

New tales of old London: the lost Roman port, Shadwell, and other stories

David Bird

In one of Donna Leon's excellent Venice-set crime novels, the story of a rhinoceros (or elephant) that took refuge in the church of St Antonin draws this comment from Vianello: "Once it gets said, someone will believe it and repeat it, and then hundreds of years later, people are still repeating it".¹ A 'fact' of this sort, once established, can become the basis for further theories, as is well illustrated by James Shapiro's fascinating account of the development of the nonsensical idea that Shakespeare did not write any of the plays that bear his name.² It would be as well to stress at once that it is not intended to suggest that any of the theories discussed below should be seen in the same light. Hypotheses are an essential way of moving our subject forward, so long as they are based on the evidence. The argument here is merely that we must beware of allowing them to be treated as if they are established fact.

The recently published report on the excavation of Roman buildings at

Shadwell has drawn renewed attention to the theory that in the later Roman period the port of Roman London was moved downstream. For many this idea seems to have become fact, as in the report: 'Prior to these excavations at Shadwell the find of a very late group of imported samian pottery flagged up the area as a possible location for *the lost late Roman port* (Brigham 1990a, 160)' [author's italics].³ The reference is to a paper by Trevor Brigham about the waterfront of Roman London, in which he wrote: 'With the wharfs of *Londinium* decayed, the Lea would have been a logical place for unloading goods brought up the Thames and transhipping them for transportation overland, thus bypassing the need to navigate the long loop round the Isle of Dogs. If a transhipment point already existed in the area, so much the better. The presence of the latest group of samian yet discovered in Britain (AD 260) in the ditch of the signal tower at Shadwell may thus be explained; this site lay near the route linking

Londinium and the lower Lea valley.'⁴

From this it can be seen that Brigham did not mean to suggest Shadwell as his missing port. Moreover, the hypothesis of a downstream port itself remains open to challenge, as do the theories on which in part it rests. Brigham's suggestion was based on a thorough consideration of the evidence then available for the waterfront, from which he concluded that most of the wharfs went out of use around the middle of the 3rd century. This is linked to a postulated fall in river level and a movement down-river of the tidal head, which together with a supposed drop in trading activity and decline of London into an 'administrative village', led to the port being moved downstream.⁵

A close reading of the paper suggests that the decline of the port structures should not be taken as certain. In particular, if it is correct to argue that the river level fell in the later Roman period and rose again in post-Roman times, we would expect much of the upper surfaces of the wharfs to have rotted away and the upper levels to have been affected by erosion as the river returned. Interpretation of the later history of the wharfs seems to rely on pottery evidence, for example 'residual late-third and fourth-century pottery ... relatively abundant in the silts which postdate the structures'.⁶ Yet pottery of this date is all that one would expect to be present in this area until at least the late Saxon period. In the details supplied for coarse pottery from three separate sites, each of them has two phases with 'intrusive medieval sherds', which must raise questions.⁷ Even Brigham accepts some evidence for later use of wharfs, and it is hard to see why the use of flimsier structures cannot be postulated for the 4th century if it can for the 2nd ('the extended waterfront [of the early 2nd century] appears to have been retained by less substantial post-and-plank revetments. Only one structure of this phase has been recorded ...').⁸ Late-4th-century

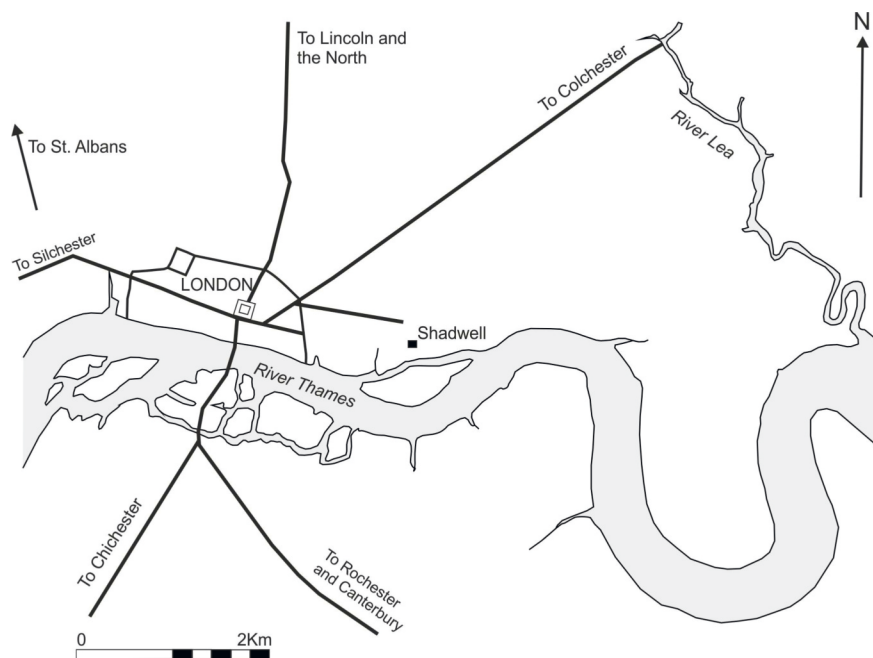


Fig. 1: location map to show the relationship between London, Shadwell and the Lea valley and the main routes from London. After Douglas et al op cit fn 3, fig 5, 5. Note that the cut-off channel running past Shadwell is postulated. (illustration: Alan Hall)

waterfront activity – described as ‘a positive revival’ – is recorded by Milne.⁹

It is sometimes suggested that the postulated decline of the wharfage and the building of the riverside wall are linked, but there is no reason to suppose that this is so. Harvey Sheldon has argued recently for a single wall building episode for the entire circuit of Roman London at some point between AD 255 and 275. He allows for access to inlets and wharfs in his discussion and suggests that some stretches of the riverside wall are best interpreted as a later build to fill gaps or replace damaged sections.¹⁰ Brigham suggests that the chosen line of the wall ‘enabled the wall’s builders to disturb the pattern of ownership as little as possible’.¹¹ This does not sound like a declining settlement, and being so close to the waterfront rather implies its continued use.

Brigham specifically relates the supposed decline of the port to a decline in trade and the transformation of later Roman London into an administration centre with a lower population.¹² These are two more theories that are often accepted as fact. Both seem to rest on a failure to understand that later Roman Britain was very different from its earlier manifestation. We can see changes in the landscape around London from around the middle of the Roman period, and there are marked changes in the rural coin pattern.¹³ Far too much of our understanding of trade rests on the study of pottery, and we have little way of assessing most other items. It is also the case that there has been far more damage to late Roman levels in London; sites like Drapers’ Gardens are helping to redress the balance.¹⁴ The image of later Roman London as large ‘urban villas’ isolated within large open areas around them is clearly flawed, and conjures up the famous Sorrell reconstruction drawings of Silchester based on the early excavations by the Society of Antiquaries where all the timber buildings are missing.¹⁵ In view of the difficulties we have in recognising Roman timber buildings throughout much of the South-East, including in the small towns around London,¹⁶ it should be accepted that this could be even more the case in the

later Roman city. It is much more likely that we are dealing with a greater differentiation between rich and poor, with crowded hovels round rich men’s houses (do the bankers come to mind?). In times of trouble the rural population is likely to have headed for the supposed safety of the City. In fact we can see plenty of evidence for continuing use of cemeteries, including on the outskirts of Southwark.¹⁷ The very large walled area around the City would have required a massive effort to construct and to man; an ‘administrative village’ does not fit the bill.

The degree to which the river level fell is clearly open to interpretation and the location of the tidal limit is not conclusively established.¹⁸ The importance of the incoming tide to sweep vessels right up to the City is stressed by Milne,¹⁹ but if the limit did indeed fall further down the Thames in the later Roman period it is possible that the problem was overcome without a new port. Both Brigham and Milne are satisfied that a deep channel continued to exist in the river, and even that it was reached by some of the later waterfronts.²⁰ That being the case, it seems likely that effort would have been made to find a way to continue to use the existing port with all its facilities, which is indeed hinted at by the substantial wharf construction in the mid-3rd century and the County Hall vessel (‘a modest sea-going merchantman’).²¹ A port on the Lea would have been of only limited use. This river seems to have had many wandering channels and there is little evidence that it was navigable for meaningful cargoes for any great distance in the Roman period.²² Such cargoes could in any case only serve a small area to the north; access to south and west would be best served by use of the Thames back to the established routes out of London (Fig. 1) and in that case all cargoes might as well go that way.²³

On the Continent there is good evidence for powerful bodies involved in river traffic – the well-known *nautae* in Paris and elsewhere for example.²⁴ It would be very surprising if there were no London equivalent. If there was a deep channel then there must have been plenty of expertise available to

find a solution so that at least smaller vessels of Blackfriars 1 type could continue to manoeuvre up to the port, even without the help of the tide. The Tiber is said to have had a strong current which was overcome by haulage from the banks, and there is evidence that similar methods were employed on other large rivers.²⁵ The nature of the riverside downstream from London probably rules out the use of a towpath, but, as Milne points out, passage of the Thames would probably have required detailed knowledge, and careful use, of the right channels.²⁶ For larger vessels to achieve this at any time it therefore seems possible that ‘tugs’ would have been used, to assist with the changes of direction and avoidance of sandbanks. There is some evidence for the use of ‘tug-boats’ in the harbour at Ostia, and the idea would hardly have been difficult to come by in a world used to galleys.²⁷ Under admittedly desperate circumstances, it seems that towing by boats was successfully used on the Tiber,²⁸ so perhaps it is not stretching matters too far to suggest that such a solution could have been used for the very much shorter stretch of the Thames beyond the point where the tide was providing assistance (if at Shadwell, a mere 1.2km). Milne suggests that large sea-going vessels offloaded London-bound cargoes at the coast – at Richborough seems most likely – and smaller coastal-type merchant vessels were then used, that probably would have had to moor in mid-stream at the City and use lighters even in the 1st century. It therefore seems that it should have been possible to achieve a modification of this system in the later period if there was a deep channel.²⁹

As noted above, the idea of a port at Shadwell appears to have grown in part on the somewhat shaky basis of a misunderstanding of Brigham’s downstream port theory. This idea seems to have been in the report authors’ minds from the start, and colours the interpretation, but if the evidence as presented is examined afresh a different picture readily emerges.³⁰ Brigham’s reference to Shadwell was specifically based on the samian, so it is worth stressing that the point about this late East Gaulish material is that it is an unusually large

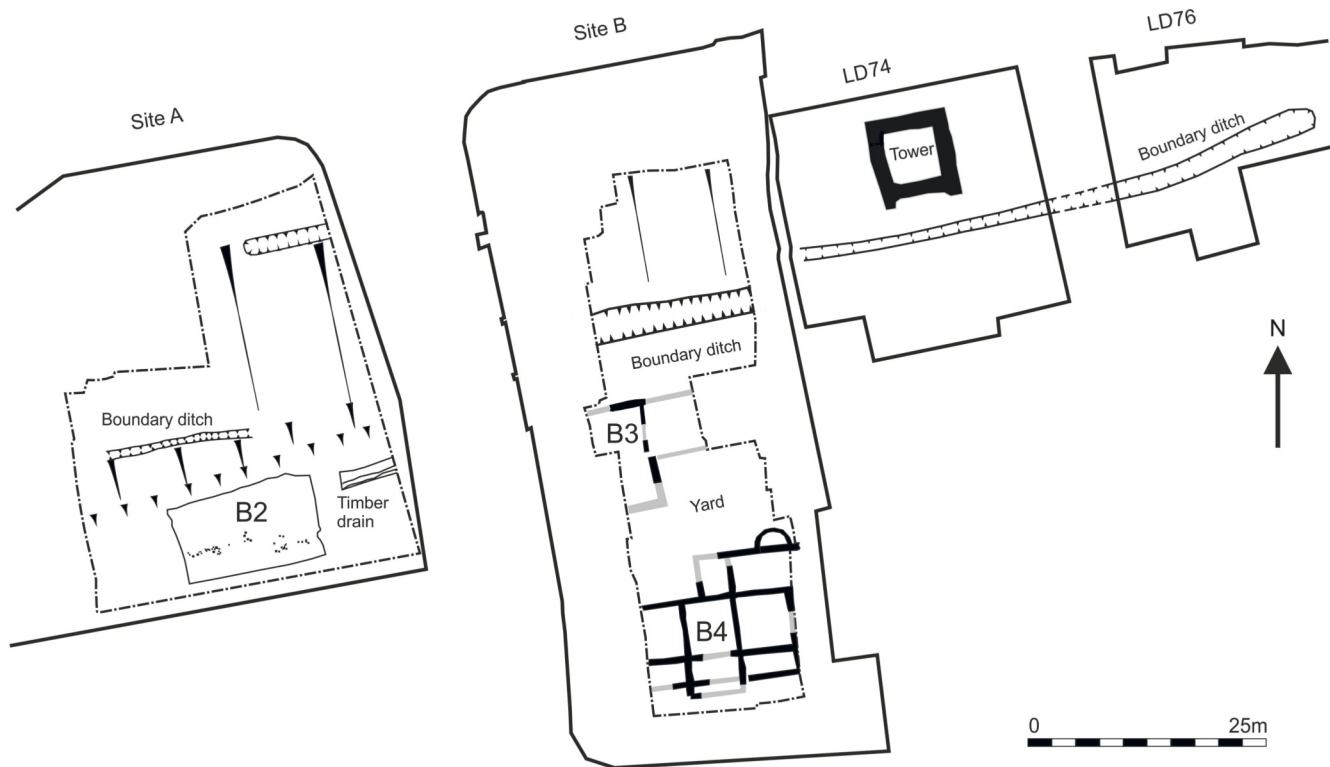


Fig. 2: simplified version of Shadwell site plan Period 3 showing location of buildings B2, B3, B4 (the bath house) and the 'tower'; the 'boundary ditch' was probably continuous across the site. After Douglas et al op cit fn 3, fig 9, 12-13 (and fig 38, 44-5) (illustration: Alan Hall)

late group *in itself*. Joanna Bird is also careful to stress that it shows signs of heavy wear through use; there is no reason to suppose that it is linked to trade in progress at a port.³¹ Thus the logic of the broadly contemporary unused late East Gaulish samian from the quay at New Fresh Wharf is that if the Shadwell samian implies location on a trade route, as Brigham suggests, then it was travelling *from* London, not the other way round.³²

The latest Shadwell report concerns two adjacent sites, Sites A and B, the latter the one with the now-famous bath house (Fig. 2). The excavation faced considerable difficulties, among them conditions on site in winter, truncation of evidence in various cases, and the need to leave the bath house *in situ*.³³ It is important therefore to recognise that the phasing is by no means certain, as the authors are careful to make clear.³⁴ The report usefully tries to integrate the information recovered from the previous excavations, the sites coded as LD 74 and 76,³⁵ but the sequence of phases as presented is very misleading in places, particularly for when the 'tower' was built and in use. It is simply not possible to date this feature with any degree of accuracy; even the later report itself at one point links the

'tower' (in the most unlikely guise of a *castellum aquae*) to the bath house – and therefore places it in use much later than the sequence suggests.³⁶

The early history of Sites A and B is characterised as 'a small, essentially rural, riverside community engaged in farming, fishing or boat-building' up to about the middle of the 3rd century.³⁷ Then broadly around AD 250 there was a 'dramatic rise in activity' marked by 'what appears to be the largest bath house constructed *de novo* during the late Roman period in Britain', and an unusual finds assemblage including the East Gaulish samian but also other imports such as Soller mortaria, glass and some unusual coins. This is evidently the logical time to place the construction of the odd 'tower'.³⁸ Although AD 230 is given as the start of Period 3, it is not possible to see from the discussion in the report why that is preferred and other evidence suggests that it should be somewhat later.³⁹ For example, 'the increased activity on Site A, represented by Building 2, is dated to AD 260 or later, broadly contemporary with the construction and use of the bath house Building 4 on Site B'; a match in ceramic building material between Sites A and B 'suggests that the development of the bath house and the

activity to the west were closely connected'. It is also noted that activity after AD 260 on sites LD 74 and 76 is 'contemporary activity in keeping with the development of a settlement at Shadwell'.⁴⁰

The presentation in the report obscures the fact that there seems to be no particular reason to date the end of Period 4 as late as AD 325, or for the bath house to have remained in use beyond the end of that Period. We may note first that the report accepts that the large 'boundary ditch' running clear across the site north of the bath house was probably filled around the end of the 3rd century. The nature of some of the material from the ditch implies a major episode of site clearance.⁴¹ Sites A and B also have good evidence consistent with a dramatic end to Period 4, at about this time. Two small coin groups, dating to around the end of the third century, although thought to be from later contexts, are both noted as coin types that quickly went out of circulation. On Site A there was dumping or accumulation of material over a building itself dated by pottery to AD 250–300. On the adjacent site, building B3 north of the bath house seems to have ended dramatically: 'a destruction layer rich in fragments of

charcoal and broken roof tile, perhaps suggesting that the building had suffered a fire'; collapsed wall plaster; and the whole sealed by 'dumped demolition debris up to 0.40m thick' including burnt daub. The only dating evidence mentioned for contexts associated with the last phase of this building is 'some third century pottery'. Evidence hinting at a contemporary 'destruction layer' which may have slumped down the slope later on was also noted on Site A; it 'contained frequent fragments of tile, chalk and burnt timber' and was 'particularly rich in small finds' including no less than 23 coins. 'The latest, a coin of Carausius, provides a date of AD 286-293'.⁴²

After the end of the 3rd century there is less evidence for buildings on either site and associated material suggests that they could be later than the AD 325 start for Period 5.1, especially on Site A, where, however, there seems to have been more activity than on Site B, implied by the comparative rise in pottery and coins.⁴³ It can be argued that Site B was now in decline. Building B3 was replaced by another building, but not necessarily quickly. The yard to its south was cut by several small rubbish pits and its 'new surface' of 'compacted silty clay and silty sandy gravel' sounds more like neglect.⁴⁴ There is nothing to show that the bath house continued in use, although this is claimed. The changes to the building that are placed in Period 5 cannot be tied chronologically to other features and can easily be placed in Period 4. The only fixed point seems to be that the latest bath house alterations must date after a short period of silting caused by flooding thought to be in Period 4.3, which allows them time enough to occur later in Period 4.⁴⁵ In Period 5 both Site A and LD74 have timber-lined tanks with drains or channels suggesting a return to activity similar to that occurring before the bath house episode. Although an attempt is made to claim these very varied tanks and channels for the bath house water supply, the original suggestion of some kind of 'industrial' use is much more convincing, especially as some of them almost certainly date to a period after the baths had gone out of use.⁴⁶

In the later periods the report notes that in terms of pottery supply 'there is

little to distinguish Shadwell from any other fourth century settlement in and around London', and 'coin loss in the fourth century looks similar to that exhibited by London sites'.⁴⁷ Thus the evidence in general is consistent with the dating as in the first Shadwell report, implying a dramatic change in the use of the site for the second half of the 3rd century. This included construction of the bath house and probably something special also happening on sites to the north (implied by the material from the ditch fills), associated in some way with the 'tower'.⁴⁸ This half-century episode all seems to have come to a sticky end around the end of the 3rd century. The nature of the finds and the fact of so large a bath house at this date strongly suggest an official and/or military involvement. Coin supply to the site offers some support: the pattern is extremely close to that for Reculver and also a reasonable match to Piercebridge.⁴⁹ The argument is not, as wrongly stated in the report, for 'a handful of soldiers stationed in a watch tower' but for a fleet base, perhaps even a headquarters. There is a lack of military finds but this is matched by lack of evidence for a port or indeed for bathing: 'the small finds assemblage does not on its own suggest that Sites A and B were a bathing establishment'.⁵⁰

The bath house at Shadwell is clearly unusual, but the idea that it was provided for a port comes uncomfortably close to the notion, anomalous for the Roman period, of baths for workers (pithead baths) that still surfaces from time to time. The idea that a 'dominant lord' provided migrant settlers fleeing the troubles on the Continent with the boon of a bath house seems no more likely. The only parallel offered is hardly valid, concerning as it does Syria in the late 5th century and a story whose whole point must be that the action is out of the ordinary.⁵¹ Suggestions that there was an associated brothel also seem over-enthusiastic, and it may be noted that the presence of women on later military sites is now taken for granted.⁵²

It remains most logical to see the unusual episode at Shadwell as related in some way to the period when we can see the beginnings of the reaction to threats of 'piracy', from about AD 250.

Those involved probably included elements of the Menapii. It is of course the classic Roman response to recruit from those with the necessary skills and we may note that Carausius was a Menapian.⁵³ The early Shore Forts are obviously sited to protect the approaches to the most important inlets cutting into the East coast, especially Reculver and Brancaster. At Shadwell we may be looking in part at an arrangement to afford protection for London, before the construction of its wall, and a link to Reculver thus makes perfect sense.⁵⁴

Finally, it is worth noting in this context the fragment of an inscription on a white marble slab found at Shadwell. It is explained as most likely to come from a funerary monument, but it is very reminiscent of the well-known finds from the Winchester Palace site in thickness and appearance. The inscriptions there name soldiers and are accepted as indicating a military involvement with the site (perhaps associated with the provincial administration). This might remind us that the main bath-house at Winchester Palace seems to have been built towards the middle of the 3rd century and been demolished around the end of that century. There are Carausian coins from the site. Nearby finds include bone hair pins that are dismissed from being related to use at the bath house on the grounds that they would be inappropriate on a military site, but as we have seen this was probably no longer the case by this date.⁵⁵

The site at Shadwell remains enigmatic. Further discoveries may yet demonstrate that it was a late port but at present that is not proven, nor is it the most likely explanation of the evidence, and the theory of a downstream port itself should continue to be regarded as just that, a theory.⁵⁶

David Bird was Surrey County Archaeologist for many years. His Manchester PhD was on Roman gold-mining in North-West Spain and he has always maintained an interest in the Roman period. Since his retirement he has been chairman of the Roman Studies Group of Surrey Archaeological Society, which currently has major projects in progress at several sites in Surrey. He is the author of various articles and of Roman Surrey (2004).

1. D. Leon *Drawing Conclusions* (pbk ed 2012) 73–4.
2. J. Shapiro *Contested Will. Who wrote Shakespeare?* (2010) esp 38–64. Part of the argument rests on the way that the doubters have often made the incorrect assumption 'that what makes people who they are now made them who they were back in Shakespeare's day [when] even the meaning of key concepts, such as what constitutes an 'individual' weren't the same' (*ibid* 306–9). This might be of interest to anyone researching the current obsession with personal 'identity' in the past.
3. A. Douglas, J. Gerrard and B. Suds *A Roman settlement and bath house at Shadwell: excavations at Tobacco Dock and Babe Ruth restaurant, The Highway, London Pre-Construct Archaeology Monogr 12*. Shadwell Excavations I (2011) 4.
4. T. Brigham 'The later Roman waterfront in London' *Britannia 21* (1990) 99–183 (see 160).
5. *Op cit* fn 4, esp 158–160.
6. *Op cit* fn 4, 139. It should also be noted that the relevant excavations usually had to be undertaken in difficult circumstances.
7. *Op cit* fn 4, 182–3. The possibility of *medieval* removal of obstructions is apparently not considered in the discussion on 142.
8. *Op cit* fn 4, 129 and 139–140; quotation from 135.
9. G. Milne *The port of Roman London* (1985) 33.
10. H. Sheldon 'Enclosing Londinium: The Roman Landward and Riverside Walls' *Trans London Middx Archaeol Soc 61* (2010) 227–235 (esp 233).
11. *Op cit* fn 4, 140.
12. *Op cit* fn 4, esp 158–60.
13. See for example D.G. Bird 'The environs of Londinium: roads, roadside settlements and the countryside' in I. Haynes, H. Sheldon and L. Hannigan (eds) *London Under Ground. The archaeology of a city* (2000) 165. Information from finds recorded by the Portable Antiquities Scheme strongly suggests a decline in rural coin use in the South-East as compared to the South-West from the later 3rd century (*pers comm*. S. Moorhead and P. Walton).
14. N. Hawkins 'New evidence of Roman settlement along the Walbrook: excavations at Drapers' Gardens' *London Archaeol 12.6* (2009) 153–60 (esp 157–8); B. Barber and D. Bowsher *The eastern cemetery of Roman London. Excavations 1983-1990* MoLAS Monogr 4 (2000) 306 make the point that 'strata of the 3rd and 4th centuries are often lacking on sites within the City of London'.
15. R. Jessup *Age by age* (1967) 45.
16. *Op cit* fn 13, 159.
17. B. Barber and J. Hall 'Digging up the people of Roman London: interpreting evidence from Roman London's cemeteries' in Haynes et al *op cit* fn 13, 102–120; see also H. Sheldon, 'Roman Southwark' in Haynes et al *op cit* fn 13, 121–150 (esp 144–5 where the idea of late decline to a bridgehead is challenged). Barber and Bowsher *op cit* fn 14, 304 and 307 stress that the east London cemetery 'offers no evidence of a decline in the contributing population in the 4th century', even though the authors were well aware of the 'urban village' theory. A rather desperate attempt to explain this away by postulating bodies brought in from the countryside (D. Perring *Roman London* (1991) 123) has understandably received little support.
18. *Op cit* fn 4, 145–9 and fig 12, 133.
19. *Op cit* fn 9, 86.
20. *Op cit* fn 4, 159; *op cit* fn 9, 85 and 98.
21. *Op cit* fn 4, 159; *Op cit* fn 9, 98.
22. See A. Fairman 'A military man in the Lea valley' *London Archaeol 13.1* (2011) 9–14 (esp 9) for a good impression of what the Lea valley was probably like until the mid-19th century. Note that the Hadham kilns that supposedly sent pottery to London via the Lea supplied little of Shadwell's pottery: *op cit* fn 3, 62.
23. G. Milne, R.W. Batterbee, V. Straker and B. Yule 'The River Thames in London in the mid first century AD' *Trans London Middx Archaeol Soc 34* (1983) 19–30 (see 28) stress how Southwark's topography dictated where the bridge had to be and therefore where the northern settlement was placed.
24. See for example François de Izarra *Hommes et fleuves en Gaule romaine* (1993) esp 173–190.
25. *Op cit* fn 24 and R. Meiggs *Roman Ostia* (2nd ed 1973) 289–91.
26. *Op cit* fn 9, 100.
27. Meiggs *op cit* fn 25, 297–8. If large Tudor ocean-going vessels could be routinely towed by small boats on the open sea, as in the Armada campaign (G. Mattingly *The defeat of the Spanish Armada* (1959) 262–4), then managing much smaller vessels up a river in this way would hardly be impossible.
28. Meiggs *op cit* fn 25, 290.
29. *Op cit* fn 23, 29; *op cit* fn 9, 98 and 102.
30. In what follows the opportunity is taken to expand, with references, on some comments previously made in a review of *op cit* fn 3 (D. Bird *Trans London Middx Archaeol Soc 62*, 2011, 290–1), but repetition will be avoided where possible.
31. J. Bird 'The samian' in *op cit* fn 3, 71–4 (see 73).
32. *Op cit* fn 4, 160; J. Bird, 'Samian wares' in L. Miller, J. Schofield and M. Rhodes *The Roman quay at St Magnus House, London. Excavations at New Fresh Wharf, Lower Thames Street, London 1974-78* London Middx Archaeol Soc Spec Paper 8 (1986) 139–85 (esp 139 and 147). A suggestion that the New Fresh Wharf material was a ritual deposit (A. Rogers 'Re-imagining Roman ports and harbours: the port of Roman London and waterfront archaeology' *Oxford J Archaeol 30.2* (2011) 207–25) has little to commend it but still highlights the very distinctive nature of the finds.
33. *Op cit* fn 3, 16, 87, and see fig 4, 4. Period 4 deposits (dated up to AD 325) included 12 coins dated after AD 330; the text notes 'the complexities of excavating brickearth structures and their associated deposits in difficult conditions' (*ibid* 87).
34. Note for example 'the detailed phasing presented here might give an impression of a higher degree of precision in dating than the evidence can actually support'; also 'it becomes obvious that the quantities of stratified pottery by period are actually fairly small ... the validity of any conclusions drawn from the data must remain tentative' (*op cit* fn 3, 40 and 61–2).
35. D. Lakin with F. Seeley, J. Bird, K. Reilly and C. Ainsley *The Roman tower at Shadwell, London: a reappraisal* MoLAS Archaeol Stud Ser 8 (2002).
36. *Op cit* fn 3, fig 6, 6; 152. Bird's quoted comment is misunderstood as it was a reaction to the suggestion of a 'water tower'. A *castellum aquae* is not a water tower but a tank at the end of the aqueduct supplying a major town where the water supply is diverted into separate channels for different uses throughout the town. The possibility that such a structure ever existed at Shadwell must be remote.
37. *Op cit* fn 3, 13.
38. *Op cit* fn 3, 13 and 99. For discussion see D. Bird "The rest to some faint meaning make pretence, but Shadwell never deviates into sense" (further speculation about the Shadwell 'tower') in J. Clark, J. Cotton, J. Hall, R. Sherris and H. Swain (eds) *Londinium and beyond. Essays on Roman London and its hinterland for Harvey Sheldon* CBA Res Rep 156 (2008) 96–101 (esp 99–101).
39. *Op cit* fn 3, 23.
40. *Op cit* fn 3, 23. See also 26, where the bath house is dated from c AD 240, and 16, where its initial construction is 'likely to date from about the mid-third century'.
41. *Op cit* fn 3, 65; *op cit* fn 38, 101.
42. *Op cit* fn 3: coin groups, 53; 86–7; Site A dumping, 43; B3 destruction layer, 38; wall plaster, 39; demolition debris including burnt daub, 48; last phase B3 dating, 40; Site A destruction layer, 49.
43. *Op cit* fn 3, 62, table 1.
44. *Op cit* fn 3, 47.
45. 'Neither the Period 4.2 remodelling of the bath house nor the subsequent flooding and disuse episode can be related directly to the chronological sequence recorded elsewhere on Sites A and B in Period 4'; the 'disuse deposits ... are probably indicative of a short period of failed maintenance and possible disuse' (*op cit* fn 3, 43 and 45).
46. *Op cit* fn 3, 45 (note the very unconvincing bent arrow on fig 38) and 27; 51; 54; 152; for similar early features on Site A note timber piles for a possible tank dated by dendrochronology to AD 228 (15) and a timber-lined channel heading away from the bath house (12). There is also a box drain south of the bath house on Site B which is dated by dendrochronology to AD 235–262 but is placed in period 5 of AD 325–375 (47; 127). For industrial use see *op cit* fn 35, 22–3.
47. *Op cit* fn 3, 85 and 91.
48. *Op cit* fn 38, 100.
49. J. Gerrard 'Roman coins' in *op cit* fn 3, 86–91 (fig 77, 90). The argument that this would need Shadwell to have existed in an 'economic bubble' (*ibid*, 91), does not take account of coin supply (see comments by R. Reece 'Coins' in M. Fulford and S. Rippon, *Pevensey Castle, Sussex. Excavations in the Roman fort and medieval keep 1993-95* Wessex Archaeol Rep 26 (2011) 60–2. The other significant finds include more than the East Gaulish samian (contra J. Gerrard 'Discussion' in *op cit* fn 3, 83–6 (esp 83–4)) but even for that it may be noted that although of course its distribution might be affected by location it still appears to be the case that the sites that received more of the material tend to be official and/or military (including centres such as Colchester that by this date are likely to have had some of these functions; see J. Bird '3rd century samian ware in Britain' *J Roman Pottery Stud 6* (1993) 1–14).
50. *Op cit* fn 3, xiii, 92 and 101; the 'impression that most of the site's waste was disposed of off site' (82) might also be noted. For 'handful of soldiers' see *ibid*, 152, citing *op cit* fn 38, 100 but not following the argument on that page.
51. Baths for workers: K. Boyce 'The implications of isolated bath-houses in the Roman Cray valley' *London Archaeol 11.10* (2007) 260–4 (the nearby Chelsham site in Surrey (not cited in the paper) offers clear evidence for an 'isolated' bath house that was some distance from its villa (J. Hampton 'Chelsham, a 'new' Roman villa' *Surrey Archaeol Collect 83* (1996) 244), and there are other examples in the vicinity); 'dominant lord', etc: *op cit* fn 3, 86; 169–71.
52. Brothel: *op cit* fn 3, 102–3 and 171. For female finds on later military sites see discussion and references in *op cit* fn 38, 100, to which can be added hair pins from the Dover Saxon Shore fort (B. Philp *The discovery and excavation of the Roman Shore-fort at Dover* (2012); see also below for Winchester Palace). It does not seem necessary to place the gold jewellery as being in use after about AD 300; close dating of such objects is difficult because they are inevitably rare. The earring came from a 'Building 7 posthole B[717]' or, rather confusingly, 'was retrieved from ... B[383], pitting over Building 7'. Either way it is clearly residual, and the gold and bead necklace came from a post-medieval context: *op cit* fn 3, 53 and 94.
53. D.J.P. Mason *Roman Britain and the Roman navy* (2003) 163–8.
54. A. Pearson *The Roman shore forts. Coastal defences of southern Britain* (2002) 53–4; on his map of early-3rd-century coastal installations note also Oudenburg opposite Reculver, which has pottery comparable to that at Shadwell: S. Vanhoutte, W. Dhaeze and W. De Clercq 'The pottery consumption c. AD 260–70 at the Roman coastal defence fort, Oudenburg, northern Gaul' *J Roman Pottery Stud 14* (2009) 95–141.
55. Shadwell inscription: R. Tomlin 'Inscription' in *op cit* fn 3, 118 (note that the dating is based on the funerary interpretation); Winchester Palace: B. Yule *A prestigious Roman building complex on the Southwark waterfront. Excavations at Winchester Palace, London, 1983-90*, MoLAS Monogr 23 (see 62–3; 69–72; 75–7; 155); note that M.W.C. Hassall and R.S.O. Tomlin 'Roman Britain in 1984: II. Inscriptions' *Britannia 16* (1985) 317–32 give just 3rd not early 3rd century for the inscriptions (see 317–22).
56. I am grateful to Alan Hall for providing the illustrations and Joanna Bird for information and for her comments on the draft text.