Plant remains from deposits associated with the 8th-century 'Anglian Helmet' from the Coppergate-Piccadilly Development, York

Summary

Plant macrofossil remains are described from two contexts associated with the 'Anglian Helmet' recovered from the Coppergate-Piccadilly development in central York. The assemblages are dominated by weeds characteristic of an area of land neglected for perhaps one or a few years. This evidence agrees closely with the interpretation of the environment from the insect remains from these deposits and it is suggested that the fills (together with the plant remains, but probably not the insects) entered the pit as a backfill of surface soil from an area of neglected, weed-infested land nearby. Some identifications of timbers from the pit are appended.

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Plant remains have been examined from two contexts associated with the 8th-century, 'Anglian Helmet' (dated on its style and inscription to the period AD 750-775). The helmet was discovered during construction work by Messrs. Wimpey at the Coppergate-Piccadilly development in central York. It was hoped that botanical evidence might be found to supplement and perhaps complement the analyses of insects from the deposits, addressing the particular problem of the origin of the fills of the pit (cut number 1778) in which the helmet was found. References to the archaeology and stratigraphy of the contexts in question are given by Kenward (1985), to whose report this is largely an appendix.

Initially, a 0.5 kg subsample (60/M1; see Table 1) was taken from sample 60, from context 1777, the fill of the pit containing the helmet. This subsample when examined in the laboratory was found to consist of lumps of grey-brown to orange-brown clay in a matrix of organic silt, with charcoal, wood fragments and stones. It was soaked in a dilute solution of sodium pyrophosphate to facilitate disaggregation. Later, larger 'bulk' samples were processed (following methods given by Hall et al., 1980) of both sample 60 and sample 61. The latter, from context 1811, was the material filling the space between the pit-lining and the pit cut. Sample 61 was essentially the same as 60, but with a rather higher organic content in the matrix. (These bulk-sieved samples are designated 60/BS and 61/BS in Table 1.) Sample 59, the sediment into which the pit had been cut, was a stiff, tenacious red-brown to greyish clay with a little dark brown organic silt (probably contamination from the digging of the pit). It was barren of plant remains.

Although absolute numbers of fruits and seeds were recorded for the 0.5 kg subsample of sample 60, plant remains from the bulk samples were scored on a three-point scale of abundance. This method has been adopted routinely for many of the palaeobotanical samples examined from the main 16-22 Coppergate site, and its use will be discussed elsewhere. The quantitative subsample from context 1777 gives an idea of the concentration of macrofossils - 1215 per kg. - which is high for an urban archaeological plant macrofossil assemblage, the more so since the sample contained a large proportion (probably more than 50% by bulk) of seed-free clay and therefore rather a modest amount of organic silt. The

figure may be compared, for example, with the data of Hall et al. (1983, fig. 30) for urban occupation deposits from the Anglo-Scandinavian sites at 6-8 Pavement and 5-7 Coppergate, most of which were well below 500 per kg).

The plant remains recorded from these samples are listed below (Table 1). In essence, the results from the two contexts, from either side of the lining of the pit, are very similar, the assemblages being dominated by plants suggestive of recently neglected cultivated ground - fat hen (Chenopodium album, 8% of the assemblage in sample 60/M1), docks (Rumex spp., 3% of 60/M1, but well represented in the bulk samples), elder (Sambucus nigra, 3%, but similarly frequent in the bulk samples), chickweed (Stellaria media, 26%) and nettles (Urtica dioica, 16%, and U. urens, 37%). Of especial interest are the records of various Chenopodium species other than C. album. Chenopodium bonus-henricus, C. ficifolium, C. hybridum, and C. murale all point to the presence of disturbed habitats where there are high levels of nutrients as, for example, in a dung-heap or midden. They occur in a variety of contexts at the main 16-22 Coppergate site a few metres to the North of the pit considered here, though never in large numbers; these mainly annual weeds (C. bonus-henricus is perennial) are prolific seed producers and high concentrations of seeds might be expected from only a few plants growing at or near the site.

A number of taxa in the lists point more directly to human activity at or near the place where the deposits accumulated. There are, for example, two very decayed stem fragments of Diphasium complanatum, a clubmoss recorded regularly from the Anglo-Scandinavian deposits at 16-22 Coppergate, and thought to have been imported from Scandinavia for use as a mordant in dyeing (Hall et al., 1984). Taken at face value the presence of the clubmoss appears to suggest that at least some of the deposits entered the pit no earlier than the latter half of the 9th century; it is difficult to explain them as mere contaminants from deposits above the pit-fills.

Fragments of Corylus nutshell, and a few charred cereal grains (bread wheat, Triticum aestivo-compactum, oats, Avena sp(p). and barley Hordeum vulgare) are all recorded, together with the arable weeds corncockle, Agrostemma githgago, hemp-nettle, Galeopsis tetrahit agg. and wild radish, Raphanus raphanistrum. They are no more abundant than in almost any urban archaeological deposits, however, and may merely represent debris from cleaning cereal grains or straw, and the charred grains might be reworked from an older deposit. Hop (Humulus lupulus) and hemp (Cannabis sativa) are two further taxa present in the lists that probably indicate human activity nearby, and these, too, are frequently recorded in small numbers from urban occupation deposits of 9th-10th century date in York. The woodland mosses, Neckera complanata and Ulota sp. recorded in sample 61/BS are regularly recorded from Anglo-Scandinavian levels at the main Coppergate site and probably originated with the other plants interpreted as indicators of human occupation). Amongst the non-botanical material in the bulk samples from contexts 1777 and 1811, however, are small amounts (mostly small fragments) of mammal, amphibian and fish bone (some of the mammal bone was burnt), fish scales, oyster shell, coal, wood, charcoal, slag and brick/tile.

There seems no doubt, therefore, that part of the pit-fill originated in occupation deposits probably formed out-of-doors, perhaps a deposit brought from an area formerly occupied but since neglected. Moreover, many of the Rumex fruits were still contained within their

perianths, and are thus unlikely to have been transported far from the parent plant. This, and the generally good state of preservation of most of the macrofossils and their abundance (to judge from the quantitative sample 60/M1) suggest either that they are from the local vegetation and that the deposits accumulated slowly but were continuously waterlogged, or, more likely, that the fills entered the pit and pit-cut cavity en masse, perhaps as topsoil with some standing vegetation cleared from an area of neglected ground.

The abundance of both Rumex and Urtica fruits accords well with the insect evidence of phytophages (Kenward, 1985), and the two lines of evidence together seem to be the best basis for arguing that weedy waste ground vegetation predominated at the site where these deposits built up, probably round the pit itself. The insects are thought to have entered the pit soon after it was cut, the plant remains from essentially the same habitat arriving in the backfill at a later date.

As the site of the pit discussed here was close to the River Foss, mention must be made of the possible significance of the component of waterside and aquatic taxa. Remains of these plants are certainly rather fewer in these assemblages than is usual in occupation deposits from this area and period in York and there is thus no good botanical evidence for local marshland vegetation except, perhaps, for the two mosses Campylium stellatum and Scorpidium scorpioides, together with Montia fontana ssp. chondrosperma in sample 61/BS. However, frog (Rana temporaria L.) bones were present in the fills in numbers rather higher than for pits from the rear of the main Coppergate site, and this no doubt reflects the proximity of the river and probably of marshy areas. The significance of the small fragments of Sphagnum papillosum peat in sample 61/BS (and probably also the leaf Sphagnum in 60/M1) is less clear. Sphagnum leaves and shoots are often found in small amounts in urban archaeological deposits, and may represent debris from peat brought into the town for some purpose.

It should be remarked, in conclusion, that interpretations of plant macrofossil assemblages of this kind are the more difficult for want of information concerning the taphonomy of the recorded remains. How far, for example, does a body of soil under a stand of waste ground vegetation contain a well preserved bank of seeds and fruits? There is clearly a need for work on modern analogues to address this and similar problems.

Table 1. Plant remains recorded from two contexts associated with the Anglian Helmet from the Coppergate-Piccadilly Development watching brief, York. The scores for frequency in the bulk-sieved samples correspond roughly to + - present, ++ - frequent, +++ - abundant individuals or fragments. Brackets denote tentative identifications.

Context	1777	1777	1811
Sample	60/M1	60/BS	61/BS
Taxon and kind of remains recovered	No./kg	Score	Score
Vascular plants			
Aethusa cynapium L. (mericarps)	2	+	+
Agrostemma githago L. (seeds)	-	+	+
Anagallis arvensis L. (seeds)	-	+	-
Anthemis cotula L. (achenes)	6	-	+
Apium graveolens L. (mericarps)	2	-	-
Atriplex sp(p). (seeds)	4	-	+
Avena sp. (charred caryopses)	-	+	+
Bilderdykia convolvulus (L.) Dumort (Polygonum convolvulus L.) (fruits)	-	+	+
Brassica sp(p). (seeds)	4	-	-
Brassica sp./Sinapis arvensis L. (seeds)	-	+	-
Cannabis sativa L.	-	+	-
Capsella bursa-pastoris (L.) Medic. (seeds)	2	+	+
Carduus/Cirsium sp(p). (achenes)	-	-	+
Carex spp. (nutlets)	16	+	+
Chenopodium album L. (seeds)	100	+	++
C. bonus-henricus L. (seeds)	2	-	-
C. ficifolium Sm. (seeds)	-	-	+
C. hybridum L. (seeds)	2	-	-
C. murale L. (seeds)	2	-	+
Corylus avellana L. (nut fragments)	-	+	+
Diphasium complanatum (L.) Rothm. (sytem fragments)	-	+	+
Eleocharis palustris sensu lato (nuts)	8	+	+
Galeopsis tetrahit agg. (nuts)	2	+	+
Gramineae (caryopses)	6	-	-
Hordeum cf. vulgare (charred caryopses)	-	+	+
Humulus lupulus L. (achenes)	-	+	-
Hyoscyamus niger L. (seeds)	6	+	+
Hypericum sp. (seeds)	-	+	-
Juncus bufonius L. (seeds)	2	+	-
J. conglomeratus L./J. effusus L./ J. inflexus L. (seeds)	-	+	-
Juncus sp. (seeds)	-	-	+
Montia fontana ssp. chondrosperma (Fenzl) S.M.Walters (seeds)	-	-	+
Onopordum acanthium L. (achenes)	-	+	+
Papaver cf. argemone L. (seeds)	2	-	-
Polygonum aviculare agg. (fruits)	26	+	+
P. hydropiper L. (fruits)	-	+	-
P. lapathifolium L. (fruits)	-	+	-
P. persicaria L. (fruits)	2	-	+
Potentilla cf. erecta (L.) Räusch. (achenes)	-	-	+
P. sp. (achenes)	2	-	-

Ranunculus Section Ranunculus (achenes)	-	+	+
R. sceleratus L. (achenes)	4	+	+
R. Subgenus Batrachium (DC.) A. Gray. (achenes)	2	-	-
Raphanus raphanistrum L. (pod segments)	-	+	-
Rubus fruticosus agg. (fruitstones)	-	-	+
Rumex acetosella agg. (fruits)	4	-	+
Rumex spp. (fruits)	36	++	++
Sambucus nigra L. (seeds)	36	++	++
Silene sp. (seeds)	2	-	-
Stellaria graminea L.	2	-	-
S. media (L.) Vill. (seeds)	312	++	+
Thlaspi arvense L. (seeds)	-	+	-
Triticum aestivo-compactum Schiem.	(2)	-	+
Urtica dioica L. (achenes)	194	++	+
U. urens L. (achenes)	450	++	++
Viola sp(p). (seeds)	2	+	+
Mosses			
Campylium stellatum (shoot)	-	-	+
Neckera complanata (Hedw.) Hüb. (shoots)	-	-	+
Scorpidium scorpioides (Hedw.) Limpr. (shoots)	-	-	+
Sphagnum sp. (leaf)	+	-	-
S. papillosum Lindb. (peat fragments)	-	-	+
Ulota sp. (shoots)	-	-	+
Other items			
earthworm egg capsules	-	+	+

A note on the identifications of timbers associated with the 'Anglian Helmet'

A small number of timbers and wooden artefacts were taken from the pit containing the helmet, the most important of which were the staves used to line the cu(samples 96-101). The following identifications have been made and warrant no further comment here:

Sample	Context	Nature of material	Identification
72	1777	Small planks and twigs in fills of pit 1778	Corylus (hazel), Fraxinus (ash) and Quercus (oak)
95*	1783	Perforated disc in pit 1778	Quercus
96-101	1819, 1831-5	Staves lining pit 1778	Quercus
103a	1787	Fragments of planks found in pit 1778	Quercus
Small find no.			
157*	1777	Spear shaft	Pomoideae (e.g. apple, pear, rowan, hawthorn)

* These objects are figured by Hall (1984).

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