

Bronze Age environments and burial in the Lower Lea Valley: archaeological investigations in the Stratford City Development

Peter Boyer, Mary Nicholls and Barry Bishop

Introduction

The Stratford City Development archaeological excavations took place to the north of Stratford International railway station at the edge of the Olympic Park in East London. The work, enhanced by geoarchaeological input, focussed on five broad areas of trenching on the north-west and north-east sides of a roughly triangular block of land raised during the excavation of the 'Stratford Cut' (Fig. 1). The south-westernmost area was named 'Frigoscandia South' and comprised trenches 1 to 10. Immediately to the north-east was 'Frigoscandia North', which included trenches 11 to 15. Trenches 16 to 21 were located to the east of this within the 'Temple Mills Access/Security' area, whilst trenches 22 and 23 at 'Alma Bridge' and Trench 24 at 'Henrietta Bridge' were positioned to the south-east. A further area of excavation lay to the south of 'Temple Mills Access/Security' and comprised the 'Chobham Test Pits' numbers 1 to 4. Due to limiting factors including restricted access and the presence of live services, Trench 15 remained unexcavated whilst Trenches 17 and 18 also 20 and 21 were combined into single trenches.

Trenches 22 and 23 revealed important elements of the 19th- and 20th-century Stratford railway depot, whilst post-medieval features, mostly associated with land management and drainage were recorded in a number of trenches in the Frigoscandia North and South areas. Post-medieval made ground was also observed in most trenches, but it is the evidence of prehistoric activity, revealed in a number of trenches in the Frigoscandia

South area, as well as the natural deposits, revealed across the site which form the main subject matter for this report.

The prehistoric topography of the Lower Lea Valley

The modern Lea complex is canalised, modified and sometimes culverted, disguising the natural pattern of these rivers, which were major landscape features in prehistory. This is compounded by the fact that the Lea floodplain, like that of many lowland urban rivers, is infilled by deep alluvial clays, and covered with made ground, masking the prehistoric relief of the valley floor. Evidence for the Bronze Age and earlier landscapes lies in deeply buried soils and sediments. Sometimes these deposits are sealed by flood clays that have subsequently built up by a combination of rising river levels, increased river discharge and soil erosion due to arable cultivation and climatic instability.

Geoarchaeological modelling¹ shows that the Stratford City Development lies on a now buried 'low terrace' (underlain by the Lea Valley Gravels) just above the deepest parts of the floodplain. The low terrace must have been attractive for prehistoric activity, as occupation sites are found along its length from Stratford, through Leyton, to Edmonton and Enfield. This is almost certainly due to its proximity to the channels and tributaries of the Lea, added to its generally dry location. Here prehistoric farmers and foragers could enjoy fertile land for cultivation and grazing with easy access to a wetland teeming with plants and wildlife where foraging, fishing² and

hunting would have been profitable.

Stratford's Bronze Age landscape

The topographic modelling has identified a tributary channel cutting through the low terrace immediately south of the Stratford City sites. This watercourse has been recorded in the western part of the Stratford Box (SBX00)³ and in the northern part of the Aquatics Centre at Carpenters Road (OL-00105).⁴ In both cases worked Bronze Age wood was recovered from fluvial sands. This tributary and its confluence with the Lea was probably a significant element in the local Bronze Age landscape, demarcating different parts of the low terrace and linking the floodplain with the river terraces on the eastern valley side. A cremation cemetery (see below) lay on its northern side. To the south a concentrated spread of archaeological features was excavated on the western margin of the low terrace in Olympics evaluation trenches where boundary ditches and inhumations were found,⁵ and at Warton Road (OL-00305) where evidence for settlement included postholes, pits and ring ditches.⁶ On the gravel terraces Late Bronze Age occupation is demonstrated by postholes, pits and a large circular ditched enclosure (as well as possible structures such as a roundhouse, a palisaded screen, four-post structures and hearths).⁷

At this time the valley sides were likely to have been covered by a mosaic of wildwood of familiar species such as oak, hazel and smaller numbers of lime, ash and beech. The low terrace was probably more open, with stands of deciduous trees on the drier ground and

damp-loving species such as alder and willow fringing the wetlands. However, it should be noted that this has been inferred from nearby wetland sites, as the freely draining sandy soils into which the cremation interments were cut were virtually devoid of biological remains (such as pollen and plant macrofossils).

Earlier prehistoric activity

Occasional finds of Palaeolithic flint artefacts have been recorded in the local area, having been redeposited from the Pleistocene gravel terraces flanking the valley. Mesolithic material has also been recovered from a number of locations within the Lea Valley, with some nationally important assemblages being reported further upstream. The current work produced fourteen struck flints, all from either sub-soil deposits in Trench 8 or as residual pieces from later features in Trench 3. They include both flakes and blades along with three cores, but no retouched pieces are present. The blades that were found are very well made prismatic types and can be dated to the Mesolithic or possibly Early Neolithic period. Very fine edge damage on some of these indicates that they may have been used for cutting or similar tasks. The cores are small and have been extensively reduced using multiple striking platforms. Consequently, extant flake scars are small and rather irregular but two of the cores retain evidence of having earlier produced blades or narrow flakes, and all three display evidence of platform edge trimming. These again are most suggestive of Mesolithic or Neolithic flint-working and may be broadly comparable in date to the blades. Interestingly however, the blades are relatively large and unlikely to have been produced from the cores. They therefore may have been brought to the site ready-made and are indicative of a mobile community with people, flint and other resources being moved around the landscape.

Comparable Mesolithic and Early Neolithic flint-work has been recovered from some of the nearby Olympic sites (eg Site 26_ Warton Road; Site OL01507_PDZ1.12)⁸ and it is increasingly apparent that the Lea Valley was extensively exploited during this period.⁹ The evidence that is

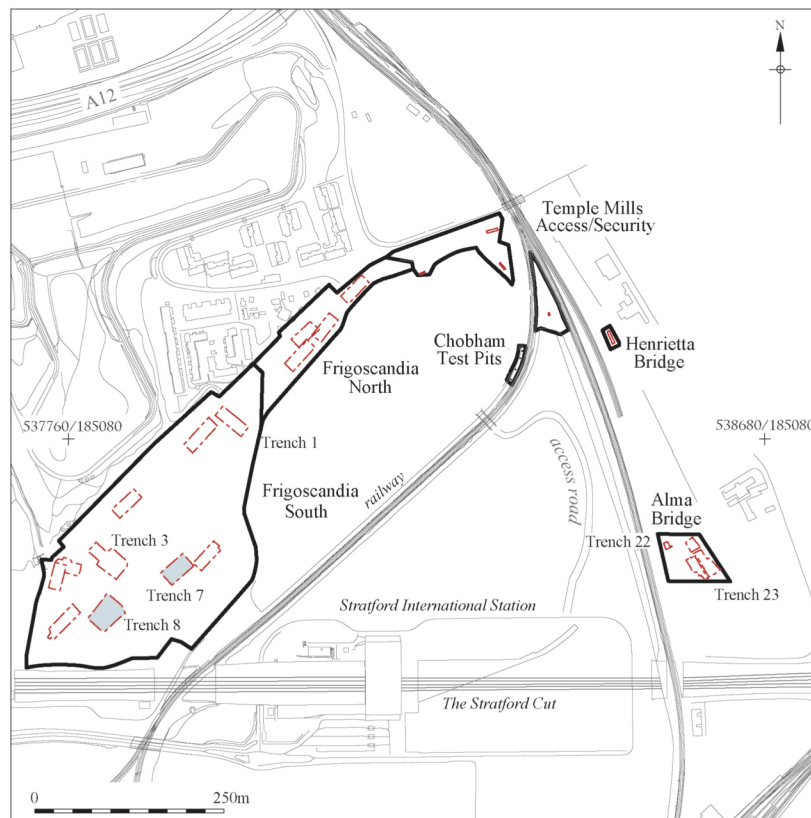


Fig. 1: site and trench location

emerging, which largely comprises scattered clusters of flint-work, is most suggestive of short-term encampments. They appear to have been dotted along the river margins and valley sides and are ideally situated to take advantage of

the rich and varied ecological habitats within and adjacent to the floodplain. This is a pattern seen throughout London and the south-east, where largely riverine-based Mesolithic and Early Neolithic occupation gradually

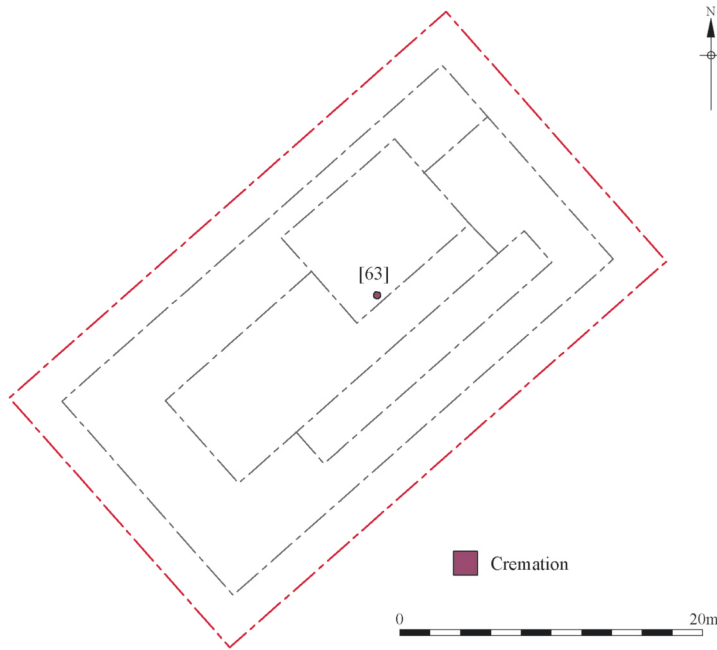


Fig. 2a: Trench 7 with archaeological feature

leads to small clearances being opened in the forest canopy along the Thames and its tributaries.

Bronze Age cremation cemetery

Towards the south-west of the Frigoscandia South area a small number of possible prehistoric features was recorded, cut into a former land surface overlying the low terrace. Most notably, six cremation burials were exposed; one in Trench 7 and five in Trench 8 (Figs. 2a and b). All of the burials were in small discrete pits and all were unurned, each pit containing variably mixed deposits of soft, dark grey clayey silt sediment, charcoal and burnt bone. The quantity of burnt bone present varied between 3267g and 10g, indicating both varying quantities of originally deposited material and varying levels of survival.

The burial [63] in Trench 7 included 166g of cremated bone, some of it of sufficient size to allow identification of skeletal elements, including skull and long-bone fragments as well as two complete phalanges. However, no indicators of age nor sexually dimorphic traits were

observed, though only a single individual appeared to have been present. The northernmost burial [21] in Trench 8 contained 3267g of burnt

bone from two individuals; an adult or older sub-adult and a neonate or infant. It proved impossible to ascertain the gender of either individual. Burial [19] to the south-west contained 194g of burnt bone, the size of identifiable elements suggesting a sub-adult, possibly a very young child or neonate. The remaining burials in Trench 8 contained 36g of burnt bone or less, providing no information regarding age or gender and suggesting that these interments had suffered extensive post-burial disturbance.

Given that so few burials were exposed it is difficult to determine any meaningful patterns in their spatial distribution, though it may be argued that those in Trench 8 were aligned in parallel NNW-SSE rows. Because of the depth of overburden and the need to maintain adequate health and safety provision, the level at which the burials were present was only exposed within a small area in each trench. A large area between the burial in Trench 7 and those in Trench 8 therefore remained

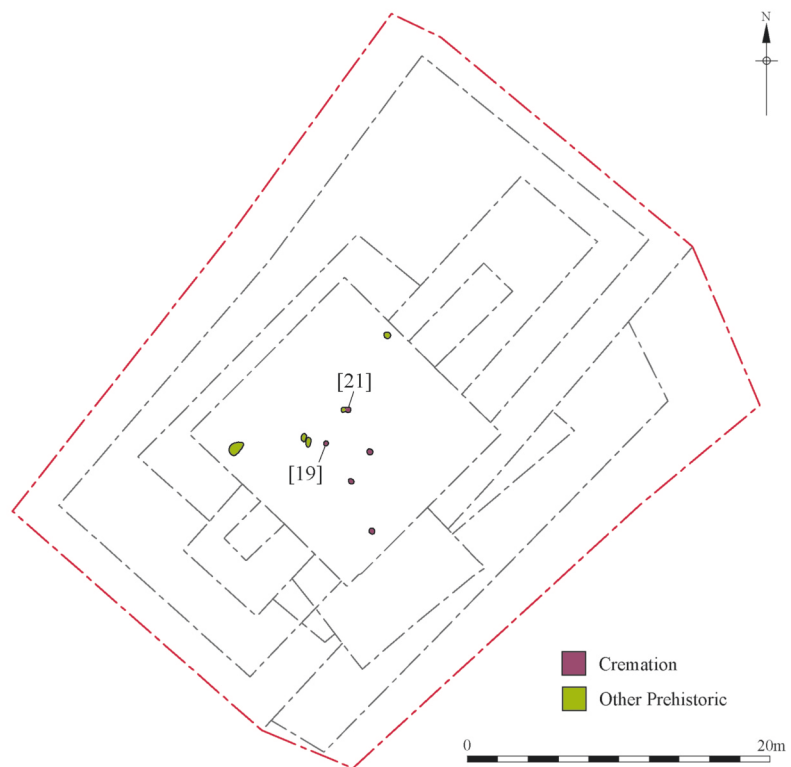


Fig. 2b: Trench 8 with cremations and Bronze Age features

| MOLA ref. | Lab no | sample type | 13C (‰) | uncalibrated date (BP) | Calibrated date (2σ) (95% probability) | Period |
|---------------|------------------------|-----------------------|---------|------------------------|--|------------|
| SZD08/CREM/21 | SUERC-29389 (GU-21567) | Cremated Bone : Human | -25.8 | 2970 ± 35 | Cal BC 1320 to 1050 | Bronze Age |
| SZD08/CREM/63 | SUERC-29390 (GU-21568) | Cremated Bone : Human | -21.0 | 2995 ± 35 | Cal BC 1380 to 1120 | Bronze Age |

Table 1

unexposed, as did further areas around each trench. It is therefore possible that a great many more burials remained unexcavated in these areas, though it is out of the question to ascertain whether those in Trench 8 were part of the same group as that in Trench 7, or whether smaller, discrete groups of interments were present. Radiocarbon dates from both trenches are broadly contemporary (see Table 1), suggesting that a relatively large area on the low terrace was being used for the interment of cremation burials during the later Middle Bronze Age.

A few of the more crudely produced flint flakes recovered during the investigations may be contemporary with the cremations. However, perhaps the most interesting flint from this period was not actually worked but comprises a small naturally perforated pebble (Fig. 3). This was found within fill [19] of cremation [20] and has been heavily burnt. Although there is no obvious evidence of it having been otherwise modified, the burning having affected much of its surface and caused one end to partially disintegrate, it does form a notably symmetrical bead-shaped object. Despite the burning there are some indications that its ends have been rubbed smooth, such as may occur from prolonged handling or wear. This is undoubtedly a naturally formed object, but its unmistakably bead-like appearance and the fact that it accompanied the body during cremation and interment makes a compelling case for regarding it as some form of jewellery or a talismanic object. Worn perhaps as a necklace or bangle, or sewn onto clothes, its apparent association with a young child may even suggest that it was used as a toy or comforter (Fig. 3).

In addition to the cremation burials a small number of other features were either contemporary or appeared to date to a slightly later Bronze Age phase. A prehistoric feature located in Trench 3 was initially thought to be a further cremation burial, however no material indicative of such an interment was found to be present and no dateable artefacts were recovered. Cremation burial [22] in Trench 8 was partially truncated by a possible posthole, though this contained no dating evidence. Three small pits and a

possible tree throw were recorded at the same level but their fills were also sterile. Within Trench 1 three features possibly formed by natural processes were present, along with two potential stakeholes, though none of the features produced any artefactual evidence.

The cremations were uncovered within the clayey sands of the low terrace directly beneath an alluvial subsoil and ploughsoil that contained post medieval material. The soil profile was therefore conflated and the Bronze Age land surface lost to weathering and re-working, being incorporated into or truncated by later agricultural soils.

Discussion

The evidence for Bronze Age activity adds to the growing body of data relating to the exploitation of the Lower Lea Valley during later prehistory. This is enhanced for the Stratford area by reconstructing the buried landscape, which places the cremations and surrounding activity from other sites into the context of their contemporary environment (Fig. 4). Radiocarbon dating suggests interment dates in the later Middle Bronze Age or possibly the earlier Late Bronze Age and there seems no reason why the other burials should not be of a similar date. Broadly contemporary activity was identified during archaeological investigations in advance of the construction of the Olympic Aquatics Centre, just over 600m to the south-east,¹⁰ represented by agricultural land division and possibly one inhumation burial, suggesting different funeral rites may have been used here at broadly the same time.

The nature of later prehistoric settlement and agricultural activity in the Lower Lea Valley and specifically within the vicinity of the Olympic Park has been recently discussed and the increasing understanding of the development of the area at this time outlined.¹¹ However, the nature of burial practices perhaps warrants further study, especially given the dating evidence. The possible contemporaneity with one inhumation burial at the nearby Aquatics Centre site has been mentioned. This could only be dated by stratigraphic association. It may well be of later prehistoric date if associated with a second close by

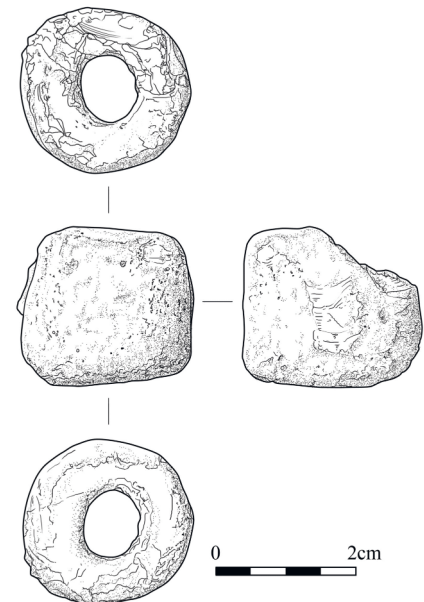


Fig. 3: perforated burnt pebble

inhumation pertaining to the Late Iron Age early Roman period and C14 dated to 110 Cal BC – 60 AD.¹² Indeed the rite of inhumation burial is not normally associated with the Bronze Age, and alternatively this burial could date to the Late Neolithic or Early Bronze Age. Cremation is the dominant burial rite throughout the Middle and into the Late Bronze Age, with cremated material being interred in ceramic vessels or apparently unurned, though there is a strong possibility that many apparently unurned burials may have been interred in organic vessels, of wood, animal hide or fabric, for example, which have not survived. The interments here fall into this latter category and whilst such features are commonly encountered on the gravel terraces of the Thames Valley and tributary streams, they are not such a common find in the Lower Lea Valley, partly because not all archaeological investigations in the area extend as deep as the current interventions.

Acknowledgements

MoLAS-PCA would like to thank: Suzanna Pembroke of ARUP Consulting, for commissioning the work on behalf of Lend Lease Development Ltd for the Olympic Delivery Agency; Sarah Zagami of Lend Lease, the Principal Contractor; Bovis Lend Lease for their assistance with the excavations, in particular Alex Drayton, Adam Clayton, Mahesh Bhudia and Tony Ingerfield; C.A. Blackwells for their assistance on site, in particular



Fig. 4: local landscape reconstruction showing the area as it would have looked during the Bronze Age (Faith Vardy)

Justin Downer and Ken Crawford; and David Divers of English Heritage GLAAS, who monitored the project on behalf of the London Borough of Newham.

Thanks are also due to the project manager, Peter Moore and post-excavation manager, Frank Meddens, for their support and guidance and the latter for his editing of the text. The fieldwork was supervised by Stuart Holden, the surveyors were Nathalie Barrett and Jem Rogers, Lisa Lonsdale provided logistical and technical support, the geoarchaeological investigations were undertaken by Mary Nichols, Jennifer Simonson produced Figs 1 and 2, Cate Davies illustrated the perforated pebble (Fig. 3); Fig. 4, the reconstruction drawing, was completed by Faith Vardy. Rob Nicholson and his team processed the finds.

The supervisor would like to thank the following field staff for their perseverance through sometimes adverse conditions: Rick Archer, John Crisp, Jennie Fiddes, Will Johnston, Kelly Madigan, T Shane Maher, Tomasz

Mazurkiewicz, Graeme McArthur, Paul Morrison, Mike Morley, Mary Nicholls, Katie Nicholas, Chris Rees, Sandy Pullen and Pari White. The author would like to thank all members of the post-excavation team who have contributed to the project: Märit Gaimster, James Gerrard, Chris Jarrett, Lynne Keys, Kevin Hayward and Kevin Reilly.

Peter Boyer graduated from the University of Wales in 1986 and worked as a field and environmental archaeologist before undertaking a Masters Degree at Leicester University in 1989. He carried out PhD research at Loughborough University, gaining his doctorate in 1999, and after a brief spell as a post-doctoral researcher has worked in field archaeology ever since. He joined Pre-Construct Archaeology in 2001 and has been involved in numerous projects, producing a large number of written reports. His main interests are in aspects of British later prehistory.

Mary Nicholls graduated with an MA in

archaeology from Edinburgh University and excavated across England, Scotland, Europe and India. She pursued her interest in sedimentology and environmental change by taking Royal Holloway's Quaternary Science MSc in 2004, going on to work as a geoarchaeologist at Oxford Archaeology. Mary joined MOLA Geoarchaeology in 2007. Here she has developed her interest in deposit modelling and past environmental reconstruction, notably mapping the buried islands and channels of the prehistoric landscape in the Thames Valley.

Barry Bishop gained his BA and MA from Leicester and has recently completed a PhD in York, which considered the broader social and historical context of the flint mine complex at Grime's Graves. He has worked in London archaeology since 1985 and is now a freelance consultant on prehistoric landscapes and a lithic specialist, active for numerous commercial, public and academic organisations throughout Britain.

1. J. Corcoran, C. Halsey, G. Spurr, E. Burton and D. Jamieson *Mapping past landscapes in the lower Lea valley: a geoarchaeological study of the Quaternary sequence* MOLA Monograph 55 (2011).

2. Though there is no archaeological evidence for the exploitation of fish resources in the region during the Bronze Age: see T. Carew *et al* 'Human-environment interactions at the wetland edge in East London: trackways, platforms and Bronze Age responses to environmental change' *Trans London Middlesex Archaeol Soc* 60 (2009) 1–34.

3. *Op cit* fn 1.

4. *Op cit* fn 1.

5. *Op cit* fn 1.

6. C. Halsey and N. Hawkins *Site 26 Carpenters Road, Newham, N15. An Archaeological Evaluation Report* MoLAS-Pre-Construct Archaeology Limited unpublished report (2007); J. Perry *Excavation report, Warton Road Sutton* Archaeol Services unpublished report (in prep).

7. Excavations at Oliver Close OVC01 London Archaeologist Round-up 2005.

8. J. Payne 'The First Olympic Village: finished 3000 years ahead of schedule' *London Archaeol* 12 (2011) 315–20.

9. A.B. Powell *By River, Fields and Factories: The Making of the Lower Lea Valley, Archaeological and cultural heritage investigations on the site of the London 2012 Olympic and Paralympic Games* Wessex Archaeol Report 29.

10. *Op cit* fns 8, 9.

11. *Op cit* fn 6.

12. SUERC-33678 .