

## APPENDIX 1 - INSECTS

*by Mark Robinson*

### ***Thurnham Roman Villa SRC THM 98***

#### **1.1 Assessment of the Insects**

##### *Introduction*

- 1.1.1 A total of seven bulk samples were taken from the late Roman well 11010 during excavation works at Thurnham Villa, for the recovery of waterlogged biological remains. The samples are each of the order of at least 12kg. They are kept wet in sealed plastic bags and boxes.
- 1.1.2 Sub-samples of 200g were sieved down to 0.25mm for the assessment of waterlogged macroscopic plant remains. Insect remains were noted in four of these sub-samples. A further sub-sample of about 12kg from one of these contexts was washed over onto a 0.25mm sieve to extract organic remains and the flots subjected to paraffin flotation to concentrate the insect remains in it.
- 1.1.3 The sampling programme was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The retrieval of the insect remains was designed to address two of the Fieldwork Event Aims: investigating the decline of the villa (the well fills excavated possibly belonged to the time of abandonment of the site) and determining the local environment of the site.

##### *Methodology*

- 1.1.4 It was decided that the best approach was to use the assessment of the macroscopic plants to identify samples that contained insect remains. These sub-samples were rather small for a full insect analysis, so a much larger sub-sample from one of the samples (10352) to contain insects was subjected to paraffin flotation to give a wider range of material for assessment.
- 1.1.5 The flots were scanned under a binocular microscope at magnifications of x10 and x20. The abundance of taxa was recorded in Table 13.1 on a scale of + (present, 1-5 individuals), ++ (some, 6-10 individuals) and +++ (many, 11+ individuals). Nomenclature for Coleoptera (the majority of the insects) follows Kloet and Hincks (1977). The insects were subsequently stored in 70% ethanol.

##### *Quantifications*

- 1.1.6 Four out of a total of seven samples were assessed. Table 13.1 gives the range and abundance of insects in each sample that was assessed. The results show that all the samples assessed will contain sufficiently large assemblages of insects for useful palaeo-environmental analysis. No obvious bias was noted with the recovery of remains.

##### *Provenance*

- 1.1.7 The samples are derived from waterlogged fills which are assumed to relate to the post-abandonment phase of the well and therefore the final stage (4th century AD) of occupation of the site. Samples 10347, 10351 and 10293 represent general fills to the well, while sample 10352 consists of mossy material from between a stake lining and the well shaft.

- 1.1.8 The insects from the samples can be divided into a minority which lived in the well, mostly small water beetles such as *Ochthebius* sp. and the majority which were derived from the surrounding terrestrial landscape. The latter group variously fell into the well, flew in or were amongst refuse discarded into it. All four samples assessed represent good groups for analysis.
- 1.1.9 The terrestrial insects are from a wide range of habitats. Some evidence for woodland is provided by carabid beetles such as *Abax parallelepipedus* and *Patrobus atrorufus*. However, grassland insects such as the grass-feeding bug *Aphrodes* sp. and the elaterid beetle *Agriotes* sp. are also present. The presence of domestic animals is suggested by the scarabaeoid dung beetles *Geotrupes* sp. and *Aphodius* cf. *sphacelatus*. No insects associated with timber structures or indoor habitats have been noted. Of particular interest is the occurrence of numerous examples of workers of *Apis mellifera* (honey bee) in sample 10352.

#### *Conservation*

- 1.1.10 The waterlogged samples are not stable and their organic content will decay over a period of several years unless kept cold. It is therefore recommended that prior to analysis, the samples should be kept refrigerated either as unprocessed samples or processed flots. All samples should be kept until decisions have been taken on further analysis.

#### *Comparative Material*

- 1.1.11 No other waterlogged Roman well deposits are known from the CTRL project or elsewhere in Kent. Probably the best comparative insect sequence is from a 4th century well at the Barton Court Roman Villa, Abingdon, Oxfordshire (Robinson 1986). Very diverse and informative insect assemblages were recovered from the main fills of the well and remains of woodland insects were found in moss which had been packed between the stones of the well lining.

#### *Potential for Further Work*

##### CTRL Landscape Zone Priorities and Fieldwork Event Aims

- 1.1.12 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.
- 1.1.13 The insect remains are very well preserved. All the samples show good potential to meet the research objectives. The evidence for partly wooded conditions is possibly a reflection of the decline of the villa. The insects certainly show much evidence for the local environment.
- 1.1.14 It is recommended that further sub-samples from the four samples assessed be subjected to paraffin flotation to extract insect remains such that about 200 individuals of terrestrial Coleoptera (beetles) are available for analysis from each sample. A very detailed environmental reconstruction should be made from their quantitative analysis.

##### New research aims and objectives for the CTRL archaeology project

- 1.1.15 One new research aim has emerged from the assessment. Honey bee has been identified from other Roman sites in Britain, for example from Godmanchester, Cambridgeshire (Robinson unpublished). However, the Thurnham remains are very well preserved and offer the opportunity to establish the sub-species represented by the pattern of their wing venation. It is therefore recommended that the bee wings should be extracted carefully from the flots and examined in detail.

- 1.1.16 Detailed palaeoenvironmental reconstruction from insect evidence for a Roman villa would certainly be of regional significance for Kent. If the decline of the villa is part of the general early 5th century collapse of Roman Britain, the results would be of national significance. The honey bee evidence is of national significance.

*Bibliography*

Kloet, G S, and Hincks, W D, 1977 A check list of British insects, 2nd edition (revised): Coleoptera and Strepsiptera, *Royal Entomological Society of London; Handbook for the Identification of British Insects* 11, pt 3. London

Robinson, M A, 1986 Waterlogged plant and invertebrate evidence, in *Archaeology at Barton Court Farm, Oxon* (ed Miles, D), London: Council for British Archaeology Research Report 50, microfiche chapters VIII, IX and XI

Table 13.1: Insects from Well 11010, Thurnham Villa

Sample	10347	10351	10352	10293
Context	12227	11516	11985	11982
Species				
<i>Forficula auricularia</i>	+	-	+	-
<i>Pentatoma rufipes</i>	-	-	+	+
<i>Aphrodes</i> sp.	+	-	+	-
<i>Carabus</i> sp.	-	-	+	-
<i>Leistus</i> sp.	-	-	+	-
<i>Nebria brevicollis</i>	+	-	+	-
<i>Patrobus atrorufus</i>	-	+	-	-
<i>Trechus obtusus</i> or <i>quadristriatus</i>	-	-	+	-
<i>Bembidion</i> sp.	+	-	+	-
<i>Pterostichus</i> cf. <i>cupreus</i>	-	-	+	-
<i>P. madidus</i>	-	-	+	-
<i>Abax parallelepipedus</i>	-	-	+	-
<i>Harpalus</i> S. <i>Ophonus</i> sp.	-	-	+	-
<i>Badister bipustulatus</i>	-	-	+	-
<i>Hydroporus</i> sp.	-	+	-	-
<i>Helophorus aquaticus</i> or <i>grandis</i>	-	-	+	-
<i>Helophorus</i> sp. ( <i>brevipalpis</i> size)	+	-	+	-
<i>Cercyon</i> sp.	-	-	+	-
<i>Megasternum obscurum</i>	-	-	+	-
<i>Hydrobius fuscipes</i>	+	-	-	-
<i>Anacaena globulus</i>	+	+	+	+
<i>Ochthebius</i> sp.	-	-	+	-
<i>Hydraena</i> sp.	-	-	+	-
<i>Limnebius</i> sp.	-	-	+	-
<i>Choleva</i> or <i>Catops</i> sp.	+	-	+	-
<i>Thanatophilus rugosus</i>	+	-	-	-
<i>Silpha</i> sp.	-	-	+	-
<i>Micropeplus</i> sp.	-	-	+	-
<i>Lesteva</i> sp.	-	-	+	-
<i>Anotylus sculpturatus</i> gp.	-	-	+	-
<i>Philonthus</i> sp.	-	-	+	-
<i>Tachinus</i> sp.	+	-	+	-
<i>Geotrupes</i> sp.	+	+	+	-
<i>Aphodius</i> cf. <i>Sphacelatus</i>	+	-	-	+
<i>Aphodius</i> sp.	-	-	+	-
<i>Hoplia philanthus</i>	-	-	+	-
cf. <i>Cyphon</i> sp.	+	+	-	-
<i>Dryops</i> sp.	-	+	-	-
<i>Athous</i> sp.	+	-	+	-
<i>Agriotes</i> sp.	-	-	+	-
<i>Cantharis</i> sp.	-	-	+	+
<i>Malachius</i> sp.	+	-	-	-
<i>Atomaria</i> sp.	-	-	+	-
<i>Longitarsus</i> sp.	-	-	+	-
<i>Altica</i> sp.	-	-	+	-
<i>Chalcoides</i> sp.	-	-	+	-
<i>Psylliodes</i> sp.	+	-	-	-
<i>Phyllobius</i> sp.	-	-	+	-
<i>Barypeithes araneiformis</i>	-	+	-	-
<i>Sitona</i> sp.	-	-	-	+
<i>Plinthus caliginosus</i>	-	+	-	-
<i>Ceuthorhynchinae</i> indet.	-	+	+	+
<i>Myrmica</i> sp.	-	-	+++	-
<i>Apis mellifera</i>	-	-	+++	-
Approx total per kg	90	55	50	45

+ (present, 1-5 individuals); ++ (some, 6-10 individuals); +++ (many, 11+ individuals)