

HMK Rpt 3923

BARNARD CASTLE, CO. DURHAM

Botanical remains from  
The Great Moat, Courtyard and Guarderobes

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## Moat Samples

Material from the moat was very rich in organic material. Fruits and seeds, water fleas, beetles and insects were all common. The moat would have filled up through a combination of natural silting and the dumping of rubbish and soil in the water.

Soil samples were washed, sieved and subjected to paraffin flotation in the Ancient Monument laboratory. Botanical remains were sorted by Mr. Alan Pearson. Identifications of fruits and seeds are by myself, those of mosses by Dr. Sandra Nye. 54 taxa of higher plants were identified and are shown in Table 1, together with their normal habitats and the factors of environment which they indicate.

Of the cereals, only a few grains of wheat and barley were recovered. Other introduced, cultivated plants identified were flax, figs and walnuts. Flax was probably cultivated nearby for the production of linen. Indeed the presence of seeds in these deposits may even suggest the use of the moat for retting when the whole plant was soaked and semi-rotted in water prior to the extraction of fibres from the stems. Figs were first brought to Britain by the Romans. It is not possible to say whether these seeds represent local cultivation or importation. Dried figs could have been an important element of the diet in winter and the presence of seeds in the moat suggests the dumping of night soil here or drainage from garderobes entering the moat. Walnuts are another Roman introduction. Since then trees were often planted for their fruits but the nuts may well have been imported.

Native fruits and nuts present may represent collection from local woodland or even deliberate cultivation. Blackberries, hazelnuts, elderberries and possibly rosehips come into this category. A few of the weeds of waste places present are also edible - either their fruits or seeds or the whole plant. Examples are fat hen, dandelions, docks, wild turnip and Polygonum species.

A large number of the species present are weeds of cultivated, arable land and seeds probably arrived here within crop material. Cornfield weeds like the corn cockle, cornflower, poppy, corn marigold and corn buttercup have in modern times become almost rare plants. Before improved seed cleaning methods and weedkillers however, they were abundant. Seeds of the corn cockle, a Roman introduction, are actually slightly poisonous and have a deleterious effect on wheat flour but were very difficult to remove from grain because of their similar size.

The overwhelming majority of species recovered indicate very open habitats with high light levels. Most are plants of waste and/or arable land. The wasteland element could have included all local land not actually used for building or agriculture like paths, bare areas, gardens, banks, midden heaps etc. These habitats are open, unstable and often disturbed, being perfect for 'opportunistic' annual weeds like fat hen, orache and knotgrass. Certain more stable areas like the banks of the moat would be colonised by grasses, meadowland plants and perennials like nettles, docks and thistles. Many 'weeds' of waste places are edible.

A woodland environment is barely represented. Only hazel, blackberry and elder commonly grow in woods or scrubland and, having edible fruits, may represent their collection from elsewhere. However, blackberry and elder frequently also grow on wasteground near buildings.

Heather is unlikely to have been growing near the castle and may have been imported from heathland or moorland. The plant has a variety of domestic uses ranging from thatching to brooms or bedding.

An important element of the species list are the plants likely to have been growing actually in the water of the moat or its muddy margins. The poisonous hemlock is the most abundant and lesser spearwort, bog stitchwort, ragged robin and many of the sedges probably fall into this category. The celery-leaved water crowfoot would find the muddy, nutrient-rich waters of an infilling moat ideal.

Hemlock, henbane, fool's parsley, walnut, stinking mayweed, self heal, cinquefoil, blackberry, elder and nettle were all traditionally used as medicinal herbs. Certain plants like heather, cinquefoil, corn marigold, elder and blackberry can be used for the production of vegetable dyes. These plants, and lichens, could have been used in any local textile industry.

To sum up, the species list indicates plants growing in the moat itself and an abundance of plants of open habitat and waste ground growing in the near vicinity. An imported element includes crop plants and their associated weeds of cultivation. Fruits, nuts and edible plants could have been cultivated, collected or imported from elsewhere. Some food waste or faecal material would seem to have entered the moat. Several plants could have been used domestically or industrially.

Bryophyte identifications are shown in table 1a. Species identified are commonly found in damp areas on a variety of substrates which could have been provided within the moat area.

The local bedrock is limestone but the moat exposed bands of shale and an overlying layer of boulder clay. Seepage from the shale and a spring at the southern end would have provided habitats of running water. Drains entered the moat from an angle tower and from garderobes. Seepage and the silting up of the moat probably resulted in a central boggy area with small pools. The limestone bedrock, boulder clay and local sandstone building stone, would have provided substrates with a wide range of pH. There was a wooden drawbridge and plenty of wood fragments within the moat deposits on which mosses could grow. The banks of the moat probably provided a damp grassy habitat.

Mosses could also have been used as packing material or as wound dressings etc., because of its absorbant properties, and may have been thrown into the moat after use.

Guarderobe samples

AM no. 817149 79 3017

brown layer at bottom of guarderobe

<u>Aethusa cyananum</u> (Fool's Parsley)	fruits	4
<u>Anthemis cotula</u> (Stinking Mayweed)	achenes	3
<u>Atriplex hastate/patula</u> (Orache)	seeds	40
<u>Brassica c.f. rapa</u> (Wild Turnip)	seeds	6
<u>Calluna vulgaris</u> (Heather)	seeds	1
<u>Carex</u> spp. (Sedges)	nutlets	6
<u>Chenopodium album</u> (Fat Hen)	seeds	6
<u>Conium maculatum</u> (Hemlock)	fruits	1
<u>Corylus avellana</u> (Hazel)	nuts	1
<u>Ficus carica</u> (Fig)	seeds	105
<u>Galeopsis tetrahit</u> (Hemp Nettle)	nutlets	1
<u>Hyocyanus niger</u> (Henbane)	seeds	6
<u>Lapsana communis</u> (Nipplewort)	achenes	1
<u>Lycopus europaeus</u> (Gypsy-wort)	fruits	1
<u>Polygonum aviculare</u> (Knotgrass)	fruits	6
<u>P. convolvulus</u> (Black Bindweed)	fruits	2
<u>P. persicaria</u> (Persicaria)	fruits	1
<u>Potentilla erecta</u> (Cinquefoil)	achenes	1
<u>Ranunculus, acris</u> Type (Buttercups)	achenes	1
<u>R. sardous</u> (Hairy Buttercup)	achenes	2
<u>R. sceleratus</u> (Celery-leaved Crowfoot)	achenes	11
<u>Rosa</u> sp. (Rose)	achenes	1
<u>Rubus c.f. fruticosus</u> aggr. (Blackberry)	achenes	22
<u>Rumex acetosella</u> (Sheep's Sorrel)	fruits	4
<u>Rumex</u> sp. (Docks)	nutlets	10
<u>Stellaria media</u> (Chickweed)	seeds	2
<u>Thlaspi arvense</u> (Field Pennycress)	seeds	1
<u>Urtica dioica</u> (Nettle)	fruits	8
<u>Viola</u> sp. (Violet)	seeds	1
<u>Vitis vinifera</u> (Grape)	fruitstone	1

The majority of species identified were also found in the moat and are mostly plants of wasteland and arable likely to have been growing in the near vicinity. (For details see Table I) Three plants not recorded from the moat also fall into this category. Gypsy-wort, field penny-cress and hairy buttercup all grow on arable or waste ground. Another group, including hemlock, crowfoot and sedges tend to be plants of wet places or open water.

These components point to the area being open to the elements at some time, allowing the incorporation of local weed seeds into the deposits and even the growth of plants within the guarderobe.

Of great interest are the remains probably faecal in origin. The woody 'pips' of figs and blackberries are very abundant and could have resisted both attack in the human gut and later decay in the soil. The single, broken, grape pip probably has a similar history. These fruits, either fresh or dried, would have been an important source of vitamins and minerals in the diet.

AM no. 817159 80 3016

Constable tower soil in stone drain at base guarderobe shaft.

<u>Avena</u> sp. (Oats)	Carbonised grain	1
<u>Corylus avellana</u> (Hazel)	nut fragments	1
<u>Rumex</u> sp. (Dock)	nutlets	1
<u>Sambucus nigra</u> (Elder)	fruitstones	118
<u>Triticum aestivum</u> s.l. (Wheat)	carbonised grain	2
<u>Urtica dioica</u> (Nettle)	fruits	1

The only remains likely to be faecal in origin are the large number of elderberry 'pips' and possible the hazelnut fragment. Elderberries, though not much to modern tastes, were frequently eaten or made into jellies or wine. It is also worth mentioning that elder trees frequently grew or were planted near drains where they flourished in the fertile soil.

The light, carbonised grain and the two small weed seeds were probably blown into the drain at some time.

AM no. 817159 83 3014

<u>Carex</u> sp. (Sedges)	nutlets	4
<u>Ficus carica</u> (Fig)	seeds	68
<u>Rubus c.f. idaeus</u> (Raspberry)	achenes	18
<u>R. c.f. fruticosus</u> aggr. (Blackberry)	achenes	9
<u>Sambucus nigra</u> (Elder)	fruitstones	35
<u>Triticum aestivum</u> (Wheat)	carbonised grain	6

Although there was no information about this sample it is included here because it is so very similar to the guarderobe samples. It consisted almost entirely of woody fruitstones or seeds, of fig, blackberry, raspberry and elderberry. Such a concentration must surely have come from faeces or food waste.

Table 2.      Barnard Castle  
Courtyard Samples  
Carbonised material

		817783	(6153)	817787	(6153)	817788	(6346)	817795	(6153)	817800	(5102)	817804	(6153)	817807	817809	817810	(6361)	817811	(6401)	817814	(6401)	817818	(4114)	817819	(7032)	817820	(6153)	817823	(6153)	817824	
<u>Avena</u> sp. (Oats)	grain	7	2	5		2	1	8	6	3	7	14												24	36	1					
<u>Corylus avellana</u> (Hazel)	nut fragments	+		+		+		++	+	+										+	+	+	+	+	++	+					
<u>Galium</u> sp. (Cleavers)	seeds																														3
<u>Hordeum</u> sp. (Barley)	grain																	1					1	2	1						
<u>Pisum sativum</u> (Pea)	seeds	3						2		1	3													2	6						
<u>Triticum aestivum</u> s.l. (Wheat)	grain		4	3	1	15	4								15	4						1		8	50						
<u>Vicia faba</u> (Field Bean)	seeds	9										6									9										

AM lab sample numbers are given first, site samples numbers in parenthesis

### Courtyard Samples

#### Carbonised material

These samples were processed and sorted on site by Dr. Nye. Small bone fragments were abundant and the plant remains recovered were all carbonised, unaltered organic plant material was not present. Only those seeds and grain which happened to get carbonised, presumably accidentally, would have not preserved.

Apart from the Galium species, usually weeds of cultivation or wasteland, all species are food plants.

Hazelnut fragments have been found in many parts of the site. The nuts, probably collected from local woodland, would have been an important element of the diet.

Three cereals, oats, wheat and barley are present, in that order of abundance. It was not possible, in the absence of flower bases, to identify the species of oats, but its presence in such numbers must surely indicate a cultivated form rather than the 'wild' oat, a weed of other cereals. Oats is historically an important crop, being used both in the human diet and as winter fodder for animals. The wheat, with plump squarish grains is a hexaploid variety. Its use has always been almost exclusively for the production of flow and bread. Barley can be fed to animals or malted and used to produce ale and beer. All the cereals would probably have been used directly as a vegetable and in stews and soups.

Carbonised peas have been identified in earlier samples from this excavation but this is the first time beans have been found. The field ~~of~~ bean is smaller but similar to the modern broad bean, which derives from it. It is still grown as an agricultural crop. Dried peas and beans would have been an important source of vegetable protein during the winter months.



Table 3.

BARNARD CASTLECourtyard etc.

## Organic remains

	817121	(6866)	817142	(6513)	817148	(6106)	817164	(6810)	817165	(6815)	817166	(6871)	817167	(6863)	817169	(6819)	817170	(6869)	817171	(6867)	817172	(6817)	817173	(6821)
<u>Agrostemma githago</u> (Corn Cockle)																								1
<u>Atriplex hastata/patula</u> (Orache)											1													
<u>Carex spp.</u> (Sedges)								3	5		2	1	1	1										
<u>Chenopodium album</u> (Fat Hen)																			1	1	1			
<u>Corylus avellana</u> (Hazel)											+													
<u>Ficus Carica</u> (Fig)					2									1						1				
<u>Polygonum convolvulus</u> (Black Bindweed)											1													
<u>P. persicaria</u> (Persicaria)											4								1					
<u>Potentilla erecta</u> (Cinquefoil)			1								8			2	1	1								3
<u>Ranunculus, acris</u> Type (Buttercup)									1	3				1						3				
<u>Rubus c.f. fruticosus</u> aggr. (Blackberry)							4	1	18					1					10	3				4
<u>R. c.f. idaeus</u> (Raspberry)			4										1											2
<u>Rumex acetosa/crispus</u> (Dock)											1									1				
<u>R. acetosella</u> (Sheep's Sorrel)																				1				
<u>Sambucus nigra</u> (Elder)			4	1	3						1													
<u>Stellaria media</u> (Chickweed)																								
<u>Triticum aestivum</u> s.l. (Wheat)			1																					
<u>Torilis c.f. nodosa</u> (Knotted Hedge Parsley)										1	1													3
<u>Umbelliferae</u> (Hedge Parsley family)													3											
<u>Urtica dioica</u> (Nettle)			1																	1				
<u>Viola sp.</u> (violet)																								3
<u>Hypnum cupressiforme</u>																								

Courtyard etc.

Organic remains

This group of samples are soil samples from the courtyard - fills of pits or drains or material from burnt areas with organic preservation. They were processed in the A.M. laboratory. For identifications see Table 3 and for detailed deductions about habitat etc., see Table 1.

Three samples, 817142, 817148, 817164, were pits yielding entirely remains which could be food waste or even faecal in origin.

Several pits or drains yielded mostly weeds of arable or waste ground, likely to have been growing very locally, plus some edible fruits. They are 817165, 817166, /169, /171, /173. Two samples from burnt areas 817167 and 817172 were very similar.

#### Miscellaneous samples

Some of these samples may in fact fall into the 'courtyard' category but insufficient information was included with them.

#### Hearths and areas of burning

817160 (5583), a hearth, contained one carbonised oat grain. 817142 (6513) contained one uncarbonised elderberry 'pip' (Sambucus nigra).

817154 (3012), coal and organic waste' contained 2 blackberry 'pips' (Rubus c.f. fruticosus aggr.) and two fragments of very modern-looking grass flower stalks, probably contaminants.

#### 'Loam' samples

817136 (6554) contained a seed of chickweed. (Stellaria media) a heap of loam, contained 5 elderberry 'pips' a fragment of ?raspberry pip, a sedge nutlet (Carex sp.) and a chickweed seed. 817133, (also 6587) contained a single sedge nutlet.

Although food species and other plant seeds are present they are not at such concentrations to suggest, for instance, midden heaps or night soil.

#### Calcareous or white clayey samples

817134 (6633), 817141 (6633) and 817137 (6645) all contained single grains of wheat (Triticum aestivum s.l.) They were uncarbonised but their shape and integrity were preserved by adhering calcareous matter. This could have been redeposited lime leached from mortar, stone or whitewash.

#### Material underlying wooden objects

817125 (6812) contained only a violet seed. (Viola sp.) 817127 (6645) contained two modern, contaminant seeds of the goosefoot family (Chenopodiaceae) possibly beet or spinach.

#### Samples with no contextual information

817130 (6645) contained 3 elderberry seeds. 817159 (3014) contained a single fig seed. 817141 (6633) contained approx. 35 very 'mangled' Rubus achenes, probably raspberries.

Concluding Remarks

Botanical identifications from this excavation have provided a wealth of information about the local flora and vegetation. Remains of crop plants and their associated weed seeds have provided evidence about agriculture. Evidence of the likely diet of the castle's inhabitants is provided by both carbonised and uncarbonised material. Knowledge of plant distribution has suggested which plants or plant products were imported. Some possible uses of plants in the local economy are suggested.

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