

Insect Remains from the Annetwell Street site, Carlisle*

REPORT 3

Samples from Level IV Pits and Wells

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[NB: This report was scanned and reformatted on 12th March 2008. The only changes have been to preserve internal consistency and to correct typographical errors. HK. The original was an archive report deposited at Environmental Archaeology Unit, Carlisle Archaeology Unit and Ancient Monuments Laboratory, and allocated *post hoc* as *Reports from the Environmental Archaeology Unit, York 87/15.*]

Summary

Of the 24 samples from pits and wells discussed here, one third were devoid of insect remains. This may be a result of poor preservational conditions rather than low input. Those that did contain insects gave assemblages suggesting that the cuts were rapidly formed, perhaps largely backfills. The surrounding area was probably thinly vegetated with weeds and some of the beetles from this environment may have fallen accidentally into the cuts. In one case there were indications of herbivore dung in or near a pit.

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1. 1. Introduction

This is the third report on material from the Annetwell Street site, Carlisle, presenting species lists, summary statistics and interpretations.

The pit and well samples discussed here are all from the medieval gardens of Level IV and are discussed in context number order; the wells being dealt with first.

Tables of soil and residue descriptions in sample number order are provided below (Tables 1 and 2).

Table 1. Annetwell Street, Carlisle. Descriptions of the sample material, in sample number order. Water state was moist unless otherwise indicated.

Sample number	Context number	Description
5	329	Crumbly humic clay silt of mid-dark grey/brown colour.
6	401.2	Slightly sandy clay silt of crumbly texture. Black. Small stones present, charcoal abundant, tile present.
7	444.4	A mid-dark grey/brown slightly sandy clay silt. Texture crumbly-stiff. Very small stones common, small stones present and charcoal was present.
8	473	Dark brown slightly sandy clay silt. Dry-moist and of crumbly texture. Ash present, charcoal abundant.
9	328.5	Dark grey clay silt, very uniform with a few small stones and a little charcoal.
10	328.6	Dark grey/brown humic silt with some plant fragments and a few small stones.
11	328.7	Dark brown sandy silt with gritty inclusions.
13	531.2	Black humic clay silt of crumbly-brittle texture. Some very small stones present and abundant charcoal.
17	487.2	A crumbly grey/brown slightly sandy clay silt. Very small, small and large stones were present.
18	487.3	A crumbly mid-dark grey/brown slightly sandy clay silt. Small stones and tile fragments were present.
19	487.4	Dark brown layered humic sample with herbaceous detritus, red and black patches and some faecal concretions. Moist-wet.
20	487.5	Mid-dark brown humic clay silt of plastic-crumbly texture. Redder 1cm mottles were common, pot was present.
21	511.3	Mid grey/brown plastic silty clay with greenish patches. Small stones and charcoal present.

22	486.8	Mid-dark chocolate brown slightly sandy silt. Moist-wet.
23	486.9	Mid-dark brown sandy clay silt. Plant fragments and very small stones present, wet-waterlogged.
24	486.10	Mid-dark brown clay silt with many gritty inclusions and a low organic content.
26	531.3	Dark grey/brown slightly sandy clay silt with orange sand and plant fragments present. Crumbly.
27	543.3	Dark grey slightly sandy clay silt. wood fragments present. Crumbly.
28	531.4	Dark grey/brown slightly sandy clay silt. Plastic-crumbly. Medium stones and bone fragments present.
29	543.3	Dark brown plastic-crumbly amorphous organic matter with plant fragments.
34	599.3	Dark grey/brown slightly sandy clay silt. Crumbly-stiff. Clay flecks, small and very small stones were present, charcoal was present to common.
48	1123.3	Mid-dark grey/brown slightly sandy clay silt. Crumbly. Medium, small and very small stones present. Some tile/brick was present.
49	1123.4	Sticky, dark brown slightly sandy clay silt. Wet and humic. Some plant fragments, small and very small stones present.

Table 2. Annetwell Street, Carlisle. Description of dry-sorted sample residues, in sample number order.

Sample number	Context number	Description
5	329	Small amount of coal, seeds, mammal bone and fish bone. Very small quantity of charcoal and shellfish.
6	401.2	Mostly sand and charcoal with a fragment of small mammal bone and two fish vertebrae.
7	444.4	Mostly sand and gravel. Small amounts of brick/tile, charcoal, seeds and fish bone. One piece of glazed pottery, two insect fragments, a concretion and small bits of mammal bone.
8	473	Sand, charcoal and stoics with barely any organic matter, some mammal bone and a fish vertebra.
9	328.5	Sand and stones with virtually no organic content. Some charcoal was present, a few rodent bones and scraps of mammal and fish bones.
10	328.6	Quite a lot of coal, some charcoal, wood, seeds and tiny fragments of mammal bone.

11	328.7	Some pottery, tiny scraps of wood, a very small number of seeds and fruit stones and two scraps of puparia.
13	531.2	Mostly sand. Small amounts of brick/tile, coal and charcoal. One fly pupal fragment.
17	487.2	Small amounts of brick/tile, charcoal, seeds and mammal bone
18	487.3	Some wood, charcoal, a few seeds and a fragment of nutshell. One piece of a cow mandible, two fish vertebrae and some? fly pupal fragments.
19	487.4	Very organic. Two pieces of pottery, small scraps of wood, some nutshells and quite a few fruit stones. Mammal bone, a fish vertebra and some faecal concretions were also present.
20	487.5	Mostly organic with some wood, seeds and fruit stones.
21	511.3	Small amounts of brick/tile, charcoal, seeds, mammal and fish bones and worm capsules.
22	486.8	Mainly sand and pebbles with scrappy bits of wood, Scraps of nutshell and mammal bone. One bird bone and one frog bone.
23	486.9	Wood, seeds and a nutshell fragment. Part of a mouse jaw, a bird bone and two frog bones were found.
24	486.10	Large amounts of sandstone with some wood and mammal bone.
26	531.3	Small amounts of brick/tile, charcoal and seeds. A piece of pottery and very small quantities of mammal bone were also found.
27	543.3	Sandy and organic with scarce wood, seeds, fruit stones and mammal bones.
28	531.4	Sandy and organic. Quite a lot of wood, some seeds, fruit stones and mammal bone.
29	543.4	Very organic with wood, charcoal, fruit stones and lots of seeds.
34	599	Small amounts of brick/tile, charcoal, seeds and mammal bone. One carbonised grain.
48	1123.3	Mostly sand and stones. One piece of glazed pottery and small fragments of brick/tile. Moderate amount of charcoal and seeds. One carbonised grain and a piece of mammal bone.
49	3.123	Mainly organic with some sand. wood, seeds, fruit. stones and a fragment of nutshell. Mammal bone and leather was also found.

2. Practical methods

For a detailed discussion of the methodology employed refer to Report 2.

3. Interpretative Methods

Interpretation is discussed by Kenward (1978), Kenward (1982) and Hall *et al.* (1983). The methods are based on (a) species composition (b) main statistics such as concentration, 'diversity', and the proportions of certain ecological groups and (c) population structure.

4. Results of the Analyses

[Revised 2008. Data for this project can now be viewed in:

Kenward, H. (1999). Data archive: Insect assemblages from Annetwell Street, Carlisle (revised edition). *Reports from the Environmental Archaeology Unit, York* **99/32**, 126 pp.

The original edition of these reports included a large paper data archive. This has been omitted from the present version.]

5. Discussion of the Sample Assemblages

Each of the samples discussed here weighed 1kg and was processed using the scan technique.

5.1 Samples from well A486

5.1.1 Sample 22, Context 486.8

A medium sized, well preserved flot with many mites. There were some fly puparia: two *Nemopoda* sp. and one *Leptocera* sp.

The recorded beetle and bug assemblage included 109 individuals from 62 taxa. Diversity was rather high ($\alpha = 60$, SE = 10) and the outdoor component large (%N OB = 26). The diversity of the latter component was quite low (α OB = 39, although SE was large at 17), and it may have originated near to the point of deposition in weedy, open ground. Decomposers were only moderately numerous (%N RT = 55) and indicated no special habitat, although the forms present were typical of urban archaeological assemblages of most periods.

5.1.2 Sample 23, Context 486.9

A medium size flot, quite well preserved, with lots of mites.

The number of individuals of beetles and bugs was estimated at 72, with 43 taxa. Although the species list differed in detail from that for sample 22, the two assemblages may have had similar origins. A specimen of *Pterostichus madidus* was recorded and is discussed below.

5.1.3 Sample 24, Context 486.10

This smallish flot yielded a few mites and 50 taxa of beetles and bugs, with an estimated 85 individuals. The remarks concerning sample 23 apply here also.

The three samples from well 486 thus gave assemblages of broadly similar nature. This may have been mostly background fauna, either directly deposited in the well or redeposited in dumps of rubbish or surface deposits (or origins may, of course, have been mixed). There was probably also a 'pitfall' element.

5.2 Samples from Well A1123

5.2.1 Sample 48, Context 1123.3

This small flot contained a few mites, an earwig, some seeds and a few plant fragments.

Insect preservation was reasonably good and a small assemblage of 40 individuals of 26 taxa was recorded. Diversity was not very high ($\alpha = 33$; $SE = 10$) and the proportion of outdoor insects was large (% N OB = 43). Decomposers were not very important. The most abundant taxa included *Pterostichus melanarius* (3), likely to fall accidentally into a hole such as a well, and a *Helophorus* sp., possibly attracted to an open water surface. Much of the fauna may have tumbled accidentally into the well, an area of ground with sparse vegetation being the likely surroundings.

5.2.2 Sample 49, Context 3.123.4

Although the flot was small, it yielded lots of mites, an earwig, some adult flies and a moderately large assemblage (N estimated as 126, S = 67) of rather well preserved beetles and bugs. Diversity was quite high and the outdoor component rather large ($\alpha = 58$; $SE = 9$ % N OB = 29). As in the previous sample, aquatics were relatively common (% N W = 6) and decomposers were not numerous (%N RT = 48). This decomposer component was of an unspecialised kind, with % N RD and % N RF rather low. Carabid ground beetles were common, with 4 *Nebria brevicollis* and 3 *Pterostichus melanarius* among others. These probably fell accidentally into the well. Much of the remaining fauna may have lived around the well top; a good proportion would have found habitats in an area of fairly open ground with some sparse vegetation and litter. *Phloeophthorus rhododactylus* lives under broom bark and *Micrelus ericae* on heaths. Both may have been introduced in imported materials.

5.3 Samples from Pit A328

5.3.1 Sample 9, Context 328.5

This was a very small, badly preserved flot, the few insect remains being of no interpretative value. Some charcoal was present.

5.3.2 Sample 10, Context 328.6

This small, badly preserved flot yielded a group of six urban beetle taxa of no other interpretative value. Some mites and one *Teichomyza* sp. puparium were also present.

5.3.3 Sample 11, Context 328.7

The few remains in this small flot were mostly seeds with a few adult flies and one ant. Single individuals of some seven beetle taxa were recorded; they formed a group typical of urban archaeological deposits but could not be interpreted further.

5.4 Samples from Pit A487

5.4.1 Sample 17, Context 487.2

No insect remains were recovered from this sample.

5.4.2 Sample 18, Context 487.3

Apart from beetle remains, 14 *Leptocera* 'zosteræ' puparia were present in the flot.

This sample gave a small assemblage (N = 18, S = 16) dominated by decomposers (%N RT = 61) and other taxa which together constituted a small group with a character which would not be surprising in an urban deposit of any period.

5.2.3 Sample 19, Context 487.4

The small flot was composed of tattered plant fragments, some mites, many *Leptocera* 'zosteræ', several *Leptocera* sp., and one *Tephrochlamys tarsalis*.

The beetles recovered formed a small group (N = 32, S = 19). Diversity was estimated to be low (alpha = 20, SE = 7), and the decomposer component was substantial (%N RT = 69). This component may have bred in material dumped into the pit.

5.2.4 Sample 20, Context 487.5

An earwig and some mites were found in the small flot, amongst several *Leptocera* 'zosteræ', some *Leptocera* sp., and one *Tephrochlamys tarsalis*.

The beetles examined gave a rather small fauna, although considerably larger than those from samples 18 and 19 (N = 77, S = 41). Diversity was moderately low (alpha = 36, SE = 7). The outdoor component was of modest size (% N OB = 13) and of no special character. Decomposers (RT) made up 57% of the individuals, but many of the ecologically uncoded taxa (which made up 31% of the assemblage) probably belong with them. The estimate for alpha for the decomposer group was low (alpha RT = 12, SE = 3) and a group of rather eurytopic species may have bred.

Pit A478 gave no obligate synanthropes, and in particular no grain pests. The fills may have formed rather rapidly (indeed, much of the fauna may have been introduced in plant litter). The three *Nebria brevicollis* (a fairly large ground beetle) probably fell into the open pit.

5.5 Samples from Pit A531

5.5.1 Sample 26, Context 531.3

Apart from a few, mites and the beetle fauna, other insects from this small flot were some fly puparia three *Leptocera 'zosteræ'*, one *Leptocera* sp. and one *Tephrochlamys tarsalis*.

The assemblage of beetles recorded was small, with 27 taxa and 36 individuals. Decomposer taxa made up a considerable, proportion (N RT = 69) and this component was of moderately low diversity (alpha RT = 37, but with a large error: SE alpha RT = 17). Possibly a small group of decomposers bred in the pit; if this is the case, the presence of *Cercyon analis*, *C. haemorrhoidalis* and *C. unipunctatus* suggests foul conditions. Little more can be said, except to add that this was a group typical of urban pit deposits.

5.5.2 Sample 2B, Context 531.4

Fly remains were represented by two *Leptocera 'zosteræ'*, and again, only a small group of beetles was present: 33 individuals and 25 taxa. Although decomposers predominated (% N RT = 70), there was no clear habitat indication. Probably a few of these insects bred in the pit fill, but much of this and the previous assemblage may have originated elsewhere.

5.6 Samples from Pit A543

5.6.1 Sample 27, Context 543.3

A well preserved flot containing many seeds, some mites, three *Leptocera 'zosteræ'* and three *Leptocera* sp. The recovered assemblage of beetles was not large, with 65 individuals including 38 taxa. Diversity was estimated to be fairly low (alpha = 39; SE = 9), being depressed by some (relatively) numerous decomposer taxa. These probably formed a small breeding community in somewhat foul decaying matter. There is little evidence that this layer was exposed for long; the outdoor component was modest (% N OB = 12) and of no special character.

5.6.2 Sample 29, Context 543.4

Another very well preserved flot with many seeds and mites and an earwig.

This sample gave a rather larger assemblage than the previous one (N = 121 by

estimation, $S = 47$), with considerably lower diversity (alpha estimated at 28; SE = 4). The outdoor component was quite large (% N OB = 23), a substantial part of it accounted for by the dung beetle *Aphodius rufipes* ('many'). This species is commonly found in herbivore dung and may have bred together with some other more abundant taxa (*Omalius rivulare*, *Anotylus sculpturatus* group, *A. tetracarinatus*, the *Philonthus* sp. and *Tachinus signatus*). Clearly there was herbivore dung nearby, or such material contributed to the fills of this pit. The record of *Pterostichus madidus* in this sample is discussed below.

5.7 Selected Samples from Remaining Pits

5.7.1 Sample 4, Context 320.2

No insects were recovered from the floats of this sample.

5.7.2 Sample 5, Context 329.7

No insects were recovered from the floats of this sample.

5.7.3 Sample 6, Context 401.2

No insects were recovered from the floats of this sample.

5.7.4 Sample 7, Context 444.4

No insects were recovered from the floats of this sample.

5.7.5 Sample 8, Context 473.2

No insects were recovered from the floats of this sample.

5.7.6 Sample 21, Context 511.3

No insects were recovered from the floats of this sample.

5.7.7 Sample 13, Context 53.9.2

No insects were recovered from the floats of this sample.

5.7.8 Sample 34, Context 599.3

No insects were recovered from the floats of this sample.

6. Discussion

This group of 24 samples included eight pit-fills barren of insect remains. The material is

generally fairly typical of medieval urban deposits. The wells seem to have acted as pitfall traps for some beetles. There may have been some sparse vegetation around them - a few weeds perhaps - but much of the fauna may have been of 'background' origin. Where there were insect remains the pits mostly appear to have not supported very large insect populations. They were thus probably not open for very long, and generally did not present foul surfaces to the open air. In one case there was evidence of herbivore dung.

The two records of *Pterostichus madidus* (one provisional) are of considerable interest. This large ground beetle, now among the most familiar beetles around human settlements, has been recorded from archaeological sites only rarely (Hall and Kenward 1980).

The records of *Leptocera zosteræ* present a puzzle, for this is a fly associated with rotting seaweed. It has, however, often been recorded from archaeological sites; further investigation is required (Phipps, personal communication).

7. Acknowledgements

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8. References

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