

Reports from the Environmental Archaeology Unit, York 94/56, 6 pp.

Assessment of insect remains from bulk-sieved samples from the Brooks excavation, Winchester (Site code BR)

by

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Summary

Insect fossils extracted by bulk-sieving from samples of deposits at the Brooks site, Winchester, were examined in an attempt to assess the insect content of the original sediment. Remains preserved by mineralisation and anoxic waterlogging were numerous. Preservation of the latter was excellent in a series of cut features of Roman, Saxon and Medieval date. It is recommended that samples of raw sediment should be processed and their insect fauna studied. Intensive sampling during any further excavations in Winchester is urged in view of the potential importance of insect assemblages from the city.

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12 December 1994

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Introduction and methods

Insect remains sorted from bulk-sieving flots and residues by Staff of the Winchester Museums Service were submitted for an assessment of the potential for insect analysis of the sediment from which they had been taken. Since the material had not been obtained using standard methods for insect extraction, it can only be used to provide a rough guide to the nature of the assemblages in the original sediments.

Fossils were examined extremely rapidly, often without removing them from the containers (jars and vials) in which they were supplied. A note was made of the quality and nature of preservation, and of the range and quantity of material. A priority was attached to each context, based on a subjective estimate of the likely potential of the assemblages in the original sediment.

Results

Material from 14 jars, 6 large tubes, and over 50 small tubes was examined. Some of the large tubes had broken in transit, as follows: 11084 (2 tubes); 11085; 11089; 11197; ?13119 (not clearly legible); and ??545 (label incomplete). The debris in the bottom of the transit box included abundant well preserved insects, so at least one of these contexts was insect-bearing. This may have been 11085, bearing in mind other evidence (Table 2).

Observations from the jars and large tubes are summarised in Table 1. There were too many small tubes for all the fossils to be recorded; those with a substantial amount of material are listed in Table 2.

The condition of the remains preserved by anoxic waterlogging was excellent. It appears that most of the contexts represented by the submitted material had

the potential for waterlogged preservation. In addition, mineralised remains were frequent, and sometimes in particularly good condition, by comparison with, for example, material from Southampton (Kenward and Girling 1986).

Almost all of the remains were of quite large species.

Discussion

All of the material discussed here came from cut features, mainly pit- and well fills. Remains preserved in good condition by anoxic waterlogging were recovered from Roman, Saxon and medieval deposits.

The association of invertebrate material preserved by waterlogging and mineralisation in the same context is unusual and suggests that ground conditions at the site were different from those in almost all others investigated for insect remains.

Small species and the smaller parts of larger ones were absent. This was doubtless an artefact of the extraction and sorting methods; it is likely that a normal size range of remains was present in the original sediment.

Statement of potential: implications for further work

Clearly, remains preserved by waterlogging were present in the deposits throughout the date span represented, and it is reasonable to suppose that since preservation is good beetle remains as well as fly puparia were abundant. Some of the contexts therefore deserve investigation through subsamples of raw sediment where they still exist.

These remains have considerable potential for site reconstruction, allowing ecological conditions at the point of deposition and in the surroundings to be determined. The preliminary impression is that many of the layers represented were very foul, but able only to be colonised successfully by flies. These bred and produced large numbers of puparia, indicating that the deposits were not immediately sealed. The relatively small numbers of beetles in comparison with the flies suggests a very protected depositional environment. Those species present seem to be divisible into some which would have been attracted to the same conditions as the flies (in fact, probably feeding on them), and others which would have lived within a building. The restricted and rather characteristic domestic fauna may indicate fairly clean conditions within structures. No objective reconstruction can be made without fuller investigation, however.

The beetle assemblages are of additional interest in wider, synthetic, studies as representatives of a distinctive and restricted urban fauna, and in contributing to the emerging picture of changing urban conditions.

Recommendations

1. *Sediment samples representing the contexts designated P1, P1-2 or P2 in Table 1, and those listed in Table 2, should be investigated for invertebrate remains.*

2. In the longer term, these results emphasise that fact that *great care should be taken to sample intensively during future excavations in Winchester*, following the system put forward by Dobney *et al.* (1992). This is particularly important for the lower part of the town, where important opportunities may have been missed in earlier excavations. Extraction of insect remains should take place in the laboratory where analysis is to be carried out, using the methods describe by Kenward *et al.* (1980), with modifications outlined by Kenward *et al.*

(1986). The preferred approach of using intensive sampling followed by assessment and selection of important material for further study is attainable within reasonable budgets, although it demands a high level of expertise of the biological specialists concerned. It is particularly important to make every effort to avoid the exclusion of environmental studies as an easy response to the inadequate resources provided by developer funding.

Winchester is located in a part of England from which urban insect faunas are very poorly known. The presence of waterlogging is particularly important, and studies of the invertebrate fauna of sites in the city have enormous potential in contributing to a wider understanding of the development, and archaeological significance of, the urban insect fauna.

Retention and disposal

Any remaining sediment from deposits at the site should be retained for further study. The extracted insect remains should be retained and appropriately curated.

Archive

The material examined in this assessment is currently stored at the EAU, York.

Acknowledgements

I am grateful to Sandy Mounsey and Helen Rees for enabling me to see this material and for providing information, and to the Ancient Monuments Laboratory of English Heritage for allowing me to work on it. Funding was provided by Winchester Museums Service.

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Table 1. Notes on insect assemblages from bulk-sieved material presented in jars and large vials. *S* - several; *M* - many (both using the scale outlined by Kenward et al. 1986; Kenward 1992); *P1* - high priority; *P2* - medium priority; *P3* - low priority. Material preserved by anoxic waterlogging unless stated. Dates AD.

Code	Context	Date, archaeology	Other labels	Observations
B15 BRI	10036	15-16th C pitfill	602 B/S	Sphaeroceridae S; ptinid; P2
	13094	4th C pitfill	540 B/S	Mineralised: puparia M; woodlouse; millipede 2; Preservation probably good enough to allow determination of puparia to family or genus. P1-2
	13119	4th C pitfill	540 B/S	[tube 1] puparium and abundant <i>Sambucus</i> seeds. [tube 2] Mineralised: puparia M (preservation moderate, identification potential limited); millipede. P3
	11853	late 10th - 11th C pitfill	601	Mineralised woodlouse; <i>Blaps</i> sp. leg. P1/2
	11853	do	601 Flot	Sphaeroceridae M; other puparia M; bee (honey bee size); <i>Philonthus</i> spp. (single individuals of two); mineralised woodlouse. P1
B15 BR II	10971	late 13th - 14th C pitfill	F	[tube 1] Puparia S; <i>Laemostenus</i> sp. [tube 2] Sphaeroceridae M; Several beetles; land snail. P1
	11082	14-15th C well fill	1035 B/S	Trace beetles; mineralised woodlouse 3. P1/2
	11089	do	1035	Sphaeroceridae M; other puparia S; trace beetles. P1-2
	11121	15th C well fill	1354 B/S	Sphaeroceridae M; <i>Sitophilus granarius</i> 2; <i>Tipnus unicolor</i> . P1
	11121	do	1354 flot	Sphaeroceridae M (very abundant); other puparia S; <i>Tipnus unicolor</i> M; some other beetles; millipede. P1
	11202	do		[tube 1] Sphaeroceridae M; other puparium. [tube 2] Sphaeroceridae M; millipede. [tube 3] Superb preservation of a few mineralised remains only. P1-2.
	11393	late 13th - 14th C pitfill	1321 ¼ litre	Some seeds; puparium; anobiid. P2
	11393	do	1321 flot	Sphaeroceridae M; other puparia S; some beetles; P1
	11394	do	1321 flot	Sphaeroceridae M (some containing adults); other puparia S; <i>Ptinus</i> sp.; mineralised woodlouse. P1-2

Code	Context	Date, archaeology	Other labels	Observations
	11394	do	1321	Puparia M; <i>Ptinus</i> sp.; mineralised woodlouse. P1-2

Table 2. Small tubes with significant fossil assemblages. Conventions as Table 1.

Code	Context	Date, archaeology	Other labels	Observations
	11085	14-15th C well fill	bag 2 flot	[tube 1] small group of beetles. [tube 2] Sphaeroceridae puparia M. P1
	11086	do	f5013 flot	A few beetles and assorted other remains. P1-2
	12870	Late 13th - 14th C latrine fill	f5528 124	Mineralised puparia M. P2
	12966	Late 13th - 14th C fill of post pad	5mm	Sphaeroceridae puparia M. P2
	13477	4th C pitfill	bag 1 540	Numerous mineralised remains. P2
	14678	Late 10th - 11th C pitfill	bag 1 1191	[tube 1] Puparia M, appreciable numbers of beetles. [tube 2] Sphaeroceridae very many. P1