

Palaeoecology Research Services

**Evaluation of biological remains from excavations
at Canalside/Witter Place, Chester (site code:
CHE/SES01)**

by

John Carrott, Allan Hall, Deborah Jaques and Harry
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*Palaeoecology Research Services
Unit 8, Dabble Duck Industrial Estate
Shildon, County Durham DL4 2RA*

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Summary

A series of sediment samples, six boxes of hand-collected vertebrate remains and six small bags of hand-collected marine molluscs were recovered from excavations at Canalside/Witter Place, Chester. The excavated deposits ranged in date from the Romano-British period through to the present day. Three of the samples and all of the hand-collected material was submitted for evaluation to determine its bioarchaeological potential.

Some waste from vegetable (bark) tanning was preserved in the pit fill samples (Contexts 610 and 641), though not abundant. Eggs of intestinal parasitic nematodes were noted in Context 610 indicating a faecal component to this deposit. Sample 3 (Context 432) offers no indication of the nature of the context it represents. Both the pit fill samples provided insect remains, and demonstrate the likelihood that deposits with useful amounts of preservation by anoxia exist at the site.

The quantities of shell recovered by hand collection and from the samples were too small to be of real interpretative value, but probably represent human food waste. However, they do indicate the potential for survival of these remains at this site and this should be considered in the event of any future excavation in this area.

Vertebrate remains were dominated by cattle horncores recovered from pit fills in Trenches 6 and 7. Waste from craft activities, such as tanning and hornworking was clearly indicated. Horse and dog remains may also be evidence of skin and hide preparation. Evidence for a small component of domestic refuse, which included caprovid, pig and bird bones was identified. A basic archive should be made of the current assemblage.

Any further intervention at this site should be accompanied by a systematic programme of sampling for the recovery of biological remains, with provision for full post-excavation assessment and analysis.

KEYWORDS: CANALSIDE; WITTER PLACE; CHESTER; EVALUATION; ROMANO-BRITISH; MEDIEVAL; POST-MEDIEVAL; PLANT REMAINS; INVERTEBRATE REMAINS; INTESTINAL PARASITIC NEMATODE EGGS; MARINE MOLLUSCS; VERTEBRATE REMAINS; TANNING; HORNWORKING

Contact address for authors:

Palaeoecology Research Services
Unit 8
Dabble Duck Industrial Estate
Sildon
County Durham DL4 2RA

Prepared for:

Gifford and Partners
20 Nicholas Street
Chester
CH1 2NX

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Introduction

An archaeological evaluation excavation was carried out by Gifford and Partners at Canalside/Witter Place, Chester (NGR SJ 341120 366580) in ** 2001.

A series of sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), six boxes (each box approximately 25 litres) of hand-collected animal bone and 6 small bags of hand-collected shell were recovered from the deposits. Most deposits were post-medieval or early modern in date, with Romano-British and medieval ground surfaces being identified in Trenches 5 and 6.

Three of the samples and all of the hand-collected material was submitted for an evaluation of its bioarchaeological potential.

Methods

The submitted sediment samples were inspected in the laboratory and descriptions of their lithologies were recorded using a standard *pro forma*. All three samples were processed following the procedures of Kenward *et al.* (1980; 1986). The flots and residues resulting from processing were examined for plant and invertebrate macrofossils and the residues were sorted for bone, and other biological and artefactual remains.

The samples were also examined for the eggs of intestinal parasitic nematodes and other microfossils using the 'squash' technique of Dainton (1992).

Insect preservation was recorded using the scale of Kenward and Large (1998).

Small quantities of hand-collected shell from six contexts (301, 406, 407, 522, 610, and 624)

were submitted. Brief notes were made on the preservational condition of the shell and the remains identified to species where possible.

For oyster (*Ostrea edulis*) shell additional notes were made regarding: numbers of left and right valves; evidence of having being opened using a knife or similar implement; measurability of the valves; damage from other marine biota (polychaet worms and dog whelks); encrustation by barnacles.

For the hand-collected vertebrate remains that were recorded, data were entered directly into a series of tables using a purpose-built input system and *Paradox* software. Subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, for the larger assemblages, notes were made concerning fragment size, dog gnawing, burning, butchery and fresh breaks.

Where possible, fragments were identified to species or species group, using our modern comparative reference material. Fragments not identifiable to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid) and totally unidentifiable.

Results

Sediment samples

The results of the investigations are presented in context number order. Archaeological information supplied by the excavator is given in square brackets.

Context 432 [possible upcast from canal, C18th, between natural subsoil and cultivation horizon, or a buried soil]

Sample 3/T (2 kg): moist, mid grey-brown, soft to slightly sticky, to crumbly (working slightly plastic and soft), slightly sandy silty clay or clay silt with stones 6-20 mm present.

There was a small to moderate-sized residue of about 125 cm³, of which about 20% by volume was cinder, the rest clean quartz sand with some gravel and a trace of brick/tile (to 5 mm in maximum dimension). There were a few uncharred seeds of no interpretative importance; no invertebrate remains other than unidentifiable cuticle scraps were seen.

The microfossil 'squash' was mostly inorganic with a little organic detritus. No eggs of intestinal parasitic nematodes were seen.

Context 610 [uppermost fill of C18th ?tanning pit]

Sample 6/T (2.5 kg): waterlogged, mid-dark grey, unconsolidated slightly sandy clay silt with coal, charcoal, mammal bone and marine (oyster and mussel (*Mytilus edulis*)) shell present and cinders abundant.

The very large residue of about 800 cm³ consisted mainly of cinders (to 40 mm), with a little coal and some sand and traces of occupation material (pottery, mussel shell fragments, and charcoal). A 'light washover' of the less dense material was taken from this and found to comprise a little very decayed bark (to 25 mm), with some whitish calcareous deposits in places on the surfaces of the fragments. There were also a few bark sclereids in the finer fractions (these are clusters of lignified cells which appear to be present in the outer bark of many trees). The very small flot contained some scraps of invertebrate cuticle, including a few identifiable beetles. These were of no interpretative value in themselves (beyond being typical of occupation site fauna), but they indicate the possibility of better preservation locally at the site.

The microfossil 'squash' was mostly inorganic with some organic detritus, spores/pollen grains, and fungal spores. Two *Trichuris* (whipworm) eggs and one possible *Ascaris* (maw worm) egg were also noted. All of the eggs were very poorly preserved and neither of those of *Trichuris* was measurable.

Context 641 [lower fill of C18th ?tanning pit]

Sample 7/T (2 kg): wet to waterlogged, mid-dark grey-brown, unconsolidated slightly sandy clay silt with stones 20-60 mm, coal and ?rotted wood present, and cinders common.

The moderate-sized to large residue of about 550 cm³ gave a 'light washover' of about 150 cm³, the rest consisting of coal (to 45 mm), with some cinders (to 30

mm) and sand and traces of other occupation debris (sandstone, mussel shell, bone, slate, mortar). The light washover was of very decayed bark (to 35 mm, again with some whitish calcareous deposits) and amongst this was a modest-sized range of mostly quite well preserved seeds, some in more than trace amounts—e.g. deadnettle (*Lamium* Section *Lamiopsis*), nipplewort (*Lapsana communis*), hairy buttercup (*Ranunculus sardous*) and woundwort (*Stachys* sp(p).) —but with an unusually large number of nutlets of sheep's sorrel, *Rumex acetosella* agg. Almost all the seeds were from plants likely to have grown on waste or neglected ground and probably represent the flora of the area after abandonment or material from the clearance of land which had been disposed of in the pit. The abundant sheep's sorrel nutlets may simply reflect the sandy acidic nature of the ground in the vicinity. Again, there were a few sclereids in the finer fractions.

The flot included modest numbers of rather poorly preserved insect remains, and a few other invertebrates (E 3.5-4.5; F 2.5-4.5). At least 30 beetle taxa were present, and were very typical of post-Conquest assemblages (*Tipnus unicolor* (Piller and Mitterpacher) was present, for example), although no grain pests were found. Small numbers of a group of decomposer insects typical of stable manure were recorded, but give no clear evidence of such material being present in the deposit itself: they may be background fauna of local origin. The assemblage was too small for confident interpretation, but a larger subsample would allow the necessary quantification.

The microfossil 'squash' was mostly inorganic with some organic detritus, fungal spores and hyphae, and spores/pollen grains. No eggs of intestinal parasitic nematodes were seen.

Marine molluscs

All of the few remains were of common mussel (*Mytilus edulis*), oyster or Venus shell (*Veneridae* sp. indet.) and were, in general, quite well-preserved. Summary information for the hand-collected remains is presented as Table 1.

Vertebrate remains

Vertebrate material, amounting to six boxes (each box approximately 25 litres) and representing 22 deposits, was recovered from five of the seven excavated trenches. Provisional stratigraphic and ceramic evidence suggests that many of the contexts were post-medieval or early modern in date. Additionally, deposits of medieval and Romano-British date were revealed in Trenches 5 and 6. A characteristic of the site was the

concentrations of cattle horncores from the fills of a number of features.

In total, 504 fragments were recovered, of which 92 were measurable and 3 were mandibles with teeth *in situ* of use for providing biometrical and age-at-death data. Tables 3 and 4 show the number of fragments by species from Trenches 6 and 7.

Preservation of the material from the seven trenches was mostly good, with only a few contexts containing fragments that were battered in appearance. Eroded bones and those with rounded edges were noted from Contexts 512, 613 and 630. Some of the remains from these deposits may represent residual or redeposited material. Colour of the bones varied little within contexts, and, overall, most fragments were dark brown or brown. None of the assemblages were particularly fragmented, with just a small amount of fresh breakage noted. Dog gnawing was observed, but was not particularly common suggesting that most bones were fairly quickly incorporated into the deposits. Evidence of butchery was quite limited. Almost all of the cattle horncores showed evidence of removal from the skull. Although some were chopped at the very base of the core, more typically they had been removed along with a varying portion of the adjacent frontal and parietal bones.

Trench 2

Three sawn large mammal rib fragments (168 g) were recovered from a single context from this trench. Preservation of the remains from Context 208 (probable 19th century date) was extremely good.

Trench 4

Context 432, an 18th century buried soil horizon, produced only a single unidentified fragment (2 g).

Trench 5

This trench produced a small assemblage of bone, amounting to 21 fragments (887.5 g), from seven deposits. Bones associated with the medieval ground surface, Contexts 520 and 525, were mainly large and medium-sized mammal vertebra, cranial, mandible and rib fragments. Several rather battered cattle bones were noted from Context 520. Greenish concretions were observed on the bones from this deposit. Only two unidentified fragments were recovered from Contexts 517 and 526 (fills of pit 524). The assemblage, overall, is too small to be of any interpretative value.

Trench 6

A total of 363 fragments (23892.5 g) were recovered from 9 deposits ranging in date from the Romano-British to the early modern period. A pit fill (of pit 623), Context 610, of 18th century date, produced the bulk of the assemblage (175 fragments) which included numerous cattle horncores (54) and several cattle skulls. Clearly, the material from this deposit represents waste from some craft activity, possibly horn working or tanning. Other cattle fragments were predominantly lower limb elements, waste from primary carcass preparation or tanning. Other species present included caprovid, pig, chicken and goose, the remains of which suggested the presence of more domestic type refuse, i.e. kitchen waste. The unidentified fraction of the assemblage from this deposit, included cranial fragments, obviously associated with the cattle skulls and horncores, as well as large and medium-sized mammal rib and vertebra fragments, more likely to represent food debris. Material from other 18/19th century deposits (Contexts 605, 607 and 612) within Trench 6, also produced cattle horncores, albeit in far smaller numbers. Horse remains, predominantly from Context 605, possibly also represent waste from skin/hide preparation. Elements identified included metacarpals, lateral metapodials and phalanges, all of which could have been attached to skins delivered to the tannery. Additionally, a quantity of dog bones was recorded from Context 605. These may represent a single individual, and included a large humerus, which produced a withers height for the animal of 714.34 mm. Bearing in mind the industrial nature of much of the assemblage, these remains may derive from the processing of animal skins, although, no skinning or butchery marks were observed. Context 610 also produced a horse lateral metapodial, which had been fashioned into a tool, possibly, an awl.

The earliest material from this trench, from Contexts 629 (possible Roman-British pit fill) and 630 (the top of the Roman-British land surface), amounted to 22 fragments. Most of this assemblage was unidentified to species and represented large and medium-sized mammal shaft and rib fragments.

A single fragment of cattle cranium (from Context 11070) exhibited a small perforation in the nuchal region of the occipital portion of the skull. The aetiology of this condition is unknown but has been discussed at length by Brothwell *et al.* (1996). Although it could not be clearly established, they suggest that the cause is either congenital or yoking pressure.

[NB: Although archaeological information supplied by the excavator suggested that horncores and other remains were recovered from the lower fill of pit 623, Context 641, no hand-collected bones from that deposit were seen by the author.]

Trench 7

The four deposits yielding bone from this trench were of post-medieval and early modern date. Recovered vertebrate remains amounted to 115 fragments (6989 g). Context 704 (late 19th/early 20th century) produced an assemblage of remains representing probable food waste, including caprovid, cattle, large and medium-sized mammal elements. A single rabbit humerus was also present.

A smaller, though similar, accumulation of cattle horncores to those recorded from pit fill 610 were noted from Context 734 (pit fill). Juvenile cattle remains, characteristic of post-medieval deposits, were also identified from this deposit. Within this assemblage there was also a collection of dog bones representing at least three individuals of different sizes. Skinning marks were noted on one of the femurs. Horse lower limb elements (metapodials and phalanges) were present and again may be waste from the tanning of hides. Additional dog remains (representing at least 2 individuals) and cattle horncores were identified from Context 742, a deposit of 18/19th century date. No clear evidence of skinning was visible on these dog bones.

Discussion and statement of potential

The decayed bark and sclereids in Samples 6 and 7, though not abundant, suggest that some waste from vegetable (bark) tanning was preserved in these two contexts. Sample 3 offers no indication of the nature of the context it represents. Both the pit fill samples provided insect remains, and demonstrate the likelihood that deposits with useful amounts of preservation by anoxia exist at the site. It is probably not worthwhile, archaeobotanically, to make more detailed analysis of the material from Samples 6 and 7, but full analysis of invertebrate remains from a 5 kg subsample from Sample 7 would probably provide further useful information, providing the archaeological dating and context are secure.

The eggs of intestinal parasitic nematodes seen in Context 610 indicated the presence of faecal material within this deposit. The remains were too poorly preserved for a determination to species (and hence an identification of the

parasites' host or hosts) to be attempted, however.

The hand-collected shell remains were too few to be of any real interpretative value but probably represent human food waste. Preservation of shell remains was generally good and any further excavation at this site may well recover a more substantial and interpretatively valuable assemblage.

Excavations at Canalside/Witter Place, Chester produced a moderate-sized assemblage of vertebrate remains. The very small groups of bones from Trenches 2, 4 and 5 show little or no potential for further analysis. However, the post-medieval/early modern vertebrate remains from Trenches 6 and 7 form a useful group for archaeological and zooarchaeological interpretation. Preservation is mostly good, and there is little evidence of residual or redeposited material. Cattle horncores provide the bulk of the assemblage, suggesting refuse from some craft activity. This type of waste could indicate the presence of hornworkers, tanners or butchers, but, together with the small quantities of horse and dog remains, hide and skin preparation appears to be the most likely source. A small component of domestic food rubbish was present and its inclusion demonstrates that the pits were obviously a useful and convenient place for the disposal of waste from a variety of activities.

Assemblages associated with industrial or craft activities have been recovered from urban sites across the country, including York (Wenham 1964; Carrott *et al.* 1997), Doncaster (Carrott *et al.* 1997), Lincoln (Dobney *et al.* 1996) and Winchester (Serjeantson 2000), to name but a few. Despite the limitations of the obviously specialised nature of this material, the bones can still provide useful evidence for activities and aspects of daily life.

Recommendations

Any further intervention at this site should be accompanied by a systematic programme of

sampling of suitable deposits for the recovery of plant and invertebrate remains with provision for full post-excavation assessment and analysis.

No further work is recommended on the current shell remains.

It is clear that the deposits show potential for producing a large and well-preserved vertebrate assemblage, particularly in the area where Trenches 6 and 7 were located. Further analysis of the current hand-collected bone from Trenches 2, 4 and 5 is not warranted. The post-medieval assemblage from Trenches 6 and 7 would provide a useful dataset for comparison and synthesis, and a basic archive (including biometrical data) should be made of the well-dated material from these deposits.

Retention and disposal

All of the material should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Hand-collected shell counts by context for Canalside, Witter Place, Chester. Counts are minimum numbers of whole valves.

Species	Context						Total
	301	406	407	522	610	624	
Common mussel (<i>Mytilus edulis</i> L.)	0	0	0	1	14	2	17
Oyster (<i>Ostrea edulis</i> L.)	3	1	1	0	0	0	5
Venus shell (Veneridae sp. indet.)	1	0	0	0	0	0	1
Total	4	1	1	1	14	2	23

Table 2. Additional notes on oyster valves from Canalside, Witter Place, Chester by context.

Key: 'Right valves' = number of right (or upper) valves; 'Left valves' = number of left (or lower) valves; 'Indet. valves' = number of valves of indeterminate side; 'Knife marks' = number of valves showing damage characteristic of the oyster having been opened using a knife or similar implement; 'Measurable?' = estimated number of valves intact enough to be measured; 'Worm burrows' = number of valves showing damage by polychaet worms; 'Barnacles' = number of valves with barnacles; 'Dog whelk' = number of valves showing damage from dog whelk boring.

Context	Right valves	Left valves	Indet. valves	Knife marks	Measurable?	Worm burrows	Barnacles	Dog whelk
301	1	3	0	?1/?2	2	?1	0	0
406	1	0	0	?1	1	0	0	0
407	1	0	0	0	1	0	0	0
Total	3	3	0	?1-3	4	?1	0	0

Table 3. Hand-collected vertebrate remains recovered from Trench 6 from excavations at Canalside/Witterplace, Chester. **Note:** 'Unidentified' includes the large and medium-sized mammal categories.

Species		605	606	607	610	612	613	624	629	630	Total
<i>Canis</i> f. domestic	dog	6	-	-	-	-	-	-	-	-	6
<i>Equus</i> f. domestic	horse	16	1	2	-	-	1	-	-	-	20
<i>Sus</i> f. domestic	pig	1	-	2	2		1	2	2	-	10
<i>Bos</i> f. domestic	cattle	8	-	3	80	4	9	5	-	2	111
Caprovid	sheep/goat	-	-	-	8	-	-	-	2	-	10
<i>Anser</i> sp.	goose	-	-	-	1	-	-	-	-	-	1
<i>Gallus</i> f. domestic	chicken	-	-	-	6	-	-	-	-	-	6
Unidentified		43	6	14	78	-	25	17	14	2	199
Total		74	7	21	175	4	36	24	18	4	363

Table 4. Hand-collected vertebrate remains recovered from Trench 7 from excavations at Canalside/Witterplace, Chester. **Note:** Unidentified includes the large and medium-sized mammal categories.

Species		700	704	734	742	Total
<i>Oryctolagus cuniculus</i> (L.)	rabbit	-	1	-	-	1
<i>Canis</i> f. domestic	dog	-	-	5	5	10
<i>Equus</i> f. domestic	horse	-	-	4	1	5
<i>Sus</i> f. domestic	pig	-	-	1	-	1
<i>Bos</i> f. domestic	cattle	1	1	18	4	24
Caprovid	sheep/goat	-	10	-	-	10
cf. <i>Gallus</i> f. domestic	?chicken	-	2	-	-	2
Unidentified		-	11	24	27	62
Total		1	25	52	37	115