**Town planning from Falerii to Isurium: understanding and enhancing the archaeological evidence**

**by Martin Millett**

This paper seeks to contribute to the project on the Impact of the Ancient City by offering some thoughts on the contribution of archaeology to the understanding of ancient town planning. Issues concerning the later reception of ideas of the Classical town planning are entangled with perceived understandings of ancient planning, and these in turn are a product of the evidence itself and how it has been understood. As explored in other contributions, such perceptions are varied and have been influenced by scholars’ presumptions as well as their reading of different strands of the ancient evidence. My contribution has little to add these already nuanced debates. Instead, it seeks to explore two related themes. First, how (sometimes rather simplistic) past perceptions have influenced the construction of the archaeological evidence on which historians, geographers and town planners have then relied. Second, how new methods can provide a better evidence base which might enable us to understand the principles of Roman town planning rather better. In considering some results from such work, I also want to argue for a more three-dimensional viewing of town plans. In this discussion, I will draw on evidence from both Italy and Britain, with particular reference to sites at which I have undertaken archaeological work: I hope that this does not appear too self-referential.

**Presumption and evidence**

In the context of archaeological research, it is important to appreciate the distinction between what has actually been found (by excavation or other means) and what those presenting that evidence have inferred about it. In an important paper in 1994 Ray Laurence explored the relationship between ancient town planning (the title of Frances Haverfield’s book of 1913) and the idealization of regular grids in the context of the early twentieth century town planning movement. This discussion brought into focus some of the ways that ideas of grid planning were then associated with ideas of civilization and modernity, showing how these ideas impinged on pervading understandings of the Roman city. Laurence’s particular focus on the influence of the planned street grid on archaeological thinking is certainly very helpful, but it perhaps results in some downplaying of the longer history of grid-based thinking which, as we shall see, continues to today. To take one early example, writing about the northern Romano-British town of *Isurium Brigantum* (Aldborough, North Yorkshire) in 1736 the antiquarian Francis Drake (1696–1771) reconstructed its plan as rectangular with a perfect grid cross-roads at its centre (Fig. 1) - (Drake 1736, opposite p. 22). His plan was based partly on empirical observation of the town walls, but otherwise on his presumptions about the proper planning of a Roman town. This illustrates very straightforwardly how deeply entrenched the idea of the grid plan was in early thinking about Roman towns, and may be paralleled with other examples of early Antiquarian thinking during the Enlightenment. In Italy, for instance the plans of the individual buildings excavated at Ocriculum and planned by Giuseppe Pannini between 1775 and 1783 seem to be accurate in detail, but when included in an overall plan were largely presented as within a formal grid (Fig. 2) despite the extremely uneven topography of the site (Guattani 1784; Hay *et al*. 2013, 13–20).

 It is important to appreciate that the influence of presumptions about grid planning are widespread and of continuing influence. This is partly a result of the nature of the archaeological evidence available for most Roman urban sites, very few of which have been very extensively excavated. In a majority of cases, the excavated archaeological evidence for them is highly fragmentary, usually resulting from piecemeal excavation of small areas, often over very long periods of time. This can be exacerbated by the difficulties in accurately surveying excavated remains in a restricted urban context which means that putting together composite plans is challenging and can often rely on assumptions about the regularity of plans. Comparatively complete urban plans like those of Pompeii in Italy or Silchester in Britain are very unusual, although these scarce examples naturally figure very prominently in the more general literature. Faced with a fragmentary record, archaeologists inevitably try to reconstruct the overall picture, placing the known bits of buildings and streets into a rational framework – which is based on their general understandings and presumptions. In seeking to create some order out of the apparent chaos of such evidence, I suspect that pragmatic considerations are generally more important than the ideology that Ray Laurence discussed, especially as excavators often project out from the evidence that they have of streets and building set at right angles to each other, following the assumption that grid planning was the norm.

 A brief examination of the evidence of one of the more extensively explored Romano-British town can be used to illustrate this process. Verulamium (St Albans) in Hertfordshire has been the subject of a series of major campaigns of excavation over the last century (as well as significant earlier work – Niblett and Thompson 2005, 44–47). The first major campaign led by Mortimer and Tessa Verney Wheeler from 1930–33 was characteristic in its ambition and scope, opening a number of trenches to explore the parkland area in the southern part of the Roman town on the basis of which they provided a bold and coherent historical narrative (Wheeler and Wheeler 1936). The Wheelers’ account included a reconstruction of the town plan, largely as a grid, based on their trenches, with the streets boldly projected (Fig. 3A). Twenty or so years later S.S. Frere led a further series of excavations in the town (1955–61), exploring more central areas largely in connection with a road construction scheme, which thus provided something of a transect through the Roman town (Frere 1972; 1983; 1984). Frere’s archaeological approach was more systematic than the Wheelers but his focus was also upon historical narrative, and in this connection he too produced a synthetic town plan in which known streets were projected to complete a coherent grid system (Fig. 3 B). It is notable too how Frere also provided some chronological depth, with a careful attempt to develop a phased plan, in a discussion that also critiqued the Wheelers’ methods and results (Frere 1983, 1). Following Frere’s work, there was little large-scale excavation within the Roman town although a number of smaller scale interventions resulted from development work, although the main focus of these lay on the margins of the town itself, outside the area of the street grid reconstructed by Frere. More recently, as part of a national project to map historic towns in order to better protect their archaeology, a comprehensive re-evaluation of Verulamium was completed in 2005 (Niblett and Thompson 2005). In this study, all past archaeological investigations were carefully re-mapped and re-evaluated to provide a reliable modern plan. This revealed both the full extent of knowledge based on past excavations (Niblett and Thompson 2005, fig. 4.6) and also the extent to which previous reconstructions of the town plan had “ironed-out” irregularities thereby making the Roman plan appear more regular than it was, effectively idealising the gridded elements. Niblett’s careful analysis of the evidence also allowed her to provide a new phased plan of the town’s development (Fig. 4) which not only suggests a more piecemeal and gradual development of the plan, but also reveals planning principles that complement the more obvious street grid. John Creighton (2006, 124–30) has developed a new reading of this evidence, relating the early development to a system of processional routes that linked the urban centre with an invasion-period princely burial and later temple (at Folly Lane). His account of the town plan places its development within a more complex understanding of the landscape and its historical evolution. It does not remove the street grid altogether, but it does show how it formed part of an ideological evolution of the urban community which owed as much to local tradition as to imperial imposition. Most recently Kris Lockyear has returned to the area excavated by the Wheelers to conduct large-scale geophysical surveys (Lockyear and Shlasko 2016). The preliminary publication of this work suggests that when fully analysed it will add further to the detail of our understanding of this part of the town.

 This brief account of the ways in which presumption and evidence have altered our reading of one particular site should not be taken simply as an historical lesson, with the reader looking back at the perceived inadequacies of previous generations or regretting the limitations of their evidence. The same issues of interpretation continue to be important, especially in the wish to create regularly gridded plans, and this is not just in areas where the evidence remains slight. For instance, London (Londinium) is amongst the most extensively excavated of Roman cities as a result of developer-funded work since the 1970s (Hingley 2018, 1–2). In terms of the early development of Roman provincial urban planning, the site is of especial interest because not long after its foundation in the late 40s AD, the settlement was largely destroyed by fire in the Boudican revolt of AD 60/61. The ability to distinguish deposits of this date makes it possible to understand the early development of a town in unusual detail. The opportunity to do this has been taken-up by Lacey Wallace who carefully analysed the excavated data to produce a plan of the city in AD60/61 based on the excavated evidence which is very careful to distinguish between direct evidence and hypothesis (Wallace 2014, fig. 37). What this seems to show (Fig. 5) is that the earliest settlement combined an element of rectilinear planning with pragmatic integration of the varied approach routes. It is difficult to distinguish in this between the functional consequences of building rectangular timber buildings which tend to fit best into a grid system, and any ideological underpinning which led to the use of a grid (cf. Rijkwert 1976, 72 ff.). In the case of early London, the balance would seem to be towards the latter, at least in the context of the area around the bridgehead where the Thames crossing not only intersects orthogonally with the main east-west street (Cornhill Road 1), but this intersection also provides the site for a public building (Wallace 2014, 88–91). Wallace’s careful analysis of the excavated evidence may be compared with another recent reconstruction of the city’s plan at this date (Perring 2011; 2015). Perring’s approach is based on the assumption (carefully deconstructed by Wallace 2013), that the early city followed on from the establishment of an invasion-period fort which determined its topography. This led him to reconstruct a full and regular grid plan established by *c.* AD 55 with a series of entirely regular streets within a grid that is largely hypothetical (Fig. 6). This approach, which is apparently resistant to Wallace’s evidence-base critique (Perring 2015, 22–23), illustrates how the approach discussed by Ray Laurence is not simply part of the history of the discipline, but still pervades some contemporary analyses (cf. Hingley 2018, 25–35). One could certainly cite other examples, especially in areas where the archaeological evidence of plans is less good and hence presumption is arguably more important and even necessary.

**Improving the evidence**

Although, as the London example shows, approaching a better understanding of Roman town planning does not entirely rely on the quality of the evidence, there is equally little doubt that by improving our evidence we have a better chance of arriving at sound conclusions. A fundamental issue with archaeology remains that excavated evidence is almost entirely fragmentary and can only generally reveal a very small sample of very large sites like towns, albeit at high resolution. Although there are a few sites where large scale clearance may perhaps provide wider coverage, usually at the cost of lower resolution, excavation is arguably always going to provide evidence on a constrained scale, and hence significant scope for the influence of presumption. As I have long argued, geophysical survey provides a solution to gaps in our evidence, as long as we recognise that it provides lower resolution information than excavation that is also different in character (Millett 2013). That is emphatically not to say that it is either less reliable or less useful than excavated evidence, simply that it has different strengths and weaknesses. Its greatest strength undoubtedly lies in the ability to survey complete towns as shown in the context of the Tiber valley (Keay and Millett 2016) and Potenza valley (Vermeulen *et al.* 2017) surveys, and this is particularly significant in the context of the present discussion. Although such surveys do not in themselves provide direct evidence for the chronology of a site’s planning, current projects are showing how sound chronological models can be developed through the careful analysis of the results integrating a range of other evidence, as illustrated at the conference by Alessandro Launaro’s analysis of Interamna Lirenas (Launaro and Millett in prep.).

 For more than 20 years, the principal geophysical survey method used for the study of whole towns has been magnetometry (generally using fluxgate gradiometers), largely because of the speed and reliability of the method (Gaffney *et al.* 2002). Occasionally, electrical resistance survey has also been used successfully on a large scale (eg. Rodriguez Hidalgo *et al*. 1999) although it is slower and requires particular ground conditions if it is to work well. More recently, Ground Penetrating Radar (GPR) has been further developed for use on a large-scale, allowing whole towns to be examined (Neubauer *et al*. 2013). The value of GPR, in contrast with magnetometry, is that it provides evidence differentiated by depth, so that it is possible to map the remains of structures with something approximating to 3-dimensional imagery. Of particular significance in this context, the recent development of very high resolution GPR, collecting data at 6.25cm intervals across whole cities is producing spectacular images of whole urban sites. This work has been pioneered by Lieven Verdonck at Falerii Novi (Verdonck *et al.* 2020) and Interamna Lirenas (Verdonck in Launaro and Millett in prep) in Italy (Fig. 7). Such survey work potentially provides a new foundation for the examination of Roman urban planning, drawing on a much broader range of complete town plans than is currently available. Although it is too soon to provide details of the results from the current GPR surveys, some aspects of the broader potential of geophysical survey data in relation to issues of Roman town planning can be illustrated through three examples.

***Falerii Novi***

The city of Falerii Novi, founded by Rome after the suppression of the Faliscan revolt in 241 B.C., was the subject of a large scale magnetometry survey in 1997-98, with further work examining its northern extra-mural area in 2002–08 (Keay *et al.* 2000; Hay *et al*. 2010). It has subsequently been the subject of a complete high resolution GPR survey. Analysis of the results of this work are still in progress but a preliminary report together with an on-line time-slice presentation of the overall results has been published (Verdonck *et al.* 2020). An analysis of the results of the magnetometry survey led to a suggested model for the development of the town plan (Millett 2007). This sequence is summarized in Fig. 8 although we may note that Andrew Wallace Hadrill (2013) has offered an alternative sequence (see below).

 This sequence proposed in the original report on the magnetometry and developed by Millett (2007) suggests that the town was originally laid out on a grid plan focused on the intersection of the via Amerina originating in Rome with an east–west road. Despite the general view that Falerii was not a colonial foundation, there is evidence that the primary grid was laid divided between property units of two sizes, *c.* 60m x 20m and *c.* 30m x 40m(Millett 2007, 73–74) comparable to the scheme seen at Cosa (Fentress 2003, 13–62). It may also be noted that although the grid is oriented cardinally, the main axis of its layout is the east–west street, not that coming from Rome to the south. At the highest point on the site, just north of the West Gate (the “Porta di Giove”) there is evidence for the construction of a major south-facing temple, arguably a Capitolium, although this lay *c.* 200m to the west of the limit of the primary street grid.

 In the following phase it is suggested that a town wall was constructed to surround the gridded area and to include the potential Capitolium within what is effectively a sub-triangular circuit. The wall also enclosed a street that ran around three sides of the primary grid, connecting down into the valley of the Purgatorio stream that runs in a ravine along the southern flank of the town. As access to the stream, via two small north–south valleys, was maintained through the provision of gates through the walls, it must be concluded that this street existed before the walls were built, or less likely, contemporaneously. A topographic survey of the town shows that the position of the walls was enhanced, either at the time of their construction, or a little later, by the quarrying of rock right up to the external face of the wall. On the northern side of the town, the ground was cut back to be roughly level, creating the illusion of a raised citadel, whilst along the southern side, the natural cliff of the stream valley also seems locally to have been enhanced. At a later stage, the street grid was extended to the south and west within the walls.

 Andrew Wallace-Hadrill’s alternative interpretation of the sequence (2013) is based on the idea that the *pomerium* of the town would have been defined at its foundation, before the laying out of the grid (Rykvert 1976). Assuming that the town wall follows the line of the *pomerium*, he therefore argues that the wall predates the grid, suggesting principles on which the layout of the walls was derived.

 Whatever the sequence of grid and walls, the other feature of the plan that deserves comment is the distribution of temples within the town. It has already been noted that a possible Capitolium lies on the highest point of the site, outside the primary street grid. The gradiometry survey located a series of four further temples, each also facing south, sited around the course of irregular street that surrounds the primary grid. To these may be added a fifth temple on the same street which lies beneath the medieval church, whilst the GPR results have revealed what may be a further religious building facing this street just to the east of the North Gate (Verdonck *et al.* 2020, fig. 4, no. 6). Aside from one at the east end of the *forum*, the only other temple, also identified in the GPR survey, lies immediately to the west of the South Gate (this one facing east) (Verdonck *et al.* 2020, fig. 4, no. 2).

 As well as illustrating the potential of geophysics survey for elucidating a town plan, the evidence from Falerii also prompts a series of thoughts about the place of the street grid in the context of this particular urban landscape. First, it is notable that the grid itself (which is well evidenced), is arguably culturally symbolic, representing a Roman (or at least Mediterranean) tradition of *de novo* urban foundation. However, it is counterbalanced by two other significant features, partly religious, but also cultural and political. The street that runs around three sides of the primary grid must surely have been a processional route, whilst its connection with the Purgatorio stream which connects Falerii Novi directly to sanctuaries at the Falerii Veteres, its predecessor of settlement. This valley floor route seems to that described by Ovid (*Am*. 13.5–6), and if this is correct, it would suggest that this was an overt expression of a continuing Faliscan identity (Millett 2007, 78–81). The idea that Falerii Novi was deliberately recreating aspects of its Faliscan predecessor is reinforced both by the plan of the walled town, and also the way that the rock was cut back by quarrying to emphasise the cliffs and set the town physically above its surroundings, since both features appear to emulate the situation at Falerii Veteres. If this reading of the evidence is correct, then the town’s planning in its early stages was not simply about a grid, whether functional or symbolic, but rather about how this cultural feature was interpreted and integrated with other important cultural symbols and practices.

 Finally, in the context of Falerii, it is important to reflect upon the nature of the landscape topography more generally. Even allowing for its modification by quarrying, the urban planners’ use of its siting was clearly of great importance. The east–west axis of the town was laid out along a ridge, with the *forum* on a slight saddle, and the highest points beside the town’s west and east gates. The land fell away gently to a plateau to the north, and similarly to the south up to the cliff edge of the deeply incised valley of the rio Purgatorio. These cliffs were used for the construction of tombs cut into the rock face. The approach to the town from Rome to the south along the via Amerina followed a straight route across the plateau with a series of bridges built to cross the various streams that cut deeply across the landscape (Fredericksen and Ward-Perkins 1957, 97–104). On the immediate approach to Falerii, the road gradually ramps down in a rock cutting that provides an even gradient as the road approaches the bridge which is set partway down in the deep valley (*ibid*., 102. As a result travellers will gradually have had the landscape hidden from then as they moved into the cutting, and would then have passed through an opening in the cliff face as they passed onto the bridge. Looking forward and upwards, they will have seen the walls and south gate towering above them, whilst glancing to either side, they will have been confronted with the façades of the rock cut tombs of great Faliscan families. Only as they climbed on, up through the South Gate will they have been able to see the town set on the ridge with its regular layout, and only as they reached ridge top and the central cross-roads will they have been able to see into the *forum* or to appreciate the regular form of the town’s grid plan.

 Viewed in this way the first impression would surely have been of Faliscan tradition and the skill of the road and wall engineers, not the monotonous regularity of the grid planner. I leave it to the reader to place a value on the significance of the street grid in this context.

***Ocriculum***

Not far from Falerii, at km 69 on the via Flaminia lies Ocriculum, one of the other sites where we first experimented with the use of magnetometry to map the Roman town. If the results from the geophysical survey Falerii were spectacularly good, those from Ocriculum were initially profoundly disappointing, especially considering both the spectacular monuments recorded in the 18th century (Guattani 1984; Fig. 2) and the impressive collection of sculpture from the site in museums, especially in the Vatican (Pietrangeli 1978, 105–55). Furthermore, the topography of the site, which lies on and around a spur overlooking the Tiber below the modern village of Otricoli, is exceedingly confusing to the present day visitor. Nevertheless, a sustained programme of survey on the site which combined geophysical survey with careful topographic recording including a detailed contour survey provides key new insights into the process of urban planning (Hay *et al*. 2013).

 Ocriculum occupies a key strategic location on the via Flaminia, and hence played a significant role at various stages in the history of Rome (Hay *et al*. 2013, 1–11). It was also an important river harbour, forming an important economic node connecting the inland areas of Umbria with Rome and the Mediterranean (Hay *et al*. 2013, 10). The traditional account of the site’s history identifies hilltop *enceinte* under the hilltop village at Otricoli as the local Umbrian centre occupied at the time of the alliance between Rome and the Umbrians in 308 BC, with the settlement transferring to its new location beside the Tiber in the late Republic (Hay *et al.* 2013, 5–10). Whatever the history of the hilltop settlement, our survey clearly showed that the spur overlooking the Tiber beneath the Roman town was occupied by a significant settlement from the 8th century BC onwards, probably with an earthwork defence of slight later date (Hay *et al*. 2013, 141–43). It was this settlement that was linked to Rome by the via Flaminia when it was constructed at the end of the 3rd century BC, with the Roman town subsequently developing here and expanding to cover the whole of the ridge, with structures eventually extending beyond the edges of the ridge on artificial platforms supported by huge concrete vaults. The evidence available shows that this town was rather irregularly laid out along the ridge, with an organic plan that followed the constraints of the natural topography. There were two stages of subsequent replanning. The first, probably in the later first century BC/early first century AD, involved some regularization of building on part of the ridge, arguably with the imposition of a small gridded area around the *forum*, theatre and a large temple (the terrace of which is represented by the ‘Grandi Sostruzioni’) (Fig. 9) . If this did encompass a grid, as seems likely, it covered only a limited area to one side of the via Flaminia, and may be best understood as an extended *forum* complex. Later, in the second decade of the second century AD, the stream valley to the south of the ridge was blocked with a revetment wall, and the whole of the valley to the east infilled to create a bath complex, and presumably to provide an adjacent public square (Fig. 10). This massive engineering project (which included underground cisterns, fed by the buried canalised stream) completely changed the urban topography, although there is no evidence to suggest that the structures placed on it were orthogonally planned.

 Clearly, this small urban community, although evidently prosperous, was little concerned with formal urban planning of the sort present in the early phase at Falerii Novi. It is tempting to dismiss this as a lack of planning, but it is again worth thinking about how the city will have appeared to those approaching such a well-established urban centre from Rome, whether by road or river. Approaching along the via Flaminia, travellers would have climbed the slope from the Tiber floodplain onto the river terrace where a flat and straight stretch of the road was flanked by large funerary monuments that commemorated the town’s ancestors, although from this perspective the urban centre would have remained largely hidden. The road then curved down and to the left into a valley where the town’s amphitheatre was tucked below the terrace edge on the left. As they descended and the road curved further round to the left, the façade of the amphitheatre would have towered high above them dominating the approach. At this point, the valley in front opened out to reveal the flank of the ridge on which the town centre lay. In the earlier Imperial period, the view will have been of the whole slope with the temple podium, theatre and other major structures looking down on the visitor. After the infilling of the valley, the view will have been less awe inspiring, but with a grand bath-house façade in the foreground to the left of the road. Finally, travellers will have climbed the slope onto the ridge which was later partially cut through to ease the gradient, with terraced structures rising up the ridge top to their right and the *forum* and temple precinct opening off to their left, whilst in front they would have had a view down onto the Tiber where we assume the wharves were located.

 For the visitor travelling up the Tiber, the position of the town on a spur overlooking the river meant that it would have been visible from a much greater distance. The crowded ridge edge with buildings set on artificial platforms will have gradually become clearer, but it will only have been as they passed the mouth of the stream valley to the south of the ridge that they would have gained a full view of the major monuments and theatre, and in the later Roman period, the massive retaining wall blocking that valley. The boat would then have followed the river around the tip of the spur to pass close below the towering structures on the north side of the ridge as they approached the quays.

 As in the case of Falerii, the dominant theme of this urban planning provided a theatricality of views, both those exposed and those initially hidden. This involved a clever manipulation of landscape and townscape, which in this case had little to do with orthogonal relationships between buildings and much more to do with the individual buildings and their siting – much in the same way as was the case in Rome itself.

***Isurium Brigantum***

Far away in northern Britain, a not dissimilar pattern can be discerned in the town founded as the *civitas* capital of the Brigantes soon after the conquest of this part of Britain around AD 70. Here we have completed a restudy of the site, combining large-scale magnetometry and selective GPR survey with a thorough re-evaluation of the plentiful antiquarian sources, producing a new understanding of the town’s history (Ferraby and Millett 2020).

 There is no evidence for any indigenous centre of power having been located here before the arrival of Rome, with the evidence suggesting that the site was first occupied soon after the conquest, probably developing as a trading centre linked to the provisioning of the army. In the last decades of the first century, this grew to a substantial size, probably a result of its position at the point where the Roman road from York lay close to the highest navigable point on the river Ure. This location seems also to have become the loading point for lead and silver mined in the Pennine hills nearby (Ferraby and Millett 2020, 99–100). This settlement was radically replanned around about AD 120, probably at some stage after a decision had been taken to use Isurium as the administrative centre for the *civitas* that covered much of northern Britain in the hinterland of the Roman frontier. The replanning, which resulted in the development of an urban centre covering 21 ha, was closely linked with the development of the Roman road system linking York to Hadrian’s Wall (Fig. 11). The road was realigned away from a crossing point just to the west of Aldborough, with the construction of a new bridge to the north of the town. This was linked to the planning of the town, with the intersection between the new road to the north and the earlier route from York being placed centrally in front of the *forum* which was constructed at the same time. The northern half of the planned town was laid-out on a street grid on the more or less level ground, whilst the *forum* was built on a terrace cut into the north-facing slope on which the southern half of the town was constructed. Three further terraces seem to have been cut into the slope above, allowing the orthogonal layout of the town to continue up the slope, although details of the Roman street layout in this part of the town are less clear. The town subsequently developed with the construction of later second century urban defences (which were symmetrically placed with respect to the *forum*) and the growth of substantial extra-mural settlement especially along the routes to York and towards Hadrian’s Wall.

 In terms of town planning, the first impression might be of the straightforward imposition of a standard Roman urban model based on the street grid, but as with the sites already discussed in Italy this is only part of the story which is somewhat more subtle. It is first worth noting how the urban plan both used and manipulated the natural landscape. In this first place, the design took advantage of the distinction between the level ground towards the river at the north, and the contrasting hill to the south, with the original route from York passing along the foot of this slope. As the town developed the terracing in the southern part of the town came to be occupied by a series of substantial town-houses some of which were certainly designed to take advantage of the view and visibility from a distance created by the terracing. Similar architectural considerations seem to have applied to the *forum* and *basilica*, especially if we are correct in our conclusion that the latter was set on a terrace above and behind the *forum*. This contrasts with the array of more modest and lower profile buildings that seem to have occupied the northern half of the town. This arrangement would have meant that the town would have had an impressive aspect to the visitor travelling southwards from Hadrian’s Wall, visible across the river as they approached the bridge, then looming up on them as they approached further. This impression would have been enhanced by the use of bright light coloured limestone and contrasting red tile in the construction of the *forum.*

 This architectural panorama was surely deliberate, and this makes the contrast with other approaches to the town all the more striking, for the town was hidden from view to those approaching either from the south or from the east. In the former case, the buildings and the town wall were both set below the ridge top and would have been entirely hidden on approach until the traveller had reached the hill top when they would have looked down onto the town (or on to the town wall after the mid second century). Although surprising, this approach to the town appears comparatively insignificant, and so may not be important. The same cannot be said of the approach from the east, along the principal route from York and the south of the province. Here, as at Ocriculum, the traveller would have encountered a major series of funerary monuments which lined the road as they approached the town. Looking north-westwards towards the river Ure the low profile of the northern part of the town will gradually have come into view, but to looking to the south-west a natural ridge will have obscured the view of the town until they were within half a kilometre or so of the East Gate when the town wall and larger buildings rising above it will have come into view. This surely indicates careful architectural planning which will have been obvious to the viewer. This conclusion is reinforced by the contrasting location of the amphitheatre which was placed on the highest point in the locality, just outside the south-east corner of the town. As such it will have stood out as a visible beacon to those approaching from the north, east or south. (It may be noted in passing, that such high visibility, which contrasts markedly with that of Ocriculum, can be paralleled in Britain by the siting of the Richborough amphitheatre – Wilmott 2008, 121).

**Concluding thoughts**

I trust that these examples illustrate a series of points. First, although archaeologists are limited in what they can say about the overall planning of urban sites, it is important to remain aware of the problems of balancing presumptions about what ‘must have been’ with what the evidence actually shows. Even where a master plan did exist, it will rarely have been executed as anticipated, so we should be extremely wary of reconstructed and idealised grid plans of sites. Where we have good evidence, the details of town plans are commonly untidy and it is rarely possible to be certain about the underlying ideals. It is equally important to note that the rectangularity of most Roman buildings meant that it was often easiest to fit them into an orthogonal layout even if that did not form part of any urban ideal. Hence, when we witness the replanning of parts of existing centres (as on the ridge at Ocriculum) we need to be careful not to assume that we are seeing the imposition of a grand design.

 Second, where we do see the imposition of a gridded plan (as at both Falerii and Isurium) it is important both to look at this in three-dimensions, not just as a two-dimensional plan, and also to see the grid plan in its broader context. When we try to understand how an urban centre will have appeared we can begin to contextualise the grid, and see that although functional, it was often not the principal architectural feature of the townscape. Furthermore, as first demonstrated in John Creighton’s analysis of Verulamium (2006, 124–30), there is increasing evidence that processional use was of great significance in structuring urban spaces. In instances where we have good evidence (which can be increasingly provided by large scale geophysical survey) the identification of such routes can add significantly to our appreciation of Roman urban landscapes.

 Finally, it is important to emphasise that although geophysical survey has the potential to provide important new large-scale information and high resolution information about Roman town plans, the data collected requires still interpretation like any other form of evidence. Its understanding this thus as susceptible to our preconceptions as any other archaeological information. In that sense, as with excavated sites, we need to develop and maintain a critical self-awareness in approaching its interpretation and use.

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Captions:

Fig. 1 The plan of Isurium Brigantum (Aldborough, Yorkshire, UK) published in Drake 1736.

Fig. 2 The plan of Ocriculum (Otricoli, Umbria, Italy) by Giuseppe Pannini, published in Guattani 1784.

Fig. 3A The plan of Verulamium (St Alans, Hertfordshire, UK) published in Wheeler and Wheeler 1936. (needs permission from Society of Antiquaries)

Fig. 3B The plan of Verulamium (St Alans, Hertfordshire, UK) published in Frere 1983. (needs permission from Society of Antiquaries

Fig. 4 The plan of Verulamium (St Alans, Hertfordshire, UK) published in Niblett and Thompson 2005, showing the extent of excavation in relation to the reconstructed town plan. (needs permission from ?Oxbow/?authors)

Fig. 5 The plan of Londinium (London, UK) *c.* AD 60 published by Wallace 2014, showing the extent of excavation in relation to the reconstructed town plan. (needs permission from author/CUP)

Fig. 6 The plan of Londinium 55 (London, UK) *c.* AD published by Perring 2015. (needs permission from Roman Society)

Fig. 7 Overall plan of Falerii Novi (Lazio, Italy) showing the results of the GPR survey at an estimated depth of 0.80–0.85m. (Aerial photograph: Google Earth, image by Lieven Verdonck). (our project copyright)

Fig. 8 Proposed phasing of the plan of Falerii Novi (Lazio, Italy). (Image by Paul Johnson). (our project copyright)

Fig. 9 Plan of Ocriculum (Otricoli, Umbria, Italy) in the early Imperial period based on survey, published by Hay *et al.* 2013. (Image by Lacey Wallace). (our project copyright, check with BSR)

Fig. 10 Plan of Ocriculum (Otricoli, Umbria, Italy) in the mid- to late-Imperial period based on survey, published by Hay *et al.* 2013. (Image by Lacey Wallace). (our project copyright, check with BSR)

Fig. 11 Phase plans of Isurium Brigantum (Aldborough, Yorkshire, UK) based on survey. (Image by Rose Ferraby) (our project copyright) [needs some slight additions]