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Oxford Wessex Archaeology Joint Venture

The land and freshwater Mollusca from well 11010 at Thurnham Roman Villa, Kent (ARC THM 98)

by Elizabeth C. Stafford

CTRL Specialist Report Series

2006

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1 INTRODUCTION

Molluscan preservation was generally very poor at the site of Thurnham Roman Villa. However, during the assessment of waterlogged deposits from a late Roman well it was noted that samples from the lower fills contained varying quantities of shell fragments. These samples have been examined in detail in order to enhance the environmental data provided by the analysis of pollen, insects and plant remains.

2 METHOD

All samples were processed during the assessment stage at Oxford Archaeology. The volume of sediment processed varied between 1.65 and 10 litres. Each sample was disaggregated in water, floated onto 0.25mm nylon mesh. The residues were also retained to 0.50mm. Both flot and residue fractions were sorted for identifiable mollusc fragments under a binocular microscope at x10 and x20 magnifications. The species present in each assemblage were identified and whole shells and apical fragments counted. Nomenclature follows Kerney (1999).

Specific identifications were not attempted for taxa where this would prove very time-consuming and add little to the interpretation of the assemblage. No attempt was made to identify juveniles and apical fragments of *Cochlicopa* sp., *Oxyloma/Succinea* sp. or *Vallonia excentrica/V. pulchella* to species level due to difficulties in identification. For *Cepaea* sp. and *Arianta arbustorum* it was considered appropriate to distinguish between apical fragments only when these were preserved larger than the two-whorl stage. Note was also made of the size and preservation of some species with robust shells, such as Clausiliidae, and *Cepaea* sp., since they tend to reside in soils for longer periods. The presence of well-preserved and whole shells along with the more fragile shelled species such as the Zonitidae can be seen as a good indicator of the autochthonous character of the assemblage.

3 RESULTS

The shell counts are presented in tabular format (Table 1). Shell abundance varied considerably between the samples. The richest assemblage derived from context 12227 (sample 10348), the lowest excavated rubble infill, which comprised 648 individuals. The assemblage was dominated by terrestrial shade-demanding species comprising 62% of the assemblage with the most abundant species being *Discus rotundatus*, *Carychium tridentatum* and various zonitids. The rupestral species e.g. *Clausilia bidentata* and c.f. *Balea perversa* were present in lesser numbers. *Vertigo pusilla*, a comparatively rare species, was also

present. A smaller though significant component of the assemblages comprised catholic terrestrial species, particularly *Trichia hispida*, *Punctum pygmaea Cepaea* sp. and *Cochlicopa* sp. Open-country species were present in low numbers up to 10% although *Vallonia costata* made up to 7% of the total assemblage. A small number of freshwater species were also present in the assemblage, including slum species *Lymnaea truncatula, Aplexa hypnorum* along with the obligatory marsh species *Oxyloma/Succinea* sp.

Although shell abundance varied and was much reduced in the other samples examined the overall species composition of the assemblages was generally consistent. The only significant change up the profile is the disappearance of the freshwater species perhaps reflecting drier conditions as the well infilled, although this absence may equally be due to the lower shell abundance.

Table 1: Land and freshwater Mollusca from Thurnham Villa well

Sample number				**10348**	**10347**	**10352**	**10339**
Context number				**12227**	**12227**	**11985**	**11516**
Volume of sediment processed (litres)				**3.8**	**10**	**8**	**1.65**
Minimum number of individuals per litre				**171**	**3**	**4**	**61**
Taxa		**Habitat**					
1	*Carychium miniumum* (Müller)	T	(m)	60		3	
2	*Carychium tridentatum* (Risso)	T	s	139		5	21
3	*Carychium* sp.	T	(m) s	68	2	8	11
4	*Aplexa hypnorum*	F	sl, c	4			
5	*Lymnaea truncatula*	F	sl	8			
6	*Oxyloma/Succinea* sp.	M	c	12	3		
7	*Cochlicopa lubrica* (Müller)	T	c	5			4
8	*Cochlicopa lubricella* (Porro)	T	c				2
9	*Cochlicopa* sp.	T	c	11	2	1	
10	*Vertigo pusilla* (Müller)	T	s	1			
11	*Vertigo pygmaea* (Draparnaud)	T	o, (m)	11			
12	*Vallonia costata* (Müller)	T	o, (m)	48	1		8
13	*Vallonia excentrica/pulchella*	T	o, (m)	4			
14	*Vallonia* sp.	T	o, (m)			1	
15	*Acanthinula aculeata* (Müller)	T	s	6	1		3
16	*Punctum pygmaea* (Draparnaud)	T	s, c	57		1	2
17	*Discus rotundatus* (Müller)	T	s	45	4		8
18	*Vitrina* sp.	T	s, c	5			
19	*Vitrea crystallina* (Müller)	T	s	2			
20	*Vitrea contracta* (Westerlund)	T	s, c	14			8
21	*Aegopinella pura* (Alder)	T	s	10	2		
22	*Aegopinella nitidula* (Draparnaud)	T	s	28	5	5	12
23	*Oxychilus cellarius* (Müller)	T	s	22	2	3	14
24	Limacidae	T	c	18			
25	*Clausilia bidentata* (Ström)	T	s	4			2
26	c.f. *Balaea perversa* (Linné)	T	s			1	
27	*Trichia hispida* (Linné)	T	c (m)	52	6	6	2
28	*Trichia striolata* (Pfeiffer)	T	syn, s	2			
29	*Arianta arbustorum* (Linné)	T	c				

Sample number				**10348**	**10347**	**10352**	**10339**
Context number				**12227**	**12227**	**11985**	**11516**
30	*Cepaea/Arianta* sp.	T	c	2	3	1	1
31	*Cepaea* sp.	T	c	7			2
32	*Cepaea nemoralis* (Linné)	T	c	1			
33	*Cepaea hortensis* (Müller)	T	c	1			
34	*Pisdium* sp.	F		1			1
	Total			**648**	**31**	**35**	**101**

Key:
T: terrestrial species; F: freshwater species; M: marsh species; o: open country; s: shade-loving; sl: slum species; c: catholic; (m): terrestrial species that can tolerate damp environments; syn: synanthropic species

4 DISCUSSION

The molluscan preservation observed within the well, as opposed to the general paucity of shell across the rest of the site, was likely to have been due to a combination of factors. Primarily, within context 12227, the combination of the waterlogged conditions and the large quantities of the Kentish Ragstone (greensand limestone) lacking any other significant silt inclusion would have contributed to significantly increasing the pH of this burial environment. Similarly within the upper deposits examined (11516 and 11985) the construction of the well shaft in the same greensand limestone would also have had the effect of increasing the pH level of the waterlogged conditions although the smaller quantities recorded within these reflects burial in organic debris as opposed to the rubble of 12227.

Overall the evidence is consistent with an environment of broadleaf deciduous woodland in the immediate vicinity of the well during the initial infilling. This is suggested by the abundance of shade-demanding species that typically inhabit the moist leaf litter on woodland floors, within moss, ivy and under logs and stones (e.g. *D. rotundatus, C. bidentata, A. aculeata*, *V. pusilla*, and the zonitids). *B. perversa* in particular is a geophobic species usually inhabiting dry places away from the ground in crevices of walls but also on loose-barked or mossy trees, especially apple, elm, beech, ash or willow (Evans 1972:167, Ellis 1926:184).

There are a number of species present however that may be considered synanthropic. *T. striolata,* considered an 'old woodland' species in earlier prehistoric contexts, underwent a significant decline in numbers with the increase in forest clearance the intensification of agriculture during the later prehistoric period. This species however increased its distribution during the Roman and later periods where it became locally abundant in woodland, scrub, waste ground and around old buildings (Evans 1972:177). *T. hispida,* like *T. striolata,* also often inhabits synanthropic environments although also in all kinds of other nutrient rich or eutrophic places. Both species are frequent inhabitants of nettle beds.

The virtual absence of dryland open-country species suggests the well may have been situated within regenerating woodland or perhaps the edge of woodland and scrub/long grass. Although usually classed as an open-country species *V. costata* does occur in low numbers in

woodland, closed canopy up to 6% and open woodland up to 12% (Evans 1972:157). If the well had been situated at the very edge of woodland and for example a large expanse of open ground such as grazed pasture or arable one would perhaps expect a larger open country component within the assemblages.

There is evidence of rather damp conditions however with a number of freshwater slum species indicative of standing or stagnant water. They may have been living within the well or within puddles of water around it. The low-lying topography adjacent to the well certainly fulfilled the habitat requirements of such species and these may have derived from seasonal fluctuations in the water table or flooding. Of these *L. truncatula* has the greatest tolerance of drying and is common in seasonally inundated floodplain environments (Robinson 1988:107). Marsh species *Oxyloma/Succinea* sp. suggest the growth of lush vegetation and these species can often be found climbing up erect vegetation, such as reeds and sedges and can survive long periods in moist ground litter. In addition to this a number of the terrestrial species may also be regarded as damp tolerant (*C. minimum*, *V. pygmaea, P. pygmaea* and *T. hispida*). *P. pygmaea* was particularly numerous, and can be widespread in wet unimproved pasture, the margins of wetlands and wet woodland, although in acid ground conditions it is usually restricted to scrub or woodland.

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