

Donnington Recreation Ground Oxford DR13

Carbonised Plant Macrofossils and Charcoal

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## 1: Introduction

A total of nine environmental sample flots taken during archaeological excavation work at Donnington Recreation Ground, Oxford (DR13) were analysed for carbonised plant macrofossils and charcoal. Environmental and artefactual material sorted from the heavier 'residue' portion of each sample was also examined and is tabulated here. A series of samples were taken from two large pit features, originally identified by geophysics, with the Northern pit [2022] possibly a tree throw, or re-used tree throw, whilst the Western pit [2028] produced a large amount of worked flint and burnt material. Upper layers included both Medieval and Romano-British pottery, but the deeper pit fill deposits could be Mid-Late Neolithic. Carbonised material was identified in order to provide suitable short-lived material for radiocarbon dating, and to determine the types of activity associated with the pits.

## 2: Methodology

Bulk environmental samples were processed by volunteers from the East Oxford Archaeology Project using a Siraf style water flotation system (French 1971). The flots were dried before examination under a low powered binocular microscope. Small amounts of carbonised material were recorded in all of the DR13 samples, generally in trace amounts of <2.5ml in (2032) in pit [2022], but with greater concentrations, up to 15ml of charcoal and other detritus, recorded from (2035) in pit [2028]. Modern roots were scarce, with <2.5ml found per sample, but occasional burrowing types of snail shell indicated there probably was a small degree of bioturbation occurring. The residues from each sample were sorted by volunteers on the EOXP and forwarded to the author for checking and tabulation. All identified plant remains including charcoal were removed and bagged separately by type from both the flot and residue portions.

Wood charcoal was examined using a high powered Vickers M10 metallurgical microscope at magnifications up to x200. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).

### 3: Results

Results are presented in table 1 and discussed below.

### 4: Discussion

The environmental samples from Donnington Recreation Ground suggested a concentration of burning activity occurring in the possible Mid-Late Neolithic pit [2028], with the bulk of carbonised plant remains and charcoal originating from a series of samples taken from context (2035). Lesser amounts of charred material were present in possible pit or re-used tree throw [2022] although some traces of burning activity were suggested by occasional finds of charcoal and cereal grain, perhaps suggesting peripheral activity or wind-blown scatters from nearby burning.

#### Northern Pit / Re-used tree throw [2022]

Three samples from the lower pit fill (2032) of re-used tree throw [2022] were examined, producing very small flots consisting of sand, roots, snail shell and scarce trace amounts of charred detritus. Slivers of crushed charcoal 2-3mm in size, and too small to identify accurately, were recorded in all three samples in very low amounts. Sample 2 (2032) contained a single small fragment of *Corylus* (hazel) charcoal, possibly not that significant. Sample 5 (2032) produced one *Hordeum vulgare* sl. (barley) grain, in quite degraded condition, whilst the residue from this sample contained scarce crushed 3-5mm sized slivers of *Quercus* (oak) charcoal. Large numbers of burrowing and non-burrowing types of snail shell present in all three samples indicated a degree of bioturbation was

possible. The remains from this possible pit feature are most likely to reflect burning activity occurring nearby rather than anything deliberately deposited, and therefore are probably intrusive or suggest very low levels of activity.

#### Western Pit [2028]

Seven samples were examined from pit [2028] with six taken from various levels of the lowest pit fill (2035), and one from a mid-feature fill (2025) within cut [2029] possibly reflecting later re-use of the pit. Sample 1 (2025) produced a silty flot containing numerous charcoal detritus, possibly crushed 2-3mm sized oak type, with occasional larger fragments of *Corylus* (hazel) identifiable. The hazel showed reasonable preservation, with slight degradation observed. Interestingly a piece of worked flint had floted and this has been bagged for analysis. A trace amount of tiny 2-3mm sized fragments of *Corylus avellana* (hazel) nutshell were recovered from the residue portion of this sample. This later re-cut is possibly still within the Neolithic period of activity so it will be interesting to see the radiocarbon date.

The samples from the lowest fill (2035) produced good concentrations of carbonised material, mostly charcoal, with variable degrees of preservation largely dependent upon the depth of the sample. Two flots from sample 4 (2035) produced a more concentrated area of charcoal than that seen in either (2025) or from pit [2022], but mostly it was in quite poor crushed condition. A single cereal grain was very poor and vesicular and could not be identified but was roughly in the shape and size range of either barley or wheat type. The charcoal was identified as *Quercus* (oak) and *Corylus* (hazel) but again quite degraded, perhaps as a result of tree root disturbance, burrowing creatures or other intrusion. The residue also produced degraded oak charcoal together with two very small and worn fragments of hazel nutshell. Samples 6, 7 and 8 from (2035) were in better condition, producing larger concentrations of charcoal together with some very nicely preserved *Corylus avellana* (hazel) nutshell fragments. The nutshell from sample 7 (2035) was in particularly good condition, with some fragments up to 1cm recovered from the residue. All of the charcoal from samples 6, 7 and 8 was found to be either oak or hazel type, with oak dominating the assemblage. This suggested the use of mixed

deciduous woodland with some open lighter areas of woodland being used for fuel, as well as for the gathering of wild food resources in the form of hazel nuts. These lower pit fills are most likely related to Neolithic activity – perhaps fire pits for roasting or cooking in situ, or deliberate deposition of burnt hearth waste and other material from nearby occupation or feasting activity. Radiocarbon dating of a number of these samples will help refine the timescale for these events.

## 5: Conclusion

The environmental samples from Donnington Recreation Ground provided a useful insight into possibly quite early human occupation activity in this part of Oxford. Pit [2028] produced high concentrations of charcoal and other carbonised plant material from lowest fill (2035), most likely related to the Neolithic period, enabling a series of radiocarbon dates to be obtained. Possible pit or re-used tree throw [2022] was less abundant, with many degraded remains, suggesting perhaps it was on the periphery of activity or the material may have been intrusive from nearby burning.

Carbonised cereal was very scarce, with only an indeterminate grain from (2035) and one barley grain from (2032). The grain from (2032) may relate to nearby Neolithic contexts but equally could relate to some of the later events at the site, such as the Romano-British settlement, hence a radiocarbon date for this would be very useful.

The charcoal was identified as a mixture of oak and hazel, with oak the dominant type being used as fuel. This combined with the finding of hazel nutshell is fairly typical of Neolithic dated assemblages, and suggested good availability of woodland resources for fuel and food.

Further excavation work at the site has a good potential to produce well preserved carbonised material based upon the identifications from these samples.

## References

French, D. H. 1971 An Experiment in Water Sieving. *Anatolian Studies* 21 59-64.

Schweingruber, F. H. 1990 *Anatomy of European Woods*. Paul Haupt Publishers Berne and Stuttgart.

Stace, C. 1997 *New Flora of the British Isles*. 2<sup>nd</sup> Edition Cambridge University Press.

Zohary, D. and Hopf, M. 2000 *Domestication of Plants in the Old World*. 3<sup>rd</sup> Edition Oxford University Press.

<b>Donnington Recreation Ground, Oxford</b>	<b>Sample</b>	1	2	3	4	5	6	7	8
<b>EOXP DR13</b>	<b>Context</b>	2025	2032	2032	2035	2032	2035	2035	2035
	<b>Feature Type</b>	mid-fill pit [2028]	lower fill pit [2022]	lower fill pit [2022]	lowest fill pit [2028]	lower fill pit [2022]	lowest fill pit [2028]	lowest fill pit [2028]	lowest fill pit [2028]
	<b>Total CV</b>	2.5ml	<2.5ml	<2.5ml	5ml	5ml	15ml	15ml	10ml
<b>Floted Remains:</b>	<b>Modern</b>	<2.5ml	<2.5ml	<2.5ml	2.5ml	<2.5ml	<2.5ml	<2.5ml	<2.5ml
<b>Carbonised Cereal Grain</b>	<b>Common Name</b>								
<i>Hordeum vulgare</i> sl.	barley					1			
Indeterminate cereal grain (+embryo)					1				
<b>Carbonised Wild Resources</b>									
<i>Corylus avellana</i> nutshell	hazel nutshell	5 (0.06g)			2 (0.02g)		6 (0.14g)	15 (0.24g)	9 (0.16g)
<b>Charcoal</b>									
<i>Quercus</i>	oak				6 (0.12g)	3 (0.05g)	3 (0.24g)	7 (0.46g)	6 (0.37g)
<i>Corylus</i>	hazel	2 (0.11g)	1 (0.01g)		3 (0.05g)		2 (0.07g)	3 (0.09g)	3 (0.19g)
<b>Artefacts</b>									
Flint		1 (0.22g)							
<b>Other Remains</b>									
Non-marine mollusc (snail) shell		5+	10+	10+	20+	20+	5+	5+	1
Coal				2			1		

<b>Donnington Recreation Ground, Oxford</b>	<b>Sample</b>	1	2	3	4	5	6	7	8
<b>EOXP DR13</b>	<b>Context</b>	2025	2032	2032	2035	2032	2035	2035	2035
	<b>Feature Type</b>	mid-fill pit [2028]	lower fill pit [2022]	lower fill pit [2022]	lowest fill pit [2028]	lower fill pit [2022]	lowest fill pit [2028]	lowest fill pit [2028]	lowest fill pit [2028]
<b>Residue Remains:</b>									
Non-marine mollusc (snail) shell				5 (0.08g)	1 (<0.01g)	1 (<0.01g)			1 (<0.01g)
Burnt bone		5 (0.27g)		4 (0.10g)		3 (0.09g)		20+ (0.95g)	
Mammal bone				1 (<0.01g)					3 (0.11g)
Fish bone				2 (<0.01g)		2 (<0.01g)			
Flint		3 (2.70g)			7 (4.18g)	2 (<0.01g)	2 (0.05g)	9 (0.76g)	8 (1.52g)