioned by Gerard (1597:283) as being common especially on dung heaps. Corn cockle (*Agrostemma githago*) was primarily a cornfield weed, and is now extinct. It is represented in this sample by only a couple of seed fragments. Chickweed (*Stellaria* cf. *media*), redshank and pale persicaria (*Persicaria maculosa/lapathifolia*), knotgrass (*Polygonum* cf. *aviculare*), docks (*Rumex* sp.), swine cress (*Coronopus squamatus*), hemlock (*Conium maculatum*), black nightshade (*Solanum nigrum*), thistles (*Carduus/Cirsium*), nipplewort (*Lapsana communis*), and prickly sow-thistle (*Sonchus asper*) are all common weeds of disturbed habitats which were relatively abundant in the sample.

Cultivated plants and other plants deposited by human activity

A small number of plants were more suggestive of woodland or hedgerows and are perhaps less likely to have found their way into the deposit by natural means. Thorns of rose (*Rosa* sp.) and sloe/bullace or hawthorn (*Prunus/Crataegus*) could conceivably represent trimmings from hedges or woodlands edges. Fragments of hazel nutshell (*Corylus avellana*) could derive from a similar source or could be food remains. White briony (*Bryonia dioica*) also grows in hedges and woodland, usually on well-drained base-rich soils (Stace 1991:275). Agrimony (*Agrimonia eupatoria*) grows in grassy places and hedgerows (Stace 1991:417), though agrimony is also a fragrant herb which may have been deliberately collected for medicinal or other uses.

Some charred remains were present in the sample. This material of course has to have been exposed to fire, though it is not possible to say under what circumstances. A domestic hearth or hearths seems a likely possibility. The charred material consists of a small amount of cereal remains including chaff material of spelt (*Triticum spelta*) and 6-row barley (*Hordeum vulgare*). There were also some grains of unidentified wheat (*Triticum* sp.), though these are likely to be spelt grains, and grains of barley, some of which was clearly of the hulled variety. The wheat grains had germinated but there was no sign of the barley grains having done the same. Spelt and 6-row hulled barley appear to have been the main cereals cultivated in Roman Britain and their presence here is no surprise. A few charred seed of weeds such

as plantain (*Plantago cf. lanceolata*), bedstraw (*Galium sp.*) and rye-grass (*Lolium sp.*) may represent crop contaminants. Also found charred were some flowers and a few stem fragments of heather (*Calluna vulgaris*). Heather may have been brought to the site as bedding or possibly as packing for fragile items being brought to the town. Heath grass (*Danthonia decumbens*) may have come from the same source as the heather, but heath grass has not infrequently been found associated with charred cereal assemblages and it has been suggested (Hillman 1982) that it may have sometimes grown as a cornfield weed in association with arid-cultivation, which does not turn the soil over and allows rhizomatous perennials such as heath grass to survive.

Coriander (*Coriandrum sativum*) and celery (*Apium graveolens*) are culinary herbs which are thought to have been cultivated in the Roman period for their aromatic seeds. The use of the seeds for culinary purposes is suggested by their presence in Roman sewage deposits (Dickson 1989, Greig 1976), though this does not rule out the use also of the stems and leaves. Use of coriander greens is described by Columella (Forster and Heffner 1955:205 and 335), and it seems likely that the leaf and stem parts of both celery and coriander were used, as well as the seeds. Celery is native to Britain, but its modern habitat is mainly coastal and other brackish wet places (Stace 1991:604). It could have been growing wild but is perhaps more likely to have been cultivated. Coriander is an introduced plant and could well have been cultivated locally, though Dickson (forthcoming) suggests that seeds of spices including coriander and celery may also have been imported. Coriander appears to have been widely used as it is a fairly common find on Roman sites. In Lincoln coriander was found at St. Mark's Church (Moffett in prep.).

Beet seeds are less commonly found, though this does not show that beet was less commonly grown. Gardeners growing beets for food would generally prevent them from setting seed apart from a few for propagating the following year's crop. Beet has been found on Roman sites such as in the towns of Alcester (Moffett 1988), and York (Hall and Kenward 1990), a fort at Rocester (Moffett 1989) and the villa at Denton (Conolly 1971). It is thought to have been cultivated for its leaves rather than its roots, though Theophrastus does mention the root as edible (Hort 1916:71). Use of beet tops is mentioned in Pliny (Rackham 1971:507). The presence of seeds in the deposit is suggestive of garden rubbish which included plants that had been allowed to bolt. Alternatively it is possible that some plants were growing locally in disturbed habitats as garden escapes.

Finds of hemp (*Cannabis sativa*) in the Roman period are also fairly infrequent. Hemp achenes were found at York in a well at Skeldergate (Hall *et al* 1980:143), another well at The Bedern (Kenward *et al* 1986:248) and at General Accident and Rougier Street (Hall and Kenward 1990:301). A possible London record may also be Saxon (Willcox 1977). Hemp pollen is recorded from near Durham (Bartley *et al* 1976). Hemp was grown for its fibres, which were used for coarse textiles and rope.

Evidence for garden plants is relatively rare, especially plants where the seed is not the part used. Seeds of garden plants are often not distinguishable from their wild relatives and it can be difficult to tell whether the plant in question was cultivated or not. Hemp and coriander are both introduced plants which today occur as casuals but do not generally establish and spread. The situation is likely to have been the same in the past, making it probable that most occurrences of these species are a result of cultivation though there may have been occasional

instances where the plants grew as garden escapes. Although beet and celery are regarded as native plants, the primary habitat for both is coastal, as noted above for celery. Where these plants are found inland it seems reasonable to suggest that they may have been cultivated. At Brayford Wharf, the fact that there are several probable garden plants found together would suggest the likelihood of gardens, or a garden, in the area. Gardens may also be the source of some of the plants of disturbed ground mentioned above.

Conclusion

Generally the plant remains indicate a natural vegetation that would be associated with the river shallows and banks, mixed with plants associated with habitats created by human disturbance. Some of the seeds may have come from plants growing upstream. The presence of seeds of garden plants, charred remains and a few woodland species suggests that there may have been at least some rubbish dumping.

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Brayford Wharf East (BWE 82) - species list. Total volume of flot = 550 ml. About 6% (36 ml.) was fully sorted and the seeds counted. The rest of the flot was scanned for further species. These are indicated in the table by a '+' which merely indicates presence of the species without any indication of abundance. All items are 'seeds' in the broad sense unless noted otherwise. Material preserved by waterlogging unless noted as charred. Identifications by L. Moffett.

Context: 98
 Context type: river edge
 Date: M/LAC

Species

Common name

Cultivated plants

<i>Triticum dicoccum/spelta</i> glume bases (charred)	1	emmer/spelt
<i>Triticum spelta</i> L. rachises (charred)	+	spelt
<i>Triticum spelta</i> L. glume bases (charred)	2	spelt
<i>Triticum</i> sp. germinated grains (charred)	+	wheat
<i>Hordeum vulgare</i> L. 6-row rachis (charred)	+	6-row barley
<i>Hordeum vulgare</i> L. hulled (charred)	+	hulled barley
<i>Hordeum vulgare</i> L. (charred)	1	barley
<i>Cannabis sativa</i> L.	+	hemp
<i>Beta vulgaris</i> L.	2	beet
<i>Coriandrum sativum</i> L.	2	coriander
<i>Apium graveolens</i> L.	+	celery

Arable and disturbed ground

<i>Urtica urens</i> L.	3	small nettle
<i>Urtica dioica</i> L.	14	stinging nettle
<i>Chenopodium glaucum/rubrum</i>	6	oak-leaved/red goosefoot
<i>Chenopodium ficifolium</i> Smith	18	fig-leaved goosefoot
<i>Chenopodium</i> sp.	29	goosefoot
<i>Atriplex</i> sp.	11	orache
<i>Stellaria</i> cf. <i>media</i> (L.) Villars	65	? common chickweed
<i>Stellaria palustris/graminea</i>	1	marsh/lesser stitchwort
<i>Agrostemma githago</i> L.	+	corn cockle
<i>Persicaria maculosa/lapathifolia</i>	61	redshank/pale persicaria
<i>Polygonum</i> cf. <i>aviculare</i> L.	7	? knotgrass
<i>Rumex</i> sp.	18	docks
<i>Viola</i> sp.	+	pansy/violet
<i>Thlaspi arvense</i> L.	+	field penny-cress
<i>Coronopus squamatus</i> (Forsskaol) Asch.	3	swine-cress
<i>Brassica</i> cf. <i>nigra</i> (L.) Koch	1	? black mustard
<i>Brassica</i> sp.	+	cabbage/turnip/mustard
<i>Potentilla anserina</i> L.	+	silverweed
<i>Conium maculatum</i> L.	45	hemlock
<i>Sison amomum</i> L.	+	stone parsley
<i>Hyoscyamus niger</i> L.	6	henbane
<i>Solanum nigrum</i> L.	6	black nightshade
<i>Lamium</i> sp.	1	dead nettle
<i>Plantago</i> cf. <i>lanceolata</i> (charred) L.	+	? ribwort plantain
<i>Galium</i> sp. (charred)	1	bedstraw
<i>Sambucus nigra</i> L.	12	elder
<i>Carduus/Cirsium</i>	2	thistle
<i>Lapsana communis</i> L.	2	nipplewort
<i>Lactuca</i> sp.	+	(wild?) lettuce

<i>Sonchus asper</i> (L.) Hill	6	prickly sow-thistle
<i>Lolium</i> sp. (charred)	+	rye-grass
<i>Danthonia decumbens</i> (L.) DC.	+	heath-grass
<u>Damp or wet ground</u>		
<i>Nuphar lutea</i> (L.) Smith	+	yellow water lily
<i>Ranunculus flammula/reptans</i> (charred)	+	lesser/creeping spearwort
<i>Ranunculus</i> subgenus <i>Batrachium</i> (DC.) A. Gray	2	water-crowfoot
<i>Thalictrum flavum</i> L.	+	common meadow-rue
<i>Montia fontana</i> ssp. <i>minor</i> Hayw.	+	blinks
cf. <i>Montia</i> sp.	1	? blinks
<i>Salix</i> sp. buds	9	willow
<i>Hydrocotyle vulgaris</i> L.	1	marsh pennywort
<i>Oenanthe aquatica</i> (L.) Poiret	2	fine-leaved water dropwort
<i>Oenanthe</i> sp.	+	water dropwort
<i>Menyanthes trifoliata</i> L.	2	bogbean
<i>Lycopus europaeus</i> L.	+	gypsywort
<i>Bidens</i> sp.	+	bur-marigold
<i>Potamogeton</i> sp.	+	pondweed
<i>Lemma</i> sp.	+	duckweed
<i>Eleocharis palustris/uniglumis</i>	2	spikerush
<i>Carex</i> spp.	19	sedges
<u>Grassland</u>		
<i>Filipendula ulmaria</i> (L.) Maxim.	+	meadowsweet
<i>Potentilla</i> cf. <i>erecta</i> (L.) Raeusch.	+	tormentil
<i>Agrimonia eupatoria</i> L.	+	agrimony
<i>Lotus</i> sp. (charred)	+	bird's foot trefoil
<i>Genista</i> sp. (charred)	+	greenweed
<i>Daucus carota</i> L.	+	(wild?) carrot
<u>Hedgerow/woodland edge</u>		
<i>Corylus avellana</i> L. nutshell fragments	+	hazel
<i>Brionia dioica</i> Jacq.	1	white briony
<i>Rubus fruticosus</i> agg.	3	bramble
<i>Rosa</i> sp. thorns	+	rose
<i>Prunus/Crataegus</i> thorns	+	sloe/bullace/hawthorn
<u>Heath/moorland</u>		
<i>Calluna vulgaris</i> (L.) Hull flowers (charred)	15	heather
<i>Calluna vulgaris</i> (L.) Hull stem frags. (charred)	2	heather
<u>Unclassified</u>		
Moss fragments	+	moss
<i>Ranunculus acris/repens/bulbosus</i>	4	buttercups
APIACEAE indet.	+	carrot family
POACEAE indet. rachis (charred)	+	grass family
POACEAE indet. (large) (charred)	+	grass family
Tree buds	2	
Unidentified seeds	+	