

Ancient Monuments Laboratory Report 125/90

FURTHER PLANT REMAINS FROM THE MEDIEVAL SITE AT CLOSEGATE, NEWCASTLE UPON TYNE: CG90

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Summary

8

CG90 excavations at Newcastle The upon Tyne investigated the medieval quayside with its periods of reclamation and later domestic use. Carbonised plant material gave evidence of the usage of wheat, barley, and rye as well as grape pips and peas. Although oats wheat was much of the identified bread wheat. internodes of or <u>T</u>. the tetraploid <u>Triticum</u> <u>durum</u> turgidum were recovered- extending its occurrence much north than before. Material preserved through further waterlogging was abundant in some contexts and plants of mixed habitats. represented Ruderals and grassland species were the most common as weeds with woodland or were some scrubland taxa and those of wet ground. Few exotic characteristic taxa were present but important ones included olives, figs and dill. all of which were probably imported. Many samples contained little or no plant remains. They may have been the remains of ballast brought in with ships or material deliberately brought and dumped from inland in order to reclaim the quayside land.

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Introduction

Following excavations along the medieval quayside at The Close, Newcastle upon Tyne, which covered the area of the Town Wall, a site to the east of it was excavated during 1990. This included the 13th century waterfront lying on a broad, man-made platform and a substantial 14th century building complete with a dock to its eastern edge. Following partial dereliction during the 15th and 16th centuries a courtyard plan, domestic suite of buildings was erected during the early 17th century followed by the Mansion House in 1691. This was the mayor's residence until 1835 when it became warehousing. Documentary evidence for the Close area in general, although not specific to these earlier properties, indicates that the area was populated by wealthy merchants and aldermen of the city.

The western part of the site (property 1) was examined principally for the earlier reclamation deposits whereas the eastern part (property 2) was fully excavated.

Questions asked of the site were -

- a) what, if any, plant material survived?
- b) were there differences between periods of activity?
- c) were there differences between the two structures?
- d) was there evidence for diet from pits in the properties?
- e) what was used as reclamation material?

Methods

As with CG88 (Huntley 1990) an extensive on-site environmental programme was undertaken by the excavator. Samples of 2 buckets of material were floated to 500μ and the flots subsequently sorted in the Biological Laboratory for their plant remains. Other methods followed Huntley (*op. cit.*).

Given a shortage of time, all samples were scanned for their plant remains but only those with any quantity analysed completely. Consequently, in the following tables, '***' '*' and '+' indicate decreasing proportions of material from the scanned samples and whole numbers refer to counts from the fully analysed samples.

Results

Sixty three samples were taken and processed. Of these, 20 contained no plant remains (Table 1), 25 contained few items and were scanned only (Tables 2a and b) whereas the remaining 18 were fully analysed (Table 3). The letters before the taxa names indicate state of preservation (c - carbonised and w - waterlogged) and the broad ecological category into which that taxon can be classified:-

a - arable weed c - cereal grain e - exotic g - grassland h - heathland r - ruderal s - cereal chaff/straw t - tree/scrub w - wet ground x - unclassified

These tables contain all of the data and are for archival purposes only. They have the samples arranged in ascending order of context and the taxa in ecological order with carbonised preservation first, followed by waterlogged preservation.

Table 1: Samples with no plant remains

Bio.Lab. code	40	4 402	2 399	398	3 397	376	396	5 39:	5 390	389
Context number Sample number Property number	188 30	8 273 0 40 1 3	8 293) 44 L 1	3 296 1 56	6336 558 111	5 337 3 60 1 1	349	9 528 2 66	3 554 3 73 L 1	556
Phase	1	n b	t c				j		a j	i
Bio.Lab. code	405	406	407	403	401	400	391	392	393	388
Context number	176	181	182	223	277	282	396	396	396	564
Sample number	10	6	8	42	14	16	88	77	54	114
Property number		2	2	2	2	2	2	2	2	2
Phase	i	f	e	h	i	f	g	g	g	d
Period	6	4	3	5	6	4	5	5	2	3

These samples came from both properties and from most major periods of activity. They contained large amounts of clinker and industrial waste and are considered to primarily represent reclamation material. Some were described as a soil during excavation although, obviously, the fine material was washed through the sieves. The lack of seeds may be due to preservational factors although, being from all periods, this is not considered too likely. It is suggested that a true soil is not the origin of them but rather it was a finely broken (trampled?) industrial waste.

Bio.Lab. code	371	372	373	374	346	375	377	378	380	385	386
Context number Sample number	184 24	282 4	291 52	292 48	300 111	300	338 46	353 32	392 28	555	557
Property number	1	2	1	1	2	2	1	1	1	1	1
Phase	h	f	i	i	£	£	i	g	a	i	i
Period	5	4	6	6	4	4	6	5	1	6	6
wtSambucus nigra	*	+	*	**	** +	+	*	***	*	ŵ	+
wxLamium undiff.					•					**	

Table 2a: Newcastle - Closegate II Sambucus nigra (elderberry) samples [scanned only]

The majority of the plant remains found were preserved by waterlogging, which leads to the exclusion of air and hence prevention of bacterial decay. As with CG88 some samples contained only large numbers of elderberry seeds suggesting possible differential preservation. Coming from both properties and various phases as they do suggests that preservation is very uneven over the site and may relate to the different materials used during reclamation. For example, clinker and sand are freely draining thus allowing plant material to decay through oxidation whereas clays *etc.* are less permeable and remain wet for longer periods. There is also the problem of tidal inundation over the majority of the site.

Bio.Lab. code number	370	344	345	369	348	350	379	381	366	360	382	365	384	387
Context number	69	172	252	272	303	348	355	393	512	529	531	551	553	564
Sample number	1	38	22	34	115	36	20	26	91	83	68	71	72	
Property number	2	2	1	1	2	1	2	1	2	2	2	1	1	2
Phase	đ	.1	R	b	f	ъ	i	a	g	С	е	i	i	d
Period	ž	ž	5	2	4	2	6	1	5	3	3	6	6	3
caChenopodium album										+				
ccAvena grain							+							
ccHordeum hulled		+	+											+
ccHordeum indet.									+	+				
ccHordeum straight hulled														+
ccTriticum sp(p). grain			+											
ccTriticum (hexaploid)										+				
ceVitis vinifera												+		
ctCorylus avellana nut frag.				+				+			Ŕ			
waCentaurea cyanus						+								
waEuphorbia exigua	*													
whEmpetrum nigrum						+								
wrRaphanus raphanistrum pod frag												+		
wrTripleurospermum maritimum ssp					+									
wrUrtica dioica													+	
wtCorylus avellana nut fragment									+			+		
wtJuglans regia									+			ħ		
wtSambucus nigra					+									
wwCarex (trigonous)	¥								+					
wwEleocharis palustris					+									

Table 2b: Newcastle - Closegate II species-poor samples [scanned only]

Little may be interpreted from these data although of interest are the records for *Vitis vinifera* (grape) and *Juglans regia* (walnut). Grapes could have been grown in the area during the medieval period when the climate was somewhat warmer than today (Lamb, 1977) but may also have been imported particularly to a city such as Newcastle with its important overseas trading. Walnuts, likewise, could have been locally grown or imported. To my knowledge these are the first records for this area for walnut although Roman-aged shells have been found in Carlisle (Huntley 1990b).

Such species-poor samples are found in both properties and from a range of periods.

- 3 -

The scattered occurrences of carbonised cereal remains is considered to simply reflect casual disposal and that a variety of cereals were used in Newcastle at this time. Crowberry (*Empetrum nigrum*) indicates an acid heathland community and may have been brought in with heather or bracken for use as bedding, roofing material. Although these may have been brought through the site there is little evidence of their use on the site. The other taxa represented include those from arable fields (cornflower - *Centaurea cyanus*, and dwarf spurge - *Euphorbia exigua*) and wet ground (sedges - *Carex* spp., and spikerushes - *Eleocharis palustris*).

Table 3: Newcastle - Closegate II s	pecies-rich samples [fully analysed]

ω.

Bio.lab. code numbers Context number Sample number	347 300	351 351 18	352 351 95	353 353 97	354 398 50	355 501 102	356 502 108	357 502 85	358 502 101	367 502 107	368 502 109	359 526 99	383 535 92	361 535	362 541	364 550 70	363 551 71	349 552 63
Structure number Phase	2 f	1 g	1	1	2 Ş	2 Ş	2 8	2 Ş	2 8	2 Ş	2 Ş	1 b	1 h	1 k	1 Ş		1 1	
Period ccAvena grain	4	5	5	5	1	5	5	\$	2	3	2	Z	2	8	5 1		b	
ccCerealia undiff. ccHordeum hulled					1				1	1	1	1	î					
ccSecale cereale grain ccTriticum (hexaploid)					3			1		13	1	T						
coliticum spelta					ĭ			1		Ű	1							
ceVitis vinifera csCulm nodes			1 1					1 1		3	ĩ		1					1
csTriticum aestivum internod csTriticum aestivum node			ī							3 12	1							
csTriticum durum/turgidum in csTriticum brittle rachis in	terno	ode ode								2	_							
ctCorylus avellana nut frag. waAgrostemma githago		1	2			2	15		4	1	9	1			3	1		
waAnthemis cotula waCentaurea cyanus			22		1	$\frac{1}{2}$	15		1	1	2	1				T		
waChenopodium album waChrysanthemum segetum			ő		2	5	13		ĭ	1	1	1						
waGaleopsis tetrahit waStellaria media			1 3	1	1	1	1 5	1		1	-	10			$\frac{1}{3}$			
waThlaspi arvense waTorilis arvensis			•	-	-	-	1		1									
waUrtica urens wcCerealia/large Gramineae			4				1		1 *	ŵ		18			3	1		
weAnethum gravēolens weFicus carica		1	1		6	1	-					1						
wellea europaea			1			1	5 1		3	1	T							
wgBellis perennis			T			1	T											
wgLeontodon taraxacoides						Т			1			1				1	9	
wgPlantago lanceolata			1		1	1	1		2						1	-	•	
wgRumex acetosa whPteridium aguilinum -frond			1		2	-	1		•						**			
wrBrassica sp(p). wrConium maculatum	2	1	11	9	1	4	3		1	1		4			1	1		
wrEuphrasia/Odontites wrFallopia convolvulus			1		2	2				9								
wrHyoscyamus niger wrLapsana communiș			16		F	1	6	1	1		1	3			1	1		
wrPolygonum aviculare wrPolygonum lapathifolium			1	1	1	2	4	3	2	2	1	1			з			
wrPotentilla anserina			1		1	T		1			1					1	9	
wrReseda luteola wrReseda luteola		1	2		3	1	1 1	1	9		1	2			1	-		
wrRumex obtusifolius-type wrSonchus asper		-	9 1		3	11	Ž		1			1			_	1		
wrTaraxacum officinale agg. wrTripleurospermum maritimum			2		1	2	2		1									
wrUrtica diolca wsīriticum glume base	2				*	*	×		*									
wtAlnus glutinosa wtBetula tree catkin scale		•	20	0	1	2		00	25		**	15		*	10	1		
wtCorylus aveilana nut Iragm wtCrataegus monogyna		3	30	a	I	э		00	20	1		10	2		10		q	1
wtDalus/Pyrus wtMalus/Pyrus			13		1						1		2	1	2		0	*
wtPrunus domestica institia wtPrunus sp(p).			Ŭ		-		1				1				_			
wtPrunus spinosa wtRosa - thorn			1 1															
wtRosa sp(p). wtRubus fruticosus		2	1 1		8		2	1		1		2	1		1			
wtSambucus nigra wwApium nodiflorum		2	1	1	3		4					1						1
wwCaltha palustris wwCarex (lenticular)	2	1	13	0	2	4	4 1	2	20			3		۵	15	1	a	1
wwCarex (trigonous) wwCarex hostiana-type			13 2 12	9	1	3	2		6			ž		3			9	
wwEleocharis sp(p).			14		J	6	1		Ŭ									
wwIsolepis setaceus wwLycopus europaeus			1				ī											
wwMontla fontana ssp(p), cho wwRanunculus flammula	ndr.		1				3					1			1	1		
wwRanunculus sceleratus wwScirpus lacustris	2					4	1 1		2								9	
wwSphagnum sp(p) wxAjuga reptans					<u>,</u>	9	~		1			a		â		T		***
wxChenopodiaceae undiff. wxCirsium sp(p).			4		2	5	1		3			1			1			**
wxGramineae <2mm wxGramineae undiff.					2	3								q		1		
wxLamium undiff.	5			1			1	1	1					v				
wxMedicago sp(p). wxPapaver sp(p).			2			1	-		-									
wxPolygonum (trigonous) wxPotentilla sp(p).		1	1	1			1	1		-	-					-	-	
wxRanunculus repens-type wxRumex sp(p), perianth		3	19	2 1	7	1	6	3	19	3	9	5 1			18	1 9	9	
wxSilene sp(p). wxStachys sp(p).	5		2		4	12	1		1						T			
wxiriloilum sp(p). wxVeronica officinalis							1		Т			1						
WYATOTA SP(P).							*					*						

The taxa are arranged in ecological order. Carbonised material is predominantly in samples from property 2 perhaps reflecting the domestic nature of that structure. With respect to the various ecological groups represented, ruderals and wet ground taxa, with arable weeds are the most common. This is in accord with most other medieval urban sites although the overall quantity of botanical material is never great at this site. Arable weed species probably indicate the presence of cultivated ground in the locality with many taxa reflecting high nutrient levels in the soil. The assemblage overall indicates a garden-type cultivation rather than cereal cultivation.

Grassland taxa are never common and probably just reflect odd grassy corners in the area. Bracken frond fragments (*Pteridium aquilinum*) are abundant in context 541. a reclamation dump of waterlain peat. This may be the remains of flooring or bedding material given the occurrence of cereal or large grass caryopses and sedge nutlets (*Carex* spp.) in it as well.

Exotic taxa occur scattered throughout but are never abundant and are therefore unlikely to reflect faecal material. They include species such as fig (*Ficus carica*), dill (*Anethum graveolens*), olive (*Olea europea*) and flax (*Linum usitatissimum*). Olives and figs would probably have been imported as a luxury commodity. The olive demonstrates the importance of sleving large volumes of sediment since its pits are only likely to occur rarely. Like the walnut it is the first occurrence, of which I know, for medieval Newcastle.

Wet ground taxa are abundant, again in a few contexts only. Whereas some of them may represent local vegetation some probably represent flooring material which has been dumped in these deposits. Interestingly, although the site is on the edge of the tidal River Tyne where a maritime community could be expected few seeds from such plants are present. This probably reflects the high usage to which the area was subject and that marsh/muddy vegetation did not develop closeby.

Although the majority of plant remains were preserved through waterlogging some were preserved by carbonisation and these are presented in Table 4. Note that some of these samples also contained material preserved by waterlogging and hence appear in other tables.

Since fires are rarely natural, in Britain, material preserved by carbonisation often relates to human activities. Such material commonly consists of cereal grains and their chaff or straw fragments with some associated weeds and remains of other food plants. This is true for CG90 where wheat, barley, oats and rye with peas, grapes and hazel nut fragments were recovered. None of them are in any great quantity suggesting that they only reflect casual disposal.

Of particular importance is the occurrence of two internodes from a tetraploid, free threshing wheat - probably *Triticum durum* or *T. turgidum*. Although it has been recorded at sites from the south and Midlands of Britain this is the first occurrence from the north, although, of course, does not determine whether the wheat was locally grown or imported. Its presence, as well as that of a brittle rachis wheat, such as spelt, reinforces the hypothesis that bread wheat was not the only wheat in use during this period.

Bio.Lab. code	344	349	351	352	345	354	355	357	358	359	360	356	367	368	369	379	381	382	383	387
Scanned only	s				s						S				s	s	5	s		S
Context number	172	552	351	351	252	398	501	502	502	526	529	502	502	502	272	355	393	531	535	564
Sample number	38	63	18	95	22	50	102	85	101	99	83	108	107	109	34	20	26	68	92	
Structure number	2		1	1	1	2	2	2	2	1	2	2	2	2	1	2	1	2	1	2
Phase (1=a, 2=b etc.)	j		8	g	g	g	g	8	g	b	c	8	g	8	b	i	a	e	h	đ
Chenopodium album											1									
Avena grain						1	1		2				1	2		1				
Cerealia undiff.																			1	
Hordeum hulled	1				1	1			1					1					1	2
Hordeum indet.											1									
Hordeum straight hulled																				1
Secale cereale grain										1										
Triticum sp(p). grain					1															
Triticum aestivum grain						3		1					3	1						
Triticum spelta						1														
Triticum (hexaploid)											2		1							
Pisum sativum														1						
Vitis vinifera		1		1				1					3	1					1	
Culm nodes				1				1												
Triticum aestivum inter	node			1									3	1						
Triticum durum internod	le												2							
Triticum aestivum node													12							
Triticum brittle rachis	int	erno	de										1							
Corylus avellana nut fr	agme	nt	1										1	. 9	2		1	10		

Table 4: Newcastle - Closegate II carbonised data only

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Given the locality of the site, cereals are likely to have been brought in; they were not growing in the immediate vicinity. It is interesting that no carbonised seeds from arable weeds at all were recovered although cereal chaff (straw and ear fragments) were. They must have been very thoroughly cleaned for such a total lack of weed seeds although, in which case, the chaff fragments should, perhaps, be likewise absent. It is most likely that the sample is too small for any serious interpretation to be attempted. Turning to the archaeological information, can the plant remains be categorised with respect to either the properties or the periods of activity?

Period 1 (phase a) - Table 5

This was a period during the 13th century when massive dumps of material were laid to form a level platform. Three contexts from property 1 were analysed (392, 393 and 528). Other than elderberry and hazelnut no plant remains survived. They were all reclamation dump layers and could have been massive, botanically sterile silts and sands.

Table 5: Newcastle - Closegate II Periods 1, 2 and 3

Bio.Lab. code numbers 3. Scanned only	80 ຣ	381 s	395	350 s	359	369 s	396	402	360 s	387 s	388	407	382 s
Context number 33 Sample number 5 Property number Phase Period	92 28 1 a 1	393 26 1 a 1	528 66 1 a 1	348 36 1 b 2	526 99 1 b 2	272 34 1 b 2	349 12 1 b 2	273 40 1 b 2	529 83 2 c 3	564 2 d 3	564 114 2 d 3	182 8 2 e 3	531 68 2 e 3
<pre>wtSambucus nigra ctCorylus avellana nut frag. whEmpetrum nigrum waCentaurea cyanus wwCarex (lenticular) wxRanunculus repens-type wtRubus fruticosus wrRumex acetosella wrBrassica sp(p). wtCorylus avellana nut fragment wwCarex hostiana-type wwCarex (trigonous) wrPolygonum aviculare wrLapsana communis waStellaria media wwSphagnum sp(p) waUrtica urens weFicus carica waChrysanthemum segetum wrRumex obtusifolius-type waAgrostemma githago wwRanunculus flammula/cf. flammul waChenopodium album wrPolygonum lapathifolium wxRumex sp(p). perianth wxViola sp(p). wxCirsium sp(p). wzCirsium sp(p). wzCirsium sp(p). ccSecale cereale grain wzVeronica officinalis ccTriticum (hexaploid) caChenopodium album ccHordeum indet. ccHordeum hulled ccHordeum straight hulled</pre>	**	+		1	1 1 3 5 2 2 4 15 2 3 2 3 2 3 10 9 18 1 1 1 1 1 1 1 1 1 1 1 1 1	2			+++	+ +			*

Period 2 (phase b) - Table 5

Also from the 13th century this period reflects an extension to the riverside frontage by further dumps. Five contexts were sampled (348, 526, 272, 349 and 273). Other than 526 they were all very similar to those from period 1. Context 526, although also described as a layer was considered to have been a possible erosion deposit. It was botanically different in that it contained many taxa suggesting cultivaton and soils (*Urtica urens* - annual nettle, and *Stellaria media* - chickweed). During sorting some rat-tailed maggots were recorded suggesting that

- 9 -

a

there was some foul, rotting matter present. This could have been bedding or similar. At least this layer indicates that some rubbish was used in the reclamation although the majority of the material was botanically sterile.

Period 3 (phases c, d and e) - Table 5

During this period in the 14th century the eastern property was extended and a new revetment wall formed a dock to its east. The revetment retained deep sand layers which were interspersed with organic layers interpreted as midden or refuse layers by the excavator. An oven was excavated from within a small structure on the site during phase e. Four contexts were sampled from these phases (529, 564, 531 and 182) and, surprisingly, gave no indication of organic build-up at all. None of the samples contained more than 10 seeds. Two samples from the oven produced 4 carbonised seeds only which gave no information about the function of the oven.

Period 4 (phase f) - Table 6

Again from the 14th century, this period saw the redevelopment of the eastern property into a multi-roomed structure. No function was attributable to the buildings. Only three contexts were sampled (282, 300 and 303) although more than one sample from each was completed. They were predominantly very species-poor samples with only a bulk sample from context 300 containing any variety of taxa. It suggested higher levels of nutrient than the other ones with numbers of *Urtica dioica* (stinging nettle) and *Conium maculatum* (hemlock) seeds present. Elderberry seeds were more or less the only items present in the remaining samples. Although there are differences between the different samples from context 300 these are probably such as to have no valid interpretation - too few seeds overall were present.

Table 6: Newcastle - Closegate II Period 4

Bio.Lab. code Scanned only	346 s	347	375 s	348 s	372 s	400	406
Context number Sample number Property number Phase	300 111 2 f	300 2 f	300 2 f	303 115 2 f	282 4 2 f	282 16 2 f	181 6 2 f
wtSambucus nigra wxSilene sp(p). wrUrtica dioica wrConium maculatum wxStachys sp(p). wwCarex (lenticular) wxLamium undiff. wwRanunculus sceleratus wwEleocharis palustris wrTripleurospermum maritimum ssp	** + inodorum	2 2 5 2 5 2 5 2	+	+	+		÷

Period 5 (phases g and h) - Tables 7 and 8

During this part of the 14th century the western waterfront was advanced through the erection of a massive stone wall. Quantities of sand and organic material behind the original revetment suggested that there had been tidal inundation of the original platform whilst its

revetment was being dismantled for re-use in the massive stone wall. The 13th century dock associated with the eastern property was infilled with ash and midden material prior to being paved. The majority of samples completed were from these phases and included most of the species-rich samples.

Table 7: Newcastle - Closegate II Period 5 structure 1

Bio.Lab. code Scanned only	345 s	378 s	351	352	353	362	371 s	383	404
Context number Sample number Property number Phase	252 22 1 8	353 32 1 8	351 18 1 8	351 95 1 g	353 97 1 g	541 1 8	184 24 1 h	535 92 1 h	188 30 1 h
ccHordeum hulled ccTriticum sp(p), grain wtSambucus nigra wxRanunculus repens-type wtCorylus avellana nut fragment wwCarex (lenticular) wrBrassica sp(p). wtRubus fruticosus wxPotentilla sp(p). weFicus carica wwCarex (trigonous) waStellaria media wcCerealia/large Gramineae waAgrostemma githago wxSilene sp(p). wtPrunella vulgaris whPteridium aquilinum -frond frag. wgPlantago lanceolata waGaleopsis tetrahit wrLapsana communis wwEleocharis palustris wrTripleurospermum maritimum ssp inodor wxChenopodiaceae undiff. ceVitis vinifera waCentaurea cyanus wrRumex obtusifolius-type	++	***	2 3 3 1 1 1 2 1 1 1	1 19 30 32 11 1 1 1 1 3 4 2 2 3 1 1 1 1 6 2 2 4 1 2 9	1 2 9 9 1 9 1	18 10 15 1 1 1 7 3 9 9 3 1 1 2 9 9 9 9 1 1 1	*	1 1	
ww.arex nostiana-type waChrysanthemum segetum waAnthemis cotula wxMedicago sp(p). wrFallopia convolvulus waChenopodium album wrFolygonum lapathifolium waUrtica urens wtJuglans regia				2 6 5 2 2 2 2	1	3 3		2	

Single occurrences:

Context 351 (sample 18) wxPolygonum (trigonous), ctCorylus avellana nut frag.

Context 351 (sample 95) wrEuphrasia/Odontites, wrPolygonum persicaria, wgAchillea millefolium, wrRaphanus raphanistrum pod frag., wrPolygonum aviculare, wrSonchus asper, wwLycopus europaeus, wwRanunculus flammula/cf. flammula, csTriticum aestivum internode, wtPrunus spinosa, wrHyoscyamus niger, wtRosa - thorn, wtRosa sp(p)., csCulm nodes, wtMalus/Pyrus

Context 353 wxLamium undiff., wxRumex sp(p). perianth

Context 541 wrConium maculatum, ccAvena grain, wxCirsium sp(p)., wwMontia fontana ssp(p). chondrosperma.

Context 535 ccCerealia undiff..

Structure 1 (Table 7) contains a variety of contexts from one (353) dominated by thousands of elderberry seeds to one (351) containing a wide variety of grassland taxa and possibly representing waste from animal bedding - there are also some numbers of wheat glume bases, possibly remnants of fodder or bedding. The disappointing thing is that other samples from these same contexts gave somewhat different pictures. The second one from 351 was considerably more species-poor with 11 compared with 46 taxa present. Both of them contained some waterlogged wood and grass remains along with the predominant clinker. They also contained fragments of insects and some fly puparia indicating rotting vegetation in part. Context 541, a waterlain lensed peat, as discussed above contained bracken frond fragments in abundance as well as cereal and grass debris. It, too, is considered to represent flooring or bedding waste.

It is always possible that this organic material was washed in during tidal inundation of the area but it is generally considered more likely to represent disposal of fouled bedding material in a convenient place whilst the ground was being built-up. It does not seem to have been present in sufficient quantity to cause problems following slumping once it had rotted down.

Structure 2 (Table 8) contains a similar mixture of contexts although is dominated by samples from a pit (context 502). This material is particularly species-rich and demonstrates the disposal of organic rubbish. From the variety of food species present some of this rubbish was probably domestic although not faecal - there wasneither the vast quantity of seeds from such taxa nor the cereal bran matrix which is characteristic of such cess pits. No context is dominated by elderberry seeds and this could indicate that preservation was more even throughout property 2, perhaps reflecting the protection it gained from the massive stone revetment on its river side.

Table 8: Newcastle - Cl	egate II Period 5 structure 2
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Bio.Lab. code numbers Scanned only	354	355	356	367	368	357	358	366 s	391	392	393	403
Context number	398	501	502	502	502	502	502	551	396	396	396	223
Sample number	50	102	108	107	109	85	101	71	88	77	54	42
Property number	2	2	2	2	2	2	2	2	2	2	2	2
Phase	8	g	g	g	g	g	8	8	8	B	g	h
w Panupaulus ranans-tune	7	1	6	3	q	3	19					
waanthomis cotula	1	1	15	1	2	v	1					
wallholicailo coballa	î	2	1	1	-		1					
wrBrassica sn(n)	ī	4	â	ī			ĩ					
waChrysanthemum segetum	2	5	13	1			ī					
wrPolygonum aviculare	5	6	2	-	1	1	1					
wwCarex (lenticular)	2	- 4	4		_	2	20					
wxChenopodiaceae undiff.	2	5	2				3					
wrRumex acetosella	1	1	1				9					
wsTriticum aestivum node	9	9	9	12			9					
wwCarex (trigonous)	5	3	1					1				
wrRumex obtusifolius-type	3	11	2									
wxSilene sp(p).	4	12	1									
waStellaria media	1	1	5									
wrFallopia convolvulus	2	2		9								
wtRubus fruticosus	8		2	1		1						
wrPolygonum persicaria	1	1										
weFicus carica	6	1										
wtCorylus avellana nut fragment	1	3			99	80	25	1				
wrPolygonum lapathifolium	1	2		2	1	З	2					
ccAvena grain	1	1		1	2		2					
ccTriticum aestivum grain	3			3	1	1	-					
ccHordeum hulled	1		-		1		1					
wwEleocharis palustris	3		2				6					
wrReseda luteola	3		1				~					
weLinum usitatissimum		±	2		T		3					
wrfripleurospermum maritimum ssp		Z	Ž				Ţ					
waAgrostemma githago		2	2				4					
wgAchillea millelollum		1	1				1					
wrLapsana communis		1	1				2					
wwScirpus Lacustris		4	1				2					
wgKninanthus minor agg.		Ť	1	a			å					
we Galaonsis tetrahit			1	1		1	5					
wyPotentilla sp(n)			1	-		1						
ceVitis vinifera			-	3	1	ĩ						
ctCorvius avellana nut frag.				1	ģ	-						
wtSambucus nigra	3				-							
wxGramineae undiff.	2	3										
wgRumex acetosa	2											
wwSphagnum sp(p)		9										
wwEleocharis sp(p).		6										
wwRanunculus flammula/cf. flammula			3									
waChenopodium album			2				3					
wwCaltha palustris			1				3					
wxCirsium sp(p).			1				1					
wxLuzula sp(p).			1				1					
csTriticum aestivum internode				З	1							
csTriticum durum/turgidum internod	e			2								
wrRaphanus raphanistrum pod frag	-				1	1						
					-	~						

Single occurrences:

Context 398 wgPlantago lanceolata, wwCarex hostiana-type, ccTriticum spelta, wrTaraxacum officinale agg., wtPrunella vulgaris.

Context 501 wgLeontodon sp(p)., wxPapaver sp(p)., wgBellis perennis.

- Context 502 (sample 108) wwHydrocotyle vulgaris wwlsolepis setaceus, wtPrunus sp(p)., wxViola sp(p)., waTorilis arvensis, whPteridium aquilinum frond frag., wwRanunculus sceleratus.
- Context 502 (sample 107) cc*Triticum* (hexaploid), cs*Triticum* brittle rachis internode, wt*Crataegus monogyna*, we*Olea europaea*.
- Context 502 (sample 109) wtMalus/Pyrus, waFumaria sp(p)., cePisum sativum, wtPrunus domestica institutia.

Context 502 (sample 85) wxLamium undiff., csCulm nodes, wrHyoscyamus niger.

Context 502 (sample 101) wxStachys sp(p)., wrSonchus asper, wgLeontodon taraxacoides, waUrtica urens, wxAjuga reptans, waThlaspi arvense, wxTrifolium sp(p)..

Context 551 (sample 71) wtJuglans regia, ccHordeum indet..

Period 6 (phase i) - Table 9

During the 15th to mid-16th centuries there was apparently some abandonment of the eastern property and the development of a clear soil profile. This, unfortunately, was not demonstrated in the samples.

Table 9: Newcastle - Closegate II Period 6

Bio.Lab. code Scanned only	365 s	373 s	374 s	377 s	384 s	385 s	386 s	389	390	398	399	401	379 \$	405
Context number	551	291	292	338	553	555	557	556	554	296	293	277	355	176
Sample number	1	32	40	40	14	1	1	1	/3	1	44	2	20	10
Phase	i	1	i	i	i	i	i	i	i	i	i	i	i	i
wtSambucus nigra		*	# #	ŵ		¥	+							
wrUrtica dioica					+									
wxLamium undiff.	•					π #								
ceVitis vinifera	1													
wtJuglans regia	8													
wtCorylus avellana nut fragment	+													
wrRaphanus raphanistrum pod frag ccAvena grain	5 +												ŧ	

Period 7 (phase j) - Table 10

During the late 16th century the waterfront to the eastern property was advanced with ash and sandstone layers behind the revetment. None of the four contexts sampled (336, 337, 172 and 69) contained any quantity of seeds. Their rather sterile nature supports the hypothesis that the landfill was predominantly of ballast from incoming ships. The fact that 172 was a sandstone drain suggests that the feature was kept clean if, indeed, it was ever in receipt of foul material.

Table 10: Newcastle - Closegate II Periods 7 and 8

336	676				
58 1 j	535 1 k	172 38 2 j	69 1 2 j	326 63	550 70
	~			1 ** **	1
	9 9 1 9		н		1
	8 9	1	\$		1
				1 1 1	1 1 1 1
	580 58 1 j	336 535 58 1 1 j k 9 9 9 9 9 9 9 9	336 535 172 58 38 1 1 2 j k j 9 9 9 9 9 1 9 9 9 1 9 9 1 1 9 9 1	336 535 172 69 58 38 1 1 1 2 2 j k j j 9 * 9 9 9 9 9 9 1 *	336 535 172 69 326 58 38 1 63 1 1 2 2 j k j j 1 9 9 9 9 9 9 1 * 1 1 1 1 1 1 1 1 1 1 1

1

wrRaphanus raphanistrum pod frag. wrLapsana communis wwRanunculus flammula/cf. flammula wxRumex sp(p). perianth wxGramineae undiff. wgLeontodon taraxacoides waUrtica urens wgLinum catharticum

Period 8 (phase k) - Table 10

During this period, the early part of the 17th century, the eastern porperty underwent considerable rebuilding. Only one context (535) was sampled from a drain fill and. like that from the earlier period, gave no indication of foul material. It seems that the drains were kept clean and were probably for the disposal of surface water only.

General Discussion

Returning to the original questions asked, a variety of plant material had survived. Some of this was through carbonisation and gave evidence of the usage of wheat, barley, oats and rye. Although much of the identified wheat was bread wheat, the tetraploid *Triticum durum* or *T. turgidum* was recovered - extending its occurrence much further north than before. The barley was predominantly hulled but too few grains were well enough preserved to say if it was the 6-row or 2-row species. Carbonised grape pips and peas were also recovered although always in very small numbers.

Material preserved through waterlogging was abundant in some contexts and was represented by plants of mixed habitats. Ruderals and weeds with grassland species were the most common as were some woodland or scrubland taxa and those characteristic of wet ground. Few exotic taxa were present but important ones included olives, figs and dill. These may have been locally grown in a slightly warmer climate than today but were perhaps more likely to have been imported through this important port.

Many samples contained little or no plant remains. Whilst this may have been through lack of preservation, the original matrix suggests that at least some were botanically sterile. They may have been the remains of ballast brought in with ships or material deliberately brought and dumped from inland in order to reclaim the quayside land.

With respect to the different periods of activity, there is no distinct pattern. Most periods have at least a few rich contexts as well as many sterile contexts. The botanical material from periods 1, 2 and 3 appear to reinforce the archaeological evidence of massive dumping for reclamation purposes with the exception of one context (526) which contained many taxa indicative of soil with a suggestion of rotting vegetation too. Period 5 contained the majority of the species-rich samples some of which indicated the dumping of bedding or animal dung. This material was in discrete areas within one context (502) and probably reflects a short-term deposit layer. Periods 6, 7 and 8 are rather species-poor and, although this may be related to differential preservation, it is considered more likely that the samples relate to dumped ballast.

- 15 -

The drain fills from these periods indicate that such features were kept clean and that no buildup of organic material occurred.

Comparing the two properties, the carbonised material, although sparse, is predominantly in property 2 perhaps reflecting its domestic nature.

Overall the botanical remains give an indication of the variety of cereals used in Newcastle during the Medieval period. The waterlogged reamins indicate that some bedding or domestic refuse was discarded at this site but that, on the whole, the site consisted of predominantly botanically sterile material although some may have been lost through differential preservation. Many of the samples are comparable with those from the adjacent Closegate I site although this latter did not have the domestic influence of CG90.

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