

ASSESSMENT REPORT ON THE MICROFAUNA FROM THREE CROSSRAIL SITES:

CONNAUGHT TUNNEL

Ostracod Assessment
by John E. Whittaker

Introduction

Four samples were received from Museum of London Archaeology (MoLA) on November 20th 2014 for microfaunal assessment. The material came from the Connaught Tunnel site (XSY11, two each from trenches 1 and 3) as part of the major Crossrail Project in London – Job name C263 LE Geoarchaeology PXA (CRL 12). The sample information, including height (m OD/m ATD), context, monolith number and weight processed in each case, is given below. The purpose of the assessment was to examine the potential of the microfauna, especially the ostracods (if present), for the purpose of palaeoenvironmental reconstruction.

Method

Site Code	Height (m OD)		Height (m ATD)		Sample Code	Context	Monolith/bulk Sample number	Comments
	Top	Base	Top	Base				
XSY11	0.6	0.62	100.6	100.62	O1	8	3	Tr.1, 210g
XSY11	-1.42	-1.45	98.58	98.55	O2	13	7	Tr.1, 100g
XSY11	-0.16	-0.18	99.84	99.82	O3	26	46	Tr.3, 125g
XSY11	-1.09	-1.12	98.91	-1.12	O4	28	59	Tr.3, 150g

Table 1 Ostracod assessment sub samples

The sediment of each sample was first broken up into very small pieces by hand and put in ceramic bowls and thoroughly dried in an oven. Then a small amount of sodium carbonate was added to each (to help remove the clay fraction) and hot water poured over them. They were left to soak. Good breakdown was achieved by washing through a 75 micron sieve with hand-hot water. Each residue was then decanted back into a bowl and returned to the oven to dry. Samples were stored in labelled plastic bags and analysed by placing each sample into a nest of sieves and examining each of the fractions on a tray under a binocular microscope. The faunas were noted and representative microfossils, when they occurred, picked out and put into 3"x1" slides for archive purposes. The results of the analysis are shown in Table 2 and Table 3 which accompany this report.

Results

TRENCH 1		
ORGANIC REMAINS		
Height (m OD/ m ATD)	+0.60/100.6	-1.42/98.58
CONTEXT	8	13
MONOLITH/BULK SAMPLE NUMBER	3	7
SAMPLE	O1	O2
plant debris + seeds	x	x
earthworm granules	x	
iron mineral	x	
freshwater ostracods	x	
brackish ostracods	x	
charcoal		x
Ecology	Brackish mudflats	Freshwater alluvium

FRESHWATER OSTRACODS		
Height (m OD/ m ATD)	+0.60/100.6	-1.42/98.58
CONTEXT	8	13
MONOLITH/BULK SAMPLE NUMBER	3	7
SAMPLE	O1	O2
<i>Candona neglecta</i>	xx	
<i>Sarscyridopsis aculeata</i>	x	
<i>Limnocythere inopinata</i>	x	
<i>Heterocypris salina</i>	x	
<i>Ilyocypris</i> sp.	o	
BRACKISH OSTRACODS		
Height (O.D.)	+0.60/100.6	-1.42/98.58
CONTEXT	8	13
MONOLITH/BULK SAMPLE NUMBER	3	7
SAMPLE	O1	O2
<i>Cytherura gibba</i>	xxx	
<i>Cyprideis torosa</i>	o	
<i>Leptocythere lacertosa</i>	o	
Organic remains are listed on a presence (x)/absence basis		
Ostracods are listed: o - one specimen; x - several specimens; xx – common; xxx – abundant		

Table 2 Trench 1 ostracod assessment results

TRENCH 3		
ORGANIC REMAINS		
Height (m OD/ m ATD)	-0.16/99.84	-1.09/98.91
CONTEXT	26	28
MONOLITH/BULK SAMPLE NUMBER	46	59
SAMPLE	O3	O4
plant debris + seeds + spores	x	x
earthworm granules	x	
iron mineral	x	
charcoal	x	
insect remains		x
Ecology	Semi-terrestrial alluvial flat	Wetland

Table 3 Trench 2 ostracod assessment results

The results from the two samples examined from each of the trenches (1 and 3) are shown in Table 2 and Table 3. Taking Trench 1 first, the lower of the two samples (O2), a silty-sand, contained only plant debris and some charcoal. In the absence of any other finds, it must be presumed to be freshwater alluvium. The charcoal may benefit from further investigation. The upper sample (O1), in comparison, is not short of evidence. It contains earthworm granules, seeds, and both freshwater and brackish ostracods. The occurrence of very large numbers of the exclusively brackish species, *Cytherura gibba*, most of them preserved as carapaces, indicates a total lack of transport and thus an *in situ* population. The co-occurrence of 5 species of freshwater ostracods is less of a conflict as most of them, in particular *Sarscyridopsis aculeata* and *Heterocypris salina*, actually prefer low salinity situations. Iron mineral would indicate the brackish

mudflat which this sample represents, was subject to some degree of subaerial weathering (but perhaps nothing more than at periods of low tide). Trench 3, on the other hand, contains no positive indications of tidal access at all. The uppermost sample (O3) contains plant debris, earthworm granules and some charcoal. The presence of iron mineral would again suggest weathering, but this time, perhaps rather more of an intense nature than in Trench 1, to the extent that all calcareous material might have been destroyed. It is tentatively assumed to be semi-terrestrial alluvial flat, subject to seasonal (?freshwater) flooding. The lower sample in Trench 3 (O4) is a peat (or very organic clay). A thorough search was made for agglutinating foraminifera (which are indicative of saltmarsh and whose organic templates are preserved in the most reducing of environments) but none was found. I have indicated "wetland" for this sample – no doubt to be much better elucidated by palynological analysis.

Bibliography

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