

Prehistory 'in' the Lower Thames Floodplain

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NO SERIOUS archaeological investigation of the alluvial floodplains on either side of the present course of the lower Thames has taken place. Until recently the absence of prehistoric find spots in the SMR, and the general absence of medieval and later occupation of the floodplain lead to these areas being largely ignored or felt unlikely to yield archaeological evidence. Merriman addressed this lack in a recent article¹, and as our understanding of the development of the lower river system has improved so has our appreciation of the archaeological potential of this area. Over the two or three years since Merriman wrote his article, a surprising number of archaeological evaluations have uncovered prehistoric trackways, causeways, or more transitory archaeological evidence such as axemarked wood, posts *in situ*, charcoal and other finds, although as yet no occupation sites. They have included sites in Bermondsey, Beckton, Rainham, Dagenham, Barking, Thamesmead and even along the foreshore of the present river between Chiswick and Rotherhithe. The area may prove to be one of the last major surviving resources of undisturbed archaeology in the country.

The justification for this latter statement are the results of work over the last two decades of which a study by Devoy of sea level changes and vegetational history in the Lower Thames between Crossness and The Isle of Grain may be taken as the start². Devoy's work showed that the dramatic changes in sea level over the last 10,000 years that were being recorded around the coast of Britain and other countries in the North Sea basin in the 1970s were applicable to the Thames. His study indicated that the mean high water spring tide level has risen over 25m (80ft) since the end of the Ice Age 10,000 years ago. This has been the result of a combination of rises in sea level due to melting ice sheets and land subsidence in south east England. It was this rise in sea level that was responsible for cutting Britain off from the continent around

9000 years ago. D'Olier mapped the changes to the coastline of the Thames estuary during this period³. Quite simply, huge areas of low-lying land in the North Sea basin, once dry and almost certainly colonised in the late paleolithic, slowly became covered by the sea. This advanced ever further up the river valleys, and bar the effects of the present day river embankments and the Thames barrier would probably still be so doing.

The effect of these rising levels on the river system, besides the flooding of the lower estuary areas and the slow inexorable movement inland of the coastline — Devoy calculated that during the period from 8500 to 7000 BP the sea level rise was 13mm (0.5in) per year — was a major change in its behaviour. 10,000 years ago the river between Westminster and Tilbury was downcutting through deposits laid down in the last glacial. It was not tidal in this region, and only where the gradient diminished to negligible proportions way out in the North Sea basin would sediment deposition, flooding and tidal effects have occurred. The rising sea level reduced the river gradient and the river in the area between central London and Gravesend began to take on the characteristics of an estuary, forming a floodplain through which it meandered, and depositing sediments in a plain on either side of its course. These were areas previously dry, vegetated and occupied by human groups. Initially only the very earliest archaeological periods were inundated, and buried beneath marine and fluvial muds, but, as the levels continued to rise, progressively younger archaeological deposits, and those higher up the side of the original river valley, were covered and buried. This continued right up until the medieval and post-medieval periods with archaeological horizons at Abbots Lane in Southwark and a foreshore at Kew Bridge (see front cover) being covered by river alluvium in the medieval and post-medieval periods. The areas covered by these alluvial deposits are illustrated in Fig. 1.

1. N. Merriman 1992 'Predicting the unexpected: Prehistoric sites recently discovered under alluvium in Central London' in S. Needham and M. Macklin (ed) *Archaeology under the Alluvium*.

2. R. J. N. Devoy 'Flandrian sea level changes and vegetational

history of the lower Thames estuary' *Phil Trans R Soc Lond B285* (1979) 355-407.

3. B. D'Olier 'Subsidence and sea level rise in the Thames Estuary' *Phil Trans R Soc Lond A272* (1972) 121-130.

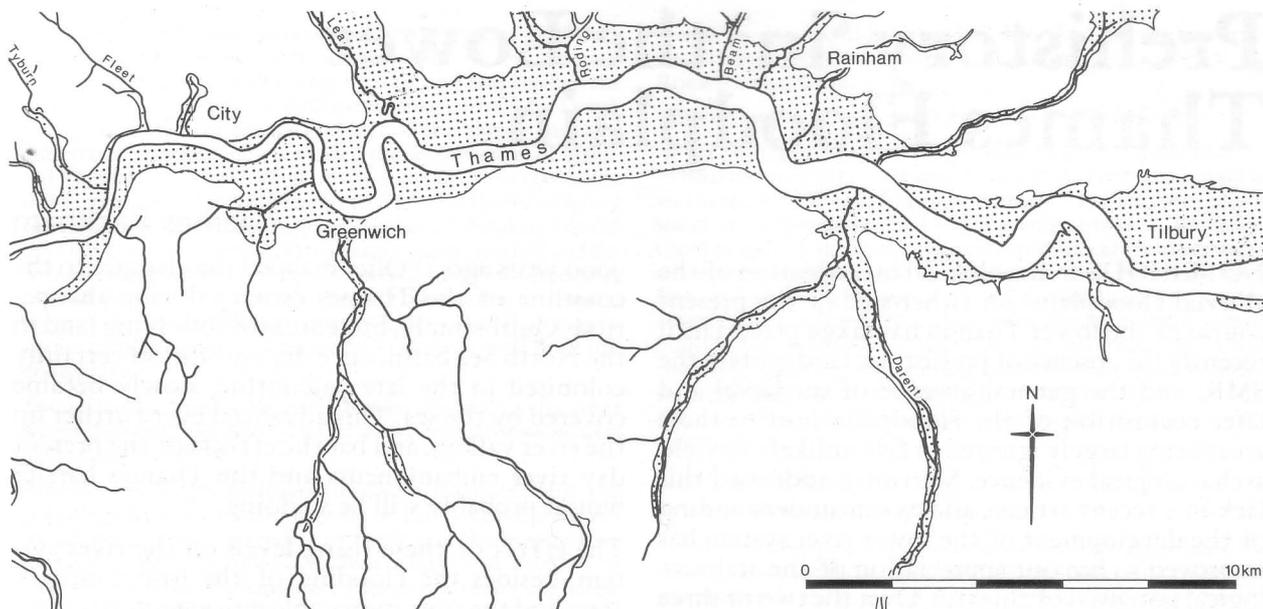


Fig. 1: the extent of the floodplain in the lower Thames between the City and Tilbury. (drawing by Julie Carr, MOLAS)

If it was as simple as this picture suggests then we would indeed have a dramatic archaeological resource beneath the river alluvium, but a number of things complicate the story. I will consider two briefly.

The advancing sea edge, the many new river channels and water courses that must have developed, and the widening of the main channel as the river mouth moved inland are erosional forces. They would have destroyed much of the landscape that the sea and river was overtaking. In fact the landscape will only have survived undisturbed in areas away from the currents where the water flooding it carried a burden of sediment that settled out covering the old landscape beneath. These areas are likely to be low-lying, possibly only seasonally flooded or far enough away from the main streams to form marshes or bogs, some of which would have been tidal saltmarshes.

The second problem is that this rise in sea level was not continuous and periods of 'regression', during which the level stabilises or starts falling, occur. Devoy described four periods of regression in this otherwise continual sea level rise with the suggestion of a fifth in the Roman period. They have been identified by a change in the character of the sediments in the lower Thames at Tilbury. During

the rise or transgression phases clay/silt sediments were deposited in a flooded environment. The regressions are characterised by biogenic or organic sediments formed in shallow water and normally composed of dark brown or black fibrous monocotyledonous peats with *Phragmites* (reed) or salt-marsh plants. The peat formation varies and sometimes develops to wood peats, indicative of alder carr (Fig. 2), and gyttja (organic muds). Devoy ascribed the transgression phases to Thames I-IV and the regression phases to Tilbury I-V.

So the model consists of a rising sea level interspersed with periods of temporary fall. Tyers in studying peats and alluvial deposits in Southwark has transposed Devoy's model in the Tilbury area⁴ and identifies a number of peat horizons on the Southwark sites as contemporary with the organic sediments assigned to Tilbury IV on the basis of radiocarbon dates indicating a comparable age for these deposits. This has become accepted and peat deposits within the alluvium are typically assigned to one of the Tilbury stages on the basis of stratigraphy and levels. The occurrence of peats within the alluvial sequence is frequent and it is clear that these deposits can be very extensive. Where they are exposed at low water in the present river channel they can often be traced over hundreds of metres.

4. I. G. Tyers 'The prehistoric peat layers (Tilbury IV)' in P. Hinton (ed) *Excavation in Southwark 1973-76, Lambeth 1973-79* Joint publication no. 3 London Middlesex Archaeol Soc and Surrey Archaeol Soc (1988) 5-12.
5. T. J. Wilkinson 'The archaeology of the Essex foreshore: the Hullbridge Project' *Essex Journ* 22 no. 2 (1987) 29-33; T. J.

Wilkinson and P. Murphy *The Hullbridge Basin Survey 1986* Interim Report no. 7 (1987) Archaeology Section, Planning Department, Essex County Council.
6. G. Milne, R. W. Batterbee, V. Straker and B. Yule 'The London Thames in the mid-first century' *Trans London Middlesex Archaeol Soc* 34 (1983) 19-30.

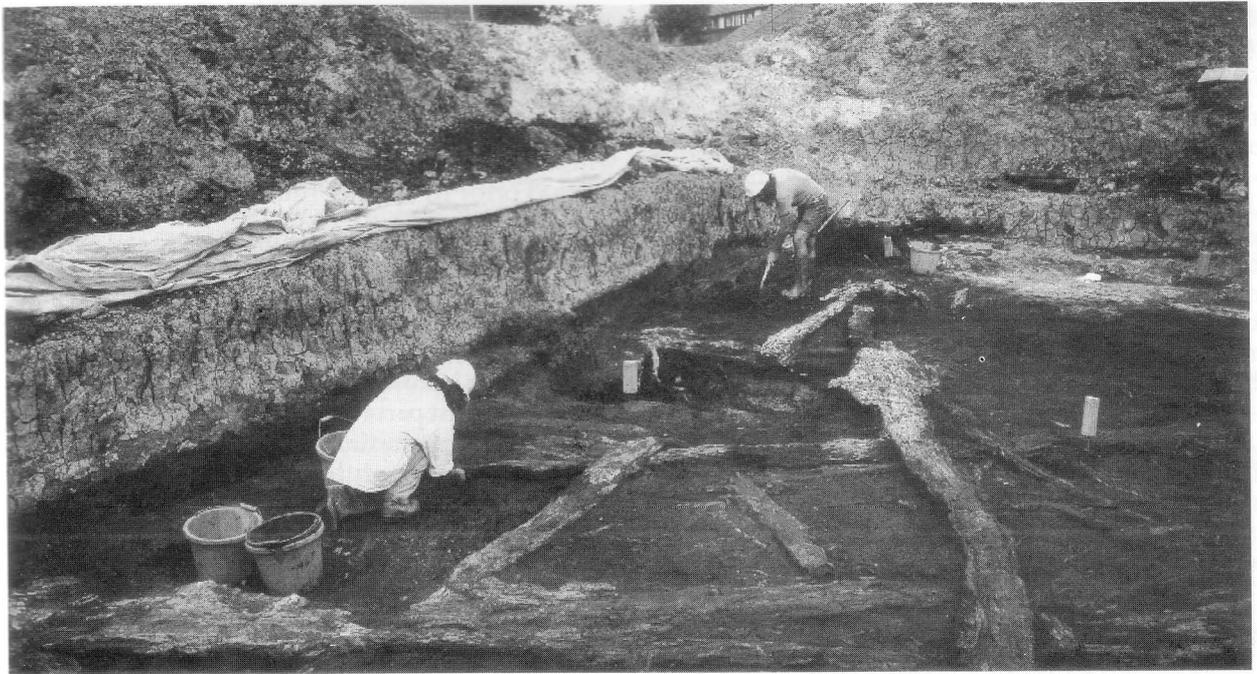


Fig. 2: collapsed alder trunks *in situ* at Slocum Close, Thamesmead, indicating a phase of alder carr in the Bronze Age. (Courtesy of Bill McCann, photograph by Maggie COX, MOLAS)

Work initiated in Essex by John Hedges in 1981 has shown that the intertidal zone of the Crouch and Blackwater estuaries just north of the Thames have a wealth of archaeological data and expanses of landsurface⁵. Neolithic sites and forests of Bronze Age date are exposed at low tide. The archaeology uncovered in these surveys and excavations include sites of mesolithic to Iron Age date.

Whether the pattern presented by Devoy in the Lower Thames can be applied without change to the river in central and east London is problematic. The river upstream is unlikely to have been behaving as it would in the estuary. Although Milne *et al* have shown that diatoms of saline habit were being deposited in central London in the Roman period⁶, suggesting, with other evidence, tidal activity in central London at this time, this has not been demonstrated for the earlier periods. It may be incorrect to correlate too closely chronologically the peat deposits upstream with those in the estuary. Conditions suitable for peat formation may occur in the middle reaches of the river as a result of rising sea levels and other factors and not just falling levels. The deposits Devoy found in boreholes in Thamesmead, and those on recent

archaeological excavations in Thamesmead⁷, Barking, Dagenham and Beckton⁸ suggest that organic sediments in the form of gyttja and peats were forming throughout both transgressions and regressions between approximately 6000 BP and 3000 BP. There may be a higher silt content during the transgressions but the olive or blue grey clays found at Tilbury do not appear. A wood peat is characteristic of the top of these organic sediments and besides evidence of trackways, and other archaeological material, a woodland carr landscape is indicated by fallen alder trees at Slocum Close, Thamesmead (Fig. 2) and tree stumps of ash, alder and oak *in situ* at other sites. All these deposits are subsequently covered by inorganic alluvial silt/clays.

Another site further upstream at Bramcote Grove, Bermondsey, has a sequence of peat and clay horizons underlying a Bronze Age trackway which extend back to 8000 BP at a level of approximately -2m OD⁹ with only the very top peat radiocarbon dated to 2980 BP and lying at -1.1m OD being confidently linked to Tilbury IV. Although these deposits lie in a channel of some antiquity we can perhaps begin to see that the straightforward cor-

tory Centre (1993).

7. B. McCann *Slocum Close, Thamesmead, London SE28, London Borough of Greenwich. An Interim Report*. MOLAS (1994).

8. M. Beasley *Evaluation at Beckton Area 3D, Evelyn Dennington Road, Beckton, E6 London Borough of Newham*. Level III report. Passmore Edwards Museum Archaeology and Local His-

9. C. Thomas, T. Barham, N. Branch, J. Giorgi, D. Goodburn, J. Lowe, V. Neale, J. Rackham, D. Smith, I. Tyers, K. Wilkinson and V. Williamson *Bramcote Green, Bermondsey: A Bronze Age trackway and Palaeoenvironmental Sequence*. MOLAS (in prep).

relation of peat horizons at particular depths, often viewed in quite small evaluation trenches, with Devoy's stages is too easy.

Hall and Coles in their recent review of the Fenland Survey¹⁰ have identified that a similar sequence of silt/clays and peats in the Fens is more complicated than the original schema supposed, and chronological correlation on the basis of the stratigraphy was found to be incorrect. This volume presents an elegant picture of the advancing silts and peats in the Fen Basin as a series of snap shot maps at different periods from the 6th millennium BC to the 12th century AD. Much of this is built up from borehole and survey data, and if we were to follow Merriman's plea¹¹ for work on the thousands of borehole records in existence with the object of producing sub-surface contours of the gravel, peats and alluvial deposits in the floodplain, we could perhaps match this picture of topographical change.

Nevertheless it is unlikely that the filling of the Fen Basin and that of the Thames Valley followed



Fig. 3: the Bronze Age trackway covered by peat and clays at Beckton 3D, excavated by the Passmore Edwards Museum Archaeology and Local History Centre. (Photograph courtesy of Frank Meddens)

identical lines and the landscape model for the fens probably cannot be followed. Certainly for a short period in prehistory it appears that the peat lands in the Thames valley were being colonised and exploited and the humification of some of these peats suggests complete drying out for a period prior to further inundation.

One might raise the question, are they, or can they exploit this floodplain environment at other times or is it permanently flooded during the deposition and formation of the silts and peats? Many of the archaeological sites identified in the Essex river estuaries lie in and are buried by silt/clays, suggesting that at least parts of this silt/clay sequence offer colonisation potential and not just the peats. This is certainly the picture upstream at Runnymede where the Bronze age occupation exploits the silt/clays of the floodplain.

The floodplain on a stable river system is normally formed by a combination of point bar, depositional deposits on the inner curve of a river channel, formation and overbank flooding¹². Although these authors believe overbank flooding to be less important than point bar formation their studies show that rivers in the USA and India have overbank floods on average once every year or two years, and that these deposits in measured examples of severe floods produced an average deposit over the whole floodplain of between 2.5 and 35mm (0.1 and 1.4in). The Thames was not a stable river during prehistory, and the continually rising sea level will have increased the level of seasonal flooding and probably lead to a greater contribution of fine sediment deposits to the floodplain.

One major question is therefore do the extensive silt/clay alluvial deposits in the London area, that are forming right up until the post-medieval period, comprise deposits produced by seasonal overbank flooding, daily tidal influences producing extensive areas of wetland, or fluvial sediments beneath a permanent body of slow moving water created by the river widening its channel over adjacent low lying areas as a result of the decrease in the river gradient? Or perhaps all three at different times during the depositional history of the area and different positions on the river system. We know in the middle Thames at Runnymede¹³

10. D. Hall and J. Coles *Fenland Survey* (1994) English Heritage.

11. *Op cit* fn 1.

12. M. G. Wolman and L. B. Leopold 'Floodplains' in G. H. Dury (ed) *Rivers and River Terraces* (1970) 166-196.

13. S. Needham 'Holocene alluviation and interstratified settlement evidence' in S. Needham and M. Macklin (eds.) *Archaeology under the Alluvium* (1992).

that neolithic and Bronze Age settlements are overlain with alluvium.

The present implicit model used by archaeologists is of a landscape more or less permanently underwater with episodes during which water shallows and fen communities and peat form. Except for a period in the Bronze Age, there is no room for occupation or pastoral use anywhere on the floodplain. The exploitation of fish, fowl and vegetation resources would be important, but except where islands of sand and gravel rise above the surrounding water or mires, much as the Fenland pattern, human activity would be limited.

The silt/clay deposits at Tilbury are interpreted by Devoy as having been laid down underwater in estuarine conditions, while those at Runnymede on the western limits of Greater London are likely to have been due to increased overbank flooding of a seasonal character, making occupation impracticable. What is the picture in between and can we see where the changes occur?

This is significant on two counts. It would effect the correlation of the peat horizons with the Tilbury IV regression. Secondly, the interpretation of the landscape and its use by prehistoric populations is significantly different depending upon the way these deposits develop. Seasonal overbank flooding would indicate seasonally damp riverside pastures available to pastoral farmers in the summer, and a more confined river system. A tidally influenced landscape, unlikely in the earlier periods, would comprise alder and fen carr and brackish water marshes, with many channels and streams across a muddy landscape; a model of the change from mudflats to woodland presented by Silvester for the Fens would make a good analogy¹⁴. This would be excellent for wildfowl and fish traps, but not exploitable agriculturally. It would make the main stream channel accessible only in certain places, for instance where creeks travel across the tidal marshes. The third option would indicate a very wide river channel covering much of the present floodplain with seasonal and some tidal changes in level and a much thinner or more patchy zone of marsh, fen/carr and alder carr along its edges. A model reminiscent of the early stages in the Fenland sequence¹⁵, but indicative of

14. R. J. Silvester *The Fenland Project 4: the Wissey embayment and the Fen Causeway*, Norfolk East Anglian Archaeology 52 (1991).

15. *Op cit* fn 10.

16. *Op cit* fn 1.

17. P. Marsden (ed) 'A late Saxon logboat from Clapton, London Borough of Hackney' *Int Journ Nautical Archaeol and Underwater Expl* 18.2 (1989) 89-111

an advancing peat horizon where deposition changes spatially with time and cannot be simply correlated horizontally or with a regression phase.

There are few clues to this at present. Sediments laid down under a permanent water body might be expected to show horizontal stratigraphy associated with minor changes in flow or sediment load, but none are generally visible to the eye, although gleying of the sediments since deposition could have removed this. The tidal option is unlikely to produce such uniform sediments, and sands would be expected in the sequence as a result of the higher energy environment. The occasional finds of hand axes in these clay sediments like those at Bricklayers Arms¹⁶, are seen as accidental losses from boats, but could they be dropped in a summer pasture and covered by later flooding? Finds such as the Saxon log boat at Clapton¹⁷ in alluvial deposits suggest one of the flooded options but such finds could as easily lie in channels or streams since silted up.

We are left with a number of areas in which we need to conduct studies and pose questions.

If we follow Merriman's recommendations¹⁸ and study the boreholes, we can build a stratigraphic model for the alluvium, contouring the surface of the underlying gravels, and illustrating the advance of silt/clay and peat deposits up the river valley. With existing radiocarbon dates and further selective investigation we should be able to place these changes within a chronological framework. In much the same way as the Fenland survey can now show us the distribution of sites of different periods in relation to their contemporary topographic development, the results of this work could be used to predict the likely location of archaeology beneath the floodplain as development in the East London corridor expands.

It is still not clear under what conditions the huge depths, sometimes many metres, of alluvial silt/clays form and whether these change throughout the course of the river.

The archaeological evidence beneath and within the floodplain falls into two groups. The landscapes buried under alluvium, such as the neolithic settlements at Runnymede and Brookway, Rainham¹⁹, and the Bronze Age field and cooking pit at Phoenix Wharf, Southwark²⁰. Secondly those with-

18. *Op cit* fn 1.

19. P. Greenwood and C. Maloney 'Excavation round-up: part 2' *London Archaeol* 7 no. 3 (1993) 77-83.

20. J. M. C. Bowsher 'A burnt mound at the Phoenix Wharf, South East London: a preliminary report' in M. A. Hodder and L. H. Barfield (eds) *Burnt mounds and hot stone technology* (1991) 11-19. Sandwell Metropolitan Borough Council.

Mosaic

Royal Commission move completed

BY THE TIME this issue is published, the Royal Commission on the Historic Monuments of England will have completed its relocation from central London to Swindon. Its new head office will be known as the National Monuments Record Centre (NMRC) and will be housed in the former Great Western Railway General Office: the postal address is: RCHME, National Monuments Record Centre, Kemble Drive, Swindon SN2 2GZ, tel. 0793 414700 (RCHME switchboard), 0793 414600 (NMR enquiries), fax 0793 414707 (RCHME), 0793 414606 (NMR). Tours of the NMRC, for individuals and groups, will be available from 4 July; they can be booked through the Commission's Information Officer, Jon Cannon, on 0793 414617.

This move brings the complete National Monuments Record – archaeology, buildings, air photographs and maritime sites – under one roof for the first time. The public search room in the nmrc will provide integrated access to: data on over 150,000 archaeological sites, three million historic buildings records and photographs, complete coverage of England in air photographs, and authoritative data on scheduled monuments and listed buildings. There is access for the disabled throughout the building, and free on-site parking.

As a service to London-based users the Commission will maintain an office in central London, where material relating to Greater London can be consulted. There will also be direct access to the NMRC in Swindon by computer, fax and telephone. Until new premises are found the London public search room will remain in Fortress House; the contact there is Sarah Brown, tel. 071 973 3091 or fax 071 494 3998.

Local museum on the line

WITH ALL THE fuss about the future of the Museum of London Archaeological Service and the Passmore Edwards Museum, the fate of some of our local museums may have been overlooked. One such museum is the Bourne Hall Museum in Ewell, just over the border in Surrey. Threatened by closure as an economy measure a few years ago, it was saved by a demonstration of local support and the setting-up of SEEMS (Support for Epsom and Ewell Museum Services). The museum now has a three-year programme, approved by the local Council, to improve its visibility and the service it offers to the local

in the alluvium, either silt/clays or peats, like the trackways of east London, the neolithic foreshore at Courages, Southwark, the Bronze age occupation at Runnymede or many of the sites in the Essex estuaries. What sort of floodplain was available for exploitation by the people at each of these sites?

An interpretation of the mechanisms by which these silt/clay sediments formed is therefore very important and we should perhaps move our attention from the exclusivity of the organic horizons, trackways notwithstanding, to a broader approach of the whole alluvial sequence.

All these sites are invisible to us without further work, and it is clear that, if nothing else, the

population. As well as obvious points, like improved signposting and a museum shop, there is a programme of travelling displays and increased contacts with local schools.

A collection of collections

THE LATEST exhibition at the Museum of London, *Carry on Collecting!* (see Diary) seeks to involve the public by displaying a total of 48 Londoners' collection: everything on display has been lent by the public. There are collections of cameras, keyrings, combs, through to police memorabilia and pulp novels, all showing a passion for collecting. There is an associated programme of talks, children's workshops and swapmeets. The exhibition is part of the *People's Show Festival 1994*, a nationwide event co-ordinated by Walsall Museum and Art Gallery.

Fashion in London's museums

THE LONDON Museums Service has just produced another leaflet in its series on London museums. *London's Museums on the Catwalk* describes a range of museums in London which contain collections of costumes. They range from Kensington Palace's Royal Ceremonial Dress collection to the Brent People gallery at the Grange Museum of Community History, where visitors get the chance to try on clothes. The leaflet is available free from tourist information centres, libraries, museums and arts venues throughout London.

Gallery changes at the Museum of London

STILL ON THE topic of fashion, a new display of 18th century costume and textile has opened at the Museum of London. Called *Calico Crazy*, it illustrates the London calico printing industry. A tableau of six figures are dressed in colourful printed fabrics from England and France, and exotic painted cottons from India. The display is enhanced by a table set for tea with 18th-century cups, saucers and silverware. An illustration of a calico printer's workshop, with fabrics being block-printed and pencilled, shows how men, women and children were employed in the production of dress and furnishing fabrics. Chinoiserie-style wall paper panels and a length of furnishing fabric, all printed in London in the 18th century, are displayed to highlight the links in design and technology between the wallpaper and calico printing industries.

The Prehistoric gallery has closed for redevelopment and will re-open in December.

borehole data need to be collated and mapped if a reasonable archaeological approach to this area is to be developed. In these days when archaeologists must work within a predictive framework to ensure that sites are picked up through evaluation an appreciation of the prehistoric landscape would be an important tool for recognising the potential of areas for archaeological evidence. At some time in the future it seems inevitable that a settlement site will be found buried beneath 2-3m (6-10ft) of alluvium and lying either on a buried ground surface of sands and gravels lying just above the contemporary floodplain, on a humified peat or wood peat, or in the clays themselves, let alone further trackways and riverside structures.