

Palaeoecology Research Services

**Evaluation of biological remains from excavations at
New Crane Street car park, Chester
(site code: B3811C)**

by

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

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Summary

A sediment sample and a small box of hand-collected bone were recovered from excavations at New Crane Street car park, Chester. Provisional stratigraphic and ceramic evidence suggested that the deposits were of post-medieval to early modern date. All of the material was submitted for an evaluation of its bioarchaeological potential.

Plant and insect remains were abundant in the sample. Some variation in the preservation and character of the assemblages was noted indicating more than one source for the material. The insect and plant material merits at least another level of investigation and could provide important information regarding the actual human activity and the function of the locality.

The two stages of excavation recovered a total of 94 fragments of hand-collected bone and an additional 64 (mostly very small) fragments were recovered from the processed subsample. Most of the material was unidentified but remains of cattle, caprovid, horse and dog were all present as were bird and fish bones. The assemblage was small and therefore of limited interpretative value, however, there did appear to be a mixture of refuse. Dog remains from Context 7 possibly suggest waste from craft activities associated with the preparation of skins, whilst the remaining material includes components of both domestic and butchery refuse.

The rather mixed nature of the remains from the sample, indicating a variety of possible sources, is consistent with the excavator's theory that material was being deliberately dumped, perhaps in order to reclaim land.

The remains show the potential of the deposits in this area for preserving bone, and the presence of the sampled layer at the New Crane Street site indicates that good preservation of organic matter is possible, even within archaeologically quite young deposits. Any further intervention should allow for the collection and examination of further well-stratified and well-dated material.

KEYWORDS: NEW CRANE STREET CAR PARK; CHESTER; EVALUATION; POST-MEDIEVAL TO EARLY MODERN; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; SHELLFISH; VERTEBRATE REMAINS; FISH BONE; WOOD WORKING; ?SKINNING

Contact address for authors:

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

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Gifford and Partners Ltd
20 Nicholas Street
Chester
CH1 2NX

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Introduction

An archaeological evaluation excavation was carried out by Gifford and Partners Ltd at New Crane Street car park, Chester (immediately outside the Watergate of the medieval city walls; NGR SJ 40070 66235), between 4 and 8 March 2002.

A single sediment sample ('GBA' *sensu* Dobney *et al.* 1992) and a single small box of hand-collected bone (from deposits revealed during both stages of the evaluation of Trench B) were recovered from the deposits. All of the material was submitted to PRS for an evaluation of its bioarchaeological potential.

Provisional dating gave post-medieval to early modern dates for the encountered deposits.

Methods

The sediment sample was inspected in the laboratory and its lithology was recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils.

The flot resulting from processing (of approximately 70 ml) was examined for invertebrate macrofossils (aliquots of the flot were examined under a binocular microscope in a petri dish and a working log recorded from each dish) and the washovers and residue were examined for plant and macrofossils. The residue was also examined for other biological and artefactual remains.

For the vertebrate remains from each context (or sample), subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, where

more than ten fragments were present, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage.

Where possible, fragments were identified to species or species group, using the PRS modern reference collection. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal 1 (assumed to be caprovid, pig or small cervid), small mammal (rats, mice, voles, etc), unidentified fish, and completely unidentifiable.

Results

Sediment sample

Archaeological information, provided by the excavator, is given in bold face. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number (assigned by PRS for internal record keeping purposes).

Context: sondage sample from 4.0 m (Trench B)

Sample 1/T (3 kg sieved to 300 microns with paraffin flotation and washovers; approximately 10 litres of sediment remains)

Moist, dark grey-brown, crumbly (working soft), mix of slightly clay sandy silt and fine and coarse herbaceous detritus (in roughly equal measures). Stones (6 to 60+ mm), fragments of brick/tile (to 70 mm), coal, wood fragments, twigs (or ?roots), large mammal bone and marine shell (oyster (*Ostrea edulis* L. – a single fairly well-preserved right valve showing damage characteristic of having been opened using a knife or similar implement) and mussel (*Mytilus edulis* L.)), were all present (at a 1 to 5% by volume level) in the sample.

The flot gave an abundance of chitinous material derived from predominantly Coleoptera (beetle) and

Diptera (fly) remains. The preservation of the material ranged from excellent to fragmentary and eroded which may indicate at least two sources of origin for the material.

The dipteran material was predominantly the cast larval skins and head capsules with only a few pupal cases.

The coleopteran assemblage was overwhelming anthropogenic in composition. The most numerous body parts (approximately 25% of the beetle remains) being derived from the saw toothed grain beetle *Oryzaephilus surinamensis* (Linnaeus); a global secondary pest of stored (particularly milled) products. Several tenoral (newly emerged adult) specimens would indicate that they were breeding in the substrate. The second most frequent beetle was the ptinid *Tipnus unicolor* (Piller and Mitterpacher) which is found mostly in outbuildings in association with human activity though it can live outdoors. A few specimens of the granary weevil *Sitophilus granarius* (Linnaeus) were also noted. The anthropogenic nature of the beetle assemblage was supported by small numbers of several species of mould beetles (Lathrididae) e.g. *Lathridius minutus* (Linnaeus).

Small numbers of a minimum of three species of dung beetle (Geotrupidae and Aphodiidae) were noted, as were several weevils (Curculionidae) in various states of preservation; their condition precluding immediate closer identification.

The ground beetles (Staphylinidae), which are almost ubiquitous in palaeoenvironmental samples with insect preservation, were diverse and not notably numerous. There was a marked lack of Aleocharinae which predate on fly larvae.

The free flying and very active ground beetles (Carabidae) were represented by small elytral fragments and only one specimen (of a *Trechus* sp.) was identifiable. This material probably derived as an air borne component and would suggest that the original depositional site was covered.

There was no apparent indication of marine or estuarine influence and, although members of the waterside beetles *Ochthebius* sp. and *Helophorus* sp. were present (as 1 or 2 specimens), there were no true aquatic beetles.

There was a large residue of about 500 cm³ of sand and coarser mineral material including some stone (limestone, slate and sandstone) up to 60 mm in largest dimension, with moderate amounts of coal and cinder (both to 30 mm). There was quite a lot of mussel shell (almost certainly food waste), some other marine shell, and a few snails (*Hydrobia ?neglecta* Muus—a brackish water (but not open coast) species, probably

arriving with, and by the same route as, the salt-marsh plants discussed below), as well as bird eggshell and fish and other bone. Apart from the mussel shell, some of which comprised complete or nearly complete valves, these other animal remains were mostly in fragments <5mm (with the exception of some larger bone fragments). The small assemblage of vertebrate remains amounted to 64 fragments. Most were small and unidentified, but cattle, caprovid, small mammal and fish were identified (Table 1). Fish bones were mostly unidentified spine and fin ray fragments, but those fragments which were identifiable included the remains of herring (*Clupea harengus* L.), gadid (cod family) and flatfish (possibly flounder, cf. *Platichthys flesus* (L.)).

Plant remains were extremely sparse in the residue, most having been removed with two washovers (one of denser material, one of lighter debris). The only remains not otherwise recorded from the washovers were traces of mineralised wood up to about 5 mm, a single fragment of a *Prunus* fruitstone (probably from sloe, *P. spinosa* L. or a small plum or bullace) and a single extremely well-preserved seed of bogbean, *Menyanthes trifoliata* L. Charred plant material was limited to traces of wood charcoal to 5 mm.

The large washovers, totalling about 1000 cm³, consisted largely of cinder and coal, with rather large amounts of woody and herbaceous detritus. The woody material included some worked fragments and chips to about 35 mm, some at least of which were oak (*Quercus*), and some twig fragments (to about 30 x 10 mm), some at least of which were willow (*Salix*). There was a little more wood charcoal (to 10 mm).

Other identifiable plant remains were rather abundant amongst these fragments and for the most part well-preserved (sometimes in an extremely good state of preservation). They were diverse in their origins, including weeds of waste ground and cultivated fields, plants of grassland, peatland, and wetland including salt-marsh. The more abundant were stinking mayweed (*Anthemis cotula* L.), oraches (*Atriplex* sp(p).), sedges (*Carex* sp(p).), corn marigold (*Chrysanthemum segetum* L.), ?mud rush (*Juncus* cf. *gerardi* Loisel.), sea rush (*J. cf. maritimus* Lam.), buttercups (*Ranunculus* Section *Ranunculus*) and lesser spearwort (*R. flammula* L.). These, and the diverse range of other remains noted, including some bracken (*Pteridium aquilinum* (L.) Kuhn) stalk and frond fragments, seem most likely to have come together as plant litter of various kinds in some kind of mixed organic waste. One very likely source is stable manure (with which many of the insect remains recorded are consistent, especially the *Sitophilus*, further sclerites of which were noted in the washovers). The salt-marsh component might have arrived with cut vegetation from such a source (from the nearby Dee?) or in dung from herbivores grazed on

salt-marsh meadows. The only cultivated plant remains observed were seeds and capsule fragments of flax/linseed (*Linum usitatissimum* L.), uncharred rachis (ear-stalk) material of free-threshing wheat (*Triticum*) and perhaps also of rye (*Secale cereale* L.), and uncharred grains of oat (*Avena*) and wheat/rye; all of these are quite likely to have been present in stable manure.

Hand-collected vertebrate remains

Trench B – first stage of the evaluation

A small assemblage of bones, amounting to 60 fragments, was recovered from the initial stage of the evaluation within Trench B. Vertebrate remains were mainly recovered from Contexts 7 and 10; pottery of 17th-18th century date was identified from these two deposits. Additionally, Context 6 produced a further four fragments.

Preservation of the bones was, on the whole, quite good. Material from Context 7 was well-preserved, but both the angularity (the nature of the broken surfaces) and the colour of the fragments were variable. Context 10 produced bones of a slightly more battered appearance, but which overall showed greater uniformity than those from Context 7.

Twenty fragments were identified to species and these included cattle, caprovid, horse and dog remains. Additionally, a single rabbit bone was recovered from Context 10. The dog remains represented at least three individuals of medium to large size and included fragments of skull from an immature animal. Worthy of note are the knife marks which were observed on four of the six fragments (of radius, femur and tibia). It is likely that these represent skinning marks.

'Unidentified' bones from these deposits included mainly large-sized mammal shaft and vertebrae. Some of the latter had been chopped longitudinally, indicating the splitting of carcasses into 'sides'.

Trench B – second stage of evaluation

Hand-collected material from within the test pit was generally well-preserved, with those fragments from the lower levels (i.e. 3.5m and 4m) being darker brown and slightly more varied in colour. This variation of colour is mostly related to the waterlogged nature of the deposits. Little dog gnawing was evident.

A total of 34 fragments were recovered from three of the levels within the sondage. The major domestic species (cattle and caprovid) were well represented in the assemblage; single fragments of horse, chicken and

goose (*Anser* sp.) were also present (Table 1). The unidentified component again included large mammal rib, shaft and vertebrae fragments. Cattle and large mammal (assumed to be mainly cattle) bones showed extensive butchery, including split humeri, metapodials, and vertebrae.

Discussion and statement of potential

This sample from the 4.0m level of the sondage in Trench B is extremely important and is clearly derived from past human activity. The insect and plant material merits at least another level of investigation and could provide important information regarding the actual human activity and the function of the locality.

Attention should be paid to securing the identification of the presumed salt-marsh rush seeds and to checking a large group of seeds recorded as *Atriplex*, but perhaps largely consisting of *Suaeda*, another species from salt-marsh habitats.

The state of preservation of the invertebrate remains is not consistent, which is probably due to taphonomic factors, but the anthropogenic material is in good condition and a vertical series of samples would be useful for interpreting the changing history of this site.

The rather mixed nature of the remains from the sample, indicating a variety of possible sources, is consistent with the excavator's theory that material was being deliberately dumped, perhaps in order to reclaim land.

Deposits from New Crane Street car park yielded a small assemblage of bone, most of the material dating to the post-medieval period. Generally, preservation of the vertebrate remains was good, although some deposits showed variability of colour and angularity, particularly material from Context 7. This probably indicates that the bones originated from a number of sources. The assemblage was small and therefore of limited interpretative value, however, there did appear

to be a mixture of refuse. Dog remains from Context 7 possibly suggest waste from craft activities associated with the preparation of skins, whilst the remaining material includes components of both domestic and butchery refuse.

Overall, from both stages of the evaluation, few measurable fragments or mandibles with teeth *in situ*, of use for providing biometrical and age-at-death data, were recovered.

Recommendations

The presence in the sample of so much well-preserved organic material of such a late date is important, especially in a town for which the archaeobotanical and archaeo-entomological record is so sparse, so a proper record should be made of the plant and insect remains from this sample with a full listing and appropriate quantification. No further sediment need be processed for plant remains, though a larger subsample would be useful to recover additional invertebrate remains.

The current vertebrate assemblage does not warrant further analysis.

The remains do show the potential of the deposits in this area for preserving bone, and the presence of the sampled layer at the New Crane Street site indicates that good preservation of organic matter is possible, even within archaeologically quite young deposits. Any further intervention should allow for the collection and examination of further well-stratified and well-dated material.

Retention and disposal

All of the current 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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References

- Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* **9** (for 1991), 24-6.
- Kenward, H. K., Hall, A. R. and Jones, A. K. G. (1980). A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Science and Archaeology* **22**, 3-15.
- Kenward, H. K., Engleman, C., Robertson, A. and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3**, 163-172.

Table 1. Vertebrate remains recovered from New Crane Street car park, Chester.

Species		1 st stage	2 nd Stage	Sample	Total
	Mouse/vole				1
Murine/microtine	e	-	-	1	1
<i>Oryctolagus cuniculus</i>					1
(L.)	rabbit	1	-	-	
<i>Canis f. domestic</i>	dog	6	-	-	6
<i>Equus f. domestic</i>	horse	1	1	-	2
<i>Bos f. domestic</i>	cow	8	7	1	16
Caprovid	sheep/goat	4	5	1	10
<i>Anser sp.</i>	goose	-	1	-	1
<i>Gallus f. domestic</i>	chicken	-	1	1	2
<i>Clupea harengus L.</i>	herring	-	-	1	1
Gadidae	cod family	-	-	1	1
Pleuronectidae	flat fish	-	-	4	4
Unidentified fish		-	-	19	19
Unidentified		40	19	35	94
Total		60	34	64	158