

St. Bartholomew's Chapel (Bartlemas), East Oxford, BC11

Carbonised Plant Macrofossils and Charcoal

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1: Introduction

A total of twenty-eight environmental sample flots taken during the 2011 excavation work at St. Bartholomew's Chapel (BC11), were examined for carbonised plant macrofossils and charcoal. The excavation was undertaken as a result of remedial drainage work being carried out to prevent further flooding and damp penetration to the Chapel, with the aim of revealing any earlier foundations to the building and possible burials in the vicinity. Eighteen of the samples originated from trenches excavated around the Chapel itself (Trench One), to the West (Trench Two) and to the South (Trench Three). The remaining eleven samples were taken as part of the wider East Oxford Archaeology Project from various Test Pits, some within the grounds of Bartlemas Farmhouse and allotments, and these are included as part of this report. Carbonised material from fourteen of the sorted residues was also examined for any identifiable remains.

Bulk finds from the residues, such as pottery, flint and metal objects, as well as environmental material such as bone, marine and snail shell and other items, were sorted by volunteers from EOXP and forwarded to the author for checking and rough quantification. These items have been counted and accurately weighed, ready to be submitted to the appropriate specialists for their identification.

The excavations revealed a range of buildings dating from the early Medieval to the 19th Century, with a variety of finds from the Romano-British period and onward up to more recent times. Charnel pits to the North and South of the Chapel, as well as numerous burials, indicated a very well used graveyard with some bones exhibiting signs of leprosy. This was concurrent with documentary evidence for the founding of a leper hospital in the area in 1126 (Harrison, 20**). Trench Two to the West of the Chapel produced further burials, plus possible farm outbuildings, yards and other working areas.

The environmental samples from Bartlemas may help provide further clues as to the activities taking place in the local environs, in particular those related to industrial processes, the types of fuel being used, as well as agricultural practices and other food production. With regularly flooded water courses running below the site, it may also be possible to detect for potential preservation by waterlogging, although some of this may be fairly recent.

2: Methodology

Bulk environmental samples were processed by the EOXP using a Siraf style water flotation system (French 1971). The flots were dried before examination under a low powered binocular microscope. Small concentrations of charcoal and other carbonised detritus were recorded in amounts from 2.5ml up to 40ml, with some of this also including burnt vesicular remains. Modern material such as roots and non-carbonised seeds were present in varied amounts from <2.5ml in the securest contexts and up to 60ml in some of the more disturbed layers. Whilst some of these seeds were fairly fresh looking, and probably modern, it may be possible to detect an element of waterlogged preservation in some of the deposits, which will be discussed further below. All identified plant remains including charcoal were removed and bagged separately by type.

Non-marine mollusc (snail) shells, both burrowing and non-burrowing varieties, were recorded throughout the flots and have been retained therein for analysis by a suitable specialist. Sorted material from the residues has been quantified, bagged and labeled by category, ready for analysis.

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 from the sample analysis are presented in tables 1, 2, 3 and 4, whilst the residue quantifications are given in tables 5, 6 and 7. All results are discussed below.

4: Discussion

The environmental samples from Bartlemas Chapel generally produced small concentrations of carbonised plant material, mostly consisting of wood charcoal recovered in varied amounts from all three excavation trenches, together with trace amounts of cereal grain. Preservation of the wood charcoal was generally quite poor, particularly from Trench One, probably as a result of frequent flooding or other disturbance. The Test Pit samples proved more productive, with very good concentrations of cereal grain and occasional nicely preserved charcoal, particularly from TP1 (ARK T Centre) and TP10 (EOXP). Other Test Pits produced burnt vesicular industrial fuel material (coke / clinker?) and coal, suggestive of Medieval, but more likely Post-Medieval, industrial activity.

BC11 Trench One

Six samples were examined from Trench One, although two of these only produced remains from the residues (table 1). Excavated entirely around the Chapel, Trench One allowed the exploration of walls and features potentially belonging to earlier building foundations at the site.

Small trace quantities of wood charcoal were recorded from all six samples, together with in some cases quite significant amounts of contamination indicative of the disturbed nature of the deposits. Samples 1.1 (1008), 1.4 (1016), 1.5 (1020) and 1.8 (1026) all contained small fragments of *Quercus* (oak) charcoal, possibly all that remained of decayed structural or other timbers from earlier features, or perhaps suggesting intrusive material that has been burnt elsewhere and mixed into the deposits with other general building debris. Tiny fragments of charcoal measuring <3mm from samples 1.3 (1010), 1.4 (1016), 1.5 (1020) and 1.8 (1026) were not identifiable, but suggested material trampled or mixed through from later disturbance. Some of this charcoal may originally

have had a construction purpose around the Chapel, prior to becoming burnt, for instance as structural timbers for out-buildings, or frameworks to assist with construction, but the evidence for this is very scarce, and it probably reflects more the general mix of building debris and waste.

Samples 1.2 (1004), 1.3 (1010) and 1.5 (1020) produced a number of non-carbonised seeds, some of which are probably fairly recent contamination, but provide a tentative indication for a degree of preservation by waterlogging. Most of these seeds looked fairly fresh, for instance, *Urtica dioica* (common nettle), *Galium aparine* (cleavers) and probably reflect the modern weed flora in the vicinity of the site. Whilst others, such as *Rubus fruticosus* (bramble) and *Sambucus nigra* (elder), are the types of hard-coated seeds which would survive the rigours of the flotation tank, and may reflect an element of waterlogged preservation, albeit fairly recent / reflective of Post-Medieval disturbance and flooding.

BC11 Trench Two

Fourteen samples were examined from Trench Two, with three consisting only of residue material (table 2). This trench, to the West of the Chapel, consisted of possible ancillary buildings, external yards and other small structures.

Identifiable charcoal was recorded from 2.1 (2013), 2.4 (2018), 2.6 (2027), 2.8 (2038), 2.9 (2040), 2.13 (2052), 2.17 (2051) and 2.18 (2057), with all found to be *Quercus* (oak). Some of this was probably part of the general mixture of building debris, demolished material and rubble similar to that seen in Trench One, for instance (2018) and (2040), whilst some is probably more intrusive, for instance in grave fills (2051), (2052), and probably reflects backfilled material. Possible yard or surface (2013) and (2027) are slightly more interesting as the charcoal here could suggest waste from fires / sweepings from industrial activities and so forth, particularly when combined with the presence of coal and burnt vesicular material in the same deposits. Interesting too were the charcoal remains related to pit features. Context (2051), the layer over pit fill (2057), was very disturbed with frequent snail shell and very poorly preserved charcoal, whilst (2057)

itself produced an abundant all-oak charcoal sample, although again with numerous burrowing and non-burrowing types of snail shells present. The fill from smaller pit (2052) contained a small amount of oak and some coal fragments. These pits could have been discrete dumps of burnt fuel waste from nearby activity or represent in-situ burning in fire pits.

Samples 2.2 (2012), 2.3 (2022), 2.7 (2027), 2.10 (2035), 2.11 (2044) and 2.14 (2053) were either sterile or carbonised plant remains, consisting only of coal fragments and snail shell, or produced very tiny slivers, 2-3mm in size, of indeterminate charcoal, probably trace remains and not particularly relevant to the deposits.

BC11 Trench Three

Three samples were examined from Trench Three (table 3). This trench, excavated to the South of the Chapel, revealed a small stone-built building with a stone flagged floor, dating to the 12th – 13th Centuries based upon the pottery evidence.

Sample 3.1 (3010) was sterile of identifiable charred material and produced mostly coal and snail shell.

Samples 3.2 (3016) and 3.3 (3015) both contained small amounts of *Quercus* (oak) charcoal, as these were building foundation / base layers or backfill, it is possible that charcoal from nearby burning activity has become incorporated into the deposits. Interestingly two cereal grains, identified as *Triticum aestivum* (bread wheat), were recorded from (3015). These have probably become mixed into the deposit during building activity, and could reflect waste from nearby farming activity or cooking. One grain showed good preservation whilst the other was degraded. These were the only cereal grains recorded from the three BC11 trenches.

Test Pits (EOXP and ARK T)

Eleven samples were taken from various Test Pits around the site and local environs and these will be discussed individually (table 4).

TP1 (ARK T)

This sample, taken from the front garden of the ARK T Centre, Church Cowley, produced a distinctly different assemblage of charred remains from the BC11 material, and was possibly Romano-British or Medieval in date. It consisted of a small concentration of *Quercus* (oak) and *Corylus* (hazel) charcoal together with a mixed cereal grain assemblage, including *Triticum* sp. (wheat), *Hordeum vulgare* sl. (barley) and *Avena* sp. (oat) as well as numerous indeterminate grains which were degraded and vesicular. The wheat was most likely bread wheat type, although too degraded to firmly identify. An accompanying selection of large grassy field weeds suggested this deposit may be a dump of cereal processing waste, particularly from the latter stages of this, such as sweepings from a corn drying kiln, or from cooking waste. A number of *Vicia* sp. (vetches) in the sample may have been a crop weed, or a cultivar in their own right, for instance beans grown in small garden style allotments. This sample would be suitable for radiocarbon dating.

TP2 (EOXP)

A large amount of burnt vesicular type industrial fuel waste was recorded from this sample from context (103), as well as coal fragments, suggesting perhaps a dump of burnt waste from a smithy or similar feature. It is quite likely to be Post-Medieval in date. One small fragment of Coniferous type wood, possibly pine, was also recorded but is probably a trace inclusion.

TP9 (EOXP) Iffley

This sample, from (106), produced the same type of burnt vesicular material and coal as TP2, and again is probably Post-Medieval.

TP10 (EOXP)

Test Pit 10 contained large modern roots, some coal and modern seeds, together with some highly degraded vesicular cereal grains and a small amount of charcoal. This could

have been a discrete deposit of fire or cooking waste. The cereal grain consisted of *Triticum* sp. (wheat) and *Hordeum vulgare* sl. (barley) together with indeterminate grain.

TP12 (EOXP) Iffley

Test pit 12 (101) contained trace evidence for burning in the form of tiny slivers of charcoal too small to identify, together with snail shell and modern material, and as such is probably not that significant.

TP17 (BT2) Bartlemas Farmhouse

Very small fragments of coal and burnt vesicular material were all that was present in this sample, probably reflecting industrial type later or Post-Medieval activity.

TP20, TP21 and TP23 (EOXP) Iffley

Two samples from TP20 were sterile of charred remains, producing only coal and small quantities of burnt vesicular fuel waste. Test pit 21 was also sterile, with numerous snail shells suggesting disturbance. TP23 produced abundant burnt vesicular industrial type fuel waste and some coal fragments. Similarly to TP2 this sample contained Coniferous type charcoal, probably pine, but again too poorly preserved to identify accurately. These remains are probably later / Post-Medieval.

TP26 (EOXP)

Trace charred material was present, including half a degraded cereal grain, which could not be identified, and a few modern seeds, suggesting this deposit is probably not that significant.

5: Conclusion

The bulk environmental samples from excavations at St. Bartholomew's Chapel produced a small assemblage of carbonised plant material, consisting mainly of charcoal from the Chapel Trenches, with only trace amounts of carbonised cereal grain. Samples

taken from a series of Test Pits in the vicinity produced greater quantities of charcoal and cereal grain, as well as evidence for later or Post-Medieval industrial activity.

The carbonised plant remains from the three Chapel Trenches, perhaps unsurprisingly reflect the various processes of building activity, demolition and disturbance occurring at the site, as well as mixing and backfilling of material when graves were cut and re-cut over time. It is interesting that the only charcoal identifiable from the Chapel area was oak, as this would have been one of the best types of wood to use for structural timbers, and indeed as an aid to the various stages of construction of the Chapel, such as building timber frameworks or hoists for lifting stone. The oak charcoal was recorded in small amounts from Trench One, but mixed in with general rubble and other building detritus provides us with some tentative indications of its original purpose. Oak timber would also have been extremely valuable as fuel, and it is possible the remains found in Trench Two are indeed fuel waste from industrial and other activities around the farmyard or ancilliary workings, particularly those in pit (2057) which may reflect an in-situ fire pit.

Cereal grain from the Chapel was limited to two grains of bread wheat in Trench Three, suggesting agricultural processes or cooking in the vicinity, but probably a trace inclusion in the deposit. The potential waterlogged / modern seeds are not ones particularly associated with arable activity, and as such probably reflect the modern local environment rather than ones introduced via agriculture in the past, and most of these have probably washed in with fairly recent flooding. However, if features such as cess pits or drains were located in any future work at the site it may be advisable to take samples specifically for waterlogged material in order to test for this type of preservation.

The Test Pit samples were distinctly different from those from the Chapel, with quite a substantial amount of evidence for later Medieval or Post-Medieval industrial type activity in the area, particularly in abundance from TP2, 9 and 23, although TP17 and 20 also showed some evidence for these processes. Test Pit 1 was highlighted from the others as being distinctly different, with a mixed concentration of cereal grain and agricultural weed seeds specifically reminiscent of the assemblage one would expect in

the sweepings from a Roman or Medieval corn drying kiln. Further excavation in this area could prove extremely fruitful.

Overall the environmental samples produced small quantities of wood charcoal from the Chapel site, particularly from the pit features in Trench Two, although this was often in poor condition. The various Test Pits seem to largely indicate later activity, particularly industrial type activities producing large amounts of fuel waste, apart from TP1 which is distinctly different and probably earlier. Further excavation work targeting key areas, in particular near TP1, could produce more significant quantities of carbonised material and expand the research into earlier settlement and agricultural activity in East Oxford.

References

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