Analysis of Botanical Material from Charterhouse Square

(XTE12/XSF10)

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ENV/BOT/RPT/

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1 Introduction

24 bulk environmental samples were taken during two phases of excavation at Charterhouse Square. The samples ranged from less than a litre to 40L in volume, depending on the character of the deposit being sampled. The samples were taken primarily from the large ditch crossing the site.

2 Methodology

The samples were processed by flotation, using a Siraf flotation tank, with meshes of 0.25mm and 1.00mm to catch the flot and residue respectively. The residue was sorted by eye for artefacts and environmental material. The flots were sorted in their entirety using a low-powered binocular microscope. The archaeobotanical remains were identified with the aid of the MoLA reference collection and seed identification manuals (Cappers et al. 2006). Plant names follow Stace (1995). Their abundance was estimated on the basis of the minimum number of characteristic plant parts as follows: + = scarce <10 items; ++ = moderate 10-50 items; +++ = frequent 50-100 items; ++++ = abundant >100 items. The ecological characteristics and the habitat requirements of the different species are taken from Clapham et al. (1987) and Stace (1995).

3 Results

Preservation of plant remains was primarily by waterlogging, though small amounts of charred material were also recorded. Of the charred plant remains, wood charcoal was the most common.

3.1 Open Area 5

Open Area 5 represents marsh-like deposits at the base of the ditch. These are likely to represent accumulations formed during a period of neglect of the maintenance of the ditch.

The earliest of these are represented by samples {1} [27] and {5} [29].

Sample {5} from [29] was found to contain a limited wild seed assemblage but was instead dominated by food waste, perhaps indicating that at this point the ditch was being used as a dumping area for household waste. Notable food plants from this assemblage include grape (*Vitis vinifera*), fig (*Ficus carica*), apple (*Malus sylvestris/domestica*) and walnut (*Juglans regia).* The assemblage also contains seeds likely to represent useful medicinal or kitchen garden plants such as coriander (*Coriandrum sativum*), hop (*Humulus lupulus*), hemp (*Cannabis sativa*), flax (*Linus usitatissimum*) and mallow (*Malva sylvestris*). By far the most interesting plants within this assemblage are seeds of melegueta pepper or 'grains of paradise' (*Afromomum melegueta*) and yellow bristle-grass (*Setaria* cf. *pumila*). The presence of yellow bristle-grass is interesting as it is not a native British plant and this is its first occurrence from a London site. Grains of paradise are a relatively rare occurrence on London sites, with fewer than twenty records to date.

Sample {1} from [27], just above [29], again contained some food waste material, in this case fig and walnut, though the volume is much reduced from the earlier deposit. Wetland plants that are likely to have been growing next to or within the channel also increase here, particularly crowfoots (*Ranunculus* subgenus Batrachium) and duckweed (*Lemna* spp.) both of which grow in standing or running water such as ponds, ditches and canals.

Sample {7} was taken from [32]. The assemblage from this sample was less diverse than other associated deposits in this landuse. It contained moderate volumes of cereal bran and sedge (*Carex* spp.) seeds. Other than the cereal bran, evidence of food plants was scanty, with a few fig seeds the only definitive evidence. Low numbers of probable garden plants were also noted, such as flax and beet (*Beta vulgaris*).The remaining wild seeds represent a variety of habitats from cultivated land to nitrogenous waste land and are likely to have a number of origins.

Sample {38} represents [278], roughly contemporary with [27] and [29]. It contained a small assemblage of food waste, including fig and walnut, but was dominated by 'stabling waste' material. This includes abundant stems and straw, grass (Poaceae), cereal bran (*Triticum/Secale* spp.) and meadow species. The bran, grass and meadow species can occur as droppings from animals either grazed on meadow pasture or fed on hay cut from meadows and imported to the city. The origin of the straw is likely to be as bedding in the stable or yard where the animals are kept. Taxa representing the natural environment local to the feature were also common, particularly celery-leaved crowfoot (*Ranunculus sceleratus*) and duckweed indicating standing or flowing water in the channel.

Also in this land use is [283], represented by sample {39}. In this sample, celery-leaved crowfoots dominate, indicating watery conditions in the feature. There are also food remains present, including some cereal bran, grape pips and apple. Possible garden material includes mallow, flax and chervil (*Chaerophyllum* spp.).

Sample {45} was taken from [293]. This fill contained a very limited archaeobotanical assemblage, with fewer wet ground or aquatic taxa noted than in other samples from the channel. It did contain food plants in low concentrations with fig, grape and fennel (*Foeniculum vulgare*) all present.

Sample {44} was taken from [293], just above [298] in the sequence. Like sample {45} [293], the assemblage represents drier deposits than the other samples attributed to this land use, and in this case the assemblage is so reduced that it is likely to represent poor preservation due to the reduced wetness in the ditch.

3.1.1 Open Area 5 Discussion

Sample {5}, the earliest in the sequence, contains evidence of local gardening and relatively high status food consumption. Moving up the sequence of deposits, there is a clear move away from food waste being deposited, and an increase in the wet conditions, with relatively deep water present in the ditch for considerable periods of time, though intermittent drying out is likely.

The presence of grains of paradise from Africa, and grapes and figs from the continent, is indicative of the wide variety of imports available to the people of London at this time. Melegueta pepper, also known as 'grains-of-paradise' is a native spice of west Africa (it is this spice that gave this area of Africa the name the Grain Coast). It became very popular in the Middle Ages as a substitute for black pepper, but fell out of fashion in the post-medieval period (Hellwig 1995). However even in the early eighteenth century, ships carrying 15 to 17 tonnes of melegueta pepper were still sailing to England regularly (Eltis, 2013, p 35).The spice was used in cooking, brewing and distilling, and is a relatively rare occurrence in London archaeologically, with fewer than twenty records to date.

3.2 Open Area 6

3.2.1 Group 76

Three samples, {37}, {36} and {35} represent group 76 in Open Area 6. They are taken from [276], [275] and [274] respectively, a sequence of deposits within the ditch. This group dates between 1550 and 1600.

Sample {37} [276], the earliest in the sequence, is a rich assemblage dominated by celery-leaved crowfoot (*Ranunculus sceleratus*). It also contained a significant assemblage of food remains, including cereal bran, fig (*Ficus carica*), walnut (*Juglans regia*) and apple (*Malus sylvestris/domestica*). Some garden plants were also noted in the samples, with a similar assemblage to those noted from Open Area 5. These included mallow (*Malva* cf. *sylvestris*) and flax (*Linum usitatissimum*), hop (*Humulus lupulus*) and hemp (*Cannabis sativa*), but also pinks (*Dianthus* spp.), violet (*Viola* spp.), and beet (*Beta vulgaris*). Some damp meadow type plants were also noted.

Sample {36} represents [275]. This assemblage was dominated by celery-leaved crowfoot, sedges (*Carex* spp.) and stinging nettle (*Urtica dioica*), all likely to have been growing in or near the channel. Food remains were also recorded, with grapes, cherries (*Prunus avium/cerasus*) and fig seeds all noted. Garden plants were again noted, with a similar assemblage to that found in the earlier deposit [276], though with the addition of pot marigold (*Calendula officinalis*).Some evidence of possible stabling waste was also recorded in this assemblage, with straw, grasses (Poaceae) and hay meadow type taxa such as self-heal (*Prunella vulgaris*) all present.

Sample {35} is taken from [274], directly overlying [275]. Like the earlier two deposits in this sequence, sample {35} was dominated by celery-leaved crowfoot, indicating wet conditions. The levels of food and garden plant remains were much reduced than in the preceding deposits however. Abundant grass seeds may indicate that hay was dumped into the feature though it is also possible that grass was growing around or on the banks of the ditch at this stage, which might also explain the presence of many grass seeds.

3.2.2 Open Area 6 Discussion

The three samples taken from this Open Area represent a depositional sequence characterised by a watery local environment throughout. The dumped material is likely to represent household waste, with garden, kitchen and stabling waste all present to varying degrees. Samples {35} and {36} were also found to contain scraps of leather and textile, further supporting the interpretation of the deposits as well-preserved organic household waste dumping.

3.3 Open Area 7

Sample {34} was taken from [231], a consolidation deposit within and above the ditch. It contained abundant charcoal and a small assemblage of charred seeds, including wheat (*Triticum* spp.) and barley (*Hordeum vulgare*) grains. Some food plant evidence was noted as grape (*Vitis vinifera*), fig (*Ficus carica*) and blackberry/raspberry (*Rubus fruticosus/idaeus*) all recorded in low concentrations. Wild plants represent a variety of habitats and are likely to have a number of origins.

3.3.1 Open Area 7 Discussion

The preservation of organic material in the sample from OA 7 was not as good as in those from the preceding phases. It is likely that this is an effect of the reduced wetness of the area, which is also evidenced by the reduced numbers of taxa that prefer wet habitats.

4 References

Cappers, T J, Bekker, R M & Jans, J E A, 2006, *Digitale zadenatlas van Nederland*, Groningen.

Clapham A., Tutin T., and Moore D. 1987, *Flora of the British Isles. 3rd edition.* Cambridge University Press.

Ellenberg H., 1988, *Vegetation Ecology of Central Europe*. 4th Edition. Cambridge

Eltis, D. 2013. 'The slave trade and commercial agriculture in an African context' in Law, Schwarz and Strickrodt (eds.) *Commercial Agriculture, the Slave Trade and Slavery in Atlantic Africa*. Boydell & Brewer Ltd. Suffolk.

Hellwig, M, 1995, Paradieskörner Aframomum melegueta (Roscoe) K. Schum. – Ein Gewürz aus Westafrika im frühneuzeitlichen Göttingen', in Kroll, H and Pasternak, R (eds.), *Res Archaeobotanicae. International Workgroup for Palaeoethnobotany*. Kiel: Proceedings of the 9th Symposium Kiel 1992: 39-48.

Stace C. 1991, *New Flora of the British Isles*. Cambridge University Press.

5 Tables

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Charred plant remains		Part											
Triticum spp.	Wheat	-						2					2
Hordeum vulgare L.	6-row barley (hulled)	-											2
Chenopodium sp.	Goosefoot Etc.	-											1
Vicia/Lathyrus/Pisum sp.	Vetch/Tare/Vetchling/Pea	-											1
Euphorbia helioscopia L.	Sun Spurge	-											3
Sambucus nigra L.	Elder		1										
indeterminate	-	wood	+	+	+	+	+	++		+		++	++++
Waterlogged plant remains													
Triticum spp.	Wheat	SF										+	
Triticum/Secale spp.	Wheat/Rye	bran				+++	+				+	+++	
Avena spp.	Oat	bran	+	+	+++	+							
Cerealia	Indet. Cereal	R										++	
Pteridium aquilinum (L) Kuhn	BRACKEN	LF		+		+						+	
Pinus pinea L.	Stone Pine	-							+				
Ranunculus cf. *acris*	Meadow Buttercup	-	+	+		++			+	+		+	
Ranunculus cf. *repens*	Creeping Buttercup	-								+			
Ranunculus acris/repens/bulbosus	Buttercups	-	++		+		++	+	+	+	+		
Ranunculus sardous			+++	+	+								
Ranunculus sceleratus L.	Celery-Leaved Crowfoot	-		+		+++	++++		+	++++	++++	+++	
Ranunculus subgen.	Crowfoots	-	++									+	

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Batrachium (DC)A													
Fumaria officinalis L.	Fumitory	-											+
Brassica/Sinapis sp.	wild cabbage, mustard etc.	-		+			+				+		
Brassica/Sinapis spp.	wild cabbage, mustard etc.	-	++		+				+			+	
Raphanus raphanistrum L.	wild radish	SQ					+						
Capsella bursa-pastoris (L.) Medic.	Shepherd'S Purse	-					+						
Viola sp.	Violet	-	+						+		+		+
Lychnis flos-cuculi L.	Ragged Robin	-						+	+	+	+		++
Agrostemma githago L.	Corncockle	-	+	+	+	+	++				+	+	
Dianthus sp.	Pink	-									+		
Cerastium sp.	Mouse-Ear Chickweed	-										+	
Stellaria graminea L.	Lesser Stitchwort	-					+		+		+	+	
Chenopodium album L.	Fat Hen	-	+++	+			++		+	+	+++	+	
Chenopodium rubrum/glaucum	Red/Glaucous Goosefoot	-				+	++				+	+	++
Chenopodium sp.	Goosefoot Etc.	-				+				++			
Chenopodium spp.	Goosefoot Etc.	-					++						
Beta vulgaris L.	Beet	FR	+		+						+		
Atriplex sp.	Orache	-					+			+	+		
Atriplex spp.	Orache	-							+			+	
Malva sylvestris	Common mallow	FR	+	++		+				+	+	+	
Linum usitatissimum L.	Cultivated flax	-		+	+		+				+	+	
Vitis vinifera L.	Grape	-		+++		+	+		+	+		+	+

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Medicago arabica (L.)Huds.	Spotted medick	LG								+	+	+	
Fabaceae	-	-									+		
Filipendula ulmaria (L.) Maxim.	Meadow-Sweet	-							+				
Rubus fruticosus/idaeus	Blackberry/Raspberry	-					+				+		++
Potentilla sp.	Cinquefoils	-				+							
Potentilla/Fragaria sp.	-	-									+		
Prunus spinosa L.	Sloe/Blackthorn	-					+						
Prunus avium/cerasus	Cherry	-										+	
Prunus sp.	-	-							+				
Malus domestica/sylvestris	Apple/Crab apple	-	+	++			+				+		
Malus domestica/sylvestris	Apple/Crab apple	EC		++		+			+		+	+	
Chaerophyllum sp.	Chervil	-					+						
Coriandrum sativum	Coriander			+									
Oenanthe sp.	Dropwort				+								
Aethusa cynapium L.	Fool's parsely	-									+		+
Foeniculum vulgare Miller	Fennel	-							+				
Conium maculatum L.	Hemlock	-						+					
Apium sp.	Marshwort	-				+			+		+		
cf. *Apium* spp.	Marshwort	-								++		+	
Pastinaca sativa L.	Wild Parsnip	-										+	
Heracleum sphondylium	Cow parsnip/hogweed	-									+		
Daucus carota L.	Wild Carrot	-											
Euphorbia helioscopia L.	Sun Spurge	-				+						+	
Persicaria maculosa Gray	Redshank	-								+			

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Persicaria lapathifolia (L.) Gray	Pale persicaria	-									+	+	
Fallopia convolvulus(L.) A. Love	Black bindweed	-		+	+		++				+		
Rumex acetosella L.	Sheep's sorrell	-									+		
Rumex sp.	Dock	-			+	+	+		+	+			
Rumex spp.	Dock	-	+++	++							++	++	
Urtica urens L.	Small Nettle	-									+		
Urtica dioica L.	Stinging Nettle	-	+	+	+	+			+	+	+	+++	+
Humulus lupulus L.	Hop	-		+							+	+	
Cannabis sativa L.	Hemp	-		+							+	+	
Ficus carica L.	Fig	-	++	+++	+	+	+	+		+	+++	+	+
Juglans regia L.	Walnut	-	+	+		+			+	+	+	+	
Corylus avellana L.	Hazel	-		+						+	+		
Salix sp.	willow	Bud		+									
Atropa bella-donna L.	Deadly nightshade	-									+		
Hyoscyamus niger L.	Henbane	-											+
Solanum nigrum L.	Black nightshade	-		+					+		+	+	
Rhinanthus spp.	Yellow-rattle		+										
Mentha sp.	Mint	-									+		
Prunella vulgaris L.	Self-Heal	-		+			++		+	+		+++	
Stachys sp.	Woundwort	-			+				+				
Lamium spp..	Dead-nettle	-										+	
Marrubium vulgare L.	White horehound	-	+	+							+++	+	
Galium sp.	Bedstraw	-										+	
Sambucus nigra L.	Elder	-		+	+		+			+	+	++	+

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Valerienella sp.	Lamb's lettuce												
Anthemis cotula L.	Stinking chamomile	-		+	+		++		++			+	
Calendula officinalis	Pot marigold	-										+	
Carduus/Cirsium sp.	Thistles	-	+									+	
Carduus/Cirsium spp.	Thistles	-					+						
Lapsana communis L.	Nipplewort	-	+		+		+				+		
Leontodon saxatilis Lam.	Lesser hawkbit	-										+	
Leontodon autumnalis/hispidus	Hawkbit			+									
*Picris echioide*s L.	Bristly Ox-Tongue	-								+		+	
Picris sp.	Ox-Tongue	-							+		+		
Sonchus oleraceus L.	Smooth sow-thistle	-										+	
Sonchus asper (L.) Hill	Prickly sow-thistle	-				+			+		+	++	
Asteraceae	-	-							+				
Triglochin maritima L	Sea arrow-head			+									
Juncus spp.	Rush	-		++		+		++	++	++	++		++
Lemna spp.	Duckweed	Leaf	++		+	++					+		
Typha sp.	Bulrush/Reedmace	-							+				
Elocharis sp.				+	+								
Carex sp.	Sedge	-							+	+	+		+
Carex spp.	Sedge	-	+	++	+++	++	++	++		++		+++	
Poaceae	Grasses	-		+		+++			++	++++	++	+++	
Poaceae	Grasses	R							+				
Poaceae	Grasses	CN				+++							

		Period:	4	4	4	4	4	4	4	4	4	4	4
		Landuse:	OA5	OA5	OA5	OA5	OA5	OA5	OA5	OA6	OA6	OA6	OA7
		Context:	27	29	32	278	283	293	298	274	276	275	231
Scientific name	Common name	Sample:	1	5	7	38	39	44	45	35	37	36	34
Setaria sp.				+									
Afromomum melegueta K Schum	Melegueta pepper (grains of paradise)			+									
indeterminate	-	LF							++			+	
indeterminate	-	BD		+			++		++		++		
indeterminate	-	ST				++++	+		++	+++	+++	+++	
indeterminate	-	WD		+	+		+		+++	+	+	+++	
Bryophyta indet.	Moss	LF	+	++			++		+		+	++	