

Insect Remains from the Annetwell Street site, Carlisle*

REPORT 5

Period 3 Structures

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[NB: This report was scanned and reformatted on 11th 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 88/15.*]

Summary

Insect remains from 32 samples are listed and briefly described. Many assemblages were small, but the fauna was broadly typical of those from other Roman deposit-s associated with wooden structures. Two bed-bugs, perhaps the form associated with humans, were recorded. The insects indicated habitat-s varying from dryish mouldering plant remains to somewhat foul matter.

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1. Introduction

This is the fifth report on material from the Annetwell Street site, Carlisle, presenting species lists, summary statistics and interpretations. It deals with the Period 3 Structures not covered in Report 4.

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
294	3980	Mid-dark brown crumbly sandy clay silt with reddish patches present. Very small and small stones present.
309	4169	Dark grey/brown humic soil with less than 2mm herbaceous detritus and a sandy silt matrix. The texture was plastic-crumbly. Clay flecks were present, wood fragments abundant
310	4170	A mottled yellowish, mid-dark brown sandy silt. Quite a lot of obvious plant matter. Some buff clay flecks. Moist-wet.
311	4167	Dark grey/brown sandy silt with plastic-crumbly texture. Very small and small stones present, charcoal and wood fragments present.
312	4248	Dark grey/brown crumbly sandy silt with some mortar present. Wet.
318	4332	Mid-dark grey/brown sandy silt. Texture was plastic, crumbly and brittle. Very small stones present, 1cm mottles abundant.
320	4388	Mid-dark grey/brown humic sandy clay silt with crumbly-brittle texture. 1cm mottles abundant, small and medium stones present, wood fragments and leather present.
321	4320	Dark grey/brown sandy silty clay of crumbly-brittle texture. Less than 2cm bone fragments present and clay flecks present.
325	4410	Dark grey crumbly sandy silt. Small and medium stones present, charcoal abundant.
326	4412	Mid brown sandy clay silt of plastic-crumbly texture and 1cm mottles common. Very small, small and medium stones and charcoal present.
332	4426	Mid-dark brown humic sandy silty clay of plastic-crumbly

		texture. Some mid pinkish brown silty clay and some compressed organic matter. Wood fragments abundant.
333	4430	Heterogeneous. A mixture of buff clay silt and organic silt.
335	4497	Mid-dark grey/brown, crumbly, slightly sandy clay silt with some pink clay lumps. Small stones and clay flecks present, wood fragments common.
348	4678	Dark grey/brown, crumbly, sandy clay silt. Small stones present, very small stones abundant.
359	4912	Dark grey crumbly- brittle, humic sandy clay silt. Small stones and tone fragment-s present. Some silt patches.
360	4912	Black crumbly sandy silt with some areas of yellow-grey sandy silt (ash?). Charcoal abundant.
363	4636.2	Mid-dark grey/brown slightly sandy clay silt of plastic-crumbly texture. Very small and small stones present, some plant tissue present.
364	4636	Dark grey/brown, humic, slightly sandy clay silt of plastic texture. Areas of bright pinkish-orange clay. Small stones and wood fragments present.
367	4962	Mid-dark grey/brown slightly sandy clay silt of crumbly texture. Very small stones present, wood fragments abundant.
374	5035	Dark grey organic silt with yellowish grey gritty ash patches. Some charcoal, sour smell.
383	5067	Dark grey crumbly silty fine sand. Small and medium stones and charcoal present. Some clay lenses.
391	5132	Dark grey/brown, crumbly, sandy clay silt with abundant wood fragments.
393	5142	Light pinkish grey plastic silty clay with some organic clayey silt.
395	5162	Mid brown, plastic-crumbly, sandy clay silt with some pink clay and charcoal present.
396	5171	Mid-dark brown clay silt with patches of pinkish clay. Some wood chippings and small stones. Probably a modest organic content.
397	5174	Dark grey crumbly, humic, slightly sandy silt. Very small stones present, wood fragments abundant.
399	5172	Light yellowish brown sandy clay silt with white and yellow patches. Some wood fragments and medium stones. Slightly layered in parte. Dry-moist
410	5421.2	Sandy silty clay. Heterogeneous on a cm scale, ranging from light yellow grey through mid brown to black. A few inclusions.
419	5561	Mid brown sandy silt; some patches light chocolate brown. Abundant wood and twigs. Dry.

422	5598.1	Dark brown, entirely organic with some wood fragments. Stinking.
423	5598.2	Black and olive brown organic clay silt. Stinking. Some large wood fragments, some stones. Wet.
437	5676	Light-mid brown silt with some reddish patches. Some small stones. Dry.

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

Sample number	Context number	Description
294	3980	A few pieces of wood, one carbonised grain, some seeds, mammal bone and a fly puparium.
309	4169	One fragment of brick/tile, small amounts of wood and charcoal and two burnt fragments of mammal bone.
310	4170	Mostly sand, small stones and charcoal, with some wood, nutshell and mammal bone.
311	4167	Lots of wood and charcoal, fragments of brick/tile, moss, mammal bone and shell.
312	4243	Some wood, charcoal and mammal bone.
318	4332	Some wood, charcoal, nut-shell and pottery.
320	4388	Some wood, charcoal, seeds and nutshell, one piece of brick/tile, some oyster shell fragments, some bird and mammal bone.
321	4320	Small fragments of brick/tile, some wood, charcoal, nutshell and mammal bone.
325	4410	Mostly charcoal and stones with quite a lot of pottery fragments, a piece of glass, some mammal bone, one eel vertebra and other scraps of fish bone.
326	4412	Some wood, charcoal and seeds, a piece of brick/tile, scraps of mammal bone, one fish vertebra.
332	4426	Fragments of mammal bone, some wood, charcoal and nut-shell.
333	4430	Wood, charcoal and seeds present plus a nut-shell fragment and scrap of mammal bone.
335	4497	Wood, charcoal, nutshell and mammal bone present.
348	4678	Mostly sand and stones with fragments of wood, some charcoal, seeds and mammal bone fragments.
359	4912	Large amounts of wood and charcoal, a few fragments of nutshell and large amounts of mammal bone.
360	4912	Lots of charcoal, a few large pieces of charred wood, some

		nutshell fragments and some mammal bone.
363	4636.2	One piece each of pottery, metal, fish bone and charred bone and small amounts of wood, charcoal, nutshell, moss and mammal bone.
364	4636	Fairly even mixture of organic and mineral with small flaky pieces of wood. Small fragments of mammal bone; nut-shell, some seeds, a small piece of metal and charcoal were also present.
367	4962	A large quantity of charred wood and a nail.
374	5035	Mostly charcoal with some partially burnt wood, fragments of nutshell and scraps of burnt mammal bone.
383	5067	Mostly charcoal, quite sandy. Very small pieces of mammal bone; some burnt.
391	5132	Sandy with some wood, nutshell fragments and a piece of mammal bone.
393	5142	Wood, charcoal, nutshells, mammal bone and puparia fragments.
395	5162	Mostly sand and stones with some wood, charcoal and nutshells.
396	5171	Wood, charcoal, a few seeds, fragment of nutshell and a burnt fragment of mammal bone.
397	5174	Very woody and quite sandy with a few seeds and some small fragments of mammal bone.
399	5172	Mainly sand and stones with some wood and charcoal.
410	5421.2	Very organic sample with wood, charcoal, nutshells and mammal bone.
419	5561	Mostly sand and stones with some wood, charcoal and seeds.
422	5598.2	Largely fine organic material, with some wood and charcoal.
423	5598.2	Large amounts of wood, some charcoal, a few seeds, bits of fruit, stones, fragments of mammal bone and a fish vertebra. Some mortar /plaster also present.
437	5676	Mostly wood.

2. Practical Methods

For a detailed description of the methodology employed, refer to Report 2 in this series.

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, as revealed by rank order and cumulative frequency plots.

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

The assemblages are considered in sample number order within their structure group and the structures are in context number order except for A4857 which belongs to an earlier phase of period 3. All the samples have been processed by the 1kg test-and-scan technique. Many of the samples gave small assemblages of typical Roman urban taxa. To avoid repetition these are not discussed in any detail.

5.1 Samples from Structure A4857

This structure existed during Period 3A/2 and replaced structure 6268 (dealt with in report 4). The form of the building was similar but slightly larger.

5.1.1 Sample 332, Context 4426

A sample of soil with clay lumps taken from a layer of demolition debris produced from the collapse of the oven superstructure. Besides beetles, the smallish flot contained 11 *Leptocera* sp.

A modest assemblage of 30 taxa, estimated to include 69 individual beetles; almost half were grain pests and the whole group was typical of those recorded from in and around wooden structures on Roman urban sites.

5.1.2 Sample 333, Context 4430

This sample was taken from the same demolition layer and contained clay lumps. The small flot contained many mites, two *Leptocera* sp. and some seeds.

There were an estimated 63 beetles and bugs, with 33 taxa. Grain pests were less important than in the previous sample, and the predominant group included 'house fauna' taxa of the kind now believed to be typical of Roman to early medieval wooden structures of a humble kind. There was a single individual of a bed bug, *Cimex* sp. , almost certainly *C. lectularius* L. Unfortunately it has not been possible to determine certainly whether this was the form attacking humans (*C. l.* subspecies *lectularius*), although this would seem most likely. *C. l. columbarius* Jenyns parasitises pigeons (Southwood and Leston 1959).

5.1.3 Sample 335, Context 4497

The soil for this sample came from a floor during phase 4 of this structure. Several *Leptocera* sp. and some mites were found in the flot.

A little larger than those for the previous samples, the assemblage of beetles included 35 taxa but 82 individuals. Over one third were grain pests and about the same proportion were decomposers (RT). Some taxa hinted at somewhat moister conditions than implied by the insects from samples 332 and 333.

5.1.4 Sample 359, Context 4912.1

This and the following four samples were all taken from pits which were either related to the demolition phase or, more likely filled in at this point.

The small flot contained mites and about 60 beetles of 32 taxa. About one third of the assemblage was accounted for by grain pests. The residual group was rather different from those of the previous samples, but was too small for confident assessment.

5.1.5 Sample 360, Context 491.2.2

A very small flot containing much charcoal and some mites.

Only 8 individuals (of 8 taxa) were recorded, all typical components of sites of the present kind.

5.1.6 Sample 363, Context 4636.2

The medium sized flot was mostly comprised of plant remains. Several mites were present and one puparium of indeterminate species. Again the assemblage was small, with 14 taxa but an estimated 43 individuals. Over two thirds were grain pests.

5.1.7 Sample 364, Context 4636.3

Quite a large flot containing lots of plant material; much of it cereal bran, some seeds, charcoal, many mites, twelve *Leptocera* sp. and several scale insects.

There were about 66 individual beetles, including 43 taxa. Grain pests were less important than usual, accounting for only 12 of the assemblage. Outdoor forms were abundant (%N OB =29). It is hard to interpret an assemblage as small as this when it is so ecologically diverse, but the deposit from which it came may have formed in the open.

5.1.8 Sample 367, Context 4962

A smallish flot with some mites and eight Sphaeroceridae sp.

This assemblage of 42 taxa and about 59 individuals had a broad similarity to that from sample 364.

5.1.9 Sample 374, Context 5035

During phase 4 of this structure the main room had an extensive layer of silty charcoal from which this sample was taken. The small flot yielded some mites, seeds, charcoal, several *Leptocera* sp. and a few *Copromyza* sp.

The number of beetle and bug individuals was estimated at 60, with 40 taxa. The assemblage had no special character.

5.1.10 Sample 383, Context 5076

This sample came from a shallow pit of phase 3, the function of which is uncertain. Lots of charcoal came up in this flot, with a few seeds, several mites, a scale insect and six *Leptocera* sp.

The beetles and bugs were an assemblage of no special character: there were 37 taxa and about 69 individuals.

5.1.11 Sample 391, Context 5132

The demolition layer identified between phases 2 and 3 contained a spread of charcoal from a stoke pit; this sample came from that layer. A very small flot with a few mites.

An estimated 51 individuals were present, all but 3 individuals of three taxa being grain pests.

5.1.12 Sample 393, Context 5142

This sample came from the same demolition layer described above, but was composed of organic and turfy silt from the south of the charcoal spread. The reasonably large flot was very well preserved, contained lots of seeds and plant remains, some mites and ants. Fly puparia were represented by many *Leptocera* spp., four *Musca domestica* and seven *Stomoxys calcitrans*, one of the 'stable flies'. The last taxon breeds in material resembling urine or faeces-contaminated hay or straw, or in horse manure; never it is claimed, in cow dung (Colyer and Hammond 1968, 302).

A little larger than most discussed in this report, the assemblage consisted of about 122 individuals (49 taxa). Nearly a third (30) were grain pests. The residual assemblage was rich in decomposers (71). While foul decomposers were not very numerous (N RF as %N RT = 12), the presence of 'many' *Cercyon analis* and *Oxytelus sculptus* may indicate moister conditions than usual.

5.1.13 Sample 396, Context 5171

Taken from an occupation deposit of highly organic silt belonging to phase 2. The flot yielded many well preserved beetles, some mites, one stable fly (*Stomoxys calcitrans*) and several *Leptocera* sp.

There were only 34 beetle taxa, but 148 individuals were estimated to be present, about a third being grain pests. The residual assemblage was of low diversity ($\alpha = 15$, SE = 2) and included considerable numbers of a variety of decomposer taxa (77% of the individuals in the residual assemblage were in this category). The probable habitat for most of these was mouldering, fairly moist plant remains; the community of insects was reminiscent of some from Carlisle and York believed to have inhabited dungy stable litter.

5.1.14 Sample 397, Context 5174

A pit with a circle of stakes around its edge was the major feature of phase 1 from which this sample originated. One *Leptocera* sp., many seeds, some cereal remains, charcoal and mites were recovered in this flot.

Predominantly grain pests, the beetles included 38 taxa. There were about 90 individuals. The residual assemblage after subtraction of grain beetles was small (39 individuals) and very diverse (alpha = 124, SE = 57). There were four *Phyllotreta nemorum* group, crucifer feeders which may have exploited weeds of disturbed or trampled ground near to the pit.

5.1.15 Sample 399, Context 5172

Also from phase 1, this sample was taken from a spread of clay. Apart from some mites and bug fragments, only a small, quantity of plant and beetle remains were present in the tiny flot.

Only 18 individuals of 8 taxa were present, and 72 of the assemblage consisted of grain pests.

5.2 Samples from Structure A3858

This period 3B structure replaced the period 3A structure. A5754, and is thought to be the centurion's quarters of a barracks.

5.2.1 Sample 294, Context 3980

Room 3 contained a neat clay bowl type of hearth, near which was a layer of silt and soil; sample 294 was taken from the silt. This very small flot mostly contained seeds but some mites and two Sphaeroceridae sp. were also present.

The recovered assemblage was tiny (11 individuals of 9 taxa). It cannot to interpreted, although the presence of three *Typhaea stercorea*. typically associated with mouldy plant remains, was notable.

5.2.2 Sample 312, Context 4248

Also from room 3, this sample was taken from a possible floor containing clays and soil. Only single individuals of three beetle taxa were recovered from this tiny flot.

5.2.3 Sample 395, Context 5162

A sample of orange clay taken from a floor in room 2. This very small flot contained a scale insect, an ant and a mite.

This sample gave another very small assemblage (14 individuals, 12 taxa). It had no special features.

5.2.4 Sample 410, Context 5421.2

This sample of silt came from a drain or soak-away which ran along the centre of and was entirely contained within, room 1. Apart from beetles this flot yielded some seeds, an ant a spider and two *Leptocera* sp.

There were 23 beetle and bug taxa, with an estimated 41 individuals. Of these, 39 were grain pests. The residual assemblage was very small.

5.2.5 Sample 419, Context 5562

The sample either came from a construction deposit in the S.E. corner or an area of period 3A/2 demolition. A fairly well preserved flot with a few seeds and mites as well as beetles.

This sample gave a rather small assemblage, about 62 individuals. A total of 45 beetle taxa were noted. Grain pests made up only 10 of the fauna, which was not very distinctive, with a varied group of decomposers in the upper ranks of abundance.

5.2.6 Sample 422, Context 5598.1

Taken from a band of dense black humic silt from the pit of room 1. This medium sized flot contained lots of cereal bran, one Sepsidae sp. and some mites.

This again was a rather small group - 57 individuals were estimated to be present, and 28 taxa. A quarter of the fauna was accounted for by grain pests. The remaining group included moderate numbers of some typical urban decomposers of taxa abundant within buildings, but was otherwise undistinguished.

5.2.7 Sample 423, Context 5598.2

Also from the room 1 pit, this sample came from the lower fills of silt with clay lumps and turfy patches. The flot from this sample was similar to the above, containing much cereal bran, quite a few seeds, a couple of mites, several *Leptocera* sp. and several Sepsidae sp.

There were only 32 beetles, with 20 taxa. The assemblage was broadly similar to that from sample 422.

5.2.8 Sample 437, Context 5676

Taken from a spread of clay which was probably a sub-floor in room 1. A few seeds, mites and one *Leptocera* sp. were found in this small flot.

This sample also gave only a small assemblage, 36 individuals and 19 taxa. Rich in grain beetles, it had no special character.

5.3 Samples from Structure A4183

The base of the east gate tower was incorporated into a two-roomed structure with no external doors, entry being from the first floor of the tower.

5.3.1 Sample 309, Context 4169

This soil sample came from phase 3. Apart from beetles the small, well preserved flot yielded many Sphaeroceridae sp., a scale insect and lots of mites.

The assemblage included 43 beetle and bug taxa, with about 98 individuals, About 39 were grain pests. The residual assemblage was quite rich in outdoor forms (%N OB = 23) and 'dry' decomposers (%N RD = 25) but had no clear character. If this was a closed structure, the origin of these outdoor individuals, including some large species, would be interesting to elucidate. Possibly the deposition of the present layer did not relate to the functional life of the room, or perhaps it had openings or walls of an open construction.

5.3.2 Sample 310, Context 4.170

From a soil layer in the east room, phase 3. The few remains that were recovered from this flot were some seeds, charcoal and mites.

Another very small assemblage, with 18 individuals of 15 taxa. It had no special character.

5.3.3 Sample 311, Context 4167

From a soil layer in the west room, phase 3. A small flot containing several *Leptocera* sp., and a flea.

The small beetle and bug assemblage with 40 individuals of 31 taxa, had no special character.

5.3.4 Sample 318, Context 4332

This was a sample of ash, interpreted as a demolition deposit between phase 1 and 2. The very small flot contained only a few mites, four *Leptocera* sp. and a very small beetle assemblage.

The only taxon of note was *Cimex lectularius* a bed bug. The problems of establishing whether this was the human bed bug are briefly mentioned above.

5.3.5 Sample 320, Context 4388

From a black silt deposit in the west room during phase 1. A small flot containing a few seeds, mites and four *Leptocera* sp. This sample gave another small assemblage (N = 33, S = 22). It too included a bed bug, *Cimex ?lectularius*.

5.3.6 Sample 321, Context 4320

The east room also had a similar deposit of black silt, from which this sample was taken. This very small flot was composed of mites, a scale insect and a very small number of beetles - only 9 individuals of 8 taxa.

5.3.7 Sample 325, Context 4410

This and the following sample were taken from variations in the silt described under 5.3.5. A very small flot composed mainly of charcoal gave 12 beetles of 11 taxa.

5.3.8 Sample 326, Context 4412

This sample too, gave a very small assemblage of beetles. Some mites, seeds, charcoal and ten *Leptocera* sp. were also recovered.

5.4 Sample from Structure A4707

5.4.1 Sample 348, Context 4678

The sample came from a layer of dark silt; either a result of demolition or a phase of continuing use of surfaces. Many seeds, some charcoal and several mites were found in the flot.

There were not many beetles, 31 individuals of 27 taxa, and the assemblage had no special character.

6. Discussion

A surprisingly large proportion of these samples gave only small or very small assemblages by comparison with some other phases of the present site, or certain broadly similar layers at the Castle Street site. This may indicate a generally better level of cleanliness or a subtle difference in preservational conditions; remains were mostly quite well preserved so that post-depositional loss through decay appears unlikely to have occurred: low input thus seems likely. Overall, the assemblages were very typical of others from deposits associated with Roman timber buildings, in Carlisle and York.

The records of 'bed bugs', *Cimex* sp. are of considerable interest. They appear to be *C. lectularius* a species including two 'subspecies', *C. l. lectularius*, associated with man, and *C. l. columbarius*, found mainly in dove cotes. Unfortunately, these forms can only be separated certainly on antennal characters, absent, from the fossil material. We are thus left to speculate whether the 'mahogany flats' so notorious in the medieval period onward, were endemic in Roman Britain. Do the records from structure A4183 indicate that the ground floor room was a bunkhouse, or that pigeons found their way into it to nest? There are few records of bed bugs from archaeological sites: Osborne (1971) gives *Cimex* sp. from Roman Alcester and there are unpublished records from the Bedern site, York.

7. Acknowledgements

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